AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

AGRICULTURAL ECONOMICS RESEARCH

A Journal of Economic and Statistical Research in the
United States Department of Agriculture and Cooperating Agencies

Volume X APRIL 1958 Number 2

# Clothing Expenditure Units: A New Time Series

By Martin S. Simon

*Per capita figures in general permit an assessment of changes in economic quantities and values over time, unobscured by trends in population size. Use of total population as the divisor implicitly assumes that each member of the population has equal importance as a consumer or spender, or that the relative distribution of the various groups in the population remains basically unchanged. For many items, such an assumption can be made, but for others it is not acceptable. Apparel expenditures are a case in point. These expenditures differ markedly by age and sex. And the age-sex composition of the population has changed and is changing. This article presents as a population divisor for apparel expenditures a new series called "clothing expenditure units" and contrasts the results of its use with the traditional approach. Calculation of the new series entailed the application of weights consisting of clothing expenditure relatives by age and sex to population estimates by age and sex. The procedure, including assumptions and source material, is described in detail.* *For valuable assistance in the development of the conceptual basis of the study and in preparation of the research, the author is indebted to Frank Lowenstein, head of the Cotton and Other Fibers Section of the Statistical and Historical Research Branch, Agricultural Economics Division, AMS.*

With concern bordering on despair, producers of apparel products and their raw material suppliers, since the end of World War II, have watched consumers spend an ever smaller part of their disposable income on apparel products. Between 1947 and 1956, the percentage of disposable income allotted to apparel items (excluding footwear) declined from 9.2 to 6.2 percent (table 1). Even after adjusting for the decline in apparel prices relative to all consumer prices during most of this period for which the shift in relative consumer demand away from apparel items is in some part to blame, the fall was still steep—from 9.1 to 6.8 percent of disposable income. Whether the downtrend is destined to continue—or, more positively, when it will halt or change direction—depends largely on conditions that are responsible for it.

The downtrend manifested itself in a period of sustained prosperity in the United States, and perhaps was symptomatic of it. Between 1947 and 1956, real personal disposable income per capita rose by about 20 percent. During the same period, real per capita expenditures for men's and boys' apparel declined about 11 percent, and those for women's and children's apparel about 4 per-

TABLE 1.—*Consumer expenditures for apparel*[1] *and personal disposable income: Actual and adjusted for price changes, 1929 to 1956*

| Year | Actual | | | Adjusted for price changes | | |
|---|---|---|---|---|---|---|
| | Personal disposable income | Consumer expenditures for apparel | | Personal disposable income[2] | Consumer expenditures for apparel | |
| | | Total | Percentage of income | | Total[3] | Percentage of income |
| | *Million dollars* | *Million dollars* | *Percent* | *Million dollars* | *Million dollars* | *Percent* |
| 1929 | 83, 120 | 7, 682 | 9. 24 | 113, 397 | 12, 740 | 11. 23 |
| 1930 | 74, 374 | 6, 659 | 8. 95 | 104, 165 | 11, 306 | 10. 85 |
| 1931 | 63, 840 | 5, 713 | 8. 95 | 98, 215 | 10, 659 | 10. 85 |
| 1932 | 48, 660 | 4, 022 | 8. 27 | 83, 322 | 8, 467 | 10. 16 |
| 1933 | 45, 740 | 3, 731 | 8. 16 | 82, 720 | 8, 129 | 9. 83 |
| 1934 | 51, 980 | 4, 585 | 8. 82 | 90, 874 | 9, 133 | 10. 05 |
| 1935 | 58, 322 | 4, 982 | 8. 54 | 99, 356 | 9, 846 | 9. 91 |
| 1936 | 66, 222 | 5, 403 | 8. 16 | 111, 673 | 10, 594 | 9. 49 |
| 1937 | 71, 000 | 5, 546 | 7. 81 | 115, 635 | 10, 328 | 8. 93 |
| 1938 | 65, 692 | 5, 495 | 8. 36 | 108, 942 | 10, 290 | 9. 45 |
| 1939 | 70, 444 | 5, 893 | 8. 37 | 118, 593 | 11, 225 | 9. 47 |
| 1940 | 76, 076 | 6, 153 | 8. 09 | 127, 005 | 11, 566 | 9. 11 |
| 1941 | 92, 982 | 7, 132 | 7. 67 | 147, 825 | 12, 827 | 8. 68 |
| 1942 | 117, 516 | 8, 537 | 7. 26 | 168, 603 | 13, 154 | 7. 80 |
| 1943 | 133, 547 | 10, 486 | 7. 85 | 180, 469 | 15, 466 | 8. 57 |
| 1944 | 146, 761 | 11, 647 | 7. 94 | 195, 161 | 16, 043 | 8. 22 |
| 1945 | 150, 355 | 13, 109 | 8. 72 | 195, 520 | 17, 181 | 8. 79 |
| 1946 | 159, 182 | 15, 097 | 9. 48 | 190, 866 | 18, 037 | 9. 45 |
| 1947 | 169, 016 | 15, 610 | 9. 24 | 176, 980 | 16, 076 | 9. 08 |
| 1948 | 187, 601 | 16, 450 | 8. 77 | 182, 491 | 15, 894 | 8. 71 |
| 1949 | 188, 157 | 15, 371 | 8. 17 | 184, 830 | 15, 464 | 8. 37 |
| 1950 | 206, 130 | 15, 154 | 7. 35 | 200, 516 | 15, 448 | 7. 70 |
| 1951 | 226, 069 | 16, 086 | 7. 12 | 203, 666 | 15, 048 | 7. 39 |
| 1952 | 237, 374 | 16, 588 | 6. 99 | 209, 140 | 15, 679 | 7. 50 |
| 1953 | 250, 235 | 16, 350 | 6. 53 | 218, 737 | 15, 601 | 7. 1[illegible] |
| 1954 | 254, 463 | 16, 117 | 6. 33 | 221, 658 | 15, 453 | 6. 9[illegible] |
| 1955 | 270, 189 | 16, 813 | 6. 22 | 235, 973 | 16, 213 | 6. 87 |
| 1956 | 287, 202 | 17, 825 | 6. 21 | 247, 162 | 16, 896 | 6. 84 |

[1] Clothing and accessories (including luggage but excluding footwear).

