

Structural and Cyclical Trends in the Supplemental Nutrition Assistance Program

By Kelly D. Edmiston

Participation in the Supplemental Nutrition Assistance Program (SNAP), formerly known as the Food Stamp Program, has increased sharply over the past 20 years. Average monthly participation grew from 17.3 million people in 2001 to a peak of 47.6 million people in 2013. Although participation declined somewhat as the economy recovered from the Great Recession—dropping to 41.7 million people in November 2017—this decline failed to offset the program’s rapid growth over the past 10 years. SNAP participation remains well above its pre-recession level of 25.9 million people, suggesting longer-term structural forces may be driving its trend.

Understanding the forces driving SNAP participation is important for several reasons. First, SNAP is an important safety net during economic downturns, as it allows unemployed individuals and others with reduced incomes to continue to purchase food. Second, SNAP is also a critical component of the package of public assistance programs available to support low-income individuals and families. Third, because eligibility for SNAP is almost exclusively based on income, SNAP participation is often considered an “automatic stabilizer,” rising when economic conditions deteriorate and falling when the economy is growing. But continued high levels of SNAP participation far into the recovery from the

Kelly D. Edmiston is a senior economist at the Federal Reserve Bank of Kansas City. This article is on the bank’s website at www.KansasCityFed.org

Great Recession suggest its efficacy as an automatic stabilizer may have changed, further motivating an analysis of its underlying forces.

In this article, I investigate the forces driving long-term patterns in SNAP participation as well as its cyclical variation. I find that three structural factors—legislative and programmatic changes, poverty, and a rising share of the working population not in the labor force—have made the largest contributions to SNAP participation. However, I also find that cyclical factors played a relatively large role in driving participation during the Great Recession. Together, the structural and cyclical factors I examine explain over 63 percent of the observed pattern in SNAP participation.

Section I reviews the SNAP program, including factors that determine eligibility and benefit levels, and discusses the rate of growth in the program. Section II discusses multiple factors that determine SNAP participation. Section III analyzes the relative contribution of these factors in a statistical framework.

I. SNAP Eligibility, Benefits, and Growth

Although SNAP is part of an extensive set of federal food and nutrition programs, it is unique in both size and structure. First, SNAP is the largest nutrition assistance program, exceeding other nutrition programs in both participation and cost. In 2017, a monthly average of 42.1 million people—12.9 percent of the resident population—received SNAP benefits at a cost of \$68 billion.¹ By comparison, the next largest program, the National School Lunch Program, served 30 million students—roughly 44 percent of the school-age population—and cost \$12.2 billion (U.S. Department of Agriculture [USDA] Food and Nutrition Service 2018a, 2018b).² Second, eligibility for SNAP is based on income and asset limits, and, unlike most other public assistance programs, has no nonpecuniary requirements, such as the presence of children in the household. Under federal rules, eligibility for SNAP benefits requires households to meet specific criteria, although there are comparatively few of them. Typically, households must fall below certain gross income limits, net income limits, and asset limits (see box).

SNAP benefits are intended to fill the gap between a needs standard and cash resources available to purchase food. Benefits are tied to the USDA's Thrifty Food Plan, which is designed to provide adequate

Box

SNAP Eligibility

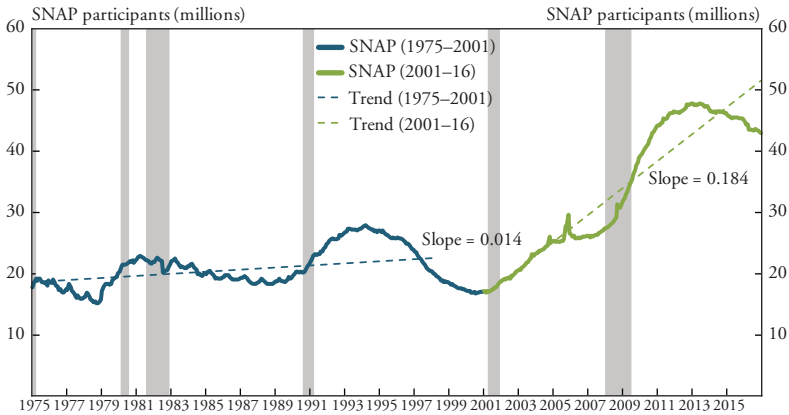
SNAP eligibility depends on gross income, net income—gross income less certain deductions—and assets. To qualify for SNAP benefits, a household's gross monthly income cannot exceed 130 percent of the poverty guideline, and its net monthly income cannot exceed 100 percent of the poverty guideline, which is determined by family size. As of 2017, a household's gross monthly income cannot exceed \$1,307 for a one-person household and \$2,212 for a three-person household. In addition, a household's net income cannot exceed \$1,005 monthly for an individual and \$1,702 monthly for a three-person household.

