

**Low-Income Household  
Spending Patterns and  
Measures of Poverty**

April 2010

Laura Castner  
James Mabli



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## EXECUTIVE SUMMARY

The poverty measure currently used to determine eligibility for many federal transfer programs is based on an index developed by the Social Security Administration in 1963, with revisions in 1969 and 1981 (Statistical Policy Directive No. 14 from the Office of Management and Budget, 1978). The underlying concept for the index was the U.S. Department of Agriculture's 1961 economy food plan, which was, in turn, based on a 1955 Survey of Food Consumption result that identified that food expenditures account for one-third of a household's income (U.S. Bureau of the Census 1982). Today, however, the poverty measures are criticized as being no longer applicable, with one of the many issues being that one-third no longer reflects the share of a household's income spent on food (Citro and Michael 1995; Blank 2008). Food spending, as a share of household expenditures, has decreased by almost half since 1960, while the share spent on housing has increased about 10 percent and transportation about 30 percent (U.S. Bureau of Labor Statistics 2006).

In this report, we use the interview component of the 2005 Consumer Expenditure Survey to look at spending patterns of low-income households in 2005. We examine how they allocate their income across consumption categories, comparing allocations of recipients of one federal transfer program, the Supplemental Nutrition Assistance Program (SNAP),<sup>1</sup> with those whose income makes them eligible for SNAP, yet who do not participate. We compare this data with those whose income exceeds the SNAP eligibility limits. For each of these groups, we also estimate how a small increase in income is allocated across each consumption category. Next, we analyze how eligibility for SNAP could change if it were based on expenditures rather than income. Finally, we explore the use of savings and credit across the three participation and eligibility groups.

### Spending Patterns

The poverty thresholds currently in use reflect spending patterns of the 1960s. In recent years, Americans have spent a smaller portion of annual budgets on food and more on housing and transportation.

#### SAMPLE CONSTRUCTION AND SUBGROUP DEFINITIONS

SNAP participation and eligibility subgroups are defined as follows:

- **Participants:** Consumer units in which members received a positive amount of SNAP benefits in the previous 12 months.
- **Eligible nonparticipants:** Consumer units whose 12-month income is at or under 130 percent of poverty, but who are not identified as SNAP participants.
- **Ineligible nonparticipants:** Consumer units whose 12-month income is over 130 percent of poverty and did not receive SNAP benefits in the past 12 months.

Because the analysis sample is limited to all consumer units with *income* less than 300 percent of the federal poverty level, we refer to the universe as "low-income" consumer units. In addition, consumer units whose total *expenditures* were greater than 300 percent of the median total expenditure are excluded from the sample.

<sup>1</sup> On October 1, 2008 the Food Stamp Program changed its name to the Supplemental Nutrition Assistance Program.

- **Food accounts for less than one-quarter of expenditures of low-income consumer units.**<sup>2</sup> As pictured in Figure 1, expenditures on food represent about 24 percent of total expenditures for SNAP participants (22 percent on food at home and 2 percent on food away from home). For eligible nonparticipants, spending on food represents about 22 percent of total expenditures (18 percent on food at home and 4 percent on food away from home). For ineligible nonparticipants, expenditures on food represent 18 percent of total expenditures. In all cases, this is well below the 33 percent assumed for the development of the poverty measures.

The ineligible nonparticipants, with income higher than the other two groups, spend a smaller percentage of their income on food, both at home and away, but they spend more dollars per year (\$4,709 versus \$4,013 for participants and \$3,443 for nonparticipants).

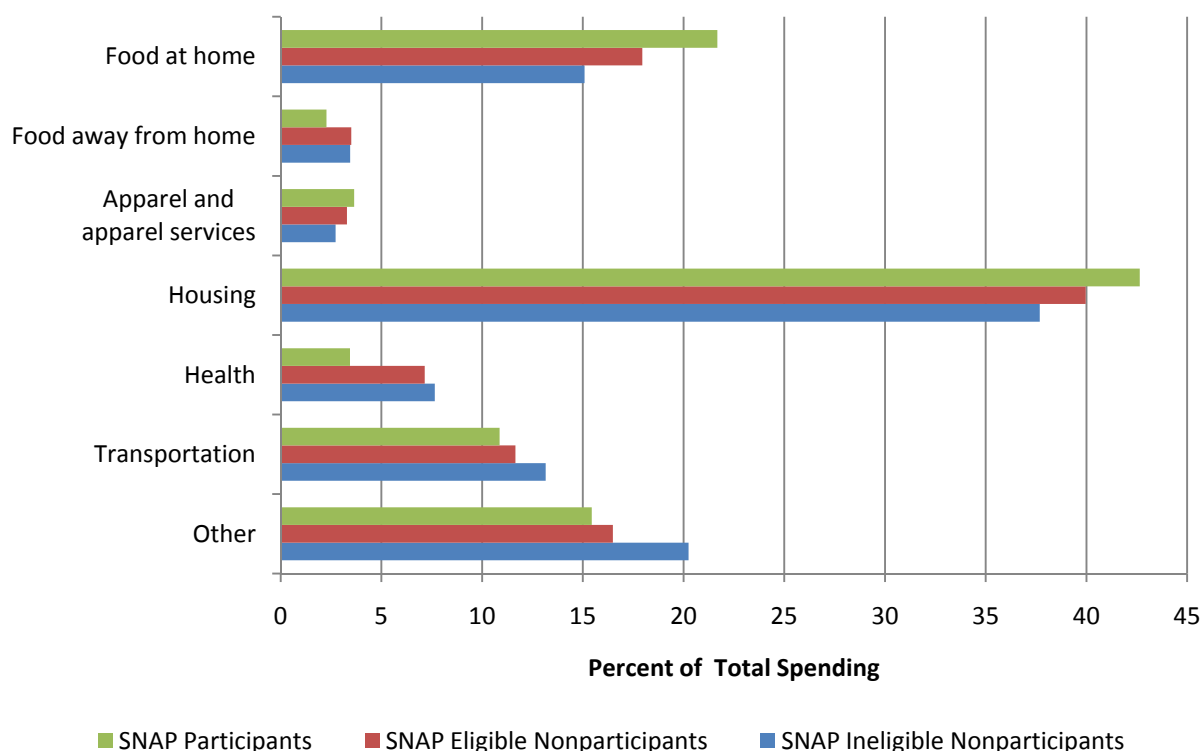
- **Housing accounts for 38 to 43 percent of expenditures of low-income consumer units.** Housing expenses, which include rent or mortgage payments, utilities, mortgage interest, property taxes, and other housing-related expenses, account for 43 percent of expenses for SNAP participants, 40 percent for eligible nonparticipants, and 38 percent for ineligible nonparticipants.

Several demographic characteristics affect spending patterns:

- **Age is an important determinant of expenditure shares for every budget category.** Expenditure shares increase with age for food at home, and to some extent, housing and health, but decrease with age for food away from home, apparel, transportation, and other purchases.
- **Having more children increases the shares spent on food at home and apparel and decreases the share spent on food away from home.**
- **Where a consumer unit lives affects the allocation of spending on housing and transportation.** Consumer units living in more populated areas spend more on housing and less on transportation.

---

<sup>2</sup> Consumer units are defined as members of a household consisting of (a) occupants related by blood, marriage, adoption, or some other legal arrangement; (b) a single person living alone or sharing a household with others, but who is financially independent; or (c) two or more persons living together who share responsibility for at least two out of three major types of expenses—food, housing, and other expenses. Students living in university sponsored housing also are included in the sample as separate consumer units.

**Figure 1 Percentage of Annual Spending by Major Category for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: Differences in percentages between SNAP participants and eligible nonparticipants are all statistically significant at the 5 percent level; all differences except for Apparel and Apparel Services and Transportation are significant at the 1 percent level. Differences in percentages between SNAP participants and ineligible nonparticipants are all significant at the 1 percent level.

Given a small increase in income, households allocate a greater amount of resources to some expenditure categories than to others. For several categories of expenditures, this allocation varies according to whether they participate in, or are eligible for, SNAP.

- **For every one dollar increase in total unit income, a low-income consumer unit spends an additional seven to eight cents on food at home and an additional two to three cents on food away from home.** This is less than the additional amount allocated to expenditures on housing, transportation, or other goods and services, and more than that spent on apparel or health.
- **As income increases, SNAP participants increase spending by a greater amount on apparel, transportation, and other goods and services than eligible nonparticipants.** Participants increase spending on housing by a smaller amount than eligible nonparticipants.

## Defining Poverty and SNAP Eligibility Using Expenditures

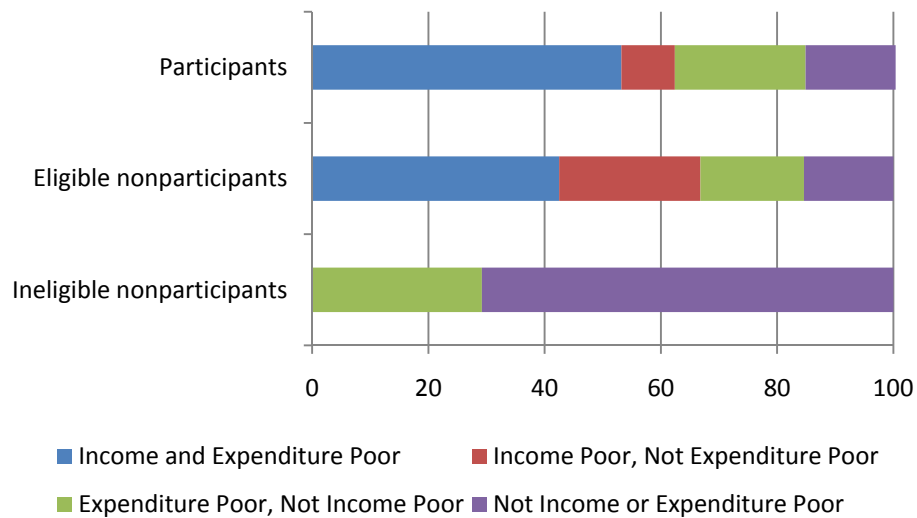
In addition to concerns that the poverty measures no longer reflect current spending patterns, some policymakers and researchers are concerned that income, which is the basis for the measure, may be too unstable over time to provide an accurate description of an individual's well-being (see Bavier 2008). Indeed, empirical microeconomic studies of consumer behavior have shown expenditures to be less likely to fluctuate on a monthly basis because many large expenses, such as housing, transportation, and food, are likely to be consistent throughout the year (Meyer and Sullivan 2003; Gundersen and Ziliak 2003; Blundell and Preston 1998; Slesnick 1993). Whether consumer behavior is determined more by income or expenditures can be traced back to Milton Friedman's permanent-income hypothesis (Friedman 1957), which suggests that consumption decisions are guided not by a consumer's current income, but by a measure of an individual's "permanent" income, consisting of his or her ability to earn income over a longer time period and expectations of future earnings and wealth. However, while expenditures may fluctuate less than income, using expenditures to measure individual well-being at a point in time is also susceptible to being misrepresentative due to large infrequent purchases such as those associated with housing repairs and durable goods.

There is no current set of poverty thresholds for expenditures like there is for income-based poverty. A common technique, and one we adopt in this study, is to identify the median of expenditures, by consumer unit size, across all consumer units and define the poverty thresholds to be 60 percent of the median, again, by consumer unit size. A consumer unit is described as expenditure poor if its expenditures are at or under the threshold.

- **Over 50 percent of SNAP participants and 40 percent of eligible nonparticipants are both income and expenditure poor.** In Figure 2, we display the proportion of participating, eligible nonparticipating, and ineligible nonparticipating consumer units that are identified as both income and expenditure poor, either income or expenditure poor, or neither income nor expenditure poor. If an expenditure-based eligibility threshold were set at 60 percent of the median expenditure, then the consumer units that are both income and expenditure poor would likely not be affected by the change.
- **If SNAP eligibility were set at 60 percent of the median expenditures, then 14 percent of all low-income consumer units would likely lose eligibility and 17 percent would gain eligibility.** In Figure 3, we combine the eligible groups and present how the low-income population could be affected by a change to an expenditure-based eligibility measure when the threshold is set at 60 percent of the median. About 26 percent of low-income units are both expenditure- and income-eligible using this measure and would remain eligible.



**Figure 2 Percentage of Expenditure-Poor Consumer Units, by Income Poverty and SNAP Participation and Eligibility Group**

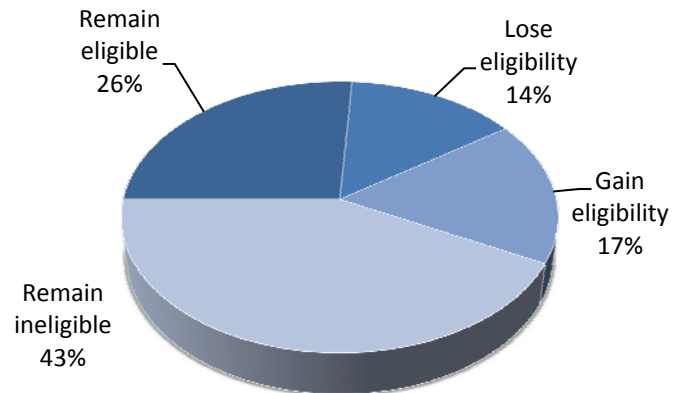


Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

**Figure 3 Low-Income Consumer Units Losing and Gaining SNAP Eligibility When Eligibility Is Based on Expenditures and Set at 60 Percent of Median Expenditures**



Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

Changing to an expenditure-based poverty threshold would affect households with different characteristics in different ways.

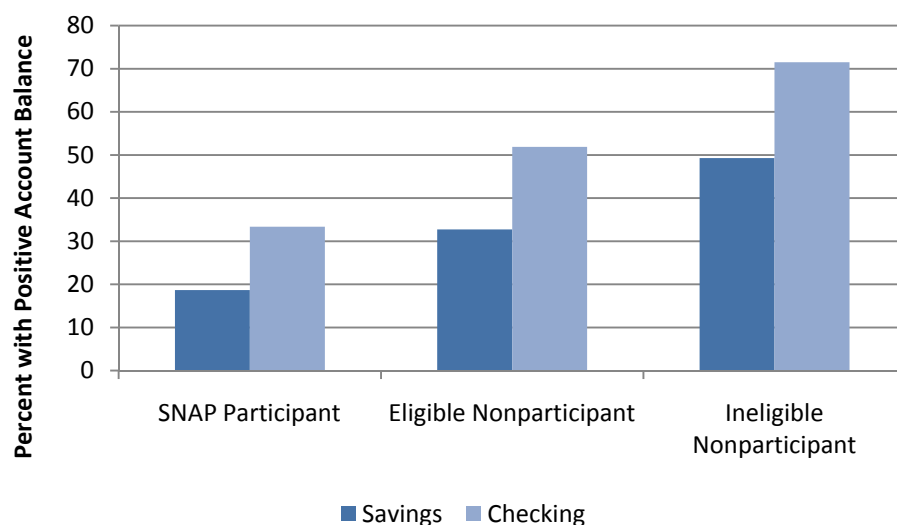
- **Among participant and eligible nonparticipant consumer units, those headed by married couples with children or single males, non-Hispanic members, or individuals age 25-64 are more likely to lose eligibility than other units under an expenditure-based eligibility threshold.** In addition, consumer units living in the most densely populated areas would be more likely to lose eligibility than units living in less densely populated areas. Participants in the Northeast and eligible nonparticipants in the West would also be more likely to lose their eligibility than other units.
- Ineligible nonparticipant consumer units with one child or headed by non-Hispanic black members or an individual age 65 or older would be more likely to gain eligibility than other units under an expenditure-based eligibility threshold. Units in rural areas would also be more likely to gain eligibility than units in urban areas.

## Savings, Checking, and Credit Use

Savings, checking, and credit accounts can be used by consumer units to cover expenses in months when expenditures exceed income. A consumer unit that relies on these accounts may be income poor but have expenditures high enough to make them not expenditure poor.

- **Participants are less likely to have savings and checking accounts than eligible nonparticipants, who in turn are less likely to have accounts than ineligible nonparticipants (Figure 4).** Participants also have the lowest mean and median balances and ineligible nonparticipants have the highest balances (not shown).

**Figure 4 Consumer Units with Savings or Checking Accounts**

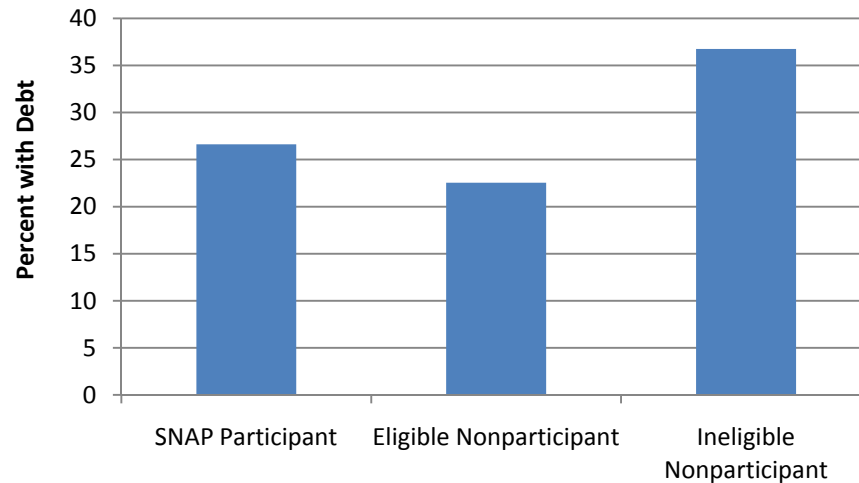


Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their fifth interview

- **Over 25 percent of SNAP participants and 35 percent of ineligible nonparticipants have debt balances (Figure 5).** By debt, we mean credit card debt; financial debt through banks, brokerages, savings and loans, credit unions, and insurance companies; debt for health-related expenses not covered by insurance; and other debt, such as school loans, personal loans, and loans from retirement plans. SNAP participants have the highest median amount owed and ineligible nonparticipants have the lowest (not shown).

**Figure 5 Consumer Units with Debt Balances**



Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their second or fifth interview

- **Consumer units that are not income poor but are expenditure poor have higher savings balances than income-poor units.** The units with the highest savings balances are the units that are neither income nor expenditure poor.
- Consumer units that are neither income nor expenditure poor are almost four times more likely to have savings accounts than the other income and expenditure groups. They are also four times more likely to have debt balances.

## Data and Methods

The analysis presented in this report relies on data from the interview component of the 2005 Consumer Expenditure Survey (CE). The CE, which has been conducted for the BLS since 1980, collects data on household expenditures for goods and services used in day-to-day living for American consumers. It also collects information on demographic characteristics and annual household income. The survey allows data users to relate the expenditures and income of consumers to the characteristics of those consumers.

The CE-Interview consists of two separate surveys—a weekly diary survey and a quarterly household interview survey. The samples for the two surveys are drawn separately, each having its own data collection technique. The data are released annually, with a one-year lag from data

collection to release. The reference period of the 2005 CE-Interview data is the four quarters of 2005 and the first quarter of 2006 for the interview survey and the four quarters of 2005 for the diary survey. The findings in this report are based solely on estimates using the CE-Interview survey.

The CE-Interview collects information from about 7,500 to 8,000 consumer units once every three months for five consecutive quarters, totaling 38,000 quarterly records. The survey is a rotating panel with staggered entry and exit, with new consumer units entering and existing consumer units leaving the panel each quarter. It is designed to collect information on expenditures that respondents can remember for a period of three months or longer. These include expenditures on large purchases such as property, automobiles, or major appliances; the maintenance and upkeep of the property and vehicles; recurring expenditures, such as rent, utility bills, or insurance premiums; continuing expenses such as apparel, food, and educational supplies; and other expenses such as those related to employment and travel or vacations. Nonprescription drugs, household supplies, and personal care items are excluded. This survey includes broad categories of spending only.

SNAP participation is substantially underreported in the CE-Interview (Meyer et al. 2009). The data include information about the total amount of SNAP benefits received by members in the consumer unit in the previous 12 months, providing an indicator of which consumer units are receiving benefits. We identify 6.5 million participating consumer units in the 2005 data, about 42 percent lower than average monthly receipt for 2005 identified in official administrative counts, and also substantially lower than the annual count in the Current Population Survey.<sup>3</sup> The underreporting of SNAP benefits in the CE-Interview data suggests that many SNAP participants will be categorized as eligible nonparticipants in our analysis. This may lead us to identify fewer differences in our comparisons of SNAP participants with eligible nonparticipants than we would find if SNAP participation were not as underreported.

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<sup>3</sup> Annual measures indicate the number of units that participated at some point in the year. Average monthly measures indicate the number of units participating in a month, averaged across the year. The annual measures will be larger than average monthly measures because some individuals who participated during the year (and thus reflected in the annual count) will not have participated in every month. Administrative counts of annual participation are not available.

## I. INTRODUCTION

The poverty measure currently used to determine eligibility for many federal transfer programs is based on an index developed by the Social Security Administration in 1963, with revisions in 1969 and 1981 (Statistical Policy Directive No. 14 from the Office of Management and Budget, 1978). The underlying concept for the index was the U.S. Department of Agriculture's 1961 economy food plan, which was, in turn, based on a 1955 Survey of Food Consumption result that identified that food expenditures account for one-third of a household's income (U.S. Bureau of the Census 1982). In fact, the U.S. Department of Agriculture, when calculating benefits for the Supplemental Nutrition Assistance Program (SNAP),<sup>4</sup> reduces a household's benefit by 30 percent of their available income with the assumption that those funds will be available to purchase food.

Today, however, the poverty measures are criticized as being no longer applicable, with one of the many issues being that one-third is no longer reflective of the share of a household's income that is spent on food (Citro and Michael 1995; Blank 2008). Food spending, as a share of household expenditures has decreased by almost half since 1960, while the share spent on housing has increased about 10 percent and transportation about 30 percent (U.S. Bureau of Labor Statistics 2006). For SNAP participants, then, this implies that the household cannot supplement the SNAP benefit with as much of their personal income as had been assumed in the calculation.

Although extensive research has been conducted on how households distribute their resources across broad groups of goods and services (see, for example, Ward-Batts 2008; Paulin and Lee 2002; Sharpe and Abdel-Ghany 1999; Paulin 1998; Lino 1996; Nelson 1996), little research has focused on how these distributions differ across groups of low-income households, particularly those participating in, eligible for, or nearly eligible for, SNAP.

Research also has not focused on differences in credit and savings decisions and their relationship to household expenditures and income for this population. In any period, an individual may save by consuming less than his or her full income, or may purchase more goods and services than he or she can afford using credit. By offering its participants resources to maintain an adequate and nutritious level of food intake when their income or assets fall below certain thresholds, SNAP focuses on increasing short-run stability in food consumption; however, the program also strives for participants to become stable in the long run through education on how to create and maintain a family budget. Examining credit and savings decisions of low-income households, including SNAP participants, is one way to assess the use of budgets in expenditure decision making.

In addition, eligibility determinations for the transfer programs for which these households may be eligible are based on income. Within the policy discussion on these programs has been considerable debate as to whether it is best to base eligibility on income or whether consumption may be a better criterion (see, for example, Baviera 2008; Meyer and Sullivan 2007; Meyer and Sullivan 2003; Blundell and Preston 1998). Although income may be easier to track because it is provided on pay statements and needs to be tracked for income tax purposes, income can vary

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<sup>4</sup> On October 1, 2008 the Food Stamp Program changed its name to the Supplemental Nutrition Assistance Program.

substantially from month to month, particularly among the low-income populations where the number of hours worked in a week or month may be inconsistent. Basing eligibility on expenditures either instead of or in addition to income may provide a more stable measure of individual well-being, as major budget items such as rent and insurance tend to be consistent across time.

This report examines several of these issues. Specifically, it focuses on three main topics:<sup>5</sup>

- **Allocation of expenditures across different consumption categories.** Examining the difference between expenditures in major spending categories among (a) SNAP participants, (b) SNAP income eligibles not participating in SNAP, and (c) groups of individuals whose income exceeds SNAP income limits.
- **Determination of SNAP eligibility and benefit levels based on spending patterns rather than income.** Analyzing how income-based and expenditure-based poverty differs across SNAP participation and eligibility subgroups and the characteristics associated with being expenditure poor.
- **Use of credit and savings.** Examining how savings and credit decisions differ across SNAP participation and eligibility subgroups and how these decisions may affect the determination of SNAP eligibility based on spending patterns.

In the remainder of this chapter, we discuss the data and the measures used to examine the spending patterns. The subsequent chapters each discuss the findings from the three research topics described above.

## A. The 2005 Consumer Expenditure Survey

The analysis presented in this report relies on data from the 2005 Consumer Expenditure Survey (CE). The CE, which has been conducted for the BLS since 1980, collects data on household expenditures for goods and services used in day-to-day living for American consumers. It also collects information on demographic characteristics and annual household income. The survey allows data users to relate the expenditures and income of consumers to the characteristics of those consumers.

The CE consists of two separate surveys: a weekly diary survey and a quarterly household interview survey. The samples for the two surveys are drawn separately, and each survey has its own data collection technique. The data are released annually, with a one-year lag from data collection to release. The reference period of the 2005 CE data is the four quarters of 2005 and the first quarter of 2006 for the interview survey and the four quarters of 2005 for the diary survey. The findings in this report are based solely on estimates using the CE-Interview survey.

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<sup>5</sup> This work was conducted in conjunction with analyses presented in the report, “Food Expenditures and Diet Quality Among Low-Income Households.” That report describes the relationship between food expenditures and dietary quality among SNAP participants and nonparticipants. Because households are likely to make food purchase decisions jointly with spending decisions on other goods and services such as housing, transportation, and health, the two sets of findings are closely related.

The CE-Interview collects information from about 7,500 to 8,000 consumer units once every three months over five consecutive quarters, resulting in 38,000 to 39,000 records in the dataset.<sup>6</sup> It is designed to collect information on expenditures that respondents can remember for a period of three months or longer. These include expenditures on large purchases such as property, automobiles, or major appliances; recurring expenditures, such as rent, utility bills, or insurance premiums; continuing expenses such as apparel, food, and educational supplies; and other expenses such as those related to employment and travel or vacations. It excludes nonprescription drugs, household supplies, and personal care items.

The first quarter of data collection is to obtain demographic information and an inventory of household goods. Some data on expenses are also collected, but the data collected from the first quarter are not included in the analysis files. The second through fifth quarterly interviews collect the expenditure information. In addition, the second and fifth surveys collect annual income and employment information and credit liabilities. The income amount includes the value of SNAP benefits received. The fifth and final survey also collects information related to finance charges on the credit liabilities, asset balances, and the change in asset balances from the previous 12 months.

## B. Methodology

Our findings are based on a broad array of analyses, ranging from basic descriptive methods to more advanced multivariate approaches. In this section, we describe several of our overarching definitions and assumptions and briefly discuss the analytical techniques used in the report.

### 1. Definitions and Assumptions

We conduct all of the analysis for consumer units. The CE-Interview defines the consumer unit to be (a) occupants related by blood, marriage, adoption, or some other legal arrangement; (b) a single person living alone or sharing a household with others, but who is financially independent; or (c) two or more persons living together who share responsibility for at least two out of three major types of expenses—food, housing, and other expenses. Students living in university sponsored housing also are included in the sample as separate consumer units.

The CE-Interview describes consumer units' expenditures on a diverse set of goods and services. To minimize the bias associated with recalling expenditures over longer periods, the expenditure information is collected on a quarterly basis. The other characteristics of the household, such as income and SNAP participation, are available as 12-month measures. Below we discuss how we use this information and annualize the quarterly measures.