[2] Divided by Bureau of Labor Statistics consumer price index (1947–49=100).

[3] Divided by Bureau of Labor Statistics consumer price index for apparel (1947–49=100).

Computed from reports of the Department of Commerce.

cent. These series reached the low point for the post-World War II period in 1954. The percentage decline between 1947 and 1954 was about 16 percent for men and boys and 10 percent for women and children, whereas real disposable income increased about 11 percent.

But this is not the only apparent paradox in the situation. For although real apparel expenditures for women and children per capita have shown a downtrend since 1947, these expenditures have been maintained at a level considerably above those for the prewar period 1929–41. But this was not true of expenditures per capita for men's and boys' apparel—at no time since 1947 have their real apparel expenditures exceeded those in 1929, and they have been below the 1941 level since 1949.

Many explanations have been advanced for the declining relative importance of apparel in the consumer's budget in the post-World War II period. As the decline occurred in a period of generally rising incomes an economist might accept it as an indication of a relatively inelastic demand with respect to income. Other less technical explanations include: (1) The shift in consumer tastes toward more informal clothing; (2) the failure of the industry to compete with other products from a merchandising or promotional standpoint, including the ready extension of credit; (3) the increased durability of fibers and

TABLE 1.—*Consumer expenditures for apparel*[1] *and personal disposable income: Actual and adjusted for price changes, 1929 to 1956*

| Year | Actual | | | Adjusted for price changes | | |
|---|---|---|---|---|---|---|
| | Personal disposable income | Consumer expenditures for apparel | | Personal disposable income[2] | Consumer expenditures for apparel | |
| | | Total | Percentage of income | | Total[3] | Percentage of income |
| | *Million dollars* | *Million dollars* | *Percent* | *Million dollars* | *Million dollars* | *Percent* |
| 1929 | 83, 120 | 7, 682 | 9. 24 | 113, 397 | 12, 740 | 11. 23 |
| 1930 | 74, 374 | 6, 659 | 8. 95 | 104, 165 | 11, 306 | 10. 85 |
| 1931 | 63, 840 | 5, 713 | 8. 95 | 98, 215 | 10, 659 | 10. 85 |
| 1932 | 48, 660 | 4, 022 | 8. 27 | 83, 322 | 8, 467 | 10. 16 |
| 1933 | 45, 740 | 3, 731 | 8. 16 | 82, 720 | 8, 129 | 9. 83 |
| 1934 | 51, 980 | 4, 585 | 8. 82 | 90, 874 | 9, 133 | 10. 05 |
| 1935 | 58, 322 | 4, 982 | 8. 54 | 99, 356 | 9, 846 | 9. 91 |
| 1936 | 66, 222 | 5, 403 | 8. 16 | 111, 673 | 10, 594 | 9. 49 |
| 1937 | 71, 000 | 5, 546 | 7. 81 | 115, 635 | 10, 328 | 8. 93 |
| 1938 | 65, 692 | 5, 495 | 8. 36 | 108, 942 | 10, 290 | 9. 45 |
| 1939 | 70, 444 | 5, 893 | 8. 37 | 118, 593 | 11, 225 | 9. 47 |
| 1940 | 76, 076 | 6, 153 | 8. 09 | 127, 005 | 11, 566 | 9. 11 |
| 1941 | 92, 982 | 7, 132 | 7. 67 | 147, 825 | 12, 827 | 8. 68 |
| 1942 | 117, 516 | 8, 537 | 7. 26 | 168, 603 | 13, 154 | 7. 80 |
| 1943 | 133, 547 | 10, 486 | 7. 85 | 180, 469 | 15, 466 | 8. 57 |
| 1944 | 146, 761 | 11, 647 | 7. 94 | 195, 161 | 16, 043 | 8. 22 |
| 1945 | 150, 355 | 13, 109 | 8. 72 | 195, 520 | 17, 181 | 8. 79 |
| 1946 | 159, 182 | 15, 097 | 9. 48 | 190, 866 | 18, 037 | 9. 45 |
| 1947 | 169, 016 | 15, 610 | 9. 24 | 176, 980 | 16, 076 | 9. 08 |
| 1948 | 187, 601 | 16, 450 | 8. 77 | 182, 491 | 15, 894 | 8. 71 |
| 1949 | 188, 157 | 15, 371 | 8. 17 | 184, 830 | 15, 464 | 8. 37 |
| 1950 | 206, 130 | 15, 154 | 7. 35 | 200, 516 | 15, 448 | 7. 70 |
| 1951 | 226, 069 | 16, 086 | 7. 12 | 203, 666 | 15, 048 | 7. 39 |
| 1952 | 237, 374 | 16, 588 | 6. 99 | 209, 140 | 15, 679 | 7. 50 |
| 1953 | 250, 235 | 16, 350 | 6. 53 | 218, 737 | 15, 601 | 7. 13 |
| 1954 | 254, 463 | 16, 117 | 6. 33 | 221, 658 | 15, 453 | 6. 97 |
| 1955 | 270, 189 | 16, 813 | 6. 22 | 235, 973 | 16, 213 | 6. 87 |
| 1956 | 287, 202 | 17, 825 | 6. 21 | 247, 162 | 16, 896 | 6. 84 |

[1] Clothing and accessories (including luggage but excluding footwear).