In calculating net income, households can deduct 20 percent of earned income, excess shelter costs (amount of rent or payment over half of household income), a standard deduction determined by the size of the household, and several other, specific items such as dependent care and medical care from their gross income. Net income is pre-tax cash income and therefore does not include in-kind assistance such as housing, which could be substantial, or tax credits such as the Earned Income Tax Credit.

In addition to income limitations, households must fall below certain asset thresholds. Generally, households may have only \$2,250 or less in countable resources (\$3,250 if age 60 or older). However, many resources are exempt. Not included in the asset calculation are homes, the resources of those on Supplemental Security Income (SSI), the resources of those who receive Temporary Assistance for Needy Families (TANF), and most retirement and pension plans. In addition, SNAP has a standard auto exemption of \$4,650, but 42 states exempt larger amounts, and 39 of these states exempt the entire value of vehicles. Regardless of the size of the exemption, exempted articles such as vehicles are subject to federal restrictions on how they are used.

Chart 1

SNAP Participation



Note: Gray bars denote National Bureau of Economic Research (NBER)-defined recessions.

Sources: USDA Food and Nutrition Service and NBER.

nutrition at minimum cost (USDA Center for Nutrition Policy and Promotion 2018). Those with no income receive the maximum benefit. Those with income have their benefits reduced by 30 percent of their net income (as measured for SNAP eligibility). For example, the maximum benefit for a three-person household with no income in 2018 is \$504 per month. If the household were to receive \$1,000 monthly in net income, its SNAP benefit would fall to $\$504 - 0.3(\$1,000) = \$204$ per month.

SNAP participation was relatively stable until 2001 but has since climbed significantly higher. Chart 1 shows overall participation in SNAP from 1975 to 2017.³ From 1975 to 2001, SNAP participation increased, on average, by 14,000 per month. But starting in 2001, participation increased by an average rate of 184,000 per month. The rate of increase accelerated during the Great Recession and early recovery.

While most of the increase in SNAP participation can be attributed to increased eligibility, a smaller, but significant amount of the increase can also be attributed to a higher take-up rate—that is, a higher share of eligible individuals and households participating in the program (Ganong and Liebman 2013). The apparent “break” in SNAP participation’s long-term pattern in 2001 is due in part to the implementation of policies that eased access to SNAP. Once these policies took effect, the take-up rate increased from about 54 percent of eligible

households in 2001 to about 69 percent in 2006 (Eslami, Leftin, and Strayer 2012). Overall, the increase in the take-up rate contributed 15 percentage points to the 46 percent increase in participation over that period, roughly one-third of the total increase. But two-thirds of that increase remains unexplained, potentially driven by both structural and cyclical factors.

II. Factors Affecting SNAP Participation

If SNAP-related legislation, program rules, eligibility, and the distribution of income were fixed—and the economy experienced no cyclical fluctuations—SNAP participation would be expected to follow a consistent long-term trend as some fraction of the population. But of course, all of these factors have changed over time: the distribution of income has changed, SNAP has undergone a series of significant legislative and programmatic changes, and the labor market has experienced structural change—specifically, in labor force participation. Moreover, the economy has expanded and contracted over time, with an especially deep recession in 2007–09. Each of these factors could credibly affect SNAP participation.

The limited prior research on this topic points to several of these factors as explanations for SNAP participation. Ganong and Liebman (2013) use family-level data from the Survey of Income and Program Participation (SIPP) and county-level data to show that local unemployment can explain roughly two-thirds of the increase in SNAP enrollment from 2007 to 2011 (see also Hanson and Oliveira 2012). They find relaxed income and asset thresholds and temporary changes in program rules for childless adults explain another 18 percent (see also Mulligan 2012). In addition, they find welfare reform significantly reduced SNAP take-up rates, while mid-2000s policies designed to ease access to SNAP increased them.

Rutledge and Wu (2014) use administrative data and the SIPP in a study of both SNAP and SSI. The authors argue that the continued expansion of both SNAP and SSI participation following the Great Recession—even as unemployment fell—resulted from a persistent poverty rate and an increased share of the population reporting poor or fair health.

I extend previous research in several ways. First, I examine a much longer time series for SNAP, analyzing the data from July 1974 to

December 2016. Ganong and Liebman (2013), by comparison, evaluate the welfare reform era, the “Bush era” of 2001–07, and the Great Recession era separately. Second, I look at a much wider set of legislative and programmatic changes to SNAP. Third, I treat short-term and long-term unemployment as separate phenomena and consider other structural changes in the labor market as well. To identify the most significant factors affecting SNAP participation, I consider a variety of factors that may affect the long-term trend in SNAP participation or its cyclical variation.

