Session: **A New Supplemental Poverty Measure for the United States**

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Supplemental Poverty Measure Thresholds: Laying the Foundation

by

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Abstract

Guidelines to produce a poverty measure for the U.S. are included in a document, *Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure* (SPM), released early in 2010. These guidelines are based on recommendations released in 1995 in a National Academy of Sciences Panel report edited by Citro and Michael (1995). The Interagency Technical Working Group (ITWG) went further than the NAS Panel and recommended that separate thresholds be produced by the housing status of families. Additional changes included expanding the reference family to include all household units with two children rather than those composed of two adults with two children only, and to use the 33rd percentile rather than the median in the threshold calculation. A purpose of this research is to present the guidelines for the development of SPM thresholds and to lay the foundation for the estimation of the SPM thresholds at the Bureau of Labor Statistics (BLS). The Panel used three years of U.S. Consumer Expenditure Interview Survey data for the thresholds. However, in this study, five years of data are used to produce SPM thresholds. Due to differences in the number of people in the reference sample, an equivalence scale adjustment is applied to expenditures including the value of in-kind benefits. To produce thresholds for comparison, the equivalence scale is applied to the distributional results to produce thresholds for two adults and two children. Data collected in 2004 quarter two through 2009 quarter one are used to produce SPM thresholds for 2008.

All of the SPM thresholds are lower than the NAS threshold and higher than the official poverty threshold with one exception. The SPM threshold for owners without a mortgage is lower than the official threshold for 2008 and is the lowest of the three housing status thresholds. SPM thresholds for owners with mortgages are the highest, followed closely by those for renters. The means, distributions and thresholds presented in this study are preliminary. Standard errors have not been produced; thus, differences are discussed in relative rather than statistical terms.

Supplemental Poverty Measure Thresholds: Laying the Foundation

I. Introduction

Over the past several years, proposals have been introduced to revise the official poverty measure for the U.S. These proposals, for the most part, have been grounded in recommendations of the U.S. National Academy of Sciences (NAS) released in a 1995 report, *Measuring Poverty: A New Approach* (Citro and Michael 1995). Since the Panel's report was released over 15 years ago, much research has been conducted on different aspects of the NAS-based measure. However, none of the research has resulted in a new official poverty measure but Congressional and agency actions have been introduced that are based on the original report and subsequent research. In 2009, a bill was introduced in the U.S. Congress (MAP Act, H.R. 2909 with a companion Senate bill, S. 1625, 2009). The bill provided specific guidance regarding a poverty threshold measure, to be produced by the Bureau of Labor Statistics (BLS), and a resource measure and poverty statistics to be produced the Census Bureau.

More recently, an Interagency Technical Working Group (ITWG) met to discuss the introduction of a new poverty measure, a Supplemental Poverty Measure (SPM) and provided guidelines with which to begin the development of a SPM within the Federal statistical system. [1] The purpose of the new measure is to provide information on aggregate levels of economic need at a national level or within large subpopulations or areas but is not to replace the official poverty measure. The ITWG document noted that the SPM would be a work in progress; and, as such, improvements would be expected over time. The document released by the ITWG states that the Census Bureau will develop the SPM and will make final decisions regarding the publication of the measure; work regarding the development of the measure will be conducted in consultation with the BLS and other relevant data agencies. The document further states that the BLS will conduct research supporting the SPM and will provide thresholds to the Census Bureau for the production of SPM poverty statistics. This is similar to the role played by the BLS, through research, in the production of NAS poverty statistics.

[1] *Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure* (Interagency), March 2010, available at http://www.census.gov/hhes/www/poverty/SPM_TWGObservations.pdf . In January and February of this year, 2010, an Interagency Technical Working Group met to discuss and provide guidance on developing a Supplemental Poverty Measure (SPM) for the U.S. (*Observations from the Interagency* 2010). The Working Group was formed by the Office of Management and Budget's Chief Statistician and included representatives from Bureau of Labor Statistics (BLS), the Census Bureau, the Council of Economic Advisers, the Department of Commerce, the Department of Health and Human Services, and OMB. The Working Group was charged with developing a set of initial starting points to permit the U.S. Census Bureau, in cooperation with the Bureau of Labor Statistics (BLS), to produce a Supplemental Poverty Measure (SPM). A document was prepared that reflect discussions made by the Working Group to the Chief Statistician in the U.S. Office of Management and Budget and the Under Secretary for Economic Affairs in the U.S. Department of Commerce (see OMB-Commerce, 2010). When there was no consensus within the Working Group, these two individuals made choices that are reflected in the specific recommendations provided. The NAS recommendations served as the starting point regarding the how to define thresholds and resources in order to produce SPM statistics. Recent research and the needs of users were also considered.

Shortly after the ITWG released its *Observations* document, SPM research began within the BLS and Census Bureau, jointly and independently. This follows the tradition that began with the release of the NAS Report in 1995 with researcher within these two agencies working closely to on thresholds and resources. NAS and SPM thresholds have been based on U.S. Consumer Expenditure Survey Interview (CE) data and resources have been primarily based on U.S. Current Population Survey (CPS) data.

Early NAS work has been produced by several researchers[2] (for example, see, Banthin et al. 2001; Bavier 2005; 1996, 1995, 2009; Garner 2006, 2009a,b, 2010b; Garner and Betson 2010; Garner and Rozaklis 1999, 2001; Garner and Short 2001, 2010b; Garner et al 1998; Johnson et al. 1997; Renwick 2009a, 2009b, 2010, 2011; Short 2001, 2005, 2009,2010, 2011; Short and Garner 2002; Short et al. 1999; Ziliak 2010). Additional regional, state and local initiations based on the NAS measure are completed or in progress. For example, city-level estimates have been produced for New York City while research continues on a NAS measure for San Francisco. State initiatives include those Connecticut, Illinois, Massachusetts, Minnesota, Oregon, New York, and Wisconsin.[3]

Work on the SPM measure began in the spring of 2010 with results being presented recently. The first attempt to produce thresholds and resources for a SPM and poverty statistics was presented by Garner and Short at the International Association for Research on Income and Wealth (IARIW) in August 2010 (Garner and Short 2010a); thresholds, resources, and poverty statistics were produced for 2008. This was followed by research that incorporated improvements in the estimation of a SPM. Short and Renwick (2010) presented more recent research on resources and 2008 SPM poverty statistics at the 2010 Annual Conference of the Association for Public Policy Analysis and Management (APPAMA), annual Meeting of the Society of Government Economists (SGE), and Southern Economics Association (SEA) Annual Meetings. Garner presented a revised set of thresholds, and examined the role of the estimation sample in the production of the 2008 thresholds in a presentation during the APPAM meetings (Garner 2010d). This was followed by additional research examining choices made by the ITWG as compared to the NAS Panel in the production of thresholds (Garner 2010a,c). In addition to this research, Johnson (2010) outlined the SPM and discussed issues for the production of the measure. Bavier (2010a,b) has provided commentary comparing the NAS and SPM, and Gabe (2010), of the Congressional Research Service, provided an excellent review of poverty measurement in the U.S., including the SPM.

This paper continues in the tradition of this earlier work focused on the production of thresholds in that it is a reporting of research being conducted within the BLS. This is one of four papers that are being presented at the Allied Social Science Associations Annual Meetings (ASSA) in Denver, Colorado in January 2011. The goals of this paper are three: (1) to review the SPM guidelines that are related to the SPM thresholds; (2) to outline how the CE data can be used to produce the thresholds, and; (3) to describe the challenges that the BLS faces in producing a SPM threshold and possible solutions.

[2] If your research is not listed, please contact me at garner.thesia@bls.gov.
[3] See http://www.irp.wisc.edu/research/povmeas/spm.htm for examples of some of this research.

The calculation of SPM thresholds is to be based on expenditures for food, clothing, shelter, and utilities (FCSU), as well as the value of in-kind government benefits for FCUS that are accounted for in resources by the Census Bureau. Previously researchers at the Census Bureau have been able to account for the value of the following in-kind government programs in resources: SNAP or Supplemental Nutritional Assistance Program (previously known as Food Stamps), National School Lunch Program, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), U.S. Housing and Urban Development (HUD) public housing and Section 8 vouchers and certificates, and Low-Income Energy Assistance Program (LIHEAP). A major challenge for the BLS is how to account for these in the thresholds as limited information is available in the CE. For all but SNAP benefits, imputations are necessary. Limited data are available on public housing and the receipt of government housing benefits but no data are available on school lunches, WIC or LIHEAP. Depending on government funding,[4] improvements could be introduced in the CE to add in the collection of these data and for the release of production-level thresholds. However, for the present time, all SPM research within the BLS is being conducted under the auspices of the Division of Price and Index Research (DPINR).

Poverty statistics are not presented in this paper, but are presented by Short (ASSA 2011) in another ASSA paper. The SPM thresholds used in the Short paper are from Garner (2010c). The thresholds produced for this study different from the earlier SPM thresholds in that the number of children paying for school lunches is used to impute the participation in the reduced school lunch program; earlier the number of children deemed eligibility to receive a reduced price lunch was used. The earlier SPM 2008 threshold, not accounting for housing status, was $24,869, the threshold for owners with mortgages was $25,522, for owners without mortgages it was $20,426, and for renters the SPM threshold was $24,880. Short used the percentage shares of the thresholds that are accounted for by housing in the geographic adjustment of the thresholds to account for differences in prices. Geographic adjustments are not addressed in the current paper.

The next section of the paper includes the guidelines for the SPM issued by the ITWG, followed by a description of the procedures used thus far to produce SPM thresholds. Results are presented next.. The paper closes with a discussion of research issues and plans for production-level SPM thresholds at the BLS.

II. Proposed Supplemental Poverty Measures and some Early Examinations

The 2010 Interagency Technical Working Group provided guidelines for a Supplemental Poverty Measure (SPM). The measure depends greatly on the NAS Report but with some variations. Unlike the NAS poverty measure, the SPMs is not designed to replace the official measure, but is intended to provide additional information on poverty. The ITWG intended that the development of the SPMs to be a work in progress with improvements being made over time as additional knowledge is gained. The working group provided specific guidelines to begin in the creation of the SPM threshold and resource measures. The guidelines focused on the thresholds are presented in this section; the paragraphs below are drawn directly from the ITWG document section, “Establishing a Threshold” (ITWG 2010).