[2] Divided by Bureau of Labor Statistics consumer price index (1947–49=100).

[3] Divided by Bureau of Labor Statistics consumer price index for apparel (1947–49=100).

Computed from reports of the Department of Commerce.

cent. These series reached the low point for the post-World War II period in 1954. The percentage decline between 1947 and 1954 was about 16 percent for men and boys and 10 percent for women and children, whereas real disposable income increased about 11 percent.

But this is not the only apparent paradox in the situation. For although real apparel expenditures for women and children per capita have shown a downtrend since 1947, these expenditures have been maintained at a level considerably above those for the prewar period 1929–41. But this was not true of expenditures per capita for men's and boys' apparel—at no time since 1947 have their real apparel expenditures exceeded those in 1929, and they have been below the 1941 level since 1949.

Many explanations have been advanced for the declining relative importance of apparel in the consumer's budget in the post-World War II period. As the decline occurred in a period of generally rising incomes an economist might accept it as an indication of a relatively inelastic demand with respect to income. Other less technical explanations include: (1) The shift in consumer tastes toward more informal clothing; (2) the failure of the industry to compete with other products from a merchandising or promotional standpoint, including the ready extension of credit; (3) the increased durability of fibers and

fiber products, stemming partly from the rise in the use of man-made fibers; (4) the availability of many more new products and services that compete with apparel for the consumer's dollar; (5) the decline in importance of apparel as a prestige item relative to automobiles and housing; (6) improved heating systems in buildings and in means of transportation; (7) the movement of population to the suburbs, which may account partly for increased informality in dress and the shift in the position of the automobile from a luxury item to almost a necessity; and (8) changes in the age-sex composition of the population.

No doubt the list could be extended. Each factor has probably played a part; some are interrelated. But this article addresses itself to the last factor alone. The aim here is to provide for the apparel industry a population series that is adjusted for changes in age-sex composition from the standpoint of their effect on expenditures for apparel.

The use of total population to convert apparel expenditures to a per capita basis assumes implicity that each member of the population has equal weight as an apparel expenditure unit. This in fact is an incorrect assumption. There are differences, and important among these differences are those relating to age and sex. The use of total population to obtain per capita figures thus fails to allow for the effect of changes in the age-sex composition of the population on apparel expenditures.

## Population Composition and Apparel Expenditures

As indicated previously, a change in the age distribution of the population has been offered as partial explanation of the apparent downtrend in per capita expenditures for apparel since the end of World War II.[1] In this respect two developments have been of primary significance:

(1) Trends in birthrates in the United States, which were downward in the 1920's and 1930's, were upward thereafter. In consequence, the number of children in the population 14 years old and younger declined about 9 percent between 1929 and 1941, whereas the rest of the population (excluding Armed Forces overseas) rose about 17 percent. Between 1941 and 1956, the number of children increased about 53 percent, compared with a 17-percent increase for the age group over 14. Relative to total population, these changes meant a decline in the proportion of the population 14 years and under from 30 percent in 1929 to 25 percent in 1941, followed by a recovery to 30 percent by 1956.

(2) The upward trend in life expectancy continued from 1929 to 1956. The proportion of persons in the population 60 years and over rose from about 8 percent in 1929 to 13 percent in 1956. The proportion of women in this group increased also—from 49 to 53 percent.

These developments affect apparel expenditures because spending on items of clothing differs markedly for individuals of different age and sex. Specificially, the proportion of low spenders for clothing in the economy has increased. For example, the average clothing expenditure of husbands and wives 60 years of age and over in Minneapolis-St. Paul in 1948–49 was about on a par with that of children in the 6 to 11 age group. It was considerably below that for other adults and for children 12 years of age and older. Inventories also declined with increasing age, but to a lesser extent than expenditures.[2]

Quantitative information as to the extent of differences in clothing expenditures by age and sex is given in varying detail in several cross-section studies. Differences are large. Data reported by the National Resources Planning Board (*11*) on average clothing expenditures per family member show expenditures by men (16 years and over) to be 2.5 times that for boys (2 to 15 years old). A similar relationship held between women and girls—average expenditures for both exceeded that for their male counterparts by about 15 and 5 percent, respectively. To ignore these differences could be a serious oversight, particularly in light of the shifts in the composition of the population that have occurred.

Cohen (*2*) attempted to account for the effect of changes in the composition of the population on apparel expenditures by introducing in a regression analysis as separate variables (1) population under age 14 and (2) civilian population 14 years and over. His results show that, for the period 1923–41, with other things the same, an increase of 1 percent in the population under 14 years of age

[1] For example, see Cohen (*2*, p. 167). Numbers in italics in parentheses refer to Literature Cited, page 48.

[2] See Brew, O'Leary, and Dean (*1*, pp. 11–15).

was associated with a *decrease* of 0.09 percent in total real clothing expenditures, whereas an increase of 1 percent in the civilian population 14 years of age and over was associated with a 1.13-percent *increase* in expenditure.

## Calculation of Clothing Expenditure Units

By development and use of specially weighted population aggregates we can adjust for the effect of changes in the age-sex structure of the population on apparel expenditures. That is the approach taken here. The primary basis for the weights was provided by Williams and Hanson (*12*) in data on relative expenditures for clothing by persons of different age, sex, and occupation. These data were particularly useful because of the comprehensive breakdown in age, which covered 16 groups, from children under 2 to adults 60 and over. The data were obtained originally in connection with a study of money disbursements of families of wage earners and clerical workers living in large cities in the United States in 1934–36.