**Identifying SNAP participants.** The CE-Interview data include information about the total amount of SNAP benefits received by members in the consumer unit in the previous 12 months, providing an indicator of which consumer units are receiving benefits. We identify 6.5 million participating consumer units in the 2005 data. As shown in Table I.1, annual SNAP receipt in the

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<sup>6</sup> Along with containing up to four records from each of the 7,500 to 8,000 households new to the survey in each year, it contains households from the previous year whose survey periods extended into the beginning of the calendar year.

CE-Interview data is 42 percent lower than monthly receipt identified in official administrative counts, and also substantially lower than the annual count in the Current Population Survey.<sup>7</sup> Meyer et al. (2009), in a study of underreporting of transfer benefits in household surveys estimated that the 2005 CE-Interview accounted for approximately 37 percent of SNAP dollars.

**Table I.1 Number of SNAP Households by Data Source, 2005**

Data Source	Unit of Analysis	Benefit Period	Number of Units
Consumer Expenditure Survey	Consumer Unit	Annual	6,505,020
Current Population Survey	Household	Annual	7,690,436
USDA Program Data	SNAP Unit	Monthly (fiscal year average)	11,197,377

Source: 2005 CE-Interview survey, average of five quarters; March 2005 Current Population Survey, tabulated using DataFerrett; SNAP Program Data, downloaded from <http://www.fns.usda.gov/pd/16SNAPpartHH.htm>.

The underreporting of SNAP benefits in the CE-Interview data suggests that many SNAP participants will be categorized as eligible nonparticipants in our analysis. This may lead us to identify fewer differences in our comparisons of SNAP participants with eligible nonparticipants than we would find if SNAP participation were not as underreported.

**Identifying eligible nonparticipants and ineligible nonparticipants.** In much of the report we focus on how SNAP participants differ from other low-income consumer units. We define two comparison groups. The “eligible nonparticipants” are consumer units whose 12-month income is at or under 130 percent of poverty (the federal gross income limit for SNAP eligibility) but are not identified as SNAP participants. Note that the CE-Interview data do not contain sufficient information to determine if consumer units would pass an asset test that is part of the SNAP eligibility determination. Nor do we account for the need to pass a net income test, which reflects deductions from income for medical, shelter, dependent care, and earnings expenses. We also do not attempt to account for higher income units that could be eligible through categorical eligibility rules. The ineligible nonparticipants are defined as the nonparticipating consumer units with income over 130 percent of poverty.

**Defining a low-income sample.** In the definitions above, ineligible nonparticipants, by definition, have 12-month incomes over 130 percent of poverty. Some participating consumer units also have incomes greater than this threshold. These consumer units may be eligible through a categorical eligibility rule, or the actual SNAP unit and income may differ from the consumer unit and income. To increase the comparability of participating or eligible consumer units to those that are ineligible, we have restricted the universe to all consumer units with incomes less than 300

<sup>7</sup> Annual measures indicate the number of units that participated at some point in the year. Average monthly measures indicate the number of units participating in a month, averaged across the year. The annual measures will be larger than average monthly measures because some individuals who participated during the year (and thus reflected in the annual count) will not have participated in every month. Administrative counts of annual participation are not available.



percent of poverty.<sup>8</sup> We refer to this sample as representing low-income consumer units because of this restriction. In addition, we limited the universe for all three subgroups to those whose total expenditures were under 300 percent of the median total expenditure, with the median calculated across all consumer units. While the latter restriction excluded only 6 percent of SNAP participants and 4 percent of eligible nonparticipants, it excluded 66 percent of nonparticipants. As Table I.2 shows, the composition of the sample of consumer units with expenditures less than this threshold differs from that for consumer units with higher expenditures. For example, the units included in the analysis are more likely to be headed by a single female, live in the South, be under age 25 or over age 65, and less likely to be white and living in the least dense geographic areas. These compositional differences should be considered when interpreting the results of the analyses in this report.

**Expenditures versus outlays.** Many consumer units take loans out for the purchase of homes and vehicles, and their monthly payment is split between principal and interest on the loan. While the CE-Interview definition of expenditures includes the interest component of these payments, it excludes the principal component. This can cause expenditure totals to be downward biased for homeowners and vehicle owners. We examined the sensitivity of our analysis to the exclusion of these payments by examining outlays, which include the principal and interest components of loan payments, instead of expenditures. We found very little difference in the results, so we include only the analysis of expenditures in the main body of report and provide a set of tables for outlays in Appendix B.

**Annualizing expenditures.** Expenditures in the CE-Interview data are provided as quarterly values. That is, in each interview, the respondent is asked to provide the expenditures for the previous three months. As in related studies that use CE-Interview data (see Meyer and Sullivan 2007; Meyer and Sullivan 2003; Paulin 2003; Paulin and Lee 2002; Sharpe and Abdel-Ghany 1999; Nelson 1996), we annualize these expenditures by multiplying them by four and allow there to be multiple annualized observations for each consumer unit in the analysis file. Alternative annualization methods have been used by other studies, including multiplying the average of the quarterly expenditure records for each consumer unit by four, yielding a single annualized observation per consumer unit in the sample.<sup>9</sup> While both methods produce similar measures of central tendency of the expenditure distribution, the method we use overestimates the dispersion of the distribution because it does not average the observations prior to annualizing. This is a notable limitation of using this method, and one that should be acknowledged when interpreting the results from this study. However, we believe it is outweighed by the main benefit of our method: that the quarterly values of variables other than expenditures can be retained without resorting to averaging or constructing arbitrary definitions to create annual values. For example, the weight associated with

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<sup>8</sup> The choice of 300 percent of poverty as a top limit for our analysis sample is somewhat arbitrary. We chose it because (1) it provides a comparison sample that is not likely to be eligible for transfer programs yet is still likely to have spending patterns that are worth comparing to the low-income sample, and (2) it is a fairly common break-point for the identification of low-income households. In fact, half of the states have income limits for Medicaid and State Children's Health Insurance Programs that are set at 250 percent (15 states) or 300 percent (10 states) of poverty; only 1 state has a threshold above 300 percent of poverty (Kenney and Pelletier 2009).

<sup>9</sup> In Appendix C, we consider several alternative approaches and examine the sensitivity of each annualization method on our results.

each quarterly observation remains the weight associated with each annualized observation, preserving the national representativeness of the data. Using the alternative method instead requires one to either use an average of the quarterly weights or to use the weights from a particular interview as representative of a consumer unit's full set of interviews. Finally, given that the majority of the expenditure-related studies that we reviewed use this method, applying it in our own study fosters a greater degree of comparability among studies.

**Table I.2 Percentage of Consumer Units with Row Characteristic in Analysis Sample Versus Full Data Set, 2005**

Characteristic	Analysis Data	Full CE-Interview Data
<b>Unit Composition</b>		
Married head of unit	37.5	60.5
Male head of unit	20.1	19.6
Female head of unit	42.4	29.8
Married couple with children	19.7	23.6
Married couple without children	17.8	27.0
Single adult with children	9.0	5.4
Single adult without children	36.5	29.4
Multiple adult with children	7.6	5.0
Multiple adult without children	9.3	9.7
No children under 18	63.6	66.0
One child under than 18	14.0	14.7
Two or more children under 18	22.4	19.3
<b>Race</b>		
White, non-Hispanic	63.3	72.2
Black, non-Hispanic	16.6	11.8
Hispanic	15.0	10.6
Other	5.2	5.4
<b>Geographic Residence</b>		
Northeast	15.7	16.7
Midwest	21.7	22.1
South	42.4	39.2
West	20.2	22.0
<b>Population density of primary sampling unit</b>		
Less than 125,000	43.5	50.5
125,000 to 329,900	18.2	17.1
329,900 to 1.19 million	14.6	13.3
More than 1.2 million	23.6	19.1
<b>Age of Unit Head</b>		
24 and younger	11.6	7.1
25-49	42.2	48.1
50-65	20.5	26.5
65+	25.7	18.3

Source: 2005 CE-Interview data

Note: The unit composition categories for married, single-adult, and multiple adult with and without children do not include the units that are identified as headed by a child (age 17 and under). These units represents 0.1 percent of the analysis sample and less than 0.05 percent of the full CE-Interview units.

**Significance tests.** The CE-Interview data consists of 38,000 to 39,000 quarterly records, but the records are from 7,500 to 8,000 consumer units, and therefore, not independent observations. The focus for this analysis is on how SNAP participants compare to eligible nonparticipants and ineligible nonparticipants. Therefore, we tested whether results for participants were significantly different from eligible nonparticipants and whether results for participants were significantly different from ineligible nonparticipants. When we present the results in figures, we identify the significant differences in the accompanying footnotes. When we present the results in tables, we identify the significant differences using asterisks. In the text, we only discuss results that are statistically significant.

## 2. Analytical Techniques

We present two types of analyses: descriptive and multivariate. For each objective we provide an extensive descriptive analysis, presenting differences between spending patterns and savings and credit use among SNAP participants, eligible nonparticipants, and ineligible nonparticipants through graphs and tables. We also graphically present how the SNAP eligibility distribution for the low-income population would be affected by moving from an income-based eligibility measure to an expenditure-based measure.

However, descriptive analyses are limited in that they cannot account for variation in underlying factors. For example, differences between expenditures on apparel among SNAP participants and eligible nonparticipants may be due to differences in unit characteristics, such as the presence of children. While units in both groups are eligible to participate in the program, a larger percentage of participating units have children than nonparticipating units. To account for these cross-group compositional differences, we also provide a multivariate analysis for our first research question, which focuses on the differences in expenditures across broad spending categories. The control variables include a set of demographic characteristics of the head of the unit such as his or her race and ethnicity, marital status, gender, and age. Additional demographic characteristics include geographic residence of the unit, population density of the primary sampling unit in which the unit lives, and the number of children younger than 18 years old in the unit.

In particular, we provide four types of multivariate results for the analysis on spending categories:

- The predicted probability of purchasing goods and services
- The predicted mean level of expenditures given the purchase of a particular good or service
- The marginal propensity to consume a good or service, which is the amount by which an expenditure in a particular category will increase with a *one-dollar* increase in total expenditures
- The income elasticity of a good or service, which is the percent change in a budget category expenditure resulting from a *one-percent* increase in total expenditures<sup>10</sup>

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<sup>10</sup> As discussed in the report, we treat total expenditures as a proxy for an individual's permanent income.

### 3. Limitations

Both the descriptive and multivariate analysis results are limited in that they are subject to selection bias. That is, findings that SNAP participants exhibit different consumption patterns from nonparticipants could potentially be caused by unobserved characteristics that caused the units to enter or not enter the program and not specifically by participation in the program. In other words, observed differences do not necessarily imply causality. However, examining the consumption patterns as we have done in this report does provide useful insights into differences between SNAP participants and nonparticipants.

## II. EXPENDITURE PATTERNS

The first research topic looks broadly at data on budget shares in order to analyze the consumption patterns of SNAP consumer units versus other eligible nonparticipating and ineligible nonparticipating consumer units. The analysis begins with a set of descriptive tables examining the share of total expenditures on all goods and services spent on each major budget category such as food, housing, and transportation, and how these shares differ across SNAP participation and eligibility groups. It also considers whether patterns of expenditures are influenced by the timing of large one-time expenditures such as the purchase of a home or vehicle, or by periodic expenditures such as the purchase of a monthly public transportation pass. Because shares of total expenditures spent on major budget categories may differ across SNAP participation and eligibility groups simply due to differences in other observable factors such as unit composition and region of residence, we also estimate a multivariate expenditure analysis that accounts for variation in these other factors.

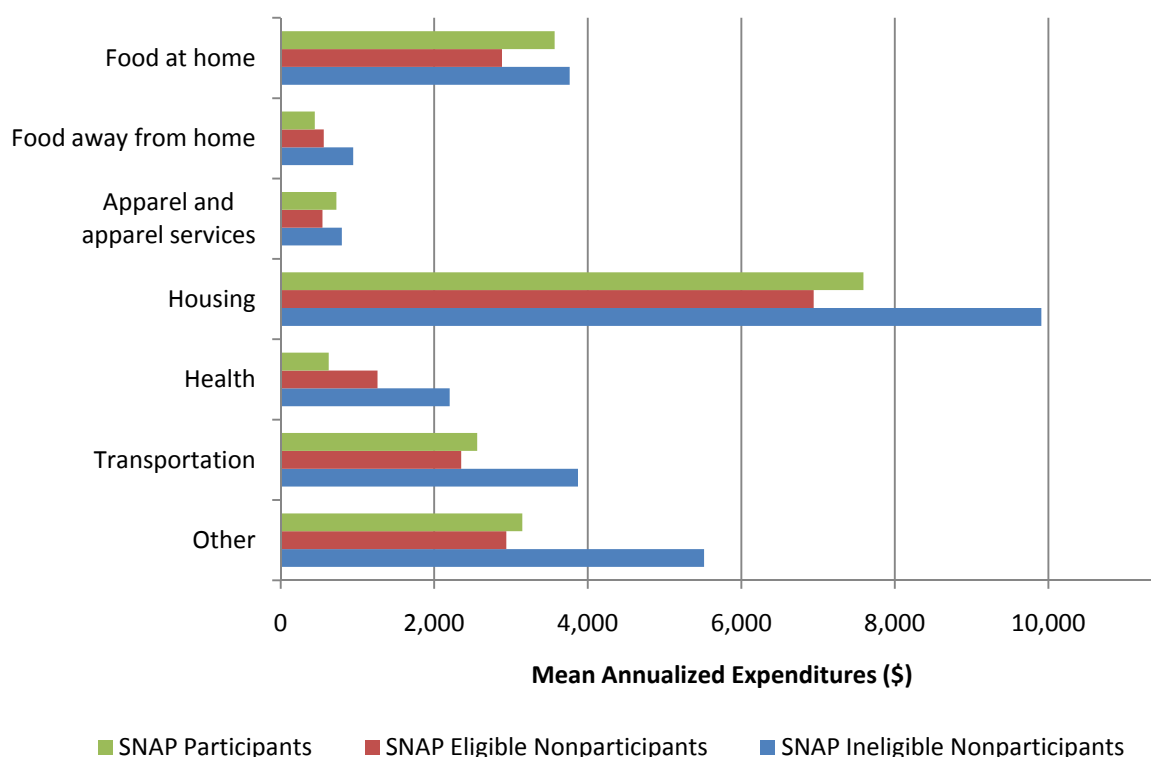
### A. Differences in Expenditures Across SNAP Participation and Eligibility Groups

In the following set of analyses, we examine the following seven major budget categories:

- **Food at home:** food and nonalcoholic beverages purchased at grocery, convenience, or specialty stores; food and beverages purchased and prepared by consumer unit during out-of-town trips
- **Food away from home:** food or board at school; catered affairs; food and nonalcoholic beverages at restaurants, cafes, and fast food places on trips; dining out at restaurants, cafeterias, and drive-ins (excluding alcoholic beverages); school meals for pre-school and school-age children; and meals received as pay
- **Apparel and apparel services:** clothing for men, women, and children; footwear; apparel services such as dry-cleaning and laundering
- **Housing:** mortgage, interest, property taxes, rent, other lodging expenses, maintenance, repairs, insurance; utilities such as natural gas, electricity, fuel oil, telephone services, and water; domestic services such as childcare; textiles, furniture, and flooring; appliances (major, small, and miscellaneous); other household expenses and miscellaneous equipment
- **Health:** health insurance, medical services, prescription drugs, medical supplies
- **Transportation:** new or used cars, trucks, or other vehicles; gas or motor oil; vehicle finance charges, maintenance and repairs, insurance, and rentals; public transportation
- **Other:** fees and admissions; televisions, radios, and sound equipment; pets, toys, and playground equipment; other entertainment; personal care; reading; education; tobacco and smoking supplies; cash contributions; alcohol; personal insurance; miscellaneous goods and services

Figure II.1 displays the mean levels of expenditures on the seven major budget categories defined above for consumer units in each SNAP participation and eligibility group.<sup>11</sup> SNAP participants and eligible nonparticipants have total annual expenditures of \$18,660 and \$17,483, respectively, over \$8,000 less than that for ineligible nonparticipants. Looking at the distribution of expenditures, we find that SNAP participants and eligible nonparticipants spend less than ineligible nonparticipants on every category of goods and services, including food at home. There are sizable differences between participants and nonparticipants in mean annual expenditures on food at home, with participants spending 24 percent more than eligible nonparticipants (\$3,568 and \$2,882, respectively) and 5 percent less than ineligible nonparticipants (\$3,568 and \$3,764, respectively). Participants also spend significantly less on food away from home than nonparticipants, about \$445 per year compared to more than double that amount for ineligible nonparticipants.

**Figure II.1 Mean Annual Expenditures by Major Category for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**



Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: Differences in mean values between SNAP participants and eligible nonparticipants are all statistically significant at the 90 percent level; all differences except for transportation and other are significant at the 99 percent level. Differences in mean values between SNAP participants and ineligible nonparticipants are all significant at the 95 percent level; all differences except for food at home and apparel and apparel services are significant at the 99 percent level.

<sup>11</sup> The supporting tables for the figures are available in Appendix A, Tables A.1 through A.7.

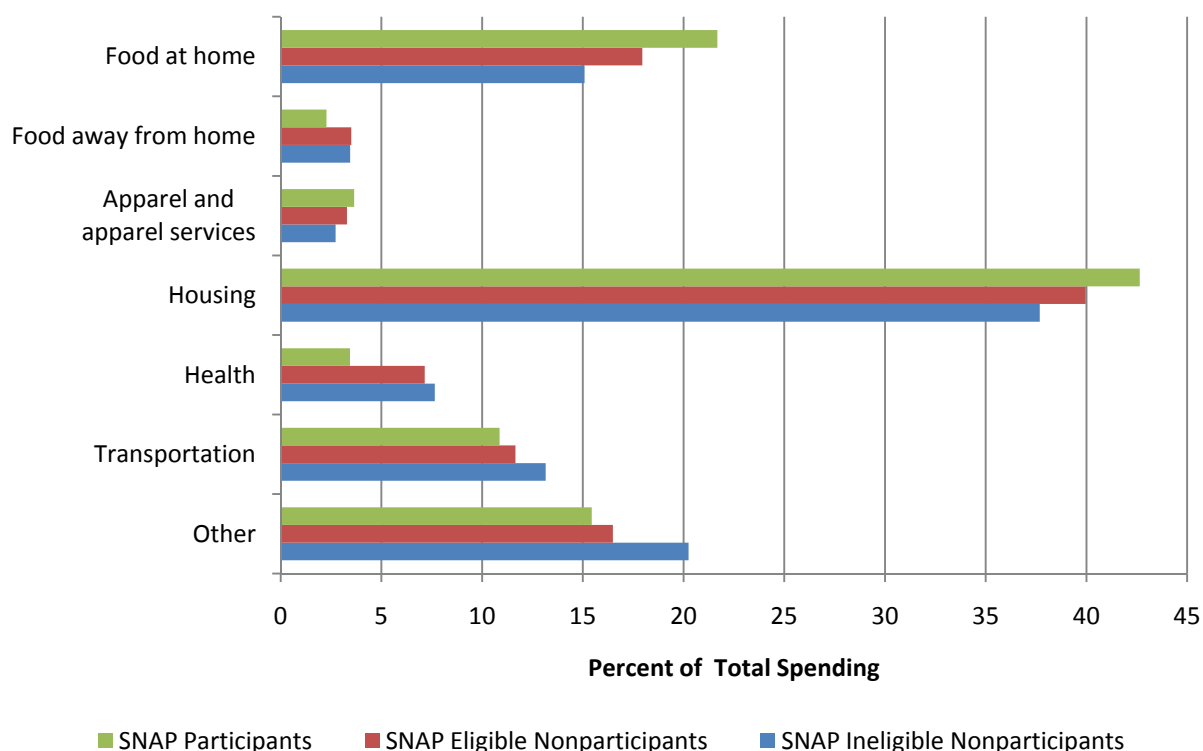
In Figure II.1, we examine expenditures for the major categories of goods and services, but it is also useful to examine how the *share* of total expenditures spent on each category varies across the participation and eligibility groups (Figure II.2). For example, SNAP participants spend 22 percent of their total expenditures on food at home, 43 percent on housing, and 11 percent on transportation. Thus, despite spending fewer dollars on food at home, they spend a greater share on food at home relative to ineligible nonparticipants. This is in line with the body of economics literature called Engel's law, which states the proportion of total expenditures spent on food should decrease as income increases (Fraker 1990).<sup>12</sup> While Engel grouped all food expenditures under one category, more than 150 years after his initial findings we observe that his law applies only to expenditures on food at home. In contrast, the share spent on food away from home increases as income increases. This is because food away from home is a luxury good, whereas food at home is a necessity good. As income increases, consumer demand will increase more than proportionately for luxury goods and less than proportionately for necessity goods, by definition.<sup>13</sup> Another example of a necessity good is housing. While the share spent on housing is greatest among all budget categories for all three groups, participants spend the greatest share on housing relative to nonparticipants.

Thus far, we have presented expenditures that have been aggregated into major budget categories. It is also useful to examine differences in budget shares for more narrowly defined categories of goods and services within each of these major categories. This allows us to determine whether certain subcategories of expenditures are driving the aggregate results. More importantly, it allows us to focus on subcategories that are policy relevant. For example, by disaggregating the housing category into its components, we can compare distributions of expenditures on utilities across the three participant and eligibility groups as well as distributions of expenditures on rent and other shelter expenses. Figure II.3 illustrates how the budget shares differ across participation and eligibility groups for the various components of the food at home category. Grocery store purchases constitute most of the food at home expenditures, with the ordering among the participation and eligibility groups mimicking that found for the total food at home category. Purchases at convenience and specialty stores, while small in magnitude, are slightly greater for participants than nonparticipants.

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<sup>12</sup> Engel's law entails comparing expenditure shares across income levels. In interpreting Engel's law, we are comparing participants with ineligible nonparticipants and are comparing eligible nonparticipants with ineligible nonparticipants. Because eligible nonparticipants may not have higher or lower income levels than participants, Engel's law is not applicable.

<sup>13</sup> Our results provide evidence that Engel's law also applies to total food expenditures, equal to the sum of expenditures on food at home and food away from home.

**Figure II.2 Percentage of Total Annual Expenditures by Major Category for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**

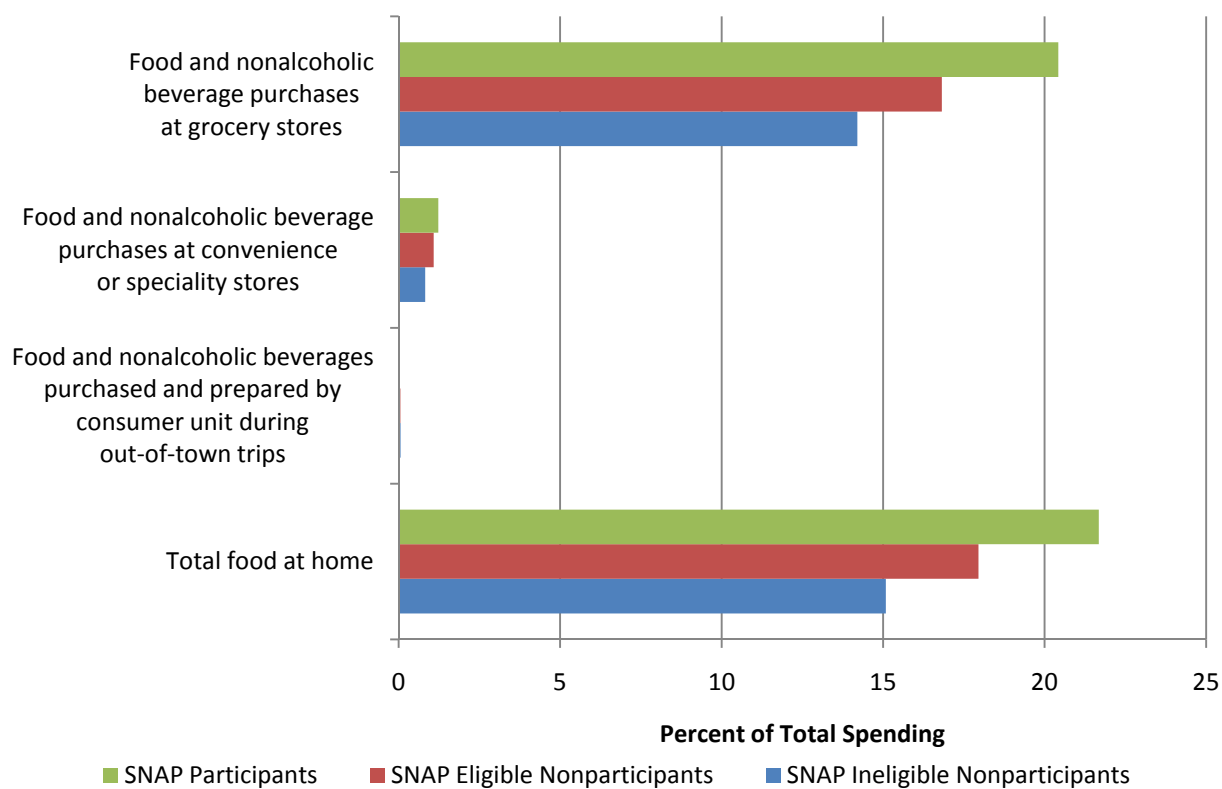
Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: Differences in percentages between SNAP participants and eligible nonparticipants are all statistically significant at the 95 percent level; all differences except for apparel and apparel services and transportation are significant at the 99 percent level. Differences in percentages between SNAP participants and ineligible nonparticipants are all significant at the 99 percent level.



**Figure II.3 Percentage of Total Annual Expenditures by Food at Home Component for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**



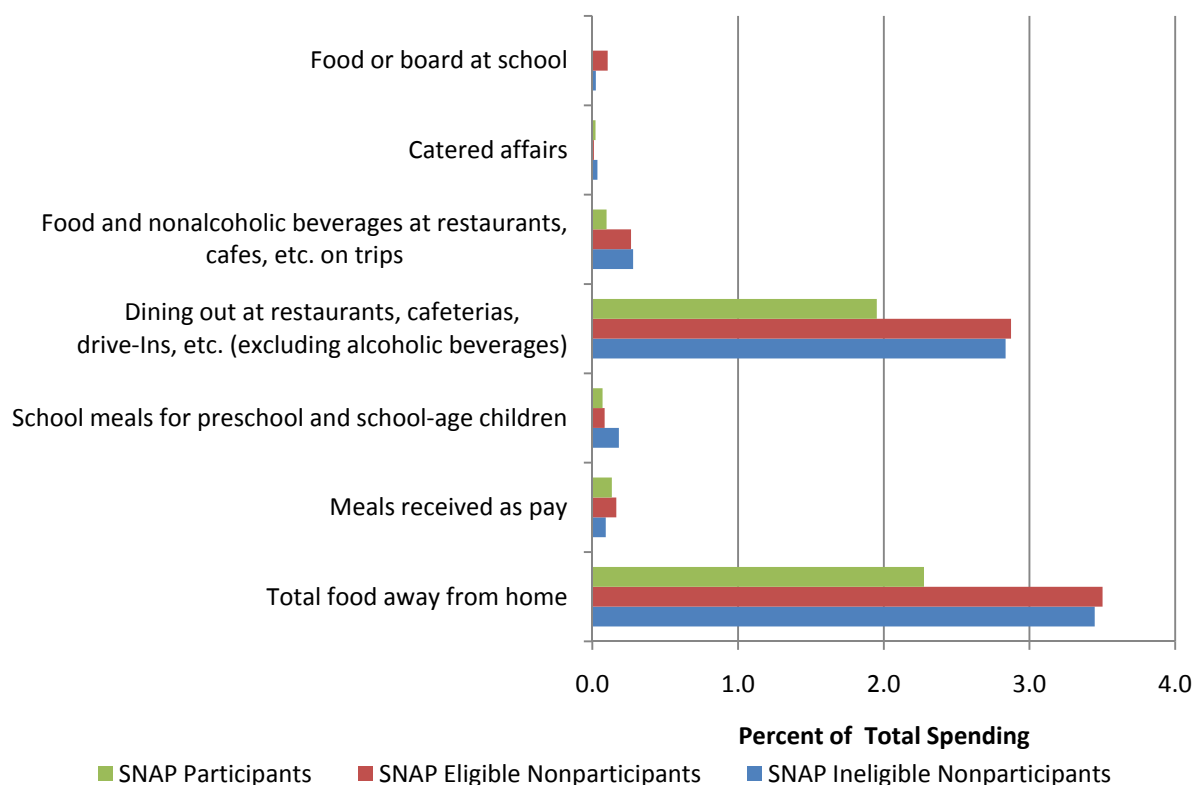
Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: All differences in percentages between SNAP participants and eligible nonparticipants except food and nonalcoholic beverage purchases at convenience or speciality stores are statistically significant at the 99 percent level. Differences in percentages between SNAP participants and ineligible nonparticipants are all significant at the 99 percent level.

