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## **A Century of Family Budgets in the United States**

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\* All views expressed in this paper are those of the authors and do not reflect the views or policies of the Bureau of Labor Statistics or the views of other BLS staff members. The authors accept responsibility for all errors.

## I. Introduction

Throughout its long history of constructing family budgets, the Bureau of Labor Statistics' objective has been to develop norms, or standards of living, that could be used to appraise the well-being of people. The measurement of family budgets and budget standards dates back to the late 19<sup>th</sup> century (see Fisher (1997)). These "budgets" have been used to develop measures of the cost-of-living, to assess wage rates and even to examine the standard of living. Early budget standards and family budgets were based on both expert decisions on how much a family might require to obtain a certain level of living and on the actual purchasing behavior of particular families. The first, prescriptive, method was often used to determine the 'sufficient' amount needed to provide a "standard of health and decency" or some other measure of the level of living. The second, descriptive, method was often used to describe consumer spending and to determine cost-of-living indexes.

Both prescriptive and descriptive types of family budgets have been constructed at the Bureau of Labor Statistics (BLS) throughout the 1900s. The first budget standards were developed in 1908-09 and there have been many subsequent estimates of fair, modest, adequate, and even minimally sufficient budgets. The BLS Family Budget program produced budget standards (using a prescriptive method) from 1966 to 1981. Estimates of descriptive budgets have been presented in the publications for the Consumer Expenditure Surveys.

The purpose of this paper is to review the historical estimates of these budgets and present a descriptive budget that is constructed using expenditure data. This paper was inspired by results presented by Peter Saunders at the 1998 IARIW conference, in which he compared the budget standards in Australia for 1920, 1941-43 and 1997 (see Saunders (1998a)).

In this paper, we examine the historical family budgets produced at the BLS in 1908-09, 1919, 1947, 1966, 1979. We then compare these to family budgets for 1984, 1989, 1994 and 1998 that are constructed using the recommendations of the Expert Committee on Family Budget Revisions that was charged with reviewing and revising the BLS family budget program.

While we have budgets spanning 90 years, the methods are most similar for the last 50 years. We find that, in 1998 dollars, our budget for family consumption for a married couple with two children is about \$36,550 compared to a budget of \$18,210 in 1947 and \$13,430 (for a family of five) in 1919. These budgets have increased in real terms; however, they have not increased as much as changes in per-capita GDP (in contrast to Saunders (1998a) for Australia). While Saunders (1998) suggests that this increase represents a general increase in the standard of living, some of the increase can be due to changes in the relative definitions of the terms like modest or sufficient.

The next section presents a general description of family budgets and budget standards. Section three reviews the history of family budgets and describes the latest family budget methodology. Section four presents our descriptive family budget and section five reviews the issues in adjusting the budgets for different family types and locations, and over time.

## II. The standard of living and budget standards

The standard of living can be viewed as the personal pleasure or utility one receives (see Sen (1988)) or as simply a point on the relative income distribution (Foster (1998)). Sen (1988) suggests that the standard of living is “in the living,” illustrating its subjective (and personal) nature. This concept of the standard of living suggests that it is a relative concept, such that it depends upon one’s position in the distribution.

Saunders et al. (1998) describe how these standards of living are related to budget standards when they state: “A budget standard represents what is needed, in a particular place at a particular point in time in order to achieve a specific standard of living.” While Foster (1998) suggests that the standard of living can be given by a function,  $r(x)$ , of the distribution,  $x$ , most budget standards have been calculated by building up a budget that would provide families with a modest, fair, or sufficient income. These levels of modest and sufficient can represent a variety of standards of living, or points on the distribution of income (or well-being).

Watts (1993) suggests that there are three types of budget-based (or prescriptive) budget standards – a market based approach (similar to that used in the former BLS family budgets), a multiplier approach (similar to that used in the official U.S. poverty thresholds) and a categorical approach (similar to the budget-based standards presented in Renwick and Bergmann (1993)). Other countries have also produced family budgets using a prescriptive approach (see Saunders et al. (1998)). Bernstein et al. (2000) construct a budget using prescriptive and descriptive methods and compare these to various State-level estimates of similar family budgets.

In 1978, BLS sponsored an Expert Committee on Family Budget Revisions (see Watts (1980)). This committee recommended constructing a descriptive budget called the prevailing family standard. This standard reflected “the level of living achieved by the typical family” and was “set at the median expenditure of two-parent families with two children.” This was different than the original BLS family budget program in that it “abandons the notion of a rigidly fixed list of things that are interpretable as minimum needs in achieving a given level of living.”

In addition, the Panel on Poverty of the National Research Council (Citro and Michael (1995)) did not recommend constructing a budget-based poverty threshold. They recommended a poverty threshold based on a budget of necessities (food, clothing, shelter and utilities) that was set at a fixed percentage of the median (and they used a multiplier to account for other items, e.g., transportation and personal care).

The difference between the budget-based (or prescriptive) method and the descriptive method arises from the difference between choosing bundles of particular goods that provide a selected standard of living for each of the components individually and choosing a point on the distribution of utility, e.g., the median (which represents a moderate standard of living). This difference can be illustrated by considering that a moderate standard of living requires a specific bundle of goods. This bundle produces an aggregate utility, and hence, cost. If each good yields the moderate standard then the aggregate budget also yields a moderate standard. For example, the median of total expenditures might be similar to the sum of the medians for the components. Hence, the aggregate budgets might be fairly similar, while the components of the total budget might differ. In fact, Watts (1993) claimed that the “expert” budgets always kept “one good eye

on median patterns” in constructing their budgets. The differences between the components for the prescriptive and descriptive approaches would be the result of the norms used by the “experts” to determine the “moderate” standard of living.

### **III. History of Budgets in the United States**

The first standard budgets that the BLS developed were part of an exhaustive study of the conditions of cotton-mill workers in the South and in Fall River, Massachusetts in 1909. The study was the result of a Congressional investigation into the condition of women and child workers. These were the first BLS budgets to be expressed in terms of quantities of goods and services to which prices were applied to determine the costs of the budgets (a market-basket approach). These were also the first budgets to define two levels of living—a “minimum standard of living of bare essentials,” and a “fair standard of living” that provided some allowances for comfort. Commissioner Charles P. Neill commented: “These standards, it should be emphasized, are the standards found to be actually prevailing among cotton-mill families of the several communities studied, and are not standards fixed by the judgment either of the investigators or of the Bureau of Labor.”<sup>1</sup>

The next BLS budgets were developed at the request of Congress in 1919. World War I brought rapid and sharp increases in price levels that prompted Congress to ask BLS to prepare quantity and cost budgets for Government employees in Washington, DC. BLS prepared such budgets for a Government worker’s family of five persons and also for single men and single women in Government service. The budgets were described as including “a sufficiency of food, respectable clothing, sanitary housing, and a minimum of essential sundries,” but not “many comforts which should be included in a proper ‘American standard of living.’”<sup>2</sup> Although the BLS priced these budgets only in Washington, DC, Professor William F. Ogburn of the University of Washington adapted the budgets for coal-mining families and those budgets were priced in a number of communities at the request of the U.S. Bituminous Coal Commission.

In response to the hard times of the depression period of the 1930’s, the Works Progress Administration (WPA) proposed two budgets to help determine how much to pay workers in different parts of the country. One budget was described as a maintenance budget, above a minimum assistance level but which did not approach “the content of what may be considered a satisfactory American standard of living.”<sup>3</sup> The second budget was described as an emergency budget that was an attempt to show how the maintenance budget could be cut in emergency conditions with the least amount of harm. The budgets were for a family of four, consisting of a man (described as an unskilled manual worker), his wife, a boy age 13, and a girl age 8. The budgets were priced in 59 cities. The BLS updated the WPA budgets for price increases through 1943.

By the end of World War II, the U.S. economy had improved to the point where norms for maintenance and subsistence levels were not so important. There was some concern in Congress that employers had on occasion used the relief-type budgets as leverage against wage adjustments for “average” workers. Also, there was concern over the extent to which Federal

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<sup>1</sup> Bureau of Labor (1911), p. 9.