Population

One likely reason why SNAP participation has increased over time is that the resident population has increased substantially—by 63 percent since 1969. The raw correlation between population and SNAP participation is 0.82. When adjusted for population, annual growth in SNAP from 1974 to 2016 declines from 3.1 percent to 2.1 percent.

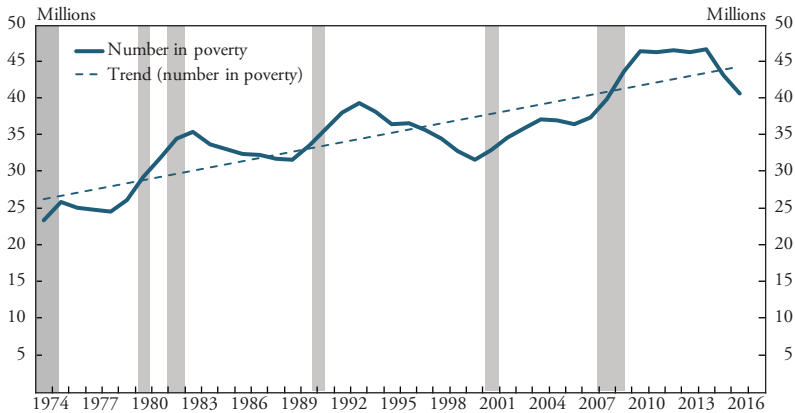
People in poverty

The income test for qualifying for SNAP benefits is income relative to the poverty threshold. Specifically, households must have gross incomes less than 130 percent of the poverty threshold and net incomes (gross income less a number of deductions) less than 100 percent of the poverty threshold.

The poverty threshold is a needs-based measure derived from the cost of a minimum food diet multiplied by 3. In 2017, the poverty threshold was \$19,749 for a household of three with two related children under 18. The poverty threshold changes over time and moves closely with the Consumer Price Index (CPI), of which food cost is a significant component. Adjusting for changes in the CPI, the poverty threshold has remained around \$19,730 (in 2017 dollars) since 1986, except for a \$20 bump up in 2016.

While the poverty threshold has been relatively stable, rates of poverty change over time. Poverty rates are partly cyclical, but structural factors, including some policies, drive the long-term trend in poverty. What is most important for my analysis is the number of people who are in poverty, which would be expected to be a primary driver of SNAP participation. The number of people in poverty rose sharply during the Great Recession and stayed historically high through 2014, when it

Chart 2
Number in Poverty



Note: Gray bars denote NBER-defined recessions.

Sources: U.S. Census Bureau and NBER.

peaked at 46.7 million (Chart 2). Over time, the number of people in poverty has increased at an annual rate of 1.3 percent per year. In 2016, 40.6 million people were in households below the poverty threshold.

Labor force nonparticipation

Labor force nonparticipation is another important driver of SNAP participation. Excepting transfers, most income earned by households in lower-income quantiles is from labor.⁴ Thus, a change in the number of workers in the labor force could lead to a change in SNAP participation. A changing number of workers may be due to structural changes, such as an aging workforce, or cyclical changes, such as a recession that leads to layoffs. To account for structural changes in the labor force, I examine the number of individuals who are considered “not in the labor force” (NILF)—that is, those who are not employed and not currently looking for work.⁵

Accounting for these people is important, as many of them are eligible for SNAP. For example, most retirees who rely on Social Security benefits for all or nearly all of their income would qualify for SNAP on a gross income basis.⁶ Others who are NILF have a disability or other situation that prevents them from working. Among adults age 21–64, about 59 percent of those with a disability do not work, compared with 21 percent of those without a disability (U.S. Census

Bureau 2012). Most of those with qualifying disabilities who do not work receive income through the Social Security Disability Insurance or SSI programs—but for some, this income is sufficiently low to also qualify for SNAP benefits. Moreover, SSI is not included in SNAP calculations (Social Security Administration 2017). Finally, some people who are out of the labor force would like a job but are technically unattached to the labor force because they have not looked for work in the past month. Many of those out of work for long periods likely have exhausted financial resources and may qualify for SNAP.

In October 2017, the labor force nonparticipation rate (NILFR) was 37.3 percent, significantly higher than the NILFR of 33.8 percent in 2007, just prior to the Great Recession. The rise in labor force nonparticipation was much faster than its long-term trend would predict, with cyclical factors accounting for 50 percent of the increase (Van Zandweghe 2012).⁷ Still, the cyclical component of NILF is usually relatively small in magnitude. As a result, I focus on the structural component of labor force nonparticipation, which is based on its long-term trend as estimated by Van Zandweghe.