Figure II.4 illustrates how the budget shares differ across participation and eligibility groups for the various components of the food away from home category. Dining out at restaurants and cafeterias is the most common, with nonparticipants spending more than participants (three percent versus one percent). Purchases on school meals for preschool and school-age children reveal slightly smaller expenditure shares for SNAP participants relative to nonparticipants.

**Figure II.4 Percentage of Total Annual Expenditures by Food Away from Home Components for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**



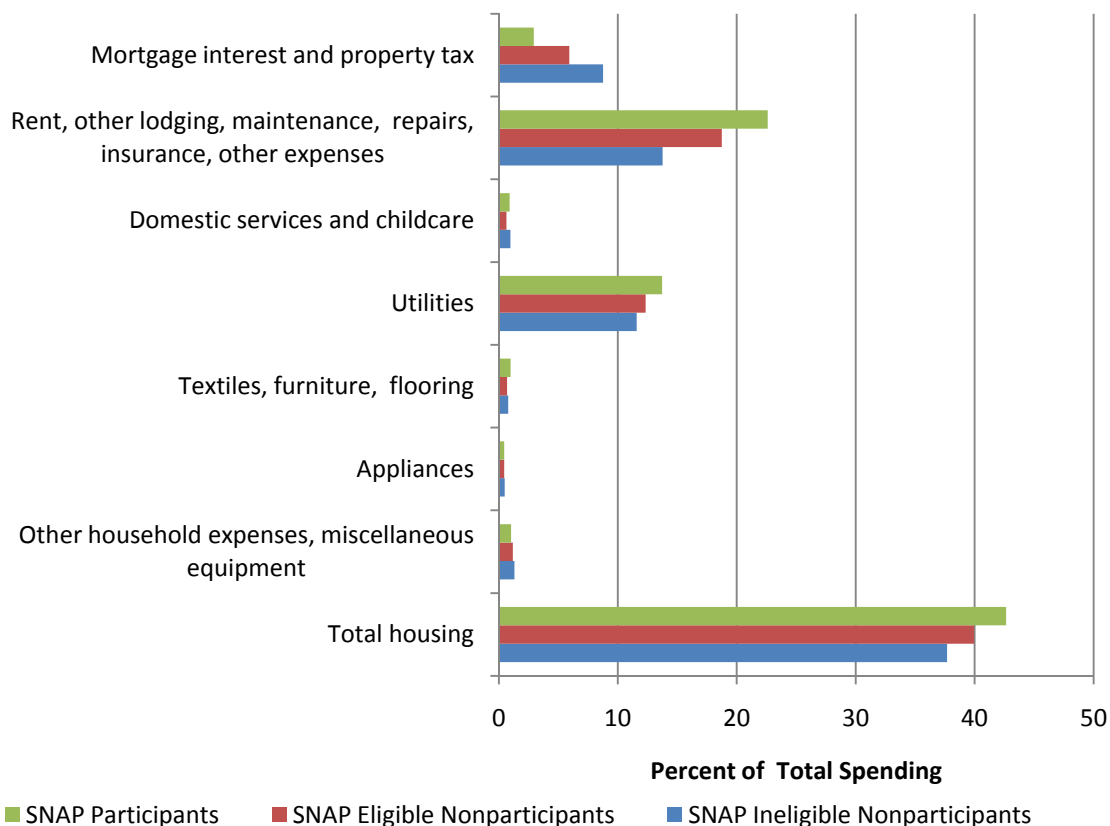
Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: All differences in percentages between SNAP participants and eligible nonparticipants except catered affairs, school meals for preschool and school-age children, and meals received as pay are statistically significant at the 99 percent level. All differences in percentages between SNAP participants and ineligible nonparticipants except catered affairs and meals as pay are statistically significant at the 99 percent level.

Figure II.5 illustrates how the budget shares differ across participation and eligibility groups for the various components of the housing category. As expected, participants spend a disproportionately smaller share on mortgage interest and property tax and a greater share on rent, maintenance and repairs compared to both groups of nonparticipants. Utilities such as natural gas, electricity, heating oil, telephone services, and water also make up a greater share of participants' total expenditures relative to nonparticipants. In addition, participants spend a greater share on domestic services and childcare relative to eligible nonparticipants.

**Figure II.5 Percentage of Total Annual Expenditures by Housing Component for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**



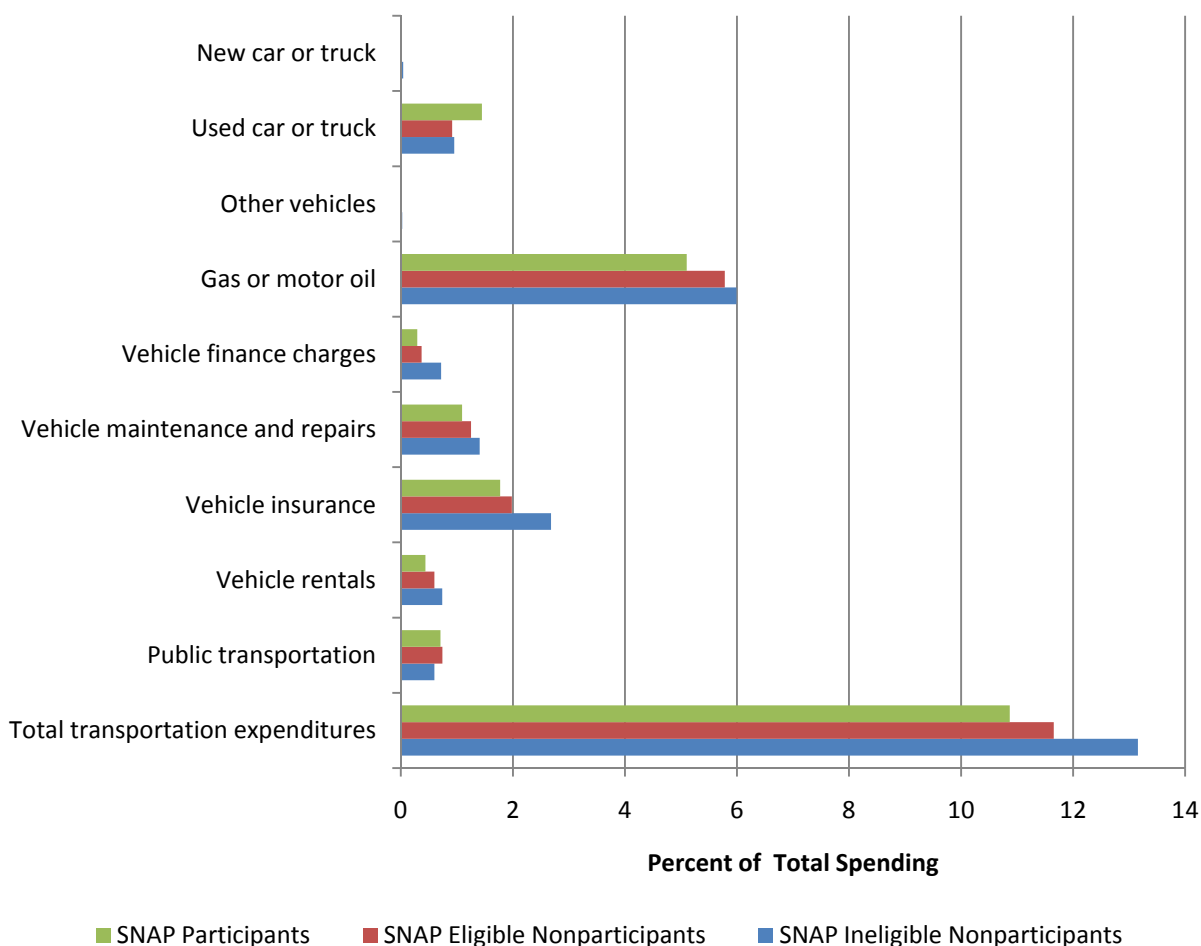
Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: All differences in percentages between SNAP participants and eligible nonparticipants except appliances are statistically significant at the 90 percent level; all differences except for appliances and other household expenses, miscellaneous equipment are significant at the 99 percent level. All differences in percentages between SNAP participants and ineligible nonparticipants except domestic services and childcare are statistically significant at the 95 percent level; all differences except for domestic services and childcare, appliances, and textiles, furniture, and flooring are significant at the 99 percent level.

Figure II.6 illustrates how the budget shares differ for various components of the transportation category. While participants are not as likely to purchase new cars or trucks, the share they spend on used vehicles exceeds the share for nonparticipants. They also spend a significantly lower share on gas and motor oil relative to nonparticipants. The expenditure share on public transportation for participants exceeds that for ineligible nonparticipants, and is statistically equivalent to the share for eligible nonparticipants.

**Figure II.6 Percentage of Total Annual Expenditures by Transportation Component for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**



Source: 2005 CE-Interview data

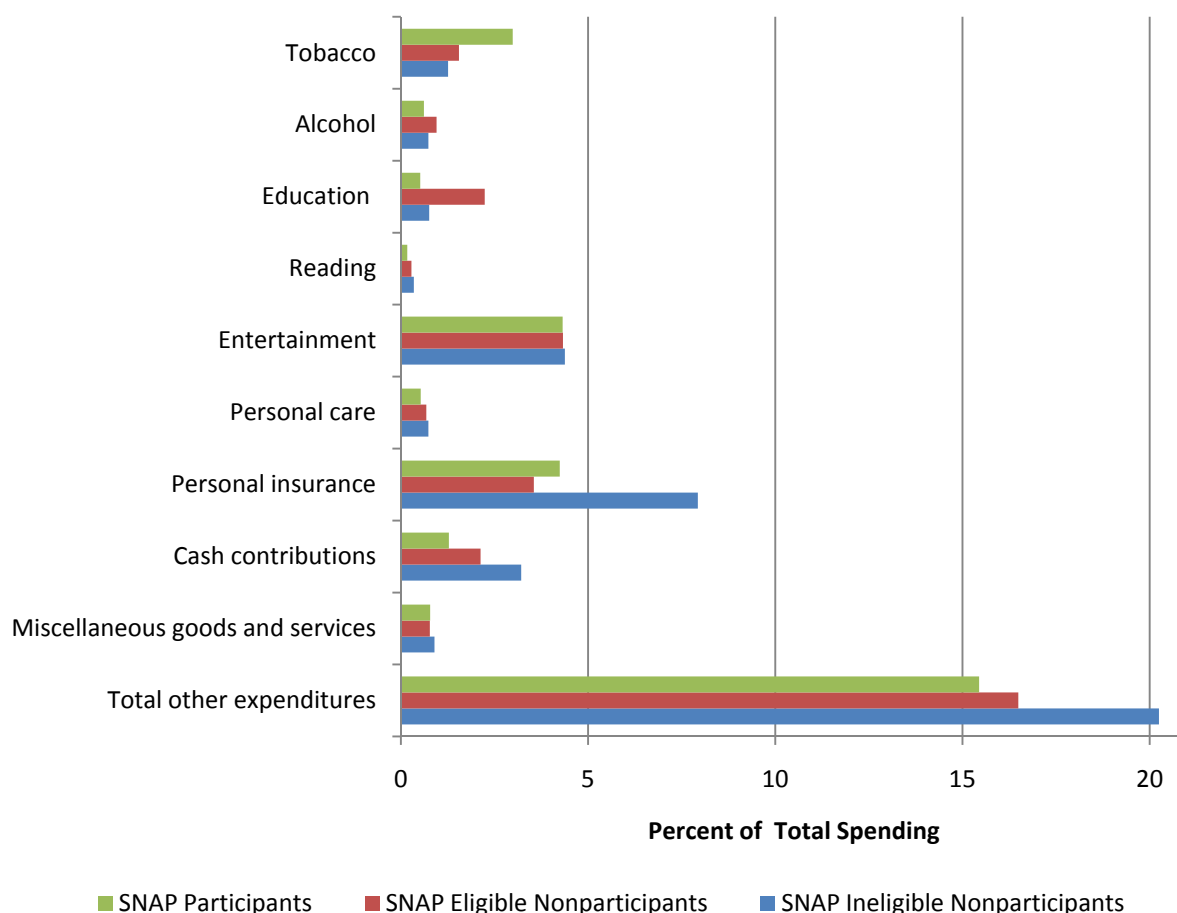
Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: All differences in percentages between SNAP participants and eligible nonparticipants except new car or truck, other vehicles, and public transportation are statistically significant at the 90 percent level; differences for used car or truck and gas or motor oil are significant at the 99 percent level. All differences in percentages between SNAP participants and ineligible nonparticipants except other vehicles are statistically significant at the 90 percent level; all differences except for other vehicles and public transportation are significant at the 99 percent level.

The “other” category in Figure II.2 indicates that participants spend less in this category than nonparticipants. Looking at differences in expenditures by component, Figure II.7 indicates that

participants spend a lower share on alcohol, cash contributions, and personal insurance relative to nonparticipants. However, participants' mean share spent on tobacco is approximately double the share for nonparticipants. Participants also spend disproportionately less on education than nonparticipants, particularly when compared with those eligible to receive SNAP benefits.

**Figure II.7 Percentage of Total Annual Expenditures by Other Component for SNAP Participants, Eligible Nonparticipants, and Ineligible Nonparticipants**



Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: All differences in percentages between SNAP participants and eligible nonparticipants except entertainment and miscellaneous goods and services are statistically significant at the 99 percent level. All differences in percentages between SNAP participants and ineligible nonparticipants except entertainment and miscellaneous goods and services are significant at the 90 percent level; all differences except entertainment, miscellaneous goods and services, alcohol, and education are significant at the 99 percent level.

## B. The Impact of One-Time and Periodic Purchases on Expenditure Shares

The examination of the share of total expenditures spent on food in the last section showed that SNAP participants spend a significantly smaller share on food today than they did in the early 1960s, which led policymakers to define the benefit formula with a 30 percent food share allocation

rule. However, the mean annual expenditure levels in Figure II.1 and the annual budget shares in Figures II.2 to II.7 are based on expenditures recorded by calendar quarter and it is often noted in the consumption and expenditure literature that expenditure decisions can differ greatly in those calendar quarters in which a consumer unit makes a periodic purchase, such as buying a monthly subway pass, or an infrequent or one-time purchase of a more durable good that lasts a long time, such as a refrigerator (Sharpe and Abdel-Ghany 1999; Paulin and Lee 2002). In this section we examine the extent of the effect of these types of purchases on mean quarterly expenditures for major budget categories of goods and services by estimating the mean budget shares for the set of major budget categories for the full sample and for subgroups of SNAP participants, eligible nonparticipants, and ineligible nonparticipants, conditional on whether the consumer unit did or did not make a periodic purchase and whether the unit did or did not make a one-time purchase.

To determine which consumer units made these types of purchases, we rank goods and services according to degree of habitualness using a methodology developed by Nelson (1996). For each category of goods and services, we compute the ratio of the percentage of units with positive expenditures in a three-month period to the percentage of units with positive annual expenditures. We then rank the categories by the size of the ratio so that a category with a larger ratio (such as food) represents a more habitual purchase (Table II.1). Out of 46 categories of goods and services, we select the 5 with the lowest ratios to represent “one-time” purchases and the next five with the lowest ratios to represent “periodic” purchases. One-time purchases consisted of expenditures on new and used cars, trucks, and other vehicles; major appliances; and medical supplies such as crutches or wheelchairs, hearing aids, and at-home medical equipment. Periodic purchases consisted of expenditures on furniture, small appliances, household textiles, public transportation, and other lodging, which is lodging other than a home or apartment. We then create variables indicating if a consumer unit had positive quarterly expenditures among these categories and tabulate the budget shares across SNAP participation and eligibility group according to whether they had these types of purchases.

Choosing sets of five categories to represent periodic and one-time purchases is arbitrary, as microeconomic theory offers little guidance in selecting the breakpoints that partition the set of ratios in Table II.1. We present more about the effects of increasing the size of the sets of periodic and one-time purchase categories in Appendix D. Here we note the findings for each participation and eligibility group:

- Increasing the number of categories that represent one-time and periodic purchases increases the proportion of consumer units that makes these types of purchases.
- Increasing the number of categories that represent one-time and periodic purchases increases the mean share of total expenditures spent on food at home for each participation and eligibility group.
- Using a smaller number of categories in the classification scheme results in a smaller difference in the mean shares between consumer units with one-time or periodic purchases and consumer units without these purchases.

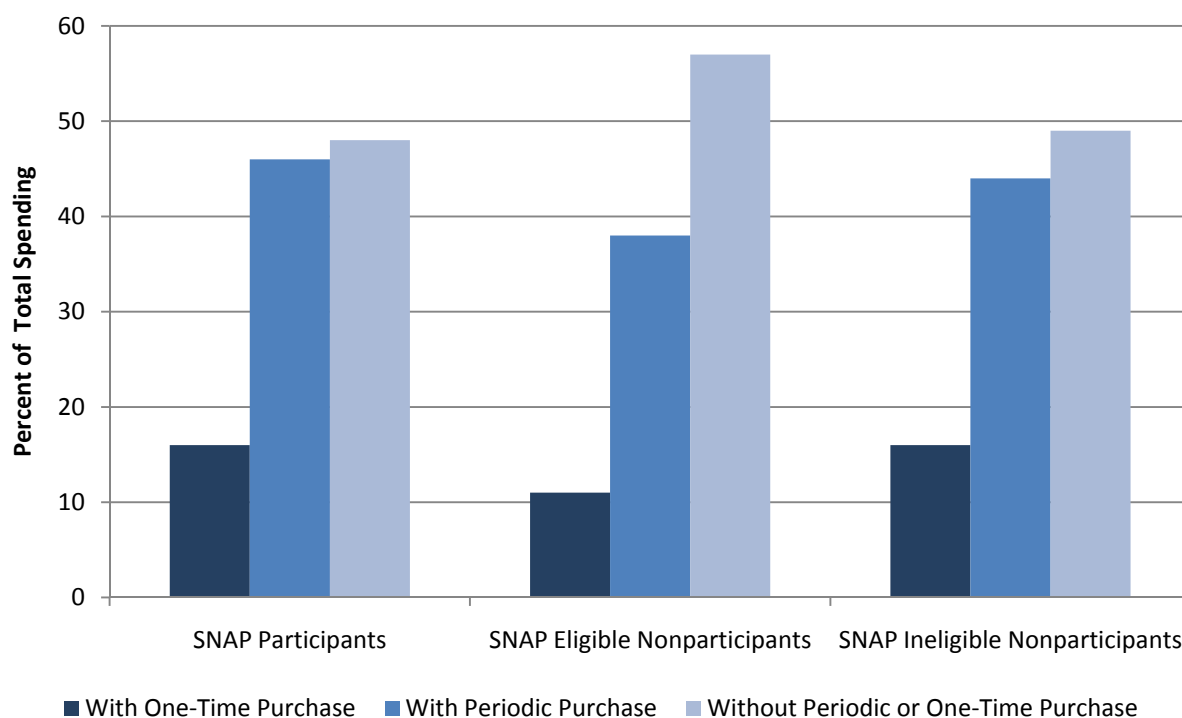
**Table II.1 Percentage of Consumer Units Reporting Positive Expenditures, By Order of Habitualness of Expenditure**

Expenditure Category	Units Reporting Positive Expenditures		Ratio
	In Year	In Quarterly Interview Period (Average)	
Food at home	100	99	99
Property taxes	76	76	99
Telephone service, water, and other public service	100	98	99
Natural gas and electricity	97	96	99
Gasoline and motor oil	95	92	97
Mortgage interest	52	50	97
Personal insurance and pensions	88	84	96
Televisions, radios, sound equipment	93	86	92
Rented dwelling	26	24	91
Health insurance	74	66	90
Vehicle finance charge	39	35	89
Food away from home	93	81	87
Household operations (household keeping)	80	65	81
Miscellaneous expenditures (cash contributions; life and other personal insurance; retirement, pensions, social security)	90	72	80
Personal care	85	65	77
Tobacco and smoking supplies	31	24	77
Entertainment (fees and admissions; other equipment and services, other entertainment)	79	57	72
Vehicle insurance	81	58	71
Reading	75	51	68
Vehicle maintenance and repairs	85	58	68
Maintenance, repairs, insurance, and other expenses	66	45	68
Alcoholic beverages	60	41	68
Prescription drugs	69	47	67
Pets, toys, and playground equipment	62	41	66
Clothing for women	75	48	64
Medical services	75	48	64
Other apparel	69	42	60
Vehicle rental, lease, licenses, and other charges	80	47	59
Miscellaneous household expenses	70	39	56
Clothing for boys	25	14	54
Clothing for men	65	35	54
Clothing for girls	26	14	52
Fuel oil and other fuels	23	12	52
Footwear	72	37	51
Education	33	16	48
Clothing for children	30	14	47
Other lodging	47	22	46
Public transportation	40	18	46
Household textiles	51	22	42
Small appliances (cookware, portable heater, etc.)	49	19	38
Furniture and floor coverings	40	14	35
Medical supplies	28	9	33
Major appliances	29	9	31
Cars and trucks (used)	15	4	28
Other vehicles	1	0	27
Cars and trucks (new)	8	2	27

Source: 2005 CE-Interview data

Figure II.8 presents the proportions of the participants and eligible and ineligible nonparticipants that made periodic or one-time purchases (or neither). SNAP participants are more likely to make a one-time purchase than eligible nonparticipants (16 percent versus 11 percent) but are equally as likely to make them as ineligible nonparticipants. A similar pattern emerges for periodic purchases. A total of 46 percent of participants make periodic purchases, compared to 38 and 44 percent for eligible and ineligible nonparticipants. Finally, eligible nonparticipants are the most likely to have neither periodic nor one-time purchases.

**Figure II.8 Incidence of One-Time and Periodic Purchases**

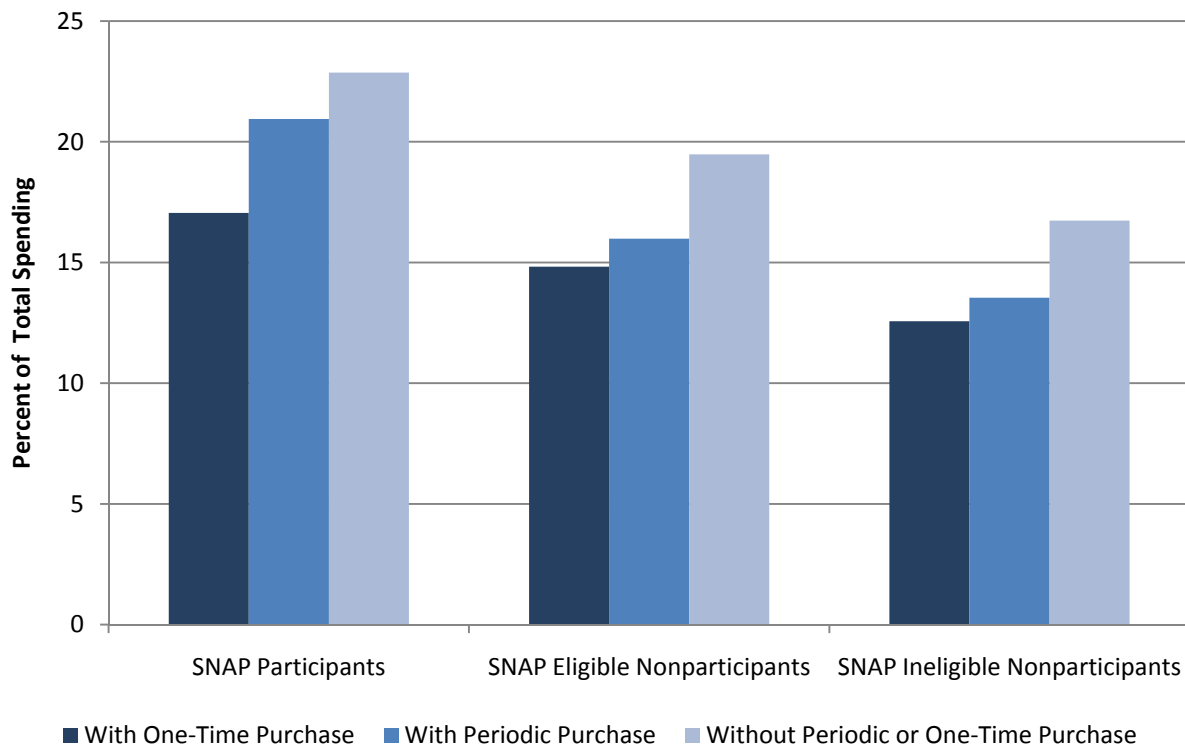


Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Without conditioning on whether the unit had a periodic or one-time purchase, SNAP participants have a greater share spent on food at home compared to nonparticipants (22 percent for participants versus 18 percent for eligible nonparticipants and 15 percent for ineligible nonparticipants). However, comparing these shares to the estimates from the subsample that had a one-time purchase shows that one-time purchases affect the share spent on food at home for participants by slightly more than for nonparticipants (Figure II.9 for expenditures on food at home and Table II.2 for all budget categories). For example, SNAP participants with a one-time purchase spend 17 percent of total expenditures on food at home, while participants without a one-time purchase or periodic purchase spend 23 percent—a difference of 6 percentage points. For both eligible and ineligible nonparticipants, this difference is 4 percentage points (15 percent versus 19 percent for eligible nonparticipants and 13 percent versus 17 percent for ineligible nonparticipants). We conclude that periodic and one-time purchases do not explain much of the differences between SNAP participants and nonparticipants in expenditure shares on food at home.



**Figure II.9 Percentage of Total Annual Expenditures Spent on Food at Home, With and Without One-Time and Periodic Purchases**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

As expected, the impact of periodic purchases on expenditure shares is much smaller than the impact of one-time purchases. For example, across all three SNAP participation and eligibility groups, the share spent on food at home is smaller among the subsample that had periodic purchases relative to the full sample. The magnitude of the decrease is similar across groups, with nonparticipants experiencing a slightly greater reduction in the expenditure share relative to participants.