<sup>2</sup> BLS (1919), p. 22-25.

<sup>3</sup> Works Progress Administration (19 ), p. xiv.

income taxes were accounting for an increasing portion of lower level workers' incomes. This was the result of the large increase in income taxes as a means of financing the war. These factors spurred Congress to request in the Spring of 1945 that the BLS find out what it costs a worker's family to live in large cities in the U.S.

In order to carry out the mandate by Congress, the BLS appointed a Technical Advisory Committee made up of specialists and technicians recognized as authorities on studies of living costs who would guide the development of standards and methods to be used in the project. The committee recommended using available scientific standards to derive items and quantities for different components and also, when such standards were not available, actual spending patterns based on consumer expenditure surveys. The surveys the BLS used in developing the family budget bundles of goods and services dated from 1929 to 1941.<sup>4</sup> The BLS derived quantities for the bundles of goods and services and obtained prices to estimate budget costs for 34 U.S. cities. The resultant City Worker's Budgets for a family of four was described as "modest, but adequate." They applied to urban working families in general and not to a particular occupational group. Estimates of the costs of the four-person family budgets were published for March 1946 and June 1947. The budgets were then repriced each October from 1949 through 1951. Further updating was ruled out because the BLS believed that the bundles of goods and services were out of date and no longer represented the modest but adequate standard. It was anticipated that the 1950 Consumer Expenditure Survey would provide more current information on spending patterns that could be used to revise the budgets. Such a budget, termed the "interim revised budget" was priced in 20 cities, but not until October 1959.

In 1963, the BLS appointed another advisory committee to review the family budget methodology and to make recommendations for developing new family budget standards. The committee was appointed in anticipation of more current expenditure data becoming available from the 1960-61 Consumer Expenditure Survey. The committee made three primary recommendations in the following order of priority:

- 1) Continue pricing a modest but adequate budget for a four-person family and for a retired couple. As in earlier budget studies, they recommended that the standards of adequacy were to be based on scientific standards, such as nutrition standards for estimating food items and quantities, and on the judgment of experts based on the analysis of data from expenditure studies.
- 2) Estimate budget costs for the quantity budget for the total urban population of the U.S. and for selected cities.
- 3) Derive additional standard quantity budgets, both below and above the modest but adequate standard.

In addition to the Advisory Committee recommendations, the report included a section discussing the basic concepts of family budgets and a section with general comments on the methodology for arriving at estimates for some of the budget components. The committee acknowledged that developing lists of goods and services and specifying quantities that would represent a "modest but adequate" standard would require a great deal of subjective judgment

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<sup>4</sup> Bureau of Labor Statistics (1948).

since scientific standards existed for only a few of the budget components (primarily food and housing). Even for these components, any number of alternative lists of quantities of goods and services could be specified (and at varying cost) that would meet the scientific standards. For the remaining components, budget makers relied heavily on data from expenditure surveys that showed how budget-type families spent their money.

While the majority of the 1963 Advisory Committee endorsed the idea of developing the lists of goods and services using a mix of scientific standards and standards derived from actual spending patterns, one committee member offered a dissenting view. Dorothy Durand, a private consultant on the development and use of standard budgets, suggested focusing on developing methods for estimating the total cost of a budget, rather than trying to arrive at a total by costing out a list of goods and services. She noted that scientific standards had been established for only a few of the many spending components, primarily food and housing. Even for those few components, she argued that the findings were not definitive. Her dissenting opinion, which broke with the long-established methodology for estimating budget costs, was a precursor of the recommendations of the next advisory committee, whose findings were summarized in a May 1980 report.

Guided by the criteria set forth by the 1963 Technical Advisory Committee, the BLS developed budgets for a four-person family and for a retired couple. Budget estimates for a “moderate” living standard were published for Autumn 1966 and three standards of living—described simply as lower, intermediate, and higher budgets—were published for Spring 1967. The family was described as an employed husband, age 38; a wife not employed outside the home; and two children, a boy age 13 and a girl age 8 and was chosen to “represents a middle stage in the typical family life cycle.” However, the report acknowledged the subjective nature of their budgets when they stated: “In short, there is no single answer to the question ‘How much does it cost to live?’, since family size, age, and type have a significant effect on spending patterns, manner of living and family needs.”<sup>5</sup>

Budget cost estimates were published for 40 urban areas, four regional averages, and a United States urban average. As recommended by the advisory committee, BLS budget makers used a mix of scientific standards, where available, and standards derived from actual spending patterns to specify lists of goods and services as well as the quantities of those items. Prices collected for the BLS Consumer Price Index along with some supplementary prices collected specifically for the family budgets were used with the budget quantities to estimate the budget costs. The budgets were intended to measure equivalent levels of living in the different budget areas. Identical budgets were not priced in the 40 budget areas. The quantity weights for food were adjusted to account for differences in food preference patterns among regions, clothing and heating fuels were adjusted for climatic differences among the cities, and differences in automobile ownership and usage were incorporated by city size to account for differences in the availability and usage of public transportation.

In 1968, the BLS published an equivalence scale that allowed users to apply scale values to the four-person family consumption costs to estimate costs for different family sizes and

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<sup>5</sup> Bureau of Labor Statistics (1966), p. v.

types.<sup>6</sup> The scale values were estimated using data on food expenditures and income after taxes for various family sizes and types from the 1960-61 Consumer Expenditure Survey.

The last direct pricing of the budgets, that is, the last time that CPI prices and supplementary prices collected specifically for the family budgets were applied to the budget quantities in order to estimate budget costs, was in 1969. Subsequent to 1969, the budget costs were updated annually through 1981 by applying changes in the Consumer Price Index for summary component indexes that were available for each urban area.

By the late 1960's, the BLS was increasingly uncomfortable in its role of making the normative judgments that were the basis of the family budget cost estimates. In 1969, Geoffrey Moore, Commissioner of the BLS, wrote, "I do not think the BLS should set itself up as an authority on what is adequate or inadequate, what is a luxury and what is not, etc., no matter how reasonable the position may seem to us." The belief was that such norms should be developed by an operating agency, such as the Department of Health, Education, and Welfare, rather than by a statistical agency such as BLS. However, the BLS had a long history of developing and publishing family budgets, and much legislation had been passed incorporating the budget estimates (see Appendix table A), so the BLS continued updating and publishing the series.

By the mid-1970's, the expenditure data used to derive the quantities of goods and services was a decade and a half old. The BLS recognized the budgets were increasingly outdated and began considering alternative methods for estimating budget standards. In 1978, the Bureau contracted with the Wisconsin Institute for Research on Poverty to do a thorough review of the family budget methods and procedures, and to make recommendations for revising the budgets. The Expert Committee on Family Budget Revisions, appointed by the Institute, presented their findings in a comprehensive report in May 1980. The Committee recommendations are discussed below. However, there was a substantial program reduction required during the fiscal 1981 budget cycle, and the BLS did not believe it had adequate funding to implement the Expert Committee recommendations or to improve the budget estimates to meet the technical standards of the Bureau. The final budget estimates published by the BLS were for Autumn 1981.

### *Uses of Budgets*

Most of the important uses of the family budgets were associated with the cost of attaining the levels specified by the standards. Once the cost of the budgets was determined, the number of people or the proportion of specific groups of people with or without sufficient resources could be estimated. In its 1963 report, the Advisory Committee on Standard Budget Research cited three general groups of uses for the standard budgets. They were:

- 1) *Appraisal of the economic condition of groups or of the total population.*
- 2) *Evaluation of the need for and the effect of specific laws and programs.*
- 3) *Guidance of administrative determination of need.*

A specific list of uses of the budget standard associated with the budget series published by the BLS between 1966 and 1981 is shown in Appendix Table A. The table is from the 1980

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<sup>6</sup> Bureau of Labor Statistics (1968).

report, *New American Family Budget Standards*, by the Expert Committee on Family Budget Standards. In addition, the Department of Labor updates the original family budgets (from 1981) to define their guidelines for employment training programs.

