# SNAP: Work Support or Welfare Magnet?

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## Abstract

By early 2011, nearly one out of every eight individuals in the U.S. received benefits through the Supplemental Nutrition Assistance Program (SNAP). To qualify for benefits, SNAP recipients must have low earnings during program participation; however, less is known about the long-term earnings patterns of people who receive benefits. In this paper, I use longitudinal Social Security Administration administrative earnings data linked to the Survey of Income and Program Participation (SIPP) to assess the effect of SNAP participation on earnings up to ten years after benefit receipt ends. To do so, I observe complete spells of SNAP participation in the SIPP and then track the earnings of participants ten years before and after those spells. The resulting earnings patterns suggest that SNAP participants do experience faster earnings growth after participation in the program has concluded, but that earnings growth does not differ from the rest of the sample that did not participate in SNAP. As expected, people who receive SNAP for longer periods of time (2 and 3 years) have slower earnings growth after SNAP receipt than do those who receive SNAP for no more than one year. Overall, it appears that the strong macro economy of the mid- and late-1990s as well as basic demographic factors such as levels of educational attainment, gender, marital status, and number of children are the biggest drivers of earnings growth among former SNAP recipients.

# I. INTRODUCTION

The Supplemental Nutrition Assistance Program (SNAP) provides financial assistance to low-income households to help them purchase food. The program has grown quickly over the past few decades: In 1980, there were about 21 million people receiving benefits; by 2011, that number had increased to nearly 45 million people, or about 14 percent of the U.S. population. Over that same period, federal spending on the program grew from about $9 billion to about $76 billion (not adjusted for inflation). Today, the program ranks as one of the largest low-income transfer programs in the United States.

By definition, SNAP recipients must have low levels of income during their participation in the program. Less is known, however, about the long-term earnings and income patterns of people who receive benefits. In this paper, I use longitudinal administrative earnings data provided by the Social Security Administration (SSA) linked to the Survey of Income and Program Participation (SIPP) to assess the effect of SNAP participation on long-term earnings. To do so, I observe spells of SNAP participation in the SIPP and then track participant's earnings before and after those spells. Evaluating those earnings should provide insight as to whether the program acts as a welfare magnet or as a work support for people with low earnings. In other words, are people likely to see their earnings levels rebound (or even exceed) their pre-SNAP spell earnings or are their earnings more likely to remain at the level at which they qualified for benefits? In the former case, the program would appear to act as a work support and provide a bridge to higher employment rates and earnings growth. In the latter, the program might act as a welfare magnet wherein people who have low levels of current earnings—either on a consistent, longitudinal basis or through a transitory change to their earnings—continue to have low long-term earnings.

The patterns and estimates I show in this paper are somewhat mixed in nature and do not provide a definitive answer to the questions posed here. I find that average (and median) earnings of SNAP recipients do appear to be higher after participating in SNAP, but for the most part, that earnings growth is not much different than for the non-SNAP receiving population. Indeed it appears that the macro economy is the likely driver of higher earnings levels than is the SNAP program. Earnings patterns are similar for people who had a terminal SNAP spell in 1996, 1997, or 1998 (that is, their period of benefit received began and ended each of those specific years). In the case of people whose SNAP spell began and ended in 1999, however, median and mean earnings did not return to their pre-SNAP levels. For that cohort, earnings growth lagged behind people who never participated in SNAP and people who participated in SNAP in other years. The recession that occurred between March 2001 to November 2001—and the subsequent "jobless" recovery—coincided with the immediate post-SNAP period for this group, which may help explain this finding. People who participated in SNAP for more than one year generally have lower long-term earnings than do people who participated in SNAP for less than a year.

## II. PREVIOUS LITERATURE and CONCEPTUAL FRAMEWORK

The conceptual approach in this paper is in the spirit of Milton Friedman's "permanent income hypothesis". Friedman's hypothesis that "permanent income"—that is, expected long-term income—is a stronger predictor of consumption than is current income lends itself well to this analysis of current and long-term earnings as they relate to SNAP participation. Under the permanent income hypothesis, transitory shocks to income—be them positive or negative—affect consumption only to the extent to which they affect *expectations* about permanent income.

Thus, under the permanent income hypothesis, people smooth out the effects of transitory shocks—both and negative—over a long period.

In the context of SNAP participation, current program participation may be related to expected long-term earnings (or income) rather than (or in addition to) current earnings. If two people have the same current earnings but different expectations about *future* earnings, the person with lower expected long-term earnings may choose to participate in SNAP while the other person may not. As a corollary, a person whose current earnings are low because of a large, negative transitory shock—but has expectations about high(er) future earnings—may be less likely to participate in SNAP than the person whose low current earnings are a good approximation of his or her permanent earnings.

The differences between transitory and permanent earnings—and expectations about future earnings—directly affect the composition of SNAP participants and, therefore, the long-term earnings patterns that are discussed below. People who experience a negative transitory shock and become eligible for SNAP, but have expectations of higher long-term earnings, may choose not to apply for benefits for three reasons:

1. People with higher expected future earnings may be more likely to have other sources of income or resources that may not be captured in the survey (and are certainly not captured in the administrative data);
2. The cost of applying for benefits and the stigma associated with using benefits may be higher for people with higher expected future earnings;

3. A negative earnings/income shock may create the first opportunity for a person with expectations for high long-term earnings to interact with the public transfer system and he or she may thus be less likely to be aware of such benefits or to apply for benefits.

Were workers with higher expected (and realized) earnings to apply for benefits whenever they became eligible, overall long-term earnings among SNAP beneficiaries would likely be higher than long-term earnings among people who anticipated low long-term earnings.

*SNAP Participation and Earnings Growth*

There are few analyses of long-term earnings patterns for SNAP participants, and I discuss two here. Farrell et al (2003) were primarily concerned with understanding SNAP participation rates among eligible households, which had declined during the mid- and late-1990s. Those authors were also interested in tracking monthly household income for SNAP participants and, using SIPP survey data, were able to follow participating households for up to 3 years after participation in the program. They found a V-shaped pattern in monthly earnings around SNAP participation (or eligibility). I also find evidence of a V-shaped pattern of earnings, but it is more muted than that shown in Farrell et al (2003), most likely because the administrative earnings data are annual, which will be smoother than the monthly (survey) data in Farrell et al.

Elkin and Turner's (2008) paper is more closely related to the one conducted here. In that paper, the authors matched the 1996 SIPP to the Summary Earnings Record (SER), which is a longitudinal administrative data set provided by SSA similar to that used here. In the Elkin and Turner (2008) paper, however, the authors only had access to earnings records through 2000, so for SNAP participants in 1996, they were only able to examine earnings 3 years after SNAP

receipt. In general, the findings in Elkin and Turner (2008) are similar to those reported below, but due to their data constraints, the authors focus more on earnings in the years before SNAP participation than in the years after. Interestingly, Elkin and Turner (2008) were not able to replicate the V-shaped pattern of earnings around SNAP participation as found in Farrell et al (2003) and which I also find.[1] It's unclear why this is the case: Elkin and Turner (2008) use administrative data similar to the data I use here, so the cause of the discrepancy between their analysis and the estimates shown here is most likely due to the composition of the sample. And there are two specific differences in the samples that could explain those discrepancies: First, I focus on the individual as the unit of analysis while Elkin and Turner use Food Stamp Units (FSUs). And even though SNAP is awarded at the FSU level, I choose to look at individual earnings because I am unable to follow household, family, or FSU formation dynamics outside the SIPP window.[2] Aggregating individuals into FSUs might further mute earnings patterns around SNAP receipt when earnings losses from one FSU member might be offset by earnings gains from another FSU member. Second, Elkin and Turner employ an eligibility model (the MID-SIPP model from MaCurdy and Marrufo, 2006) that smoothes over changes in eligibility and participation owing to seam bias in the SIPP; I do not make such adjustments primarily because I measure the demographic variables over longer (multi-wave) periods.

Finally, and importantly, Elkin and Turner (2008) and Farrell et al (2003) both find increases in earnings among SNAP participants following initial SNAP participation that more or less tracks

[1] They are, however, able to replicate the V-shaped pattern for earners in the lowest and second earnings quartiles.
[2] I haven't found much mention of this concern in the Elkin and Turner article, although the same issue should be present when modeling eligibility for the program, as they do. Furthermore, they do not appear to address or test for the possibility of endogeneity in their model when they include post-SNAP earnings in a regression where the dependent variable in SNAP eligibility. SNAP participation directly affects post-SNAP earnings and thus it should be excluded from their model. This is an assumption Farrell et al (2003) consider carefully and address using an instrumental variables approach.

increases among non-SNAP participants. Both studies attribute at least part of this finding to the strong economy of the late-1990s. I find similar patterns and show that not only is the overall economy likely to be a strong factor in earnings patterns in the late-1990s, but individual demographic characteristics are strongly correlated with future earnings more than other SNAP-related factors such as length of time on benefits or overall amount of benefits received.

*Other Relevant Literatures*

Although there are few studies that examine the long-term earnings patterns of SNAP participants, other strands of economic analysis can provide valuable tools and strategies for analysis. Kling (2004) examined the earnings and employment patterns of incarcerated people in Florida and California. He modeled future earnings and employment 7 years after the incarceration spell ended and found no evidence of negative labor market consequences because of longer incarceration length. In this paper, I take a slightly broader view of future earnings and average earnings in years 8, 9, and 10 after the SNAP spell concludes; I find fairly similar results when specific future years are used as the dependent variable.

Oyer (2006, 2008), Kahn (2009), and Oreopolous et al (2012) examine future earnings of college graduates depending on the macroeconomic climate in which they graduate. In his studies, Oyer finds that the macroeconomy greatly affects the initial job placement of Ph.D. economists and of MBAs. Those initial placements have long-run implications for the occupations and employment of those people throughout their careers. In her study, Kahn finds large persistent negative wage effects for white male college graduates who graduate during periods of relatively high unemployment in their state. In an unpublished paper, Dahl, DeLeire and Schwabish (2010)—

using the same data I use here—find that initial earnings losses associated with a 1 percentage point increase in the unemployment rate range from between 5 and 7 percent for men and from between 3 and 5 percent for women. Ten years after graduation, those losses decline by about half for men; for women, earnings patterns are dependent on ultimate degree.

