**The Decline in Food Stamp Program Participation in the 1990's**. By Parke Wilde, Peggy Cook, Craig Gundersen, Mark Nord, and Laura Tiehen, U.S. Department of Agriculture, Economic Research Service, Food and Rural Economics Division, Food Assistance and Nutrition Research Report No. 7.

## Abstract

The Food Stamp Program saw an unprecedented decline in participation from 27.5 million participants in 1994 to 18.2 million participants in 1999. A strong economy and changes in social welfare programs drove this change. An econometric model with State-level data calculated that 35 percent of the caseload decline from 1994 to 1998 was associated with changing economic conditions and 12 percent with program reform and political variables. Household-level data from the Current Population Survey lead to the conclusion that 28 percent of the total change in participation was associated with a decrease in the number of people with low income (below 130 percent of the poverty line) and 55 percent was due to a decline in the proportion of low-income people who participate.

**Keywords:** Food Stamp Program, welfare reform, economic conditions, caseload dynamics.

## Acknowledgments

The authors thank Margaret Andrews, James Blaylock, Steve Carlson, Jenny Genser, Philip Gleason, Robert Greenstein, Chris Hamilton, Julie Hudson, Jonathan Jacobson, Robert Kornfeld, Michael LeBlanc, Vic Oliveira, Peter Orszag, Nuria Rodriguez-Planas, Dottie Rosenbaum, Leslie Whitener, Diane Whitmore, Sheila Zedlewski, and James Ziliak for valuable input on an earlier manuscript. James Ziliak and David Figlio (along with Craig Gundersen) developed and estimated the model for the State-level analysis. We are grateful to Jane Allshouse for the figures and to Dale Simms for excellent editing and production.

Washington, DC 20005-4788 June 2000

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# Summary

The Food Stamp Program is the largest Federal food assistance program and a mainstay of the Federal safety net. Almost $16 billion was paid out in food stamp benefits in 1999, with an average monthly benefit of $72 per person. From 1994 to 1999, the program saw an unprecedented decline in participation. Average monthly participation in the program peaked at 27.5 million people in 1994 and fell to 18.2 million people in 1999.

A strong economy and changes in social welfare programs both contributed to the decline. Lower unemployment and lower poverty reduced the number of people eligible to participate in the Food Stamp Program, and they may have reduced the proportion of eligible people who participate. The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 instituted major changes at the national level. Among other changes, it restricted the eligibility of legal immigrants and able-bodied adults without dependents. It also restructured the cash welfare system in ways that may reduce participation in the Food Stamp Program.

This report examines the drop in participation through two empirical analyses. The first analysis, using an econometric model with State-level data from 1994 to 1998, finds that 35 percent of the caseload decline was associated with changing economic conditions and 12 percent with changing program reform variables and political variables. As is typical with such models, a large share (in this case, more than half) of the participation changes cannot be explained by either group of variables.

The second analysis, using household-level data from the Current Population Survey from 1994 to 1998, finds that 28 percent of the change in participation was associated with a decrease in the number of people with annual income below 130 percent of the poverty line. Another 55 percent of the total change was due to a decline in the proportion of these low-income people who participate in the Food Stamp Program. This decline in the proportion of low-income people who participate may be due to economic conditions or program changes or both. This pattern corroborates other evidence that a large number of low-income families are disappearing from the food stamp rolls. Nonparticipation by seemingly eligible families could be due to their own choices under favorable macroeconomic conditions, or it could be due to new barriers — intended or unintended — that these families face under welfare reform.

Economic conditions and program changes have different implications for predicting program participation in the future. If economic conditions are mostly responsible for the recent decline, participation should rebound in the event of a future recession. By contrast, if program changes are responsible for the decline, then participation should remain low so long as current policies are maintained.

# The Decline in Food Stamp Program Participation in the 1990's

## Introduction

From 1994 to 1999, the Food Stamp Program (FSP) experienced an unprecedented decline in participation. Most of this decline took place from 1996 to 1998. Average monthly participation peaked at 27.5 million people in 1994, or 10.5 percent of all Americans.[1] Participation fell to 19.8 million in 1998, or 7.3 percent of all Americans, then to 18.2 million people in 1999, or 6.6 percent of all Americans.[2]

A strong economy and changes in social welfare programs are driving this change:

- From 1994 to 1998, unemployment and poverty both fell substantially, reducing the number of people who are eligible to participate in the Food Stamp Program. These conditions may have also reduced the proportion of eligible people who participate, as the benefits of participating may be smaller when the economy is strong.[3]
- The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) instituted major changes in social welfare programs at the national level. States had already implemented some of the same policies under waivers from the Federal program regulations. The 1996 law has both direct and indirect consequences for the Food Stamp Program. The major direct consequence is that it restricts the eligibility for the FSP of many legal immigrants and able-bodied adults without dependents. Its major indirect consequence is that it restructures the cash welfare system in ways that may reduce FSP participation.

The drop in FSP participation has proven difficult to interpret, not because it is surprising but because it is "overdetermined." The strong economy and program changes could each plausibly have accounted for some participation change, but economic conditions and program changes have different implications for FSP participation trends in the future. In particular, if economic conditions are mostly responsible for the decline, then participation should rebound in the event of a recession. But if program changes are responsible, then participation should remain low so long as current policies are maintained.

This report draws together information from diverse data sources and analytic methods to explain the drop in FSP participation from 1994 to 1998. It begins with background on the Food Stamp Program, a historical overview of participation changes since 1980, and a review of empirical research on these changes. It then offers two complementary approaches to measuring the effect of economic and program factors on declining participation. The first approach is an econometric analysis of State-level panel data, following a methodology used in several studies of cash welfare program participation (CEA, 1997; CEA, 1999; Figlio and

[1] In this report, program "participation" refers to the number of participants and program "caseload" refers to the number of cases. Each administrative case contains one or more persons. Some authors reserve the word "participation" to mean the ratio of participants to eligible people.

[2] Average monthly participation data for 1999 became available in early 2000, and are reported here, but other 1999 variables used in the empirical analyses are not yet available. The main empirical sections of this report therefore use data through 1998.

[3] The number of people who are eligible for the program is lower when economic conditions are favorable, because low income is a key criterion for program eligibility. The proportion of eligible people who participate may be lower when economic conditions are favorable, because the benefit level falls as the potential participant's cash income increases. Potential participants with comparatively high income, near the cutoff point for eligibility, may find that program participation is not worth the pecuniary costs (such as transportation expenses) and nonpecuniary costs (such as time and stigma) of joining.

Ziliak, 1999) and in one study of Food Stamp Program participation using data only through 1996 (Wallace and Blank, 1999). The second approach uses national household-level data from the Current Population Survey (CPS). Although the CPS data do not report program participation as precisely as administrative data, the CPS data permit a useful decomposition showing approximately how much of the total decline in participation is due to increased income versus lower participation among people who remain low-income.

## Background on the Food Stamp Program

### Program Structure

The Food Stamp Program is the largest Federal food assistance program and a mainstay of the Federal safety net. Over $16.9 billion was paid out in food stamp benefits in 1998, with an average monthly benefit of $71 per person for 19.8 million people.

The program enables people with low income to obtain a nutritionally adequate diet. The benefits, in the form of either coupons or Electronic Benefit Transfer (EBT) payments, may be used to purchase food and nonalcoholic beverages in authorized stores. Stores are then reimbursed by the Federal Government for the full value of the food. The Food Stamp Program is administered by the States in accordance with Federal regulations, and most administrative expenses are shared equally by the State and the Federal governments.

To qualify, a household without an aged or disabled member must have gross income less than 130 percent of the official poverty guideline. The household must also have "net" income (gross income minus a standard deduction, a deduction for certain housing expenses, a deduction for a share of any income earned in the labor market, and other deductions) less than the poverty line. Finally, with some exceptions, the household must meet asset limits of $2,000 for most households or $3,000 for households with a member over 60. Ownership of a house does not count toward these limits, but in most cases an automobile valued above $4,650 does. The details of FSP eligibility determination appear on the web site for the Food and Nutrition Service, the Federal agency that oversees food assistance programs (USDA, 1999a). As of October 1998, a family of four required gross monthly income less than $1,783 to qualify for the Food Stamp Program.

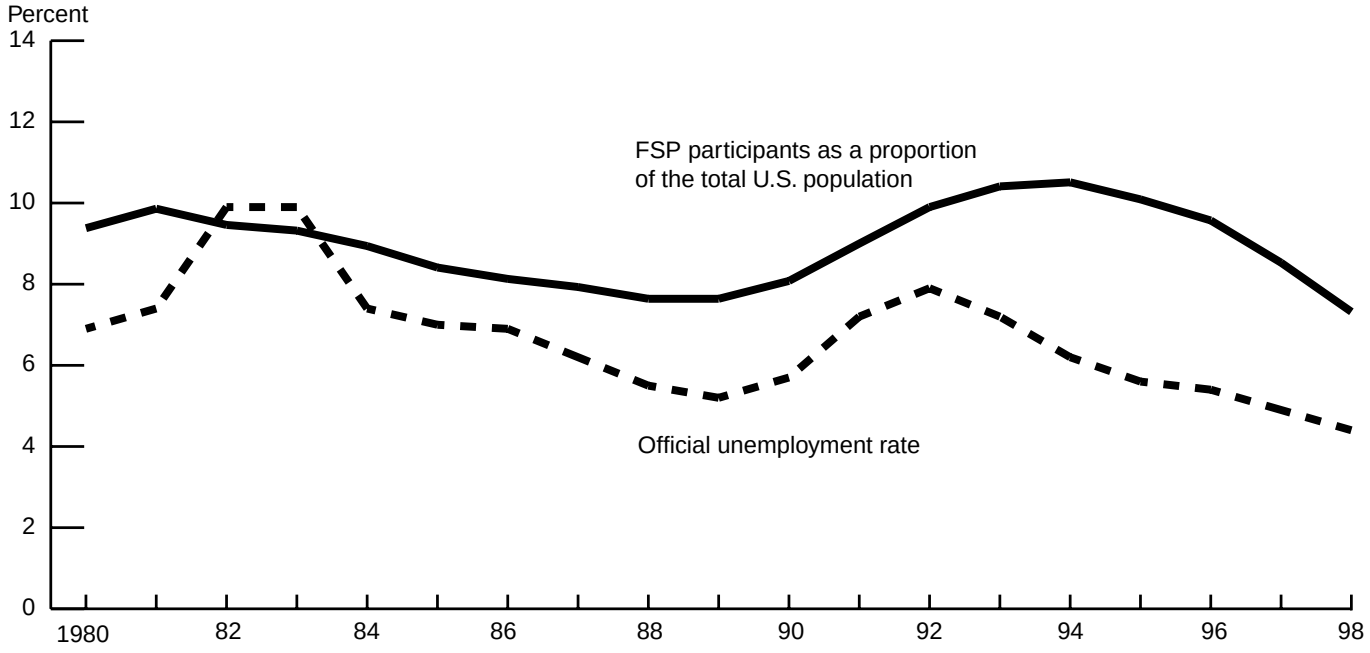
The benefit level is based on an assumption that a household will contribute 30 percent of its countable income toward food purchases. The Federal Government determines each year the expenditure required to purchase a bundle of goods defined in the "Thrifty Food Plan" for a family of four. Maximum allotments for other household sizes are adjusted to account for economies of scale in the purchase and preparation of food. Eligible households with no net income, after the deductions mentioned above, receive the maximum benefit. Households with some net income receive the maximum benefit minus 30 percent of their net income (USDA, 1999a). As of October 1998, an eligible family of four with no net income would receive $419 each month in food stamp benefits.

