EFFECTS OF THE RECOVERY ACT SNAP BENEFIT INCREASE ON PARTICIPATION
AMONG UPPER INCOME HOUSEHOLDS WITH EARNINGS

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Abstract

There are a variety of factors that may explain the low participation of working families in the

Supplemental Nutrition Assistance Program (SNAP).  Explanations include the temporary nature

of those families' poverty status; the difficulty of accessing the program; household composition

factors; lack of awareness about the program; and the low expected benefit.  This study

hypothesizes that the food stamp benefit increase of 13.6% that occurred in April 2009 under the

American Recovery and Reinvestment Act (ARRA) would draw more upper-income households

with earnings into the program.  Multivariate regression analysis, using Ordinary Least Squares,

suggests that the benefit increase had an immediate statistically significant increase of 5

percentage points on the proportion of upper income working households that participate.  The

significance of the benefit increase lasts two subsequent months before fading.  These findings

suggest that changes that either increase benefits or reduce costs can have a significant influence

on drawing new households into SNAP.  Findings from the descriptive analysis also suggest that

the policy of categorical eligibility can be further promoted to draw households in the population

of interest into the program.

**Acknowledgements**

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**Chapter 1: Introduction**

The purpose of the Food Stamp Program, renamed the Supplemental Nutrition Assistance

Program (SNAP) in FY 2008, is to increase the food purchasing power of low-income

households so that they can maintain a nutritious diet. Because it is an entitlement program, food

stamps are funded for anyone who is eligible. In FY 2009, SNAP served over 40,000 people with

an average of $133 in monthly benefits to purchase groceries. While SNAP has played a

particularly important role in the nation's safety net during the recession, the program remains

underutilized.

In FY 2009 the participation *rate* (i.e., fraction of people eligible for benefits who actually

participate) was only 62 percent for the U.S. population as a whole and varied dramatically by

subgroup. Fewer than 41 percent of eligible elderly adults, nondisabled childless adults subject

to work requirements, and individuals living in households with incomes above the poverty line

participated in the program. The rate of participation was also low among eligible individuals in

households with earnings (56 percent), those in households with no income (50 percent),

noncitizens (48 percent), and children living with noncitizen adults (55 percent) (Leftin, 2009).

In the past decade, in-line with welfare reform efforts and the increasing attention on supports for

low-income working households, a significant focus has been to extend the reach of SNAP to

working households. As Besharov (2000) argues, the Food Stamp program was "built around

the non-working poor and therefore participation by the working poor looks like an

afterthought." Explanations for low "take up" rates among working households involve a

combination of structural barriers and household dynamics. These factors include the temporary

nature of households' poverty status (Zedlewski, 2004, Farrell and Stapleton, 2003); the

difficulty of accessing the program (McKernan and Ratcliffe, 2003); household composition

factors; lack of awareness about the program; and low perceived benefits of participation in the

program. SNAP is a means-tested program with an income limit at 130% of poverty, although a

categorical eligibility policy which states were allowed to adopt beginning in fiscal year 2002

enables households with incomes above 130% to participate if certain requirements are met. The

poverty threshold for a family of four was roughly $22,050 in the 48 contiguous United States.[1]

Yet, Leftin (2009) finds that participation among households approaching the already fairly

restrictive eligibility cut-offs is lower than among poorer families.

A key provision of the American Recovery and Reinvestment Act of 2009 (ARRA) as related to

the Food Stamp Program, was to raise the maximum food stamp allotment by 13.6%. Previous

research reveals that recipients spend more than one half of their benefits within a week of

receipt, a pattern that has a multiplicative effect on overall economic activity (Olander et al,

2006). Economists estimate that every $1 in additional SNAP benefits generates $1.84 in total

economic activity, and that the estimated $20 billion of increased SNAP benefits over the next

five years will create an estimated $36.8 billion in economic activity (USDA, SNAP Recovery

Plan Update, 2010).

Although the ARRA provision for increased food stamp benefits was not intended to encourage

greater take up among eligible working families, it provides a serendipitous opportunity to

explore the participation dynamics of this historically under-enrolled group. The central

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[1] *Federal Register*, Vol. 74, No. 14, January 23, 2009, pp. 4199–4201

hypothesis of the present paper is that the introduction of more generous benefit levels will draw

more households with earnings at the upper boundary of eligibility into the program (above

100% of the federal poverty level). To test this hypothesis I use data from the SNAP Quality

Control Databases from fiscal years 2003 through 2009, a surveillance system that tracks the

population of food stamp participants on a monthly basis for the purpose of checking for errors

in eligibility findings or amount of benefit issuance. For each month during the observation

period I calculate the distribution of particular population subgroups according to specific

combinations of demographic and economic characteristics (e.g., household composition,

expected benefit levels, ratio of household income to federal poverty thresholds). The dependent

variable for this study is the percent of households with earnings above 100% of the federal

poverty threshold. I use multivariate estimation strategies to assess the extent to which changes

in the share of these "working poor" households can be attributed to the ARRA benefit increase,

net of controls for other time-varying demographic factors, administrative barriers, and economic

conditions. I employ lagged measures of unemployment rates and ARRA policy effects to

account for delays in information diffusion among eligible individuals and households

concerning the benefit increase.

**A Framework: Costs and Benefits for Working Families**

Several studies provide a useful framework for analyzing uptake by working households through

the lens of costs and benefits of participation. As McKernan and Ratcliffe (2003) identify in

their study on employment factors influencing program participation, the costs of participation

are higher for working households when administrative barriers are high, when the applicant

works multiple jobs or changes jobs frequently, or when there are fewer adults in the household.

The theory is that if an earner works multiple jobs or changes jobs frequently, that he/she will not

have the time to complete an application.  In contrast, when there is only one adult in the household (as opposed to two, particularly if one adult is not working), costs will be lower. To examine those possibilities, the present study accounts for the percent of multiple adult versus single adult households with children to explain changes in participation levels post-2009. While I will not able to use number of jobs or hours worked due to data constraints, consistent with the McKernan study, I include variables for household composition percentages, particularly the percentage of multiple adult households and household size.

The flip side of explaining uptake among working families is the benefit level families can expect to incur.  According to McKernan and Ratcliffe (2003), the benefit of participating goes up when the households' SNAP benefit is higher.  They use allowable income deductions as a proxy for benefit level, whereas this study will use actual benefit levels, broken out as a percentage of the maximum benefit (1 to 25%; 26 to 50%; 51 to 74%; 75 to 99%; 100%).