The Expert Committee cited several factors of the family budget estimates that allowed them to be “used for a wide variety of analytic, administrative, and programmatic purposes. Four elements, in particular, make them conducive to such uses: (1) an income norm or expenditure norm embodying a standard or level of living for a typical family type; (2) a basis for making standardized comparisons among different family types (the equivalence scale); (3) a basis for making comparisons over time; and (4) a basis for making comparisons among areas.”<sup>7</sup> These uses are also the most controversial issues in determining the appropriate family budgets.

### ***BLS Budget Methodology***

Throughout the period that the BLS estimated family budgets, the theoretical basis for the budgets was that scientific standards and expert judgment could be used to derive lists of goods and services and their quantities that embody certain standards of living. Costs of the budgets, and of the standards represented by the budgets, could then be estimated by applying prices to those quantities of goods and services. However, scientific standards existed for only two of the many budget components—food at home and shelter—and even for these components, the scientific standards affected the content but not the actual cost levels in the budgets. For the many other components, including transportation, medical care, clothing, recreation, and education, budget makers were forced to rely on a combination of actual spending patterns and related information, and their own judgment. A brief description of the methods used to derive the budget costs for food, housing and other items is included in Appendix B.

### ***Expert Committee Recommendations***

The Expert Committee on Family Budget Revisions met for a period of a year and a half and presented its findings and recommendations to the BLS in a 1980 report. The Expert Committee recommendations called for a radical departure from past practices. The Committee recommended abandoning attempts to derive detailed lists of goods and services that were intended to represent norms or standards in favor of estimating total budgets directly from expenditure survey data. The BLS was at that time preparing to implement an ongoing Consumer Expenditure Survey that would provide a continuous source of expenditure survey data.

The reasoning behind the Committee’s decision to change the methods for estimating the budgets was included in the following excerpt from a December 1980 Monthly Labor Review article by Harold Watts (Committee Chairperson):

The majority of the committee concluded that the main claimed advantage of lists of qualities of goods and services—that such lists assure the meeting of authoritatively established needs—was in fact illusory. Any cost total derived from lists of commodities has perforce been based on a myriad of individual judgments. Consequently, the committee majority, recognizing that a judgment based on individual values and *not* on

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<sup>7</sup> See Expert Committee (1980), p. 9.



scientific requirements must be made at some stage whatever the method used, decided to exercise that judgment in the choice of an expenditure *total* rather than in several hundred item choices.<sup>8</sup>

The Expert Committee made a number of recommendations on revising the BLS Family Budget estimates.

*Budget levels.* Replace the Lower, Intermediate, and Higher Family Budgets with four budget levels. The standard designed to reflect the level of living achieved by the typical family is set at the median expenditure of two-parent families with two children and would be called the *Prevailing Family Standard* (PFS). Three additional standards are simply fixed proportions of the PFS: the *Lower Living Standard* is set at two-thirds of the PFS and corresponds to the Lower Family Budget; the *Social Minimum Standard* is set at one-half the PFS and sets a level below which families face issues of deficiency and deprivation; and the *Social Abundance Standard* is set at fifty percent higher than the PFS and would measure a level that affords a higher standard of living.

*Equivalence scales.* The Committee spent a great deal of time on estimating equivalence scales but had little success in developing new scales. The equivalence scale estimates included in the summary report were adapted from the “poverty cut-offs” developed by Mollie Orshansky and Carol Fendler. However, the Committee provided only a weak endorsement of those scales and recommended further research into developing new equivalence scales.

*Interarea differentials.* The Committee recommended continuing research on cost-of-living differences among cities. It favored producing Interarea price indexes to provide price comparisons while recognizing that such indexes do not show the cost of achieving equivalent levels of living in different areas, nor do observed expenditure patterns.

*Method of updating.* The Committee recommended estimating the standards directly from the ongoing Consumer Expenditure Survey on an annual basis. However, to guard against short-run variation in median expenditures, the norms or standards should be maintained at their previous levels in real terms, should there be nominal declines. This feature was termed a “ratchet.” The Consumer Price Index would be used for estimating real expenditures from the prior period and preventing declines in the real levels of the standards.

The Committee also recommended estimating the allocation of expenditures among components by using average allocations estimated from the CE Survey for six different types of families. The Committee also was enthusiastic about the possibility of determining normative standards through a general public survey, such as by directly asking people how much it takes to just get along, or to live comfortably. Finally, the Committee recommended that a major report be published presenting the standards and related information, and that would also include analytical and methodological articles.

The BLS recognized that the Four-Person Urban Family Budgets and Retired Couple’s Budgets estimates were based on outdated information and did not represent standards of living typical of the later years (1970’s through 1981) that they were published. While they considered

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<sup>8</sup> Watts (1980), p.3.

the recommendations made by the Expert Committee, this occurred during a period of tightening budget restrictions on Federal agencies. Consequently, the budget series was discontinued with the final budget estimates published for 1981. The BLS has not published family budget standards since then. However, the basic standards recommended by the committee are relatively simple to derive from the current, ongoing Consumer Expenditure Survey and some preliminary estimates based on those recommendations are discussed in the next section of this paper.

#### **IV. Results**

Following the recommendations in Watts (1980), we use the Consumer Expenditure Interview Data for 1989, 1994 and 1998 (and compare to estimates from 1984) to estimate the median total expenditures for the reference family. The reference family consists of a married couple with two children under 18 living in an urban area. This family is similar to the reference family used by the NRC Panel on Poverty (Citro and Michael (1995)).

Table 1 shows the total budget levels for these reference families in 1989, 1994 and 1998. This budget represents the prevailing family standard (recommended in Watts (1980)) and includes the total outlays for the family (including expenditures on non-durable goods and services and purchase price for durable goods except when financed). For housing and financed vehicles, we include the mortgage interest *and* principal paid on an owned home or vehicle.<sup>9</sup> Also included are cash contributions, pension contributions, payroll and property taxes. Not included are income taxes and other forms of savings. This represents the total amount of outlays that the family spends for goods and services.

Table 1 shows the total budgets for the reference family and, for comparison to earlier years, the budget for family consumption (excluding cash contributions, pensions and insurance). The table also shows the budget obtained by using both urban and rural families and the budget constructed from a sample restricted to only complete income reporters (this restriction was used by the Expert Committee (1980))<sup>10</sup>.

These reference families are predominantly non-black (92 percent) with a reference person who is 38 years old and has more than a high school education (64 percent). These families are predominantly homeowners (79 percent) that have an average of 2.4 vehicles.

The reference family was originally chosen because it is the modal type of family for persons. That is, more people lived in these types of families than in any other types. In today's society, however, there may be many unmarried couples with children. Hence, the modal family type may consist simply of two adults and two children (see also Johnson et al (1997)). Using this more general reference family (consisting of two adults and two children) yields a total budget of \$39,870, which is slightly lower than that for the married couple reference family.

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<sup>9</sup> We use the total outlays instead of the total expenditures for the consumer unit (see Rogers and Gray (1994)). The main difference between our measure and the one recommended by the Expert Committee is that we replace the purchase price of vehicle with the principal payments.

<sup>10</sup> Complete income reporters are households that provide values for at least one major source of income such as wages and salary, self-employment income, and Social Security. This restriction was also used in the budgets constructed in Rogers (1984).

**Table 1: Total family budgets for various reference families – 1989, 1994 and 1998**

<b>Family type</b>	<b>1989 Budget</b>	<b>1994 Budget</b>	<b>1998 Budget</b>
<i>Married couple with two related children under 18 living in an urban area -- Total budget</i>	<b>\$31,562</b>	<b>\$36,571</b>	<b>\$41,487</b>
Family consumption only	\$27,143	\$31,817	\$36,528
Married couple with two related children under 18 living in either an urban or rural area – Total budget	\$29,933	\$35,729	\$39,229
Married couple with two related children under 18 living in an urban area and who is a complete income reporter – Total budget	\$32,460	\$37,186	\$42,525

Table 2 shows the components of the budget for 1998. These components are calculated by using the expenditure shares of reference families in the middle quintile of total expenditures (outlays) and applying these shares to the median budget shown in table 1. To compare with earlier studies, we also calculate the mean personal income taxes for reference families in the middle income quintile using the Current Population Survey.