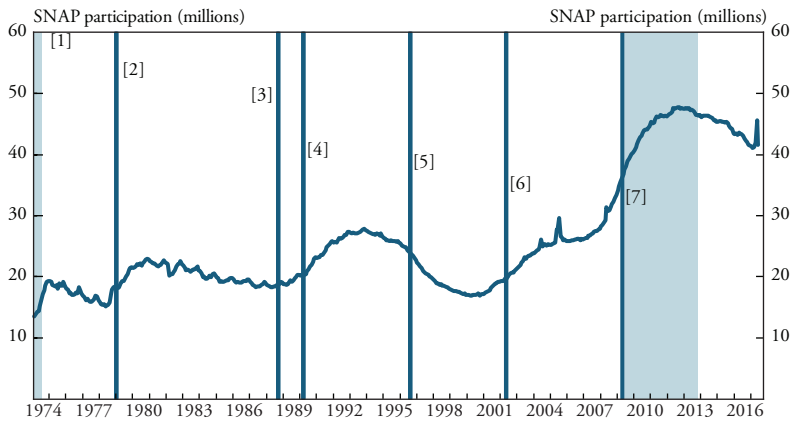
Legislative and programmatic changes

SNAP has undergone various legislative and programmatic changes since its inception, each of which has the potential to affect participation. Chart 3 shows a detailed outline of legislative and programmatic changes to SNAP from 1974 to 2016. The trend in SNAP participation is consistent with the developments in legislation, rules, and regulations.

At the beginning of the original Food Stamp Program (FSP), participation was modest.⁸ In April 1965, approximately half a million people participated. As more states adopted the program, participation gradually expanded. The 1973 Agriculture and Consumer Protection Act required all states to have the FSP in place by 1975. By July 1974, all states had complied—and by October 1974, participation had increased to 15 million.

In 1977, Congress passed the Food Stamp Act of 1977. The most significant aspect of the Food Stamp Act was the elimination of the “purchase requirement” from the FSP, which required recipients to, in some sense, pay for their food stamps. An example from a *New York*

Chart 3
Legislative and Programmatic Changes to SNAP



Notes: [1] Program is nationwide as of July 1974; [2] Purchase requirement eliminated; [3] Hunger Prevention Act of 1988; [4] Mickey Leland Memorial Domestic Hunger Relief Act of 1990; [5] Personal Responsibility and Work Opportunity Reconciliation Act (“welfare reform bill”); [6] 2002 Farm Bill; [7] American Recovery and Reinvestment Act of 2009 (ARRA). Shaded region denotes temporary increase in SNAP benefits from April 2009 to November 2013.
Source: USDA Food and Nutrition Service.

Times article at the time considered a family of four earning \$300 per month (Hicks 1977). The family might set aside 30 percent of their income, or \$90, to purchase food. It would give the government \$90 for \$106 in food stamps. Those in favor of eliminating the purchase requirement argued that some recipients might be too poor to pay for food stamps. But others were concerned that without the purchase requirement, the FSP might incur more fraud or that the program would be viewed (rightly or wrongly) as a traditional “welfare” program. The purchase requirement was eliminated effective January 1, 1979, and participation in the FSP increased immediately and significantly.

The next significant piece of legislation that led to increased participation was the Mickey Leland Memorial Domestic Hunger Relief Act of 1990 (the Leland Act). Among the Leland Act’s most substantial provisions was an increase in the average SNAP benefit (USDA 1990). In addition, the Leland Act offered additional education and training opportunities and expanded FSP eligibility by adding asset exclusions, such as vehicles, as well as exclusions in the determination of net income. Although the economy entered a recession in 1990 followed by an anemic job recovery, the increase in FSP participation over the period was larger than the economic cycle alone would predict (Wiseman 2002).

Unlike most of the previous legislative changes to the FSP, the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (more commonly known as “welfare reform”) significantly reduced participation in the program. Among the most substantial provisions the Act introduced was a 36-month time limit for able-bodied adults without dependents and a freeze of the standard deduction (used to determine net income), vehicle limits, and maximum benefit. FSP participation fell from 26.3 million residents in 1995 to 22 million in 1997 to 17.1 million by 2000.

Finally, the American Recovery and Reinvestment Act (ARRA), commonly known as the “stimulus bill,” was passed in 2009 in an effort to jump-start the struggling economy during the depths of the Great Recession. ARRA provided for a temporary increase in SNAP benefits from April 2009 until November 2013. The average benefit, adjusted for inflation, increased from \$116.34 per recipient per month in 2008 to \$143.17 in 2009 to \$150.40 in 2010. Inflation-adjusted average benefit fell to \$129.44 in 2013 as the temporary fiscal stimulus was unwound. Average monthly participation also increased from 28.2 million in 2008 to 33.5 million in 2009. By 2013, average monthly participation had reached 47.6 million. Because the ARRA was a temporary, direct response to a recession, I treat it as a cyclical factor in the analysis, separate from the other legislative and programmatic changes, which are structural.