### Characteristics of Food Stamp Participants in 1998

Many food stamp participants have incomes far below the official poverty guideline. In 1998, based on data from the Food and Nutrition Service's Food Stamp Quality Control Data, about 38 percent of participant households had annual income below 50 percent of poverty, and another 53 percent had annual income between 50 and 100 percent of poverty. Fewer than 10 percent of participant households had income between 100 and 130 percent of the poverty guideline (USDA, 1999b).

Children make up a large part of program participants, just as they do Americans in poverty. Fifty-eight percent of participant households included children in 1998. Of these households, two-thirds were single-parent families, 15 percent were headed by married parents, and 6 percent had no reported adult member over age 17. Single-parent households, which had an average size of 3.1 persons, received a mean monthly food stamp benefit of $228. Married-couple households with children, with an average size of 4.6 persons, received $273 (USDA, 1999b).

Figure 1
**FSP participants as a proportion of the U.S. population, and the unemployment rate, 1980-98**




Source: Food and Nutrition Service, U.S. Department of Agriculture, and Bureau of Labor Statistics, U.S. Department of Labor.

# Program Participation in Historical Perspective: 1980-98

## Macroeconomic Conditions

To understand the contribution of economic conditions to recent FSP declines, we review how participation has varied with economic conditions in the past. The State-level and household-level analyses to follow each rely on an earlier comparison period in order to make sense of the participation changes from 1994 to 1998. This section describes the link between FSP participation and two of the most relevant macroeconomic variables, unemployment and poverty.

Figure 1 compares mean annual participation as a proportion of the U.S. population with the official unemployment rate from 1980 to 1998. The official unemployment rate is defined as the number of unemployed persons (who are seeking work), divided by the number of people in the labor force (who are either working or seeking work).[4] Two substantial recessions, in 1981-1982 and 1990-1991 (each followed by a period of economic growth), show up as the two peaks in unemployment rates (fig. 1).

FSP participation and unemployment show a positive correlation over some periods; both indicators fell during the economic growth of the middle and late 1980's, and both rose during the recession of the early 1990's. However, the indicators sometimes diverge. In the early 1980's, program participation was already declining by the time unemployment peaked. In the early 1990's, program participation continued to rise for 2 years after the recession had ended and unemployment had begun to fall.

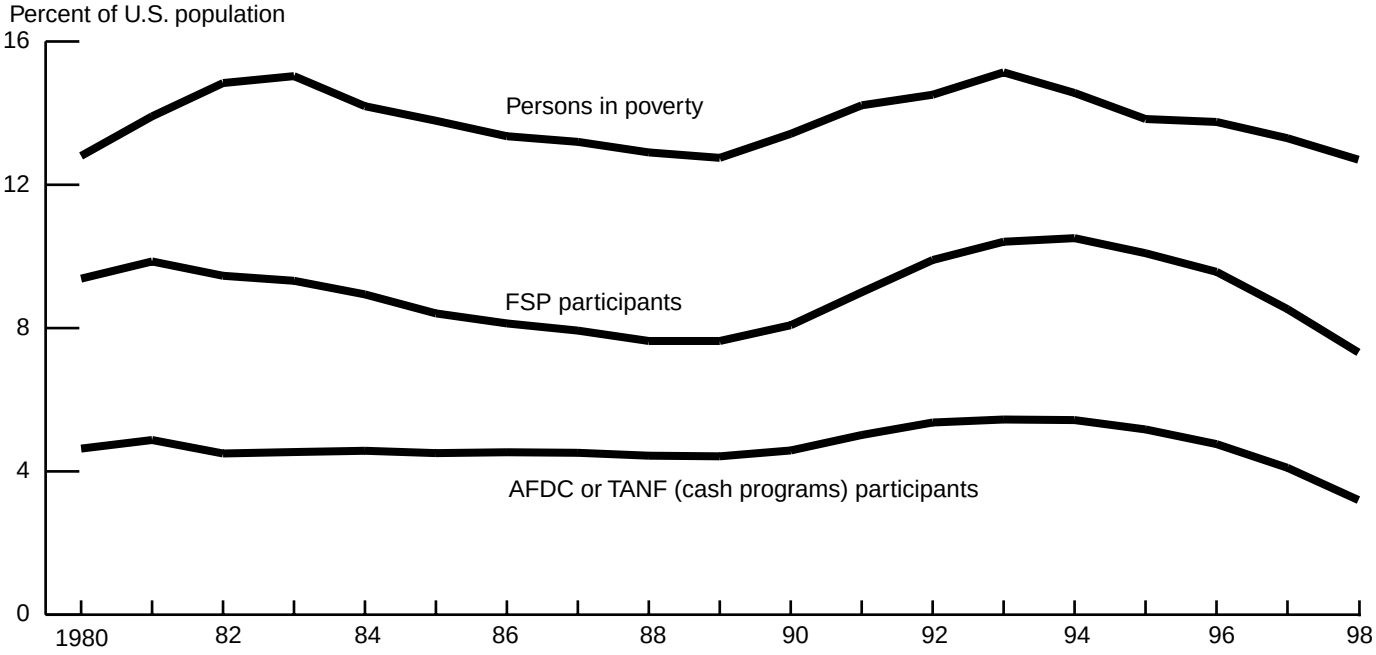
Figure 2 compares mean annual Food Stamp Program participation to the number of poor people, where both variables are expressed as a proportion of the U.S. population. These two variables are related, of course, because low income is one of the criteria for food stamp eligibility.[5]

[4] The denominators of the two variables are different, so a comparison of their nominal levels is not informative.

[5] Some poor people are not eligible for food stamps and some people who are nearly but not quite poor may be eligible for food stamps. The poverty variable is used in this simple illustration, because it is well known and reflects the same general trends found in more careful estimates of the number of eligibles, such as by Castner and Cody (1999).

Figure 2

**FSP participants, persons in poverty, and AFDC/TANF participants as a proportion of the U.S. population, 1980-98**




Source: Food and Nutrition Service, U.S. Department of Agriculture, U.S. Bureau of the Census, and U.S. Department of Health and Human Services.

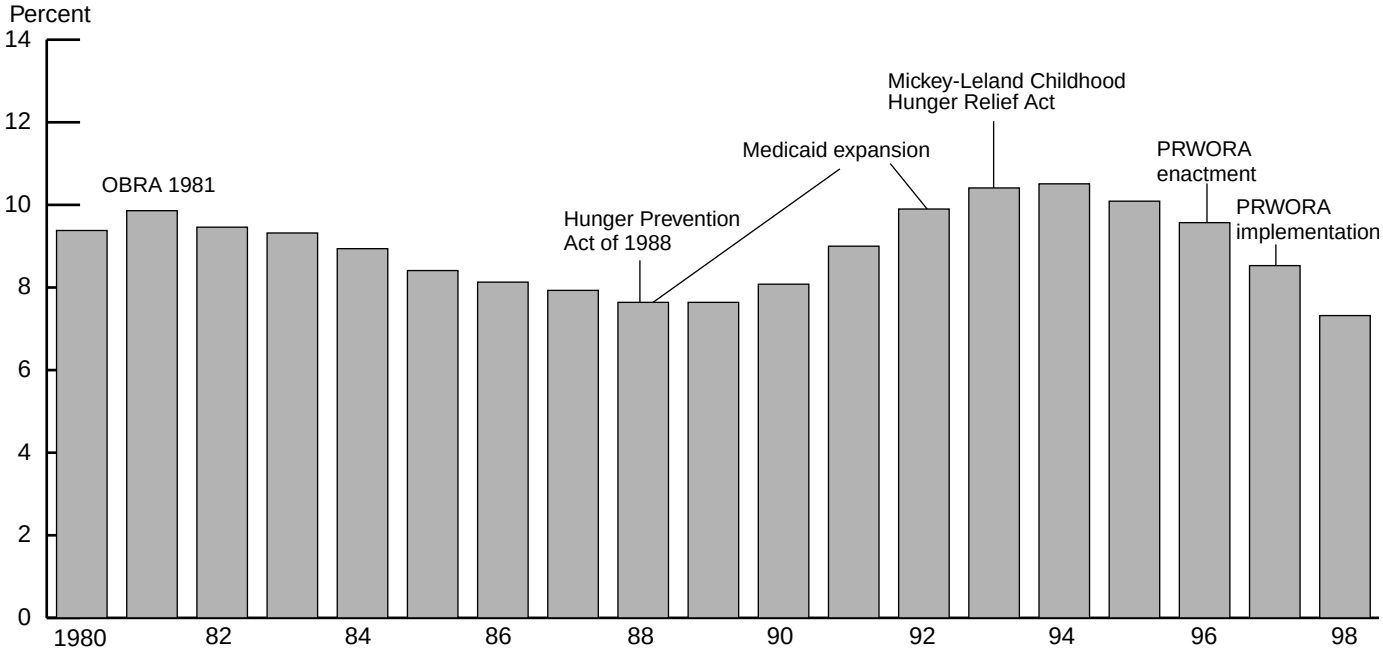
Participation and poverty are nearly parallel over time (fig. 2). Both indicators rose in the early 1980's and fell in the middle and late 1980's. Both variables rose again in the early 1990's and fell after 1993 (in the case of poverty) or 1994 (in the case of participation). Although it cannot easily be seen in this figure, changes in program participation were steeper than changes in poverty. Thus, the ratio of the participation indicator to the poverty indicator was 62 percent at the peak in 1983, 60 percent at the trough in 1989, 69 percent at the peak in 1993, and 58 percent in 1998. This pattern suggests, as a hypothesis, that unfavorable economic conditions may increase both the number of eligible Americans and the proportion of eligibles who actually participate. However, multivariate analysis is needed to disentangle the effects of economic conditions from other changing variables during this period.