[4] The President’s 2011 Fiscal Year Budget includes and Initiative for the production of a SPM.

The poverty threshold sets the annual expenditure amount below which a family is considered poor. Following the recommendations of the NAS panel, this should be established on the basis of expenditures on a set of commodities that all families must purchase: food, shelter, clothing and utilities (FSCU). The threshold is determined based on expenditures among a population that is not poor, but is somewhat below the median. A key criterion for establishing the threshold and the resource definition is that these two concepts should be conceptually consistent with each other.

To establish this threshold:

- Use a reference sample that includes all family units with exactly two children. This diverges from the NAS recommendations, which used a two-adult, two-child reference family unit. In the 15 years since the NAS report, however, the composition of families in the U.S. has continued to change and a growing number of children live in families with only one adult, particularly in lower-income households. There are a variety of advantages to calculating the threshold from somewhat similar families, so the continuing use of two-child family units is recommended while allowing these two children to live in a wider variety of family settings. Expenditure data for family units with two children that do not contain two adults should be adjusted using the equivalence scale (discussed below) so that their expenditures are equivalent to those of a family unit with two adults and two children.

- Include in the definition of "family unit" all related individuals who live at the same address, any co-resident unrelated children who are cared for by the family (such as foster children), and any cohabitors and their children.

- Use a sample based on the most recent five years of available data on equivalized expenditures for the reference sample. The larger sample that is provided by five years of data will increase the stability of the thresholds and ensure that they move more slowly from year-to-year.

- From the distribution of equivalized FSCU expenditures within the reference sample, select the dollar amount at the 33rd percentile of the distribution. The NAS recommends taking a range; the 33rd percentile is at the center of this range and selects a point below the median but above those in extreme need. This point sets the threshold based on a level of spending on FCSU that two-thirds of American families are able to achieve or exceed. Shelter expenses should include all mortgage expenses since these must be paid on a monthly basis for a family to keep its housing.

- So far as possible with available data, the calculation of FSCU should include any in-kind benefits that are counted on the resource side for food, shelter, clothing and utilities. This is necessary for consistency of the threshold and resource definitions.

- Since the 1995 NAS report was issued, it had become clear that a significant number of low-income families owned their home without a mortgage and therefore have quite low shelter expense requirements. Not taking this into account may overstate their poverty rates. This suggested the need to adjust the thresholds for housing status -- distinguishing renters, owners with a mortgage, and owners without a mortgage.
    - In general, this adjustment should be done by "adjustment factors" which adjust the "S" component of FCSU up or down depending on the relative expenditures of each of three housing groups. Exactly how these adjustment factors are calculated should be determined by the statistical experts in the Census Bureau, in consultation with the BLS and other relevant data agencies.
    - An initial and relatively simple calculation would involve estimating shelter expenses for each of these three groups in a range around the 33rd percentile. Call these S1, S2, and S3, for shelter expenses around the 33rd percentile for renters, owners with a mortgage, and owners without a mortgage, respectively. Create three thresholds by replacing the 'S' component at the 33rd percentile with S1, S2, and S3.

- To allow for basic expenditures outside of FCSU, multiply the estimated amounts on spending for FCSU (adjusted by all the appropriate factors) among the reference sample by 1.2. The NAS panel refers to this multiple as "plus a little more," recognizing that there are other expenditures that families must make. The multiplier of 1.2 is the midpoint of the range recommended by the NAS panel. The result of this calculation provides the three reference threshold amounts that are to be attributed to 2-adult 2-child families, based upon their housing status.

- To define a threshold for families of different sizes, adjust the thresholds by the so-called "three parameter equivalence scale" which is generally used in alternative poverty measures by the Census Bureau to adjust the reference thresholds for the number of adults and children in a family.

- Adjust the thresholds for price differences across geographic areas. The Census Bureau, in consultation with BLS and agencies, should do this using the best available data and statistical methodology and these may change over time.
    - American Community Survey (ACS) data appear to be the best data currently available, from which one can create a housing price index based on differences in quality-equivalent rental prices of housing across areas. Future work may provide price data that can be used to measure inter-area price differentials on more items than housing alone.
    - It would be good to differentiate this price index by Metropolitan Statistical Areas (MSAs) and by non-MSA areas in each State if possible.

- Because of the problems created if these estimates vary substantially on a year-to-year basis, it would be good to utilize a 5-year moving average of the data for each year.
- If based only on inter-area housing price differences, this price index will weight only the housing-cost share of the threshold; the dollar value of other items in the threshold will remain unchanged across areas. Ideally, if more data become available, it would be attractive to move toward a price index that covers all items in the threshold. With different thresholds for renters, homeowners with mortgages, and homeowners without mortgages, better data and future research might lead one to utilize different price weights for different groups.

III. Methods and Data

The methods and data used to produce the SPM thresholds for 2008 are presented in this section. These follow the ITWG guidelines presented in Section II. The estimated thresholds are based on five years of U.S. Consumer Expenditure Survey Interview (CE) data and include the value of in-kind subsidies for SNAP, school lunches, WIC, and rental subsidies. The means, distributions and thresholds presented in this study are for research purposes only. Standard errors have not been produced; thus, differences are discussed in relative rather than statistical terms.

A. Methods

The production of the SPM threshold depends on several steps and choices. These are presented in this section. First is the selection of the estimation sample for which the thresholds are based. Once this is established, the SPM thresholds can be estimated. For simplicity, whenever I use the term "consumer unit" I am referring to the Consumer Expenditure Survey Interview (CE) sampling unit or to the threshold estimation sample unit. For the purposes of this study, the consumer unit is the same as the "family," defined in the *Interagency Technical Working Group* document. The SPM consumer unit or family differs from a Census family used in official poverty statistics in that unrelated children and unmarried partners are included in the SPM unit.

1. The Estimation Sample and Equivalence Scale

The estimation sample is composed of consumer units with exactly two children. Since the number of people in a consumer unit can differ from one case to the next (i.e., the number of adults can vary although the number of children is fixed at two), an equivalence scale is needed to equalize expenditures across all consumer units. This was not needed for the NAS threshold since the FCSU expenditures for families composed of exactly two adults and two children were being produced. For the SPM, the number of equivalent adults is determined by the number of adults and children in the household. For each consumer unit, FCSU expenditures are divided by the number of adult equivalent units. Each person in the consumer unit is assigned the adult equivalent value of FCSU expenditures for his or her consumer unit. For the entire estimation sample, adult equivalent FCSU expenditures are ranked from lowest to highest, weighting the data by the number of people in the consumer unit and the number of consumer units in the U.S.

The ITWG guidelines state that the so-called "three-parameter equivalence scale" is to be used to adjust reference thresholds for the number of adults and children. Since this equivalence scale is to be used for that purpose, I also use it to adjust FCSU expenditures for the distributional

ranking. The three-parameter scale allows for a different adjustment for single parents (Betson, 1996). This scale has been used in several BLS and Census Bureau studies (for example, see: Garner and Short 2010ab; Johnson et al., 1997; Short et al., 1999; Short 2001). The three-parameter scale is shown below.

$$\text{One and two adults: } scale = (adults)^{0.5} \quad (1a)$$

$$\text{Single parents: } scale = (adults + 0.8 * firstchild + 0.5 * otherchildren)^{0.7} \quad (1b)$$

$$\text{All other families: } scale = (adults + 0.5 * children)^{0.7}. \quad (1c)$$

In the computer program used to produce thresholds for two adults, the scale is set to 1.41. The economy of scales factor is set at 0.70 for other family types. The NAS Panel recommended a range of 0.65 to 0.75. Bishop (2010) commented that the equivalence scale factor is too large and should be reduced given the shares of the threshold for shelter and utilities, commodity groups with large economies of scale.

2. Threshold Estimation

The SPM thresholds are based on the 33rd percentile of FCSU adult equivalent expenditures for consumer units with two children. The 33rd percentile is approximated as the range within the 30th and 36th percentile points in the FCSU distribution. Restricting the estimation sample to this range of expenditures results in thresholds that are based on the expenditures of a subsample of the estimation sample composed of two-child consumer units. It is important to understand that a subsample of the estimation sample is used for the threshold calculation as the estimation of the threshold standard errors need to take this into account.

The ITWG recommended a particular method to produce thresholds for renters, owners with mortgages, and owners without mortgages. This method is applied in this research. Another method has been proposed by Betson (2009). Garner and Betson (2010) incorporated this alternative method in their research on NAS-based thresholds. It is expected that in the future, SPM thresholds based on the ITWG and Betson approaches will be produced and compared.

The ITWG method to account for spending needs by housing status uses the means of FCSU and shelter plus utilities for the subsample and the means of shelter plus utilities for each housing status within the subsample. To produce housing-based FCSU thresholds, the overall shelter and utility expenditures are substituted by the shelter plus utility expenditures for each group. To allow for basic expenditures not included in the FCSU, each set of FCSU expenditures are multiplied by 1.2.[5] The thresholds are further adjusted to reflect the spending needs of consumer

[5] The ITWG recommended the mean of the range of multipliers (1.15 to 1.25) recommended by the NAS Panel. AS noted in the paper by Garner (2005), although the Panel used expenditures on specific commodities to derive the multipliers, they did not intend to build a budget, but rather to get an idea of what could constitute a leaner versus more generous threshold. Two commodity bundles were considered by the Panel in deriving the multipliers: (1) the basic bundle plus personal care and one-half of transportation; and (2) the basic bundle plus personal care, one-half transportation, education, and reading materials. Transportation expenditures were defined by the Panel to include vehicle finance charges, expenses for gasoline and motor oil, maintenance and repairs, vehicle insurance, public transportation (including air fares), and vehicle rentals, licenses and other charges. In addition, transportation included the total purchase price (minus the trade-in value) on new and used vehicles. Personal care includes products for hair, oral hygiene, and shaving, cosmetics and bath products, electric personal care appliances, other

units with two adults and two children. The number of equivalent adults in a two-adult-two-child family is $3^{0.7}$. Below is the equation used to produce the reference family FCSU thresholds for each *i* housing tenure group.

$$Threshold_i(house) =$$
$$\left[FCSU_{all} - (shelter \,\&\, utilities)_{all} + (shelter \,\&\, utilties)_{group_i} \right]_{within\ 30th\ to\ 36th\ percentile\ range} * 1.2 * 3^{0.7} \quad (2)$$

Reference family thresholds are sent to the Census Bureau for geographic price adjustment. The price-adjusted thresholds are used by staff at the Census Bureau to produce SPM poverty statistics. See Short (2011) for the most recent estimates of poverty statistics for 2009.