In addition to illustrating how periodic and one-time purchases impact the share spent on food differentially across the three SNAP participation and eligibility groups, Figure II.9 and Table II.2 also show that even in the absence of these larger and more infrequent purchases, the share spent on food is much lower than the 30 percent assumed in the SNAP benefit allocation rule. For example, SNAP participants who do not make a periodic or one-time purchase in the calendar quarter spend 25 percent on food both at home and away from home, while those with a periodic or one-time purchase spend 24 and 19 percent, respectively.

**Table II.2 Percentage of Total Expenditures Spent on Major Budget Categories, With and Without Periodic and One-Time Purchases**

Major Budget Categories	Full Sample			Without Periodic or One-Time Purchase		
	SNAP Participants	Eligible Non-Participants	Ineligible Non-participants	SNAP Participants	Eligible Non-Participants	Ineligible Non-participants
Food at home	22	18	15	23	19	17
Food away	2	4	3	2	3	3
Apparel and apparel services	4	3	3	3	3	2
Housing	43	40	38	44	41	39
Health	3	7	8	4	8	7
Transportation	11	12	13	10	10	12
Other	15	16	20	15	15	20
Total expenditures	100	100	100	100	100	100

Major Budget Categories	With Periodic Purchase			With One Time Purchase		
	SNAP Participants	Eligible Non-Participants	Ineligible Non-participants	SNAP Participants	Eligible Non-Participants	Ineligible Non-participants
Food at home	22	18	15	23	19	17
Food away	2	4	3	2	3	3
Apparel and apparel services	4	3	3	3	3	2
Housing	43	40	38	44	41	39
Health	3	7	8	4	8	7
Transportation	11	12	13	10	10	12
Other	15	16	20	15	15	20
Total expenditures	100	100	100	100	100	100

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

### C. Compositional Differences Across SNAP Participation and Eligibility Groups

Thus far, the expenditure analysis has found significant differences across SNAP participation and eligibility groups in the mean levels of expenditures and the share of total expenditures spent on major budget categories. While we are interested in characterizing differences in spending patterns for participants and nonparticipants, rather than in identifying a causal impact of program participation on spending patterns, it is also important to recognize the compositional differences of these three groups and the ways in which these differences might affect the findings from the descriptive analysis. Having assessed how the demographic and economic characteristics of

consumer units differ across the three groups, we then incorporate these differences in a multivariate analysis of spending patterns.

There are numerous differences in unit composition across participants and eligible and ineligible nonparticipants (Table II.3). The proportion of consumer units that have a married head of unit is much greater among ineligible nonparticipants (46 percent) than among participants and eligible nonparticipants (24 percent for each). Participants are more likely to have a consumer unit with a female single head of unit and are more likely to have children.

Demographic differences between participation and eligibility groups also exist. Relative to nonparticipants, participants are most likely to be Hispanic or black, non-Hispanic, and less likely to be white, non-Hispanic. They are also more likely to have working age unit heads ages 25 to 65 and less likely to have elderly heads of units. The proportion of consumer units that live in the Northeast or South is greater for participants than for nonparticipants. Differences in population density of a consumer unit's residential location are less pronounced across participation and eligibility groups.

## **D. A Multivariate Analysis of Expenditures Patterns**

The descriptive analysis presents shares of total expenditures spent on major budget categories like food at home. By describing how these shares differ across participation and eligibility groups, this analysis is able to determine whether budgeting and expenditure allocation decisions differ across groups. However, the compositional differences identified in Table II.3 may explain some of the observed cross-group differences in expenditure shares. In this section, we perform a multivariate analysis in order to explore whether descriptive findings are sustained after accounting for these differences. We also perform a second set of multivariate analyses that augment the expenditure share analyses by providing estimates of common consumption measures related to responsiveness to changes in a household's resources such as marginal propensities to consume and income elasticities. Estimated by participation and eligibility status, these measures allow policymakers and researchers to make predictions about how the expenditure shares in the descriptive analysis may change given a change in households' level of resources.

### **1. Unit of Analysis**

The CE-Interview is a rotating panel in which consumer units may be responding to second, third, fourth, or fifth interviews in any given calendar quarter. The descriptive tables and figures of levels and shares of annual expenditures used special weights provided by the BLS and a factor of four to annualize the quarterly expenditures. This retained all consumer units in the sample, regardless of how many quarters they contributed to the sample. To define a similar unit of observation in the multivariate analysis, we had to choose among several methods for constructing annual unit expenditures. One method is to use observations only from units that have participated for four consecutive interviews and to sum their expenditures over the four quarters to obtain an annual estimate of expenditures. In this method, each participating unit provides estimated expenditures for a full year. However, limiting the sample to these consumers can be problematic because it significantly reduces the sample size, and it may cause the sample to no longer constitute a random subset of the entire population—units that participate for fewer than the full course of interviews may have different characteristics than units that participate fully.

**Table II.3 Characteristics of SNAP Participation and Eligibility Groups**

	Percentage of Units with Characteristic		
	SNAP Participants	Eligible Nonparticipants	Ineligible Nonparticipants
<b>Unit composition</b>			
Married head of unit	24	24	46
Male single head of unit	14	25	19
Female single head of unit	62	51	35
Married couple with children	17	13	23
Married couple without children	7	12	23
Single adult with children	26	8	6
Single adult without children	25	53	31
Multiple adults with children	17	6	6
Multiple adults without children	7	9	10
No children less than 18	40	73	64
One child less than 18	23	10	14
Two or more children less than 18	38	17	22
<b>Race of unit head</b>			
White, non-Hispanic	47	61	68
Black, non-Hispanic	31	18	13
Hispanic	17	15	14
Other	5	6	5
<b>Geographic residence</b>			
Northeast	19	15	15
Midwest	18	23	22
South	46	43	41
West	17	20	21
<b>Population density of primary sampling unit</b>			
Less than 125,000	39	42	45
25,000 to 329,900	20	19	18
329,900 to 1.19 million	14	13	16
More than 1.2 million	26	27	22
<b>Age of unit head</b>			
24 and younger	10	20	8
25-49	57	32	44
50-64	22	20	20
65+	10	28	28

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Another method of obtaining annual expenditure estimates for each consumer unit, and the method that we have adopted, is to multiply quarterly consumer unit expenditures by four to obtain

annual estimates.<sup>14</sup> Each unit then contributes multiple observations to the analysis sample. For example, a unit that responds to all four interviews contributes four annual expenditure observations to the analysis sample, while a unit that responds to three out of four interviews contributes three observations. This method retains all observations in the data set since it does not exclude units that do not respond to the full set of interviews.

## 2 Expenditure Share Regressions

For each major budget category we estimate the association between the expenditure share, such as the share of total expenditures spent on food at home, and indicators of participation and eligibility status and a set of demographic characteristics to determine whether differences in expenditure shares across participation and eligibility groups remain after accounting for differences in these characteristics. The set of demographic characteristics consist of those presented in Table II.3 and include the head of the unit's race and ethnicity, marital status, gender, and age. Additional demographic characteristics include geographic residence of the unit, population density of the primary sampling unit in which the unit lives, and the number of children younger than 18 years old in the unit.

Table II.4 presents the regression estimates. The rows of estimates corresponding to the variables indicating a consumer unit is a SNAP participant or an eligible nonparticipant describe how the expenditure shares for these groups are statistically different from those for ineligible nonparticipants. We performed additional statistical tests comparing participants to eligible nonparticipants. We find the following:

- The mean share of total expenditures spent on food at home is greatest among participants, smaller for eligible nonparticipants, and smallest for ineligible nonparticipants. This supports the descriptive results and provides evidence that the observed differences are not attributable to compositional differences.
- While participants have the largest expenditure share for food at home relative to each nonparticipant group, they spend the smallest share on food away from home.
- The large cross-group differences in housing shares and transportation shares observed in the descriptive tables also exist after accounting for compositional differences. Participants spend the largest share of total expenditures on housing, followed by eligible nonparticipants and ineligible nonparticipants. However, participants spend the smallest share on transportation relative to ineligible nonparticipant

There are no statistical differences in apparel shares between participants and nonparticipants, but participants spend a sizably (and statistically) smaller share on health purchases than spent by eligible nonparticipants. Participants also spend less than nonparticipants on other purchases.

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<sup>14</sup> This is the method chosen by researchers in the Division of Consumer Expenditure Surveys at the Bureau of Labor Statistics as well as other users of CE-Interview data. See Paulin and Lee (2002), Paulin (1998), Sharpe and Abdel-Ghany (1999), and Nelson (1996) for examples.

**Table II.4 Regression of Expenditure Shares on Consumer Unit Characteristics, by Major Budget Categories of Goods and Services**

	Food at Home	Food Away from Home	Apparel and Apparel Services	Housing	Health	Transportation	Other
<b>SNAP participation and eligibility status (referrant category is "SNAP ineligible nonparticipant")</b>							
SNAP participant <sup>a</sup>	61.9***	-9.8***	1.9	38.2***	-19.6	-19.6***	-53.0***
SNAP eligible nonparticipant	30.8***	-1.3	2.4***	18.7***	0.6	-9.6***	-41.7***
<b>Head of unit (referrant category is "single male")</b>							
Married	5.2	-7.7***	3.4***	-34.7***	27.7**	15.8***	-9.7*
Single female	6.0*	-11.2***	9.5***	23.5***	7.1	-18.0***	-16.7***
<b>Children less than 18 in unit (referrant category is "no children")</b>							
One child	2.8	-5.8***	3.3***	-5.2	-3.3	16.1***	-8.0
Two children	11.6***	-4.1**	7.3***	-11.3*	-6.0	8.7**	-6.2
Three or more children	18.5***	-3.9*	12.5***	-18.1**	-10.7	5.0	-3.3
<b>Race of unit head (referrant category is "Hispanic")</b>							
White, non- Hispanic	-28.7***	4.3***	-7.2***	-26.6***	25.1*	-3.1	36.3***
Black, non-Hispanic	-14.1***	-3.8**	-0.4	7.4	11.0	-22.4***	22.2***
Other	-22.1***	1.6	-2.8	2.4	9.6	-12.1**	23.4**
<b>Geographic residence (referrant category is "West")</b>							
Northeast	0.2	1.7	3.5***	2.1	-0.9	-6.1*	-0.5
Midwest	-7.1**	0.7	-3.3***	-0.5	-7.1	-0.0	17.4***
South	7.6**	3.5**	-2.7**	-20.3***	-0.3	11.2***	0.9
<b>Population density (referrant category is "less than 125,000")</b>							
125,000 to 329,900	8.6**	8.4***	-2.5*	29.0***	-17.0	-9.2***	-17.3***
329,900 to 1.19 million	-5.3	0.9	-2.5**	35.4***	-4.5	-14.6***	-9.3
More than 1.2 million	3.5	-0.4	-2.0*	78.9***	-24.9**	-28.9***	-26.1***
<b>Age of Unit Head (referrant category is "24 and younger")</b>							
25-49	15.4***	-17.4***	-21.4***	55.4***	12.1	-13.5***	-30.6***
50-64	24.1***	-25.7***	-27.0***	54.2***	42.6***	-15.6***	-52.6***
65+	31.5***	-27.1***	-31.0***	58.6***	101.2***	-37.7***	-95.6***

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: Dependent variable is equal to expenditures on goods and services in each category divided by total expenditures and equals 0 otherwise. Table entries are logistic regression coefficients.

\*, \*\*, \*\*\* Significantly different than zero at the 0.10, 0.05, and 0.01 level, two-tailed test

<sup>a</sup> Coefficient estimates for participants and eligible nonparticipants are statistically different at the 0.01 level for all budget categories except apparel, transportation, and "other". For "other", the estimates differ at the 0.10 level.

Turning to the demographic characteristics, age is an important determinant of expenditure shares for every budget category. Expenditure shares increase with age for food at home, and to some extent, housing and health, but decrease with age for food away from home, apparel, transportation, and other purchases. As expected, having more children increases the shares spent on food at home and apparel and decreases the share spent on food away from home. Finally, where a consumer unit lives affects the allocation spend on housing and transportation, with units living in more populated areas spending more on housing and less on transportation.

### 3. Engel Function Regressions

The previous set of regressions examined differences in expenditure shares across participation and eligibility groups while accounting for compositional differences among these groups. Both this set of regressions and the set of descriptive tables presented earlier address the same research question: how are total expenditures allocated across major budget categories and what characteristics affect this allocation? Both sets of analyses employ statistical models in the sense that there is little mapping between an economic theory of consumption decisions and the hypotheses tested in the analyses. The goal, then, is simply to determine statistical associations among variables. This is not to say that economic theory cannot be used to explain observed differences across groups defined by participation and eligibility or demographic characteristics. Indeed, because our classification of units into participation and eligibility groups relies solely on income, we are able to describe differences in food at home shares between ineligible nonparticipants and both participants and eligible nonparticipants as providing empirical support for Engel's law. But neither set of analyses, particularly the multivariate regressions, was constructed to specifically test economic demand theory.

In this section, we perform a second set of multivariate analyses to provide estimates of common microeconomic measures of a consumer unit's responsiveness to changes in the amount of resources available to spend on goods and services. In addition to being grounded in economic theory, this analysis asks a fundamentally different question than the two previous exercises. Whereas those analyses describe how consumer units make allocation decisions given a fixed level of resources, this analysis predicts how that allocation decision may change if units experienced an increase in the financial resources (and how this respond differs according to participation and eligibility status).

The analysis consists of estimating "Engel curves" that relate a consumer's expenditures on a group of goods or services to the consumer's total resources (Lewbel 2008). The amount of total resources may be income or wealth, but it is commonly represented by total expenditures, as we do here. It is referred to as permanent income, reflecting Friedman's permanent-income hypothesis, which states that consumers make rational decisions based not only on their annual income, but on their expectations of future earnings and their level of wealth (Friedman 1957).

The non-trivial proportions of consumer units in the sample that do not have positive expenditures in a specific budget category inform our selection of the multivariate model. While the proportion of units that have positive quarterly expenditures on food at home and housing is nearly 100 percent, only 70 percent of units have positive quarterly expenditures on food away from home, apparel, or health (Table II.5). In addition, a non-trivial number of consumer units have no quarterly expenditures on transportation. As is well documented in the consumer expenditure literature, estimating an ordinary least squares (OLS) model using either the full sample of units or using only

**Table II.5 Logistic Regression of Decision to Purchase Items on Total Expenditures and Consumer Unit Characteristics, by Major Budget Categories of Goods and Services**

	Food at Home	Food Away from Home	Apparel and Apparel Services	Housing	Health	Transportation	Other
<b>Total expenditures</b>	1.2***	1.4***	1.0***	1.8***	1.5***	1.8***	1.9***
<b>SNAP participation and eligibility status (referrant category is "SNAP Ineligible nonparticipant")</b>							
SNAP participant	-1.8	-0.1	3.5***	-4.1	5.8***	2.6*	4.8**
SNAP eligible nonparticipant	-0.3	4.7***	4.7***	0.4	4.2***	3.7***	3.6*
<b>Interaction variables for total expenditures and SNAP participation and eligibility status</b>							
Total expenditure x SNAP participant	0.2	-0.0	-0.3***	0.4	-0.7***	-0.3**	-0.6**
Total expenditure x eligible nonparticipant	-0.0	-0.5***	-0.5***	-0.1	-0.5***	-0.4***	-0.5**
<b>Head of unit (referrant category is "single male")</b>							
Married	1.0***	-0.2***	0.1*	-0.6	0.4***	0.6***	0.3*
Single female	0.6***	-0.1	0.4***	-0.2	0.5***	-0.2***	0.0
<b>Children less than 18 in unit (referrant category is "no children")</b>							
One child	0.5*	-0.1*	0.1	0.3	-0.1*	-0.1	0.2
Two children	0.2	-0.1	0.2**	0.1	-0.2**	0.1	0.5
Three or more children	0.2	-0.2**	0.4***	-0.1	-0.4***	-0.3**	0.1
<b>Race of unit head (referrant category is "Hispanic")</b>							
White, non-Hispanic	-0.6**	0.3***	-0.2***	-1.5**	0.8***	0.2*	0.3*
Black, non-Hispanic	0.1	-0.2***	-0.3***	-1.6**	0.4***	0.4***	0.3
Other	-0.8**	-0.1	-0.2	-1.0	0.3***	0.2	0.7**
<b>Geographic residence (referrant category is "West")</b>							
Northeast	-0.1	-0.4***	-0.1	-0.4	-0.0	-0.5***	-0.3
Midwest	0.1	-0.0	-0.2***	0.1	0.3***	-0.1	-0.6***
South	-0.0	-0.2***	-0.4***	0.3	0.2***	-0.2**	-0.7***
<b>Population density (referrant category is "less than 125,000")</b>							
125,000 to 329,900	0.0	-0.0	-0.3***	-0.2	-0.1	-0.3***	-0.1
329,900 to 1.19 million	-0.2	-0.1	-0.2***	0.2	-0.0	-0.3***	-0.3
More than 1.2 million	-0.4**	-0.4***	-0.1**	-0.1	-0.4***	-0.8***	-1.4***
<b>Age of unit head (referrant category is "24 and younger")</b>							
25-49	0.6***	-1.0***	-0.7***	1.4***	0.8***	-0.4***	-1.0***
50-64	1.0***	-1.4***	-0.9***	3.5***	1.6***	-0.5***	-1.6***
65+	0.8***	-1.6***	-1.3***	4.6***	3.3***	-0.9***	-2.3***
<b>Proportion of censored observations</b>	0.02	0.31	0.28	0.01	0.32	0.11	0.02

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: Dependent variable equals 1 if there are positive expenditures on each category of goods and services and equals 0 otherwise. Table entries are logistic regression coefficients.

\*, \*\*, \*\*\* Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test



those with positive expenditures will bias the coefficient estimates of the model (Tobin 1958). To adapt the model to accommodate categories of expenditures in which a non-trivial proportion of units in the sample have no expenditures, we estimate a modified version of Cragg's double-hurdle model (Cragg 1971). The first equation (or hurdle) estimates the decision to purchase an item, such as apparel, and the second equation (or hurdle) subsequently estimates the decision of how much of the item to purchase given the unit has decided to purchase a positive amount. The Cragg model differs from the well-known Tobit model mainly in the Cragg model's ability to separate the probability-of-purchase and level-of-expenditure equations and to allow for differences in the sets and signs of variables used in each equation.<sup>15,16</sup>

We estimate the first hurdle using a logistic regression in which the dependent variable equals one if a unit purchases goods and services in the budget category of interest, say food at home, and equals zero otherwise. We estimate the second hurdle using an OLS regression in which the dependent variable is the log of the amount of expenditures on food at home.<sup>17</sup> Unlike the sample used for the logistic regression, the sample used to estimate the OLS model consists only of those units with positive expenditures on food at home.

We include the same set of variables in each of the two regressions. The main independent variable is the logarithm of total expenditures, which serves as a proxy for permanent income in this report. Other covariates include variables that indicate whether a consumer unit participates in SNAP or is eligible for SNAP. We also interact these variables with the total expenditures variable in order to evaluate how the association between total expenditures and spending on major budget categories differs across SNAP participation and eligibility group. We include a set of demographic characteristics of the head of the unit such as his or her race and ethnicity, marital status, gender, and age. Additional demographic characteristics include geographic residence of the unit, population density of the primary sampling unit in which the unit lives, and the number of children younger than 18 years old in the unit.

Tables II.5 and II.6 contain the estimates and indicators of statistical significance for the logistic and OLS regressions. The estimates in Table II.5 indicate the sign of the association between the likelihood of making a purchase for a particular category of goods and services (for example, food at home) and total expenditures and the set of demographic characteristics. The estimates in Table II.6 indicate the association between the amount of expenditures on a particular category of goods and services and the set of explanatory variables. Because the OLS regression applies only to those units

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<sup>15</sup> The previous set of expenditure share regressions is estimated using OLS in order to provide the multivariate analog to the descriptive analysis. For a given budget category, the shares presented in the descriptive table are estimated using a sample of consumer units with zero expenditures and with positive expenditures. However, when estimating Engel functions, it is common to distinguish between probability-of-purchase and the level-of-expenditure equations by distinguishing between the groups of consumer units with zero and positive expenditures.

<sup>16</sup> The Cragg double hurdle model and other double hurdle alternatives to the Tobit model have become common in recent research analyzing food consumption using microdata. See Zhang et al. (2006); Newman et al. (2003); Jensen and Yen (1995); and Yen (1993) for examples.

<sup>17</sup> The log transformation is applied to the dependent variable in the OLS regression because the distribution of expenditures is skewed and the transformation makes the distribution appear more normal. Additionally, it makes the assumption of homoscedasticity more plausible.

with positive expenditures on goods and services in the budget category, we combine the estimates from both models in Table II.7 to indicate the following four quantities. They are presented by SNAP participation and eligibility group since this is of greatest interest in our analysis.

- The **predicted probability of purchasing a positive amount** of goods and services in the budget category.
- The **predicted mean level of expenditures** given the consumer unit purchases a positive amount.
- The **marginal propensity to consume** goods and services in the budget category. This is the amount by which expenditures on goods and services in the budget category will increase if total expenditures on all goods and services increase by one dollar.

The **income elasticity** of the goods and services in the budget category. This measures the percent change in budget category expenditures resulting from a one percent increase in permanent income, as measured by total expenditures. It is closely related to the marginal propensity to consume, but the unit of measurement is different.

After accounting for variation in demographic and economic factors, approximately 99 percent of SNAP participants and eligible and ineligible nonparticipants are predicted to have positive expenditures on food at home. The average predicted expenditure among consumer units with positive predicted expenditures on food at home is greatest for participants, who are predicted to spend \$3,617 per year. The two measures of responsiveness to an increase in permanent income show little to no differences in expenditures on food at home across the three participation and eligibility groups. For example, participants and ineligible nonparticipants spend an additional seven cents on food at home for every one dollar increase in permanent income, compared to eligible nonparticipants who spend eight cents, a difference that is not statistically significant. The income elasticities indicate that a one percent increase in permanent income results in an increase in expenditures on food at home by 0.48 percent, 0.54 percent, and 0.49 percent for participants, eligible nonparticipants, and ineligible nonparticipants, respectively. Only the difference between participants and eligible nonparticipants is statistically significant, indicating that participants have a slightly lower response than eligible nonparticipants.

Compared to eligible nonparticipants, participants are more likely to have positive expenditures on food away from home and are also more responsive to an increase in permanent income, increasing spending on food away from home by 0.74 percent (relative to 0.59 percent) given a one percent increase in permanent income. Ineligible nonparticipants, however, are the most likely to have positive expenditures on food away from home and have the greatest responsiveness to an increase in permanent income among all three groups.

**Table II.6 Regression of Expenditures on a Consumer Unit Characteristics Given A Decision to Purchase, By Major Budget Categories of Goods and Services**

	Food at Home	Food Away from Home	Apparel and Apparel Services	Housing	Health	Transportation	Other
<b>Total expenditures</b>	0.5***	0.8***	0.9***	1.0***	0.9***	1.2***	1.0***
<b>SNAP participation and eligibility status (referrant category is "SNAP Ineligible nonparticipant")</b>							
SNAP participant	0.2	1.1**	-0.4	0.3	-1.2**	-1.1***	-1.7***
SNAP eligible nonparticipant	-0.5***	1.7***	1.8***	-1.0***	0.4	1.2***	0.0
<b>Interaction variables for total expenditures and SNAP participation and eligibility status</b>							
Total expenditure x SNAP participant	-0.0	-0.1***	0.0	-0.0	0.1	0.1**	0.1***
Total expenditure x eligible nonparticipant	0.1***	-0.2***	-0.2***	0.1***	-0.0	-0.1***	-0.0*
<b>Head of unit (referrant category is "single male")</b>							
Married	0.2***	-0.2***	0.1***	-0.1***	0.3***	0.1***	0.0
Single female	0.0	-0.3***	0.2***	0.1***	0.1*	-0.1***	-0.1***
<b>Children less than 18 in unit (referrant category is "no children")</b>							
One child	0.2***	-0.0*	0.2***	0.0*	-0.1	0.1***	-0.0
Two children	0.3***	-0.0	0.3***	0.0	-0.1***	-0.0	0.0
Three or more children	0.4***	0.0	0.4***	-0.0	-0.2***	-0.0	-0.0
<b>Race of unit head (referrant category is "Hispanic")</b>							
White, non-Hispanic	-0.1***	0.0	-0.3***	-0.1***	0.3***	-0.0**	0.2***
Black, non-Hispanic	-0.1***	-0.1*	-0.0	0.0**	0.1**	-0.1***	0.2***
Other	-0.1***	0.0	-0.1	-0.0	0.2***	-0.1***	0.1***
<b>Geographic residence (referrant category is "West")</b>							
Northeast	0.0	0.0	0.1**	0.0	-0.0	-0.0	0.0
Midwest	-0.1***	0.0	-0.0	-0.0	0.1***	0.0**	0.1***
South	0.0*	0.1***	0.0	-0.1***	0.1***	0.2***	0.0*
<b>Population density (referrant category is "less than 125,000")</b>							
125,000 to 329,900	0.1***	0.2***	0.0	0.1***	0.0	-0.1***	-0.1***
329,900 to 1.19 million	0.0	0.1***	0.0	0.1***	0.0	-0.1***	-0.1***
More than 1.2 million	0.1***	0.1***	0.0	0.2***	-0.1***	-0.2***	-0.2***
<b>Age of unit head (referrant category is "24 and younger")</b>							
25-49	0.2***	-0.1***	-0.3***	0.2***	0.3***	-0.1***	-0.2***
50-64	0.3***	-0.3***	-0.4***	0.2***	0.7***	-0.1***	-0.3***
65+	0.2***	-0.3***	-0.5***	0.2***	1.4***	-0.3***	-0.7***
<b>Proportion of censored observations</b>	0.02	0.31	0.28	0.01	0.32	0.11	0.00

Table II.6 (*continued*)

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

Note: Dependent variable is total expenditure spent on each category of goods and services. The sample for each category of goods and services consists of consumer units with positive expenditures within that category. Table entries are estimates of OLS regression coefficients.