## Program Changes

Direct changes to the Food Stamp Program during 1980-98 were comparatively modest (fig. 3). In 1981, the Omnibus Budget Reconciliation Act (OBRA 81) and the Food Stamp and Commodity Distribution Amendments of 1981 for the first time applied the gross income eligibility standards to all households not including aged or disabled members. The deduction for labor market earnings was lowered, making program participation slightly less attractive for low-income working people. The Farm Security Act of 1985 raised the asset limit to $2,000 for nonelderly households and to $3,000 for elderly households, and relaxed some of the other OBRA 81 changes. In 1988, the Hunger Prevention Act raised the maximum food stamp allotment incrementally from 100 percent to 103 percent of the Thrifty Food Plan, and made several smaller changes. In 1993, the Mickey Leland Childhood Hunger Relief Act revised several eligibility criteria and deductions used in calculating net benefits. That act also allowed, for the first time, persons over 18 who lived with parents but purchased and prepared food separately to apply as separate households.

This period also saw changes to Aid to Families with Dependent Children (AFDC) and Medicaid. Figure 2 compares FSP participation to cash welfare program participation. OBRA 81 imposed new eligibility restrictions on AFDC and made it more difficult for

Figure 3
**FSP participants as a proportion of the U.S. population and program changes, 1980-98**




Source: Food and Nutrition Service, U.S. Department of Agriculture.

participants to keep part of their labor market earnings. During much of 1981-96, most States allowed the real value of the maximum AFDC benefit to decline.

In the late 1980's and early 1990's, the Federal Government began to allow States more leeway in applying for temporary "waivers" from Federal welfare program regulations. Waivers allowed States to experiment with new policies such as time limits (which restricted the total number of months that a person could receive benefits), work requirements (which required able-bodied adults to find work, or in some cases to participate in work programs), and expanded earnings disregards (which enabled workers to keep a higher proportion of their labor market income). Such waivers became widespread during the mid-1990's. Waivers were approved for at least some areas of 45 States before the 1996 welfare reform legislation.

The Medicaid program, which provides health care benefits for low-income Americans, was modified by significant legislation in each year from 1986 to 1990. These changes expanded eligibility for pregnant women, infants, and children, extending the program's coverage to many families who were not automatically eligible for Medicaid through participation in AFDC. Enrollment in Medicaid rose from 22.9 million to 33.4 million between 1988 and 1993, an increase of 45 percent (Yelowitz 1996).

The 1996 welfare reform law (the Personal Responsibility and Work Opportunity Reconciliation Act or PRWORA) is the most significant social welfare legislation in more than 20 years, with direct and indirect implications for the Food Stamp Program. Directly, the 1996 law:

- Instituted a 3-month time limit for benefits in every 36 months for able-bodied adults without dependents (ABAWDS) who are not working or participating in an approved work-related program at least 20 hours per week, with some exceptions;

- Eliminated eligibility for most legal immigrants, except for naturalized citizens, some refugees, military personnel on active duty, veterans or their spouses, and permanent resident aliens with 40 quarters of qualifying employment in the United States;

- Gave States increased powers to reduce or eliminate food stamp benefits if an adult in the household does not comply with the rules of other public assistance programs; and

- Reduced the maximum food stamp benefit from 103 percent to 100 percent of the Thrifty Food Plan.

In subsequent legislation, Congress allowed States to use their own money to replace some food stamp benefits for immigrants, and Congress reinstated eligibility for those elderly, disabled, and child immigrants who were already in the United States when PRWORA was passed.

Indirectly, the Food Stamp Program was affected by other provisions of the 1996 law, which ended AFDC, instituted a new block grant to fund State welfare programs under the name Temporary Assistance for Needy Families (TANF), and fundamentally shifted the focus of the cash welfare system from income support to work. State TANF programs now must include time limits and work requirements. Within certain guidelines, important TANF policies are decided at the State level, and the new programs already vary greatly from State to State. As of 1998, 16 States required job search activities before permitting applications for welfare benefits, and 20 States offered potential applicants lump-sum diversion payments in return for not applying for some time period (Maloy et al., 1998).

These changes are likely to reduce Food Stamp Program participation, which is higher among participants in cash welfare programs than among nonparticipants. First, TANF participants who leave the cash welfare program may stop receiving food stamp benefits. A recent literature review drawing on several studies of TANF "leavers" used linked administrative records to identify the rate of food stamp use immediately after exit and 12 months later (Dion and Pavetti, 2000). While 83.5 percent of TANF participants receive food stamps, the rate of food stamp use immediately after exit ranged from 38 to 55 percent in five such studies, and the rate of food stamp use 12 months later ranged from 30 to 45 percent. Similar studies using survey data in place of administrative records found rates of food stamp use after TANF exit ranging from 29 to 61 percent. These studies also reported the earnings for TANF leavers. The review concluded, "Even though earnings may increase over time, it is unlikely that they alone would account for the decline in Food Stamp and Medicaid participation" (Dion and Pavetti, p. 13).

Second, State diversion policies may make it more difficult to enter the Food Stamp Program. Reviews by USDA's Food and Nutrition Service in three States identified barriers to food stamp use for some eligible people. In New York City, FNS found local practices that appeared to violate Federal laws and regulations, which require timely processing of Food Stamp Program applications and which were not changed in the 1996 welfare reform. Caseworkers at the two job centers reviewed by FNS did not permit households to apply for food stamps during their first visit, did not inform households that accepting a TANF diversion payment does not affect their eligibility for food stamps, and denied food stamp benefits to some applicants who did not participate in eligibility verification for food stamps and employment-related activities primarily for TANF (GAO, 1999).

## Previous Research

### Food Stamp Program Participation Before the Recent Declines

There is an extensive literature on the determinants of Food Stamp Program participation (see Gleason et al., 1998, for a recent review). Early static models consistently found participation rates to be higher among the most disadvantaged potential participants, among the nonelderly, and among those who participate in other public assistance programs. For a sample of single mothers, Fraker and Moffitt (1988) considered the determinants of AFDC participation, FSP participation, and employment together in a multiple-equation model. Households that tended to participate in the Food Stamp Program also tended to participate in AFDC and to have lower employment. This finding suggests that, when estimating the effects of employment on FSP participation, unobserved household characteristics may be affecting both employment and program participation.

When food stamp participation began to increase rapidly in the late 1980's and early 1990's, several new research efforts sought to understand the causes. A

report to Congress found that caseload increases in many States could not be explained by economic conditions (McConnell, 1991); it attributed as much as one-quarter of the increase to the expansion in the Medicaid program during this period. A later study using data from the Survey of Income and Program Participation (SIPP), with additional years of history on the caseload expansion, estimated Medicaid's impact at 10 percent of the FSP caseload increase (Yelowitz, 1996).

Several studies in the 1990's took advantage of the panel structure of the SIPP survey, which provides multiple observations on the same people over time, to look at Food Stamp Program entry and exit behavior (Burstein, 1993). Blank and Ruggles (1996) looked at when spells of eligibility for AFDC and food stamp benefits begin and end, in comparison to when spells of actual participation begin and end. Gleason and others (1998) used SIPP data to study the determinants of program entry and exit behavior behind participation increases in the early 1990's. That study found:

- Income changes trigger most movement into and out of the Food Stamp Program.
- Most people who begin receiving food stamps exit the program relatively quickly; on the other hand, among food stamp recipients at a given point in time, most are in long participation spells.
- Re-entering the Food Stamp Program after exiting is common.
- Individuals' economic circumstances and household structure are the most important determinants of how long they receive food stamps.
- The increase in FSP participation between the mid-1980's and early 1990's was driven primarily by an increase in the length of participation spells.

The study's multivariate analysis found that a household's economic condition is very important in determining participation behavior, but other observed and unobserved factors also played a large role in the program expansion in the early 1990's. Analysis of food stamp participation spells has not been done with nationally representative post-welfare-reform panel data, which are only now becoming available.

## Decline in Cash Welfare Program Participation

Several studies have investigated the impact of recent program changes and macroeconomic conditions on cash welfare program caseloads. These studies suggest useful methods for research on Food Stamp Program participation.

A widely cited report from the Council of Economic Advisers (1997) used State-level variation in economic variables and in the timing of welfare waivers to estimate the impact of these factors on caseloads. A followup study (Council of Economic Advisers, 1999) includes separate consideration of the periods 1993-96 and 1996-98. Labor market conditions were responsible for 26-36 percent of the caseload decline in 1993-96 and for 8-10 percent of the decline in 1996-98. Welfare waivers were found to play a small yet important role in 1993-96, while TANF accounted for roughly a third of the caseload reduction from 1996 to 1998.

Figlio and Ziliak (1999), with a dynamic econometric model differing from the CEA's on a number of specification issues, found the effect of welfare waivers weak and the effect of labor market conditions much stronger for the 1993-96 waiver period than did the earlier CEA report. The implications for interpreting the CEA's followup report (with program changes after 1996) are not yet known.

In another variation on the CEA's approach, Moffitt (1999, p. 2) noted, "Aggregate data at the State level necessarily gloss over the differences within a State's population and do not permit analysis of the groups most likely to be affected by welfare reform." Moffitt estimated a model that is structurally similar to the CEA's, but using data from the Current Population Survey, so that distinct effects may be estimated for women with different education levels. He found waivers most affected participation among women with the least education, as expected, thus supporting earlier findings that waivers may have influenced caseloads.

## Decline in Food Stamp Program Participation

The first study to investigate participation in both cash welfare programs and the Food Stamp Program after

the 1996 welfare reform using State-level caseload models was by Wallace and Blank (1999). Explanatory variables included unemployment rates in the current period and up to 2 years prior, and whether there was a major statewide waiver in place or whether TANF had already been implemented. Changes in the unemployment rate were associated with 28 to 44 percent of the food stamp declines from 1994 to 1998. The variable reflecting the impact of waivers or TANF was associated with only 6 percent of FSP caseload declines, although the authors noted difficulties in interpreting this variable. "Many States have implemented TANF programs that were quite different and more extensive than waivers," the authors observed (p. 35). They concluded that the full impact of the 1996 welfare reform could range anywhere from 6 percent to most of the Food Stamp Program caseload decline.

With less aggregated data, Genser (1999) offered a descriptive analysis of participation patterns for particular demographic groups during 1994-98. The study employed Food Stamp Program quality control data. The two demographic groups whose participation was most directly restricted by PRWORA experienced the steepest proportional decline: participation by legal permanent resident aliens fell by 72 percent (accounting for 13 percent of the total decline), and participation by nonimmigrant childless unemployed adults fell by 59 percent (accounting for 10 percent of the total decline). Participation by nonimmigrant AFDC/TANF recipients fell by 39 percent, but this group constitutes a large proportion of the Food Stamp Program's participants, so it accounts for 67 percent of the decline in participation from 1994 to 1998.

Using data from the Urban Institute's 1997 National Survey of America's Families, Zedlewski and Brauner (1999) found, "a) at all levels of income, former welfare recipients left food stamps at higher rates than families who had not been on welfare, b) most food stamp leavers had incomes that still left them eligible for benefits, and c) families who left welfare joined other low-income working families who have historically had low rates of participation in the Food Stamp Program" (p. 1).