B. Data

This research uses the U.S. Consumer Expenditure (CE) Interview Survey as the basis of the SPM thresholds for 2008. Additional data are needed however to impute values for in-kind benefits. CE data from quarterly interviews, collected from 2004 Quarter 2 through 2009 Quarter 1 (20 consecutive quarters), are used as the basis of the thresholds. In contrast to the SPM, NAS-based thresholds previously produced were based on three years of quarterly data.

Consumer units are included in the CE Survey sample for up to five consecutive quarters, with data used for the study from the last four interviews only. CE data collected in an interview refer to expenditures made during the three months prior to the interview month in most cases. It is assumed that data from each reference quarter are independent of the data from other quarters; this same assumption is made for official publications of CE data, and was also made by the Panel in their Report. A relaxation of this assumption has been examined in unpublished research; however more research is needed.

In order for the expenditure data to be in 2008 threshold year dollars, data from earlier years are adjusted using the annual All Items Consumer Price Index, U.S. City Average (CPI-U). First quarter data from 2009 are adjusted using annual 2008 CPI and a constructed quarterly CPI for January, February, and March of 2009.

As noted earlier, for SPM calculations, the sample was restricted to consumer units with two children. CUs identified as living in any type of student housing were not included in the estimation sample.

Details regarding the expenditures that underlie the SPM thresholds are presented next.

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personal care products, and personal care services. Education includes tuition, fees, textbooks, supplies and equipment for public and private nursery schools, elementary, and high schools, colleges, and universities, and others schools. Reading materials includes subscriptions for newspapers, magazines, and books through book clubs, purchase of single copy newspapers, and magazines, newsletters, books, encyclopedias, and other reference books.

The Panel stated that, "we arbitrarily chose to exclude one-half of transportation costs because the CE Interview Survey does not distinguish between work expenses, which we propose to deduct from resources, and personal transportation for errands, vacations, etc." (Citro and Michael, 1995, p. 151). This allocation is consistent with other studies (see Garner 2005 for references).

1. Food

Food expenditures are those for food at home and food away from home. Meals as pay are not counted nor are alcoholic beverages. Global-type questions are used to collect food expenditures in the Interview. During the time period from which data are drawn for the thresholds, changes in the CE Interview have been introduced to improve the data collection and processing. One of these changes affects food expenditures. Prior to 2007 quarter two, the CE Interview survey collected "usual monthly" expenditures for food away from home. However, cognitive testing suggested that collecting "usual weekly" amount results in more accurate data. Thus, beginning with the 2007 quarter two time period, the Interview questionnaire was revised to collect "usual weekly" expenditures for food away from home. This change has resulted in Interview data for food away for 2007 that is more comparable with the 2007 Diary data (see Garner 2009 Brookings October 21 for an examination of the impact of this change on NAS-thresholds). Staff members in the CE Division note that CE Diary food data are more reliable than food data collected using the Interview. Future research includes testing possible ways to integrate, at the consumer unit level, Diary and Interview food-related data.

2. Clothing

Clothing expenditures include those for all the goods and services identified as "apparel" by the CE Division of the BLS. Apparel includes clothing for girls and boys aged 2 to 15, women and men 16 and over, and for children less than 2 years of age. This category also includes footwear and other apparel products and services such as jewelry, shoe repair, apparel laundry and dry cleaning, and clothing storage.

3. Shelter

Shelter includes expenses for owners and for renters. To create the shelter variable for the SPM thresholds calculation, I restricted shelter expenses to be those for the consumer unit's primary residence only. This restriction was not made for the NAS Panel's report but is reflected in NAS thresholds produced at the BLS more recently.

For renters, expenditures include those for rent paid, maintenance and repairs paid for by the renter, and tenants insurance. Rent as pay is not included although this rent was included in earlier estimations of the NAS threshold. Rent as pay was dropped from the food expenditures definition used by the BLS since no information on this rent is collected in the CPS; for the thresholds and resources to be comparable, rent as pay would need to be added to the resources.

For owners, shelter expenses include those for property taxes and insurance, maintenance and repairs, and for those with mortgages, and mortgage interest and principal payments. As for renters, all expenditures are restricted to those for the CU's primary residence. Unlike for the expenses of renters and owners without mortgages, mortgage shelter expenditures reflect obligations, not necessarily what the consumer unit paid. The CE Survey collects information about the terms of the mortgage or mortgages on the primary residence. Then staff members at the BLS who work with the CE data calculate the obligated payments. If property taxes and insurance are included in the mortgage payment, these too are calculated by these staff members for the consumer unit.

As noted earlier, throughout the history of the CE Survey, BLS staff members have made changes in CE Survey instruments and data processing to improve the quality of the data. As for food at home, changes in the mortgage question, and later data processing, have results in impacts on CE-based mortgage payments for owners. Before 2006, the computer assisted personal interview program (CAPI), used to collect CE data, would not allow data collectors (FR's or field representatives) to record a mortgage as "interest only." In 2006, a change in CAPI was introduced that allowed FR's to select "interest only" as a type of mortgage. Although this choice was added to the CAPI instrument in 2006, these data were first used in 2007 quarter two with CE Survey mortgage edit processing using the mortgage "interest only" designation (see Garner 2009b for a discussion and the impact of this change on expenditures and NAS-type thresholds).

The definition of shelter expenses for owners with mortgages differs from the definition used by the NAS Panel and in earlier versions of the NAS thresholds. For the earlier versions, shelter expenditures did not include principal payments; however some NAS Panel members have noted that the reason mortgage principal payments were not originally included was "perhaps historical" (Betson 2009).[6] Garner and Short (2008, 2010) state that the reason these payments have been added for the poverty threshold, is that once a commitment to live in a mortgaged housing unit is made, such payments are not discretionary and must be paid by the homeowner to live there. Garner and Short first produced thresholds that include mortgage principal payments in 2001. Including mortgage principal payments in shelter expenses is consistent with a NAS-poverty measure that reflects obligated expenditure out-flows and resource inflows (see Garner 2005 and Garner and Short 2010).

4. Utilities

Utility expenditures are those for: energy including natural gas, electricity, fuel oil and other fuels; telephone services including land lines, cell service, and phone cards; and water and other public services such as trash and garbage collected, and septic tank cleaning. For owners, these are for the primary residence only. For renters, these are for any utilities for which they are obligated to pay with the exception of rented vacation homes. For most utilities, FR's ask each respondent to the CE Survey to do the following: "Please refer to any billing statements or other records you have when answering these questions. Please remember to include any bills you receive or pay online or have automatically deducted. Report any [*XXX*] bill you have received, even if the bill has not been paid." The amount recorded by the respondent is for what is charged or billed, not what the consumer unit necessarily pays. The exception regarding questioning for utilities is for telephone cards; consumer units are asked about the purchase price of pre-paid telephone and cellular cards and their spending for using public telephones.

[6] Betson, in a recent manuscript (Betson 2009) and a member of the NAS Panel, noted, "The BLS provided tabulations of the 1989 to 1991 CE data for use in the Panel's report that only included mortgage interest (principal was not included). I don't recall any discussion by the Panel on this point but clearly the Panel didn't directly ask for the principal payments to be included either. Consequently, the Census has since then routinely utilized the threshold based up on the exclusion of principal payments in their reports," (p. 12). Danziger, as a discussant at the 2010 ASSA meetings and also a member of the NAS Panel, also acknowledged that he could not remember any discussion of how shelter was defined in the measure that the Panel produced. In a 1995 manuscript, Betson referred explicitly to mortgage principal payments as being part of the shelter expenditures of owners with mortgages (see footnote 2, page 3).

5. In-kind Benefits

Previous NAS-based thresholds only included the value of food stamps as they are implicitly collected in food expenditures as noted earlier. However, the ITWG noted that the calculation of the thresholds should include any in-kind benefits that are counted on the resource side for food, clothing, shelter and utilities. Short (2011) and Short and Renwick (2010) included benefits for food stamps or SNAP, school lunches, WIC, rent subsidies, and energy assistance (specifically Low-Income Home Energy Assistance Program, LIHEAP) in SPM resource measures. Garner and Short (2010) first attempted to include the value of all but energy assistance in thresholds for a paper presented at the IARIW conference. Garner continued research on SPM thresholds that again included all but energy assistance; she produced an updated set of SPM thresholds for conferences held in the fall of 2010 (Garner 2010a,c,d). Further improvements in the estimation of these benefits were made and are reflected in the thresholds produced for this paper. In the remainder of this section, methods used to value or impute the value of in-kind benefits are described.

In this study, it is assumed that in-kind benefits reflect consumption needs and are time-specific. Thus, when in-kind benefits are imputed, they reflect the value of benefits that were in effect around the interview period.. For example, for consumer units who participated in a CE Interview anytime within the 2004 quarter two to 2005 quarter one time period, in-kind benefits reflect 2004 eligibility and benefit levels. Interviews that took place anytime within the 2008 quarter two to 2009 quarter one period reflect 2008 eligibility and benefit levels.

a. Food stamps /Supplemental Nutritional Assistance Program (SNAP)

Food stamps are designed to allow eligible low-income households to afford a nutritionally adequate diet. Households who participate in the SNAP program are assumed to devote 30 percent of their countable monthly cash income to the purchase of food, and food stamps make up remaining cost of an adequate low-cost diet. This amount is set at the level of the U.S. Department of Agriculture's Thrifty Food Plan. The SNAP represents the USDA's largest food benefit program in terms of people served and in terms of aggregate benefits.[7]

The CE Interview Survey collects information on the receipt of SNAP benefits and the value of those benefits. In the second and firth interviews (and in the third and fourth if the CUs missed earlier interviews) of the CE, respondents are asked to report if they received food stamps or money on an EBT card in the previous 12 months and if so how much. Second interview reports are carried over to the third and fourth interviews. Since these data are collected in the CE and are implicitly in total food expenditures, it is not necessary to add SNAP benefits to FCSU. See below for question wording (see http://stats.bls.gov/cex/capi/2010/cecapihome.htm).