**Household Composition Dynamics**

Household composition dynamics may play an important role in whether working families choose to access SNAP benefits, and variables measuring changes in household dynamics are used in this study to help assess whether a benefit increase did in fact draw different kinds of working families into the program – households that may not have chosen to participate without the increase.  Female-headed households may be more likely to access the program than are married households or households with multiple adults.  This may be for several reasons – married couples or households with multiple adults may face greater stigma in accessing public benefits; these households may also have less experience accessing other types of benefits,

including TANF or child support, which may make them less likely to be aware of the SNAP program; and finally these households may access a lower benefit, particularly if there are two earners, since SNAP benefit levels are determined in part by the amount of income in the household. Households with two earners therefore may be less apt to participate and more likely to be induced to participate by a higher benefit level. The effect of a higher benefit may be ambiguous among households with multiple adults but only one earner, since while the above disincentives may exist, the costs of applying would also fall because the non-working adult would not have to miss work to apply.

Another household dynamic that may play an important role in uptake decisions by a working family is the number and age of children in the household. Research shows that the presence of a child under 6 is one of several key poverty "triggers" that may cause a family to enter poverty (Farrell et al 2003). This may be especially true because young families will also tend to consist of younger, less experienced adults who have not yet reached their peak earning potential. It is therefore likely that families with older children would be the most induced by a higher benefit level to participate in the program. In addition, evidence reveals that working households are larger and more likely to have children than other FSP-eligible households (McConnell and Ponza, 1999). So, I hypothesize that smaller families with older children may be more likely to be drawn into the program due to the benefit increase than larger families or families with younger children.

Finally, a household having a nondisabled, childless adult (ABAWD) may be more likely to participate with the increased incentive, although effects on ABAWDs may be hard to disentangle due to other ARRA provisions. In 1996, the Personal Responsibility and Work

Opportunity Act (PRWORA) instituted a three month time limit for benefits for every thirty-six months for ABAWDs who are not working or participating in an approved work-related program at least twenty hours a week. Since PRWORA, states have requested waivers to extend this time limit, especially in areas with high unemployment, and the Recovery Act entirely removed the time limit due to expectations that ABAWDs may face prolonged unemployment in this economy Waivers from ABAWD time limits have been found to increase food stamp caseloads (Ziliak et al. 2003; Wilde et al 2000). Even though ABAWDs with earnings would not be subject to the time limit, I would hypothesize that some portion of ABAWD participation might rise due to the relaxed regulations rather than the benefit increase.

**Administrative Burden**

As Dion and Pavetti (2000) note, about 5 percent of eligible non-participant households in the National Food Stamp Survey responded that too much money, time, and hassles were involved in participating in SNAP. In the National Survey of America's Families (NSAF), 10 percent of former welfare families and 17 percent of non-welfare families reported leaving food stamps because of administrative problems or hassles.

The 2002 Farm Bill, which authorizes the Food Stamp Program, formalized ten new options designed to improve the delivery of food stamp benefits to eligible households (Dean and Rosenbaum, 2002). Many of these options make the program more accessible for working families. Implementing face-to-face interviews only once a year rather than at every recertification means that households only need physically go to the food stamp office annually, easing the burden on full-time workers. The 2002 Farm Bill also formalized a state option to use

semi-annual reporting for families with earnings. States that used to require families with earnings to recertify every three months due to their rapidly varying circumstances were then able to extend certification periods to six months. Finally, the Farm Bill also included a simplified reporting provision. SNAP requires families to report changes in household circumstances (for example, due to the birth of a child), changes in income (for example, due to a new job), or changes in work hours. Households with earnings tend to experience many changes that can make reporting onerous. The "simplified reporting" option eased the reporting requirements, both relaxing the burden on working families as well as relaxing the burden on state agencies struggling to keep track of all the changes. Studies on the effects of specific food stamp policies provide important insights. Shorter recertification periods have consistently been found to reduce food stamp participation (Currie and Grogger, 2001; Hanratty, 2006; and Kabbani and Wilde, 2003), whereas the effect of simplified reporting options and the implementation of an electronic benefits program (rather than paper coupons) are mixed (Currie and Grogger, 2001). Some studies find an increase in caseload whereas other studies find no effect. Due to data constraints, I simplify the concept of "administrative costs" — which could include certification length, access to EBT, and reporting requirements — into the certification period and categorical eligibility variables. With measures of administrative costs I am able to estimate the effect of the benefit increase on uptake by working families, net of these other incentives.

**Program Awareness/Preferences**

Several studies highlight the importance of program awareness and personal preferences when considering uptake by working families. Some families simply have a preference for or against

receiving government benefits, which could be dictated by household composition, region, or demographic characteristics (McKernan and Ratcliffe, 2003). This preference can be measured tangentially (for example, by a household's choice to participate in other government benefits), but participation in other programs may also be due to economic conditions. I attempt to control for preference level in this study by including a variable for region. Including household dynamic variables may also capture preference to the extent that certain family types (female-headed, for example), may face less stigma by applying for food stamps. It is not possible to account for general levels of public awareness in the present study. This is unfortunate, given that as recession-induced economic hardship increased there was likely to be a proportionate increase in information seeking about government support programs. This "omitted variable" may bias the estimated effect of the benefit increase on uptake by working families in the present paper.

**Expected Benefit Levels**

Finally, because food stamps are a means-tested program, and households receive a lower benefit the more income they have, a last reason posited for low participation among working families is the expected benefit level. Leftin (2009) notes that families eligible for 1 to 50 percent of the maximum benefit participate at a much lower rate than do families eligible for a greater benefit (51 to 100 percent of the maximum).

Food Stamp benefits are calculated with the starting point of the family's maximum food stamp allotment. In general, each eligible household receives the maximum benefit based on its household size, minus 30 percent of net income. Net income is based on the household's total

cash income from earnings, welfare, and other sources, minus certain allowable deductions such as utility costs and shelter expenses (Wilde, 2001). If this calculation brings the food stamp allotment below a certain point, the household is instead eligible for the minimum food stamp allotment ($14 to $16 in FY 2010).

The Thrifty Food Plan serves as a national standard for a nutritious diet at a minimal cost and is used as the basis for maximum food stamp allotments. Along with the Thrifty Food Plan, USDA maintains three other food cost plans: low-cost, moderate-cost, and liberal. The market baskets for each of these plans specifies the types and quantities of foods that people could purchase and prepare at home to obtain a nutritious diet at each cost levels. For each food plan, there are 15 market baskets—one for each of 15 age-gender groups. The Thrifty Food Plan represents food expenditures in the bottom quartile of food spending (Carlson, Lino, and Fungwe, 2007).