Gleason and others (2000) investigated the same quality control data as Genser (1999) with a multivariate model of Food Stamp Program caseloads. For 1994-98, economic factors explain 40 percent of the decline (10 percentage points of a total decline in caseloads of 25 percentage points in their quality control data set). Work requirements account for about 2 percent of the decline, and other TANF implementation factors not captured by the preceding variables account for 23 percent of the decline. The remaining 35 percent of the decline is not explained by any of these factors.

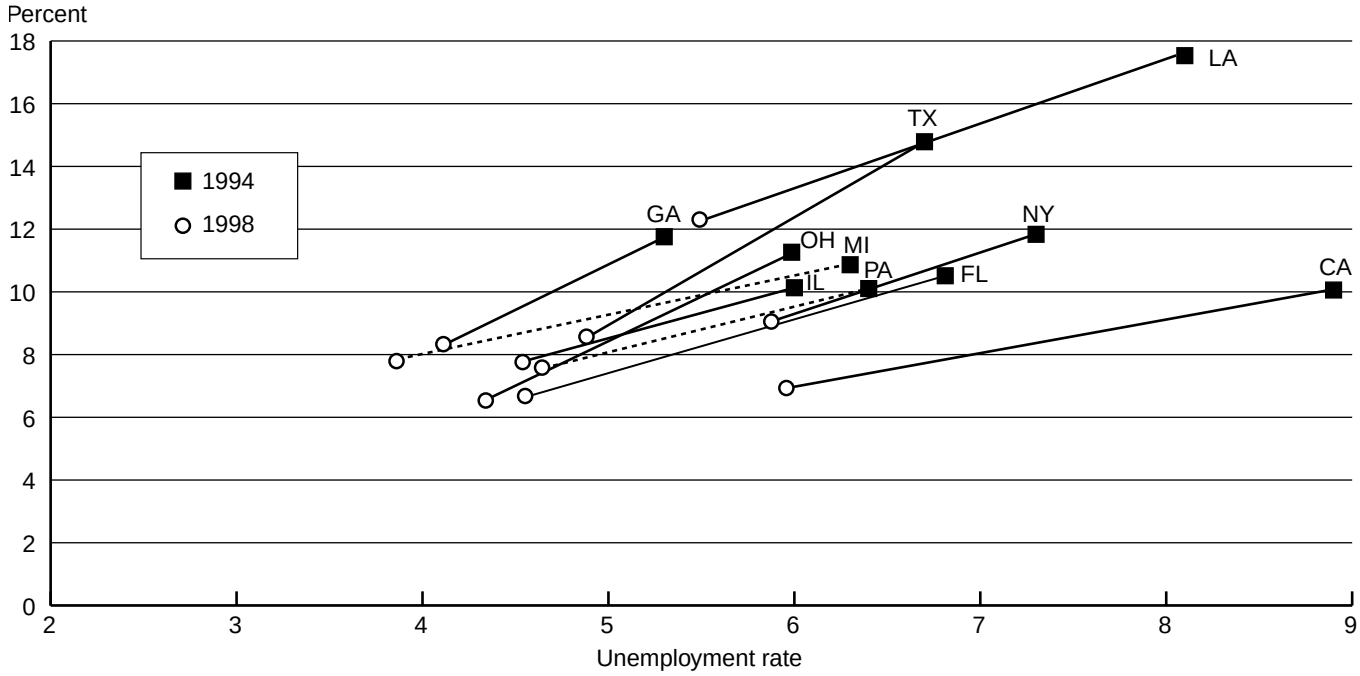
Finally, Jacobson and Puffer (2000) used a very different microsimulation methodology to simulate the impact of economic variables and program changes in 1994-98. The study used data from the 1992 panel of SIPP, which ran from 1992 to 1994, to estimate a behavioral model of program participation. Taking these behavioral parameters and the SIPP data as inputs, the study simulated the effects of more recent welfare reforms and favorable economic conditions. The simulation predicted an 11.5-percent reduction in caseload, which is less than the actual caseload decline observed from administrative sources or quality control data. Of the caseload change predicted by the simulation, 35.5 percent could be attributed to policy changes under welfare reform and 64.5 percent to lower unemployment rates. However, much of the caseload change during this period could not be explained by the simulation, so the unexplained portion may be due to either economic or policy factors.

## State-Level Analysis

State-level variation in economic conditions and policy choices provides an important source of information about caseload changes in the Food Stamp Program. For example, changes in the unemployment rate differ greatly, and States implemented welfare reforms at different times and in different forms. In principle, the effects of State variation in economic conditions and program changes can be distinguished through econometric analysis.

The significance of State-level data may be illustrated using a scatter plot, which shows how the unemployment rate varies with FSP participation, measured as a proportion of the State population. For simplicity, figure 4 plots just the 10 States with the highest total number of participants in 1994 and 1998. These States account for over 55 percent of all U.S. participants. (The empirical analysis later in this chapter uses data from all 50 States and the District of Columbia for the

Figure 4
**FSP participants as a proportion of the State population, and the unemployment rate, in selected States, 1984 and 1998**




Source: Food and Nutrition Service, U.S. Department of Agriculture.

years 1980-98.) A clear positive correlation between unemployment and per capita participation is evident: unemployment fell and per capita participation declined from 1994 to 1998 (fig. 4).

In both 1994 and 1998, per capita participation in Louisiana was high relative to the general trend, and participation in California was relatively low. Demographic or economic characteristics may produce higher participation in one State and lower participation in another, even when holding unemployment constant. Some of these characteristics may not be observable. The following empirical analysis includes "fixed effects" for each State, to adjust for constant State-specific characteristics so that the model estimates the relationship between *changes* in conditions within each State (relative to the State's mean) and *changes* in per capita caseload (again relative to the State's mean).

## Econometric Model

The analysis here includes three specifications. First, explanatory variables for period t are taken to affect caseload levels in the same period t. Second, caseload in period t depends in part on "lagged" caseload in period t-1, so an event in one period may affect program participation for several subsequent periods. Third, more complicated participation dynamics are captured through an array of several lagged variables. The three specifications include explanatory variables reflecting the macroeconomy (e.g., the unemployment rate), welfare reform (e.g., welfare waivers), and other factors (e.g., State political orientation, represented by the party of a State's Governor).

Econometric models with State-level caseload data have been used in several studies of cash welfare program caseloads (CEA, 1997; CEA, 1999; Figlio and Ziliak, 1999). The recent literature contains many different specifications—static and dynamic—for these models. Here, we emphasize the third specification, following the argument in favor of dynamic models given in Figlio and Ziliak (1999). Although this line of research is still developing, the policy implications of the caseload decline are sufficiently important that we must report the current state of knowledge on the sources of declining participation. We present a static

specification, a simple dynamic specification that indicates the empirical consequences of introducing a lagged caseload variable, and a more complete dynamic specification.[6]

The first (static) specification is expressed as

$$C_{it} = \mu + \alpha UR_{it} + \iota EMP_{it} + \beta W_{it} + \theta B_{it} + \eta ABAWD_{it} + P_{it}\varphi + \xi EBT_{it} + \gamma_t + \delta_i + \lambda_i t + \varepsilon_{it},$$

where $C_{it}$ is the natural log of per capita food stamp caseloads in State $i$ and year $t$, $UR_{it}$ is the unemployment rate, $EMP_{it}$ is a measure of employment growth per capita, $W_{it}$ is a welfare reform indicator that equals the fraction of a year that "any statewide AFDC waiver or post-1996 welfare reform" is in effect,[7] $B_{it}$ is the log of real maximum AFDC/TANF plus food stamp benefit for a family of three, $P_{it}$ is a vector of variables reflecting the political climate of a State, $ABAWD_{it}$ is the weighted percentage of a State's population waived from work requirements for unemployed able-bodied adults without dependents, $EBT_{it}$ is an indicator that equals the fraction of a year that an entire State's recipients received benefits via the Electronic Benefits Transfer (EBT) program, $\gamma_t$ is a vector of year effects, $\delta_i$ is a time-invariant, State-specific deviation from the overall constant $\mu$, $\lambda_i$ is a State-specific trend, and $\varepsilon_{it}$ is a random error term. The second specification includes the caseload in period $t$-1 as an additional explanatory variable. The third specification includes four lagged variables for caseloads, four lagged variables for unemployment, and four lagged variables for employment growth. For more detail regarding this analysis, see Figlio, Gundersen, and Ziliak (2000).

Two variables that pertain directly to the Food Stamp Program warrant further discussion. We include a variable reflecting when a State implemented its EBT program. The EBT program seeks to reduce the stigma associated with food stamp use in stores, prevent theft and loss of benefits, prevent misuse and illegal resale of benefits, and improve the distribution of benefits. Because EBT has some appealing features for program participants, it may tend to encourage participation. However, this expectation is not unambiguous. For some households, EBT may constrain the choice between food and nonfood goods more than traditional benefits do, and some households may be uncomfortable with the technology itself.

We also include a variable that is the percentage of a State's population that is waived from the ABAWD requirement. States with a higher value for ABAWD may have higher food stamp caseloads, because able-bodied adults become eligible more easily. Poor economic conditions are a necessary but not sufficient condition for ABAWD waivers; some eligible States may choose not to apply for the waiver. As a consequence, estimated effects of ABAWD waivers may reflect both the policy and the economic conditions that underlie the designation of ABAWD-waiver areas.

For ease of interpretation, it helps to consider the proportion of total caseload changes that is associated with changes in individual variables (e.g., the waiver/TANF variable) or groups of variables (e.g., all macroeconomic variables). In the static model, for any variable $x_j$, the proportion of caseload change for State $i$ from 1994 to 1998 that may be attributed to this variable is:

$$EF(x_{ij}) = \alpha(x_{ij98} - x_{ij94}) / (C_{i98} - C_{i94}),$$

where $\alpha$ is the parameter associated with $x_j$. For the second specification, with one lagged dependent variable, one must consider that an event in period t affects caseloads for multiple subsequent periods. For this specification, for any variable xj, the proportion of caseload change for State $i$ from 1994 to 1998 that may be attributed to this variable is:

$$EF(x_{ij}) = (\alpha(x_{ij98} - x_{ij94}) + \rho\alpha(x_{ij97} - x_{ij93}) + \rho^2\alpha(x_{ij96} - x_{ij92}) + \ldots + \rho^{10}\alpha(x_{ij85} - x_{ij81}))/)C_{i98} - C_{i94}),$$

6 Numerous other variations in these specifications have been suggested. We cannot present all of them here, but an appendix with results for many of these variations is available from the authors upon request. For example, the following variations were also estimated: three specifications without State-specific time trends; four specifications with alternate lag structures for the dependent variables; three specifications with the natural log of population included as a dependent variable; and others. The general conclusions of this report are robust to these other specifications.