> During the last 12 months, did you or any member of your household receive any-
>
> Food stamps or food stamp money on an EBT card?
>
> 1. Yes

[7] "The Food Assistance Landscape: FY2008 Annual Report," Economic Research Services, U.S. Department of Agriculture, Economic Information Bulletin No. 6-6, April 2009.

2. No
   What was the value of all food stamps or food stamp money received on an EBT card? (my guess is that this is begin interpreted as how much is on the card….the amount on the card is a monthly amount)

   [enter value] _____

6. Do not know the exact amount
   Could you tell me which range on CARD C best reflects the total value of all food stamps or food stamp money on an EBT card received in the last 12 months? *(categories of values are provided)*

b. National School Lunch Program

According to the USDA, the second largest food and nutrition program in terms of expenditures is the National School Lunch Program.[8] The National School Lunch Program offers children free lunches, reduced-price meals, and subsidized meals for school-aged children. For this study, only the subsidy values of free and reduced-price lunches are included in the thresholds. The CE collects no information about subsidized school meals, although questions are asked about expenses for school meals purchased for children ages 4 to 18. This information, along with U.S. Department of Agriculture (USDA) Nutrition Program eligibility guidelines and values for school meals, were used to impute participation and subsidy values.

According to USDA school lunch guidelines, students are automatically eligible to receive free meals if their family receives welfare or food stamps. A consumer unit was defined as program eligibility if the consumer unit reported receiving welfare benefits (the CE Survey variable is "welfarex") and/or participated in the food stamp program. For consumer units not program eligible, school lunch income eligibility was imputed using the consumer unit's net income and the Federal poverty guidelines. Net income was computed as before-tax-money-income minus the value of food stamps, pension and retirement income, Supplemental Security Income (SSI), income losses from farm and non-farm rents, interest income, and other select income, for example, income from the care of foster children, and the cash values of fellowships and scholarships or stipends not based on working. If the consumer unit net income is below 130 percent of Federal poverty guidelines, school children in the CU qualify for free meals. If net CU income is between 130 and 185 percent of the federal poverty guidelines, the children qualify for reduced priced meals.

To impute the number of school meals to value, I assumed that program- and income-eligibility school aged children received free school lunches every day during the school year. For those receiving reduced-price lunches, I used CE data on the number of children in the consumer unit with spending for school meals along with the imputed eligibility, and again assumed that they received lunches for the same time period as for free. See the questions below regarding spending for school meals (see http://stats.bls.gov/cex/capi/2010/cecapihome.htm).

[8] *Ibid.*

Since the first of the reference month, not including the current month, have you or any members of your household purchased any meals at school for preschool through high school age children?

1. Yes
2. No

What are the names of all household members who purchased meals at school?

* Enter line numbers for all that apply. [enter value] _____

Since the first of the reference month, not including the current month, what has been the usual WEEKLY expense for the meals for the household members who purchased meals at school? [enter value] _____

How many weeks did the household member(s) purchase meals? [enter value] _____

I assumed that children receive free and reduced-priced meals 167 days per year; this is the same number of days used by Short (2011) and Short and Renwick (2010) to compute the value of school lunches for resources. The number of children for whom the CU paid for school meals was not used in earlier imputations of reduced-price meals for the productions of the SPM thresholds.

To impute a value for school lunches, I multiplied the number of eligible school aged children within a consumer unit times the number of days receiving meals times the dollar amount per lunch for each quarter-year of CE data. Remember, each quarter of data is assumed to be independent of all other quarters; data from each quarter are annualized to represent data for a year. I assigned the average (over the 48 contiguous states) school lunch values reported by the USDA for schools in which less than 60 percent of the lunches served during the second preceding school year were served free or at a reduced price. Also included in the imputation of school meal values are commodity school lunch program values. For 2004, the first year for which CE data were used in the estimation of the SPM thresholds in this study, the value assigned for a reduced school lunch is $1.994 and the value of a free lunch is $2.390; for 2008, a reduced priced meal is valued at $2.326 and a free meal at $2.726.

c. Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)

The Special Supplemental Nutrition Program for Women, Infants and Children (WIC) is program is designed to provide food assistance and nutritional screening to low-income women, infants, and children ages one to four years of age, all who are nutritionally at risk. Assistance is provided in the form of food, nutrition education and referrals to health care and other social services. Like SNAP, WIC is administered at the Federal level by the USDA's Food and Nutrition Service (FNS). WIC is the third-largest food and nutrition assistance program in the U.S.; the largest is SNAP followed by the National School Lunch Program. Oliveira and Frazao (2009) reported that WIC was the fastest growing food assistance program in fiscal year 2008.

Food benefits include supplemental foods in the form of food items or vouchers for purchases of specific food items.

Like subsidized school meals, the CE does not collect information on WIC. To include a value for WIC benefits in the SPM thresholds, I imputed program eligibility and assigned benefit values to consumer units. I assume that consumer units with children less than five years of age and mothers with children in this age group are automatically program eligible if the consumer unit receives welfare or SNAP benefits, or participates in Medicaid. If the consumer unit is not automatically program eligible, before tax money income, net of the value of food stamp, is compared to the Federal poverty guidelines to determine income eligibility. Mothers and young children are considered income eligible for WIC if net incomes are at or below 185 percent of the poverty guidelines. Each person identified as being WIC eligible is assigned the average national food cost value for monthly WIC benefits; this value is annualized for annual benefits. The average national monthly food cost for 2004, for example, was $37.55 per person and the average monthly food cost for 2008 was $43.41.

d. Housing Subsidies

Federal housing assistance consists of a number of programs administered primarily by the Department of Housing and Urban Development (HUD). These traditionally take the form of rental subsidies and mortgage-interest subsidies, targeted to very-low-income renters and are either project-based (public housing) or household-based subsidies. The programs generally reduce tenants' rent payments to a fixed percentage of their income after certain deductions (see Short and Renwick 2010).

Using household population statistics and data from the U.S. Department of Housing and Urban Development (HUD), approximately, 2.7 percent of households lived in public housing or receive a Section 8 housing voucher or certificate in 2008. These two programs covered about 68 percent of housing units reported as being in the HUD housing assistance programs. The average annual benefit for households living in public housing was $6,144 and $7,764 receiving Section 8 vouchers or certificates.

For this study, only subsidies for consumer units living in rental housing are accounted for in the SPM thresholds, not those for owners. The rent subsidy is defined as the difference in the actual rent paid by the CU and the "market rent" of a unit with similar characteristics (i.e., number of bedrooms in this case). CE data used in this imputation are the responses to general housing questions and the rent actually paid.

When a consumer unit begins participating in the CE Interview Survey, respondents are asked whether they live in public housing or have received government assistance to help with shelter expenses. This information is carried forward in subsequent interviews; in other words, the CU is not asked if their situation has changed regarding assistance with rent. General questions are asked about the housing unit. Those referring to subsidized housing are provided below (see http://stats.bls.gov/cex/capi/2010/cecapihome.htm).

> * Ask if not apparent.
> Is this house in a public housing project, that is, is it owned by a local housing authority or other local public agency?

1. Yes
2. No

Are your housing costs lower because the Federal, State, or local government is paying part of the cost?

1. Yes
2. No

As proxies for the market rents, I used data from HUD on Fair Market Rents (FMRs) for 2004 though 2009.[9] FMRs are assigned to consumer units who report in the CE that their housing costs are lower because a government is paying part of the costs. Public housing units are assigned market rents that are adjusted to reflect the average gross rent paid plus the average subsidy value as reported by HUD.[10] FMRs data were matched with CE data by the number of bedrooms in the rental unit, county, and state. FMR data are available for zero to four bedrooms. When there were more than four bedrooms in a CE rental unit, I assigned the CU the FMR for four bedroom rental units in the county. When there was more than one FMR for a county, I used the average FMR for the county and assigned this average rent to the subsidized rental units in the CE.

CUs living in rent-controlled units also receive implicit housing subsidies. However, no attempt was made to impute housing subsidies for these CUs. The reason is that data on rent-control are not available over the full five years that underlie the 2008 SPM thresholds. The CE began asking about rent-control in 2007 quarter two.

Information on energy assistance is not asked in the CE and thus benefits from this assistance are not valued for the SPM thresholds presented in this paper.

IV. Results

The SPM thresholds are presented in this section. Table 1 includes estimates of the components of the thresholds, with a focus on shelter and utilities. Table 2 includes statistics on SNAP benefits, school lunches, WIC, and housing subsidies. This table includes spending by the CE and estimation samples along with estimates based on administrative and CPS data. In Table 3, two additional sets of thresholds are presented to explore the impact of in-kind benefits on the FCSU distributions and subsequently on the SPM thresholds. Table 4 includes descriptive statistics for the CE weighted sample as a whole and for each of the subsamples whose expenditures serve as the basis of the SPM thresholds. As noted earlier, the aggregates, means, and thresholds presented in this study are considered preliminary until standard errors have been produced. Standard errors will be based on the replicate weights produced for the CE Interview Survey. For the current version of this paper, differences are discussed in relative rather than statistical terms.

[9] See http://www.huduser.org/portal/datasets/fmr.html .

[10] The adjustment factor is 767/971 for 2008 and is assumed to be the same for 2004 quiater one through 2009quarter one for this study;, see: http://www.huduser.org/portal/picture2008/form_7totH4.odb. I followed the same procedure used by Short and Renwick 2010, footnote 4.