## III. DATA

The data used in this paper are initially drawn from the 1996 panel of the Survey of Income and Program Participation (SIPP) and are then matched to administrative earnings data provided by the Social Security Administration (SSA). Linking these two data sets enables the researcher to examine long-run earnings patterns that is not feasible with the SIPP survey data alone.

*Survey of Income and Program Participation (SIPP)*

The SIPP is a panel data set that contains information on approximately 30,000 people for about three to four years. The 1996 SIPP panel is the largest of the available panels and interviews span from December 1995 to February 2000. The sample is carefully chosen: respondents must be observed entering and exiting a SNAP spell during the course of the panel. For exposition purposes, I call this group the "entrant" sample for the remaining of the paper. The entrant sample is distinct from the group of people who are observed receiving SNAP benefits when they are first interviewed or receiving benefits when they exit the sample (either because the panel ends or they leave the SIPP). This group is excluded because it is unclear for how long they have been receiving benefits prior to the beginning of the SIPP or for how long after the panel they may continue to receive benefits. Thus, including them in the entrant sample would contaminate estimates of the relationship between SNAP receipt and long-run earnings.

(Obviously, people who never receive SNAP benefits are excluded from the entrant sample as well, but they are used as the main comparison group.)[3]

*Social Security Administration's Detailed Earnings Record (DER)*

The Social Security Administration (SSA) provides longitudinal administrative earnings records from 1978 through 2010 for a large portion of people in the SIPP sample. The data include all of the information contained on a worker's W-2 tax form and is matched using the survey respondent's SIPP identification number. In this analysis, earnings include wage and salary earnings, tips, self-employment income and some deferred compensation, such as an employee's 401(k) contributions. Earnings are followed from 1986—10 years before the first SIPP cohort in 1996—through 2010, and are all converted to 2010 CPI-U dollars.

Aside from the obvious advantage of having longitudinal earnings information for SIPP respondents, the administrative data is advantageous because it does not have topcoded or bottomcoded records. That is, it contains full information about the top and the bottom of the distribution; previous research has found differences between SSA administrative data and SIPP earnings that vary across the earnings distribution (for example, Cristia and Schwabish, 2009). Further, the administrative data are presumably more accurate that survey data, though such data will not include earnings for workers who have unreported "under the table" earnings.

*Assessing the Match*

[3] Of course it is possible that members of the entrant sample participate in SNAP after their participation in the SIPP concludes and may thus contaminate estimates of long-run earnings patterns; this, however, is a shortcoming of the data that cannot be overcome.

There exists a 70 percent overall match rate between the 1996 SIPP panel and the administrative data. That match rate is slightly lower than other papers that use the same data set (for example, Dahl, DeLeire, and Schwabish, 2011) because the sample is not restricted by age, household formation, or any other characteristic. Based on the raw sample, the match rate across different groups does vary slightly: people who never received SNAP benefits exhibit a 71 percent match rate; those who received SNAP at either the beginning or the end of the sample (and thus are excluded from the main analysis) exhibit a 63 percent match rate; and those who receive benefits at some point in the panel (the entrant sample) exhibit a 72 percent match rate.

## IV. EARNINGS AND EMPLOYMENT PATTERNS

In this section, I examine the earnings and employment patterns of the entrant sample and people who never participated in SNAP at any point during the SIPP panel. In the first set of figures, I show mean and median earnings for the SIPP entrant sample over the 1986 to 2010 period. Those estimates, however, mix groups of people who enter and exit SNAP at different times. So, in the second set of figures, I separately show the earnings patterns for people who receive SNAP benefits for a single year (in 1996, 1997, 1998, or 1999) for 10 years before and after their benefit receipt. Thus, for the 1996 "cohort", I examine earnings from 1986-1995 and from 1997-2006. I then summarize these patterns by showing the percentage change in earnings for three time periods: over the entire 21-year period (1986-2009 for the 1996 cohort), in the years before SNAP receipt (1986-1995), and in the years after SNAP receipt (1997-2009).

I conduct all of these analyses for the entire entrant sample and then repeat it for the subsample of people in the entrant sample who were born between 1948 and 1968, inclusive. Because I

track earnings 10 years prior to SNAP receipt and 10 years after receipt, the full SNAP entrant sample will include earnings for people when they are very young or very old and will thus confound earnings for people who work with those who are too young to work or who have exited the labor force to retire. Restricting to this 1948-1968 cohort ensures that only earnings between ages 22 and 62 are included in the estimation.[4]

Earnings for the entrant sample are compared to two different groups. The first group is made up of people from the SIPP who never report receiving SNAP benefits at any point during the SIPP panel. Earnings estimates for this group are weighted so that their characteristics better reflect the characteristics of the entrant sample. To do so, I estimate a logit equation where the dependent variable indicates whether the person is in the entrant sample or not. The set of covariates is similar to those used in the regression analysis below and includes age (in 1996), sex, educational attainment, number of children, race, whether the person was ever married during the SIPP panel, and whether the person ever received DI, SSI, or OASI. Estimates from this logit equation are shown in the Appendix. The second comparison group is per capita money income provided by the Census Bureau ("Table P-1. CPS Population and Per Capita Money Income, All Races: 1967 to 2010"). Although per capita money income is a slightly different measure than the earnings variable used here, these estimates provide a sort of benchmark with which to compare to the country as a whole.

*Earnings Levels*

[4] For example, the youngest members of this cohort who received SNAP for one year in 1996 were 32 years old at that time and thus have earnings that span from age 22 in 1986 to age 42 in 2006. At the other end of the age range, the oldest members of this cohort who received SNAP for four years were 48 years old in 1996 and thus have earnings that span from age 38 in 1986 to 62 in 2010.

Overall, average earnings for people who started receiving SNAP at some point between 1996 and 1999 were about $21,000 prior to 1996 and then began to rise over the course of the next 15 years, reaching $26,000 in 2010. (See Figure 1). For people in the SIPP who never received SNAP benefits, average earnings were about double that of SNAP recipients, rising from about $40,000 in 1996 to about $48,000 in the mid-2000s, where they remain unchanged. As a source of comparison, average overall per capita money income from the Census Bureau shows that incomes were flat between about 1986 and 1992 at about $23,000 before rising during the mid-1990s to about $28,000, where they have remained since. Median earnings for both groups are lower than average earnings and show a slight decline prior to 1996 before rising during the mid- to late-1990s, where they have remained since.

*Full SNAP Sample*

Figure 2 shows normalized (to 1986) median earnings for SNAP recipients who received benefits for a single year in either 1996, 1997, 1998, or 1999 and Figure 3 shows a summary of those plots.[5] (Only those workers who have positive earnings in those years are included.) Also plotted are normalized median values of the non-SNAP sample and estimates from the Census Bureau. For people who received SNAP in 1996, earnings grew by 8 percent between 1986 and 1995—the year before SNAP receipt—and then grew by nearly double that rate (15 percent) in the post-SNAP period. There is a clear upward shift in median earnings growth in the year after SNAP receipt—a V-shaped pattern also reported in Farrell et al (2003). Between 1995 and 1996, earnings declined by about 8 percent for this group and then increased by 30 percent (from about $13,400 to about $17,400) between 1996 and 1997. In the following year, between 1997 and

[5] Patterns for average earnings do actually differ by a non-trivial amount. For purposes of this version of this paper, analogous results that use average earnings can be found in the Appendix.

1998, earnings increased again, from about $17,400 to about $18,600, an increase of nearly 7 percent. For the non-SNAP sample, earnings grew at a slower rate between 1996 and 1997, rising from about $27,600 to $29,000, or by about 5 percent. In the long-run, earnings continued to grow for SNAP recipients and by 2006 their earnings were almost $20,000, about 50 percent higher than in 1986, but still about $15,000 below the median earnings level among the non-SNAP sample.

Earnings patterns for people who received SNAP in the 1997 or 1998 are similar to those for people who received SNAP in 1996, but all differ for those who received SNAP in 1999. For the 1997 and 1998 groups, earnings growth quickened in the year or two right after SNAP receipt ended and by the end of the 10-year period following SNAP receipt, earnings had grown by 36 percent for the 1997 group and by 31 percent for the 1998 group. Both exceeded the growth rates for either the non-SNAP or Census groups. For people who received SNAP in 1999, however, earnings growth was significantly slower in both the pre- and post-SNAP periods. Between 1989 and 1998, earnings for this group fell by 9 percent compared with an increase of 20 percent for the non-SNAP sample and 13 percent for the Census sample (see Figure 3). After benefit receipt ended, earnings over the next 10 years (between 2000 and 2009) grew by only 4 percent. That immediate post-SNAP period coincided with the recession that occurred between March 2001 and November 2001 and the subsequent "jobless" recovery. The slower rate of growth for this group was also on par with patterns among the other two groups, however: earnings failed to rise among the non-SNAP group in those years and personal income (the Census measure) fell by 5 percent over that period.

Differences between the various cohorts may also be due to the sample size or characteristics of the survey. There were 456 people who participated in SNAP for less than a year beginning in 1996, 294 people in 1997, 171 people in 1998, and 140 people in 1999. The decline in those sample sizes may explain some of the higher volatility in the median earnings estimates shown in Figure 2. Further, it could also be the case that towards the end of the SIPP panel, survey respondents were less likely to give precise reports about their benefit receipt. Although conjecture, such behavior could result in different sample characteristics for these groups.

Altogether, I make two broad conclusions from these estimates. First, SNAP does not appear to be a 'welfare magnet' in the sense that earnings growth does exist for people who stop receiving SNAP benefits. However, and to the second point, it's unclear to what degree that earnings growth is due to SNAP receipt or to the performance of the wider economy. Because people who received SNAP benefits in 1999 appear to have slower earnings growth after SNAP receipt than the other groups—and the macroeconomy began to deteriorate in very early in 2001—it may simply be the case that the economy has the largest impact on long-run earnings and not any sort of specific effect from the SNAP program. The regression analysis below also appears to bear out this point, but further exploration is certainly warranted.

*1948-1968 Birth Cohort*

The previous set of figures included all workers in years for which earnings are available. Those estimates however, include earnings for people when they may not have been of working age. In this section, I restrict the analysis to people born between 1948 and 1968 (inclusive) so that all earnings are measured for people at least 22 years old and no older than 62 years old. For

example, for this cohort, people who received SNAP benefits in 1996 are at least 32 years old in 1996 and no older than 48 in that year. Reported estimates are conditioned on having positive earnings and because there are some nontrivial differences between estimates that use average earnings and those that use median earnings, analogous results that use average earnings can be found in the Appendix.