7 We use the same coding as in CEA (1999) for the welfare waiver variables.

where $\rho$ is the parameter associated with lagged caseloads. Finally, for the third specification, one must consider multiple lagged dependent and independent variables. For any variable $x_j$, the proportion of caseload change for State $i$ from 1994 to 1998 that may be attributed to this variable is:

$$EF(x_{ij}) = (\alpha(x_{ij98} - x_{ij94}) + \rho_1\alpha(x_{ij97} - x_{ij93}) + \rho_2\alpha(x_{ij96} - x_{ij92}) + \rho_3\alpha(x_{ij95} - x_{ij91}) + \rho_4\alpha(x_{ij94} - x_{ij90}) + \rho_1{}^2\alpha(x_{ij96} - x_{ij92}) + \rho_2{}^2\alpha(x_{ij95} - x_{ij91}) + \rho_3{}^2\alpha(x_{ij94} - x_{ij90}) + \rho_4{}^2\alpha(x_{ij93} - x_{ij89}) + \ldots + \rho_1{}^6\alpha(x_{ij91} - x_{ij87}) + \rho_2{}^6\alpha(x_{ij90} - x_{ij86}) + \rho_3{}^6\alpha(x_{ij89} - x_{ij85}) + \rho_4{}^6\alpha(x_{ij88} - x_{ij84}))/(C_{i98} - C_{i94})$$

where $\rho_1$ is the parameter associated with the first lagged caseload, and so forth. Though these last two equations are less transparent in appearance, the resulting decomposition has the same intuitive interpretation as the simple decomposition for the static model.

## Data

For this analysis, we use data from all 50 States and the District of Columbia for fiscal years 1980 to 1998. Prior to 1980, the Food Stamp Program had a purchase requirement, which may have affected participation in those years. Data on food stamp caseloads, EBT measures, and ABAWD waivers are from the U.S. Department of Agriculture; on AFDC reform measures from the U.S. Department of Health and Human Services (DHHS); on business-cycle measures from the Bureau of Labor Statistics and the U.S. Census Bureau; and on State political conditions from the Americans for Democratic Action (ADA), the National Governors Association, and the Congressional Quarterly Almanacs.

## Results

The first specification has no lagged dependent or independent variables (table 1, column 1). For this specification, the coefficient on the unemployment rate is highly statistically significant and reveals a strong countercyclical movement of per capita food stamp caseloads.[8] An increase of 1 percentage point in the unemployment rate leads to a 4.2-percent increase in food stamp caseloads, all else equal. Implementing a welfare waiver or TANF is associated with an insignificant estimated effect on caseloads. Implementing the EBT program is associated with a 5.8-percent decline in caseloads. This effect is not impossible, but it is not the expected effect of this variable. To interpret the full-State ABAWD waiver, one must be aware that the average ABAWD waiver (conditional on having a waiver) covers just 17 percent of the State. Thus, instituting a typical ABAWD waiver is associated with a 4.4 percent higher caseload (parameter of 25.946 times 0.17). Moreover, this parameter may reflect the impact of poor economic conditions in certain areas, as well as the impact of the waiver itself.

In breaking out the relative contribution of each fact to the caseload decline from 1994 to 1998, the first specification's decomposition suggests that economic factors are responsible for 12 percent of the decline. The introduction of statewide waivers or TANF is responsible for 5 percent, and political variables are responsible for 7 percent. The remainder is not explained by these variables.

The second specification includes caseload lagged by 1 year as an additional explanatory variable (table 1, column 2).[9] It finds no shortrun, statistically significant relationship between the AFDC, EBT, or ABAWD variables and food stamp caseloads. The apparent impact of the waiver/TANF variable is reduced when even 1 year of lagged caseloads is included. This is consistent with Figlio and Ziliak (1999) who, using data through 1996, found that welfare waivers had little power in explaining State-to-State differences in AFDC caseloads, once controls for caseload and business-cycle dynamics were applied. The second specification does still find a significant impact of macroeconomic variables and political variables on caseloads.

[8] Table 1 reports parameters as statistically significant using a two-tailed t-test with $\alpha$ = 05.

[9] In dynamic panel data models, there is a correlation between the lagged dependent variable and the fixed effect, the magnitude of which diminishes as the time series gets large. With 19 years of data, this correlation is likely to be small; however, in results not reported, we instrumented the lagged dependent variable in specification (1) using lags of the economic, welfare, and political variables as instruments with very little change in the estimated coefficients.

**Table 1—Static and dynamic estimates of the impact of welfare reform and the macroeconomy on food stamp caseloads**

| | Model | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| Per capita caseloads (t-1) | | 79.427 (1.691)* | 112.986 (3.954)* |
| Per capita caseloads (t-2) | | | -38.010 (5.382)* |
| Per capita caseloads (t-3) | | | -1.080 (4.467) |
| Per capita caseloads (t-4) | | | -6.303 (2.932)* |
| Unemployment rate (t) | 4.186 (0.399)* | 2.552 (0.218)* | 1.258 (0.325)* |
| Unemployment rate (t-1) | | | 0.475 (0.371) |
| Unemployment rate (t-2) | | | 0.254 (0.349) |
| Unemployment rate (t-3) | | | -0.259 (0.326) |
| Unemployment rate (t-4) | | | 1.152 (0.259)* |
| Growth employment/capita (t) | 19.552(10.742) | -8.640 (7.272) | -18.773 (11.893) |
| Growth employment/capita (t-1) | | | -10.974 (11.641) |
| Growth employment/capita (t-2) | | | -5.400 (12.491) |
| Growth employment/capita (t-3) | | | 31.102 (7.731)* |
| Growth employment/capita (t-4) | | | -3.616 (5.206) |
| AFDC waiver implementation | -2.224 (1.940) | 0.676 (0.963) | 0.621 (0.757) |
| EBT implementation | -5.845 (2.851)* | -0.252 (1.434) | 0.445 (1.150) |
| ABAWD waiver | 25.946 (6.038)* | 1.113 (3.047) | 2.882 (2.382) |
| Log max AFDC/FSP benefit | -9.405 (5.906) | 1.786 (3.001) | 11.680 (7.992) |
| State House & Senate Democratic | -0.712 (1.337) | 1.098 (0.680) | 0.174 (0.613) |
| State House & Senate Republican | -4.412 (1.644)* | -1.427 (0.823) | -2.376 (0.732)* |
| Governor Democratic | 7.646 (0.900)* | 1.759 (0.484)* | 1.150 (0.461)* |
| Log ADA score | 0.038 (1.149) | 1.406 (0.591)* | -0.086 (0.493) |

Notes: All coefficients are multiplied by 100. Standard errors are in parentheses. Asterisks denote statistical significance, using a two-tailed t-test with $\alpha = .05$. All regressions, based on data from fiscal years 1980-98 for all 50 States and the District of Columbia, are weighted by State population, control for State-specific fixed effects and trends, and control for year-fixed effects.

According to the decomposition for the second specification, economic factors are responsible for 56 percent of the caseload decline from 1994 to 1998. The introduction of statewide waivers or TANF is not responsible for any of the decline, and political variables are responsible for 9 percent. The remainder is not explained by these variables.

The third specification is similar to the second specification, with the addition of an optimal number of lagged caseload, unemployment, and employment growth variables (table 1, column 3). As in the second specification, the third specification finds no shortrun, statistically significant relationship between the AFDC, EBT, or ABAWD variables and food stamp caseloads. A statistically significant relationship between the macroeconomic/political variables and caseloads remains.

For the third specification, 35 percent of the caseload reduction from 1994 to 1998 is due to macroeconomic conditions (i.e., declining unemployment and increasing employment-growth rates), while only a small fraction is attributable to the waiver/TANF variable. State-level political factors account for about 15 percent of the caseload decline.

In all three models, the remaining decline in caseloads is due to State and national trends that the other variables in the model cannot explain. [10] These trends may reflect changes in the implementation of social programs that are not captured by the welfare reform variables in the model, changes in general economic conditions that are not captured by the State-level macroeconomic variables in the model, and other factors.

[10] The unexplained portion of these models is not unique to this time period. The unexplained portion of the static and AR(1) models for the caseload increase from 1989 to 1993 is actually higher.

## Household-Level Analysis

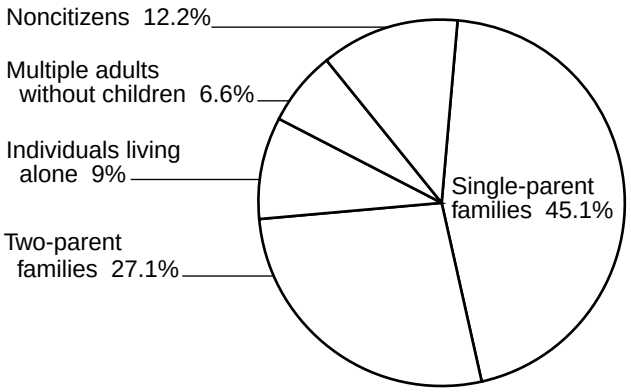
### Participation Decline, 1994-98

Household-level survey data permit consideration of demographic groups, such as immigrants or able-bodied adults, who are likely to be distinctly affected by FSP provisions of the 1996 welfare reform law. These data also permit us to distinguish changes in the number of people with low annual income from changes in the proportion of people with low income who actually participate. This analysis focuses on the most important changes in FSP participation levels, as measured in the Current Population Survey (CPS).

The sample is disaggregated into five demographic groups: (1) individuals in single-parent families with children, (2) individuals in two-parent families with children, (3) individuals living alone, (4) individuals in multiple-adult households without children, and (5) noncitizens.[11] Each group is further divided into two income strata, based on whether the household reports annual income above or below 130 percent of the poverty line, which is the gross income cutoff for food stamp eligibility for most households. These two strata are denoted "low-income" and "middle/high-income," even though the cutoff used here is far below median income in the United States. This methodology is not intended to distinguish eligible from ineligible people, because the income measure in the CPS reflects annual income, while many potential participants have low income for just part of the year, and because this methodology does not take account of the asset limits for food stamp eligibility. A small but significant share of the sample with middle/high income participates in the program, indicating that some families with annual income above 130 percent of poverty are nevertheless eligible for food stamps in some portion of the year.

In the results below, program participation for each demographic group is summed (with weights in the sum corresponding to the population in each demographic group) in order to report the overall participation decline that can be attributed to three possible phenomena: (1) a change in the number of low-income households, (2) a change in the proportion of low-income households that participate, and (3) a change in the proportion of medium/high-income households that participate.

Figure 5
**Decomposition of the decline in FSP participation by demographic group, 1994-98**




Source: Calculated by ERS from the March Current Population Survey, 1995 and 1999.

The CPS data show a decline in monthly participation from 23.9 million in 1994 to 16.5 million in 1998 (table 2).[12] This is a decline of 7.3 million, or 31 percent of the 1994 level.[13] The most precipitous decline in participation occurred among noncitizens—42.7 percent from 1994 to 1998. Declines in noncitizens' use of food stamps accounted for approximately 12 percent of the total participation decline (fig. 5).[14]

[11] The first four categories are defined to include only citizens, so these five categories are mutually exclusive.