A. SPM Thresholds

FCSU adult equivalent expenditures are presented in Table 1 along with thresholds for two adults and two children. The first column identifies the variables for which means are produced. Shelter and utilities are highlighted as expenditures for these are substituted to produce the thresholds for the three housing status groups. The second set of columns includes the mean values within the 30th to 36th percentile distribution of FCSU adult equivalized expenditures for consumer units with two children. The last set of columns includes the means and thresholds for the reference unit composed of two adults and two children. For comparison, I refer to the official poverty threshold for two adult-two child families ($21,834)[11] and the previously published NAS threshold for 2008 that accounts for mortgage principal payments ($27,043).[12]

Based on five years of CE data, imputation methods, and the ITWG's guidelines that exclude housing status, an overall SPM threshold for 2008 is in between the official poverty threshold and the NAS threshold. The NAS threshold is based on three years of CE Interview data, an estimation sample composed of two adults with two children, and only accounts for one type of in-kind benefit, food stamps.[13] SPM threshold for two adults with two children, not differentiating by housing status, is $24,712. The non-housing SPM thresholds us about $2,300 lower than the NAS threshold for 2008. On the other hand, this same SPM threshold is about $2,900 higher than the official poverty threshold for a family composed of two adults and two related children.

The ITWG was not interested in an overall threshold for the reference consumer unit; instead, their preference was to adjust the thresholds for housing status, distinguishing renters, owners with mortgages, and owners without mortgages. Using the procedure described in the ITWG guidelines, thresholds for owners with mortgages are the highest, followed closely behind by those for renters. The lowest thresholds are those for owners without mortgages. Owners with mortgages accounting for about 53 percent of the estimation sample, renters account for 39 percent, the remainder are owners without mortgages (Table 4).

Also shown in Table 1 are the shares of the thresholds that are implicitly accounted for by food, clothing, shelter, utilities, and other "necessary" goods and services based on the multiplier. About a third of the non-housing adjusted threshold is accounted for by food (29 percent). The largest single share of the threshold is for shelter, 35 percent, and clothing accounts for the smallest share at approximately 5 percent.

Since shelter and utilities expenses are considered together in the housing status thresholds, it is important to look at the shares of these together. Shelter and utilities account for over half of the threshold for owners with mortgages (50.3 percent) and almost that much for renters (49.4 percent). As expected, the share for owners without mortgages is lower, 41.5 percent. The NAS Panel set the share of the threshold to 44 percent, basing this on tabulations of CE data for 1989-91.

The shelter and utilities shares by housing status are used by staff at the Census Bureau to price-adjust the two adults with two children SPM thresholds across geographic areas. The thresholds

[11] From http://www.census.gov/hhes/www/poverty/data/threshld/thresh08.html

[12] From http://www.census.gov/hhes/povmeas/data/nas/index.html

[13] See Garner and Short (2010) for details regarding the estimation of the NAS threshold.

presented in this paper do not reflect geographic price differences. See Short and Renwick (2010) for a description of this procedure using data from the American Community Survey. The geographic price adjustment procedure is applied under the assumption that only the prices of shelter and utilities differ across area, not those for food or clothing.

B. In-Kind Benefits

In this section, in-kind benefits are examined, first for the total population and then for the SPM estimation sample from the CE (Table 2). For the full CE weighted sample, data are compared to administrative data from the U.S. Department of Agriculture (USDA) and the U.S. Department of Housing and Urban Development (HUD) and to household reports from the Current Population Survey provided by Short and Renwick (2010) and Renwick (2011). The results for the estimation sample are for consumer units with two children whose FCSU expenditures, including in-kind benefits, are in the 30th to 36th percentile distributional range of FCSU expenditures. For the CE, all estimates are based on 2004 quarter two through 2009 quarter one data with benefit values for the corresponding time periods. Quarterly values have been annualized and converted to 2008 thresholds year dollars. Administrative and CPS data are for 2008 exclusively. CPS results are based on questions regarding participation in in-kind benefit programs. Short and Renwick (2010) used participation information in combined with administrative data (and sometimes other assumptions) to produce their estimates. Participation rates, mean amounts for those receiving or assigned benefits, and aggregates are presented for SNAP, school lunches, WIC, and housing subsidies.

As shown in Table 2, neither the CPS nor the CE hit the aggregates that are based on reports from the USDA and HUD. However, the CE aggregates imputed for school lunches and housing subsidies are more like the administrative data than are the aggregates produced for the CPS.

The CE imputations result in an aggregate of $8.1 billion for school lunches while data from the USDA suggest that the aggregate is $8.2 billion; in contrast, the CPS aggregate is $6.6 billion. Imputed participation rates for the full CE sample and the estimation sample are higher than those reported in the CPS. Benefits however are lower for the CE. Based on the results for in-kind benefits, school lunches account for the program with the highest participation rate for the CE estimation subsample.

The CE imputed aggregate for housing subsidies, limited to public housing and voucher housing, is $23 billion compared to $22 using data from HUD, [14] and $25.1 for the CPS. The average imputed annual value of housing subsidies for the CE estimation sample is in line with those reported by HUD, but higher than those imputed for the full CE sample and for the CPS (Renwick 2011).

For 2008, the national aggregate for WIC benefits is $4.5 billion with an average annual person-benefit of $521.[15] The aggregate benefit imputed for the CE weighted sample is $5 billion, closer

[14] Household population statistics from: http://www.census.gov/population/projections/nation/hh-fam/table1n.txt. For information about housing assistance programs administrated by HUD, see http://www.huduser.org/portal/picture2008/form_7totH4.odb

[15] For WIC participation total and aggregate see: http://www.fns.usda.gov/pd/wisummary.htm

to the USDA aggregate than that reported using the CPS ($1.8 billion). The over-estimate for the CE sample as a whole may be due to the fact that the imputation procedure did not accounted for the nutritional health of mothers and children; these data are not collected in the CE Interview. WIC benefits are the second most often received by the estimation sample composed of consumer units with two children. For this sample, the average value of WIC benefits is about the same as the average value of school lunches. The impact of WIC benefits on poverty measurement is expected to be small as a relatively low percentage of families participate in the WIC program.

For all but SNAP benefits, the rates of reported or imputed participation are relatively higher in the CE compared to those based on the CPS. This is not surprising for school lunches and WIC since participation is imputed for the CE sample; take-up rates are likely to be lower than eligibility rates for in-kind benefit programs. The difference in reported participation rates in food stamps and housing subsidy programs is of concern since, for both the CE and CPS, participation is based on interviewee reports, not imputations. To improve the collection of benefit participation and benefit data in the CE, cognitive research could be conducted to improve better questions and data collection methods.

The largest difference in benefits among the three is for SNAP benefits. The administrative data reveal aggregate SNAP benefits to be $34.6 billion for 2008 while the CPS aggregate is $22.7 billion and the CE aggregate is $11.8 billion. The USDA reports that the 2008 participation rate for all households in the U.S. is 11.6 percent with an average household benefit of $2,724.[16] Based on CE reported data, only 6.1 percent of consumer units participated in the SNAP and reported benefits are about $1,000 less than that reported by the USDA. In another analysis (unpublished), I compared aggregate food stamp benefits collected in the CE using the Interview and the Diary separately; food stamp questions are different for the two CE instruments. Diary aggregates are about five times higher than those reported in the Interview and higher than those reported for the program by the USDA. Clearly improvements in data collection are needed for food stamps.

C. Thresholds and the Impact of In-kind Benefits

The impact of including in-kind benefits in the thresholds is examined in this section, with thresholds presented in Table 3. In earlier NAS-based thresholds, only SNAP benefits were included. These were included as their value is implicitly included in what consumer units spend for food. In the first section of Table 3 results are based on the inclusion of in-kind benefits along with food, clothing, shelter, and utility expenditures; this is reproduced from Table 1. The second section includes thresholds that account for only SNAP benefits along with other FCSU expenditures. The third includes thresholds for which that none of the in-kind benefits are included. All results are based on the experience of consumer units with two children within the 30^{th} to 36^{th} percentile range of FCSU (with or without benefits) expenditure distributions. Adult equivalent values for shelter plus utilities are presented along with total FCSU expenditures. Like in Table 1, results for the three housing status groups are presented. Using the adult equivalent values from the estimation sample, the three-parameter equivalence scale, and the multiplier,

[16] http://www.fns.usda.gov/ora/MENU/Published/snap/FILES/Participation/Trends2001-2008.pdf

SPM thresholds are produced for a reference consumer unit composed of two adults with two children.

Table 3 reveals that SNAP benefits exert the greatest single impactt on the SPM thresholds. Including only these benefits in the FCSU total lowers SPM thresholds from $400 to $800. Not including any of the in-kind benefits results in SPM thresholds that are lower by $800 to $1,400. In both scenarios, thresholds for owners with mortgages are most affected followed by thresholds for renters. The two-adult-two child thresholds least affected by the inclusion of in-kind benefits are those for owners without mortgages.

D. Estimation Sample Characteristics

In May 2010, the Census Bureau submitted Federal Register Notice regarding the SPM.[17] In reply to the Federal Register notice, several replies focused on the thresholds and the underlying samples upon which the thresholds are based. Among the many replies, there were concerns about broadening the reference sample to include all consumer units with two children. There were concerns about whether the disabled would be represented. There were concerns about differences in spending by geography. Table 4 includes descriptive statistics of the different weighted samples upon which the thresholds presented in this study are based. First presented are the means for all consumer units in the CE Interview. These are followed by the means of the estimation sample with the in-kind subsidies included in FCSU expenditures. Two additional samples are described in the last two columns: first the sample when only food stamps are included in FCSU expenditures, and second the sample when none of the in-kind benefits are counted in FCSU.

The means and percentages are for reference samples with adult equivalent FCSU spending within the 30th to 36th ranges of the FCSU distributions. Compared to the overall CU population, the estimation sample is more likely to be composed of more members, expected due to the requirement of two children in the unit, and with a younger reference person. Two-adult-two-child consumer units account for about 70 percent of the estimation sample as opposed to the 9 percent in the total population. Racial/ethnic groups other than "white, not Hispanic" are more representative of the estimation sample than the CU population at large. The estimation samples are more likely to include consumer units whose reference person has fewer years of education and to have members participating in Medicaid or having no health insurance at all. While the South accounts for the largest percentage of the CE total sample (36 percent), it accounts for an even larger percentage of the estimation sample (43 percent). Data collected on whether the renter consumer unit receives government help in paying for their housing reveals that the total CE Interview sample (2 percent) is more likely to receive this help than the estimation sample (less than one percent). About 2 percent of all consumer units live in public housing compared to 2.7 percent of the estimation sample.