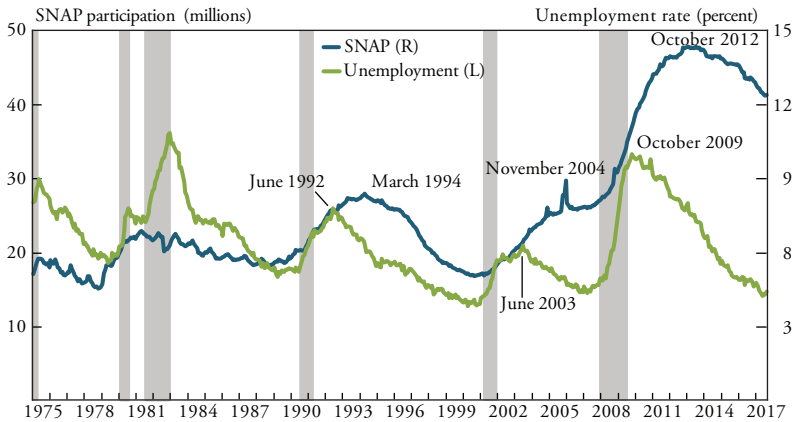
Unemployment

As SNAP is a social safety net, participation would be expected to rise when unemployment rises. Likewise, SNAP participation would be expected to fall when unemployment declines. For the most part, this is the observed relationship, particularly during recessions—though in general, SNAP participation does not peak until months after the unemployment rate peaks. Chart 4 shows that this lagged relationship holds in expansions as well: although the unemployment rate began to fall in October 2009, SNAP participation did not begin to tick down until October 2012.

One explanation for this lag is that it takes time for unemployed people to exhaust their financial resources, including unemployment compensation and personal savings, before they qualify for or

Chart 4

SNAP Participation and the Unemployment Rate



Note: Gray bars denote NBER-defined recessions.

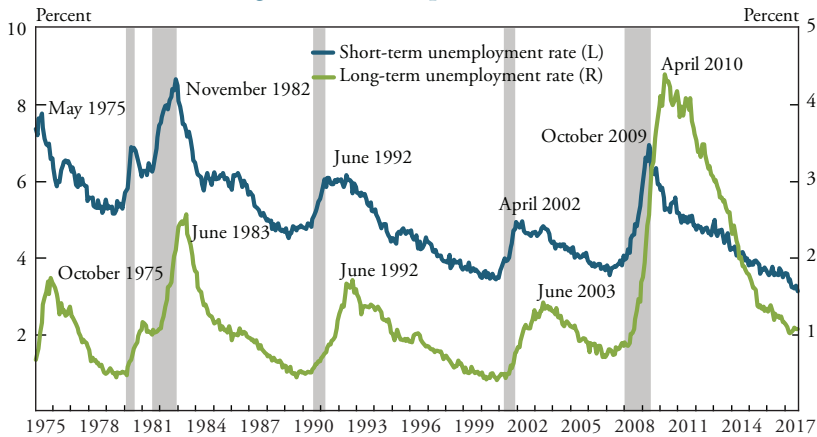
Sources: U.S. Bureau of Labor Statistics (Haver Analytics), USDA Food and Nutrition Service, and NBER.

enroll in SNAP. As a result, the long-term component of the unemployment rate may be more closely tied to SNAP participation than the short-term component of the unemployment rate.

The U.S. Bureau of Labor Statistics uses six months as a yardstick for long-term unemployment. I express the long-term component of the unemployment rate as a long-term unemployment rate (that is, the number of people unemployed for more than six months as a share of the total labor force). Similarly, I express the short-term component as a short-term unemployment rate (the number of people unemployed for six months or less as a share of the total labor force). The headline unemployment rate, known as U3, is the sum of the long-term unemployment rate and the short-term unemployment rate.

Chart 5 shows that while the short-term and long-term unemployment rates move with the business cycle, long-term unemployment typically peaks after short-term unemployment. In addition, during the Great Recession, the long-term unemployment rate increased proportionally more than short-term unemployment rates. Specifically, the long-term unemployment rate tripled, while the short-term unemployment rate did not quite double. After the recession, long-term unemployment continued to expand through 2010

Chart 5
Short-Term and Long-Term Unemployment Rates



Notes: The short-term unemployment rate is the share of the labor force that has been unemployed for less than 27 weeks. The long-term unemployment rate is the share of the labor force that has been unemployed for 27 weeks or more. The short-term and long-term unemployment rates sum to the “headline unemployment rate,” or U3. Gray bars denote NBER-defined recessions.