Food Stamp maximum allotments are established based on the annual Thrifty Food Plan, set in June, but only actually adjusted in October at the beginning of the new federal fiscal year. This means that by the time the new maximum benefit is set, 16 months have gone by. According to empirical studies, this time lag means that the maximum benefit has actually fallen short of the Thrifty Food Plan calculation for the majority of the time (Hanson, 2008). The only major increase in the maximum allotment occurred in 1988 with the Hunger Prevention Act, which set the maximum food stamp allotment at 103% of the Thrifty Food Plan. This provision was reversed under PRWORA in 1996.

Food stamp studies have simulated what would happen if the benefit reduction rate (currently 30 cents for each additional dollar of income) was reduced or if the maximum benefit level decreased. Hagstorm (1996) found that participation is relatively responsive to changes in the benefit reduction rate. For example, reducing the benefit reduction rate to .10 increases participation by nearly 13 percent (nearly 157,000 couples). Changing the benefit reduction rate to .50 results in a 14 percent decrease participation, while a 100 percent tax rate on benefits reduces participation by 22 percent. Hagstorm also noted that an increase in the maximum benefit has two effects. It increases the food stamp benefit for all food stamp-eligible couples who receive benefits. It also raises the break-even point, the level of income at which benefits equal 0, making additional households eligible to receive benefits. His simulation results indicate that decreasing the maximum benefit by 25 percent lowers the proportion of asset-eligible households predicted to participate in the program to 8.29 percent, a 13.6 percent decrease in participation. Interestingly, participation appears to be more responsive to decreases than to increases in the maximum benefit. A 25 percent increase raises participation to 10.27 percent, an increase of 7.0 percent.

**Economic Conditions**

There is an extensive literature measuring changes in food stamp participation attributable to changes in the economy versus changes in program policy. For example, studies from the 1990's examined the decline in food stamp participation based on the economic expansion as opposed to welfare reform under PRWORA (Kornfeld 2002; Currie and Grogger 2001; Gleason et al. 2001). These studies suggest that welfare reform rules under PRWORA could account for anywhere from a negligible amount of the decline to 30 percent. Generally a much greater

percent of the decline is accounted for by the expanding economy in these studies, although the connection between economic conditions and SNAP participation has changed in the past decade. Finnegold (2007) provides descriptive statistics comparing participation trends in this decade to the prior two decades. He shows that in the prior two decades, enrollment rates in the food stamp program closely mirrored unemployment rates. However, this trend severed in the early 2000's, and enrollment increased even as unemployment decreased, lending support to the claim that policy changes have in fact been effective at drawing more families with income into the program, independent of economic factors. I use two variables to control for economic conditions in the current paper: the national unemployment rate and the lagged national unemployment rate from the U.S. Department of Labor, Bureau of Labor Statistics.

One key debate in the literature is whether to use a static or dynamic model when measuring the impact of the state of the economy versus policy change on food stamp caseload. A dynamic model attempts to assess cyclicality and patterns of entry and exit into the program. For example, such a model might incorporate a lagged unemployment variable to capture the effect of a sluggish economy on caseload change. In the context of the current investigation, a dynamic model may have particular merit as the decision of working families to enter the program may be a function of both the benefit increase as well as the length of the recession. To account for that possibility, I include a lagged unemployment variable in the present analysis.

**Poverty Spells**

It is well established that working families, unlike the elderly and disabled tend to experience *spells* of poverty rather than prolonged periods with incomes below federal poverty limits.

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Working families may expect to be in poverty for a shorter time period and hence may not consider it worthwhile to take the time to apply and/or update the food stamp office on any changing circumstances. In their analysis of non-participating, eligible households, Farrell and Stapleton (2003) found that non-participant households experience much greater variability in their monthly income and earnings than participant households. In particular, before the months leading up to the reference month, the mean income of non-participating, food-stamp eligible households fell by much more than mean income of participant households; similarly, their mean income grew much more rapidly after the reference month. As the authors discuss, this is consistent with the premise that expectations of higher future income explain why some non-participant households do not participate. In this study, I use lagged unemployment as a proxy for long versus short-term poverty and predict that an increase in lagged unemployment would be associated with more participation at higher poverty thresholds. This will help me to isolate the effect of the benefit increase on the participation of "working poor" households from that of the ongoing recession.

**Chapter 2: Data and Methods**

**Data**

The data are gathered from the National Supplemental Nutrition Assistance Program (SNAP) Quality Control (QC) system. The QC system is a database that is published annually to assess the accuracy of food stamp eligibility and benefit determinations made by administering state and local program agencies. Each year between 45,000 and 50,000 active food stamp cases are selected for QC review. Annual samples range from 300 to 2400 by state. Approximately 1/12 of a state's annual sample is drawn for review each month by state QC reviewers, and then assembled into a national QC database. These data may be further subject to review by federal QC reviewers. There are both person-level data (for example, employment status), as well as unit-level data (for example, calculated food stamp allotment).

My analysis sample consists of monthly data from fiscal years 2003 to 2009, for a total of 84 observations.

**Variables**

The majority of variables used in this study are derived from the demographic and economic characteristics of active SNAP participants during each month of the observation period. Program participants are classified according to different combinations of household composition, income, poverty level, employment status and other characteristics and aggregated correspondingly. These totals are used to calculate the distribution of these subgroups within the population of participants for each of the 84 months. Other time-varying measures are drawn

from the Census Bureau, Bureau of Labor Statistics, and other sources as described in detail below.

*\Dependent variable*

The primary focus of this study is on working families at the upper bound of income eligibility -- a subgroup within the U.S. population with historically low rates of participation in the food stamp program. The dependent variable is measured as the percentage of SNAP participants whose household earnings above 100 of the federal poverty threshold.

*Key Explanatory Variable*

The key explanatory variable, introduction of the ARRA benefit increase, is a binary variable coded 1 if the benefit increase has occurred in a given month and 0 if not. Although the increase in benefit levels officially took effect in April 2009, I develop four alternatives for operationalizing the "start date" of the policy. This will allow me to assess the effect of the benefit increase under different assumptions about the rate of information diffusion among eligible households. The first specification tests whether an effect of the benefit increase is visible almost immediately upon implementation. Under this scenario, observations for months prior to April, 2009 are coded 0 and from that month forward are coded as 1. The second scenario allows for a one-month lag for the benefit increase to affect SNAP enrollment and from May 2009 onward months are coded 1. The third and fourth scenarios assume 2- and 3-month lagged effects, respectively. These are referred to as "June" and "July" effects.

*Control Variables*

The control variables in this study fall into five categories: administrative factors; household composition; expected benefit levels; demographics; and economic variables.