This table also compares the shares in 1998 to those from 1984. In 1998, housing, transportation and food were the top three expenditure items, accounting for 67.4 percent of total expenditures. In 1984, these were also the top three expenditure categories, accounting for 65.7 percent of total expenditures, but the budget share of food in 1998 was lower than in 1984.

Among the aggregate expenditure categories, housing registered the largest change in budget allocation, increasing from 32.3 percent in 1984 to 35.3 percent in 1998. The increase in housing expenditures is attributable to the increase the budget shares of owned dwellings (up by 3.5 percentage points). The next largest increase in the budget share of aggregate expenditure categories was in health care, increasing from 3.5 percent in 1984 to 4.8 percent in 1998.

The largest decrease in aggregate expenditure categories occurred in apparel, falling from 5.2 percent in 1984 to 4 percent in 1998. The budget share of tobacco fell from 1.4 percent in 1984 to 0.9 percent in 1998. The budget share of alcoholic beverages fell from 1.2 percent in 1984 to 0.6 percent in 1998.

**Table 2: Family budget and components, 1998 and 1984**

Expenditure category	1998 Amount	1998 Share	1984 Share
Food	\$6,657	16.0%	17.5%
Food at home	\$5,129	12.4%	--
Food away from home	\$1,528	3.7%	--
Alcoholic beverages	\$258	0.6%	1.2%
Housing	\$14,648	35.3%	32.3%
Shelter	\$9,510	22.9%	19.4%
Owned dwellings	\$7,849	18.9%	15.2%
Rented dwellings	\$1,418	3.4%	3.4%
Other lodgings	\$244	0.6%	0.8%
Utilities, fuels & pub services	\$2,958	7.1%	7.6%
Household operations	\$876	2.1%	2.2%
Household furnishings & equipment	\$1,305	3.1%	3.5%
Apparel	\$1,639	4.0%	5.2%
Transportation	\$6,697	16.1%	15.9%
Vehicles	\$2,685	6.5%	4.0%
Gasoline & motor oil	\$1,358	3.3%	5.9%
Public transportation	\$260	0.6%	0.3%
Health care	\$1,979	4.8%	3.5%
Entertainment	\$2,480	6.0%	5.0%
Personal care	\$357	0.9%	0.9%
Reading	\$190	0.5%	0.7%
Education	\$470	1.1%	0.9%
Tobacco	\$383	0.9%	1.2%
Miscellaneous	\$769	1.9%	1.4%
Total Family consumption	\$36,528	88.1%	86.3%
Personal insurance & pensions	\$4,483	10.8%	11.8%
Life & other personal insurance	\$573	1.4%	1.7%
Retirement, pension, social security	\$3,910	9.4%	10.1%
Cash contributions	\$476	1.1%	1.9%
Total family budget	\$41,487		
*Federal and State income tax	\$6,177		

***Historical comparison***

Table 3 shows the total budgets (in constant and current dollars) for family consumption for various years between 1909 and 1998 (family consumption includes spending on food, clothing, housing, entertainment, transportation, health care and miscellaneous, but does not

include spending on contributions, life insurance or pensions). As discussed above, the 1908-09 cotton mill budgets were the first ones developed by BLS and represented a “fair” budget. The 1919 DC federal worker budgets represented the budget level for a federal worker to obtain a “standard of health and decency.” The budgets for 1947, 1951 and 1959 represented the “modest but adequate” budgets, while the BLS family budgets for 1966, 1973, 1979 and 1981 represent the “moderate” or “intermediate” budgets. The revised budgets for 1984, 1989, 1994 and 1998 represent the Prevailing Family Standard (PFS), which is the actual median family consumption for a family of four.

**Table 3 Historical family budgets, 1909 - 1998**

Year	Type of Budget	Level of Living	Budget amount Current \$	1998 dollars
1908-09	Cotton mill worker <sup>a</sup> (5 person)	Fair	\$713	\$11,077
1919	DC federal worker <sup>a</sup> (5 person)	Health and decency	\$2,142	\$17,346
1947	BLS family budget <sup>b</sup> (5 person)	Modest but adequate	\$3,329	\$20,874
1947	BLS family budget <sup>b</sup> (4 person)	Modest but adequate	\$2,904	\$18,209
1951	BLS family budget <sup>c</sup> “	Modest but adequate	\$3,750	\$20,107
1959	BLS family budget <sup>c</sup> “	Modest but adequate	\$5,180	\$24,873
1966	BLS family budget <sup>c</sup> “	Moderate/Intermediate	\$7,329	\$31,593
1973	BLS family budget <sup>d</sup> “	Intermediate	\$9,761	\$31,380
1979	BLS family budget <sup>e</sup> “	Intermediate	\$15,353	\$32,280
1979	Revised Watts budget <sup>e</sup> “	Median (PFS)	\$16,129	\$33,912
1981	BLS family budget <sup>f</sup> “	Intermediate	\$18,240	\$31,545
1984	Revised budget <sup>g</sup> “	Median (PFS)	\$20,531	\$30,921
1989	Revised budget <sup>h</sup> “	Median (PFS)	\$27,143	\$34,723
1994	Revised budget <sup>h</sup> “	Median (PFS)	\$31,817	\$34,760
1998	Revised budget <sup>h</sup> “	Median (PFS)	\$36,528	\$36,528
1961	Revised budget <sup>i</sup> “	Median (PFS)	\$6,200	\$28,949
1973	Revised budget <sup>i</sup> “	Median (PFS)	\$10,051	\$32,314

<sup>a</sup> Clorey (1959), table 28

<sup>b</sup> USDL (1947), 4 person budget for median city (St. Louis); 5 person budget calculated using equivalence scale.

<sup>c</sup> USDL (1966)

<sup>d</sup> USDL (1973), Autumn 1973 Urban Family Budgets.

<sup>e</sup> Expert Committee (1980), p.62.

<sup>f</sup> BLS (1982) “Final report on Family Budgets, 1981”

<sup>g</sup> Rogers (1987)

<sup>h</sup> Calculations using 1989, 1994 and 1998 CE data and share of total budget spent on family consumption items.

<sup>i</sup> Calculations using 1960-61 and 1972-73 CE survey data.

As shown in Expert Committee (1980), the 1979 level of the intermediate budget is similar to that of the 1979 prevailing family standard. We can also obtain an estimate of the prevailing family standard for 1961 and 1973. These estimates for family consumption (including mortgage principal) are shown at the bottom of Table 3. (In future research, we

would like to reconstruct these median budgets for 1917-19, 1934-35, 1950-51.) Similar to the results of the Expert Committee (1980), the 1973 PFS levels are slightly higher than the 1973 BLS intermediate family budgets. In addition the 1961 PFS levels are slightly higher than the 1959 intermediate budgets adjusted for inflation. Hence, the table illustrates that the total budgets obtained by either method yields similar estimates. The components, however, are different.

Using expenditure data from historical Consumer Expenditure surveys, Jacobs and Shipp (1990) show that the components of family expenditures have changed dramatically during this century (see Appendix Table C). They show that the share of family spending on food and clothing has dropped substantially (the share for both goods fell from 61 percent in 1901 to 25 percent in 1986-87), while the share of spending on transportation and housing has increased (the housing share increased from 24 percent in 1901 to 34 percent in 1986-87).

Table 4 shows similar results for the expenditure shares of the various budgets for family consumption (excluding insurance, pensions and contributions). As the table shows there has been a shift away from food and clothing toward housing and transportation. (Since 1984, the increase in the share of housing is mostly due to the increased share of homeowners shelter costs).