In the calculation of clothing expenditures by age, sex, and occupation in the Williams and Hanson study, family size and income are held constant. The average annual expenditure of each class for clothing is given as a percentage of the average expenditure of white male wage earners and clerical workers, 21 through 35 years of age, which is $56.68. The expenditure for the latter group is taken as a single clothing expenditure unit. Thus, application of the clothing expenditure relatives to corresponding population breakdowns by age group results in a weighted aggregate which, for each year, is the sum of clothing expenditure units as defined. In effect, it is population adjusted for changes in age-sex composition. The clothing expenditure units may also be regarded as equivalent male adults.

An example may clarify the procedure. Table 6 shows the clothing expenditure relatives used to weight population by age and sex. Multiplying the number of people in each age group by the appropriate relative and summing over the age groups gives the clothing expenditure units. In order to compare the sum of the clothing expenditure units with the number in the population in absolute terms, the sum of the clothing expenditure units can be multiplied by an adjustment factor which consists of the ratio of the number of age groups to the sum of the relatives for the corresponding age groups. In the case of males 5 years of age and over, this procedure results in 69.9 million clothing expenditure units in 1956 compared with a population total of 72.9 million. As 12 age groups were involved (table 6), the adjustment factor took the form of the ratio of 12 to 9.28 (the sum of the clothing expenditure relatives for the 12 age groups). In effect, this adjusts the clothing expenditure relatives to a level comparable to the implicit unit weights of the population series.

Table 2 gives the corresponding series on clothing expenditure units and population by sex for the years 1929–41 and 1947–56. Figure 1 shows real apparel expenditures by sex for the same years on a per capita basis and in terms of clothing expenditure units. To facilitate comparisons, data in table 2 and figure 1 are shown on a 1929 base. Assumptions and methodological details relating to the use of the Williams and Hanson data and other survey information in the construction of these series are given in a later section.

## Population and Clothing Expenditure Units

Figure 1 indicates that the use of population adjusted for changes in age-sex distribution, as represented by the series on clothing expenditure units, has a decided bearing on the level and trend of apparel expenditures per person. This is particularly true of expenditures for women's and children's apparel, largely because of the addition of males under 5 to the children's group.[3]

The index numbers of real apparel expenditures for men and boys per capita and per clothing expenditure unit show almost identical movements during 1929–41. Roughly offsetting changes in the proportion of children (5 to 14 years of age) and of relatively low spenders for clothing among the adults, particularly the 50 and over age group, were primarily responsible for this development. During 1947–56, both of these age groups increased in size relative to the total. In consequence, the number of males in the population 5 years old and

[3] Information obtained from representatives of the United States Department of Commerce led to the conclusion that expenditures for children's clothing would include that for clothing for male youngsters through about size 5. For this reason, males under 5 are included with females in adjusting the women's and children's expenditure series for changes in population size and age composition.

TABLE 2.—*Population and clothing expenditure units by sex: Index numbers, United States, 1929–41 and 1947–56*

[1929=100]

| Year | Population [1] | | | Clothing expenditure units [1 3] | | |
|---|---|---|---|---|---|---|
| | Men and boys | Women and children [2] | Total | Men and boys | Women and children [2] | Total |
| 1929 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1930 | 101 | 101 | 101 | 101 | 101 | 101 |
| 1931 | 102 | 101 | 102 | 102 | 102 | 102 |
| 1932 | 103 | 102 | 103 | 103 | 103 | 103 |
| 1933 | 104 | 102 | 103 | 104 | 104 | 104 |
| 1934 | 105 | 103 | 104 | 105 | 105 | 105 |
| 1935 | 106 | 103 | 105 | 106 | 105 | 106 |
| 1936 | 107 | 104 | 105 | 107 | 106 | 106 |
| 1937 | 107 | 105 | 106 | 107 | 107 | 107 |
| 1938 | 108 | 106 | 107 | 108 | 108 | 108 |
| 1939 | 108 | 107 | 107 | 109 | 109 | 109 |
| 1940 | 109 | 108 | 108 | 109 | 110 | 110 |
| 1941 | 110 | 109 | 109 | 110 | 111 | 111 |
| 1947 | 115 | 120 | 118 | 114 | 119 | 117 |
| 1948 | 117 | 123 | 120 | 116 | 120 | 118 |
| 1949 | 118 | 125 | 122 | 117 | 122 | 120 |
| 1950 | 120 | 128 | 124 | 118 | 123 | 121 |
| 1951 | 120 | 131 | 126 | 118 | 125 | 122 |
| 1952 | 122 | 133 | 128 | 119 | 126 | 123 |
| 1953 | 124 | 135 | 130 | 120 | 128 | 125 |
| 1954 | 126 | 138 | 132 | 122 | 130 | 126 |
| 1955 | 129 | 140 | 135 | 124 | 131 | 128 |
| 1956 | 131 | 143 | 137 | 126 | 133 | 130 |

[1] Estimates as of July 1 excluding Armed Forces overseas.

[2] Includes male children under 5.

[3] Population adjusted for changes in age-sex composition. Each unit is equivalent to the average annual clothing expenditure of $56.68 by white male wage earners and clerical workers, 21 through 35 years of age, in 1934–36.

Population series from reports of the Bureau of the Census. Clothing expenditure units computed from data given in Williams and Hanson (*12*) following the procedure described in the text.

over rose faster than the number of clothing expenditure units they represented (table 2). The effect of this divergence on apparel expenditures per person is shown in figure 1.