- Administrative factors are drawn from the SNAP Quality Control Database. These variables include certification periods (4-6 months, 7-12 months, and 13+ months, with 1-3 months omitted) and categorical eligibility. Certification periods measure the length of time a household is certified to receive SNAP benefits, after which the households must be recertified to continue receiving benefits. My measure of recertification frequency follows the method used by Kornfeld (2002). Categorical eligibility is coded as a binary variable. This policy is conferred either under broad-based rules under which most households receive a TANF/MOE-funded non-cash service (such as a brochure or handout) that makes the households categorically eligible for SNAP. In its traditional form, categorical eligibility is conferred to households in which all members receive or are authorized to receive TANF, SSI, or GA benefits. Categorical eligibility lifts or removes gross income and asset tests, although households generally must still meet the net income limit.

- Household composition variables are tabulated from the population of active participants that comprise the SNAP Quality Control Database. These household structure variables include: multiple adults with children, single adults with children, adult only, or Able Bodied Adults Without Dependents (ABAWD). The other variables in this category are household size and age of children, with Pre School defined as ages 0-4 and School Age defined as ages 5-17.

- Expected benefit levels are also derived from the characteristics of individuals and households included in the SNAP Quality Control Database. For each household a calculation is made of the ratio of its benefit amount to the maximum allowable allotment for households of the same type. These figures are aggregated by household type for each month of observation. As discussed earlier, the maximum benefit level is established annually based on the Thrifty Food Plan, a national standard for a nutritious diet at minimal cost. The thresholds used in this study are: minimum benefit, less than 25% of the maximum benefit but above the minimum, between 25 and 50% of the maximum, between 51 and 75% of the maximum, between 76 and 99% of the maximum, and the maximum benefit. The benefit levels for fiscal year 2009 are listed in Table 1.

- Demographic variables are created using data from both the U.S. Census Bureau and the SNAP Quality Control Database. The race and years of education variables are from the U.S. Census Bureau, subsection of Income Poverty, and Health Insurance in the United States. These data are missing or incomplete for a large portion of the sample in the SNAP Quality Control Database because they are not necessary to determine the accuracy of food stamp benefit levels, which is the main purpose of the database. Instead, I substitute annual data from the census, using figures for households below 125% of the federal poverty level as a proxy for rates that might be found among food stamp participating households, where the gross income limit for most households is 130% of the federal poverty level.

- Economic variables are from the U.S. Bureau of Labor Statistics. I use monthly unemployment and lagged unemployment rates.

**Limitations**

While using data from the SNAP Quality Control database enables this study to assess how participant dynamics have changed, one fundamental limitation is that, outside of the controls for the economy, this study does not account for changes outside of SNAP which may have increased eligibility for the program. Kornfeld (2001) discusses this issue and analyzes food stamp participation among subgroups by looking at food stamp participants as a proportion of the relevant population as a whole rather than as a proportion of the caseload. He notes that this enables the study to explore the effect of economic trends and policy changes on both the proportion of the population that is eligible for food stamps and the proportion of eligible persons who actually receive food stamps. For the purposes of this study, there may have been changes specific to this recession that contributed to an increase in eligibility among persons above 100% of the federal poverty level – for example, perhaps there were wage cuts in certain sectors that heavily employ workers at particular wage levels. Or, alternatively there may have been workforce-related trends such as deciding to work longer due to longer life expectancy. Either of these factors could have increased the number of food stamp eligibles over 100% of the federal poverty level, and may have been the driver of proportionate growth among this subgroup (instead of the benefit increase).

While the quality control data allows this study to get in-depth information on working households, there are several key limitations. One is that the data is cross-sectional, so beyond including a lagged unemployment variable, this study cannot differentiate between new families induced to enter the program due to the benefit increase versus families experiencing cyclical short term poverty. The lagged unemployment variable however does allow the study to get at households that are induced to enter more due to the length of the recession than to the benefit

increase. A second limitation is the incompleteness of some of the key demographic indicators (race and years of education) in the quality control data. Since these data points are not necessary to determine the accuracy of food stamp benefit levels, they are missing or incomplete for a large portion of the sample. Instead, I substitute key demographic variables from census data, using figures for households below 125% of the federal poverty level as a proxy for rates that might be found among food stamp participating households. Finally, while there are indicators to not use the ABAWD variable for 2009 because of rule changes for this group under ARRA, I did decide to keep the variable because it seems as though it may be particularly relevant when looking at the population of interest in this study. However, this variable should be viewed with caution. I also constructed the Categorical Eligibility variable tallying only for when a state actually certified a household that way, and not for when a household was re-coded that way during data cleaning. I did this in the hopes of getting at the effect of categorical eligibility rather than at the percentage of households that actually qualify for it.

**Methods**

I begin by classifying working households into four ranges of poverty and examining the distribution of poverty classifications among working households in the SNAP population. I then turn to multivariate analyses, beginning with ordinary-least squares regression. I estimate four regression equations to explain any monthly variance in the effect of the ARRA, net of controls for other time-varying demographic factors, administrative barriers, and economic conditions. To account for possible delays in information diffusion, I use alternative specifications to discover whether the benefit increase had an immediate effect on the distribution of participants in April or was delayed to a subsequent month. I then turn to

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alternative explanations to test the robustness of the results, using quarterly and monthly fixed effects to address any possible seasonality of participation among upper income households with earnings.

**Chapter 3: Results**

**Descriptive Results**

Figure 1 shows change over the observation period in the distribution of households with earned income. From FY 2003 to 2009, working households at 51 to 100% of the federal poverty level comprised the largest share of program participants. This seems reasonable given that by virtue of having *any* earnings, these households would be unlikely to be in the lowest poverty threshold. One group that shows clear gains is among those households above 131% of the poverty level. This may be in part due to either the wider availability or broader use of categorical eligibility, which is a policy that is conferred if a household receives a TANF-funded service (such as a brochure on childcare services) that enables households above 130% of the federal poverty level to participate as long as their net income, once deductions are calculated, still brings the household below 100% of the poverty level. Categorical eligibility policies also typically raise or completely remove the asset limit (which is $2000 for non-categorically eligible households, or $3000 for households with an elderly or disabled member).