**Table 4: Historical shares of family consumption**

Component	BLS Family Budgets				Revised Method – PFS		
	1919 <sup>a</sup>	1947 <sup>b</sup>	1966 <sup>c</sup>	1979 <sup>d</sup>	1979 <sup>e</sup>	1984 <sup>f</sup>	1998 <sup>g</sup>
Food	36.1%	36.4%	29.2%	32.9%	22.6%	20.2%	18.2%
Housing	20.0%	24.2%	30.2%	29.9%	33.0%	37.4%	40.8%
Transportation	*	9.0%	11.1%	12.1%	20.5%	18.4%	18.3%
Clothing	24.0%	14.6%	10.3%	8.0%	7.7%	6.0%	4.5%
Health care	3.7%	5.5%	6.4%	7.7%	6.0%	4.1%	5.4%
Other	16.2%*	10.3%	12.7%	9.5%	10.3%	13.9%	12.8%

<sup>a</sup> Clorety (1959), table 28; \*transportation included in Other

<sup>b</sup> USDL (1947), 4 person budget for median city (St. Louis)

<sup>c</sup> USDL (1966)

<sup>d</sup> USDL (1980), “Family Budgets” in *Monthly Labor Review*.

<sup>e</sup> Expert Committee (1980), using average shares for renters and owners.

<sup>f</sup> Rogers (1987)

<sup>g</sup> Calculations using 1998 CE data and shares of family consumption.

## V. Issues

As suggested by Watts (see section on Uses), family budgets can be used to make comparisons among different family types, among areas and over time. These uses, however, rely on some of the more controversial assumptions/choices of the family budgets. These issues are similar to those addressed in the literature on measuring poverty thresholds (see Citro and Michael (1995) and Johnson et al. (1997)) and include:

- *Choosing an equivalence scale to adjust the threshold/budget for differences in household sizes and types*
- *Determining a geographical index for differences in prices across geographical areas*
- *Updating the thresholds/budgets over time*

### ***Equivalence scales***

An equivalence scale is used to adjust the thresholds for differences in household size and composition. As suggested by Deaton (1999), there are three approaches to choosing the equivalence scale:

- The analysis of behavior; using the consumption patterns of families to “compute” the scale economies.
- Arbitrary but transparent formulas, using the square root of family size.
- Asking people; using subjective responses related by family size.

All of these methods have problems and there is no consensus on the approach or the actual scale economies. The Watts commission recommended using a smoothed version of the scale implicit in the official U.S. poverty thresholds. They concluded that none were demonstrably superior to the ones implicit in the poverty thresholds; however, they also claimed that they did not place much weight on their choice.

The NRC panel also concluded that any choice of equivalence scales might be rather arbitrary. They reported that standard methods for using expenditure data to estimate various types of equivalence scales yield many different scales depending on the assumptions made about the measure of well-being, the estimation method, the types of households and data used in the analyses (see also Johnson (1996)).

The NRC panel recommended an arbitrary, but transparent formula. They recommended that the thresholds for household types other than the reference type be determined using an equivalence scale that would adjust for the number of adults and children in the household. This two-parameter scale is given by  $(A + PK)^F$ , where  $A$  represents the number of adults and  $K$  represents the number of children. The Panel recommended that the scale economy factor,  $F$ , be set at either 0.65 or 0.75 and that the parameter  $P$  be set at 0.7.

The NRC panel’s choice of a two-parameter scale was an attempt to be consistent with the cost-of-children literature and to smooth out the increases in the scale for larger family sizes. However, this scale may not be appropriate for childless families. The three-parameter scale (see Betson (1996) and Short et al. (1999)) attempts to reconcile the differences between singles and childless couples, single-parent and two-parent families, and the cost-of-children literature. Compared with the NRC Panel’s recommendation, the three-parameter scale provides more economies of scale between singles and childless couples and more similarity between the scales for families with one parent and two children and two-parent families with one child.

The original BLS family budget program used equivalence scales that were derived from differences in food expenditure patterns among different family types. We compare these original scales to three alternative equivalence scales – the one recommended by the Expert

Committee, the official poverty scales, a two-parameter scale (as in Citro and Michael (1995)), and an alternative three-parameter scale (as in Short et al (1999)). Table 5 presents the scales, normalized so that the scale for the reference family is 1.0.

As Table 5 shows, the three-parameter scales are flatter than those used in the BLS family budget program. That is, there are more economies of scale between families of different sizes.

**Table 5: Alternative equivalence scales**

Family type	BLS Family Budgets	Expert Committee	Official Poverty Scales	Two-parameter (F=0.65; P=0.7)	Three-parameter
Single adults	0.360	0.540*	0.513*	0.451	0.463
Two adults	0.600	0.670*	0.660*	0.708	0.653
Two adults, one child	0.820	0.800	0.794	0.861	0.880
Two adults, two children	1.000	1.000	1.000	1.000	1.000
Two adults, three children	1.116	1.200	1.177	1.129	1.114
One adult, one child	0.570	0.670	0.680	0.637	0.699
one adult, two children	0.760	0.800	0.794	0.797	0.830

\* uses non-elderly scale

The Expert Committee (1980) also recommended against using the median family consumption for a variety of families to determine the budgets. They felt that some family types – they cited aged singles and aged couples – do not enjoy the same high standards as the reference family and that using actual expenditures to estimate standards would merely “validate the status quo.” Recently, researchers have shown that the economic well-being of single parents is much lower than that of married couples.

**Table 6: Comparison of Total Family budgets, medians vs. scales**

Family type	BLS Family Budgets	Three-parameter	Median by type
Single adults	\$14,935	\$19,208	\$18,376
Married couples	\$24,892	\$27,091	\$32,259
Married couple with two children	\$41,487	\$41,487	\$41,487
Married couple with three children	\$46,299	\$46,217	\$42,025*
Single parent with one child	\$23,648	\$28,999	\$21,453**
Single parent with two children	\$31,530	\$34,434	

\* includes all married couples with four or more children

\*\* includes single parents with one or two children



To show these differences, we compare the median budget for various family types to family budgets obtained using the Family budget scales and the three-parameter scales. Table 6 shows that the median expenditures for single non-elderly lie between the budgets determined using the scales. The table confirms the observation that single parent families do not enjoy the same standard of living as the reference families.

While the total budget levels should not be calculated separately for each family type, the data can be used to compare the shares of the components for each family type. Table 7 shows the shares for various components for select family types. The table shows that housing and food expenditures comprise 51 percent of total expenditures for the reference family and for the married couple family without children, but comprise 61 percent of total expenditures for single parents with one or two children.

Similar to other household types, single non-elderly and single parents with one or two children allocate the largest portion of their budget to housing. However, unlike the other household types, more than 60 percent of their housing expenditures go to rent and utilities.

**Table 7: Shares of budget for various family types**

	Reference: Married with two children	Married without children	Married with four or more children	Single parents with one or two children	Single non-elderly person
Food	16.0%	15.6%	17.3%	19.0%	16.0%
Housing	35.3%	35.5%	39.9%	41.5%	39.2%
Owned dwellings	18.9%	15.6%	22.6%	8.8%	7.8%
Rented dwellings	3.4%	5.4%	4.2%	16.0%	20.0%
Utilities	7.1%	8.1%	7.1%	11.2%	7.7%
Other housing	5.8%	6.3%	6.0%	5.5%	3.7%
Apparel	4.0%	3.7%	4.6%	5.0%	4.0%
Transportation	16.1%	15.9%	15.3%	13.5%	14.6%
Health care	4.8%	8.2%	4.2%	4.0%	3.4%
Entertainment	6.0%	4.8%	4.6%	3.9%	4.7%
Other*	5.8%	5.4%	4.5%	5.3%	8.8%
Personal insurance & pensions	10.8%	9.0%	9.7%	7.0%	8.6%
Cash contributions	1.1%	2.0%	0.1%	0.8%	0.7%

\* includes alcohol, tobacco, personal care, reading, education and miscellaneous.

### ***Geographic Indexes: Adjusting for Inter-Area Price Differences***

The Watts commission agreed that the budgets needed to be different for different geographic areas, but, as with the equivalence scale findings, their empirical attempts did not produce “consistent and robust findings.” The NRC Panel also noted that “There is wide agreement that it is desirable to adjust poverty thresholds for differences in prices...[however]...There are no geographic area cost-of-living indexes that correspond to the

CPI.”<sup>11</sup> Determining inter-area adjustments is one of the more controversial components of the experimental poverty measure (see Corbett (1999) and Burtless (1999)). In this section, we compare some of these alternative approaches (see also Malpezzi (1999) for other possible methods).