V. Discussion and Summary

This paper presents the ITWG guidelines for SPM thresholds and attempts to lay the foundation for the production of these within the BLS. The 2008 SPM thresholds are based on CE data from 2004 quarter two through 2009 quarter one with quarterly data price adjusted to the

[17] http://www.census.gov/hhes/www/poverty/methods/spm_fedregister.html

threshold year. Estimates for in-kind benefits, with the exception of those for SNAP, were imputed and included with expenditures for food, clothing, shelter and utilities to create the FCSU distributions upon which the thresholds are based. Federal in-kind benefits were imputed using consumer unit level data and Federal government transfer benefit program eligibility and benefits information for school free and reduced price lunches, WIC, and HUD rental assistance The 30th to the 36th percentile range of FCSU expenditures for the estimation sample, composed of consumer units with two children, was used to approximate spending needs at the 33rd percentile of distribution. A three-parameter equivalence scale was applied to consumer unit level expenditures for the distributional analysis. This same equivalence scale was used to then convert adult equivalent expenditures into a threshold for a reference consumer unit composed of two adults with two children. Following the ITWG guidelines, adjustments to an overall SPM threshold were made to account for spending needs by housing status. In the future, other methods to account for housing status can be used to produce the thresholds (e.g., Garner and Betson 2010).

A major focus of this study was the imputation of in-kind benefits to be included in FCSU spending. The methods used in this study resulted in aggregates that are comparable to those reported by HUD and USDA, with the exception of SNAP benefits. However, improvements can be made. Until questions about in-kind benefits are asked in the CE, work is expected to continue on the imputation of in-kind benefits. For example, a joint BLS-Census research project is underway to impute Federal in-kind benefits using data from the CPS, Census-based imputations, and regression models. An advantage of this approach is that the imputed CPS-based in-kind benefit values included in FCSU spending would be more in line with benefits counted in resources for poverty measurement. A concern with this research, however, is that in-kind estimates based on the CPS and applied to the CE may not be any better than those produced using the CE imputation methods that were developed for the current study. Clearly, a better approach to account for Federal in-kind benefits in the thresholds would be to collect this data directly from consumer unit participation in the CE Survey. With future funding, improvements in CE question wording, data collection, and processing could result in thresholds that more accurately reflect spending and consumption needs of consumer units.

For the development of improved data collection as well as for imputations of in-kind benefits, questions arise and need to be addressed. For example, is it more appropriate for the CE-based benefits to reflect the period in which other data are collected (over the five years) and thereby serving as proxies for consumption, or should they reflect benefits for the threshold year, the same as those added to resources? The answer will impact the level of the thresholds. Benefits are expected to differ by year and therefore are consumption needs. As noted in a USDA report(USDA 2009), "Economic and social conditions affect participation in and spending on food assistance programs through their influence on (1) the size of the eligible population, (2) the rate of participation among eligible people, and (3) benefit levels. Historically, changes in the country's economic conditions have significantly affected participation in SNAP." The same could be said for other in-kind benefit programs.

Although guidelines were provided by the ITGW for updating the SPM thresholds, this topic has not previously been addressed in this paper. However, to give some attention to this, I provide some thoughts regarding this topic for future research. The ITWG suggested that the SPM

thresholds should be updated each year by adding the latest year of available data and dropping the oldest year of data. This implies that the SPM thresholds would be updated each year by changes in expenditures around the 33rd percentile range. Garner and Betson (2010) were the first to examine the impact of updating the thresholds by changes in the 33rd percentile versus the median. Their results showed that changes in the 33rd percentile and median of FCSU expenditures over the 2006 to 2008 time period were similar. For this earlier measure, the only government benefits counted in FCSU were those from food stamps or SNAP. With the SPM, FCSU expenditures at the 33rd percentile include more government transfer benefits than around the median. A topic for future research is a comparison of SPM thresholds that are updated based on changes in the median as opposed to changes in the 33rd percentile.

Another topic for future research is the production of standard errors for the means and threshold produced in this study. Standard errors can be produced using the balanced repeated replication method used for the production of CE statistics by the BLS; see Garner (2010b) for a note on the production of standard errors for the NAS method.[18] Preliminary work suggest that the estimation of the standard error for the SPM thresholds is somewhat more complicated due to the replacement of expenditure for shelter and utilities for all consumer units in the estimation sample range with expenditures for the different housing groups. An additional complication in the production of the standard errors arises due to the fact that substantial government transfer benefits are imputed. How these imputations affect the overall variance and standard errors of the thresholds is uncertain.

Moving from the official poverty measure to the NAS Panel recommendations to the SPM is a large leap for many. The Panel provided a detailed examination of the first movement, and research on the NAS measure added to this discussion as well. However, research has only recently begun that describes the second movement. This paper is just one of many that are forthcoming in which this movement is described. Recent work by Garner (2010a,c,d) examined the impact of choices that the ITWG made relative to those made by the NAS Panel. Garner has examined differences in the guidelines of the ITWG for the estimation of the SPM thresholds compared to the recommendations of the NAS Panel[19]; Bavier has also discussed these issues (2010a,b)

[18] Also see: http://www.bls.gov/cex/anthology/csxanth5.pdf

[19] First, regarding the estimation sample, Garner's research revealed that when the reference sample, whose expenditures serve as the basis of the thresholds, is broadened to include all reference units with two children, thresholds are lower. Note, the NAS threshold is based on reference samples composed of two adults and two children. The earliest NAS thresholds produced and used for NAS poverty statistics (see Short et al. 1999) were based on experience of reference families composed of related two adults with two children who were related to them; these thresholds were lower than those based on two adults and two children. Garner and Betson (2010) examined the impact of basing NAS thresholds on the spending behavior of all consumer units versus those composed of only two adults and two children; they too reported lower thresholds when the estimation sample includes more than two adults with two children. Second, another issue addressed in earlier work on the SPM is the impact of changing the equivalence scale from a two-parameter scale to the three-parameter scale. This change lowered the SPM thresholds by about $500 (unpublished results available from Garner). In discussing the results presented by Garner at the SEA conference in November 2010, Bishop suggested that the economies of scale factor used for the NAS and SPM thresholds are too high and do not adequately account for the large economies of scale in shelter and utilities. He suggested that smaller economy of scale factors be used.

This paper has focused on SPM thresholds produced in a research environment; this research has been conducted in the Division of Price and Index Number Research (DPINR). In the President's FY 2011 budget, funds are to be allocated to the BLS and to the Census Bureau for the production of SPM poverty statistics. The BLS would have the responsibility to produce the thresholds in cooperation with the Census Bureau. Ultimately the thresholds would be a BLS product and produced within the Division of Consumer Expenditure Surveys. Plans are currently underway to develop a production system that would be used to produce the SPM thresholds in FY2011. Without funding from the President's budget, SPM thresholds would continue to be produced in the DPINR. Other parts of the plan, funded by the President's budget, are research to improve the SPM, the testing and inclusion of questions to be added to the 2012 Interview CAPI instrument, and improvements in the CE processing systems. . Processing improvements would be expected to be completed in 2015. Improvements in processing would enable the BLS to release CE data, and the thresholds, earlier than is now possible. All of this work would be overseen by an Interagency Steering Committee and a Census and BLS development and implementation team. The BLS and Census Bureau will continue to work with the research community and general public to obtain comments on this new measure and staff members will continue to conduct research on the SPM and present results at professional conferences and

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Third, the point on the distribution of FCSU expenditures that is used to initiate the threshold is the 33rd percentile as opposed a percentage of the median. The Panel recommended using a range around the median and the ITWG recommended using a range around the 33rd percentile For the NAS measure, 79 percent to 83 percent of the median was to approximate the 30th and 35th percentiles of the FCSU distribution. Garner (2010d) examined the impact of moving to the 33rd percentile from a percentage of the median for the estimation of the threshold. The resulting thresholds differed very little.

Fourth, including the values for federal in-kind benefits in the SPM as opposed to not including them, results in thresholds that are about $1,100 higher (Garner a,b,d and in this study). In earlier NAS-type thresholds, only the cash value of SNAP benefits was counted due to data limitations in the CE, and as a result, only these in-kind benefits were counted in resources. Accounting for the value of government in-kind benefits results in a poverty measure that is more informative regarding the economic well-being of people in the U.S.

The fifth major difference in the SPM and NAS thresholds is that the SPM is to account explicitly for the differing spending needs of renters, owners with mortgages, and owners without mortgages through the production of separate thresholds for each group. There was not distinction in the NAS thresholds for the different spending needs of these groups. However, in the Panel's report was as discussion of how to account for homeownership services in the thresholds and resources. The NAS Panel noted that a consumption-based threshold could be developed that takes account of flow of services that owners obtain from their homes. A consistent resource measure would include the net (of expenses to produce the housing services) rental income from the value of this flow of services, with the net imputed rent added to resources perhaps capped at the imputed rent value in the thresholds. The Panel noted, "An alternative would be to develop separate thresholds for owners with low or no housing costs and other owners and renters" (Citro and Michael 1995, p. 245). I am guessing that this alternative could be based on spending and it could serve as a basis of the recommendation suggested in the ITWG guidelines. With a spending-based measure, not taking into account differences in spending needs due to home ownership status can overstate poverty rates for owners without mortgages under the original NAS measure (see Betson 1995 and Garner and Betson 2010 for early estimates of the impact of housing status on poverty thresholds).

And sixth, the ITWG recommended that SPM thresholds be based on five years of CE data to increase the stability of the thresholds. Garner has produced SPM thresholds for 2008 and has found that those based on three years of data are higher than those based on five years of data (unpublished results for the SEA conference 2010, Garner 2010a).

other academic meetings.[20] Expectations within the BLS are that research that has been taking place in DPINR can serve as a basis for future production thresholds, when funding becomes available. Until that time, SPM thresholds research will continue in this group.

[20] See Johnson 2010 Focus.

VI. References

(Many of the unpublished working papers and presentations listed here are available the BLS or Census Bureau web site: http://www.bls.gov.pinr/XXXXX , http://www.census.gov/hhes/povmeas/data/nas/index.html , and http://www.census.gov/hhes/povmeas/data/supplemental/index.html .

Banthin, Jessica, Thesia I. Garner, and Kathleen Short, "Medical Care Needs in Poverty Thresholds: Problems Posed by the Uninsured." Agency for Healthcare Research and Quality, paper presented at the Annual Meeting of the Allied Social Science Associations (ASSA, January 2001.