Sources: U.S. Bureau of Labor Statistics (Haver Analytics), NBER, and author’s calculations.

while short-term unemployment declined. Long-term unemployment did not decline appreciably until late 2011. Earlier recessions show similar patterns. In the subsequent analysis, I consider the short-term and long-term unemployment rates separately.⁹

III. Relative Contribution of Factors to SNAP Participation Rates

To better understand the relative contributions of explanatory factors to the observed pattern in SNAP participation over time, I incorporate the factors from the previous section into a regression framework that relates each of them to SNAP participation. Table 1 provides summary statistics for each of the factors.

The dependent variable in the regression is the percentage change in the number of residents enrolled in SNAP, while the independent variables are the percentage changes in the factors. The regression is estimated in natural logarithms. The difference in logs can be interpreted as the percentage change in a variable over the course of a year.¹⁰

I use estimates of the structural component of labor force nonparticipation based on research by Van Zandweghe (2012). Because my analysis already accounts for unemployed individuals, I focus on those

Table 1
Summary Statistics for Regression Variables

Variable	Mean	Standard deviation
SNAP participation (millions)	25.7	9.6
Number in poverty (millions)	35.6	6.2
Labor force nonparticipation: structural component (millions)	34.99	1.59
Short-term unemployment (millions)	6.60	1.04
Long-term unemployment (millions)	1.80	1.43
Leland Act	0.614	0.487
Food Stamp Act of 1977 (purchase requirement eliminated)	0.894	0.308
Welfare reform	0.482	0.500
ARRA	0.108	0.310
Exhibit: unemployment rate (percent)	6.45	1.57

who are NILF. The structural component of NILF is 1 minus the trend labor force participation rate from Van Zandweghe. The cyclical component, which is typically very small (zero, on average), is not used in the regression.

In addition, I include the legislative and programmatic changes to SNAP as binary variables that take a value of 0 prior to the legislation and a value of 1 after it. The binary ARRA variable takes a value of “1” only from May 2009 to November 2013, when the temporary increase in benefits was in effect.

Regression results

Because the model—excepting the legislation factors—was estimated in logs, the coefficients are elasticities, meaning they show the percent change in SNAP participation associated with a one percent change in each factor. Results from the regression show that most of the factors are statistically significant (Table 2).¹¹

The coefficient on the number of people in poverty is positive and relatively large in magnitude. The result suggests that a 10 percent increase in the number of people in poverty is associated with 8.8 percent higher SNAP participation. In 2016, 46.2 million people were in poverty, while 44.4 million people participated in SNAP (in March).¹² The results suggest that had 50.8 million people been in poverty (46.2[1.10]), 48.3 million would have participated in SNAP (44.4[1.088]).

Table 2
Regression Results

Variable	Parameter estimate (standard error)
Intercept	-2.040** (0.761)
People in poverty	0.877** (0.078)
Labor force nonparticipation: structural component	1.710** (0.328)
Food Stamp Act of 1977 (purchase requirement eliminated)	0.0008 (0.009)
Leland Act	0.024** (0.009)
Welfare reform	-0.039** (0.0008)
ARRA	0.046** (0.009)
Short-term unemployment	-0.041 (0.026)
Long-term unemployment	0.076** (0.010)
Population	-2.004** (0.077)
Adjusted R ² (transformed regression)	0.637

** Statistically significant at the 99 percent confidence level

* Statistically significant at the 95 percent confidence level

Note: The dependent variable is the 12-month difference in the natural log of SNAP participation in millions.

The coefficient on labor force nonparticipation suggests that a larger share of the population outside of the labor force is associated with greater participation in SNAP. The estimated coefficient is substantial in magnitude at 1.71, meaning that a 10 percent increase in labor force nonparticipation would be associated with a 17.1 percent higher SNAP participation.

To put this value in perspective, consider that the NILFR was 37.3 percent in November 2017, and the trend NILFR was 37.6 percent. SNAP participation in November 2017, the latest month for which data are available, was 41.7 million. If the NILFR had remained at its pre-recession low of 33.6 percent (33.9 percent considering only the structural component), my results suggest the number of SNAP participants would have been much lower at 33.9 million $\left(41.7 \left[1 - 1.71 \left(\frac{0.376}{0.339} - 1\right)\right]\right)$.