\*, \*\*, \*\*\* Significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

**Table II.7 Predictions and Computed Quantities Based on Regression Results**

	SNAP Participant		SNAP Eligibility Nonparticipant		SNAP Ineligible Nonparticipant	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
<b>Food at home</b>						
Probability of positive expenditures (%)	0.99	0.00	0.99	0.00	0.99	0.00
Predicted mean expenditures given positive expenditures (\$)	3,617	62	3,389***	37	3,270***	22
Marginal propensity to consume (\$)	0.07	0.00	0.08	0.00	0.07	0.00
Income elasticity (%)	0.48	0.03	0.54*	0.02	0.49	0.02
<b>Food away from home</b>						
Probability of positive expenditures (%)	0.71	0.01	0.66***	0.01	0.74**	0.01
Predicted mean expenditures given positive expenditures (\$)	785	23	991***	24	1,046***	10
Marginal propensity to consume (\$)	0.02	0.00	0.02	0.00	0.03***	0.00
Income elasticity (%)	0.74	0.04	0.59***	0.04	0.84**	0.03
<b>Apparel and apparel services</b>						
Probability of positive expenditures	0.80	0.01	0.71***	0.01	0.730***	0.01
Predicted mean expenditures given positive expenditures (\$)	843	30	851	21	846	9
Marginal propensity to consume	0.02	0.00	0.01***	0.00	0.02	0.00
Income elasticity	0.85	0.05	0.61***	0.06	0.85	0.04
<b>Housing</b>						
Probability of positive expenditures	1.00	0.00	1.00	0.00	1.00	0.00
Predicted mean expenditures given positive expenditures (\$)	8,287	110	8,200	81	7,850***	41
Marginal propensity to consume	0.33	0.01	0.37**	0.01	0.32	0.01
Income elasticity	0.95	0.03	1.08***	0.03	0.97	0.02
<b>Health</b>						
Probability of positive expenditures	0.65	0.02	0.69*	0.01	0.78***	0.01
Predicted mean expenditures given positive expenditures (\$)	1,586	98	2,238***	60	2,341***	24
Marginal propensity to consume	0.03	0.00	0.05***	0.00	0.07***	0.00
Income elasticity	0.82	0.06	0.80	0.05	0.94*	0.03

Table II.7 (continued)

	SNAP Participant		SNAP Eligibility Nonparticipant		SNAP Ineligible Nonparticipant	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
<b>Transportation</b>						
Probability of positive expenditures	0.92	0.01	0.92	0.01	0.95***	0.00
Predicted mean expenditures given positive expenditures (\$)	2,742	89	2,892	51	2,996***	34
Marginal propensity to consume	0.13	0.01	0.12	0.00	0.14	0.00
Income elasticity	1.31	0.06	1.09***	0.03	1.23	0.03
<b>Other</b>						
Probability of positive expenditures	0.98	0.00	0.99	0.00	1.00***	0.00
Predicted mean expenditures given positive expenditures (\$)	3,058	66	3,105	53	4,336***	29
Marginal propensity to consume	0.15	0.01	0.13**	0.01	0.19***	0.00
Income elasticity	1.16	0.05	1.00***	0.03	1.04***	0.02

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

\*, \*\*, or \*\*\* indicates that difference from SNAP participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test

Income elasticities for non-food-related expenditures suggest that participants are more responsive to an increase in permanent income for apparel, transportation, and other goods and services, and less responsive for housing, relative to eligible nonparticipants. For instance, a one percent increase in permanent income translates into a 0.95 percent increase in spending on housing and a 1.31 percent increase in spending on transportation. For transportation and other goods and services, having elasticities that are greater than 1 indicates that certain goods and services in these budget categories are luxury goods, such as vehicle expenditures within the transportation category. When permanent income increases, expenditures on these goods increase by a disproportionately larger amount than the increase in income, unlike expenditures on necessity goods, such as food at home. Despite the differences between participants and eligible nonparticipants, the estimates suggest that participants behave similarly to ineligible nonparticipants in their responsiveness to an increase in permanent income for these categories of goods and services.<sup>18</sup>

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<sup>18</sup> To test the sensitivity of these findings to whether consumer units purchase more durable goods, Tables A.8, A.9, and A.10 in Appendix A present the findings for a set of models that include indicator variables for one time and periodic purchases among the set of explanatory variables. The estimates are very similar to those presented in Tables II.5, II.6, and II.7, indicating that the results are robust to accounting for the frequency of purchase of these types of items.

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### III. EXPENDITURE-BASED POVERTY

The official measure of poverty in the United States is defined as the number of individuals whose family income is at or below a certain threshold that is based on family size, presence of elderly, and the number of children. The thresholds are equal to three times the cost of 1961 economy food plan, adjusted for inflation using the Consumer Price Index, with the assumption that families spend one-third of their income on food (U.S. Census Bureau 1982). The poverty measure counts pre-tax income and does not count capital gains or public assistance benefits, such as SNAP benefits and Medicaid. The method for computing the poverty measure was last modified in 1981.

Since that time, researchers and policymakers have considered several alternatives to measuring poverty. Most of the alternative measures either change what income is counted or change how the need-based threshold is defined. For example, countable income could include capital gains and public assistance or exclude some expenses such as transportation and childcare. It could also be defined as income net of taxes rather than gross income. Alternatively, the thresholds could be redefined based on the current cost of food, clothing, transportation, and other expenses (Dalaker 2005). As we identified in the last chapter, low-income consumer units' expenditures on food account for less than one-quarter of their total expenditures rather than one-third as they did for all households in the 1960s.

Yet another option that has been explored is to define poverty according to a household's expenditure patterns rather than its income patterns. This poverty measure is one of several measures employed in the United Kingdom to understand household economic well-being. The definition has several advantages and disadvantages:

#### Advantages

- **Expenditure patterns may be more stable than income.** Households continue to spend similar amounts of money if they lose income by drawing down savings or using credit (Slesnick 1993; Brewer et al. 2006).
- **Expenditures may be captured better in surveys than income.** Income for low-income households is often informal and not reported on earnings statements or tax forms, which are often the documents relied upon for surveys of income (Brewer et al. 2006).

#### Disadvantages

- **Households face periods of high expenses.** A household may face major household repairs or other circumstances leading to a one-time large expense, which would lead to their not being counted as expenditure poor.
- **Households may reduce spending in anticipation of high expenses such as household repairs or college tuition.** A household that would not otherwise be considered poor may reduce their spending for an extended period of time to prepare for upcoming periods of high expenditures and thus be counted as expenditure poor.
- **Expenditure data is not widely available in the United States.** Most large surveys currently available in the United States focus on income. Moving to an expenditure-

Although using several measures helps attain a more robust picture of economic well-being, transfer programs generally rely on one measure for determining eligibility. Therefore, in this chapter, we focus on how changing the SNAP eligibility criteria to rely on an expenditure-based measure of poverty could affect eligibility of current participants, and eligible and ineligible nonparticipants. Using the CE-Interview data and the expenditure-based definition applied in the United Kingdom, we estimate the change in the number of consumer units in participant and eligibility category that are identified as poor and discuss the differences in their characteristics. We also discuss how variations in the definition can affect the number of participant, eligible nonparticipant, and ineligible consumer units that are identified as poor.

## A. Measuring Poverty by Expenditures

To estimate expenditure-to-poverty ratios, we must first decide on a poverty threshold. Income-based poverty thresholds used in the United States define an absolute measure, that is, they are based on what it would cost to purchase a certain set of goods, regardless of how many individuals are able to afford that set of goods. Researchers in the United Kingdom define expenditure-based thresholds that are relative, that is, the threshold may increase or decrease depending on population spending patterns. Their commonly used standard is 60 percent of the median of the national expenditure distribution, conditional on consumer unit size (Brewer et al. 2006; Attanasio et al. 2006). For example, if the median expenditures across all three-person consumer units in the nation were \$30,000 per year, our expenditure-based threshold would be equal to \$18,000 for three-person units. Researchers use 60 percent of the median expenditures because of a study that identified that threshold as allowing a person to have an adequate budget (Goodman et al. 2003).<sup>19</sup>

Using the expenditure distribution in the CE-Interview survey, we set the thresholds as identified in Table III.1. For comparison purposes, we also provide the annual income-based guidelines as published by the Department of Health and Human Services. The expenditure-based poverty thresholds are higher than the income-based thresholds for units of size one to five. Beginning with units of size five, the expenditure-based thresholds begin to decrease and are smaller than the income-based thresholds. This may be attributed to economies of scale and a need to reduce household expenditures larger households may face more so than smaller households. To reduce spending, larger households may choose to eat out less and cut expenses in other ways. In Table III.2, we present the median expenditures by the major spending categories. As expected, we see the expenditures for food continue to increase with the size of the consumer unit, but the expenditures on most of the remaining categories decrease beginning with units of size five.

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<sup>19</sup> Goodman et al. developed multiple poverty thresholds for single persons and couples living on a pension and found that a budget-based poverty threshold was about equal to the 60-percent-of-median threshold for the single person on a pension, and the under the 60-percent-of-median threshold for the married couple on a pension.

**Table III.1 Annual Income and Expenditure-Based Poverty Thresholds, 2005 (dollars)**

Unit Size	Income-Based Guideline	Expenditure-Based Threshold
1	9,310	9,944
2	12,490	17,589
3	15,670	20,241
4	18,850	23,762
5	22,030	23,309
6	25,210	21,665
7	28,390	20,036
8+	31,570	23,306

Note: Income-based thresholds shown are the U.S. Department of Health and Human Services annual poverty guidelines for 2004 (used to determine SNAP eligibility for 2005) for the 48 contiguous states and the District of Columbia. Expenditure-based thresholds are 60 percent of the median expenditures of weighted consumer units in the weighted 2005 CE-Interview sample.

**Table III.2 Median Expenditures by Major Spending Categories and Consumer Unit Size**

Unit Size	Food at Home	Food Away from Home	Apparel and Apparel Services	Housing	Health	Transportation	Other
1	\$2,080	\$480	\$240	\$7,529	\$920	\$1,840	\$3,776
2	3,744	960	560	11,092	2,016	3,996	7,932
3	4,576	1,080	880	13,228	1,544	4,736	9,392
4	5,232	1,200	1,120	15,218	1,613	5,470	11,223
5	5,720	1,200	1,200	15,212	1,421	5,528	11,000
6	6,500	1,038	1,204	14,809	1,084	5,198	8,939
7	6,760	922	1,198	13,914	1,200	5,000	7,856
8+	7,020	720	1,324	15,798	1,020	5,230	10,410

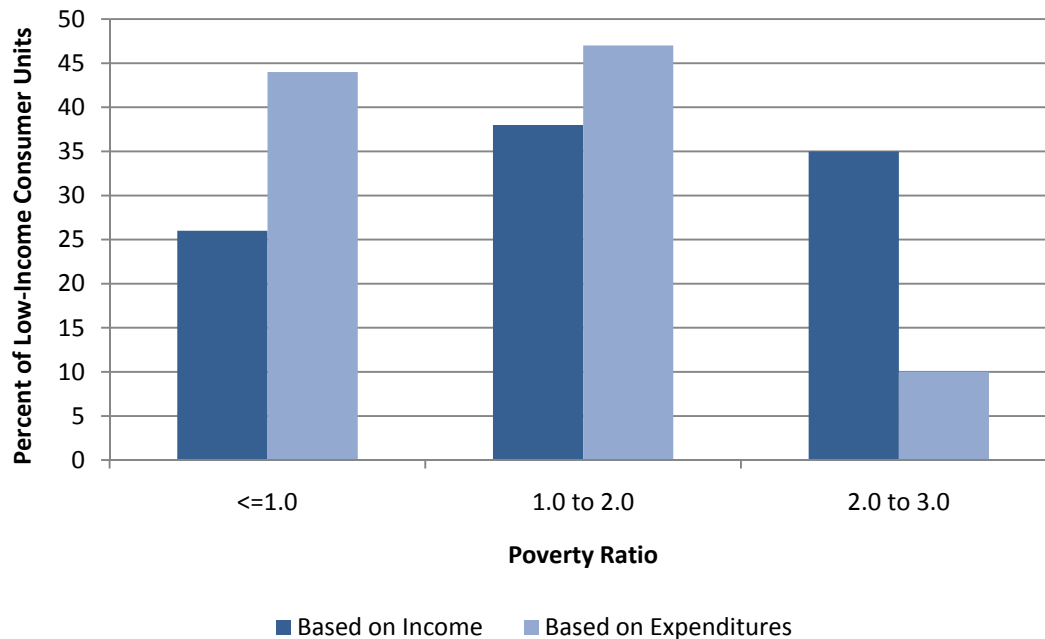
Source: 2005 CE-Interview data

A second important aspect relates to what expenditures to include. For this report, related to using expenditure-based poverty to determine eligibility for SNAP, we subtract SNAP benefits from the consumer unit expenditures. We assume that if an expenditure-based measure were used to determine eligibility for SNAP, it would not include the food expenditures that were made by participants with their SNAP benefits. In addition, it allows us to better compare expenditures between SNAP participants and eligible nonparticipants because their income-based measures are similar, but SNAP participants have additional funds for making food expenditures that the eligible nonparticipants do not have.

Using the thresholds in Table III.1, we identify 13.1 million consumer units that are income poor—that is, they have income at or under the poverty threshold. With the generally higher expenditure-based thresholds, we find 21.9 million consumer units that are expenditure-poor, 67 percent more than are income poor.

The distribution by poverty level for consumer units with income and expenditures under 300 percent of poverty is shown in Figure III.1. Almost 45 percent of low-income consumer units have expenditures under the expenditure-based poverty threshold and over 45 percent have expenditures between 1.0 and 2.0 times the expenditure-to-poverty ratio.

**Figure III.1 Distribution of Low-Income Consumer Units by Income-Based Poverty and Expenditure-Based Poverty**



Source: 2005 CE-Interview data

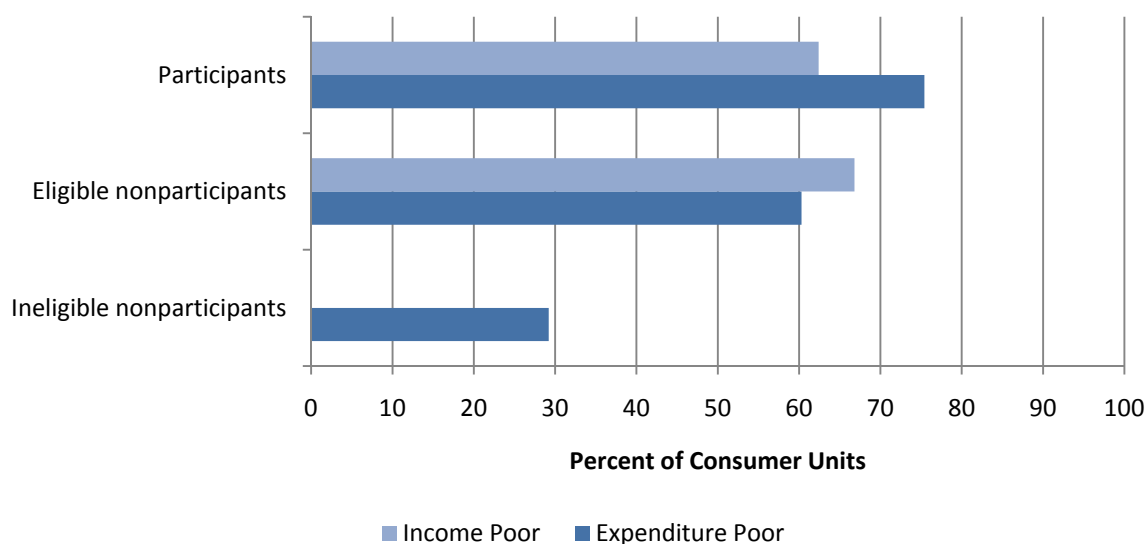
Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

## B. Using Expenditure-Based Poverty to Determine SNAP Eligibility

As seen in Figure III.2, over 60 percent of both SNAP participants and eligible nonparticipants are income poor, and a larger percentage of SNAP participants than eligible nonparticipants are expenditure poor (75 and 60 percent, respectively). By definition, none of the ineligible nonparticipants are income poor, but 29 percent of them are expenditure poor.

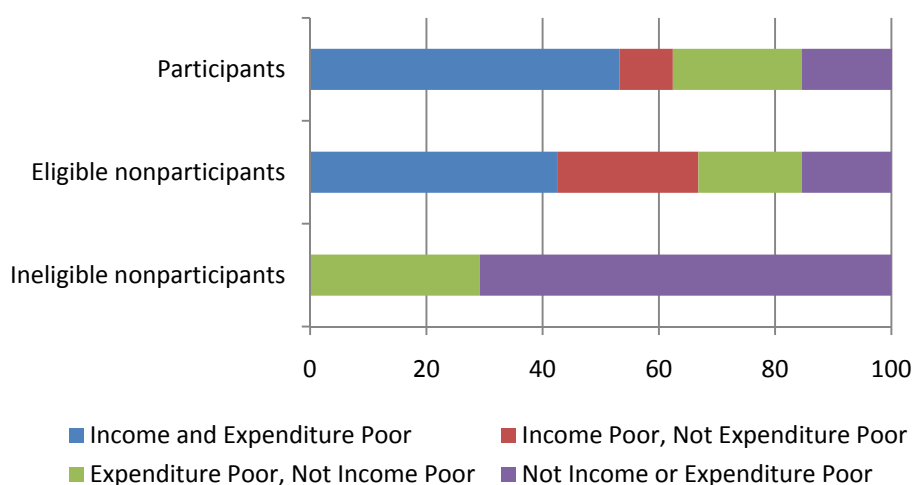
In Figure III.3, we partition our population into four groups, by their income and expenditure poverty group (poor or not poor). We find that almost all of SNAP participants who are income poor are also expenditure poor. For eligible nonparticipants, who had a similar percentage of income poor as participants, a larger share of the income poor eligible nonparticipants are not expenditure poor.

**Figure III.2 Percentage of Low-Income Consumer Units That Are Income or Expenditure Poor by SNAP Participation and Eligibility Group**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

**Figure III.3 Percentage of Expenditure-Poor Consumer Units by Income Poverty and SNAP Participation and Eligibility Group**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

While 44 percent of the consumer units are expenditure poor (not shown in figure), those with certain characteristics may be more or less likely to be expenditure poor. Half of units headed by a single female are expenditure poor, as are half that are headed by someone age 24 or under (Table III.3). Over half headed by a non-Hispanic black member are expenditure poor, and just under half headed by a Hispanic member are expenditure poor. Consumer units in the South and in rural areas have the largest percentages that are expenditure poor, and units in the West and in areas that are the most densely populated have the smallest percentage.

Changing the SNAP eligibility determination from an income-based poverty measure to an expenditure-based poverty measure could affect those who are income poor but not expenditure poor, possibly making them ineligible. A total of 27 percent of SNAP participants and 40 percent of eligible nonparticipants are income poor but not expenditure poor and could lose their eligibility if the eligibility threshold were set at this definition of expenditure-based poverty. Table III.4 identifies the percentages of income poor but not expenditure poor by the unit characteristics. The units most likely to be lose benefits by a change to this eligibility-based threshold are summarized in Figure III.4

Similarly, some consumer units ineligible for SNAP may become eligible with a change to an expenditure-based measure. These are units that are not income poor, but are expenditure poor. Table III.5 identifies the percentage of consumer units with each characteristic that could gain from a change to the expenditure-based measure. Figure III.5 summarizes the findings.

The number of consumer units affected will be especially dependent on exactly how the eligibility measure is defined. The gross income test for SNAP is not set at poverty, but at 130 percent of poverty. If an expenditure-based measure were used, it also would not necessarily be set at the same threshold as a poverty measure. Obviously, a lower threshold would exclude more of the current income ineligibles who are not expenditure poor, but it would also exclude some participants and eligible nonparticipants who are not expenditure poor. A higher threshold would include more of the expenditure-poor income eligible participants and nonparticipants, but also allow more of the expenditure-poor income ineligibles to participate.

**Table III.3 Expenditure-to-Poverty Ratio by Characteristics of Consumer Units**

	Expenditure-to-Poverty Ratio			
	Less than or Equal to 1.0	>1.0-1.5	>1.5-2.0	Greater than 2.0
<b>Full Sample</b>	44	32	15	10
<b>Unit composition</b>				
Married head of unit	38	35	17	10
Male single head of unit	41	31	16	12
Female single head of unit	50	29	13	9
Married couple with children	34	38	18	10
Married couple without children	43	32	15	10
Single adult with children	58	27	10	5
Single adult without children	40	30	16	13
Multiple adults with children	52	32	12	5
Multiple adults without children	56	29	10	5
No Children Less than 18	43	30	15	11
One Child less than 18	47	34	13	6
Two or more children less than 18	42	34	15	9
<b>Race of unit head</b>				
White, non-Hispanic	39	33	17	12
Black, non-Hispanic	57	28	10	5
Hispanic	48	32	13	8
Other	44	34	14	8
<b>Geographic residence</b>				
Northeast	40	32	16	12
Midwest	42	33	16	9
South	48	31	13	8
West	38	32	17	14
<b>Population density of primary sampling unit</b>				
Less than 125,000	49	30	13	8
125,000 to 329,900	47	31	14	9
329,900 to 1.19 million	43	33	15	9
More than 1.2 million	39	32	17	12
<b>Age of unit head</b>				
24 and younger	53	27	12	8
25-49	41	34	16	9
50-65	43	30	16	12
65+	45	31	14	10

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

**Table III.4 Percentage of SNAP Participant and Eligible Nonparticipant Consumer Units That Could Lose Eligibility with Change from Income-Based Eligibility Measure to Expenditure-Based Eligibility Measure**

	SNAP Participants	Eligible Nonparticipants
<b>Full sample</b>	25	40
<b>Unit composition</b>		
Married head of unit	31	42
Male single head of unit	31	43
Female single head of unit	21	37
Married couple with children	36	45
Married couple without children	20	38
Single adult with children	17	29
Single adult without children	24	43
Multiple adults with children	32	31
Multiple adults without children	17	30
No children less than 18	22	41
One child less than 18	24	36
Two or more children less than 18	27	37
<b>Race of unit head</b>		
White, non-Hispanic	28	44
Black, non-Hispanic	21	31
Hispanic	21	34
Other	27	40
<b>Geographic residence</b>		
Northeast	32	41
Midwest	20	42
South	23	36
West	27	44
<b>Population density of primary sampling unit</b>		
Less than 125,000	21	36
125,000 to 329,900	13	35
329,900 to 1.19 million	28	42
More than 1.2 million	30	43
<b>Age of unit head</b>		
24 and younger	22	35
25-49	26	42
50-65	23	45
65+	22	37

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.



**Figure III.4. Characteristics of Participant and Eligible Nonparticipant Consumer Units Most Likely to Lose Eligibility by Change to Expenditure-Based Poverty Measure**

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For **both participants and eligible nonparticipants**, this change could cause more of these units to lose eligibility:

- headed by married couples with children or single males
- headed by non-Hispanic white members
- living in the most densely populated areas
- headed by an adult age 25-64

For **participants**, more of these units could lose eligibility:

- living in the Northeast

For **eligible nonparticipants**, more of these units could lose eligibility:

- living in the West
-

**Table III.5 Percentage of Ineligible Nonparticipant Consumer Units that Could Gain Eligibility with Change from Income-Based Eligibility Measure to Expenditure-Based Eligibility Measure**

	Ineligible Nonparticipants
<b>Full sample</b>	29
<b>Unit composition</b>	
Married head of unit	30
Male single head of unit	26
Female single head of unit	30
Married couple with children	24
Married couple without children	36
Single adult with children	29
Single adult without children	21
Multiple adults with children	35
Multiple adults without children	47
No children Less than 18	30
One child less than 18	32
Two or more children less than 18	24
<b>Race of unit head</b>	
White, non-Hispanic	27
Black, non-Hispanic	39
Hispanic	31
Other	29
<b>Geographic residence</b>	
Northeast	25
Midwest	28
South	34
West	24
<b>Population density of primary sampling unit</b>	
Less than 125,000	33
125,000 to 329,900	32
329,900 to 1.19 million	29
More than 1.2 million	26
<b>Age of unit head</b>	
24 and younger	32
25-49	26
50-65	29
65+	34

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: Expenditure-based poverty thresholds defined as 60 percent of the median expenditures for unit size. SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

### Figure III.5. Characteristics of Ineligible Nonparticipant Consumer Units Most Likely to Gain Eligibility by Change to Expenditure-Based Poverty Measure

For **ineligible nonparticipants**, this change could affect more units:

- without children that are headed by married couples or multiple adults
- headed by a non-Hispanic black member
- headed by an adult age 65 or older
- living in rural areas

In Figure III.6 we show how sensitive eligibility is to the threshold by setting the threshold at 50, 60, 70, and 80 percent of the median expenditure, by unit size. We combine SNAP participants and eligible nonparticipants into one group—the income eligibles. We then identify the percentage of income eligibles and ineligible who would be eligible under the identified expenditure-based eligibility threshold. If the expenditure-based eligibility threshold were set below our defined poverty threshold, to 50 percent of median expenditures, then 20 percent of the population with income under 300 percent of poverty and expenses under 300 percent of the expenditure-based poverty threshold would lose eligibility; 9 percent would gain eligibility. If, instead, the expenditure-based eligibility threshold were set higher than our defined poverty threshold, say to 80 percent of the median, then 8 percent would lose eligibility and 33 percent would gain eligibility.

To find the value of the threshold that would retain the most consumer units that are eligible under the income-based poverty measure and grant eligibility to the least number of consumer units that are ineligible under the income-based measure, we maximize the following function,

$$Q = (\beta) \left( \begin{array}{c} \text{Income eligible} \\ \text{and expenditure poor} \end{array} \right) - (1 - \beta) \left( \begin{array}{c} \text{Income ineligible} \\ \text{and expenditure poor} \end{array} \right)$$

where  $\beta$  is a weight that can be set to give more importance to ensuring the income eligibles remain eligible or the income ineligible remain ineligible. For example, if  $\beta$  is set to 0.5, then we are equally weighting including those who are currently eligible with excluding those who are currently ineligible. Setting  $\beta$  at 1.0 would ensure that all current income eligibles remain eligible, regardless of how many income ineligible become eligible. In Figure III.7 we graph the results for  $\beta=0.5$  and  $\beta=0.6$ . The maximum value when  $\beta=0.5$  occurs when the eligibility threshold is set at approximately 57 percent of the median expenditure. If more weight is placed on keeping income eligibles eligible, say with  $\beta=0.6$ , then the eligibility threshold could be set at at 65 percent. Clearly, if we continue to increase  $\beta$  to retain more of the income eligibles, we will continue to see an increase in the median's multiplier.

### C. Caveats for Determining Expenditure-Based Poverty Thresholds

It is important to keep in mind that these expenditure-based poverty thresholds were set using a sample. Although we used the full CE-Interview sample to determine the thresholds, we have a limited number of larger units. With a larger sample, which could be accomplished even by

combining multiple years of data, the median of expenditures for units of size five or larger may be larger than the median for units of size four.

In addition, these are quarterly expenditures that have been annualized, so consumer units that experienced very large purchases in a quarter likely have annual expenditures that may be greater than their true annual value while consumer units with no large purchases likely have annual expenditures that may be less than their annual value. Expenditure-based poverty thresholds that were used to determine eligibility should be based on true annual measures of expenditures.