Bavier, Richard, "Do the Current Poverty Thresholds Include Any Amount for Health Care", Poverty Measurement Working Paper, March 2001.

Bavier, Richard, "From NRC to SPM – What has not changed?" Unpublished memo, November 25, 2010a.

Bavier, Richard, "From NRC to SPM – What has not changed?" Unpublished memo, December 15 2010b.

Betson, David, "Effect of Home Ownership on Poverty Measurement," unpublished manuscript, University of Notre Dame, November 1995.

Betson, David, "Homeownership and Poverty Measurement," paper prepared for presentation at the Brookings Institution/ Census Bureau Conference on Improved Poverty Measurement, Washington, DC, (October) 2009.

Betson, David, "Is Everything Relative? The Role of Equivalence Scales in Poverty Measurement," University of Notre Dame, Poverty Measurement Working Paper, Census Bureau, 1996.

Bishop, John, Discussant of "Supplemental Poverty Measure Thresholds: Estimates for 2008," presentation by Thesia I. Garner at the Society of Government Economists Annual Meeting, Washington, DC, November 15, 2010.

Citro, Constance F., and Robert T. Michael (eds.), *Measuring Poverty: A New Approach*, Washington, D.C.: National Academy Press, 1995.

Gabe, Thomas, *Poverty Measurement in the United States: History, Current Practice, and Proposed Changes*, Congressional Research Services (CRS) Report for Congress, 7-5700, R41187, April 12, 2010, available at http://assets.opencrs.com/rpts/RL33069_20100421.pdf.

Garner, Thesia I., "Developing Poverty Thresholds 1993-2003," *2005 Proceedings of the American Statistical Association, Social Statistics Section* [CD-ROM], Alexandria, VA: American Statistical Association: pp-pp. Presented at the conference in Minneapolis, Minnesota, August 10, 2005. (revised September 18, 2006)

Garner, Thesia I., "Moving to a Supplemental Poverty Measure (SPM): Research on Thresholds for 2008," presentation at the Southern Economic Association Annual Meeting, Atlanta, GA, November 20, 2010, 2010a (presentation available from the author).

Garner, Thesia I., "National Academy of Sciences--Based Poverty Thresholds: The Details of Alternatives and Choices in Specification," presented at the Joint Statistical Meetings, American Statistical Association, Social Statistics Section, Washington, DC, (August) 2009a.

Garner, Thesia I., "Note on Standard Errors and Other Relevant Statistics of Experimental Poverty Thresholds Produced at the Bureau of Labor Statistics: 2006 to 2008," Bureau of Labor Statistics (BLS) Working Paper 436, March, 2010b.

Garner, Thesia I., "Poverty Thresholds Alternatives/ Choices," presented at the Brookings Institution/ Census Bureau Conference on Improved Poverty Measurement, Washington, DC, (October) 2009b.

Garner, Thesia I., "Supplemental Poverty Measure Thresholds: Estimates for 2008," presentation at the Society of Government Economists Annual Meeting, Washington, DC, November 15, 2010, 2010c (presentation available from the author).

Garner, Thesia I., "Supplemental Poverty Measure Thresholds and the Estimation Sample," paper prepared for presentations at the 32nd Annual Research Conference of the Association for Public Policy Analysis and Management, Boston, MA, November 4-6, 2010, 2010d (paper under revision).

Garner, Thesia I. and David Betson, "Housing and Poverty Thresholds: Different Potions for Different Notions," paper prepared for presentations at the Midwestern Economics Association Meetings, Chicago, IL, March 20, 2010. (An earlier version of this paper is available as BLS Working Paper 435: "Setting and Updating Modern Poverty Thresholds," http://stats.bls.gov/osmr/abstract/ec/ec100030.htm, and was also presented at the Annual Meeting of the Allied Social Science Associations (ASSA) in Atlanta, Georgia, January 3, 2010 during the Society of Government Economists Session (SGE).

Garner, Thesia I. and Patricia Rozaklis, "Accounting for Owner Occupied Housing in Poverty: Focus on Thresholds," *American Statistical Association (ASA) Proceedings of the Section on Government Statistics and Section on Social Statistic*, 1999.

Garner, Thesia I. and Patricia Rozaklis, "Owner-Occupied Housing: An Input for Experimental Poverty Thresholds," paper presented at session organized by the Society of Government Economists at the annual meeting of the Allied Social Sciences Associations, January 6, 2001.

Garner, Thesia I., Stephanie Shipp, Geoffrey Paulin, Kathleen Short, and Charles Nelson, "Poverty Measurement in the 1990s," *Monthly Labor Review*, March 1998, pp. 39-61.

Garner, Thesia I. and Kathleen S. Short, "Combining Surveys for Poverty Measurement," paper presented at the 31st Conference of the International Association for Research on Income and Wealth, August 2010a, http*://www.iariw.org/papers/2010/4dGarner.pdf*.

Garner, Thesia I. and Kathleen S. Short, "Creating a Consistent Poverty Measure Over Time Using NAS Procedures: 1996-2005,"*Review of Income and Wealth*, Series 56, Number 2, June 2010b.

Garner, Thesia I. and Kathleen S. Short, "Owner-Occupied Shelter in Experimental Poverty Measures," paper presented at the Annual Meeting of the Southern Economic Association, Tampa, Florida, November 1, 2001.

Observations from the Interagency Technical Working Group on Developing a Supplemental Poverty Measure (Interagency), March 2010, available at http://www.census.gov/hhes/www/poverty/SPM_TWGObservations.pdf .

Johnson, David, "Progress toward improving the U.S. poverty measure: Developing the new Supplemental Poverty Measure," *Focus*, Vol. 27, No. 2, Winter 2010.

Johnson, David, Stephanie Shipp, and Thesia I. Garner, "Developing Poverty Thresholds Using Expenditure Data,**"** in *Proceedings of the Government and Social Statistics Section.* Alexandria, VA: American Statistical Association, August 1997, pp. 28-37.

The Measuring of American Poverty Act of 2009, MAP Act, H.R. 2909, bill introduced in the 111th U.S. Congress by Representative McDermott and a companion bill introduced by Senator Dodd (S. 1625).

Johnson, Paul D., Trudi Renwick, and Kathleen Short, "Estimating the Value of Federal Housing Assistance for the Supplemental Poverty Measure," U.S. Census Bureau, 2011.

Renwick, Trudi, "Alternative Geographic Adjustments of U.S. Poverty Thresholds: Impact on State Poverty Rates," presented during the American Statistical Association Annual Meetings, Washington, DC. August 2009a , http://www.census.gov/hhes/www/povmeas/papers.html

Renwick, Trudi, "Experimental Poverty Measures: Geographic Adjustments from the American Community Survey and BEA Price Parities," *2009 Proceedings of the American Statistical Association, Social Statistics Section* [CD-ROM], Alexandria, VA: American Statistical Association: pp.-pp. Presented at the conference in Washington, DC, August 2009b.

Renwick, Trudi, "Geographic Adjustments of Supplemental Poverty Measure Thresholds: Using the American Community Survey Five-Year Data on Housing Costs," paper prepared for the ASSA Annual Meetings, Denver, CO, 2011.

Renwick, Trudi, "Improving the Measurement of Family Resources in a Modernized Poverty Measure," paper prepared for presentations at the Allied Social Sciences Associations (ASSA)

meetings, Society of Government Economists (SGE) session, Atlanta, GA, January 3, 2010, http://www.census.gov/hhes/www/povmeas/papers.html

Short, Kathleen, "Cohabitation and Child Care in a Poverty Measure," *2009 Proceedings of the American Statistical Association, Social Statistics Section* [CD-ROM], Alexandria, VA: American Statistical Association: pp.-pp. Presented at the conference in Washington, DC, August 2009.

Short, Kathleen, "Experimental Modern Poverty Measures 2007," presented in a session sponsored by the Society of Government Economists at the Allied Social Science Association Meetings, Atlanta, Georgia. January 3, 2010, http://www.census.gov/hhes/www/povmeas/papers.html

Short, Kathleen, "Experimental Poverty Measures: 1999", U.S. Census Bureau, Current Population Reports, Consumer Income, P60-216, U.S. Government Printing Office, Washington, DC, 2001.

Short, Kathleen, "Estimating Resources for Poverty Measurement: 1993-2003," *2005 Proceedings of the American Statistical Association, Social Statistics Section* [CD-ROM], Alexandria, VA: American Statistical Association: pp.-pp. Presented at the conference in Minneapolis, Minnesota, August 10, 2005.

Short, Kathleen, "Supplemental Poverty Measure: Preliminary Estimates for 2009," paper prepared for the ASSA Annual Meetings, Denver, CO, 2011.

Short, Kathleen and Garner, Thesia I. "Experimental Poverty Measures Under Alternate Treatments of Medical Out-of-Pocket Expenditures." *Monthly Labor Review*, August 2002, pp. 3-13.

Short, Kathleen, Thesia Garner, David Johnson, and Patricia Doyle, *Experimental Poverty Measures: 1990 to 1997*, U.S. Census Bureau, Current Population Reports, Consumer Income, P60-205, U.S. Government Printing Office, Washington, DC, 1999.

Short, Kathleen and Trudi J. Renwick, "Supplemental Poverty Measure: Preliminary Estimation for 2008," paper prepared for the 32nd Annual Research Conference of the Association for Public Policy Analysis and Management, Boston, MA, November 4-6, 2010, 2010.

U.S. Bureau of the Census, "*Poverty Thresholds Following NAS Recommendations*," http://www.census.gov/hhes/www/povmeas/tables.html, 2010.

U.S. Department of Agriculture, The *Food Assistance Landscape: FY 2008 Annual Report*, USDA Economic Research Service, Economic Information Bulletin No. 6-6, April 2009.

Ziliak, James P., *Alternative Poverty Measures and the Geographic Distribution of Poverty in the United States*, a draft report prepared for the Office of the Assistant Secretary for Planning

and Evaluation, U.S. Department of Health and Human Services, available from the author at jziliak@uky.edu, 2010.