The median earnings patterns (again, normalized to 1 in 1986; see Figure 4) are similar to those for the entire sample, though because these estimates are for specific birth cohorts, earnings rise over time. Once again, for people who received SNAP in 1996, 1997, or 1998, earnings growth is somewhat similar to earnings growth among the non-SNAP sample, though the 1996 group experiences the fastest growth over the whole period by far (111 percent between 1986 and 2006) (See Figure 5). For all of these groups, people who received SNAP benefits experienced faster earnings growth in the 10 years following SNAP receipt than did people who did not participate in SNAP. Yet again, earnings growth was slowest for people who received SNAP in 1999—over the entire period 2000-2009 post-SNAP period, their earnings grew by 29 percent, about half the 54 percent growth rate that the non-SNAP sample experienced.

*Longer SNAP spells*

The analysis above focused on people who received SNAP for at most a single year. Figure 6 presents earnings patterns for people who have 1-, 2- or 3-year spells of SNAP receipt beginning in 1996, 1997, 1998, or 1999. Because the SIPP only spans a few years, certain SNAP recipient cohorts are not followed, or there is an insufficient number of observations in the restricted data to show the estimates.

Figure 6 shows normalized median earnings patterns (equal to 1 in 1986) for the three different SNAP entrant cohorts by length of time on SNAP. The patterns are largely consistent with the hypothesis that longer SNAP spells lead to lower long-run earnings. In the top-left panel, which compares earnings for people who started receiving SNAP in 1996, long-term earnings for people who received SNAP for a single year were about 50 percent higher in 2006 (10 years after SNAP receipt) than they were in 1986 (the same line as shown in Figure 2). For those who received SNAP for two years (in 1996 and 1997), earnings are about 8 percent higher in 2006 than in 1986 and for those who received SNAP for three years (in 1996, 1997, and 1998), earnings are about 17 percent higher than in 1986. Interestingly, earnings began to rise quickly in 2006, 2007, and 2008 for people who had received SNAP for three years, just as the economy began to sour.

The other two panels of Figure 6 also show that people who received SNAP for a single year experienced faster earnings growth than those who received SNAP for two or three years. For people who started receiving SNAP in 1997, earnings growth was 47 percent higher in 2006 than in 1986 for those who received SNAP for one year, 19 percent higher for those who received SNAP for two years, and 20 percent higher for those who received SNAP for three years. Finally, for those who started receiving SNAP in 1998, earnings growth was similar regardless of the length of time spent on SNAP.

*Patterns in Employment*

Although earnings patterns are similar across the various groups, patterns in employment—defined as the percent of people with positive earnings—differ considerably between the samples

that received SNAP at some point and those who did not. Figure 7 shows the employment rates for the full sample and for the 1948-1968 birth cohorts, both relative to the non-SNAP sample (again, weighted to mimic the characteristics of the SNAP sample). Future work will decompose these patterns into entry time and length of time receiving SNAP benefits.

In the full sample, employment rates for the non-SNAP participants rose slightly during the 1990s, but then began to decline beginning in 1998. Between 1986 and 2010, employment rates for the non-SNAP sample rose by about 3 percentage points. For those who received SNAP at some point during the SIPP panel, employment rates rose considerably between 1986 and 1998 before leveling off slightly. Over the course of the whole 1986 to 2010 period, employment rates among people who received SNAP rose by 23 percentage points. The estimates therefore suggest that SNAP may have contributed to higher employment rates, but employment rates also appeared to be increasing prior to when anyone in the SIPP is observed to have started receiving SNAP, so the overall conclusion is unclear.

The employment patterns in the first panel may simply be due to demographic (age) differences between the group that received SNAP at some point during the SIPP panel and the group that did not. To address that possibility, the exercise is repeated for those born between 1948 and 1968; for that group, employment rates declined for the SNAP and non-SNAP groups. For those who never received SNAP benefits, employment rates rose from about 83 percent in 1986 to about 86 percent in the mid-1990s before declining, ultimately reaching 75 percent in 2010. Among those who did receive SNAP benefits at some point during the SIPP panel, employment rates rose slightly between 1986 and 1995—from 74 percent to 80 percent—and then stayed at

about that level until 2000 before declining and reaching 59 percent in 2010. These results are contrary to rising earnings patterns among this cohort, suggesting that people who were working experienced some earnings growth, but that the share of people working declined.

## V. REGRESSION ANALYSIS

In this section, I quantify some of the patterns shown thus far by decomposing long-run earnings levels as a function of observable characteristics of SNAP recipients. I present estimates from five separate regressions: four include the entire sample regardless of birth year and stratify on the year in which the person started his or her SNAP spell, and a final regression is restricted to the 1948-1968 birth cohort.[6]

In all regressions, the dependent variable is measured as average earnings across years 8, 9, and 10 after SNAP spell receipt has concluded. For example, a person who starts a spell in 1996 and ends that spell in 1997 would be included in the regressions for the group of people who began the SNAP spell in 1996 and the dependent variable would be the average of earnings in 2005, 2006, and 2007. Because the dependent variable is censored at zero, regressions are estimated via the Tobit regression method and because SNAP is awarded at the food stamp unit, which I am not using, standard errors are clustered by household.

The set of covariates includes 14 variables from the SIPP and are a mix of demographic characteristics and SNAP-related policy variables. Summary measures for all variables are shown in Table 1 and show that the entrant sample is more likely to be female (53.1 percent),

[6] Because of sample size considerations of the restricted data, the regression for the 1999 entrant cohort is omitted from Table 2. In future work, I will try to increase the sample size, perhaps by introducing some imputation procedure for some of the missing demographic variables.

non-Hispanic black (20.3 percent), has been married at some point during the SIPP panel (56.7 percent), and is, on average, just under the age of 30 at the time of SNAP receipt. Less than a quarter (23.9 percent) of the sample has a noncontinuous spell. Between 6 percent and 8 percent of the sample has received benefits from the DI, OASI, or SSI programs at some point during the SIPP panel. On average, earnings tend to rise over the period from about $8,400 10 years prior to SNAP receipt to over $16,000 10 years after SNAP receipt. In the bottom two rows of Table 1, statistics of the two average earnings variables used in the regressions are shown—average earnings in years 8, 9, and 10 before SNAP receipt and average earnings in years 8, 9, and 10 after SNAP receipt (both conditional on the sample of people with positive earnings). Also included are percentiles for those two measures, which seems to suggest a positive skew to the data (the mean is larger than the median) in both periods, which may help explain the differences between patterns of mean and median earnings, but more investigation is needed.

The set of demographic variables included in the regressions—for which the dependent variable is long-term earnings—and their expected sign is listed below:

| **Variable** | **How Measured** | **Expected Sign** |
|---|---|---|
| Age at time of SNAP receipt | Age in years | $(\hat{\beta} < 0)$ |
| Race (Hispanic, non-Hispanic Black, Non-Hispanic Other; Whites serve as the reference group) | 0/1 | $(\hat{\beta} < 0)$ |
| Sex | (0=women; 1=men) | $(\hat{\beta} > 0)$ |
| Whether the person was ever married during SIPP panel | 0/1 | $(\hat{\beta} > 0)$ |
| Number of children at the time of SNAP receipt | Number | $(\hat{\beta} < 0)$ |
| Transfer payments ever received: DI, OASI, SSI during SIPP panel | 0/1 | $(\hat{\beta} < 0)$ |
| Maximum educational attainment during SIPP panel (some college, college graduate; high school dropouts serve as the reference group) | 0/1 | $(\hat{\beta} > 0)$ |

Economic and SNAP-related policy variables are listed below along with the expected sign on the estimated coefficient:

| Variable | How Measured | Expected Sign | Rationale for Expected Sign |
|---|---|---|---|
| SNAP spell length | months | $\hat{\beta} < 0$ | As length of time on SNAP rises, future earnings would be lower than if the person had a short SNAP spell. |
| Whether the SNAP spell was interrupted (i.e., not continuous)[7] | 0/1 | $\hat{\beta} < 0$ | If a person has noncontinuous spells, it might suggest that the person is having difficulty re-entering the labor force with consistent earnings. |
| Total SNAP dollars received (adjusted to 2010 CPI-U dollars) | dollars | $\hat{\beta} < 0$ | A higher amount of total benefits received suggests a greater need for support, which is expected to persist in the form of lower future earnings. |
| Average earnings in years 8, 9, and 10 before SNAP receipt | dollars | $\hat{\beta} > 0$ | Lifetime earnings are expected to be correlated, regardless of a spell on SNAP |
| Unemployment rate (at the start of SNAP spell and 10 years after SNAP spell | percent | $\hat{\beta} < 0$ | The performance of the macro economy should have an impact on earnings. |
| State of residence during SNAP spell | 0/1 | depends | Because so much of the administration of the SNAP program is conducted at the state level, state of residence at the time of the SNAP spell is included to control for different policies across states. |

Regression estimates can be found in Table 2. For the most part, the estimates confirm the expected sign, but statistical significance is generally lacking on many of the SNAP-related variables. For the full sample, controls for SNAP spell length, total SNAP dollars received, and whether the person had a noncontinuous SNAP spell are not statistically significant at conventional levels in most regressions. Average pre-SNAP earnings are statistically significant, but very small in magnitude.

[7] Individuals remain in the sample as long as I can observe their entrance and exit from SNAP, even if they enter and exit the program multiple times. It is possible that such people also demonstrate different behaviors and long-run earnings patterns that differ from those who have single spells (be them short or long); thus, the "noncontinuous spell" indicator attempts to control for those differences. As a corollary to people with noncontinuous spells, I also control for the length of SNAP spell (measured in months).

Most of the explanatory power in the model comes from the demographic controls—sex, number of children, whether the person was ever married, and whether the person ever received other sources of government support (DI, OASI, SSI) are large in magnitude and generally statistically significant. For example, men are predicted to have about $9,000 more in average earnings 8-10 years after SNAP receipt than are women. People who have ever received DI benefits are expected to have about $7,000-$9,000 less in earnings about 10 years after SNAP receipt than are those who have never received DI benefits (at least during the SIPP panel). Educational attainment is highly correlated with post-SNAP earnings: college graduates, for example, are expected to have somewhere between about $25,000 and $30,000 higher average earnings than are those who dropped out of high school. These findings are not dissimilar to basic human capital models.