Table 2 provides the means of key variables for all families with earnings as well as for the subgroup of working families with earnings over 100% of the federal poverty level. These descriptive statistics reveal several differences between the make-up of upper-income households with earnings as compared to the population of all working households participating in SNAP. Firstly, upper income households are more likely to be adult-only. While it is surprising that there is not more overlap between this figure and with the rate of households with an ABAWDs (nonelderly, nondisabled member) , according to the FY 2010 SNAP Characteristics Report,

many ABAWD households are also recipients of General Assistance (which makes them unlikely to have earned income

Households with earnings above 100% of the federal poverty level are also much more likely to be smaller, with only 21.12% with 4 or more members, as opposed to all households with earnings, where 36.63% of households are 4 or larger.  As compared to the entire food stamp population, we know from the SNAP Characteristics report (Leftin, 2009) that working households are likely to be larger.  Therefore, it appears that households above 100% of the poverty level with earnings are somewhat different in this regard from the average working household.  Unsurprisingly, given higher income levels, these households are more likely to receive a lower benefit level than the broader SNAP working population.  Only 5% of households above 100% of the poverty threshold receive 75% of the maximum benefit level or more, as opposed to 39% of all households with earnings.  These results indicate that increasing benefit levels could be a key change that might encourage greater participation.

Similar trends are visible when we examine changes overtime in the characteristics of our population of interest.  Table 3, which contains mean values for households over 100% of the federal poverty level from 2003 to 2009, reveals several interesting trends. For example, while many of the variables have only fluctuated by a percentage point or two from 2003 to 2009, there are several large increases between 2008 and 2009, particularly in the share of adult-only households, households of one individual, households certified for over 13 months, and households certified through categorical eligibility.  All this suggests an increase in participation (or at least a change in the dynamic of participating households) toward the working elderly or

disabled. These households are likely to have savings that put them above the typical asset

threshold, but are also likely to have high enough shelter and medical expenses to bring them

below the net income limit (making them categorically eligible). This hypothesis is reinforced

by the increase in households certified for 13 or more months. A "typical" working household,

where income is expected to vary, would not receive such a long certification period, so the

increase in households qualifying for 13 or more months of certification indicates households

with fairly stable income. Households that most likely fit this category are households of earners

who perhaps have been working at a position for some time, have fairly stable jobs, and do not

have children.

Finally, Figure 2 looks at change over time in the percentage of participating households over

100% of the federal poverty level, using quarterly data points. A sharp spike is evident in the

quarter following the benefit increase (April 2009 – June 2009). T-tests reveal that this increase

is statistically significant at the 10% level. However, the greater percentage of upper income

households in the participant population is neither unprecedented across the years of observation

(the corresponding figure for the second quarter of 2007 is similar), nor does it persist (the

percentage of this subgroup falls in quarter 3 of 2009, July 2009 to September 2009).

The fact that the percentage level has occurred previously and that it does not persist raises

several questions. One is, did the benefit increase significantly increase the ratio of upper

income households with earnings at all, and if so, in which month and for how long did the

increase last? Regression analysis allows us to address this question directly by testing

alternative assumptions about the timing for when an effect of the benefit may have occurred.

The first test is whether a policy effect is observable during April, the month during which the change was officially implemented. I also examine whether an effect of the benefit increase is detectable if the hypothetical "start date" is set at May, June, or July, to track any subsequent benefit increase effects or fadeouts. The second question is whether there is something cyclical in the nature of participation among upper income households with income that would influence the outcomes. Two final equations are estimated to explore this issue, one adds quarterly dummy variables (but does not include the coefficient of interest due to colinearity) and the second uses a month fixed effects estimation strategy.

**Multivariate Results**

As shown in Table 4, the estimated coefficient on the ARRA benefit increase is statistically significant in April, May, and June. All else equal, in April the ARRA increase is associated with a 5.2 percentage point increase in the share of participating upper income households with earnings, significant at the 1% level. In May, it is associated with a 3.7 percentage point, significant at the 1% level. This suggests that the benefit increase was indeed successful at drawing more upper income working households into the program, but that this effect did not continue into July.

One might think that these results are indicative of the recession and corresponding falling incomes, less availability of help from friends and family due to hard times, and spend-down of assets. While the unemployment coefficient is statistically significant in June and July, and the lagged unemployment variable was included specifically to assess the effect of a prolonged recession, they may not capture the full extent to which the recession impacted households with

earned income. However, by controlling for benefit levels, the models essentially hold household income and expenses constant, because along with household composition they are used to determine benefit levels. So, comparing two households of similar nature with access to the same amounts of resources (income, expenses, qualifying for the same benefit), a household is more likely to participate after the benefit increase than before. This suggests that the increased benefit did influence the relative share of upper income households with earnings in the participant population.

Working SNAP households were classified according to three types of recertification requirements: certification for a period of 4 to 6, 7 to 12 or thirteen or more months. Interestingly, being certified for 4 to 6 months or over 13 months are both highly statistically significantly associated with the share of upper income households (as compared to a 1-3 month certification period, the omitted group). Being certified for 7-12 months, in contrast does not seem to have an effect. This may be because the degree of financial hardship among upper income households restricts the length of their eligibility for benefits or the relative stability of their income streams qualifies them for longer certification periods. These findings are generally consistent with the results of earlier studies documenting that shorter certification periods discourage SNAP participation, and the findings here are generally consistent with that.

While we find statistically significant results, both the immediacy of the effect (that the after change coefficient is significant in April itself), and the quickness of its fadeout are surprising. The next step is to examine the robustness of the results.

**Alternative Specifications**

One possibility is that there is a cyclicality to the participation of upper income households in the program. This is suggested by Figure 2, which seems to show a somewhat consistent pattern of peaks and dips over time. Reasons for this may include seasonality of work or available hours of work, or perhaps timing related to changes in household composition (marriages and births). To assess this possibility, I estimate an equation with all the variables from the basic model except the after change variable (due to colinearity) and account for quarter effects. While a drawback is that the revised after change coefficient effect cannot be assessed, this model does enable us to detect if there is a seasonal effect which may be over-stating or under-stating the after change coefficient effect.

In model 5, quarter 1 is omitted, the quarter 2 effect of -1.04 is significant at the 10% level; the quarter 3 effect is insignificantly different than quarter 1; and the quarter 4 effect of -1.22 is significant at the 5% level. The direction of these coefficients indicate that participation among upper income households with earnings is less likely in quarters 2 and 4, and equally likely in quarter 3 as in quarter 1. It appears then that the only quarter associated with a significant increase in the proportion of upper income working households is quarter 1. This strengthens the robustness of the results in the basic model because it means that the increase we found in quarter 3 is unlikely to be over-stated due to a seasonal effect. It also may mean that the fadeout that occurs in June and July may be in part due to a seasonal effect rather than an immediate fadeout in the attraction of the benefit increase.

I next estimate a month fixed effects model to double-check these findings.  An F-test on the fixed effects shows that the month effects are insignificant.  In this model, the coefficient on the after change variable, with change occurring in April, is 5.80, statistically significant at the 1% level.  This effect remains significant in May and June, and then fades in July.