*BLS Family Budget program.* Budget cost estimates were published for 40 urban areas, four regional averages, and a United States urban average. The budgets were intended to measure equivalent levels of living in the different budget areas; however, identical budgets were not priced in the 40 budget areas. The quantity weights for food were adjusted to account for differences in food preference patterns among regions, clothing and heating fuels were adjusted for climatic differences among the cities, and differences in automobile ownership and usage were incorporated by city size to account for differences in the availability and usage of public transportation.

*BLS Experimental inter-area indexes.* In this paper, inter-area price indexes are constructed using preliminary research conducted at BLS by Kokoski, Cardiff, and Moulton (1994).<sup>12</sup> These researchers used an hedonic methodology and monthly CPI-U price data for July 1988 through June 1989 to produce experimental inter-area price indexes; indexes were computed for the 44 CPI publication geographic areas.<sup>13</sup> These experimental inter-area price indexes were created at the lowest level of CPI price data available and were aggregated to form index factors for 11 major expenditure categories. The resulting 11 expenditure categories comprise about 90 percent of the total family consumption budget. Although the inter-area price indexes are preliminary and of experimental status, there are no other suitable data currently available that can be utilized to estimate inter-area price differences.

*BLS revised experimental inter-area indexes for shelter.* In 1995, the shelter indexes in Kokoski et al. were updated (see BLS (1997)). Using similar methods and more recent data, new indexes were created. These new inter-area indexes were very similar to the original indexes for shelter (correlation coefficient of 0.98).

*NRC Panel on Poverty.* The Panel developed an inter-area price index for shelter. They focused on shelter because housing expenditures are the largest component of their budget and because variations in housing costs are significant across regions and by population size. Using the 1990 decennial census, the Panel used methods similar to those used to produce the fair market rents and computed index values for each of the 341 metropolitan areas. The index values were based on the cost of housing at the 45<sup>th</sup> percentile of the distribution for each area. The data were then grouped into six population size categories within each of the nine census regions, which produced a final set of 41 index values.

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<sup>11</sup> Citro and Michael (1995), pages 182-183.

<sup>12</sup> Johnson et al. (1995) also uses a similar approach to adjust poverty thresholds.

<sup>13</sup> The BLS inter-area index research is still in progress and the current indexes are of experimental status. They do not reflect official BLS published data.

**Table 8: Comparison of Interarea price indexes (using total family consumption)**

Area	BLS Family Budget Program Fall 1981	BLS Experimental Interarea index 1989	BLS Experimental Index Shelter; 1995	NRC Housing index 1990 <sup>14</sup>
NEW YORK CITY	109	134	122	119
PHILADELPHIA	102	106	103	119
BOSTON	112	122	114	121
PITTSBURGH	97	95	94	97
BUFFALO	101	99	96	97
N.Y.C.-CONN. SUBURBS	109	128	119	119
N.Y.C.-N.J. SUBURBS	109	118	113	119
CHICAGO	102	108	105	106
DETROIT	99	97	98	106
ST. LOUIS	98	94	94	103
CLEVELAND	102	95	95	106
MINNEAPOLIS	97	100	99	103
MILWAUKEE	102	98	102	99
CINCINNATI	100	97	96	99
KANSAS CITY	98	93	94	103
WASHINGTON	103	114	104	112
DALLAS	95	97	94	100
BALTIMORE	97	104	100	112
HOUSTON	98	97	93	100
ATLANTA	93	105	97	112
MIAMI	--	99	101	112
TAMPA	--	92	93	104
NEW ORLEANS	--	104	92	96
SAN FRANCISCO	107	125	114	122
SEATTLE	106	108	105	122
SAN DIEGO	99	112	108	122
PORTLAND	--	92	101	110
HONOLULU	118	116	118	103
ANCHORAGE	127	114	111	102
DENVER	99	99	100	100
GREATER L. A.	100	117	104	122
L. A. COUNTY	100	117	113	122

These various indexes are shown in Table 8 for the major CPI cities. The indexes are calculated by adjusting the particular expenditure items included in the index and then adding the other components included in total family consumption. For example, the NRC index values were further adjusted for the estimated fraction of the budget accounted for by housing (including utilities), which was set at 44 percent. Since the NRC indexes are for specific area-

<sup>14</sup> Citro and Michael (1995), pages 194-197.

size regions, they are similar for similar sized cities in the same region (such as Los Angeles and San Francisco).

As Table 8 shows, the indexes for many areas are similar across methods. For example, Boston is consistently high for all methods, while Minneapolis is consistently average (around 100). In fact, the rank correlation between the family budget index and the experimental index is fairly high. The correlation between the overall experimental and revised shelter indexes is the highest (at 91%).

Similar to the analysis of equivalence scales, the median budget could be calculated for each area separately. By pooling five years of data, we can compute the median budget for the reference family for each of the major CPI areas. Table 9 compares the budgets for selected cities using the experimental inter-area indexes to a separate median budget for each area. For some of the areas (e.g., St. Louis), the interarea index yields an overall budget similar to that obtained from the median total budgets in the area. However, for some of the areas (e.g., Minneapolis), the results differ greatly. This suggests, as in the case of inter-family comparisons, that care must be taken in using the actual outlays to make comparisons across areas.

Finally, the table also compares these budgets with those used by the Department of Labor in the implementation of the Workforce Investment Act. This act continues to use updated figures from the 1981 BLS Family Budget Program for selected cities to determine the Lower Living Standard Income Level (LLSIL). These LLSILs are used to determine whether an individual qualifies for job training assistance. The second half of the table compares these LLSIL to the lower living level recommended by the Expert Committee of 67 percent of the median. Again, this table shows that either method yields similar budgets for many areas (e.g., Philadelphia). In fact, the average LLSILs for the major cities differs by only \$300 from the average lower level budget using 67 percent of the median budget.

**Table 9: Comparison of Total Family Budgets for select cities**

<u>CITY</u>	1998 PFS (using 1989 BLS Experimental Indexes)	Median Budget by area (using 1994-98)	Lower Level (67% of 1998 PFS)	USDL LLSIL 1998
PHILADELPHIA	\$43,535	\$37,825	\$29,168	\$27,540
BOSTON	\$49,544	\$44,495	\$33,195	\$29,730
CHICAGO	\$44,530	\$42,045	\$29,835	\$27,440
ST. LOUIS	\$39,132	\$39,664	\$26,218	\$25,270
MINNEAPOLIS	\$41,474	\$54,012	\$27,788	\$25,550
WASHINGTON	\$46,444	\$51,494	\$31,118	\$29,810
ATLANTA	\$43,321	\$38,844	\$29,025	\$24,870
SAN FRANCISCO	\$50,463	\$45,744	\$33,810	\$28,800
ANCHORAGE	\$46,592	\$53,902	\$31,217	\$35,430
L. A. COUNTY	\$47,790	\$44,133	\$32,019	\$28,200

### *Updating the Budgets over time*

The Expert Committee recommended that the standards be updated using the change in the median budget for the reference family as estimated annually using the CE survey data. They intended to use an adjustment factor that increases more than inflation and that would be a more “relative” updating mechanism. Specifically, they recommended a “ratchet” method, such that, if the change in the median were less than the inflation rate, then the inflation rate would be used to update the budget.

This is similar to the method recommended by the NRC Panel for updating the poverty thresholds. The NRC Panel recommended that the poverty thresholds, once determined, should be updated over time using the change in median expenditures for the basic bundle of goods (see Citro and Michael (1995)). The NRC Panel expected that this updating method would produce thresholds that would increase by more than the inflation rate but by less than the change in per capita Personal Consumption Expenditures. The Panel’s motivation came from the observation that the poverty threshold has not increased as much as median income since the 1960s. The Panel’s report showed that the poverty threshold rose less than the change in after-tax median income mainly during the 1960s and early 1970s.<sup>15</sup> The NRC Panel estimated that the elasticity of the basic bundle to total consumption minus health care was 0.65. Others have estimated various elasticities of the poverty threshold with respect to changes in income (see Fisher (1997)).