[12] The Current Population Survey under-reports the food stamp caseload by about 17 percent. However, our estimate of the decline in food stamp caseloads is similar to that reflected in FSP administrative data. This suggests that the degree of under-reporting has remained constant, and does not contribute to the estimated decline in caseloads found in the CPS.

[13] The food stamp caseload decline of 7.3 million is even more dramatic considering the U.S. population grew 3.6 percent from 1994 to 1998. Moreover, single-parent families with children — the demographic group with the highest rate of food stamp participation—grew faster than the national average. Population growth and changes in population shares among the five demographic groups would have resulted in a food stamp caseload increase of 0.9 million, if participation within each demographic group had remained constant. (See appendix for further details on the CPS data and the interaction of population growth and the food stamp caseload decline.)

[14] Caseload declines, in figure 5, are adjusted for population growth in each demographic category.

**Table 2—Monthly participation in the Food Stamp Program, 1994 and 1998**

| | Monthly participants | | Decline | |
|---|---|---|---|---|
| | 1994 | 1998 | 1994-98 | 1994-98 |
| | | *— Million —* | | *Percent* |
| All Food Stamp Program participants | 23.87 | 16.54 | 7.33 | 30.7 |
| Demographic category: | | | | |
| Single-parent families with children | 12.44 | 9.24 | 3.21 | 25.8 |
| Two-parent families with children | 5.47 | 3.24 | 2.23 | 40.8 |
| Individuals living alone | 2.13 | 1.61 | 0.52 | 24.4 |
| Multiple adults without children | 1.68 | 1.22 | 0.46 | 27.4 |
| Noncitizens | 2.14 | 1.23 | 0.92 | 42.7 |

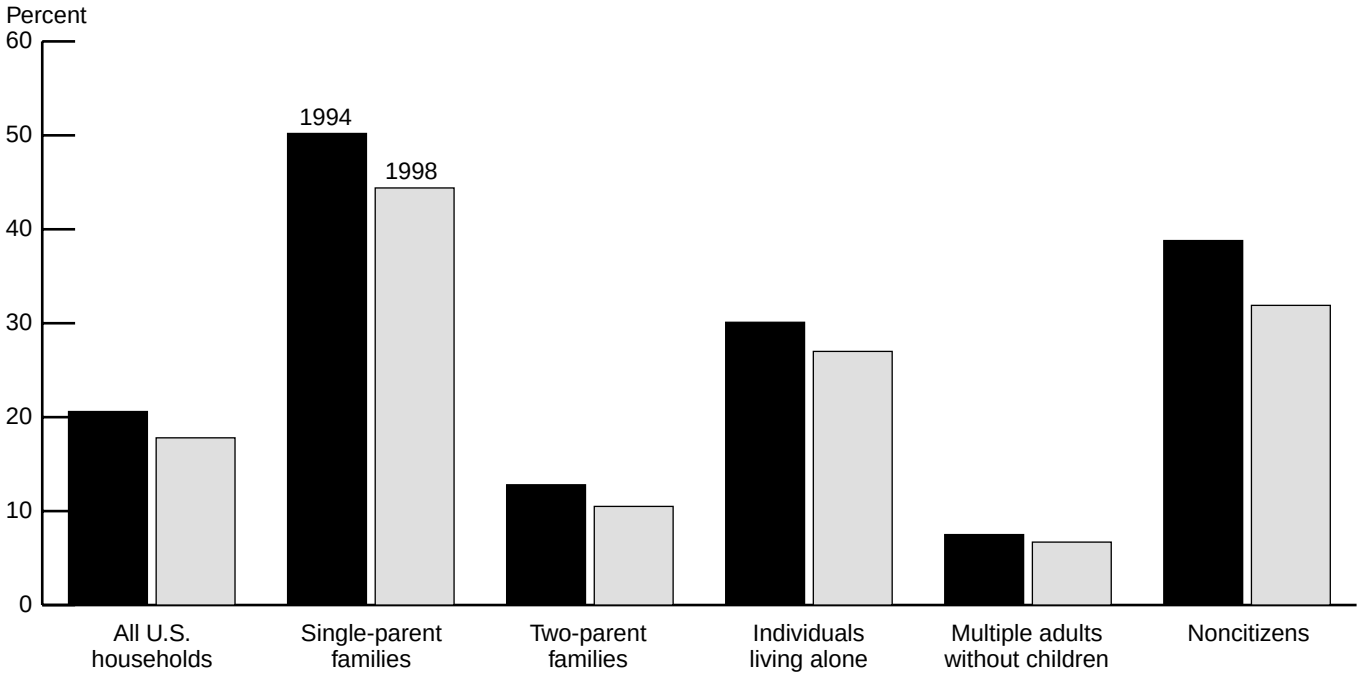
Note: Changes in the number of participants are not adjusted for population growth.
Source: Calculated by ERS from the Current Population Survey, March 1995 and March 1999.

Among two-parent families, participation declined by 40.8 percent. Among single-parent families, participation declined by 25.8 percent (table 2). Because families with children comprise a large percentage of food stamp recipients, they accounted for 72 percent of the participation decline.

For low-income single-parent families in particular, participation in cash welfare programs fell from 48.0 percent in 1994 to 30.9 percent in 1998. Within this population, the large majority of AFDC/TANF recipients in both years received food stamps, while a much smaller proportion of AFDC/TANF nonrecipients in both years received food stamps. Thus, the fall in cash welfare participation is accompanied by a steep decline in Food Stamp Program participation.

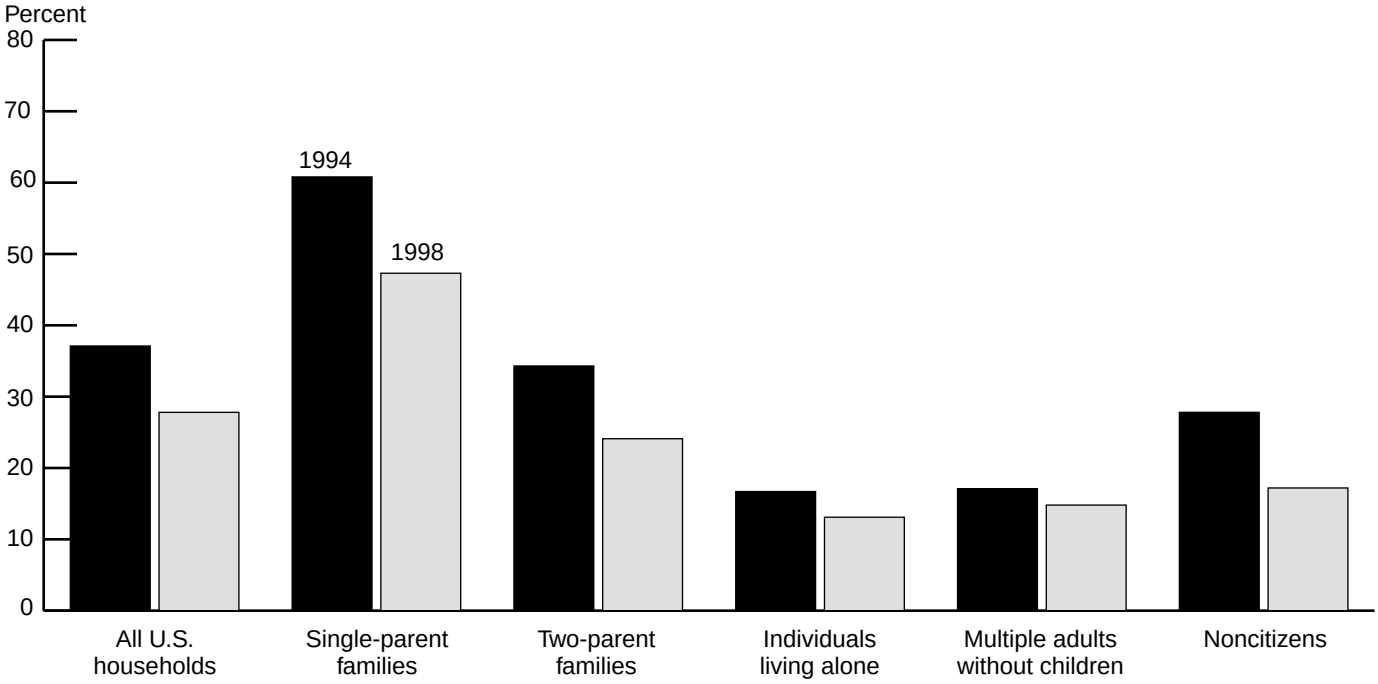
From 1994 to 1998, there was a net movement of households out of the low-income stratum and into the middle/high-income stratum. The percentage of U.S. households with annual income less than 130 percent of the poverty line decreased from 20.6 percent in 1994 to 17.8 percent in 1998 (fig. 6). The proportion of these low-income households that actually partici-

Figure 6
**Proportion of all individuals who have income below 130 percent of the poverty line, 1994 and 1998**




Source: Calculated by ERS from the March Current Population Survey, 1995 and 1999.

Figure 7
**Proportion of all individuals with income below 130 percent of poverty who participate in the Food Stamp Program, 1994 and 1998**




Source: Calculated by ERS from the March Current Population Survey, 1995 and 1999.

pate in the Food Stamp Program decreased from 37 percent in 1994 to 28 percent in 1998 (fig. 7). The proportion of middle/high-income households that participate decreased from 2.0 percent in 1994 to 1.4 percent in 1998.

These changes may be expressed to show their proportional impact on the total participation decline from 1994 to 1998. For all demographic groups combined, 26 percent of the 1994-98 participation decline was due to a decline in the share of households with low income, 55 percent was due to decreased use of food stamps among low-income households, and 19 percent was due to decreased use of food stamps among medium/high-income households (fig. 8).

## Differences Between 1994-96 and 1996-98

Although many States received welfare waivers before 1996, the implementation of the more comprehensive TANF plans and the restrictions on food stamp eligibility under PRWORA did not occur until 1997 in most States. Almost 65 percent of the 1994-98 participation decline occurred between 1996 and 1998.

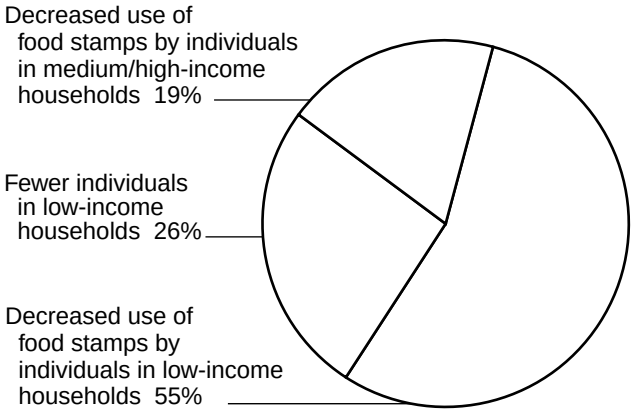
In both 1994-96 and 1996-98, the largest share of the total participation decline is attributed to lower participation among people with annual income below 130 percent of poverty (fig. 9).[15] Decreased use of food stamps among low-income households accounted for 61 percent of the 1994-96 decline, representing 1.5 million low-income people. Decreased use among low-income households accounted for 55 percent of the 1996-98 decline, or more than 2.6 million people.