**Chapter 4: Discussion and Conclusion**

This study has investigated the effect of a 13.6% SNAP benefit increase that occurred under the American Recovery and Reinvestment Act. In particular, I assessed whether the benefit increase had an effect on the participation of upper income households with earnings, a group that is hard-to-reach in part due to the high costs and low perceived benefits of SNAP. This question was examined using data from 2003 through 2009 from the food stamp quality control database. This database contains information on approximately 50,000 households, enabling me to establish a clear picture of the make-up of the population of interest. This study uses both descriptive and multivariate methods.

The bivariate analysis demonstrates the relatively low proportion of working households above 100% of the federal poverty level that participate in SNAP. From FY 2003 to 2009, working households at 51 to 100% of the federal poverty level comprised the largest share of program participants. It seems reasonable given that by virtue of having *any* earnings, working households would be unlikely to be in the lowest poverty threshold. The high ratio of participation among households from 51-100% of the poverty threshold, then, perhaps reflects the subset of households that stand to gain the most both due to low income and due to need. However households above 100% of the federal poverty level that remain eligible for SNAP are still very poor and likely in high need, which is why it is of interest what would induce greater participation. The bivariate analysis also demonstrates that contrary to the discussion in the literature review, which suggests that households with multiple adults and children may be the most likely to be induced to participate by a benefit increase, it may be that households that

would be most affected consist perhaps of elderly persons or persons with a disability, but not one that prevents work.

The multivariate analysis in this study includes regressions for several months after the initial benefit increase which occurred in April 2009. The results are tested for robustness using quarterly dummy variables and month fixed effects. My analysis shows that the ARRA benefit increase had a significant effect on the proportion of participating upper income households with earnings. The percentage increase was 5.2 in April; 3.7 in May; and 2.0 in June. The effect faded in July. These findings are robust to additional specifications – models that include quarterly and month fixed effects. The length of the effect (April-June) is consistent with the notion of a benefit increase initially drawing more interest to the program but eventually becoming the standard expected benefit. It is likely that over time, a benefit increase becomes the new norm and stops being an attractant to induce people to enter the program. More broadly, these findings suggest that discrete changes can be influential in attracting hard-to-reach populations to the program. Further research is needed to assess whether these new entrants stay connected to SNAP, for how long, and the extent to which they benefit.

**Policy Implications**

The findings of this study suggest that both a decrease in transactional costs (as evidenced by the importance of certification periods and categorical eligibility) and an increase in benefits (as reflected by the significance of the after ARRA increase variable) may induce upper income working households with earnings to enter the program. This has several implications for future work.

On the costs side, there is a growing movement to connect low-income workers with a package of benefits when they join employment and essentially bundle public supports with work. Piloted programs include the Work Advancement and Support Center (WASC) Demonstration Project, and SEEDCO. WASC offers services to help workers stabilize their employment, improve their skills, and increase their earnings by working more hours or finding higher-paying jobs. The program also provides easier access to a range of financial work supports, such as child care subsidies, food stamps, and the Earned Income Tax Credit. A unique feature of WASC is that all these services are offered in a single location — the One-Stop Career Centers created by the Workforce Investment Act of 1998 to provide job search assistance services — and are provided by workforce development and welfare staff in one unit. Programs like WASC may be a key strategy to remove some of the transactional costs associated with joining SNAP.

Another option already in-place to reduce costs in SNAP is the use of categorical eligibility. While the descriptive statistics reveal that this policy is more prevalently used among households above 100% of the federal poverty level (as expected), it was not statistically significant in the regression. It is possible that states can conduct more outreach to ensure that households eligible under this policy (which may be a target population less familiar with the public assistance arena in general) are aware of SNAP.

On the benefits side, the findings of this study suggest that discrete changes, even if their influences do not last, can have an impact on the population served by connecting new or different kinds of households to services. In this case, for example, it may be that new entrants

who are elderly or disabled remain connected to SNAP for the remainder of their working years

even though the benefit increase stops being an inducement to enter the program over time.

**Figures**

**Figure 1: Distribution of SNAP Participant Households with Earnings by Poverty Level**
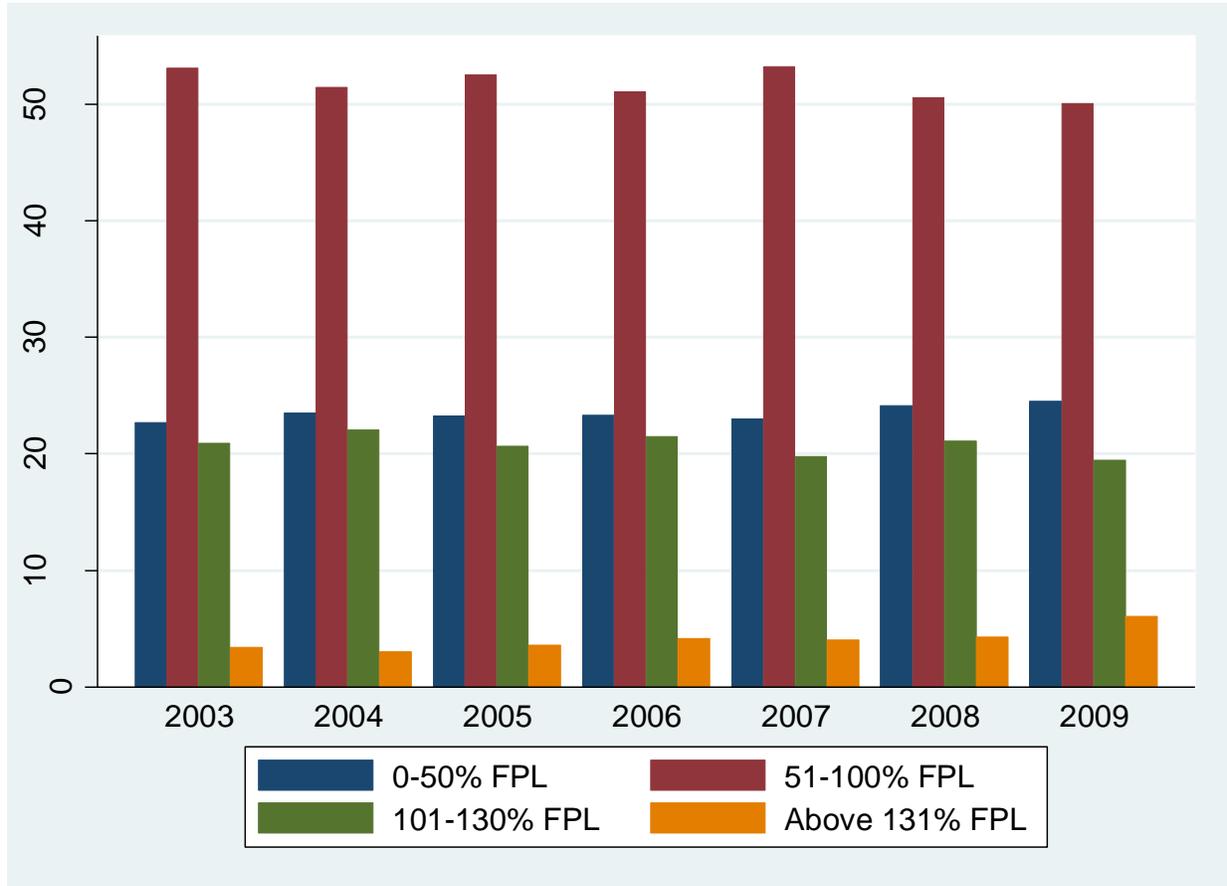