**Figure III.6 Impact of Expenditure-Based Eligibility Threshold on Percentage of Consumer Units Under 300 Percent of Poverty Eligible for SNAP**

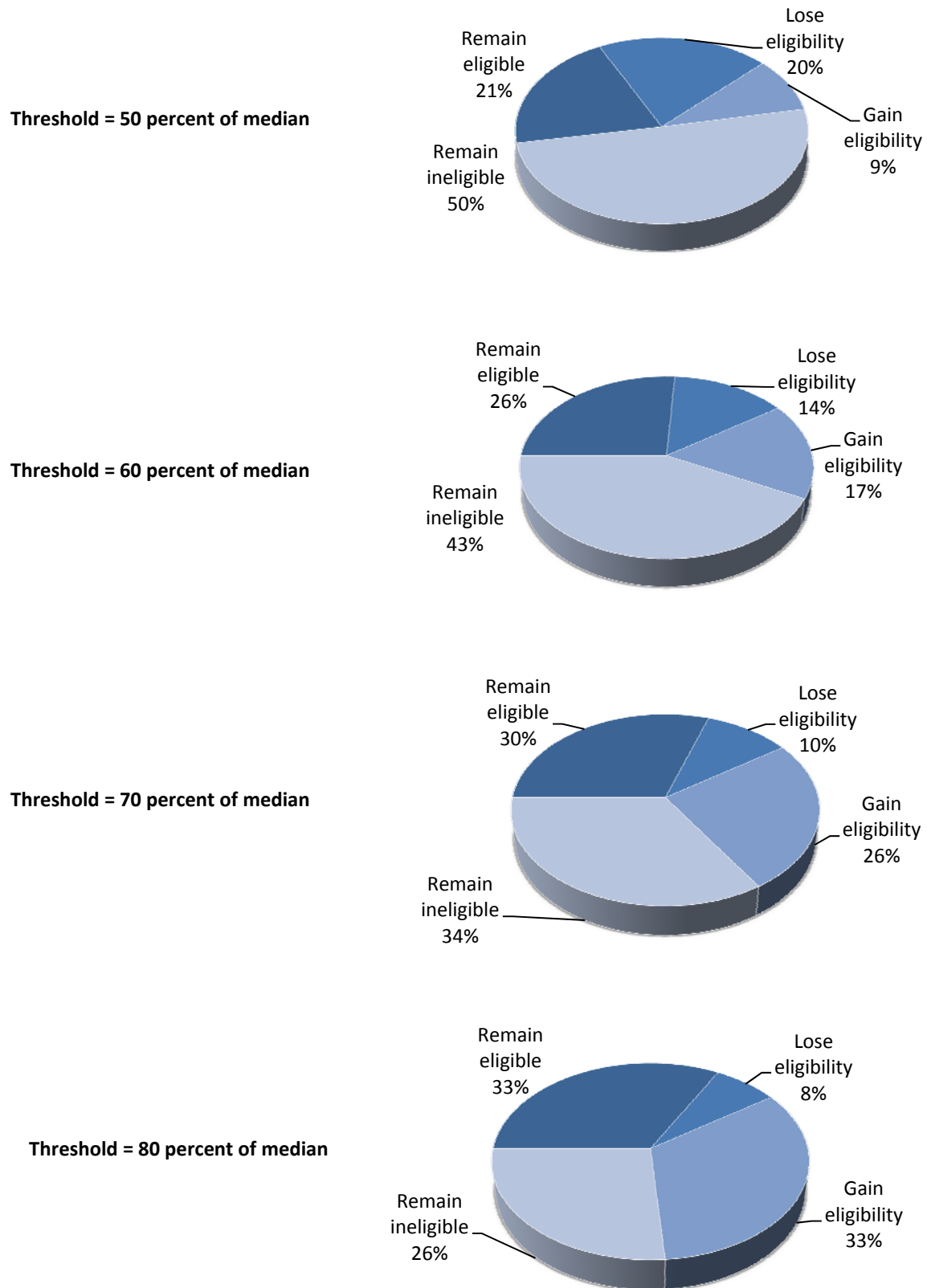
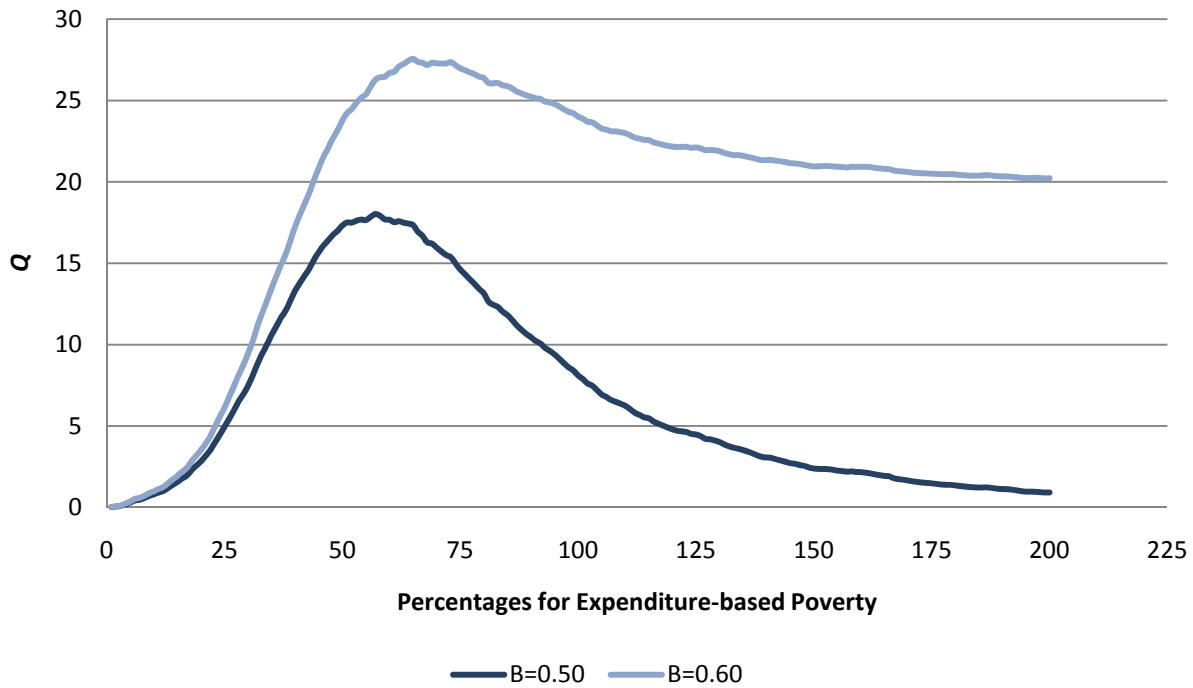


Figure III.6 (continued)

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold.

Note: SNAP benefits are removed from expenses for expenditure-based poverty calculation and are not included in income.

Figure III.7 Graph of  $Q$  for Two Values of  $\beta$ 

## IV. SAVINGS AND CREDIT

At the core of microeconomic theory is the idea that what an individual consumes today depends on current income as well as access to credit and savings markets. In any period, an individual may consume less than his or her full income, leading to positive net savings, or may purchase more goods and services than he or she can afford using credit and loans. Recent research has shown that low-income working households have extremely low levels of asset holdings, including savings, relative to higher-income households, many times translating into difficulty in meeting basic needs and lost opportunities for economic mobility (McKernan and Ratcliffe 2008). Indeed, inadequate savings levels may render many low-income households unable to achieve longer-run stability, and they may trade off this stability by meeting short-term needs through the increased use of credit and loans to finance expenditures.

Savings and credit decisions can also potentially play an important role when considering alternative criteria for being poor, such as those based on income and expenditures. At any point in time, a consumer unit may be expenditure poor but not income poor due to savings or, alternatively, it may be income poor but not expenditure poor due to credit and loans. This chapter examines the incidence of positive credit and savings balances among SNAP participants and eligible and ineligible nonparticipants and tabulates how these balances differ across expenditure- and income-based poverty groups.<sup>20</sup>

### A. The Incidence and Magnitude of Positive Savings, Checking, and Credit Balances

The differences in savings and checking rates across the three SNAP participation and eligibility subgroups are striking (Figure IV.1). For both savings and checking accounts, a larger percentage of ineligible nonparticipants than eligible nonparticipants have accounts, and a larger percentage of eligible nonparticipants than participants have accounts, though more in each group have checking accounts than have savings accounts.

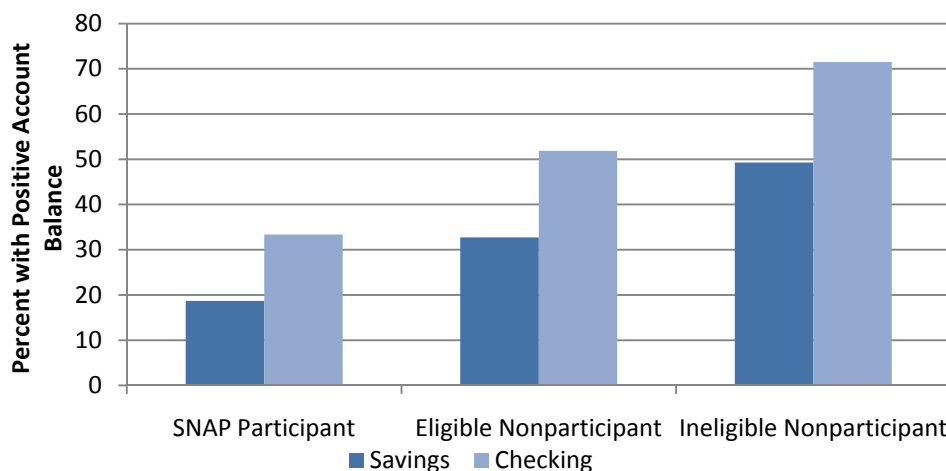
The mean and median balances among those units with a positive balance follow a similar pattern—SNAP participants have the lowest mean and median and ineligible nonparticipants have the highest (Figure IV.2). The large differences between the mean and median balances for each subgroup indicate that the distributions are highly skewed with long right tails (Figure IV.3, which graphs the savings distribution for SNAP participants). Among units with positive balances, many are relatively small and few have relatively large balances. The estimates of the standard deviations (Tables IV.1 and IV.2) also indicate the degree of dispersion in these distributions, with eligible and ineligible nonparticipants having standard deviations of savings balances that are two to three times greater than that for participants and of checking balances that are eight times greater than for participants. This may reflect, to some extent, upper limits on the amount of countable resources

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<sup>20</sup> The primary focus of the CE-Interview data is expenditures, rather than savings and credit. We compared the savings and credit information from the CE-Interview data with the Survey of Consumer Finance (SCF) and found savings information for consumer units from the CE-Interview to be similar to the savings information for families from the SCF. Credit information appeared different, however, with the CE-Interview data containing fewer consumer units with credit-card debt than SCF families, but those units with debt had higher balances than the SCF families.

that many households applying to SNAP must meet in order to be eligible for the program. In many states, households are permitted up to \$2,000 in countable resources or \$3,000 if at least one member is age 60 or older or disabled.<sup>21</sup>

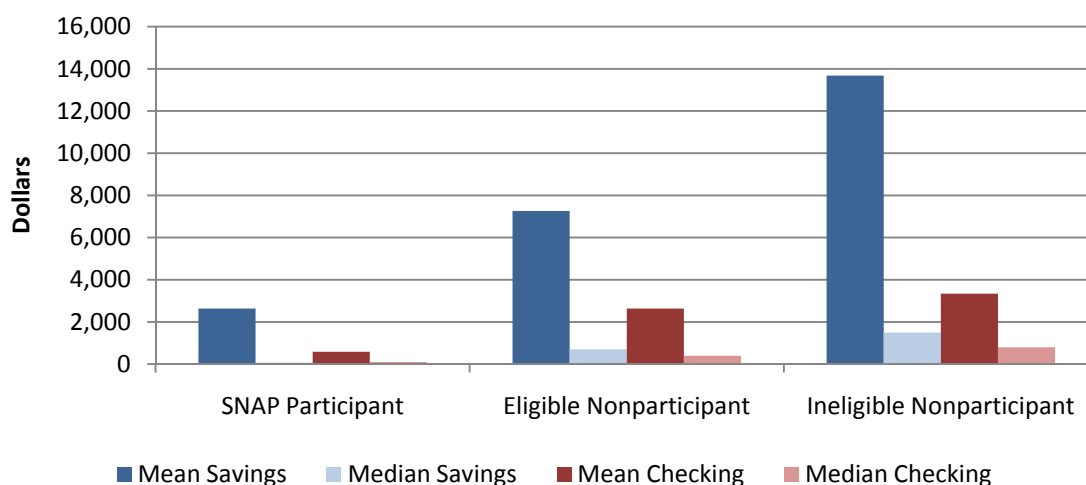
**Figure IV.1 Low-Income Consumer Units with Savings or Checking Accounts**



Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their fifth interview

**Figure IV.2 Mean and Median Account Balances Among Those with Accounts**



Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their fifth interview.

<sup>21</sup> In 2005, some states had categorical eligibility policies in place that allowed applicants to be exempt from the asset test.



**Table IV.1 Savings by Characteristics of Consumer Units**

	Percentage of Consumer Units with Positive Savings	Among Consumer Units with Positive Savings		
		Mean(\$)	Median (\$)	Standard Deviation (\$)
<b>Full Sample</b>	40	11,345	1,000	40,938
<b>SNAP participant</b>	19	2,637	75	14,789
<b>SNAP eligible nonparticipant</b>	33	7,259	700	30,543
<b>SNAP ineligible nonparticipant</b>	49	13,678	1,500	45,475
<b>Unit expenditure-to-poverty ratio</b>				
Less than or equal 1	26	7,537	700	32,684
1.0-1.5	46	11,853	834	43,062
1.5-2.0	56	14,844	1,500	50,557
Greater than 2.0	55	13,018	2,000	33,395
<b>Unit composition</b>				
Married head of unit	46	9,970	1,100	32,300
Male single head of unit	38	16,551	1,000	60,892
Female single head of unit	35	10,283	800	36,758
Married couple with children	44	3,128	800	7,184
Married couple without children	50	17,718	3,000	45,313
Single adult with children	26	3,149	200	11,367
Single adult without children	41	16,903	1,500	55,992
Multiple adults with children	27	5,203	500	18,589
Multiple adults without children	34	3,088	600	7,789
No children less than 18	42	15,589	1,500	49,644
One child less than 18	37	2,194	500	5,434
Two or more children less than 18	35	4,262	800	12,831
<b>Race of unit head</b>				
White, non-Hispanic	47	13,978	1,500	45,642
Black, non-Hispanic	23	2,431	300	8,767
Hispanic	29	2,097	550	4,626
Other	42	14,010	840	50,498
<b>Geographic residence</b>				
Northeast	47	10,081	1,000	29,077
Midwest	46	11,756	1,500	44,738
South	34	12,037	1,000	42,918
West	41	10,748	500	41,358
<b>Population density of primary sampling unit</b>				
Less than 125,000	38	11,015	1,000	36,620
125,000 to 329,900	43	15,153	800	57,580
329,900 to 1.19 million	37	10,487	1,000	39,091
More than 1.2 million	42	9,486	1,500	32,140
<b>Age of unit head</b>				
24 and younger	44	1,584	500	3,393
25-49	36	3,091	600	7,986
50-65	40	15,027	1,002	50,997
65+	46	28,465	6,000	64,782

Source: 2005 CE-Interview data

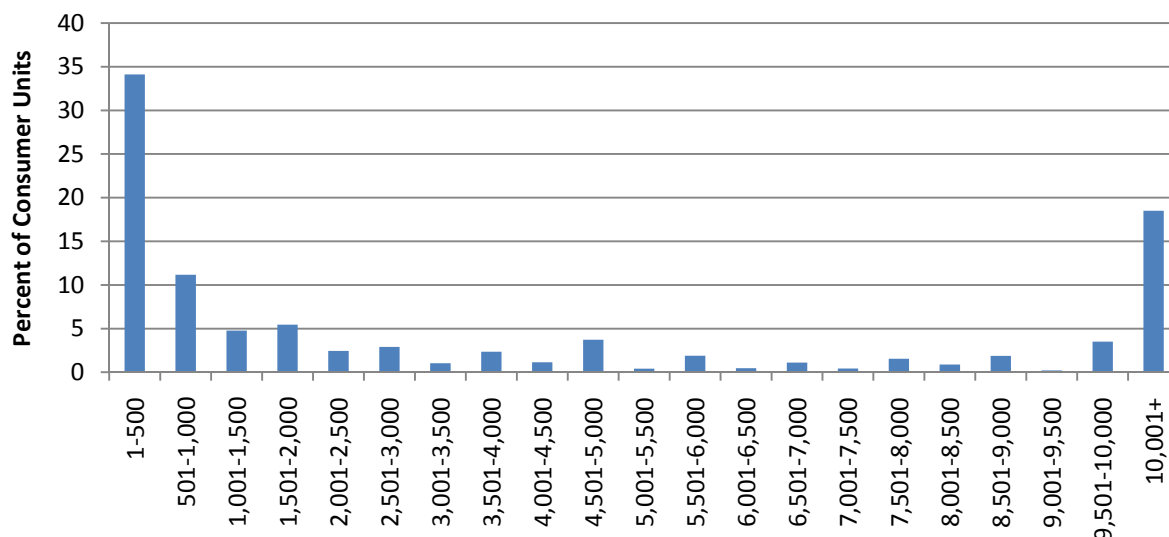
Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their fifth interview.

**Table IV.2     Checking Accounts by Characteristics of Consumer Units**

	Percentage of Consumer Units with Positive Checking	Among Consumer Units with Positive Checking		
		Mean(\$)	Median (\$)	Standard Deviation (\$)
<b>Full sample</b>	60	2,936	500	12,908
<b>SNAP participant</b>	33	589	103	1,615
<b>SNAP eligible nonparticipant</b>	52	2,632	400	13,255
<b>SNAP ineligible nonparticipant</b>	71	3,344	800	13,523
<b>Unit expenditure-to-poverty ratio</b>				
Less than or equal 1	43	2,232	300	12,340
1.0-1.5	68	2,685	500	11,710
1.5-2.0	78	3,598	1,000	14,250
Greater than 2.0	81	4,376	1,100	15,064
<b>Unit composition</b>				
Married head of unit	66	3,806	700	15,342
Male single head of unit	57	3,084	500	13,524
Female single head of unit	57	2,013	500	9,479
Married couple with children	61	2,128	500	8,773
Married couple without children	72	5,603	969	19,968
Single adult with children	43	806	250	1,712
Single adult without children	65	2,985	600	12,782
Multiple adults with children	45	871	400	1,364
Multiple adults without children	51	1,733	320	9,565
No Children Less than 18	65	3,610	685	15,034
One Child less than 18	52	1,565	350	8,480
Two or more children less than 18	53	1,661	500	5,873
<b>Race of unit head</b>				
White, non-Hispanic	73	3,556	600	14,915
Black, non-Hispanic	34	731	300	1,603
Hispanic	41	1,266	500	2,724
Other	58	1,892	900	2,879
<b>Geographic residence</b>				
Northeast	66	3,262	500	14,474
Midwest	66	2,915	683	12,747
South	55	1,978	500	8,138
West	60	4,469	700	17,827
<b>Population density of primary sampling unit</b>				
Less than 125,000	56	2,985	700	12,487
125,000 to 329,900	65	1,646	500	6,504
329,900 to 1.19 million	58	3,279	400	15,981
More than 1.2 million	65	3,624	500	15,035
<b>Age of unit head</b>				
24 and younger	63	1,185	500	2,568
25-49	54	1,638	500	7,417
50-65	57	1,752	434	8,137
65+	74	6,769	1,000	21,909

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their fifth interview.

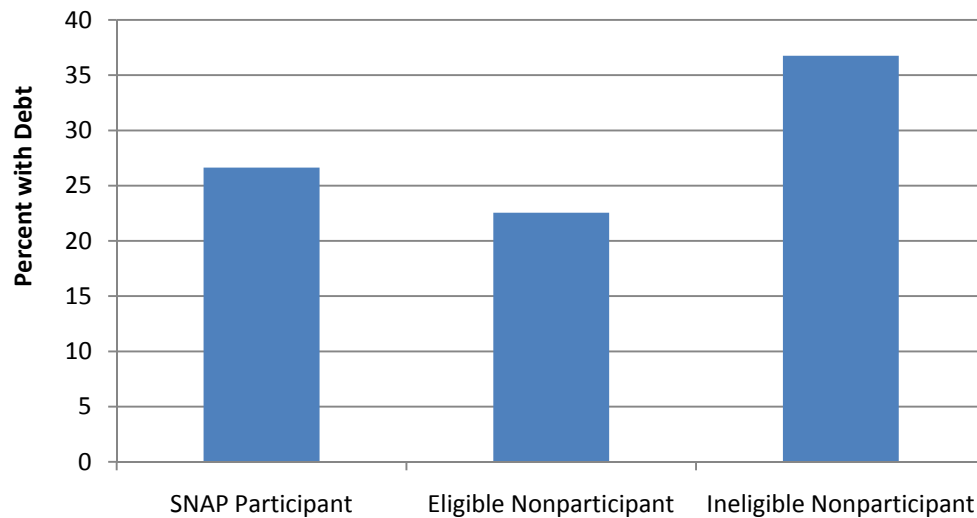
**Figure IV.3 Distribution of Savings Account Balances of SNAP Participants Among Low-Income Consumer Units with Positive Balances**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their fifth interview.

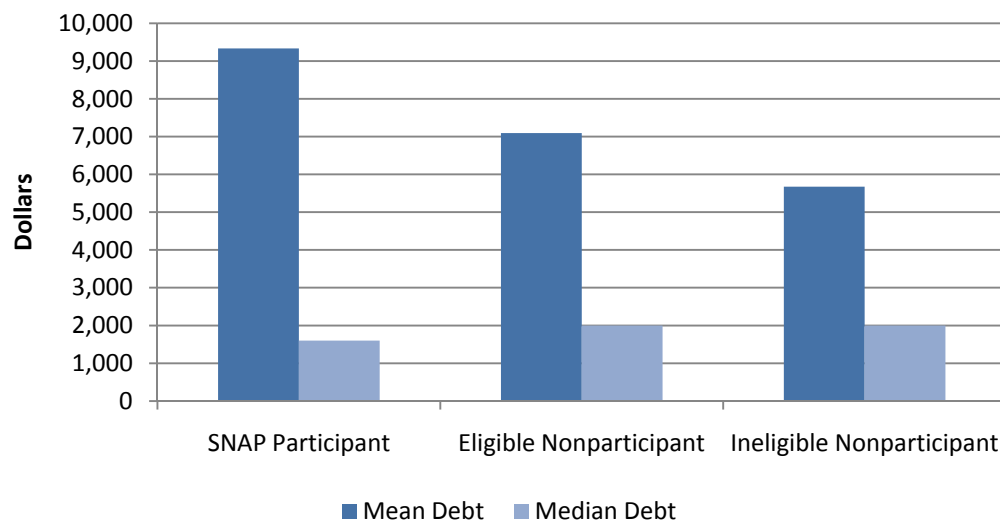
Figures IV.4 and IV.5 present differences in debt balances across participation and eligibility groups. In this report, “debt balance” includes credit card debt (gas cards, department or specialty store cards, and major credit cards such as VISA, MasterCard, and American Express); financial debt (at banks, brokerages, savings and loans, credit unions, and insurance companies); debt for health-related expenses (doctors, dentists, hospitals, and medical practitioners not covered by insurance); and other debt (school loans, personal loans, and loans from retirement plans). It does not include mortgage, home equity, vehicle, or business loans.

Figures IV.4 and IV.5 display, respectively, the percentage of consumer units with debt balances and their mean and median values. There are sizable differences in debt balances owed across the three participation and eligibility groups, although the differences are slightly smaller than those observed for savings. A larger percentage of SNAP participants have debt balances than eligible nonparticipants but a smaller percentage have debt balances than ineligible nonparticipants. Participants’ mean debt balance is higher than units in the other two groups as well, although their median amount is smaller, suggesting that participants owe less on average than eligible nonparticipants, but there are many participants whose balances are greater than those for eligible nonparticipants. This is also seen in the large differences in the standard deviations for each group, with the dispersion for participants two to four times as great as the dispersion for eligible and ineligible nonparticipants.

**Figure IV.4 Low-Income Consumer Units with Debt Balances**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their second or fifth interview.

**Figure IV.5 Mean and Median Debt Balances Among Those with Debt Balances**

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their second or fifth interview.

Tables IV.1, IV.2, and IV.3 display the summary statistics for different consumer unit composition groups for those with savings, checking, and debt balances, respectively. The estimates in Table IV.1 and IV.2 indicate that units with married heads, particularly those without children, are more likely to save and, given that they do save, are more likely to save more, based on the median balance, relative to units with single heads. The presence of children in the unit also affects the decision to save, as units with children are less likely to have positive savings or checking. However, while the median savings and checking balances among those units with positive balances are greatest for units without children, the medians for units with one child are fewer than that for units with two or more children. It is possible that units are more likely to live according to budget when there is more than one child. Alternatively, there may be increasing returns to scale to having more children, such as clothing that is passed down from one child to the next, entertainment that is shared among children, or the meals cooked for larger families.

The signs of the relationships between demographic characteristics of consumer units and savings decisions are opposite that for credit decisions. Table IV.3 shows that units with married heads, who were more likely to have positive savings and checking balances, are also more likely to have positive debt balances. Furthermore, those with positive debt balances generally have larger balances than single adult head of consumer units. Similarly, units with children have larger debt balances than those without children.

## **B. Associations Between Credit and Savings Decisions and the Incidence of Expenditure-Based and Income-Based Poverty**

Most consumer units will, in some time periods, face expenses that are higher than their income. During these times, consumer units may rely on savings or credit to finance the higher expenses. Similarly, periods of low expenditures may be due to increasing levels of saving. It is for these reasons that the determination of poverty using the income- and expenditure-based poverty measures presented in Chapter II can be affected by savings and credit decisions. Increased savings may make a consumer unit appear expenditure poor but not income poor and increased use of credit or savings may make a consumer appear income poor but not expenditure poor. In this section, we explore how savings and debt balances differ among the income poor and expenditure poor.

Table IV.4 contains summary statistics for savings and debt balances according to whether a consumer unit is income poor or expenditure poor. Consumer units who are not income poor, but are expenditure poor, have higher savings balances than those who are income poor and expenditure poor. This suggests that consumer units may be expenditure poor but not income poor simply due to savings.

Alternatively, savings, much like credit, may also be used to finance expenditures. For example, the estimates in Table IV.4 suggest that among consumer units who are income poor, those who are not expenditure poor have higher mean and median savings account balances than those who are expenditure poor, although slightly fewer of them have positive savings balances.

**Table IV.3 Debt by Characteristics of Consumer Units**

	Percentage of Consumer Units with Debt	Among Consumer Units With Debt		
		Mean(\$)	Median (\$)	Standard Deviation (\$)
<b>Full sample</b>	32	6,348	2,000	18,338
<b>SNAP participant</b>	27	9,333	1,600	42,879
<b>SNAP eligible nonparticipant</b>	23	7,095	2,000	17,185
<b>SNAP ineligible nonparticipant</b>	37	5,676	2,000	10,780
<b>Household expenditure-to-poverty ratio</b>				
Less than or equal 1	20	5,890	1,335	27,289
1.0-1.5	38	6,299	1,950	14,081
1.5-2.0	43	6,620	2,200	14,329
Greater than 2.0	47	6,905	3,000	11,135
<b>Unit composition</b>				
Married head of unit	38	6,799	2,500	14,937
Male single head of unit	24	6,548	1,300	12,219
Female single head of unit	29	5,741	1,500	23,320
Married couple with children	43	7,061	3,000	14,635
Married couple without children	32	6,403	1,800	15,373
Single adult with children	29	9,509	1,450	47,953
Single adult without children	25	4,798	1,300	8,592
Multiple adults with children	29	3,652	1,200	8,097
Multiple adults without children	33	8,388	2,950	13,432
No children less than 18	28	5,900	1,700	12,018
One child less than 18	35	5,624	2,300	10,207
Two or more children less than 18	38	7,734	2,500	29,684
<b>Race of unit head</b>				
White, non-Hispanic	34	6,878	2,000	20,439
Black, non-Hispanic	24	4,790	1,500	9,847
Hispanic	27	4,904	1,326	15,157
Other	34	6,701	2,705	10,254
<b>Geographic residence</b>				
Northeast	32	6,910	2,403	16,658
Midwest	33	6,692	2,013	12,380
South	29	5,951	1,750	24,193
West	34	6,298	1,950	10,363
<b>Population density of primary sampling unit</b>				
Less than 125,000	31	6,191	2,050	10,950
125,000 to 329,900	34	7,956	1,657	35,107
329,900 to 1.19 million	28	5,912	1,240	11,029
More than 1.2 million	33	5,530	2,000	9,460
<b>Age of unit head</b>				
24 and younger	30	6,706	2,300	10,263
25-49	36	7,260	2,380	23,561
50-65	34	6,723	2,193	14,656
65+	23	3,280	1,000	6,439

Source: 2005 CE-Interview data

Table IV.3 (*continued*)

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their second or fifth interview.