Results from the model in which the sample is restricted to the 1948-1968 birth cohort are similar to those for the full sample except that the SNAP-related policy variables are more likely to be statistically significant (see column 5). In this case, contrary to expectations, a longer SNAP spell suggests that post-SNAP earnings will actually be *higher* than those with shorter spells, though the estimate is marginally statistically significant. If a person has an interrupted spell on SNAP, expected future earnings are predicted to be about $6,500 less than if their spell was continuous during the observed panels in the SIPP. Most of the overall effect, however, is again dominated by the demographic variables, such as sex ($12,051), ever married ($5,102), and educational attainment ($4,093, $8,496, $27,199).

## VI. CONCLUSION

The purpose of SNAP is to provide support to low-income families to help them purchase food. In this paper, I ask whether providing that support acts as a magnet for people who need support but who then remain on the program with consistently lower permanent future earnings, or whether the program acts as a work support, providing financial relief as a bridge to higher long-term earnings. Using matched SIPP-SSA data, I find that long-term earnings for people who received SNAP for up to three years beginning in 1996, 1997, or 1998, all experienced earnings gains over the next decade. Those gains, however, were not much different than for people who did not participate in SNAP, which suggests that the macroeconomy may have been largely responsible for those gains and not the program. For people who received SNAP in 1999, earnings growth was much slower, though it did exceed the growth rate among non-SNAP participants. At this point, I attribute this finding to the weaker macroeconomy that began in 2001 and not a systematic shift in the nature of SNAP.

For future work, I plan to make at least four major additions:

1. Explore employment patterns further;
2. Add cohorts from the 2001 and 2004 SIPP panels;
3. Expand the regression analysis to include more covariates; and
4. Conduct more distributional analysis.

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**Table 1. Summary Statistics for SNAP Recipient Sample**

| Variable | Mean | Std. Dev. |
|---|---|---|
| Hispanic | 14.0 | 34.7 |
| Non-Hispanic Black | 20.3 | 40.2 |
| Non-Hispanic Other | 6.2 | 24.1 |
| Sex (1=men) | 46.9 | 49.9 |
| Ever Married | 56.7 | 49.6 |
| Ever receive DI | 7.1 | 25.6 |
| Ever receive OASI | 6.4 | 24.5 |
| Ever receive SSI | 8.7 | 28.2 |
| Age at Claim | 29.4 | 17.6 |
| Number of children | 0.3 | 0.5 |
| Noncontinuous SNAP spell | 23.9 | 42.6 |
| Unemployment rate at start of SNAP spell | 5.1 | 0.4 |
| Unemployment rate 10 years after SNAP spell | 5.1 | 1.2 |
| *Earnings in year relative to years of SNAP receipt* | | |
| t-10 | 8,427 | 17,479 |
| t-9 | 8,815 | 17,004 |
| t-8 | 9,356 | 17,349 |
| t-7 | 9,454 | 18,443 |
| t-6 | 9,543 | 17,511 |
| t-5 | 9,754 | 18,219 |
| t-4 | 9,978 | 18,366 |
| t-3 | 10,450 | 19,234 |
| t-2 | 10,866 | 18,663 |
| t-1 | 11,098 | 18,559 |
| t+1 | 12,832 | 20,703 |
| t+2 | 13,669 | 21,907 |
| t+3 | 14,040 | 22,913 |
| t+4 | 14,377 | 24,439 |
| t+5 | 14,473 | 22,645 |
| t+6 | 14,559 | 22,414 |
| t+7 | 14,830 | 22,973 |
| t+8 | 15,531 | 23,421 |
| t+9 | 15,881 | 23,714 |
| t+10 | 16,368 | 26,584 |

| | | | Percentiles | | | | |
|---|---|---|---|---|---|---|---|
| | **Mean** | **Std. Dev.** | **10** | **25** | **50** | **75** | **90** |
| Average earnings in years 8, 9, and 10 before SNAP receipt* | 18,266 | 20,061 | 656 | 3,254 | 11,549 | 26,932 | 45,070 |
| Average earnings in years 8, 9, and 10 after SNAP receipt* | 21,968 | 25,352 | 980 | 4,586 | 15,466 | 31,610 | 49,129 |

Notes:

Number of Observations = 3,531

All earnings converted to 2010 CPIU dollars

* Conditional on average earnings being positive.

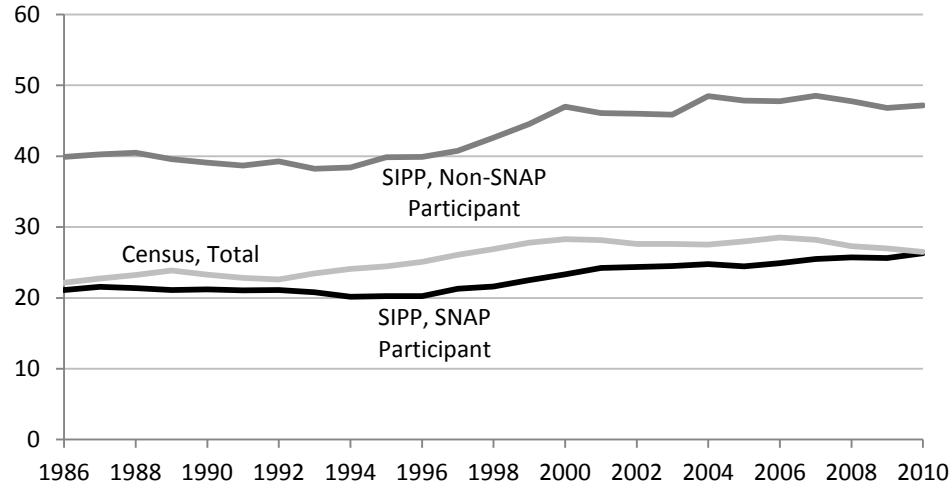
**Table 2. Tobit Regression Estimates from matched SIPP-SSA data**

| | Full Sample | | | | 1948-1968 |
|---|---|---|---|---|---|
| | All | 1996 | 1997 | 1998 | Birth Cohort |
| | (1) | (2) | (3) | (4) | (5) |
| **SNAP Spell length (months)** | 26 | 88 | -96 | 286 | 318 |
| | (94) | (110) | (202) | (617) | (173) |
| **Total SNAP dollars received** | -0.278 | -0.229 | -0.817 | -2.769 | -1.044 |
| | (.318) | (.369) | (.729) | (2.585) | (.482) |
| **Average earnings in years 8, 9, and 10 before SNAP receipt** | 0.448 | 0.420 | 0.587 | 0.415 | 0.482 |
| | (.081) | (.097) | (.099) | (.301) | (.119) |
| **Noncontinuous SNAP spell** | -2,182 | -4,937 | 2,458 | -1,187 | -6,433 |
| | (1633) | (2063) | (2773) | (5758) | (3033) |
| **Age at SNAP receipt** | -484 | -445 | -537 | -561 | -671 |
| | (78) | (91) | (123) | (391) | (169) |
| **Race (omitted: White)** | | | | | |
| Hispanic | -958 | -816 | 3,297 | -14,930 | -1,864 |
| | (1654) | (2262) | (3167) | (7588) | (2840) |
| Non-Hispanic Black | -451 | 2,530 | -862 | -10,300 | 1,446 |
| | (1350) | (1962) | (2567) | (5130) | (2212) |
| Non-Hispanic Other | 4,944 | 1,321 | 9,451 | -3,118 | 2,295 |
| | (2650) | (3781) | (3440) | (6717) | (3815) |
| **Sex** | 9,437 | 10,702 | 9,355 | 7,237 | 12,051 |
| | (1194) | (1951) | (1986) | (3408) | (2788) |
| **Ever Married** | 3,406 | 5,521 | 547 | 4,956 | 5,102 |
| | (1413) | (1961) | (2803) | (3879) | (2584) |
| **Number of children** | -5,933 | -4,446 | -7,786 | -7,367 | --- |
| | (1493) | (1972) | (2966) | (5702) | |
| **Transfer Payments Received** | | | | | |
| Ever receive DI | -6,940 | -9,242 | -7,520 | 5,682 | -7,002 |
| | (2586) | (3041) | (4579) | (13485) | (4886) |
| Ever receive OASI | -716 | -6,284 | -1,689 | 4,656 | -5,485 |
| | (2882) | (3334) | (4546) | (9242) | (5204) |
| Ever receive SSI | -4,421 | -1,775 | -5,344 | -13,618 | -5,325 |
| | (1460) | (1995) | (3242) | (5482) | (2642) |
| **Educational Attainment (omitted: High School Dropout)** | | | | | |
| High School Graduate | 3,993 | 3,303 | 4,052 | 5,267 | 4,093 |
| | (987) | (1257) | (2062) | (3931) | (1718) |
| Some College | 9,202 | 9,436 | 11,578 | 2,495 | 8,496 |
| | (1274) | (1835) | (2525) | (4982) | (2274) |
| College Graduate | 25,752 | 25,488 | 28,001 | 21,306 | 27,199 |
| | (3462) | (6112) | (4572) | (7232) | (5351) |
| **Unemployment Rate** | | | | | |
| At start of SNAP spell | -1,277 | --- | --- | --- | 1,091 |
| | (2048) | | | | (3625) |
| 10 years after SNAP spell | -500 | --- | --- | --- | -312 |
| | (684) | | | | (984) |
| **Constant** | 29,499 | 15,370 | 41,423 | 14,914 | 23,365 |
| | (14326) | (4795) | (7237) | (14321) | (23743) |
| **Observations** | 1,997 | 1,061 | 556 | 255 | 904 |
| **R-squared** | 0.286 | 0.265 | 0.424 | 0.394 | 0.316 |

Notes:
Standard errors, clustered by house
Darkest shading indicates p<0.01; middle shading indicates p<0.05; lightest shading indicates p<0.1
All regressions include state dummy variables measured at the time of initial SNAP receipt.