Changes in the number of low-income people were responsible for a larger proportion of the participation decline in 1994-96 (28.2 percent) than in 1996-98 (23.7 percent). Decreased use of food stamps among middle/high-income households played a greater role in the later period than in the earlier period, accounting for 11.1 percent of the 1994-96 decline and 21.1 percent of the larger 1996-98 decline.

The direct changes to the Food Stamp Program in the 1996 welfare law applied especially to noncitizens and

[15] The food stamp caseload of multiple-adult households actually increased slightly from 1994 to 1996. Due to the small magnitude of the change, the results of the decomposition analysis are not meaningful for this time period.

Figure 8
**Decomposition of the decline in FSP participation by cause, 1994-98**



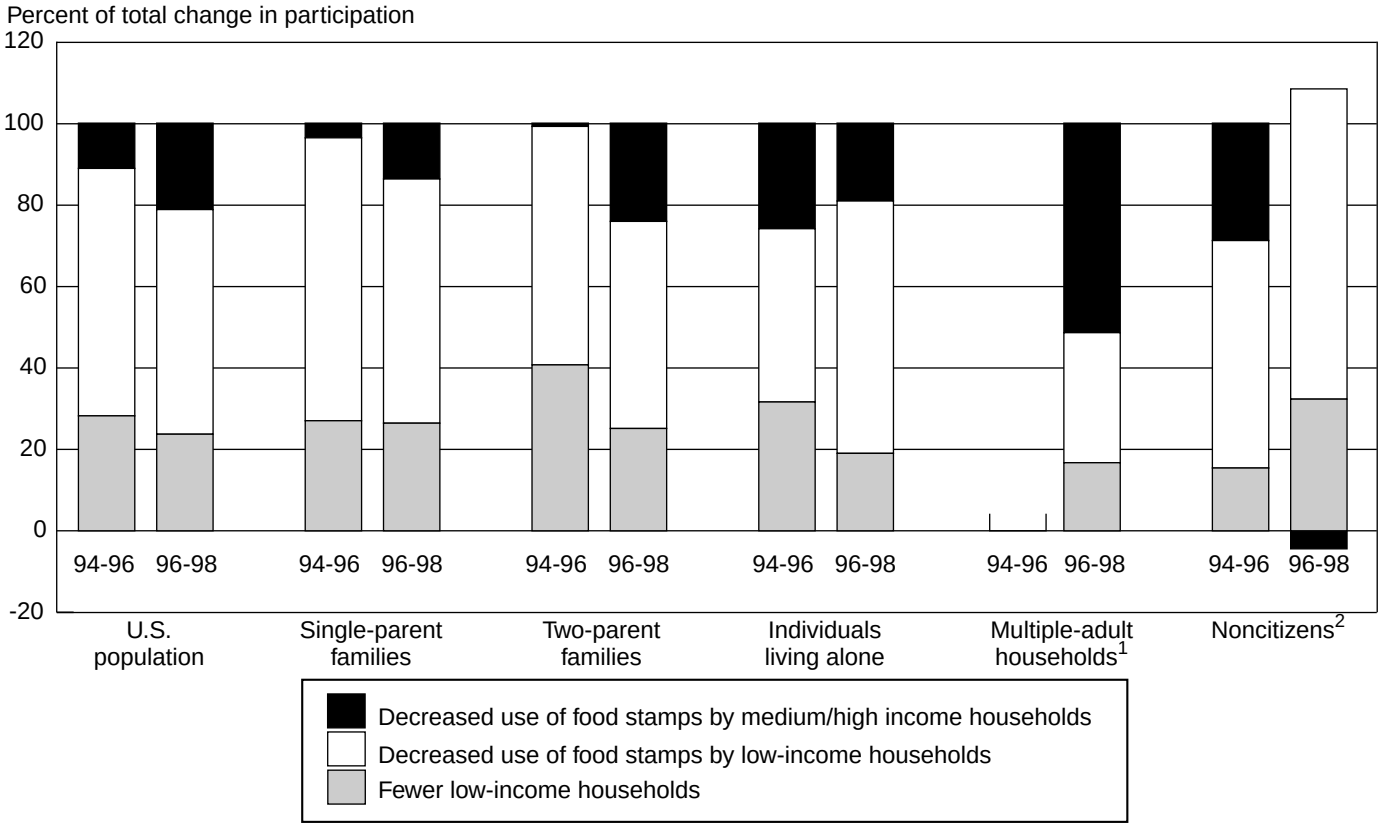

Source: Calculated by ERS from the March Current Population Survey, 1995 and 1999.

individuals without children. Decreased use of food stamps by low-income households among these demographic groups accounts for a greater part of the 1996-98 decline than of the 1994-96 decline.

## Participation Expansion, 1989-93

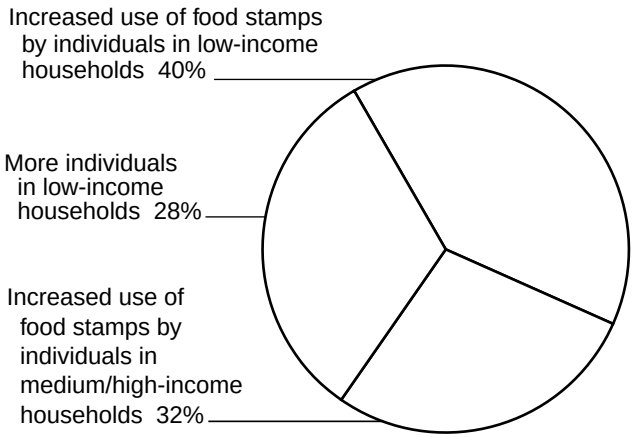
The period of FSP expansion in 1989-93 is useful for interpreting the more recent contraction. From 1989 to 1993, participation increased by almost 50 percent. Changes to the Food Stamp Program and other components of the social safety net during this period were minor compared to those associated with the 1996 welfare reform. Decomposition of the increase from 1989 to 1993 shows that 28 percent was due to an increase in the number of households with low income, 40 percent to increased use of food stamps among low-income households, and 32 percent to increased use of food stamps among medium/high-income households (fig. 10).

Figure 9
**Decomposition of the decline in FSP participation, 1994-96 and 1996-98**




[1]No change in participation for 1994-96.
[2]Use of food stamps by medium/high-income households increased in 1996-98.
Source: Calculated by ERS from the March Current Population Survey, 1995, 1997, and 1999.

Figure 10
**Decomposition of the expansion in FSP participation, 1989-93**



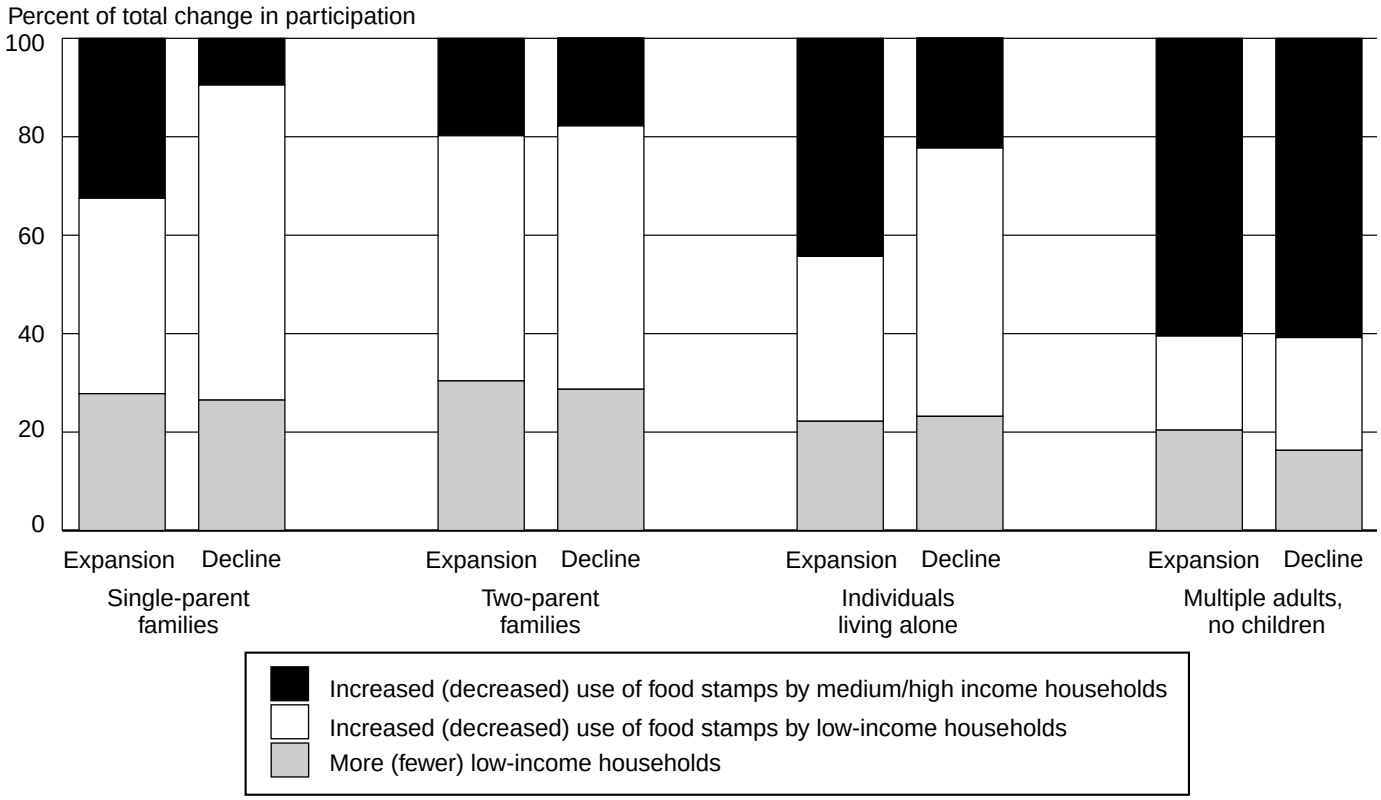

Source: Calculated by ERS from the March Current Population Survey, 1995 and 1999.

Among two-parent families and multiple-adult households with no children, the relative share of each component in the participation expansion was similar to its share in the decline (fig. 11). However, for single-parent families with children and individuals living alone, the change in the use of food stamps among low-income households played a considerably larger role in the 1994-98 decline than in the 1989-93 expansion.