*Annual values based on average monthly rates from the SNAP Food Stamp Quality Control Database*

**Figure 2: Percentage of Participating SNAP Households With Earnings Above 100% of the Federal Poverty Level of all Participating Households With Earnings**
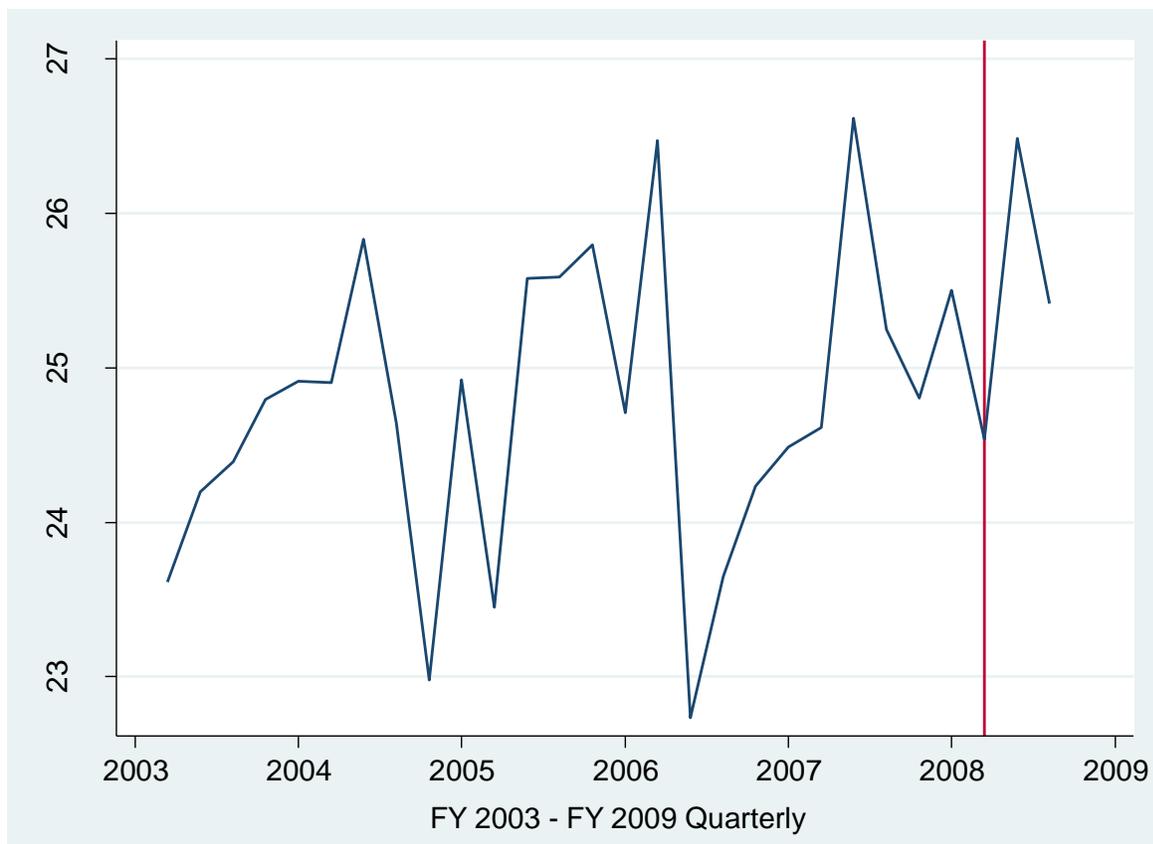


*Quarterly values based on average monthly rates from the SNAP Food Stamp Quality Control Database*

**Tables**

**Table 1: Maximum SNAP Allotments for Fiscal Year 2009, Pre and Post ARRA Benefit Increase**

| Household Size | FY 2009 Pre ARRA | FY 2009 Post ARRA |
|---|---|---|
| 1 | 176 | 200 |
| 2 | 323 | 367 |
| 3 | 463 | 526 |
| 4 | 588 | 668 |
| 5 | 698 | 793 |
| 6 | 838 | 952 |
| 7 | 926 | 1052 |
| 8 | 1058 | 1202 |
| each additional member | plus 132 | plus 150 |

**Table 2:  Means of Key Variables for All SNAP Households with Earnings versus Means for SNAP Households with Earnings over 100% of the Poverty Level**

| | **All Households with Earnings** | **Households With Earnings Over the Poverty Level** |
|---|---|---|
| **Household Composition** | | |
| Single Adults with Children | 59.24 (0.21) | 32.33 (.41) |
| Multiple Adults with Children | 31.08 (0.22) | 18.49 (.23) |
| Adults Only | 17.91 (0.23) | 47.05 (.41) |
| ABAWD | 9.33 (0.15) | 5.44 (.16) |
| Pre-School Children | 46.53 (0.24) | 25.73 (.33) |
| School-Age Children | 62.04 (0.27) | 41.33 (.38) |
| | | |
| **Household Size** | | |
| 1 | 17.02 (0.23) | 37.61 (.42) |
| 2 | 22.05 (0.16) | 24.53 (.3) |
| 3 | 24.32 (0.17) | 16.75 (.27) |
| 4 | 18.85 (0.19) | 11.66 (.21) |
| 5 | 10.42 (0.15) | 5.86 (.16) |
| 6+ | 7.36 (0.13) | 3.6 (.13) |
| | | |
| **Expected Benefit Levels** | | |
| Minimum Benefit | 3.74 (0.098) | 27.57 (.46) |
| < 25% but > Minimum | 9.17 (0.24) | 27.12 (.49) |
| 25% - 50% | 21.45 (0.29) | 28.47 (.41) |
| 51% - 75% | 26.39 (0.21) | 11.29 (.36) |
| > 75% but < Maximum | 21.89 (0.33) | 2.97 (.17) |
| Maximum | 17.34 (0.24) | 2.55 (.15) |
| | | |
| **Administrative Factors** | | |
| 4-6 months | 54.18 (0.28) | 36.12 (.45) |
| 7-12 months | 41.14 (0.39) | 49.99 (.35) |
| 13+ months | 1.77 (0.07) | 12.2 (.46) |