**Figure 1. Mean and Median Earnings of SNAP and Non-SNAP Participants, 1986-2010**

**Mean Earnings (Thousands of dollars)**




**Median Earnings (Thousands of dollars)**

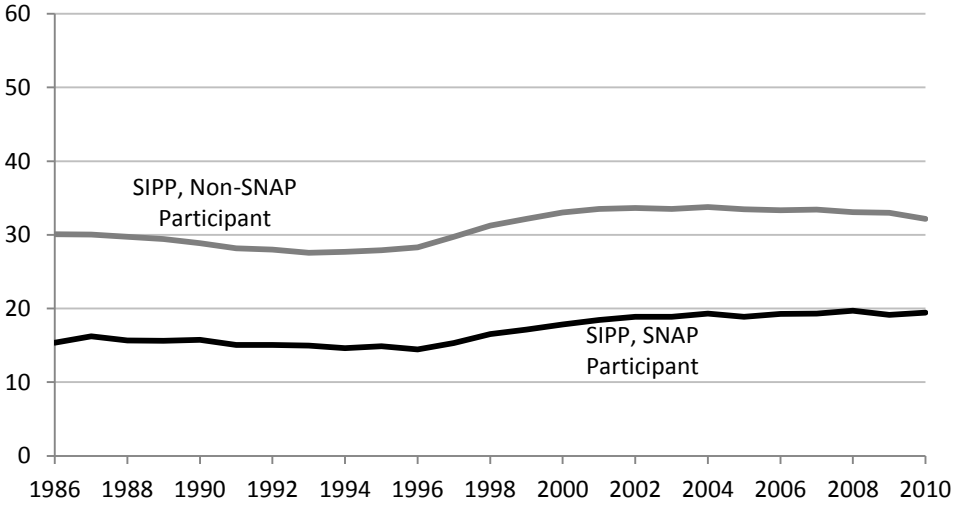
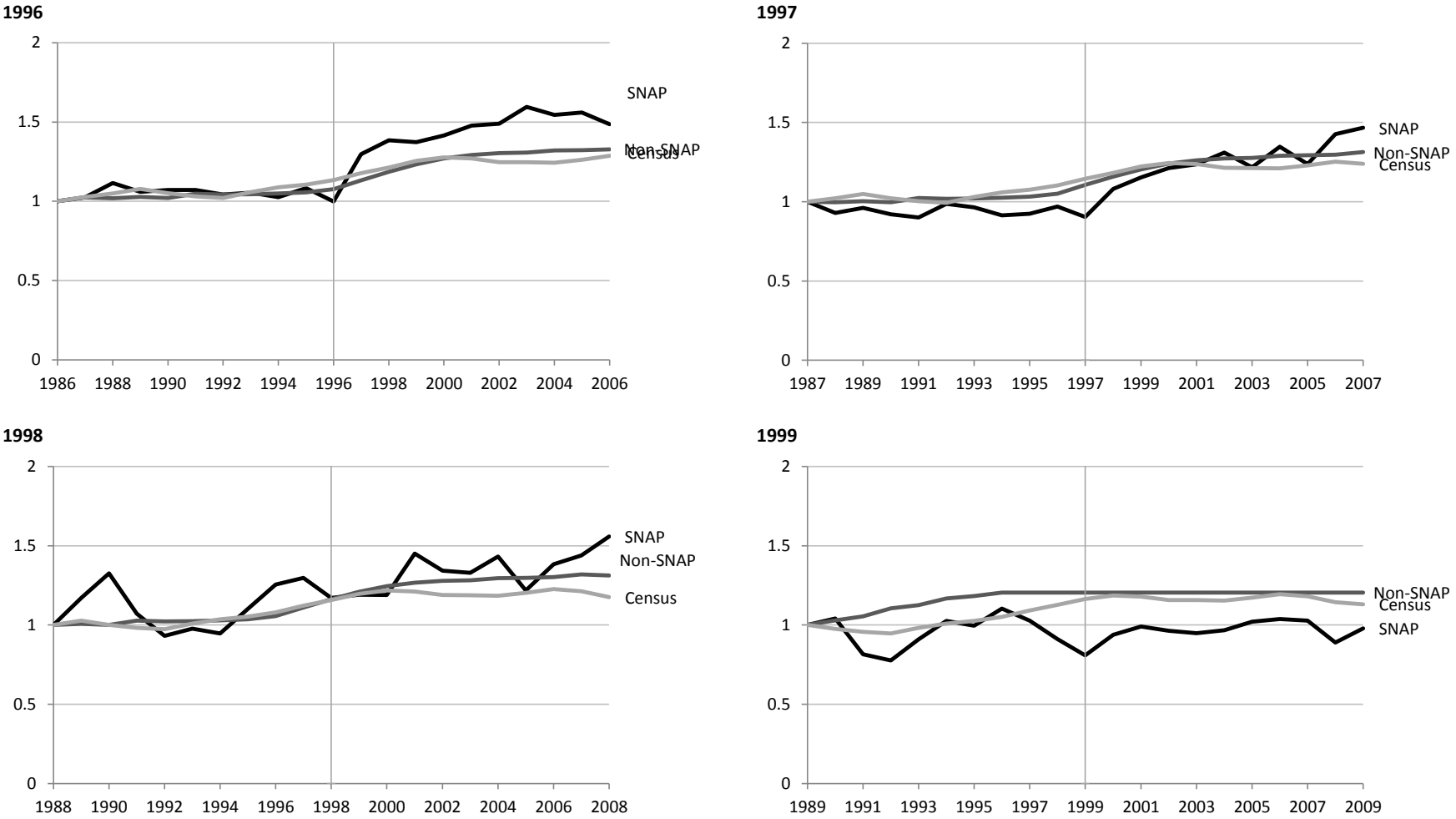


**Figure 2. Median Earnings for People with a Single Year SNAP spell, by Year of SNAP spell (normalized to 1 in 1986)**




Notes: Number of observations at time of receipt: 1996 = 456; 1997 = 294; 1998 = 171; 1999 = 140.

**Figure 3. Percentage Change in Median Earnings, Overall and Pre- and Post-SNAP spell period, by Year of SNAP spell**

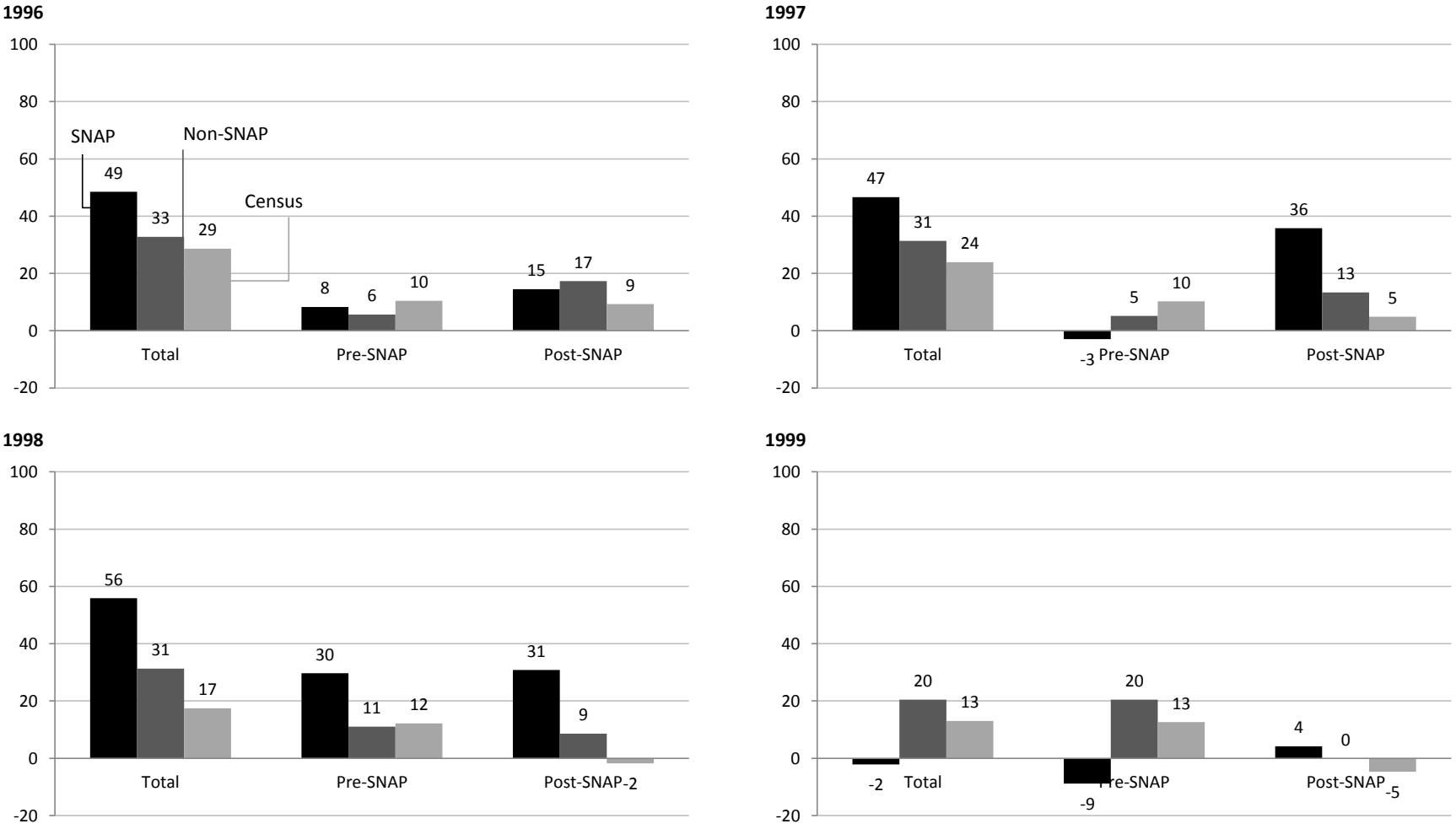
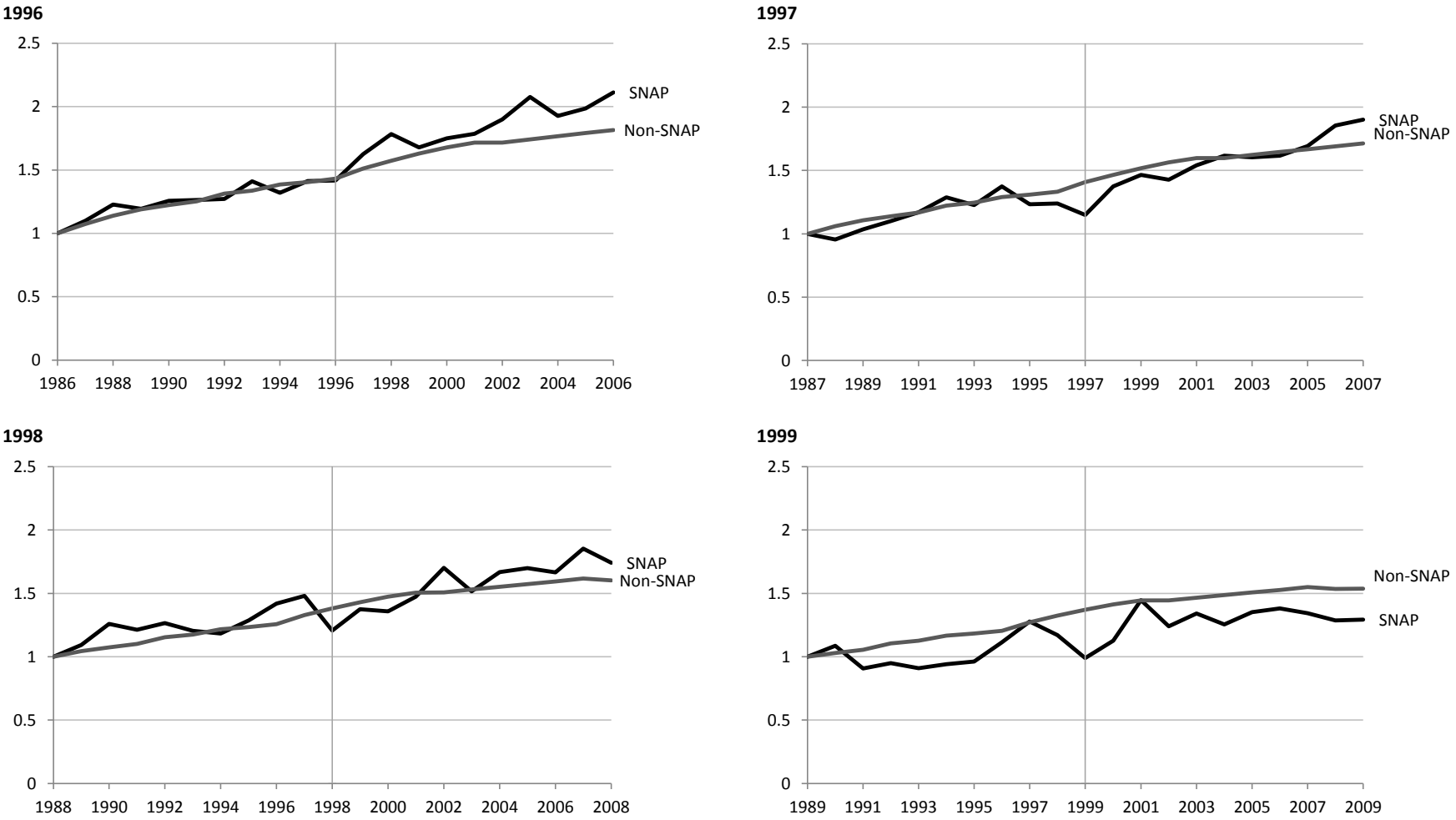