The key issue, as discussed in Foster (1998), is which components of the measure are relative and which are fixed over time. He claims that “The key distinction between absolute and relative thresholds is not seen in the specific values at a given date, but in how the values change as the distribution changes.”

Recalling Table 3, we can show the difference between the changes in the budgets and the changes in the Consumer price indexes. As shown in the earlier table, the budget increased much more than the inflation rate and for almost all time periods. Figure 1 shows the trends in these two series between 1909 and 1998. Here, the CPI-Exp is constructed using the CPI-U-RS (see Stewart and Reed (1999)) for 1978 – 1998, the CPI-U-X1 for 1947-1977, the CPI-U (base 1982-84) for 1929 – 1947 and the CPI-U (base 1967; BLS Handbook of Methods) for 1909-1928. This shows that the budget increased 56 fold between 1909 and 1998, while the CPI increased only 16 times (for a real increase of 230%). Even during the post-war period of 1947 – 1998, the budget increased 12 times compared to the 6.3 times for the CPI (note this CPI-Exp is lower than the CPI-U; the CPI-U increased 7.3 times during this post-war period.)

To further examine these differences, we compare changes in alternative indexes for 1947 – 1998. Figure 2 shows the trends in the family budgets, CPI-Exp, Median income for a family of four and the per-capita GDP. While the family budgets increased much more rapidly than the inflation rate during this period, they did not increase as much as median income or per-capita GDP.

To determine the “true” increase in the standard of living, we must determine how much of the increase is due to changes in the definition of the “standard” and how much is due to

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<sup>15</sup> See Citro and Michael, page 35.

actual changes in the level of the “standard.” For the earlier periods, it could be that the fair standard used in 1909 implies a lower standard of living than the “modest but adequate” level used in 1947. For the post-war period, however, it seems reasonable that the “modest but adequate,” “moderate” and “intermediate” levels should represent similar standards. In fact, the 1966 report (City worker’s family budget) claimed that “almost all of the improvement in the real level of living [between 1951 and 1966]...has been reflected in the standard...” By showing that the change in the after-tax income for these reference families increased by the same amount as the change in the budget, the report claims that the budget “...continues to represent the same relative position on the scale of consumption over the past two decades.”

These are still relatively subjective concepts and their translation into actual dollar figures might be highly variable. Research on subjective measures shows that the interpretations of measures such as sufficient and good produce amounts that are far apart (see Citro and Michael (1995) and Van Praag and Van der Sar (1988)). Van Praag and Van der Sar (1988) estimate that the average cost level required to obtain a “good” income was higher than that for a “sufficient” income.

## **VI. Conclusion**

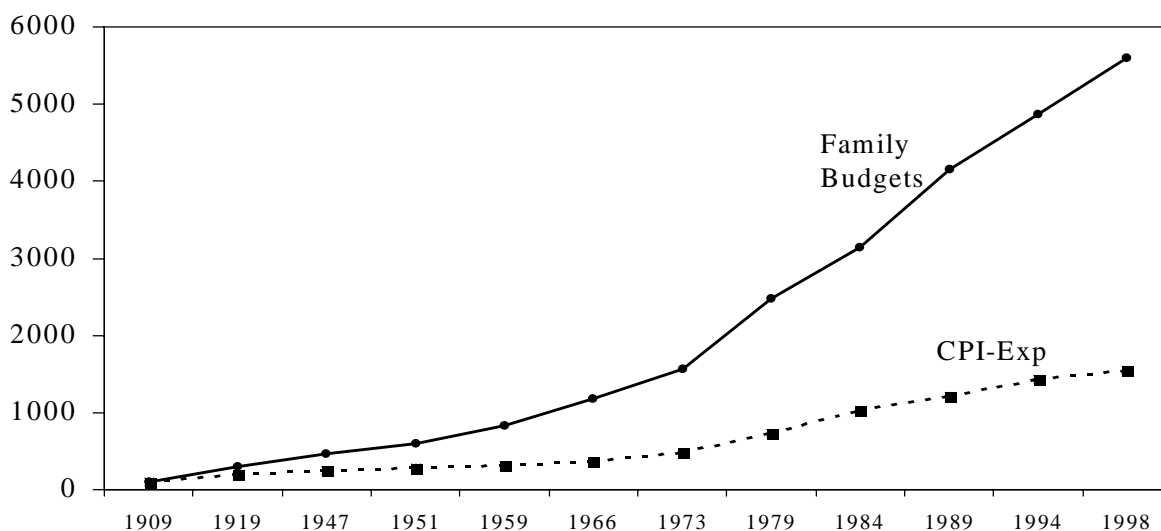
This paper documents the production of family budgets and budget standards that has occurred at BLS during the last century. This paper also uses actual expenditure data to construct a descriptive family budget using the methodology recommended in Expert Committee (1980). These budgets are relatively simple to derive from the current, ongoing Consumer Expenditure Survey. These budgets are calculated for 1989, 1994 and 1998 and compared to earlier estimates of 1984. These estimates are also compared to earlier budget standards that were constructed using an alternative budget-based method.

In contrast to Saunders (1998), these budgets have not increased as much as per-capita GDP or median family income. They have, however, increased more than inflation. Over the past 50 years, the increase in family budgets has an elasticity of about 0.70 with respect to median family income.

Similar to previous work, the descriptive budgets derived from the median total expenditures are close to the “expert” budgets that are constructed to provide a “moderate” or “intermediate” standard of living. While it would not be appropriate for a statistical agency such as BLS to make the necessary subjective determinations of the initial level of the family budget (as Commissioner Moore and others have stated), this paper constructs a descriptive family budget without specifying a subjective standard of living.

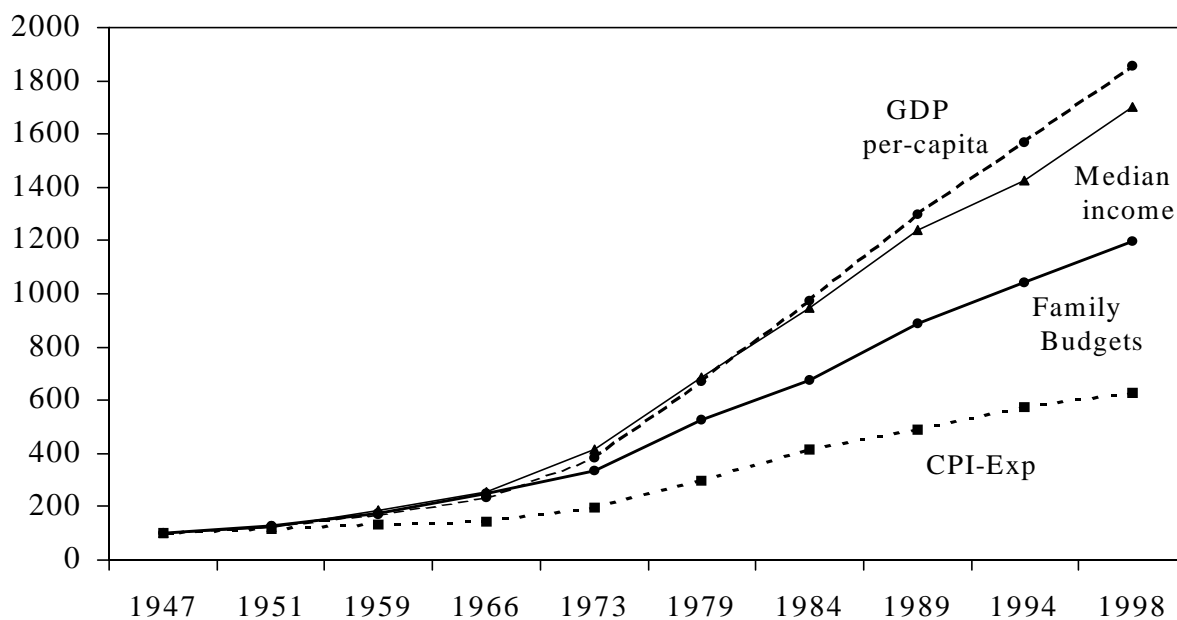
The Expert Committee suggested that these family budgets could be used to compare the level of living among different family types and areas. The results of these comparisons, however, depend on the method used to determine the equivalence scales or interarea indexes. While this paper recommends using a three-parameter scale and a particular interarea index, more research must occur to validate these choices.