The coefficients for legislative changes denote the percentage change in SNAP participation associated with the legislation. The coefficient on the purchase requirement is statistically insignificant. The coefficient for the Leland Act is 0.024, meaning that, on average, the percentage change in SNAP participation was 0.024 percentage point higher after the Leland Act was passed. In other words, the results suggest the Leland Act may account for 1 million of the current 41.7 million SNAP participants. The negative coefficient on the welfare reform act indicates that welfare reform reduced the rate of change in SNAP participation by 0.039 percentage point. This result suggests that without welfare reform, an additional 1.6 million people might be participating in SNAP today. Finally, the parameter estimate for the ARRA is 0.046, meaning that, on average, the percentage change in SNAP participation was 0.046 percentage point higher when the ARRA SNAP provisions were in effect. From May 2009, when the ARRA first came into effect, until May 2010, SNAP participation rose from 33.5 million to 40.4 million, a 20 percent change. The results suggest that had the ARRA not been implemented, the change might have been 16 percent $\left(\left[\frac{40.4}{33.5} - 1 \right] - 0.046 = 0.16 \right)$ instead—in other words, the level of SNAP participation in 2010 might have been only 38.9 million.

The regression results confirm that long-term unemployment is associated with SNAP participation, but short-term unemployment is statistically unrelated to SNAP participation. The estimates suggest that a 10 percent increase in the long-term unemployment rate is associated with 0.8 percent higher SNAP participation $[10(0.076)]$. Given the current SNAP participation level, this percentage change amounts to about 334,000 additional SNAP participants.

Surprisingly, the coefficient on population is negative. Regression models are interpreted as partial effects, so the coefficient on population can be interpreted as the correlation between population and SNAP participation while holding other factors fixed. More specifically, the regression can be interpreted as the correlation between SNAP participation and an increase in the population that is in the labor force, employed, and not in poverty. In theory, the population coefficient might be expected to be zero, or not statistically different from zero. Although the statistically significant negative value has no clear

economic interpretation, it likely reflects correlation among variables in the model and the inclusion of variables that are mostly positively associated with SNAP participation.

Relative contributions

The results from the regression analysis can be used to calculate the relative contributions of each factor to SNAP participation. Chart 6 shows the estimated drivers of the change in SNAP participation from month to month, calculated by multiplying the estimated coefficient on each variable (listed in Table 2) by the annual change in each variable.

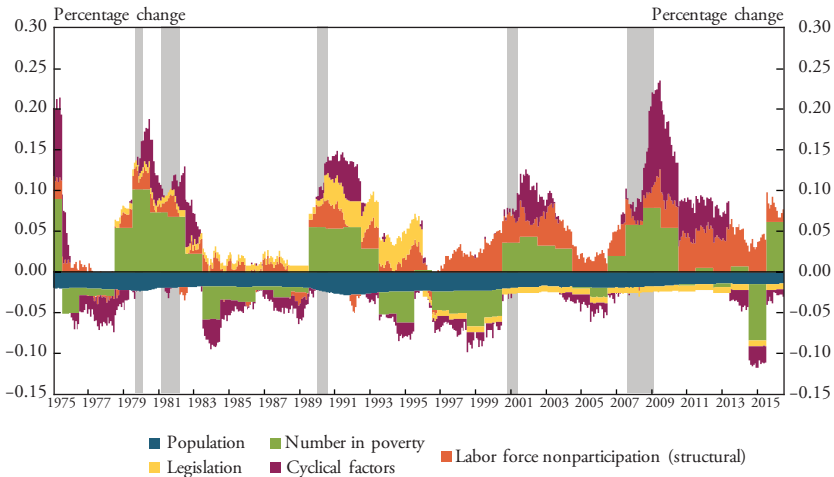
As an example, consider the contribution of labor force nonparticipation. Labor force nonparticipation increased by 0.91 percent from December 2015 to December 2016. The estimated coefficient from Table 2 is 1.710. Together, these values suggest labor force nonparticipation contributed 1.56 percent to the change in SNAP participation ($1.710[0.0091]=0.0156$).

As an additional example, consider growth in the number of people in poverty. The number of people in poverty grew from 43.123 million in December 2015 to 46.247 million in December 2016, a 7.2 percent increase $\left(\left[\frac{46.247}{43.123}-1\right]=0.072\right)$. This change was associated with a 6.3 percent change in SNAP participation ($0.8767[7.2]$), or an additional 2.9 million participants ($45.415[0.063]=2.9$). Interestingly, total SNAP participation declined from 45.4 million people to 43.2 million people in December 2015–16. The results suggest that had the number of people in poverty *not* increased over this period, SNAP participation might have fallen further to 40.3 million people instead.

Overall, Chart 6 reveals that structural factors explain most of the variation in SNAP participation over time. However, during recessions (highlighted in gray bars) and early recoveries, cyclical factors become significant contributors. The results for the cyclical factors are largely consistent with SNAP's reputation as an automatic stabilizer. Cyclical factors added to SNAP participation during recessions and early in recoveries, but tended to depress SNAP counts later in recoveries. Still, the Great Recession was a notable exception. Unlike in other recessions, cyclical factors contributed to increased SNAP participation years into the recovery from the Great Recession. SNAP participation has only recently begun to drop.