For the index numbers that relate to expenditures for women's and children's apparel, differences are somewhat more pronounced, reflecting primarily the inclusion of children of both sexes under 5 years of age. Thus, during 1929–41, the number of clothing expenditure units for women and children rose faster than the number of women and children, as increases in the proportion of older female adults in the total population failed to compensate for decreases in the children's proportion. Both of these groups, as for the men and boys, increased during 1947–56, with the result that the increase in clothing expenditure units was much less than the increase in the number of women and children in the population. Figure 1 shows the effect on expenditures for women's and children's clothing per person of the alternative adjustments for population changes.

Effects of adjustment for changes in the age-sex composition of the population described above may be understated. This is due to the fact that the clothing expenditure relatives, which were used as weights for the population adjustment, differ in terms of coverage from the time series on aggregate apparel expenditures, for which the adjusted population series were developed. The former include expenditures for shoes, the latter do not—this is the most important difference.

As expenditures for shoes absorb a larger proportion of the total spending for clothing for children than for adults, it follows that the weights used for the children from the standpoint of their applicability to the apparel expenditure time series are too large. Adjustment for this factor would reduce the number of clothing expenditure units in the population.

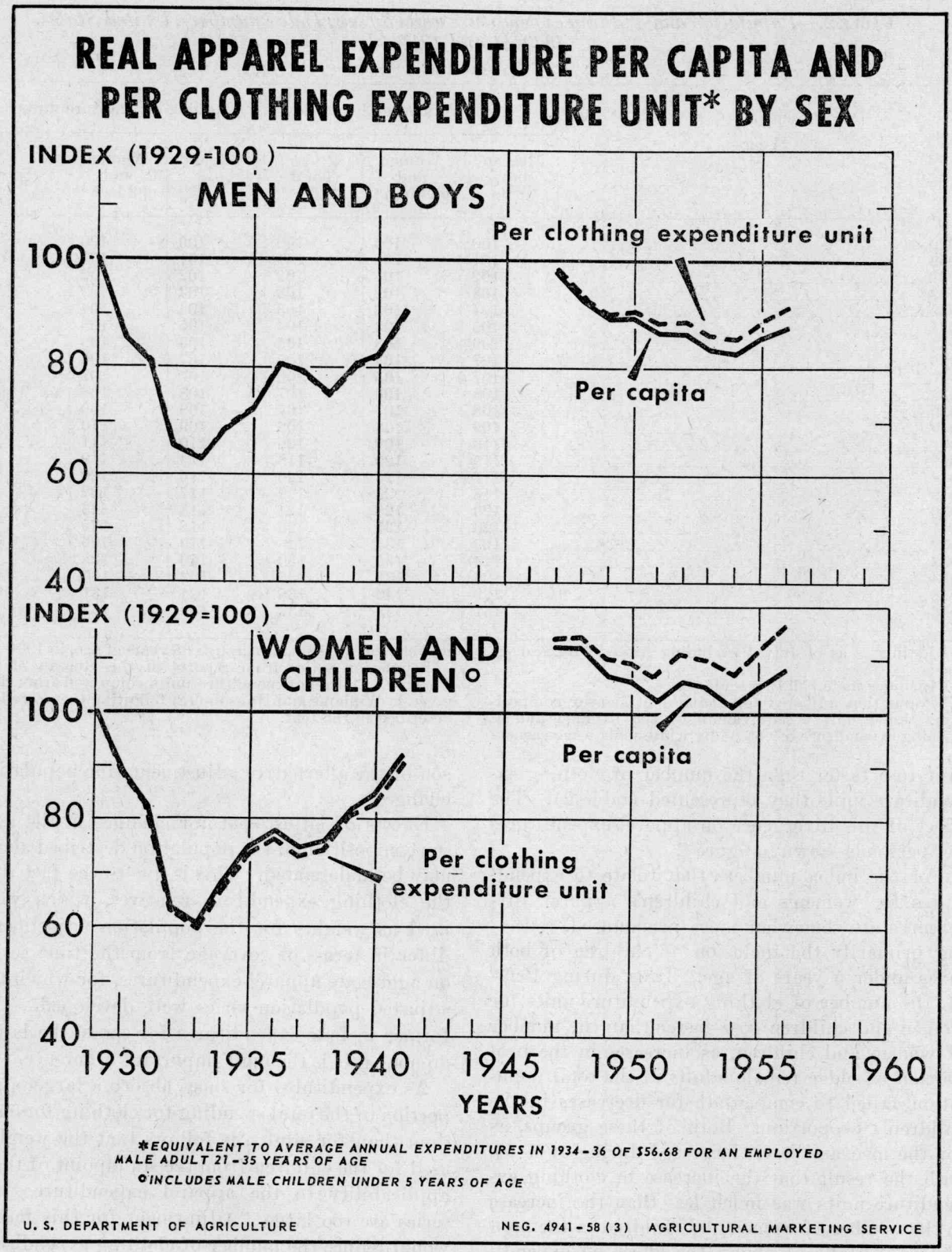
REAL APPAREL EXPENDITURE PER CAPITA AND PER CLOTHING EXPENDITURE UNIT* BY SEX
INDEX (1929=100)
MEN AND BOYS
Per clothing expenditure unit
Per capita
100
80
60
40
INDEX (1929=100)
WOMEN AND CHILDREN°
Per capita
Per clothing expenditure unit
100
80
60
40
1930
1935
1940
1945
1950
1955
1960
YEARS
*EQUIVALENT TO AVERAGE ANNUAL EXPENDITURES IN 1934-36 OF $56.68 FOR AN EMPLOYED MALE ADULT 21-35 YEARS OF AGE
°INCLUDES MALE CHILDREN UNDER 5 YEARS OF AGE
U. S. DEPARTMENT OF AGRICULTURE
NEG. 4941-58 (3) AGRICULTURAL MARKETING SERVICE

FIGURE 1.