**Figure 1: Index values for CPI-Exp and Family Budgets 1909-1998 (1909 = 100)**



NOTE: The CPI-Exp is calculated using the historical CPI until 1928, the CPI-U between 1929 and 1947, the CPI-U-X1 between 1947 and 1968 and the CPI-U-RS after 1978.

**Figure 2: Index values for Family Budgets, CPI-Exp, Median Family Income, Per-capita GDP, 1947-98**



## Appendix Table A: Examples of uses and users of the family budgets<sup>16</sup>

### A. Legislation Affecting Eligibility for Federal Funds

1. CETA Title VI Section 608, Public Service Employment  
Public service job applicants must meet the requirement that family income be less than 70 percent of the BLS Lower Family Budget adjusted for regional and metropolitan and urban differences and family sizes. Currently, about 40 percent of the 4.9 billion dollar allotment is affected by this criterion.
2. CETA Title III Youth Bill (Demonstration Projects)  
Eligible youth must be unemployed and from a family whose income is not above 85 percent of the BLS Lower Budget.

### B. Other Legislative Citations or References

1. Public Law 93-203 (CETA) Section 312d  
“The Secretary shall develop methods to establish and maintain more comprehensive household budget data at different levels of living, including a level of adequacy, to reflect the differences of household living costs in regions and localities, both urban and rural.”
2. Public Law 93-275  
The Federal Energy Administration shall perform economic analyses of proposed action, including the effect of such action on “low and middle income persons as defined by the BLS.”
3. Wage Hour Field Regulations Handbook  
Low wage “are underpaid employees whose most recent normal standard hourly rate is not more than the hourly rate equivalent of the total annual budget for the Lower Living standards.”

### C. Labor-Management Negotiations

1. Service Employees International Union, Firefighters Union, Meat Cutters Union are among the unions that have specifically referred to wage negotiations in requesting family budget data from the Bureau of Labor Statistics. Several other unions in both public and private employment regularly make use of the budgets.
2. The Bendix Corporation requested information about the construction and concept of the Family Budgets in order to counter union wage demands. (Use of the budgets by the business sector, however, seems to be sporadic and infrequent.)

### D. Geographic Wage and Salary Adjustments by Private Firms

Example: Western Electric establishes geographic differentials for salaried workers based on BLS Family Budget interarea indexes.

### E. State and Local Welfare Determination

Data are used at the state and local levels to develop eligibility standards for welfare programs as well as to assess family needs.

Examples:

1. Community Council of Greater New York estimates a welfare budget by adjusting the

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<sup>16</sup> *New American Family Budget Standards*, Expert Committee Report, Table I.1, p.7



BLS lower budget.

2. Division of Income Maintenance, Department of Social Services, State of New York, adjusts lower budget to determine welfare eligibility and allocations.

3. Department of Children and Family Services, State of Illinois, requests budgets for use in determining “suitable adoption subsidy amounts for families applying to adopt hard-to-place children.”

F. Scholarship Aid

The Moderate Budgets are used by the College Entrance Examination Board and the Lower Budget by the American College Testing Service to compute expected parental contributions and establish eligibility for scholarships.

G. Private Legal Actions

The budgets are frequently used in making alimony and child support determinations.

H. Government Legal Actions

The Internal Revenue Service uses the budgets to establish “excess spending” in tax evasion cases.

I. Individuals

The budget data are requested daily to assist individuals involved in relocating to new jobs or retiring to examine inter-area cost-of-living differentials.

## **Appendix B: Description of BLS Family Budgets**

*Food at home.* The U.S. Department of Agriculture developed low-, moderate-, and liberal-cost food plans that were incorporated in the lower, intermediate, and higher budgets. All three food plans met the same nutritional requirements. The food standards were those published by the Nutrition Board of the National Research Council (NRC) that gives sex and age-specific Recommended Dietary Allowances (RDAs) for 17 different food elements or nutrients. However, the cost of the USDA food plans did not depend on the NRC standards. The USDA developed its food plans by first selecting an expenditure level, then examined the actual food consumption patterns at and around that level, and then made adjustments to ensure that nutritional requirements were met. For the three plans used in the family budgets, the after-tax distribution of urban households (based on the Household Food Consumption Survey) was divided into thirds and the food plan and associated cost levels were based on food preference patterns and prices paid by the income class containing the median of each third. As a result, nutritional requirements affected the content but not the cost levels. As an illustration, alternative food plans were developed that met nutritional requirements at one quarter the cost of the moderate cost plan.

*Shelter.* Standards for shelter were developed by the American Public Health Association and the U.S. Public Housing Administration. The standard described sleeping space requirements, essential household equipment (including plumbing), adequate utilities and heat, structural conditions, and neighborhood location. BLS specified that rental and homeowner units included in the budgets had to meet those standards. However, these were minimum standards, intended

to prevent the erection or occupancy of unsuitable structures, or to ensure proper maintenance of existing structures, and to provide a guide for contractual arrangements. They were not intended for use in estimating the cost of adequate shelter, such as for the family budgets. As was the case for food, the budget makers relied on actual spending patterns to estimate the budget standards. Rents and market values of homes meeting the physical requirements were arrayed and divided into thirds and the mean values of each third were used in the budgets. For homeowners, the middle and upper thirds were used for the intermediate and higher budgets, while for renters, the rental value for each third was used in the corresponding budget. Total shelter costs in the intermediate and higher budget were weighted averages of homeowner and renter costs, and actual consumption patterns were used in deriving those weights as well. As a result of these estimation procedures, shelter costs in the budgets were well above the level at which the physical standards could be met.

*Other components.* For the many other components that made up the family budget bundles of goods and services, no scientifically based standards were available. To derive quantities for these other components, the budget makers first relied on a statistical procedure termed the quantity-income-elasticity (q-i-e) technique. For that analysis, expenditure data for major consumption groups were arrayed within family type by income class. The hypothesis underlying the q-i-e technique was that, at the lower end of the income scale, increased spending for items (or groups of items) is a result of increasing the *quantity* purchased of the item. At the higher end of the income scale, increased spending for items is the result of purchasing better *quality* of the item. In theory, the technique would yield an S-shaped curve when quantities and incomes are plotted, with the inflection point marking where families move from purchasing greater quantities of items to purchasing better quality items. This would mark the point at which incomes are sufficient to permit spending on things other than necessities. The quantities of items purchased at that level would be used for the intermediate budget as a standard of adequacy. In practice, the q-i-e technique proved acceptable for only a few components. In many cases, no S-shaped curve with a clear inflection point was found, while for others the point was outside the general range of what were considered acceptable expenditure patterns. Where no suitable estimate could be derived based on the q-i-e technique, the budget makers resorted to deriving the estimates based on prevailing consumption patterns of budget type families. In summary, the methods used to derive the quantities of items in the family budgets are based on a mix of scientifically based standards, actual expenditure patterns of budget type families, and the budget makers own good judgment.

**Appendix Table C:** Shares of family consumption (for an urban family with one wage earner) using actual expenditures (see Table 2 in Jacobs and Shipp (1990)).

<b>Component</b>	<b>1917-19</b>	<b>1950</b>	<b>1960-61</b>	<b>1972-73</b>	<b>1986-87</b>
Food	41.1%	32.5%	26.0%	22.6%	19.4%
Housing	26.8%	26.0%	29.2%	29.3%	33.7%
Transportation	3.1%	13.8%	15.1%	24.1%	25.7%
Clothing	17.6%	11.6%	10.3%	8.4%	5.2%
Health care	4.7%	5.1%	6.6%	4.7%	4.0%
Other	6.7%	11.0%	12.8%	10.9%	12.0%

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