Table 1. FCSU (with In-Kind Benefits) Expenditures and Thresholds Based on 30th to 36th Percentile FCSU Expenditure Range: 2008

CUs with Two Children, FCSU	Estimation Sample Composed of All CUs with 2 Children							
	Adult Equivalent Values			2A+2C Consumer Unit Level				
	30-36th percentile range of FCSU	Shelter + Utilities within FCSU 30-36 range	FCSU with shelter + utilities replaced	30-36th percentile range of FCSU	Shelter + Utilities within FCSU 30-36 range	FCSU with shelter + utilities replaced	Threshold	Part as % of Threshold
With Subsidies (adding values for Food Stamps, WIC, School Lunches, Rental Subsidies)								
FCSU	$9,544			$20,594			$24,712	83.3%
Food	$3,355			$7,239				29.3%
Clothing	$539			$1,163				4.7%
Shelter	$3,970			$8,567				34.7%
Utilities	$1,680			$3,626				14.7%
Other								*16.7%*
Treatment of shelter+utilities								
Not accounting for housing status		$5,651	$9,544		$12,192	$20,594	$24,712	49.3%
Accounting for housing status								
Owners with mortgages		$5,926	$9,820		$12,787	$21,188	$25,426	50.3%
Owners without mortgages		$3,857	$7,751		$8,322	$16,723	$20,068	41.5%
Renters		$5,661	$9,555		$12,215	$20,616	$24,740	49.4%

CE sample restricted to owners with and without mortgages, and renters with and without government rental subsidies. Annual CPI-U All Items were used to adjust quarterly expenditures to 2008 year dollars. Five years of CE Interview data were used to produce these estimate; quarterly Interview reports were considered to be independent, as in official BLS publications of CE data.

*Threshold=(FCSU-(shelter+utilties share for all) + (shelter+utilties for subgroup))*1.2*3^.07

CE results in the Table differ from earlier estimates. Here reduced price school lunch estimates are based on CE data regarding school meals purchased. In earlier work the number of lunches was based on an estimate of the number of children in the CU deemed eligible to purchase these meals.

Produced by Thesia I. Garner,BLS, December 17, 2010

Table 2. Reported and Estimated In-kind Benefits in 2008 Year Dollars

	Administrative Records[1]	Current Population Survey[2] (based on data collected in March 2009) All SPM Families			Consumer Expenditure Interview (based data collected in 2004Q2-2009Q1) All Consumer Units (n=144,315)			Within 30-36th Percentile	
	aggregate (Bil$)	aggregate (Bil$)	% of SPM Families Paid/Received	Mean Amount of Paid/Receive	aggregate (Bil$)	% of CUs Paid/Received	Mean Amount of Paid/Receive	% of CUs Paid/Received	Mean Amount of Paid/Receive
Supplemental Nutrition Assistance Program (SNAP, previously Food Stamps)	$34.6	$22.7	7.4%	$2,465	$11.8	6.1%	$1,643	10.1%	$2,150
School Lunches[3]	$8.2	$6.6	6.7%	$797	$8.1	8.0%	$850	26.3%	$743
Women, Infants, and Children Nutriction Progam (WIC)	$4.5	$1.8	2.8%	$528	$5.0	5.5%	$768	20.1%	$770
Housing Subsidies	$22.0	$25.1	3.4%	$5,628	$23.0	3.7%	$5,155	1.9%	$6,558

[1] SNAP, school lunch, and WIC data from the U.S. Department of Agriculture. Housing subsidies data from the U.S. Department of Housing and Urban Affairs.

[2] CPS results for SNAP, school lunches, and WIC from Shortand Renwick 2010; housing subsidy results from Renwick 2011.

[3] School lunch estimates are based on free and reduced lunches only.

NOTE: CE results differ from earlier estimates. Here reduced price school lunch estimates are based on CE data regarding school meals purchased. In earlier work the number of lunches was based on an estimate of the number of children in the CU deemed eligible to purchase these meals.

Produced by Thesia I. Garner,BLS, December 17, 2010.

Table 3. FCSU Thresholds, with and without Subsidies, Based on 30th to 36th Percentile FCSU Range: 2008

CUs with Two Children, FCSU	Estimation Sample Composed of All CUs with 2 Children							
	Adult Equivalent Values			2A+2C Consumer Unit Level				
	30-36th percentile range of FCSU	Shelter + Utilities within FCSU 30-36 range	FCSU with shelter + utilities replaced	30-36th percentile range of FCSU	Shelter + Utilities within FCSU 30-36 range	FCSU with shelter + utilities replaced	Threshold*	Part as % of Threshold
With Subsidies (adding values for Food Stamps, WIC, School Lunches, Rental Subsidies)								
FCSU	$9,544			$20,594			$24,712	
shelter+utilities								
Not accounting for housing status		$5,651	$9,544		$12,192	$20,594	$24,712	49.3%
Owners with mortgages		$5,926	$9,820		$12,787	$21,188	$25,426	50.3%
Owners without mortgages		$3,857	$7,751		$8,322	$16,723	$20,068	41.5%
Renters		$5,661	$9,555		$12,215	$20,616	$24,740	49.4%
With Food Stamps (SNAP) Only								
FCSU	$9,277			$20,016			$24,020	
shelter+utilities								
Not accounting for housing status		$5,588	$9,277		$12,057	$20,016	$24,020	50.2%
owners with mortgages		$5,813	$9,502		$12,542	$20,501	$24,601	51.0%
owners without mortgages		$3,897	$7,585		$8,408	$16,367	$19,640	42.8%
renters		$5,604	$9,293		$12,092	$20,051	$24,062	50.3%
Without Subsidies (no Food Stamps, WIC, School Lunches, Rental Subsidies)								
FCSU	$9,072			$19,575			$23,489	
shelter+utilities								
Not accounting for housing status		$5,497	$9,072		$11,860	$19,575	$23,489	50.5%
owners with mortgages		$5,704	$9,280		$12,308	$20,023	$24,027	51.2%
owners without mortgages		$3,865	$7,441		$8,339	$16,054	$19,265	43.3%
renters		$5,581	$9,157		$12,043	$19,758	$23,709	50.8%

CE sample restricted to owners with and without mortgages, and renters with and without government rental subsidies. Annual CPI-U All Items were used to adjust quarterly expenditures to 2008 year dollars. Five years of CE Interview data were used to produce these estimate; quarterly Interview reports were considered to be independent, as in official BLS publications of CE data.

*Threshold=(FCSU-(shelter+utilties share for all) + (shelter+utilties for subgroup))*1.2*3^.07

CE results in the Table differ from earlier estimates. Here reduced price school lunch estimates are based on CE data regarding school meals purchased. In earlier work the number of lunches was based on an estimate of the number of children in the CU deemed eligible to purchase these meals.

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Table 4. Averaged Characteristics of Consumer Units (CU weighted) over the 2004Q2-2009Q1 Period								
		Estimation Samples of Consumer Units with 2 Children with FCSU Expenditures within the 30th to 36th Percentile Range						
		All Consumer Units		With Subsidies		With Food Stamps Only		Without Subsidies	
		(n=144,313)		(n=1,075)		(n=1,111)		(n=1,097)	
		CU Weighted Means within 30-36th Percentiles							
		Mean	std. error	Mean	std. error	Mean	std. error	Mean	std. error
Consumer unit size		2.5		4.1		4.1		4.1	
Number of adults		1.9		2.1		2.1		2.1	
Number of children		0.6		2.0		2.0		2.0	
Number of persons older than 64		0.3		0.0		0.1		0.1	
Number of earners		1.3		1.8		1.7		1.8	
Age of reference person		48.8		37.3		37.2		37.5	
		Percentages							
Someone in CU work disabled		7.8%		4.0%		4.7%		4.1%	
Type of CU									
	Single Parent Family	34.6%		14.7%		17.2%		15.0%	
	Two Adults + Two Child Units	8.9%		69.7%		66.5%		66.8%	
	Other Cus	56.5%		15.6%		16.3%		18.2%	
Female Reference Person		53.0%		58.5%		60.2%		58.8%	
Race/Hispanic of Reference Person									
	White, not Hispanic	71.7%		57.8%		58.1%		58.1%	
	Black, not Hispanic	11.9%		14.8%		14.2%		13.4%	
	Other, non Hispanic	5.2%		5.4%		5.6%		5.2%	
	Hispanic	11.2%		22.0%		22.2%		23.4%	
Education of Reference Person									
	None	0.3%		0.2%		0.2%		0.1%	
	Less than high school	14.6%		16.6%		17.3%		17.4%	
	High school graduate through AA degree	56.9%		67.4%		66.8%		65.5%	
	BA degree or higher	28.3%		15.8%		15.7%		17.1%	
Housing Tenure									
	Own with mortgage	41.4%		53.0%		51.6%		52.1%	
	Own without mortgage	25.7%		8.5%		7.4%		8.9%	
	Renter	32.2%		38.5%		41.0%		39.0%	
	Rent-free	0.9%		0.5%		0.8%		0.5%	
	Student housing	0.7%		0.0%		0.0%		0.0%	
Degree Urban									
	Central city	29.4%		30.5%		29.2%		29.0%	
	MSA	54.5%		50.8%		53.3%		52.7%	
	Outside MSA	16.1%		18.7%		17.5%		18.3%	
Region									
	Northeast	18.8%		13.5%		14.9%		15.9%	
	Midwest	22.9%		22.1%		23.0%		23.6%	
	South	35.9%		42.9%		42.1%		41.4%	
	West	22.3%		21.6%		20.0%		19.1%	
Health insurance (not mutually exclusive)									
	Private	71.9%		65.0%		65.0%		66.7%	
	Medicare	24.1%		4.8%		5.8%		5.3%	
	Medicaid	10.9%		19.3%		19.6%		19.1%	
	No insurance	16.1%		20.7%		20.4%		20.7%	
Government help with housing and expenditures									
	Owner	0.2%		0.3%		0.2%		0.2%	
	Renter	2.0%		0.7%		1.4%		1.1%	
Live in public housing									
	Owner	0.2%		0.1%		0.1%		0.1%	
	Renter	2.4%		2.7%		2.8%		1.9%	
Weighted data from the CE Interview Survey: 2004Q2-2009Q1 dollar values converted to 2008 dollars using the All Items CPI-U.									
Produced by Thesia I. Garner,BLS, December 17, 2010									