## Conclusions

A strong economy is responsible for much of the drop in food stamp participation from 1994 to 1998. Of the previous studies using State-level data, Wallace and Blank (1999) found that the unemployment variables explained 28 to 44 percent of the caseload decline. Gleason and others (2000) found that macroeconomic variables explained 40 percent of the caseload decline. In the State-level econometric analysis presented here, the first static specification suggested that economic

Figure 11
**Comparison of the decomposition of the expansion and decline in FSP participation, by demographic category**




Source: Calculated by ERS from the March Current Population Survey, 1995, 1997, and 1999.

variables explained 15 percent of the participation decline, while the preferred dynamic specification suggested these variables explained 35 percent of the participation decline. Thus, multiple estimates using State-level data attribute approximately 35 percent of the total participation decline in 1994-98 to macroeconomic variables.

These same studies often find that only a small share of the decline is associated with the effect of specific welfare waivers or TANF policies, although these studies sometimes suggest that the full effect of welfare reform may be greater than these parameter estimates indicate. Wallace and Blank (1999) found their waivers/TANF variable explained only 6 percent of the total caseload decline in 1994-98, although they argued that the full impact of welfare reform might be much higher. Gleason and others (2000) found that work requirements explained 2 percent of the caseload decline, and that other specific features of PRWORA such as time limits had a negligible effect. However, fully 23 percent of the total caseload decline appeared to be statistically associated with the introduction of the welfare reform law without being associated with one of the specific policies.

In our static specification, the waivers/TANF variable explained 4 percent and political variables explained 6 percent of the total participation decline. The preferred dynamic specification found that the waivers/TANF variable explained only a negligible share and the political factors explained 12 percent of the total participation decline. Thus, in these models, welfare reform variables typically explain only a modest share of the participation decline from 1994 to 1998. Other political changes that affect public assistance programs may have a slightly larger effect. Moreover, these models typically find that a large share of the participation decline cannot be explained by either program change variables or economic variables.

Household-level data reveal the direct impact of the welfare reform law for legal immigrants and able-bodied adults without dependents (ABAWDs). Genser (1999) found that these two groups experienced the steepest participation declines. Our household-level analysis found that noncitizens participating experienced the most precipitous decline—falling 42.7 percent between 1994 and 1998. This analysis also concluded that 26 percent of the total participation decline was associated with the movement of people from low-income to middle- or high-income status. By contrast, a drop in the proportion of low-income people who participate accounted for 55 percent of the decline.

The State-level and household-level analyses in this report are not directly comparable, but it is interesting to note the similar results. The preferred State-level analysis found that macroeconomic variables explained 35 percent of the FSP decline. The household-level analysis found that movement of people out of the low-income category explained 26 percent of the decline. Welfare reform may lessen unemployment or the number of poor people by encouraging recipients of public assistance to work, but the most straightforward interpretation of these results points to the impact of the strong economy on participation.

The State-level analysis is uncertain regarding how much participation decline should be attributed to program changes. Even though econometric analyses associate only a modest share of the decline with changes in the available welfare reform variables, these variables are imperfect and do not represent the full scale of changes in the social welfare system. With a more detailed vector of policy variables that capture the distinct emphases that different States have placed on reducing participation, the models might have attributed more of the participation decline to policy changes.

Our household-level analysis shows that 55 percent of the FSP change from 1994 to 1998 is due to a decline in participation by households with annual income under 130 percent of the poverty line. Although this annual income measure is not equivalent to Food Stamp Program eligibility, this pattern corroborates other evidence that a large number of seemingly eligible families are disappearing from the food stamp rolls. The nonparticipation of seemingly eligible families could be due to their own choices under favorable macroeconomic conditions. Low-income working families without cash welfare benefits have always had comparatively low rates of FSP participation. Nonparticipation could also be due to new barriers, intended or unintended, that these families face under welfare reform.

## Ongoing Investigations Sponsored by the Economic Research Service

The Economic Research Service is pursuing an active research agenda to improve our understanding of the causes of caseload change. This program includes analysis of more recent secondary data from the same sources discussed in this report. It also includes the collection of new information about the implementation of program changes at sites around the country.

For example, large-scale panel surveys such as the Survey of Income and Program Participation and the Survey of Program Dynamics will strengthen research on the impact of welfare reform. Food Stamp Program quality control data from the Food and Nutrition Service provide highly disaggregated information about participants. With these data, an ERS-funded research effort will estimate the effect of various program and economic factors on program participation, using an econometric model similar to those that have been used previously with State-level data.

Equally important, ERS is collecting new information about program practices at the local level. ERS, with Abt Associates Inc., will examine how decisions to participate in the Food Stamp Program have been affected by changes such as customer service at local welfare offices or, perhaps, by heightened stigma associated with welfare reform. The study will focus on groups such as legal immigrants, able-bodied adults without dependents, child-only cases, and households exiting Temporary Assistance for Needy Families. A related project, with the Rockefeller Institute of Government at the State University of New York, will investigate local institutional changes in program delivery that may have contributed to the decline in FSP participation. The study focuses on such changes as the growing institutional separation between food stamp and cash welfare administrative systems and the increasing complexity of the programs.

In either case, nonparticipation among eligible low-income working families has raised substantial concerns, and it has produced a policy response. Such families have been specifically targeted in outreach efforts under the USDA Food Stamp Initiative announced in July 1999. This initiative includes new rules that allow States to simplify income-reporting requirements for working families, a public education campaign, a hotline, and a new toolkit for State, local, and community-level outreach efforts.

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# Appendix
# Methods for Using the Current Population Survey To Analyze Food Stamp and AFDC/TANF Participation

## Data Source

The data are from the Current Population Survey March Annual Demographic Supplements of 1990, 1994, 1995, and 1999. Income and program participation refer to the prior calendar years, while household composition is determined as of the survey week.

## Units of Analysis

Demographic category, income, food stamp receipt, and AFDC/TANF receipt were determined at the "consumption unit" level and assigned to each person in the unit. In most cases, the consumption unit is identical to the interview household. However, unrelated subfamilies or unrelated individuals in an interview household were treated as separate units. Related subfamilies were treated as part of the primary family or reference individual's unit. These analytic units are not completely consistent with actual food stamp eligibility units. However, with the CPS, we cannot determine whether related subfamilies received food stamps. Therefore, it is necessary to combine related subfamily units for the analysis of food stamp receipt. In discussing our findings, we refer to these consumption units as households, although they are not identical to CPS interview households.

The CPS data file provides income and poverty thresholds for each consumption unit. Citizenship status is determined at the individual level.

## Determination of Food Stamp Program Participation and AFDC/TANF Recipiency

Food Stamp Program utilization rates were calculated from person-months of receipt weighted by supplement person weights. Although receipt of food stamps some time during the year is identified for unrelated subunits in an interview household, the number of months of food stamp receipt is identified only at the interview household level. We assigned this number of months to any unit within the interview household that received food stamps any time during the year. The CPS data identify AFDC/TANF receipt and number of months of receipt at the individual level. We attributed to all persons in the unit the highest number of months of AFDC/TANF receipt of any person in the unit. For units with partial-year receipt of both food stamps and AFDC/TANF, we assumed that receipt of both occurred in the same months, or that overlap was maximum. Average monthly participation for each subgroup was calculated as (person-months)/12. The average monthly participation rate was then calculated as (average monthly participation)/(subgroup population).

## Adjustment for Population Growth

Participation declines in the five demographic groups in table 2 are based on the number of participants observed. However the allocations of the decline among demographic groups in figures 5 and 7 are based on the decline in FSP participation, adjusted for population growth in each demographic group. This is a more accurate reflection of the decline in food stamp utilization, because it accounts for the fact that population growth partially offset the decline in the number of participants.

This adjustment is necessary, since we assume that each demographic group maintains a constant share in the population when we perform the decomposition analysis. When we adjust for population growth in each of the demographic categories, we find a decline of 6.26 million participants (table A1).

**Table A1—Decline in the number of FSP participants, as registered by the CPS, 1994-98**

| Measure | Value |
|---|---|
| Monthly FSP participation, 1994 (millions) | 23.87 |
| Monthly FSP participation, 1998 (millions) | 16.54 |
| Participation decline, 1994-98 (millions) | -7.33 |
| Participation decline, 1994-98 (% of 1994) | -30.7 |
| Monthly participation, 1994, adj. for total population growth 1994-98 (millions) | 24.73 |
| Monthly participation, 1998 (millions) | 16.54 |
| Participation decline, adjusted for total population growth (millions) | -8.19 |
| Participation decline, adjusted for total population growth (% of adjusted 1994) | -33.1 |
| Monthly participation, 1994, adjusted for population growth 1994-98 in each of the five household categories (millions) | 24.78 |
| Monthly participation, 1998 (millions) | 16.54 |
| Participation decline, adjusted for population growth in each household category (millions) | -8.24 |
| Participation decline, adj. for population growth in each household category (% of adj. 1994) | -33.3 |

Source: Calculated by ERS using Current Population Survey, March 1995 and March 1999.

## Mathematical Description of the Decomposition

The following equation illustrates the calculation of the decomposition of the decline in the average monthly food stamp participation rate from 1994 to 1998:

$$\begin{aligned} &FS\ Participation\ Rate_{98} - FS\ Participation\ Rate_{94} = \\ &\sum_{i=1}^{2}\left(\frac{FS\ Participation\ Rate_{98,i} - FS\ Participation\ Rate_{94,i}}{2}\right)(p_{98,i} - p_{94,i}) \\ &+\sum_{i=1}^{2}\left(\frac{p_{98,i} - p_{94,i}}{2}\right)(FS\ Participation\ Rate_{98,i} - FS\ Participation\ Rate_{94,i}), \end{aligned} \tag{A1}$$

where $i$ denotes the income categories and $p$ is the proportion of the population in each income stratum. The first summation in equation A1 represents the first of the three phenomena that make up the overall decline in the average monthly participation rate, the change in the number of low-income households. We consider the sum of the changes in the population shares in the two income strata, since a decrease in the proportion of the population with low income necessarily means an increase in the proportion of the population with medium/high income.

The two components of the second summation in equation A1 represent the second and third phenomena that make up the overall decline in the average monthly participation rate. The first component, $((p_{98,1} + p_{94,1})/2(\text{FS Participation Rate}_{98,1} = \text{FS Participation Rate}_{94,1})$, is the change in the average monthly food stamp participation rate of people in households in the low-income stratum, $(\text{FS Participation Rate}_{98,1} = \text{FS Participation Rate}_{94,1})$, weighted by the average share of the population in the low-income stratum, $(p_{98,1} + p_{94,1})/2$. The second component is calculated in the same way, using the change in the average monthly food stamp participation rate of people in households in the medium/high-income stratum, weighted by the share of the population in the medium/high-income stratum.