If credit is used to finance expenditures, then a consumer unit may be expenditure non-poor due to credit. Indeed, Table IV.4 provides evidence that this may be true, as consumer units who are income poor but not expenditure poor have higher mean and median debt balances than those who are both income and expenditure poor.

**Table IV.4 Credit Decisions by Income- and Expenditure-Based Poverty Status**

	Income-to-Poverty Ratio $\leq 1$		Income-to-Poverty Ratio $> 1$	
	Expenditure-to-Poverty ratio $\leq 1$	Expenditure-to-Poverty Ratio $> 1$	Expenditure-to-Poverty Ratio $\leq 1$	Expenditure-to-Poverty Ratio $> 1$
<b>Savings account balance</b>				
Mean	4,417	8,527	9,479	13,962
Median	300	800	1,200	1,500
Standard deviation	23,106	29,427	31,944	46,663
Percentage with positive amount	15	12	15	58
<b>Debt balance</b>				
Mean	7,348	8,953	3,936	6,029
Median	1,200	2,600	1,800	2,000
Standard deviation	36,352	20,512	6,379	11,528
Percentage with positive amount	15	13	12	60

Source: 2005 CE-Interview data

Universe: Consumer units with income under 300 percent of the income-based poverty threshold and total expenditures under 300 percent of the expenditure-based poverty threshold that are in their second or fifth interview.

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## REFERENCES

- Attanasio, O.P., E. Battistin, and A. Leicester. "From Micro to Macro, from Poor to Rich: Consumption and Income in the U.K. and the U.S." Paper presented at the National Poverty Center Conference, The Well-Being of Families and Children as Measured by Consumption Behavior, Washington, DC, May 4–5, 2006.
- Bavier, Richard. "Reconciliation of Income and Consumption Data in Poverty Measurement." *Journal of Policy Analysis and Management*, vol. 27, no. 1, winter 2008, pp. 40–62.
- Blank, Rebecca M. "Why the United States Needs an Improved Measure of Poverty." Testimony to the Subcommittee on Income Security and Family Support, House Ways and Means Committee, Washington, DC, July 17, 2008.
- Blundell, Richard, and Ian Preston. "Consumption Inequality and Income Uncertainty." *The Quarterly Journal of Economics*, vol. 113, no. 2, May 1998, pp. 603–640.
- Brewer, Mike, Alissa Goodman, and Andrew Leicester. "Household Spending in Britain: What Can It Teach Us About Poverty?" London: Institute for Fiscal Studies, 2006.
- Citro, Constance F., and Robert T. Michael (eds.). *Measuring Poverty: A New Approach*. Washington, DC: National Academy Press, 1995.
- Cragg, J.G. "Some Statistical Models for Limited Dependent Variables with Application to the Demand for Durable Goods." *Econometrica*, vol. 39, 1971, pp. 829–844.
- Czajka, John L., James Mabli, and Scott Cody. "Sample Loss and Survey Bias in Estimates of Social Security Beneficiaries: A Tale of Two Surveys." Washington, DC: Mathematica Policy Research, 2008.
- Dalaker, Joe. "Alternative Poverty Estimates in the United States: 2003." Washington, DC: U.S. Census Bureau, June 2005.
- Del Boca, Daniela, and Christopher J. Flinn. "Expenditure Decisions of Divorced Mothers and Income Consumption." *Journal of Human Resources*, vol. 29, no. 3, 1994, pp. 742–761.
- Fraker, Thomas M. "The Effects of Food Stamps on Food Consumption: A Review of the Literature." Alexandria, VA: USDA Food and Nutrition Service, Office of Analysis and Education, 1990.
- Friedman, Milton A. *A Theory of the Consumption Function*. Princeton, NJ: Princeton University Press, 1957.
- Goodman, Alissa, Michel Myck, and Andrew Shephard. "Sharing in the Nation's Prosperity? Pensioner Poverty in Britain." London: Institute for Fiscal Studies, 2003.
- Gundersen, Craig, and James P. Ziliak. "The Role of Food Stamps in Consumption Stabilization." *Journal of Human Resources*, vol. 38, no. 4, 2003, pp. 1051–1079.

- Jencks, C., and S.E. Mayer. "Do Official Poverty Rates Provide Useful Information About Children's Economic Welfare?" Working Paper 96-1. Madison, WI: Institute for Research on Poverty, 1996.
- Jensen, Helen H., and Steven T. Yen. "U.S. Food Expenditures Away from Home by Type of Meal." Staff General Research Papers 922. Ames, Iowa: Iowa State University, Department of Economics, 1995.
- Johnson, David, and Stephanie Schipp. "Trends in Inequality Using Consumer Expenditures: The U.S. from 1960 to 1993." *The Review of Income and Wealth*, vol. 43, no. 2, June 1997, pp. 133–152.
- Kenney, Genevieve and Jennifer Pelletier. "Setting Income Thresholds in Medicaid/SCHIP: Which Children Should Be Eligible?" Washington, DC: The Urban Institute, January 2009.
- Levy, Helen, and Thomas DeLeire. "What Do People Buy When They Don't Buy Health Insurance and What Does That Say About Why They Are Uninsured?" *Inquiry*, vol. 45, 2008, pp. 365–379.
- Lewbel, Arthur. "Engel Curve." In *The New Palgrave Dictionary of Economics*, edited by Steven N. Durlauf and Lawrence E. Blume. New York: Palgrave Macmillan, 2008. Available at [www.dictionaryofeconomics.com/article?id=pde2008\_E000085&q=engel%20curve&topicid=&result\_number=1http://www.dictionaryofeconomics.com/dictionary]. Accessed September 3, 2009.
- Lino, Mark. "Income and Spending of Poor Households with Children." *Family Economics and Nutrition Review*, vol. 9, no. 1, 1996, pp. 2–13.
- McKernan, Signe-Mary, and Caroline Ratcliffe. "Enabling Families to Weather Emergencies and Develop: The Role of Assets." Washington, DC: The Urban Institute, July 2008.
- Meyer, Bruce, and James X. Sullivan. "Further Results on Measuring the Well-Being of the Poor Using Income and Consumption." National Bureau of Economic Research Working Paper No. 13413. Cambridge, MA, 2007.
- Meyer, Bruce, and James X. Sullivan. "Measuring the Well-Being of the Poor Using Income and Consumption." *Journal of Human Resources*, vol. 38, summer 2003, pp. 1180–1220.
- Meyer, Bruce D., Wallace K. C. Mok, and James X. Sullivan. "The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences." Cambridge, MA: National Bureau of Economic Research, July 2009.
- Nelson, Julie A. "The Frequency of Consumer Expenditure: An Empirical Analysis." *The Journal of Consumer Affairs*, vol. 30, no. 2, 1996, pp. 322–347.
- Newman, Carol, Maeve Henchion, and Alan Matthews. "A Double-Hurdle Model of Irish Household Expenditure on Prepared Meals." *Applied Economics*, vol. 35, no. 9, 2003, pp. 1053–1061.
- Paulin, Geoffrey D. "A Changing Market: Expenditures by Hispanic Consumers, Revisited." *Monthly Labor Review*, August 2003, pp. 12–35.

- Paulin, Geoffrey D. "A Growing Hispanic Market: Expenditures by Hispanic Consumers." *Monthly Labor Review*, March 1998, pp. 3–21.
- Paulin, Geoffrey D., and Yoon G. Lee. "Expenditure Patterns of Single Parents: How Does Gender Figure In?" *Monthly Labor Review*, July 2002, pp. 16–37.
- Sharpe, Deanna L., and Abdel-Ghany Mohammed. "Identifying the Poor and Their Consumption Patterns." *Family Economics and Nutrition Review*, vol. 12, no. 2, 1999, pp. 15–25.
- Slesnick, Daniel T. "Gaining Ground: Poverty in the Postwar United States." *Journal of Political Economy*, February 1993, pp. 1–38.
- Tobin, J. "Estimation of Relationships for Limited Dependent Variables." *Econometrica*, vol. 26, 1958, pp. 24–36.
- U.S. Bureau of Labor Statistics. *100 Years of U.S. Consumer Spending: Data for the Nation, New York City, and Boston*. Washington, DC: U.S. Bureau of Labor Statistics, May 2006.
- U.S. Bureau of Labor Statistics. "Consumer Expenditures in 2007." April 2009. Available at [www.bls.gov/cex/csxann07.pdf]. Accessed on November 20, 2009.
- U.S. Census Bureau. *Characteristics of the Population Below the Poverty Level: 1980*. Washington, DC: U.S. Government Printing Office, July 1982.
- Ward-Batts, Jennifer. "Out of the Wallet and Into the Purse: Using Micro Data to Test Income Pooling." *Journal of Human Resources*, vol. 43, no. 2, 2008, pp. 325–351.
- Yen, Steven T. "Working Wives and Food Away from Home: The Box-Cox Double-Hurdle Model." *American Journal of Agricultural Economics*, vol. 75, November 1993, pp. 884–895.
- Zhang, Feng, Chung L. Huang, and Biing-Hwan Lin. "Modeling Fresh Organic Produce Consumption: A Generalized Double-Hurdle Model Approach." Working paper prepared for the Southern Agricultural Economics Association Annual Meeting, Orlando, FL, 2006.

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**APPENDIX A**  
**SPENDING PATTERNS OF CONSUMER UNITS**

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**Table A.1 Mean Expenditures by Budget Category and Eligibility and Participation Group**

Major Budget Categories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Food at home	3,568	2,882 ***	3,764 **
Food away	445	560 ***	945 ***
Apparel and apparel services	725	545 ***	796 **
Housing	7,591	6,943 ***	9,908 ***
Health	625	1,261 ***	2,202 ***
Transportation	2,560	2,351 *	3,873 ***
Other	3,147	2,939 **	5,515 ***
Total expenditures	18,660	17,483 ***	27,003 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.2 Percentage of Total Expenditures by Budget Category and Eligibility and Participation Group**

Major Budget Categories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Food at home	21.68	17.95 ***	15.08 ***
Food away	2.28	3.50 ***	3.45 ***
Apparel and apparel services	3.65	3.29 **	2.73 ***
Housing	42.65	39.96 ***	37.68 ***
Health	3.44	7.15 ***	7.65 ***
Transportation	10.87	11.65 **	13.16 ***
Other	15.44	16.49 ***	20.25 ***
Total Expenditures	100.00	100.00	100.00

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.



**Table A.3 Percentage of Total Expenditures by Food at Home Subcategory and Eligibility and Participation Group**

Food at Home Subcategories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Food and nonalcoholic beverage purchases at grocery stores	20.42	16.82 ***	14.20 ***
Food and nonalcoholic beverage purchases at convenience or speciality stores	1.23	1.08	0.82 ***
Food and nonalcoholic beverages purchased and prepared by consumer unit during out-of-town trips	0.02	0.05 ***	0.06 ***
Total Food at Home	21.68	17.95 ***	15.08 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.4 Percentage of Total Expenditures by Food Away From Home Subcategory and Eligibility and Participation Group**

Food Away from Home Subcategories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Food or board at school	0.00	0.11 ***	0.02 ***
Catered affairs	0.02	0.01	0.04
Food and nonalcoholic beverages at restaurants, cafes, fast food places on trips	0.10	0.27 ***	0.28 ***
Dining Out at Restaurants, Cafeterias, Drive-Ins, etc. (excluding alcoholic beverages)	1.95	2.87 ***	2.84 ***
School meals for preschool and school-age children	0.07	0.08	0.18 ***
Meals received as pay	0.13	0.16	0.09
Total food away from home	2.28	3.50 ***	3.45 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.5 Percentage of Total Expenditures by Housing Subcategory and Eligibility and Participation Group**

Housing Subcategories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Mortgage interest & property tax	2.94	5.93 ***	8.77 ***
Rent, other lodging expenses, maintenance, repairs, insurance, other expenses	22.60	18.75 ***	13.77 ***
Domestic services and childcare	0.90	0.64 ***	0.98
Utilities	13.73	12.34 ***	11.58 ***
Textiles, furniture, & flooring	0.99	0.69 ***	0.78 **
Appliances	0.46	0.44	0.50
Other Household Expenses & Miscellaneous			
Equipment	1.02	1.17 *	1.31 ***
Total housing	42.65	39.96 ***	37.68 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.6 Percentage of Total Expenditures by Transportation Subcategory and Eligibility and Participation Group**

Transportation Subcategories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
New car or truck	0.00	0.00	0.04 ***
Used car or truck	1.45	0.92 ***	0.95 ***
Other vehicles	0.01	0.01	0.03
Gas or motor oil	5.10	5.78 ***	5.99 ***
Vehicle finance charges	0.29	0.37 *	0.72 ***
Vehicle maintenance and repairs	1.09	1.25 *	1.41 ***
Vehicle insurance	1.77	1.98 **	2.68 ***
Vehicle rentals	0.44	0.60 **	0.74 ***
Public transportation	0.71	0.74	0.60 *
Total transportation expenditures	10.87	11.65 **	13.16 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.7 Percentage of Total Expenditures by Other Subcategory and Eligibility and Participation Group**

Other Subcategories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Tobacco	2.99	1.55 ***	1.26 ***
Alcohol	0.61	0.95 ***	0.73 *
Education	0.52	2.24 ***	0.76 **
Reading	0.17	0.28 ***	0.34 ***
Entertainment	4.32	4.33	4.38
Personal care	0.53	0.68 ***	0.73 ***
Personal insurance	4.24	3.55 ***	7.93 ***
Cash contributions	1.28	2.13 ***	3.21 ***
Miscellaneous goods and services	0.78	0.77	0.90
Total other expenditures	15.44	16.49 ***	20.25 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.8 Multivariate Analysis of Decision to Purchase Items, By Major Budget Categories of Goods and Services, Accounting for Periodic and One-Time Purchases**

	Food at home	Food away	Apparel and apparel services	Housing	Health	Trans- portation	Other
<b>Total expenditures</b>	1.2 ***	1.2 ***	0.8 ***	1.8 ***	1.4 ***	1.6 ***	1.8 ***
<b>SNAP participation and eligibility status (referrant category is "SNAP ineligible nonparticipant")</b>							
SNAP participant	-1.9	-0.8	2.4 **	-3.2	5.7 ***	2.0	4.1
SNAP eligible nonparticipant	-0.4	4.1 ***	3.7 ***	0.4	4.0 ***	3.0 ***	3.0
<b>Interaction variables for total expenditures and SNAP participation and eligibility status</b>							
(Total expenditure) x (SNAP participant)	0.2	0.1	-0.2 *	0.3	-0.7 ***	-0.3 *	-0.6 **
(Total expenditure) x (SNAP eligible nonparticipant)	0.0	-0.5 ***	-0.4 ***	-0.1	-0.5 ***	-0.4 ***	-0.4 **
<b>Head of Unit (referrant category is "single male")</b>							
Married	1.0 ***	-0.3 ***	0.0	-0.8	0.4 ***	0.5 ***	0.3
Single female	0.6 ***	-0.2 ***	0.3 ***	-0.4	0.4 ***	-0.3 ***	0.0
<b>Children less than 18 in unit (referrant category is "no children")</b>							
One child	0.6 *	0.0	0.2 ***	0.4	-0.1	0.0	0.3
Two children	0.2	0.0	0.3 ***	0.2	-0.1 **	0.2 *	0.6 *
Three or more children	0.2	-0.1	0.5 ***	-0.1	-0.4 ***	-0.2	0.1
<b>Race of unit head (referrant category is "Hispanic")</b>							
White, non-Hispanic	-0.5 **	0.4 ***	-0.2 ***	-1.5 **	0.8 ***	0.3 ***	0.4 **
Black, non-Hispanic	0.2	-0.2 ***	-0.2 ***	-1.6 **	0.4 ***	-0.4 ***	0.4 **
Other	-0.8 **	-0.1	-0.2 *	-1.0	0.3 ***	0.2	0.7 **
<b>Geographic residence (referrant category is "West")</b>							
Northeast	-0.1	-0.4 ***	0.0	-0.3	0.0	-0.4 ***	-0.2
Midwest	0.2	0.0	-0.2 ***	0.2	0.3 ***	0.0	-0.6 ***
South	0.1	-0.1 *	-0.3 ***	0.5	0.2 ***	0.0	-0.5 ***
<b>Population density (referrant category is "less than 125,000")</b>							
125,000 to 329,900	0.0	0.0	-0.3 ***	-0.2	-0.1	-0.2 **	-0.1
329,900 to 1.19 million	-0.2	-0.1	-0.2 ***	0.3	0.0	-0.3 ***	-0.3
More than 1.2 million	-0.4 **	-0.4 ***	-0.1	-0.1	-0.4 ***	-0.9 ***	-1.4 ***
<b>Age of unit head (referrant category is "24 and younger")</b>							
25-49	0.2 ***	-0.1 ***	-0.3 ***	0.2 ***	0.3 ***	-0.1 ***	-0.2 ***
50-65	0.3 ***	-0.3 ***	-0.4 ***	0.2 ***	0.7 ***	-0.1 ***	-0.3 ***
65+	0.2 ***	-0.3 ***	-0.5 ***	0.2 ***	1.4 ***	-0.3 ***	-0.6 ***
<b>Had one-time purchase</b>	-0.1 ***	-0.1 ***	0.0	-0.1 ***	0.1 **	0.2 ***	-0.1 ***
<b>Had periodic purchase</b>	-0.1 ***	0.1 ***	0.2 ***	0.0 ***	-0.1 ***	-0.2 ***	0.1 ***
<b>Proportion of censored observations</b>	0.0	0.3	0.3	0.0	0.3	0.1	0.0

Source: 2005 CE-Interview data

\*, \*\*, \*\*\* indicates significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.9 Multivariate Analysis of Expenditures Given a Decision to Purchase, by Major Budget Categories of Goods and Services, Accounting for Periodic and One-Time Purchases**

	Food at home	Food away	Apparel and apparel services	Housing	Health	Trans- portation	Other
<b>Total expenditures</b>	0.5 ***	0.8 ***	0.8 ***	1.0 ***	0.9 ***	1.2 ***	1.0 ***
<b>SNAP participation and eligibility status (referrant category is "SNAP ineligible nonparticipant")</b>							
SNAP participant	0.3	1.0 **	-0.6	0.3	-1.1 *	-0.8 **	-1.8 ***
SNAP eligible nonparticipant	-0.4 **	1.7 ***	1.6 ***	-0.9 ***	0.4	1.4 ***	0.0
<b>Interaction variables for total expenditures and SNAP participation and eligibility status</b>							
(Total expenditure) x (SNAP participant)	0.0	-0.1 ***	0.1	0.0	0.1	0.1 *	0.1 ***
(Total expenditure) x (SNAP eligible nonparticipant)	0.0 **	-0.2 ***	-0.2 ***	0.1 ***	0.0	-0.1 ***	0.0
<b>Head of unit (referrant category is "single male")</b>							
Married	0.2 ***	-0.2 ***	0.1 **	-0.1 ***	0.3 ***	0.1 ***	0.0
Single female	0.0	-0.3 ***	0.2 ***	0.1 ***	0.1 **	-0.1 ***	-0.1 ***
<b>Children less than 18 in household (referrant category is "no children")</b>							
One Child	0.2 ***	0.0	0.2 ***	0.0	-0.1 *	0.0 *	0.0
Two children	0.3 ***	0.0	0.3 ***	0.0	-0.1 ***	0.0	0.0
Three or more children	0.4 ***	0.0	0.4 ***	0.0	-0.2 ***	-0.1 **	0.0
<b>Race of unit head (referrant category is "Hispanic")</b>							
White, non-Hispanic	-0.1 ***	0.0	-0.2 ***	-0.1 ***	0.3 ***	-0.1 **	0.2 ***
Black, non-Hispanic	-0.1 ***	-0.1 **	0.0	0.0 *	0.1 **	-0.1 ***	0.2 ***
Other	-0.1 ***	0.0	-0.1	0.0	0.2 ***	-0.1 ***	0.1 ***
<b>Geographic residence (referrant category is "West")</b>							
Northeast	0.0	0.0	0.1 **	0.0	0.0	0.0 *	0.0
Midwest	-0.1 ***	0.0	0.0	0.0	0.1 ***	0.0 *	0.1 ***
South	0.0	0.2 ***	0.0	-0.1 ***	0.1 ***	0.1 ***	0.0 ***
<b>Population Density (referrant category is "less than 125,000")</b>							
125,000 to 329,900	0.1 ***	0.2 ***	0.0	0.1 ***	0.0	-0.1 ***	-0.1 ***
329,900 to 1.19 million	0.0	0.1 **	0.0	0.1 ***	0.0	-0.1 ***	-0.1 ***
More than 1.2 million	0.1 ***	0.1 ***	0.0	0.2 ***	-0.1 ***	-0.2 ***	-0.2 ***
<b>Age of unit head (referrant category is "24 and younger")</b>							
25-49	0.7 ***	-0.9 ***	-0.6 ***	1.6 ***	0.8 ***	-0.3 ***	-0.8 ***
50-65	1.1 ***	-1.3 ***	-0.8 ***	3.7 ***	1.7 ***	-0.3 ***	-1.4 ***
65+	0.9 ***	-1.5 ***	-1.1 ***	4.9 ***	3.3 ***	-0.7 ***	-2.1 ***
<b>Had one-time purchase</b>	0.1	0.1 *	0.3 ***	0.2	0.4 ***	0.3 ***	0.9 ***
<b>Had periodic purchase</b>	0.5 ***	0.9 ***	1.2 ***	1.6 ***	0.2 ***	1.3 ***	1.1 ***
<b>Proportion of censored observations</b>	0.0	0.3	0.3	0.0	0.3	0.1	0.0

Source: 2005 CE-Interview data

\*, \*\*, \*\*\* indicates significantly different than zero at the 0.10, 0.05, 0.01 level, two-tailed test

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table A.10 Multivariate Analysis of Expenditures on Major Budget Categories of Goods and Services**

	SNAP Participant		SNAP Eligible Nonparticipant		SNAP Ineligible Nonparticipant	
	Estimate	Standard Error	Estimate	Standard Error	Estimate	Standard Error
<b>Food at Home</b>						
Probability of positive expenditures (%)	0.99	0.00	0.99	0.00	0.99	0.00
Predicted mean expenditures given positive expenditures (\$)	3,654	61	3,383 ***	36	3,255 ***	21
Marginal propensity to consume (\$)	0.08	0.00	0.08	0.00	0.07	0.00
Income elasticity (%)	0.51	0.03	0.57	0.03	0.52	0.02
<b>Food Away from Home</b>						
Probability of positive expenditures (%)	0.70	0.01	0.67 *	0.01	0.75 ***	0.01
Predicted mean expenditures given positive expenditures (\$)	789	23	990 ***	23	1,044 ***	10
Marginal propensity to consume (\$)	0.02	0.00	0.02	0.00	0.03 ***	0.00
Income elasticity (%)	0.72	0.04	0.57 ***	0.04	0.82 *	0.03
<b>Apparel and Apparel Services</b>						
Probability of positive expenditures (%)	0.81	0.01	0.73 ***	0.01	0.75 ***	0.01
Predicted mean expenditures given positive expenditures (\$)	829	28	849	20	848	9
Marginal propensity to consume (\$)	0.02	0.00	0.01 ***	0.00	0.02	0.00
Income elasticity (%)	0.80	0.05	0.56 ***	0.05	0.77	0.04
<b>Housing</b>						
Probability of positive expenditures (%)	1.00	0.00	1.00	0.00	1.00	0.00
Predicted mean expenditures given positive expenditures (\$)	8,366	113	8,196	80	7,826 ***	41
Marginal propensity to consume (\$)	0.34	0.01	0.38 *	0.01	0.33	0.01
Income elasticity (%)	0.97	0.03	1.09 ***	0.03	1.00	0.03
<b>Health</b>						
Probability of positive expenditures (%)	0.64	0.02	0.69 **	0.01	0.79 ***	0.01
Predicted mean expenditures given positive expenditures (\$)	1,591	98	2,236 ***	60	2,336 ***	23
Marginal propensity to consume (\$)	0.03	0.00	0.05 ***	0.00	0.07 ***	0.00
Income elasticity (%)	0.80	0.06	0.79	0.05	0.94 **	0.03
<b>Transportation</b>						
Probability of positive expenditures (%)	0.92	0.01	0.93	0.01	0.96 ***	0.00
Predicted mean expenditures given positive expenditures (\$)	2,723	85	2,862	54	2,967 ***	33
Marginal propensity to consume (\$)	0.13	0.01	0.12	0.01	0.14	0.00
Income elasticity (%)	1.28	0.06	1.08 ***	0.03	1.23	0.03
<b>Other</b>						
Probability of positive expenditures (%)	0.98	0.00	0.99	0.00	1.00 ***	0.00
Predicted mean expenditures given positive expenditures (\$)	3,043	64	3,104	51	4,336 ***	28
Marginal propensity to consume (\$)	0.14	0.01	0.13 **	0.01	0.18 ***	0.00
Income elasticity (%)	1.16	0.05	0.99 ***	0.03	1.02 ***	0.02

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.



**APPENDIX B**  
**ANALYSES BASED ON OUTLAYS**

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**Table B.1 Mean Outlays by Budget Category and Eligibility and Participation Group**

Major Budget Categories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Food at home	3,568	2,882 ***	3,764 **
Food away	445	560 ***	945 ***
Apparel and apparel services	725	545 ***	796 **
Housing	7,807	7,354 **	10,770 ***
Health	625	1,261 ***	2,202 ***
Transportation	2,677	2,606	4,689 ***
Other	3,154	2,946 **	5,543 ***
Total expenditures	19,001	18,155 **	28,709 ***

Source: 2005 CE-Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**Table B.2 Percentage of Total Outlays by Budget Category and Eligibility and Participation Group**

Major Budget Categories	SNAP Participants	SNAP Eligible Nonparticipants	SNAP Ineligible Nonparticipants
Food at home	21.39	17.50 ***	14.38 ***
Food away	2.23	3.42 ***	3.29 ***
Apparel and apparel services	3.60	3.23 **	2.60 ***
Housing	42.68	40.20 ***	38.01 ***
Health	3.37	6.97 ***	7.31 ***
Transportation	11.56	12.61 **	15.08 ***
Other	15.16	16.08 **	19.33 ***
Total expenditures	100.00	100.00	100.00

Source: 2005 CE Interview data

\*, \*\*, or \*\*\* indicates that difference from SNAP Participants is significant at the 0.10, 0.05, or 0.01 level, two tailed test.

Universe: Consumer units with income under 300 percent of poverty and total expenditures under 300 percent of the median expenditure.

**APPENDIX C**  
**COMPARISON OF ANNUALIZATION METHODS**

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## COMPARISON OF ANNUALIZATION METHODS

The CE-Interview is a panel survey that is administered to a rotating sample of consumer units every calendar quarter. The survey requests that consumer units respond to four consecutive quarters of interviews, recalling expenditures over the past three months in each interview.<sup>22</sup>

The CE-Interview staggers entry and exit from the panel, leading the survey in any given year to include anywhere from one to four interviews for each consumer unit. For example, the 2005 CE-Interview includes those that took place in 2005 and the first quarter of 2006. A unit that has its first interview in the first quarter of 2006 will only contribute one interview to this file, whereas a unit that has its first interview in the first or second quarter of 2005 may contribute up to four interviews. How many quarters a unit actually contributes depends on whether it stops responding or leaves the survey prior to its fourth interview. Thus, whether the data file in any given year includes one to four interviews per unit depends on the rotating design of the survey and on the unit-level characteristics associated with survey attrition.