Chart 6

Structural and Cyclical Breakdown of SNAP Participation



Notes: Cyclical factors include unemployment rates and the ARRA. Gray bars denote NBER-defined recessions.
Sources: Author's calculations and NBER.

IV. Conclusion

Participation in SNAP has increased dramatically over time due to numerous factors. I examine multiple structural and cyclical factors to explain why and how they may have affected SNAP participation over time. Results from a regression analysis suggest the number of people in poverty, the number of people out of the labor force, and a variety of legislative and programmatic changes to SNAP are associated with increased participation in SNAP. In contrast, welfare reform in the mid-1990s is associated with reduced participation in SNAP.

A consideration of the factors' relative contributions to SNAP participation shows that the dominant factors explaining SNAP participation over time are largely structural. But cyclical factors were much more prominent during the Great Recession than in other recessions and recoveries.

Overall, the results suggest the growing trend in SNAP participation is unlikely to unwind. Ongoing demographic changes—particularly the aging of baby boomers into retirement—will likely continue, although immigration could mitigate this demographic effect. These demographic changes will affect labor force nonparticipation. Absent a major structural change in the economy or policy initiatives, the

number of people in poverty is likely to grow as well. Given demographic changes and the number of people living in poverty, the results in this article suggest that SNAP participation is likely to remain significantly higher than its pre-2001 level in the future.

Endnotes

¹Annual data are for fiscal years unless otherwise noted.

²I estimate the school-age population using data from the American Community Survey, U.S. Census Bureau.

³While publicly accessible SNAP data begin with January 1969, when states first implemented food stamp programs in earnest, states were not required to have food stamp programs until January 1975. They had all complied by mid-1974.

⁴The labor share of income was 56 percent in 2014 (Armenter 2015). The lowest-income people (bottom income quintile) derive a significant portion of their income from transfers (60.4 percent), but the remainder is largely labor income (38.6 percent) (see Rodriguez and others 2002, especially Table 6). Moderate- and middle-income people (second and third quintiles) derive the bulk of their income from labor (62.4 percent and 77.2 percent, respectively), but receive a significant portion from transfers as well (31.4 percent and 15.3 percent, respectively).

⁵From the mid-1960s until the late 1990s, the NILF rate trended down as baby boomers and women increasingly entered the workforce. The long-term trend leveled off before starting to rise as baby boomers reached retirement and life expectancies increased. Increased life expectancies increase NILF, because participation falls as workers age. In addition, rising school enrollments have increased the labor force nonparticipation rate of younger workers (see also Aaronson and others 2006).

⁶For 22 percent of retirees 65 and older, Social Security benefits account for more than 90 percent of their total income (Joint Economic Committee 2016; Social Security Administration 2016).

⁷Before the 2007 recession, the labor force participation rate (LFPR) was only weakly pro-cyclical compared with its long-term trend (it was modestly higher during booms and modestly lower during recessions). After 2009, the cyclicality strengthened, meaning the LFPR became significantly more sensitive to economic conditions. In recent years, the relationship between cyclical factors and the observed LFPR has weakened, but it has far from disappeared. One factor in the stronger tie between the LFPR and the business cycle is an increase in worker flows from employment to nonparticipation (Van Zandweghe 2012).

⁸Details are available at <https://www.fns.usda.gov/snap/short-history-snap>. The Food Stamp Program was renamed the Supplemental Nutrition Assistance Program in the 2008 Farm Bill.

⁹The later peak of long-term unemployment compared with short-term unemployment reflects faster transitions out of unemployment for the short-term unemployed relative to the long-term unemployed. Krueger, Cramer, and Cho (2014) find the matching of skills to relevant jobs is weaker for the long-term unemployed than the short-term unemployed. Ghayad (2014) finds that workers who report longer stretches of unemployment are less likely to receive

an interview request, regardless of experience. In addition, long-term unemployment may carry a stigma related to the perception of poor worker quality (Biewen and Steffes 2010; Kroft, Lange, and Notowidigdo 2013).

¹⁰The percentage change is an approximation of the log difference. Log differences and percentage changes vary little for small changes.

¹¹The regression was estimated using generalized least squares (commonly known as GLS). Ordinary least squares (OLS) estimation yielded biased standard errors due to serial correlation. The Durbin-Watson statistic for the OLS estimation was 0.180, indicating significant positive serial correlation.

¹²The annual poverty rate and number in poverty is calculated using data from March of each year.

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