Some idea of the degree of error can be obtained from expenditure studies that provide product detail. Thus, in a study reported by the Bureau of Labor Statistics (*4*), the proportion of clothing expenditure accounted for by footwear in 1941 was 27 and 23 percent, respectively, for boys and girls (2 to 15 years of age) compared with percentages of 14 and 16, respectively, for men and women (16 years and over).

A partial offset to the foregoing discrepancy is provided by other differences in coverage, particularly those relating to expenditures for clothing upkeep, such as cleaning and repairing, and for jewelry. Spending for these items is included in the clothing expenditure relatives but not in the apparel expenditure time series. In the study cited (*4*), expenditures for these items accounted for 10 percent of the total clothing expenditures by men and boys (16 years and over), 7 percent of those by women and girls (16 years and over), and 5 percent each of those for boys and girls (2 to 16 years of age). Because of the partial offset and because the necessary data are limited, no attempt was made to adjust for the several inconsistencies in coverage, but they should be borne in mind when interpreting results.

## Projections

The Bureau of the Census periodically publishes projections of the population of the United States by age and sex for a certain period in the future. These projections are based on assumed levels of fertility, mortality, and net immigration. Several alternative projections are generally given. These are based on alternative assumptions as to future levels of fertility. The most recent projections were published by the Bureau (*9*) in October 1955. They are undergoing revisions that are expected to be available in the near future.

The "high" 1955 projections of population by age and sex were used to calculate clothing expenditure units in order to provide some indication of the future relationship between these units and population. The results of these calculations are given in table 3 in the form of index numbers based on 1955. These data are not exactly comparable with the estimates given in table 2 for 1929 to 1956 because of (1) the inclusion of members of the Armed Forces overseas and (2) slight revisions in the actual estimate for 1955. However, the differences are probably of little consequence.

As is apparent from table 3, based on present high projections of future population, the rate of growth in population and in clothing expenditure units between 1955 and 1975 is expected to be roughly similar. For men and boys, based on the "AA" projection series,[4] the rate of increase in clothing expenditure units from 1955 catches up with population by 1970; based on the "A" series,[5] it passes population by 1970. For women and children, based on both series, the rate of increase in clothing expenditure units from 1955 stays fairly close to that of population but never quite catches up.

In terms of the 1929 base (table 2), the projections indicate that the disparity that developed between population and clothing expenditure units between 1929 and 1955 will tend to persist, with some variation, during the next 20 years or so. In the case of men and boys, the difference between the series will tend to widen until 1960 or 1965 (depending on the projection series) and then narrow somewhat over the ensuing decade, ending up about the same as at present. For women and children (including males under 5 years of age), the disparity will continue to widen during the next two decades, but at a somewhat reduced rate, particularly until 1970.

In evaluating these projections, several points should be borne in mind. In the first place, census projections are based on certain assumptions with respect to the determinants of population growths. If these assumptions turn out to be incorrect, the projections of population and, of course those of clothing expenditure units, will prove incorrect also. As already stated, the Bureau of the Census is now revising its projections. Second, in the foregoing calculations only the high projections were used; in light of recent developments they appeared to be more reasonable than the lower ones. But they may still be too high. And, to mention a third point, though the projections are useful indicators of probable future

[4] Assumed that the 1954–55 level of fertility would continue to 1975.

[5] Assumed that the 1950–53 level of fertility would continue to 1975.

TABLE 3.—*Projections of population and clothing expenditure units by sex: Index numbers, United States, 1960 to 1975*

[1955=100]

| Year | Population [1] | | | | | | Clothing expenditure units [1 5] | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Men and boys | | Women and children [4] | | Total | | Men and boys | | Women and children [4] | | Total | |
| | AA [2] | A [3] | AA [2] | A [3] | AA [2] | A [3] | AA [2] | A [3] | AA [2] | A [3] | AA [2] | A [3] |
| 1960 | 108 | 108 | 109 | 107 | 109 | 108 | 107 | 107 | 107 | 107 | 107 | 107 |
| 1965 | 117 | 116 | 117 | 115 | 117 | 115 | 116 | 115 | 116 | 115 | 116 | 115 |
| 1970 | 126 | 124 | 127 | 124 | 127 | 124 | 126 | 124 | 126 | 124 | 126 | 124 |
| 1975 | 136 | 133 | 140 | 135 | 138 | 134 | 137 | 134 | 138 | 134 | 137 | 134 |

[1] Estimates as of July 1 including Armed Forces overseas.
[2] Assumes 1954–55 level of fertility continues to 1975.
[3] Assumes 1950–53 level of fertility continues to 1975.
[4] Includes male children under 5 years of age.
[5] Population adjusted for changes in age-sex composition. Each unit is equivalent to the average annual clothing expenditure of white male wage earners and clerical workers, 21 through 35 years of age, in 1934–36 of $56.68.

Population series computed from Bureau of the Census (*9*). Clothing expenditure units computed from data given in Williams and Hanson (*12*) following the procedure described in the text.

growth of population, in view of the foregoing they should be interpreted with caution.

The most important of the changes within the population aggregate that bear on aggregate apparel expenditures are those in age-sex composition, but they are not the only ones. Others that may be included are: (1) Historic shifts in the proportion of women in the population in the labor force; (2) rural-urban migration; (3) urban-suburban migration; (4) trends in family size; (5) changes in marital status; (6) in type of occupation, and (7) in geographic location.