Almost all studies that use CE-Interview data transform quarterly expenditures to annual expenditures using a variety of methods, which we will review below. The Division of Consumer Expenditure Surveys at the Bureau of Labor Statistics produces reports detailing changes in annual expenditures each year (U.S. Bureau of Labor Statistics 2009). In addition, many peer-reviewed journal articles almost exclusively use annual, rather than quarterly, expenditures (see Meyer and Sullivan 2007; Meyer and Sullivan 2003; Sharpe and Abdel-Ghany 1999; Lino 1996; Nelson 1996). The benefit of conducting annual analyses of expenditures, while not stated explicitly in these studies, may be to set the reference period for expenditure to that for income, as the survey requests annual income (defined as income over the previous twelve months) in each interview.

In this appendix we explain how the quarterly nature of the data and the varying number of quarterly interviews per consumer unit in a given year's data file may affect descriptive statistics depending on the type of annualization method used. We review three methods, compare the results of each using several tables presented in the main text of the study, and discuss the benefits and limitations to applying the annualization method chosen in the study.

### A. Annualization Methods

In this section we highlight three ways in which to annualize quarterly expenditures using CE-Interview data from a given year. There are undoubtedly other methods, but these represent the most common in the literature. They consist of:

- **Method A:** Multiply quarterly expenditures by a factor of four for each interview a consumer unit contributes to the data file. The sample consists of multiple annualized

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<sup>22</sup> Technically, the survey requests that consumer units respond to five consecutive quarters of interviews. In the second through fifth interview, respondents recall expenditures over the past three months. In the first interview, however, respondents recall expenditures over the past month only. The data from the first interview is not publicly available and is used for “bounding” purposes to make sure that expenditures in subsequent three month reference periods actually took place in those reference periods (see Paulin and Lee 2002 for details). For simplicity, we describe the four publicly available interviews as the first through fourth interview in this appendix.

observations for each unit equal to the number of interviews a unit contributes to the original data file.

- **Method B:** For each consumer unit, average quarterly expenditures over all interviews a unit contributes to the data file, then multiply the averaged quarterly expenditure by a factor of four. The sample consists of one annualized observation for each unit regardless of how many interviews a unit contributes to the original data file.
- **Method C:** Sum the four quarterly expenditure values for each unit that completes all four interviews. The sample consists only of those units that contribute four interviews to the original data file.

Among these, method A has been used the most extensively in both descriptive and multivariate work. This method is used to analyze changes in expenditures coinciding with national demographic changes in ethnicity among Hispanic consumer units (Paulin 1998) and expenditures levels of single-parent units versus units with other compositions (Paulin and Lee 2002); to examine poverty distributions based on consumer expenditures (Meyer and Sullivan 2007; Meyer and Sullivan 2003; Sharpe and Abdel-Ghany 1999); and to examine the factors associated with the frequency of purchase of major categories of goods and services (Nelson 1996). Method B has been used most recently by Levy and DeLeire (2008) to examine expenditure differences across units according to whether members have health insurance. Finally, method C has been used to study inequality in income and expenditure distributions (Johnson and Schipp 1997), to examine alternative measures of children's poverty rates based on income and expenditures (Jencks and Mayer 1996), and to estimate Engel curves for divorced parents (Del Boca and Flinn 1994).

In general, the results of these types of empirical analyses should depend to varying degrees on the type of annualization method used. For example, method C may produce different results from methods A and B simply because of composition differences between units that contribute four interviews to the original data file and those that contribute less. These differences exist for two reasons. First, in order to have four interviews in the 2005 CE-Interview, a unit must initially be interviewed in the first or second quarter of 2005. Other units may be interviewed for the first time in the last quarter of 2005, preventing them from contributing four interviews. This latter group may have very different expenditure patterns simply because of seasonal differences or general time trends. Second, compositional differences may also exist between units that contribute four interviews to the 2005 survey and those that contribute less than four due to survey attrition. It has long been recognized that respondents that leave panel surveys differ characteristically from those that remain in the survey.<sup>23</sup> Thus, there will be compositional differences even among units that are able to contribute four interviews to the 2005 survey.

While method C produces different results than methods A and B, identifying the source of differences between results based on methods A and B is less straightforward. If all units contribute the same number of observations to the original data file, then it is straightforward to show the methods A and B will produce the same values of mean expenditures. However, when the number of observations contributed to the original data file varies across units, the estimates of mean

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<sup>23</sup> See, for example, Czajka et al. (2008), as well as the collection of papers in *The Journal of Human Resources*, Vol. 33, No. 2, Special Issue: Attrition in Longitudinal Surveys (1998).



expenditures can differ across methods. Other measures of central tendency such as the median are also affected by choice of method, and, unlike the estimates of the mean, the extent of the differences in estimates from across methods is unconditional on the number of observations each unit contributes to the original file. Estimates of measures of dispersion such as the standard deviation of the expenditure distribution are likely to be most pronounced across methods A and B. This is because the expenditure distribution under method B consists of observations that have been averaged, unlike those under method A.

## B. Sensitivity of Results to Annualization Method

In this section we examine several results presented in the main text of the study and compare their estimates using each of the three annualization methods. All three methods produce estimates that are weighted and that are based on the sample restrictions described in the main text, namely that all units have expenditures less than 300 percent of the expenditure poverty level conditional on the size of the unit and have income less than 300 percent of the federal poverty level. For method A, we use the annual income variable and the weight included in each interview, but for methods B and C, we use an average of the annual income variables and the weights in the interviews that each unit contributes to the sample in order to assign one annual income value and one weight to each unit's annualized observation. Similarly, for methods B and C, we average family size in each interview and round it to obtain one value for each unit's annualized observation. Finally, we assign SNAP participation and eligibility status to each unit in methods B and C by assigning someone as a participant if they were a participant for at least half of the interviews they contribute to the original data file. If they are not a participant based on this criterion, then we assign them as eligible if their income is less than 130 percent of the federal poverty level using the annualized income measure described above. Otherwise, they are assigned as an ineligible nonparticipant.

Table C.1 describes the sample sizes and demographic characteristics of the three subgroups using each method. There are over twice as many annualized observations in the sample using method A relative to method B (16,285 and 8,029). As expected, the sample size using method C is the smallest, totaling 925 observations. The composition of the samples using methods A and B are similar, on average. For SNAP participants and ineligible nonparticipants, the average difference in proportions across all demographic variables is approximately 0.7 percentage points. The average difference for eligible nonparticipants is larger, about 1.4 percentage points.

Next, we compare mean annual expenditures on major budget categories in Table C.2 for the three subgroups defined by SNAP participation and eligibility status. For SNAP participants, expenditures on food at home are \$3,568, \$3,631, and \$3,496 using methods A, B, and C. As percentages of total expenditures, these are 21.7 percent, 21.3 percent, and 20.4 percent (Table C.3). Similarly, for eligible nonparticipants these are 18.0 percent, 17.5 percent, and 17.9 percent, and for ineligible nonparticipants, these are 15.1 percent, 14.6 percent, and 14.0 percent. Overall, the estimates of the mean expenditures in Table C.2 and mean budget shares in Table C.3 are similar across the three methods. This is especially true for methods A and B, as we expect method C to produce estimates that are the most different given the potentially significant compositional differences between the sample required to use this method and the other methods. It is for this reason that we focus the remainder of this section on comparing methods A and B only.

While mean expenditures and mean budget shares using methods A and B are expected to be similar, the dispersion of the expenditure distribution is likely to differ across methods due to the averaging across interviews performed in method B. We see the effects of this in Table C.4 in which

we examine the proportion of SNAP participants that are either expenditure poor or income poor. Using method A, 53.2 percent of the sample are both income and expenditure poor, whereas this estimate is 50.1 percent using method B.<sup>24</sup> While this difference is more sizable than the difference in mean expenditures presented in the previous tables, the groups of units that are most likely to be expenditure poor or income poor, remain the same as that presented in the main text. That is, the estimates are different in magnitude, but the ordering of poverty incidence across socio-economic and demographic groups remains the same.

We conclude this analysis by examining the distribution of savings across income-poverty and expenditure-group groups for SNAP participants and nonparticipants combined in Table C.5. We find sizable differences in the mean and, to some extent, the median depending on whether method A or B is used. This is expected as the composition of what units are considered income and expenditure poor varies greatly across the two methods. Indeed, the standard deviation estimate is wildly different, as this is a measure of dispersion based on subsample coupled with the fact that the sample on which it is based is defined by a measure of dispersion.

## C. Discussion

In evaluating the three annualization methods presented above we generally find minimal differences between methods A and B when estimating mean and median expenditures. Through requiring that all units in the sample complete four interviews, method C produces different results than the other methods. For estimates based on measures of dispersion in the expenditure distribution, such as the proportion of the sample that are considered expenditure poor, the differences between methods A and B are slightly larger.

After considering the results of this exercise, we selected method A to annualize the expenditures in the analyses in this study. The main benefit of using this method is that the quarterly values of variables other than expenditures can be retained without resorting to averaging or constructing arbitrary definitions to create annual values. For example, the weight associated with each quarterly observation remains the weight associated with each annualized observation, preserving the national representiveness of the data. Given that the majority of the expenditure-related studies that we reviewed use method A, applying it in our own study fosters a greater degree of comparability among studies.

The main limitation to using this method is the increased dispersion of the expenditure distribution using method A relative to method B. This will overestimate the proportion of the sample that is considered expenditure poor. More generally, it may also affect the construction of the sample itself, as a greater amount of dispersion in the expenditure distribution will cause a greater number of observations with annualized expenditures greater than 300 percent of poverty to be excluded. However, when the distribution is right-skewed, as it is here, the differences in the amount of excluded observations should be minimal.

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<sup>24</sup> The fact that the proportion of the sample that is expenditure poor but not income poor is smaller using method A (22.2 percent) than using method B (23.7 percent) is a result of the shape of the income and expenditure distributions. They are both skewed, concentrating the increase in dispersion using method B to the left tail of the distribution.

**Table C.1 Characteristics of SNAP Participant, Eligible Nonparticipant, and Ineligible Nonparticipant Consumer Units**

	Method A			Method B			Method C		
	SNAP Participant	Eligible Nonparticipant	Ineligible Nonparticipant	SNAP Participant	Eligible Nonparticipant	Ineligible Nonparticipant	SNAP Participant	Eligible Nonparticipant	Ineligible Nonparticipant
<b>Unit composition</b>									
Married head of household	23.9	24.4	46.5	24.1	21.4	44.9	28.0	24.6	49.7
Male single head of household	14.5	25.0	19.0	14.7	27.1	20.1	10.5	24.6	14.5
Female single head of household	61.7	50.5	34.6	61.2	51.5	35.0	61.5	50.8	35.8
No Children Less than 18	39.6	73.3	64.0	40.5	74.3	63.3	37.6	71.5	65.5
One Child less than 18	22.8	9.6	14.3	21.2	9.6	15.1	22.8	10.8	12.0
Two or more children less than 18	37.6	17.1	21.7	38.2	16.1	21.6	39.6	17.7	22.5
<b>Race of unit head</b>									
White, non-Hispanic	47.0	61.1	67.7	47.6	61.3	66.3	49.8	60.8	70.1
Black, non-Hispanic	30.6	18.1	13.0	29.7	17.6	13.3	29.1	19.3	13.9
Hispanic	17.2	15.2	14.4	17.1	15.3	15.1	17.3	16.3	12.9
Other	5.2	5.6	4.9	5.6	5.8	5.3	3.8	3.5	3.2
<b>Geographic residence</b>									
Northeast	19.2	14.9	15.4	18.4	14.8	15.4	22.5	16.7	14.8
Midwest	17.6	22.9	22.0	18.9	24.3	21.7	13.2	17.1	21.9
South	46.4	42.7	41.5	45.5	41.0	41.6	48.7	48.1	43.2
West	16.8	19.6	21.1	17.3	19.9	21.3	15.6	18.0	20.0
<b>Population density</b>									
Less than 125,000	39.2	42.0	45.1	38.6	39.9	45.7	45.5	41.3	41.4
125,000 to 329,900	19.9	18.5	17.7	20.2	18.8	17.8	17.4	18.3	18.7
329,900 to 1.19 million	14.4	12.8	15.5	15.0	13.1	15.3	9.9	13.5	16.9
More than 1.2 million	26.4	26.6	21.6	26.1	28.2	21.2	27.1	26.9	23.0
<b>Age of unit head</b>									
24 and younger	10.2	19.7	8.0	11.5	26.7	9.8	10.3	5.8	4.2
25-49	57.0	32.5	43.7	56.1	31.3	44.9	61.3	35.1	38.7
50-65	22.3	20.0	20.4	21.8	17.2	19.6	20.2	19.7	24.3
65+	10.5	27.9	27.8	10.6	24.8	25.7	8.2	39.4	32.9
Sample Size (unweighted):	2,040	4,559	9,686	1,096	2,239	4,694	118	207	600

Source: 2005 CE-Interview data

**Table C.2 Mean Annualized Expenditures, by SNAP Participation Status**

Major Budget Categories	SNAP Participant	Eligible Nonparticipant	Ineligible Nonparticipant
<b>Method A:</b>			
Food at home	3,568	2,882	3,764
Food away	445	560	945
Apparel and apparel services	725	545	796
Housing	7,591	6,943	9,908
Health	625	1,261	2,202
Transportation	2,560	2,351	3,873
Other	3,147	2,939	5,515
Total Expenditures	18,660	17,483	27,003
<b>Method B:</b>			
Food at home	3,631	2,703	3,756
Food away	466	564	938
Apparel and apparel services	759	551	822
Housing	7,632	6,667	9,886
Health	625	1,042	2,137
Transportation	2,844	2,394	4,475
Other	3,201	2,991	5,562
Total Expenditures	19,158	16,912	27,575
<b>Method C:</b>			
Food at home	3,496	2,969	3,804
Food away	466	443	933
Apparel and apparel services	581	438	713
Housing	7,627	7,294	9,705
Health	896	1,443	2,466
Transportation	3,553	2,779	5,664
Other	3,267	2,690	5,877
Total Expenditures	19,885	18,057	29,163

Source: 2005 CE-Interview data

**Table C.3 Mean Annualized Budget Shares, by SNAP Participation Status**

Major Budget Categories	SNAP Participant	Eligible Non-participant	Ineligible Non-participant
<b>Method A:</b>			
Food at home	21.7	18.0	15.1
Food away	2.3	3.5	3.4
Apparel and apparel services	3.6	3.3	2.7
Housing	42.6	40.0	37.7
Health	3.4	7.1	7.7
Transportation	10.9	11.7	13.2
Other	15.4	16.5	20.2
Total Expenditures	100.0	100.0	100.0
<b>Method B:</b>			
Food at home	21.3	17.5	14.6
Food away	2.3	3.8	3.3
Apparel and apparel services	3.7	3.7	2.8
Housing	42.0	39.2	36.9
Health	3.6	6.3	8.2
Transportation	11.6	11.8	14.2
Other	15.5	17.8	19.9
Total Expenditures	100.0	100.0	100.0
<b>Method C:</b>			
Food at home	20.4	17.9	14.0
Food away	2.2	2.4	3.2
Apparel and apparel services	2.9	2.1	2.3
Housing	41.6	42.3	34.9
Health	4.5	8.6	9.0
Transportation	12.6	12.9	16.8
Other	15.8	13.8	19.8
Total Expenditures	100.0	100.0	100.0

Source: 2005 CE-Interview data

**Table C.4 Incidence of Income and Expenditure Poverty for SNAP Participants by Consumer Unit Characteristics**

	Method A				Method B				Method C			
	Income-to-poverty ratio ≤ 1		Income-to-poverty ratio > 1		Income-to-poverty ratio ≤ 1		Income-to-poverty ratio > 1		Income-to-poverty ratio ≤ 1		Income-to-poverty ratio > 1	
	Expenditure-to-poverty ratio ≤ 1	Expenditure-to-poverty ratio > 1	Expenditure-to-poverty ratio ≤ 1	Expenditure-to-poverty ratio > 1	Expenditure-to-poverty ratio ≤ 1	Expenditure-to-poverty ratio > 1	Expenditure-to-poverty ratio ≤ 1	Expenditure-to-poverty ratio > 1	Expenditure-to-poverty ratio ≤ 1	Expenditure-to-poverty ratio > 1	Expenditure-to-poverty ratio ≤ 1	Expenditure-to-poverty ratio > 1
<b>Full Sample</b>	53.2	9.2	22.2	15.5	50.1	9.0	23.7	17.2	47.5	9.3	28.1	15.1
<b>Unit composition</b>												
Married head of unit	35.5	9.2	33.3	22.0	32.9	8.4	31.1	27.6	29.6	9.4	47.0	14.0
Male single head of unit	46.0	9.9	22.7	21.4	41.0	12.6	26.1	20.3	61.9	8.3	0.0	29.8
Female single head	61.7	9.0	17.8	11.6	59.1	8.3	20.2	12.4	53.2	9.4	24.4	13.1
No children less than 18	55.8	10.2	21.9	12.1	50.8	11.3	25.5	12.3	41.4	13.8	25.0	19.8
One child less than 18	47.4	7.4	28.3	16.9	45.0	6.5	29.8	18.7	47.9	7.3	33.1	11.8
Two+children less than 18	53.9	9.2	18.7	18.2	52.2	7.8	18.4	21.6	53.2	6.1	28.3	12.4
<b>Race of head</b>												
White, non-Hispanic	47.8	10.5	24.3	17.4	45.6	10.4	25.1	18.9	33.7	15.3	34.2	16.8
Black, non-Hispanic	57.1	7.6	21.7	13.6	55.4	6.5	23.5	14.6	60.0	0.0	26.9	13.1
Hispanic	58.0	8.8	20.8	12.4	51.4	10.4	23.1	15.1	64.4	9.6	18.7	7.3
Other	62.8	7.3	10.4	19.4	56.9	5.5	14.9	22.7	56.9	0.0	0.0	43.1
<b>Geographic residence</b>												
Northeast	48.2	12.7	19.3	19.7	46.1	12.6	18.5	22.8	38.8	19.9	22.0	19.4
Midwest	57.3	8.8	22.7	11.2	53.2	9.0	25.0	12.8	57.7	12.2	23.4	6.7
South	52.6	8.0	24.9	14.5	49.2	7.8	27.1	15.9	44.5	4.6	36.4	14.5
West	55.9	8.8	17.5	17.8	53.5	8.2	19.0	19.4	61.2	5.9	15.2	17.7
<b>Population density</b>												
Less than 125,000	54.4	7.7	24.5	13.4	50.0	8.3	26.5	15.2	36.4	19.5	28.4	15.7
125,000 to 329,900	58.1	5.7	28.8	7.4	55.2	7.1	30.0	7.8	67.2	0.0	32.8	0.0
329,900 to 1.19 million	52.8	9.8	19.6	17.7	53.4	8.1	19.2	19.3	49.0	0.0	26.5	24.5
More than 1.2 million	50.7	11.1	19.5	18.7	46.4	10.6	21.8	21.2	49.3	8.8	27.6	14.4
<b>Age of unit head</b>												
24 and younger	50.9	8.3	26.8	14.1	43.8	8.1	28.1	20.0	42.8	8.5	33.6	15.2
25-49	53.1	9.5	20.9	16.6	50.1	9.3	22.8	17.8	53.3	9.5	23.8	13.4
50-65	55.9	7.6	20.8	15.7	55.1	7.5	21.1	16.3	40.4	9.1	32.6	17.9
65+	50.2	11.9	27.4	10.6	46.8	11.4	29.0	12.8	27.9	8.9	42.8	20.4

Source: 2005 CE-Interview data

**Table C.5 Savings Decisions Among Full Sample, by Poverty Status based on Income and Expenditures**

	Income-to-poverty ratio $\leq 1$			Income-to-poverty ratio $> 1$		
	Expenditure-to-poverty ratio $\leq 1$	Expenditure-to-poverty ratio $> 1$		Expenditure-to-poverty ratio $\leq 1$	Expenditure-to-poverty ratio $> 1$	
<b>Method A:</b>						
Mean among units with positive savings	4,417	1,144	8,527	1,718	9,479	13,962
Median among units with positive savings	300	75	800	240	1,200	1,500
Standard deviation among units with positive savings	23,106	8,355	29,427	8,212	31,944	46,663
<b>Method B:</b>						
Mean among units with positive savings	2,606	635	8,053	2,376	10,743	13,390
Median among units with positive savings	300	129	600	133	800	1,400
Standard deviation among units with positive savings	6,429	1,660	30,172	12,090	43,006	45,958
<b>Method C:</b>						
Mean among units with positive savings	1,679	711	5,983	3,291	2,850	11,065
Median among units with positive savings	200	120	500	269	600	2,500
Standard deviation among units with positive savings	3,153	829	15,329	7,231	6,096	30,660
						11,573

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## **APPENDIX D**

### **IMPLICATIONS OF CHANGING THE CLASSIFICATION OF ONE-TIME AND PERIODIC PURCHASES**

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## IMPLICATIONS OF CHANGING THE CLASSIFICATION OF ONE-TIME AND PERIODIC PURCHASES

To determine which consumer units made one-time and periodic purchases, we rank goods and services according to degree of habitualness using a methodology developed in Nelson (1996). For each category of goods and services, we compute the ratio of the percentage of units with positive expenditures in a three-month period to the percentage of units with positive annual expenditures. We then rank the categories by the size of the ratio so that a category with a larger ratio (such as food) represents a more habitual purchase (Table II.1). Out of 46 categories of goods and services, we select the five with the lowest ratios to represent one-time purchases and the next five with the lowest ratios to represent periodic purchases. We then create variables indicating if a consumer unit had positive quarterly expenditures among these categories and tabulate the budget shares across SNAP participation and eligibility group according to whether they had these types of purchases.

This appendix examines the implications of selecting the number of categories to represent periodic and one-time purchases. We focus on the effects of this choice on (1) the proportions of units that are coded as making one-time and periodic purchases, by participation and eligibility status, and (2) the percent of total annual expenditures spent on food at home, by participation and eligibility status. To assess the sensitivity of using sets of 5 categories for each type of purchase, we compare the results to using 10 categories for each type and to using 16 categories for each type. (The latter roughly corresponds to 33 percent of the 49 categories.)

Table D.1 presents the proportions of SNAP participants, eligible nonparticipants, and ineligible nonparticipants that are coded as making one-time and periodic purchases under each of the alternative classification schemes. For each participation and eligibility group, increasing the number of categories that represent one-time and periodic purchases increases the proportion of units that makes these types of purchases. For instance, 15 percent of SNAP participants have one-time purchases using the 5-category classification scheme. This increases to 52 percent using the 10-category classification and to 74 percent using the 16-category classification. Because both the proportions of units making one-time purchases and the proportions of units making periodic purchases increase with larger classification bins, the proportion of the sample said to have made neither a one-time nor periodic purchases decreases.

Table D.2 examines the expenditure share spent on food at home under the alternate classification schemes. Increasing the number of categories that represent one-time and periodic purchases increases the mean share of total expenditures spent on food at home for each participation and eligibility group. This is true for units that make one-time purchases or periodic purchases as well as for units that make neither. For instance, SNAP participants who make one-time purchases spend 17 percent of total annual expenditures on food at home under the 5-category classification. This increases to 21 percent under the 10-category and 16-category classifications. This is true for periodic purchases as well.<sup>25</sup>

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<sup>25</sup> Interestingly, it also holds for the group of units without one-time or periodic purchases, despite the size of this group decreasing as the number of categories in each classification scheme increases. Because food at home has the largest ratio in Table II.1, indicating that it is the most habitual category of purchases, the decreasing number of

The increase in the expenditure shares in Table D.2 resulting from an increase in the number of categories in the classification scheme is specific to food at home purchases. This differs from the increase in the proportions of units making one-time and periodic purchases in Table D.1, which is true for all major budget categories. This is because units that make one-time or periodic purchases have smaller mean shares spent on food at home compared to the full sample (Table D.1). As the number of categories in the classification scheme increases, the mean shares converge to the full sample values shown in the last row of the table. For budget categories such as transportation in which the mean shares for units with one-time or periodic purchases are larger than the mean shares in the full sample (Table II.2), increasing the number of categories in the classification scheme would decrease the mean shares until they converge to the full sample results.

In Chapter II, to determine the effects of one-time and periodic purchases on expenditure shares, we estimate whether units that make these purchases have different shares spent on each budget category than units without these purchases. For example, using the 5-category classification scheme, we find that units making these purchases spend less on food at home than units without these purchases. Table D.2 indicates that this result exists regardless of the number of categories in the classification scheme. Under the 5-category classification scheme, SNAP participants with a one-time or periodic purchase spend 17 and 21 percent on food at home compared to SNAP participants without these purchases who spend 23 percent on food at home. For the 10-category scheme, the mean shares are 21 percent with a one-time or periodic purchase and 25 percent without them. And with the 16-category scheme, they are 21 percent and 33 percent. This is true for the other eligibility and participation groups as well. We conclude that using a smaller number of categories in the classification scheme results in a smaller difference in the mean shares between units with one-time or periodic purchases and units without these purchases. Thus, using the 5-category classification scheme may actually underestimate the true differential in the mean shares. The magnitude of this difference increases with the number of categories in the classification scheme.

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*(continued)*

categories corresponding to neither one-time nor periodic purchases essentially leaves only units who spent most of their total expenditures on food at home.

**Table D.1 Percentage of Households with One-Time and Periodic Purchases, By SNAP Participation and Eligibility Groups and by Alternate Classifications of One-Time and Periodic Purchases**

	SNAP Participants	Eligible Nonparticipants	Ineligible Nonparticipants
<b>Using 5 Categories both for one-time and periodic purchases</b>			
With one-time purchase	15	11	16
With periodic purchase	46	38	44
Without periodic or one-time purchase	48	57	49
<b>Using 10 categories both for one-time and periodic purchases</b>			
With one-time purchase	52	43	51
With periodic purchase	82	73	81
Without periodic or one-time purchase	13	22	15
<b>Using 16 categories both for one-time and periodic purchases</b>			
With one-time purchase	74	66	74
With periodic purchase	95	94	97
Without periodic or one-time purchase	3	5	2

Source: 2005 CE-Interview data

**Table D.2 Percentage of Total Annual Expenditures Spent on Food at Home, By SNAP Participation and Eligibility Group and by Alternate Classifications of One-Time and Periodic Purchases**

	SNAP Participants	Eligible Nonparticipants	Ineligible Nonparticipants
<b>Using 5 categories for one-time purchases and 5 categories for periodic purchases</b>			
With one-time purchase	17	15	13
With periodic purchase	21	16	14
Without periodic or one-time purchase	23	19	17
<b>Using 10 categories for one-time purchases and 10 categories for periodic purchases</b>			
With one-time purchase	21	16	14
With periodic purchase	21	17	14
Without periodic or one-time purchase	25	20	18
<b>Using 16 categories for one-time purchases and 17 categories for periodic purchases</b>			
With one-time purchase	21	17	14
With periodic purchase	21	18	15
Without periodic or one-time purchase	33	23	24
<b>Full sample</b>	22	18	15

Source: 2005 CE-Interview data

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