*Means based on monthly weighted rates from the SNAP Quality Control Database, 2003-2009. Figures in parenthesis are standard errors.*

**Table 3:  Mean Variables for Households With Earnings Over 100% of the Federal Poverty Level, 2003 - 2009, cont.**

|  | 2007 | 2008 | 2009 |
|---|---|---|---|
| **Total** | 819,206 | 921,017 | 1,125,296 |
|  |  |  |  |
| **% Households With Earnings** | 23.78 | 25.33 | 25.49 |
| **Single Adults with Children** | 46.73 (.99) | 45.31 (.82) | 41.98 (1.54) |
| **Multiple Adults with Children** | 27.21 (.90) | 29.41 (1.42) | 28.71 (1.38) |
| **Adults Only** | 23.05 (.77) | 20.54 (1.01) | 25.33 (.96) |
| **ABAWD** | 8.33 (.87) | 6.58 (.29) | 9.04 (.74) |
| **Pre-School Children** | 39.44 (.71) | 42.22 (1.11) | 39.89 (1.20) |
| **School-Age Children** | 60.51 (1.17) | 60.54 (1.34) | 56.07 (1.06) |
|  |  |  |  |
| **1** | 17.49 (.94) | 16.10 (.60) | 19.60 (.79) |
| **2** | 23.88 (1.26) | 25.33 (1.39) | 25.05 (.60) |
| **3** | 24.62 (.73) | 24.62 (1.37) | 23.85 (1.18) |
| **4** | 18.61 (.79) | 18.80 (1.03) | 17.32 (.73) |
| **5** | 9.68 (.89) | 8.94 (.89) | 8.52 (.41) |
| **6+** | 5.72 (.69) | 6.20 (.56) | 5.66 (.49) |
|  |  |  |  |
| **Minimum Benefit** | 14.20 (.84) | 14.73 (.65) | 11.02 (.76) |
| **< 25% but > Minimum** | 32.02 (.95) | 30.03 (1.17) | 19.18 (1.78) |
| **25% - 50%** | 39.30 (.93) | 38.95 (1.01) | 41.56 (1.12) |
| **51% - 75%** | 13.44 (.79) | 13.91 (.58) | 22.13 (1.87) |
| **> 75% but < Maximum** | 2.12 (.60) | 1.79 (.41) | 4.58 (.44) |
| **Maximum** | .92 (.30) | .60 (.18) | 1.22 (.37) |
|  |  |  |  |
| **4-6 months** | 51.71 (.98) | 51.56 (1.14) | 46.37 (.55) |
| **7-12 months** | 44.35 (1.12) | 45.40 (1.15) | 48.836 (.75) |
| **13+ months** | 3.12 (.35) | 2.29 (.41) | 4.26 (.56) |
|  |  |  |  |
| **Categorical Eligibility** | 41.87 (1.35) | 51.28 (1.36) | 65.79 (.96) |

**Table 4: OLS Coefficients for Models Predicting ARRA's SNAP Benefit Increase Effect**

|  | April Effects | May Effects | June Effects | July Effects |
|---|---|---|---|---|
| After Benefit Increase | 5.160*** | 3.654*** | 1.962* | 0.902 |
| *Household Composition* | | | | |
| Adult Only Households | 0.125 | 0.13 | 0.11 | 0.06 |
| ABAWD Rate | 0.0371 | -0.04 | 0.01 | 0.06 |
| Single Adult with Children | -0.0801 | -0.07 | -0.07 | -0.08 |
| Multiple Adults with Children | -0.103 | -0.03 | 0.01 | 0.03 |
| Household Size 1 | 0.12 | 0.09 | 0.27 | 0.36 |
| Household Size 2 | 0.25 | 0.195 | 0.305 | 0.36 |
| Household Size 3 | 0.12 | 0.07 | 0.13 | 0.13 |
| Household Size 4 | 0.02 | 0.01 | 0.04 | 0.06 |
| Household Size 5 | 0.04 | -0.05 | 0.01 | 0.05 |
| Pre-School Children | 0.01 | -0.01 | 0.02 | -0.002 |
| School Age Children | 0.17 | 0.16 | 0.17 | 0.17 |
| *Expected Benefit Level* | | | | |
| Minimum Benefit | 0.456** | 0.47** | 0.47** | 0.47** |
| < 25% of Maximum | 0.712*** | 0.51*** | 0.57*** | 0.61*** |
| 25-50% of Maximum | 0.12 | 0.03 | 0.07 | 0.08 |
| 51-75% of Maximum | 0.06 | -0.01 | 0.04 | 0.06 |
| 76 - 99% of Maximum | -0.222** | -0.28** | -0.175 | -0.146 |
| *Demographics* | | | | |
| Age | 0.27 | 0.52 | 0.59 | 0.57 |
| Less than High School Diploma | 2.11 | 0.2 | -0.5 | -0.78 |
| High School Diploma | -0.68 | 0.03 | 0.31 | 0.55 |
| Some College | 3.36 | 1.71 | 1.41 | 1.03 |
| Black | -3.01 | -0.81 | -0.56 | -0.46 |
| Asian | -0.07 | -0.27 | -0.364 | -0.308 |
| Hispanic | -1.91 | -0.52 | 0.02 | 0.2 |
| Female | 0.05 | 0.1 | 0.175* | 0.17 |
| *Administrative Factors* | | | | |
| 4-6 Month Certification Period | 0.163** | 0.18** | 0.22** | 0.24** |
| 7-12 Month Certification Period | 0.15 | 0.11 | 0.07 | 0.06 |
| 13+ Month Certification Period | 0.543* | 0.69** | 0.74** | 0.72* |
| Categorical Eligibility | 0.05 | 0.06 | 0.07 | 0.08 |
| *Economic Conditions* | | | | |
| Unemployment Rate | 0.76 | 0.72 | 0.963* | 1.007* |

| | | | | |
|---|---|---|---|---|
| Unemployment Rate, Lag | -0.49 | -0.25 | -0.309 | -0.25 |
| Constant | 15.95 | -34.53 | -61.85 | -65.07 |
| Observations | 84 | 84 | 84 | 84 |
| R-squared | 0.751 | 0.719 | 0.684 | 0.666 |

*significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level; omitted groups
are Household Size 6+, Maximum Benefit, Four-Year Degree, White, and 1-3 Month Certification Period*

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