**Figure 4. Median Earnings for People with a Single Year SNAP spell, by Year of SNAP spell and Born between 1948 and 1968 (inclusive) (normalized to 1 in 1986)**




Note: Number of observations at time of benefit receipt: 1996 = 242; 1997 = 151; 1998 = 89; 1999 = 70.

**Figure 5. Percentage Change in Median Earnings, Overall and Pre- and Post-SNAP spell period, by Year of SNAP spell and born between 1948 and 1968 (inclusive)**

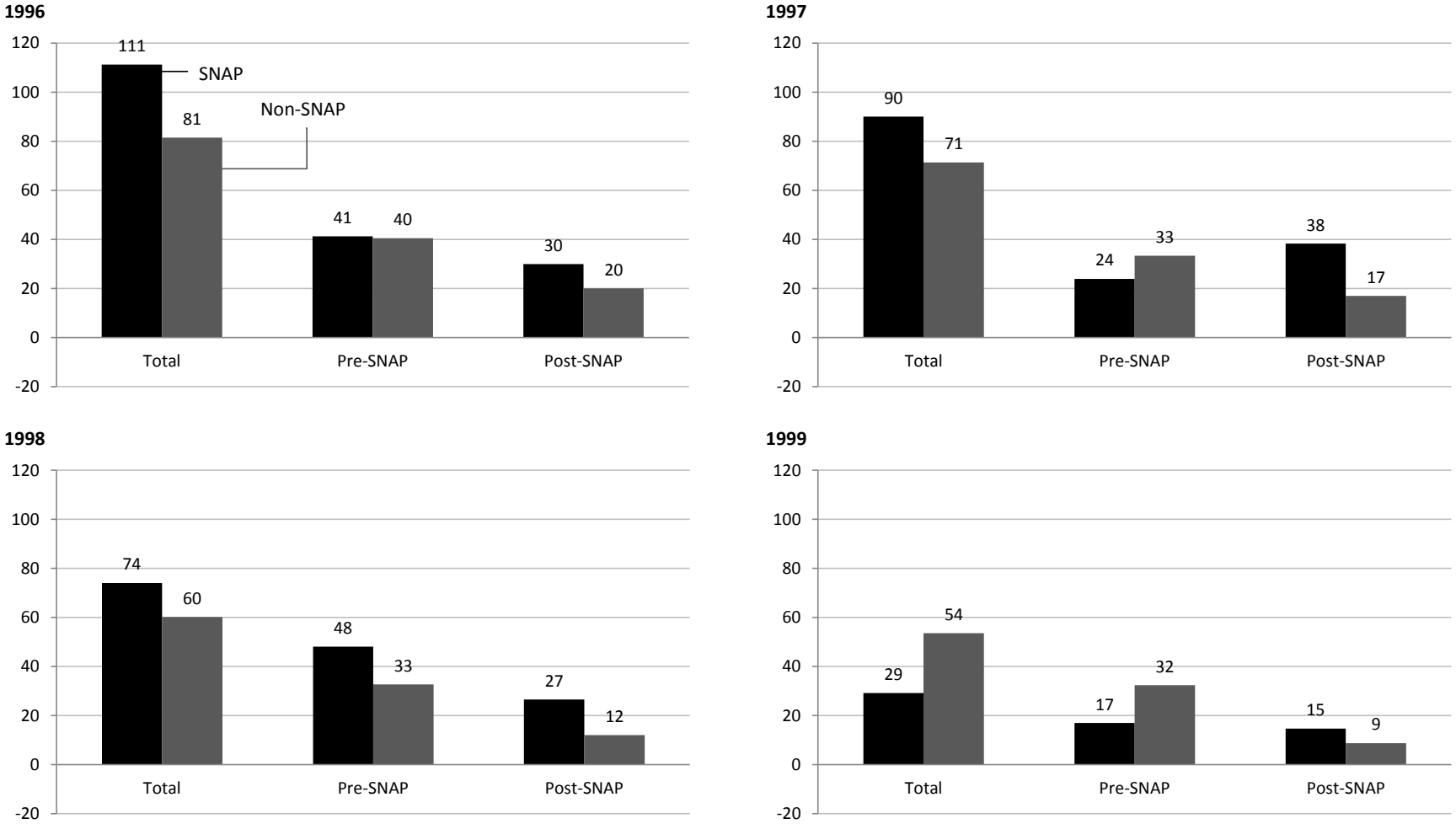
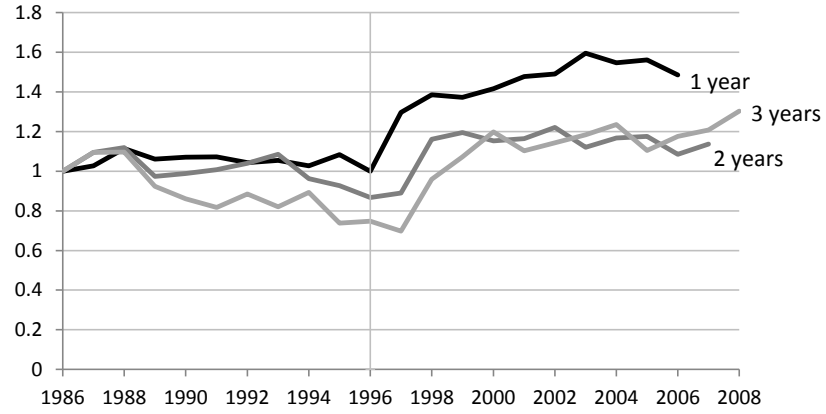
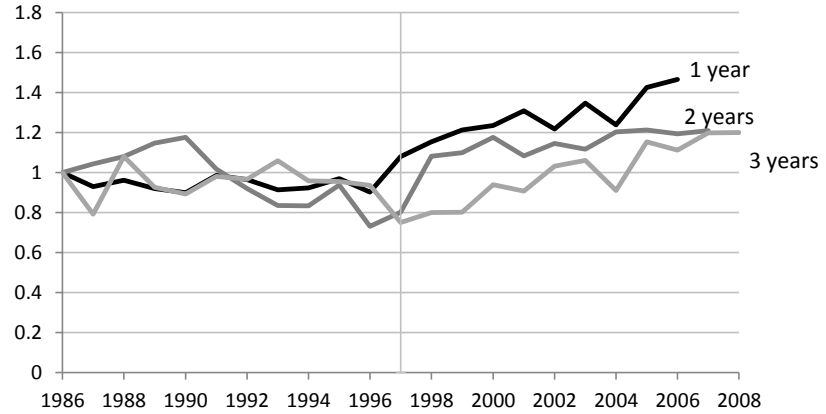


**Figure 6. Normalized Median Earnings for SNAP Participants by year SNAP participation begins and length of time on SNAP**