## Methodology

Details of the method used to convert population to an equivalent basis from the standpoint of individual apparel expenditures are given in the paragraphs that follow.

The initial requirement is information on apparel purchases by age and sex. Information is available from several sources, but none of it fully represents the age-sex composition of the entire population. All cross-section studies reviewed for this purpose have limitations. For some, the age breakdown is too broad, being limited essentially to a distinction between adults and children. For others, for which a more detailed age breakdown is given, there are problems of restricted coverage.

For example, Brew, O'Leary, and Dean (*1*) give age-expenditure and age-inventory detail for white families consisting of a husband and wife and no more than two dependent children, 2 to 15 years of age, living in Minneapolis-St. Paul and Meeker and Wright Counties, Minnesota, in 1948–50. There are three age breakdowns for children—2 to 5 years, 6 to 11 years, and 12 to 15 years—and five for parents—under 30, 30 to 39, 40 to 49, 50 to 59, and 60 and over. Single individuals over 16 years of age, whether or not they are members of a family, and infants are not included. The study is limited in geographical coverage.

In another study, conducted by the U. S. Bureau of Labor Statistics (*3*), expenditures for clothing for family members other than husband and wife are given for the following age breakdowns: (1) 2 to 5 years; (2) 6 to 11 years; (3) 12 to 15 years; (4) 16 to 29 years; and (5) 30 years and over. No age breakdown is given for husbands and wives. Data are shown separately by income class, color, geographic area, and family size. The survey was conducted in 1936 by the Bureau of Labor Statistics in selected cities in different regions of the country.

The most comprehensive sex-age breakdown of clothing expenditures is given by Williams and Hanson (*12*). This is a study of money receipts and disbursements of wage earners and salaried workers covering 12 months within the period 1934–36 in 42 cities in the United States, each with population over 50,000. Like the source

TABLE 4.—*Relative clothing expenditures for persons of different age, sex, and occupation* [1]

[*Ratio to the $56.68 annual expenditure of male wage earners and clerical workers aged 21 and under 36*]

| Age | Male | | | | Female | | | |
|---|---|---|---|---|---|---|---|---|
| | Under 5 and at school | At home | Clerical | Wage earner | Under 5 and at school | At home | Clerical | Wage earner |
| *Years* | | | | | | | | |
| Under 2 | 0.19 | -------- | -------- | -------- | 0.19 | -------- | -------- | -------- |
| 2 and under 6 | .34 | -------- | -------- | -------- | .38 | -------- | -------- | -------- |
| 6 and under 9 | .48 | -------- | -------- | -------- | .47 | -------- | -------- | -------- |
| 9 and under 12 | .53 | -------- | -------- | -------- | .56 | -------- | -------- | -------- |
| 12 and under 15 | .63 | -------- | -------- | -------- | .77 | -------- | -------- | -------- |
| 15 and under 18 | .88 | 0.74 | 1.02 | 1.02 | 1.01 | 0.94 | 1.08 | 1.08 |
| 18 and under 21 | 1.01 | .80 | 1.14 | 1.13 | 1.28 | 1.05 | 1.60 | 1.63 |
| 21 and under 24 | -------- | .57 | 1.14 | 1.07 | -------- | 1.04 | 1.66 | 1.60 |
| 24 and under 27 | -------- | .48 | 1.13 | 1.00 | -------- | 1.02 | 1.64 | 1.46 |
| 27 and under 30 | -------- | .46 | 1.10 | .96 | -------- | 1.00 | 1.62 | 1.36 |
| 30 and under 36 | -------- | .44 | 1.04 | .92 | -------- | .96 | 1.58 | 1.23 |
| 36 and under 42 | -------- | .43 | .94 | .87 | -------- | .88 | 1.48 | 1.07 |
| 42 and under 48 | -------- | .41 | .87 | .81 | -------- | .78 | 1.35 | .94 |
| 48 and under 54 | -------- | .39 | .80 | .75 | -------- | .68 | 1.18 | .84 |
| 54 and under 60 | -------- | .37 | .75 | .69 | -------- | .58 | 1.03 | .76 |
| 60 and over | -------- | .35 | .65 | .60 | -------- | .40 | .78 | .67 |

[1] Data based on white families in 42 cities combined.
Reproduced in essence from Williams and Hanson (*12*, p. 364).

quoted in the last paragraph, this study was conducted under the auspices of the Bureau of Labor Statistics. It was undertaken for the primary purpose of up-dating the weights used in the Bureau's cost-of-living indexes. The families included in the study had to meet the following criteria (*12*, p. 1): "Family incomes of at least $500 per year; no receipt of relief, either direct or work relief, during the survey year; at least one earner employed for 36 weeks and earning at least $300; no clerical worker earning over $200 per month or $2,000 per year."

In this study, clothing expenditures are shown for 16 age breakdowns from children under 2 years of age to adults 60 and over by sex and activity. The following activity for each sex is recorded: (1) Children under 5 and at school; (2) persons at home; (3) wage earners; and (4) clerical workers. Expenditures for each group are expressed as relatives to the annual average expenditure of $56.68 of male wage earners and clerical workers, 21 through 35 years of age. The data for each group represent composite averages covering approximately 10,000 white families and are adjusted for differences in family size and income.[6] The series on relative clothing expenditures by age, sex, and occupation are reproduced in table 4.