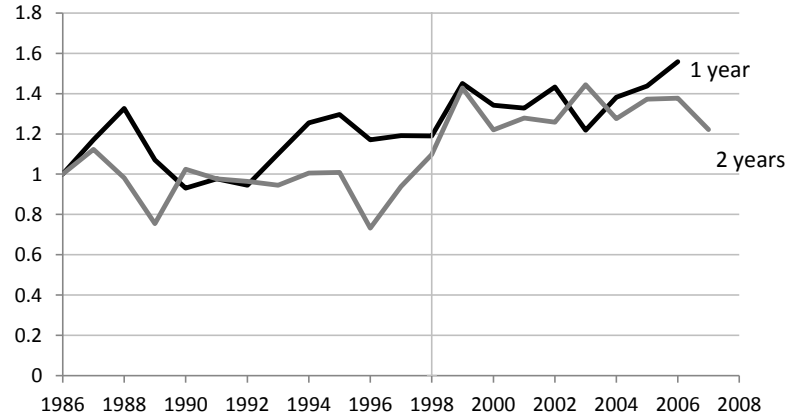
**Enter SNAP in 1996**




**Enter SNAP in 1997**




**Enter SNAP in 1998**

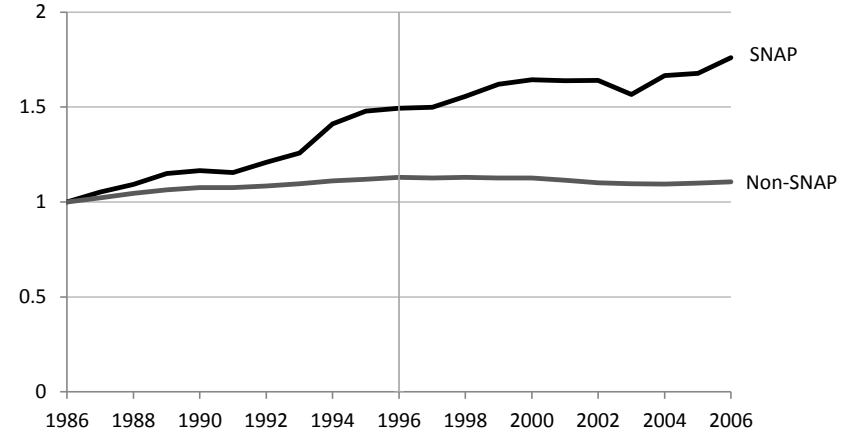



Notes: Number of observations at time of receipt:

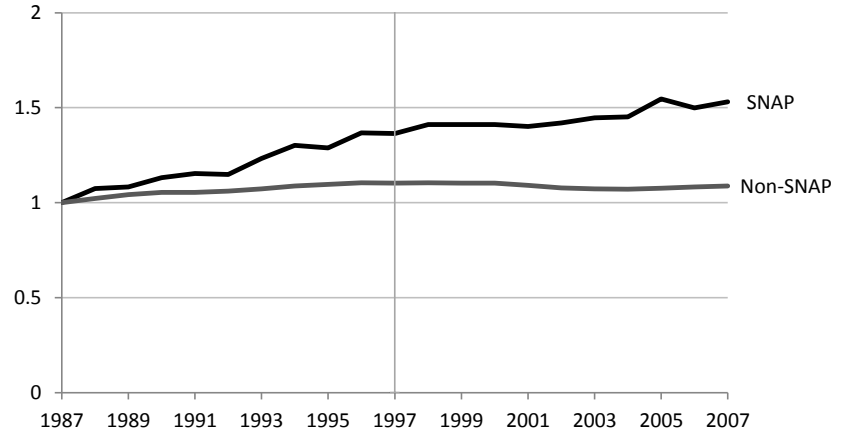
| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1996 | 1 year = | 456 | 1997 | 1 year = | 293 | 1998 | 1 year = | 171 |
| | 2 years = | 302 | | 2 years = | 183 | | 2 years = | 101 |
| | 3 years = | 133 | | 3 years = | 77 | | | |

**Figure 7. Employment for People with a Single Year SNAP spell, by Year of SNAP spell and Born between 1948 and 1968 (inclusive)**

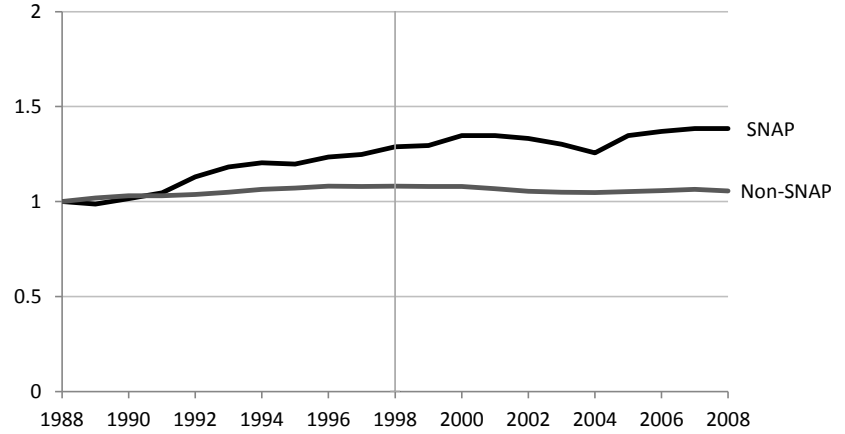
**1996**



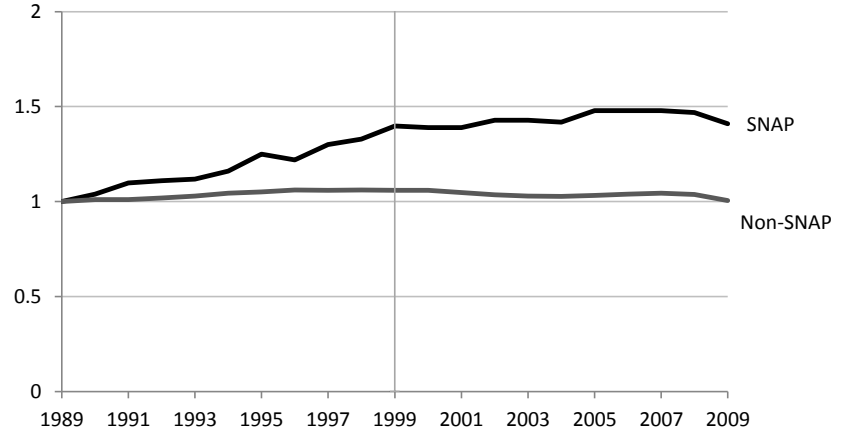

**1997**




**1998**




**1999**



**Appendix Table 1. Regression to Create Weights for Non-SNAP Sample**

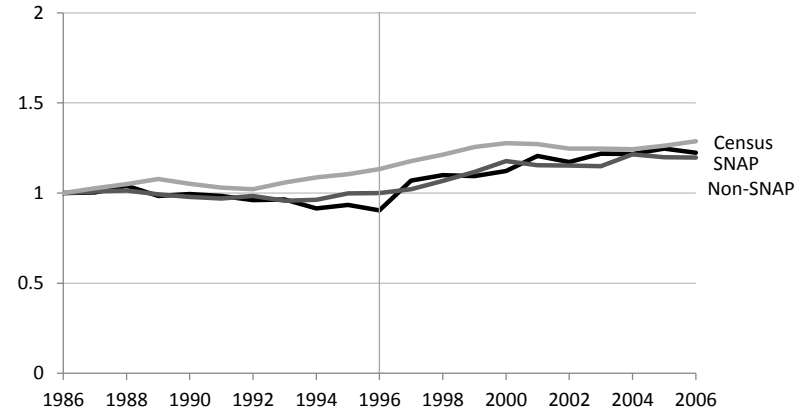
| | | |
|---|---|---|
| Hispanic | -0.569 | *** |
| | (.06) | |
| Non-Hispanic Black | 3.000 | *** |
| | (.052) | |
| Non-Hispanic Other | -0.714 | *** |
| | (.085) | |
| Sex (1=men) | 0.185 | *** |
| | (.04) | |
| Ever Married | -0.232 | *** |
| | (.045) | |
| Ever receive DI | 0.023 | |
| | (.077) | |
| Ever receive OASI | 0.977 | *** |
| | (.074) | |
| Ever receive SSI | -1.408 | *** |
| | (.074) | |
| Educational Attainment | 0.416 | *** |
| | (.021) | |
| Constant | 2.327 | *** |
| | (.063) | |
| Number of Obs. | 60329 | |
| Pseudo R-squared | 0.068 | |

Notes:

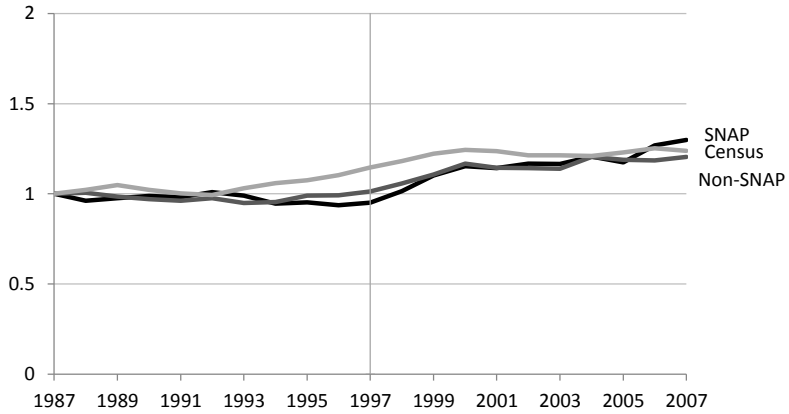
Dependent variable equals 1 if person never received SNAP benefits during SIPP panel. Standard errors in parentheses.

**Appendix Figure 1. Average Earnings for People with a Single Year SNAP spell, by Year of SNAP spell (normalized to 1 in 1986)**

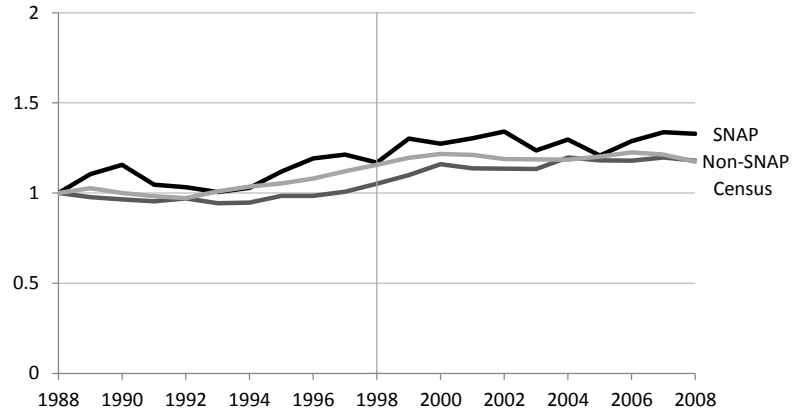
**1996**



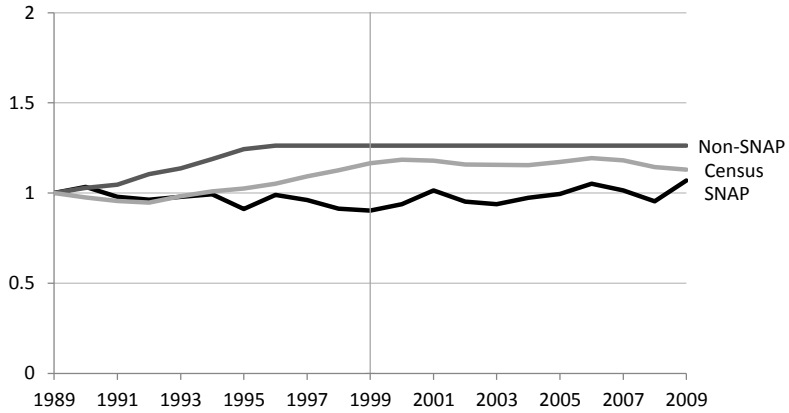

**1997**



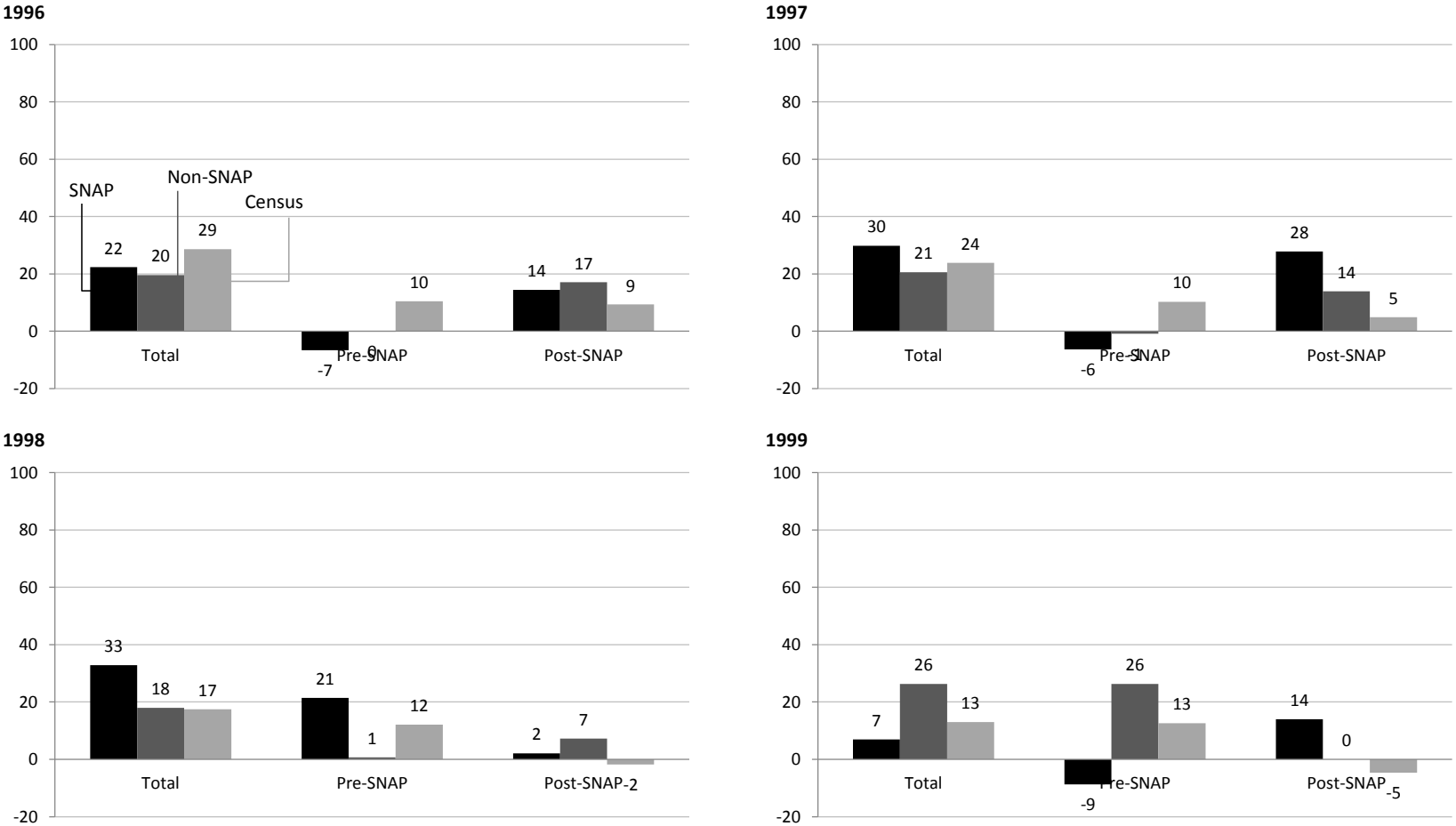

**1998**




**1999**

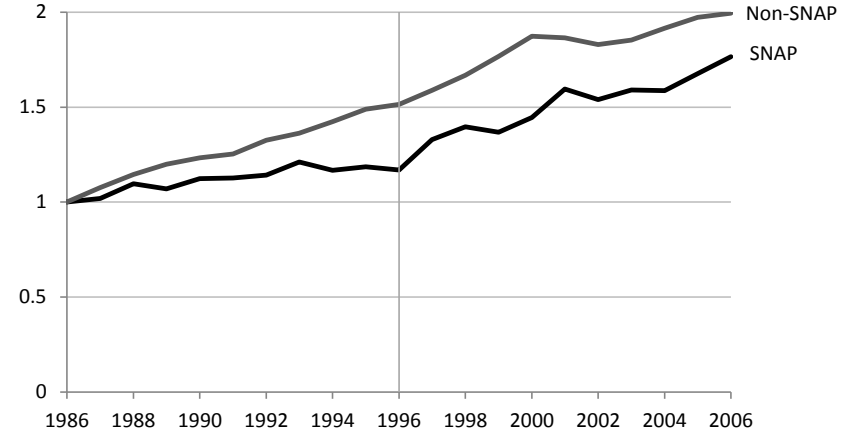


**Appendix Figure 2. Percentage Change in Average Earnings, Overall and Pre- and Post-SNAP spell period, by Year of SNAP spell**

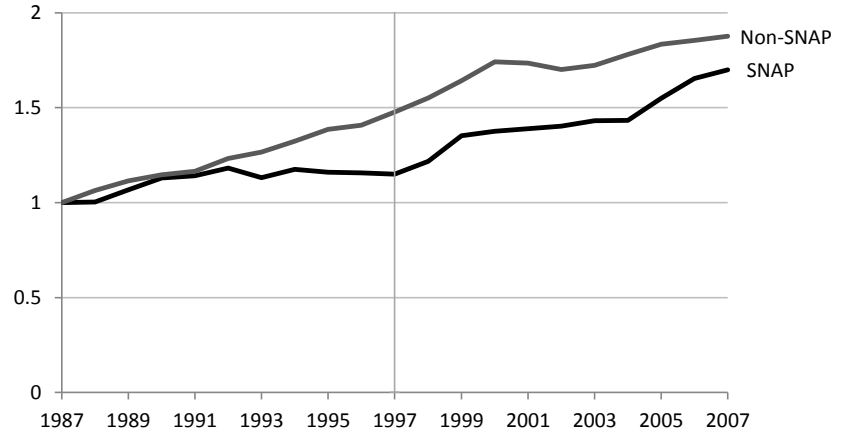


**Appendix Figure 3. Average Earnings for People with a Single Year SNAP spell, by Year of SNAP spell and Born between 1948 and 1968 (inclusive) (normalized to 1 in 1986)**

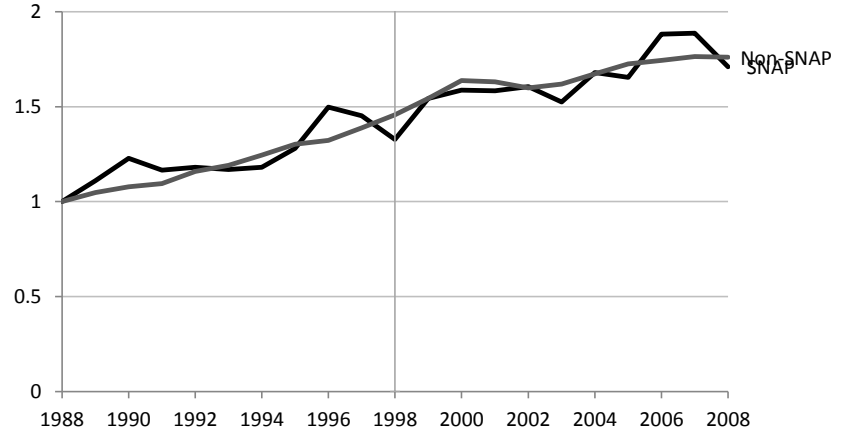
**1996**



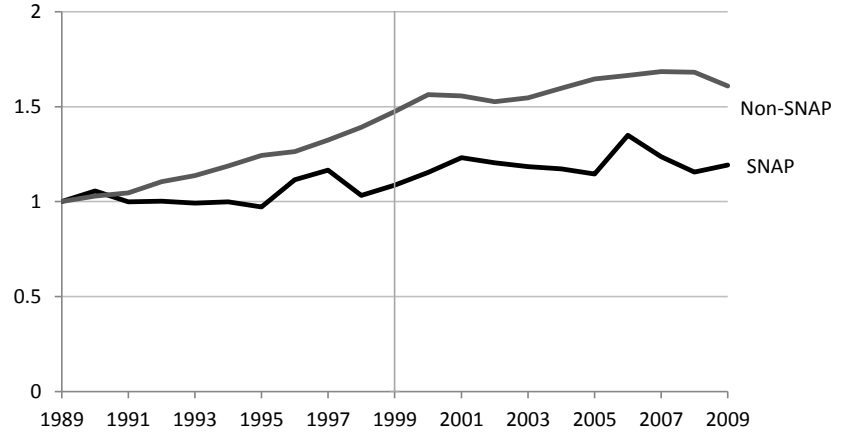

**1997**




**1998**




**1999**



**Appendix Figure 4. Percentage Change in Average Earnings, Overall and Pre- and Post-SNAP spell period, by Year of SNAP spell and born between 1948 and 1968 (inclusive)**