Although limited in the sense that they apply directly to only a part of the population, the clothing expenditure relatives shown in table 4 appear to be best suited for the purpose at hand. In their use, the assumption is made that they can be regarded as representative of the population as a whole. The reasonableness of this assumption was checked by comparing appropriate recombinations of the expenditure relatives with those calculated from other studies for which population representation was broader but age detail was more restricted. On the whole, the comparisons tend to confirm the validity of the assumption (see p. 47).

### Calculation of the Weights

The following rough adjustments were made in the expenditure relatives before they were used as weights in the conversion of population to equivalent clothing-expenditure units: (1) A single continuous series for males and for females was obtained by abstracting from the activity differences by age and sex. (2) The age breakdowns were regrouped to conform to the age breakdowns of the published population estimates. As a first step, estimates of the clothing expenditure relatives by single years of age were obtained

[6] The average income of the white families was $1,546 and the average family included 3.6 persons.



458561—58——2

by interpolation between the age group averages given in table 4.

The major difference among the four activities for which data are available is one of level. As table 4 shows, for most of the adult age span, the relative clothing expenditures of clerical workers is highest, followed in order by wage earners, children under 5 and at school (for the ages for which they overlap the other groups, 15 through 20), and persons at home. This holds for both males and females.

The shape of the curves for the employed adults over the age span is, in the main, similar, rising to a peak in the late teens and early 20's and declining thereafter. Except for female wage earners, the decline is gradual. Expenditures for persons at home also rise to a peak in the late teens and early 20's and then decline over the entire age span. For men at home, the initial decline is relatively sharp but after the middle 20's it tapers off at a moderate rate. Expenditures for children rise steadily and at a relatively rapid rate.

The expenditure relatives for male and female clerical workers were taken to represent the expenditure pattern by age of the entire working population in the United States. The selection was based on the assumption that the age-expenditure pattern of omitted groups tend to *average* somewhat higher in level than the patterns of either wage earners or clerical workers, thus offsetting the fact that expenditures by wage earners are lower than those made by clerical workers. The omitted groups include single consumers regardless of occupation, business and professional workers, and persons living on farms.

The next step was to combine the expenditure relatives for the groups in clerical occupations, at home, and in school into a single series for each sex. Weights were computed for this purpose from information on the employment status of the population given in the 1940 Census of Population (*5*, *6*). These weights consist of the percentage of the population 14 years of age and older employed, the percentage in school, and the percentage not in school and not employed, whether for reasons of unemployment, housekeeping, inability to work because of illness or disability, or retirement. The percentage not in school and not employed was used to represent the "at home" group. The 1940 census was chosen because of the pertinent information it provides on employment status and its relative proximity in time to the expenditure survey.

The employment-status weights were available for 19 relevant age breakdowns, and included single years of age for the age group 14 to 24 and 5-year age groups from 25 to 60 and over. These are shown by sex in table 5. By linear interpolation, single years of age were estimated for the employment-status percentages for the 25 to 59 year age group. The percentages by single years of age were then used to effect the combination of the three series on clothing expenditure relatives into a single one covering the full age span.

TABLE 5.—*Employment status of the population 14 years of age and over: Percentage distribution by age and sex, United States, 1940*

| Age | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | Employed | In school[1] | At home[2] | Employed | In school[1] | At home[2] |
| *Years* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* |
| 14 | 5 | 83 | 12 | 1 | 85 | 14 |
| 15 | 9 | 79 | 12 | 2 | 82 | 16 |
| 16 | 15 | 68 | 17 | 5 | 71 | 2[illegible] |
| 17 | 23 | 54 | 23 | 10 | 57 | 3[illegible] |
| 18 | 38 | 34 | 28 | 23 | 31 | 46 |
| 19 | 51 | 20 | 29 | 33 | 17 | 50 |
| 20 | 60 | 12 | 28 | 37 | 9. | 54 |
| 21 | 67 | 8 | 25 | 39 | 6 | 55 |
| 22 | 72 | 6 | 22 | 40 | 3 | 57 |
| 23 | 75 | 4 | 21 | 38 | 2 | 60 |
| 24 | 78 | 2 | 20 | 36 | 1 | 63 |
| 25–29 | 82 | 1 | 17 | 32 | (3) | 68 |
| 30–34 | 85 | (3) | 15 | 28 | (3) | 72 |
| 35–39 | 84 | (3) | 16 | 25 | (3) | 75 |
| 40–44 | 83 | (3) | 17 | 23 | (3) | 77 |
| 45–49 | 81 | (3) | 19 | 21 | (3) | 79 |
| 50–54 | 79 | (3) | 21 | 18 | (3) | 82 |
| 55–59 | 74 | (3) | 26 | 16 | (3) | 84 |
| 60 and over | 48 | (3) | 52 | 8 | (3) | 92 |
| Average | 67 | 9 | 24 | 22 | 9 | 69 |

[1] Estimated from a 5-percent sample. See U. S. Bureau of the Census (*5*).

[2] Includes those seeking work, on public emergency work, engaged in housekeeping, unable to work, in institutions, retired, etc.

[3] Less than 0.5 percent.

Compiled from U. S. Bureau of the Census (*6*, p. 90) and (*5*, pp. 17, 31).

Published estimates of the population of the United States by age and sex on an annual basis are given primarily in 5-year age groups (*7*, *8*, *10*). In only a few instances do these groups correspond

to those of the clothing expenditure relatives as originally given (see table 4). Correspondence was effected as follows: A breakdown of the population of the United States by single years of age was obtained from the 1940 census (*6*). Using these data as weights, the estimates of the combined series of clothing expenditure relatives by single years of age were regrouped to correspond to the usual 5-year age groups of the annual population estimates. Table 6 gives the results of these calculations. The regrouped clothing expenditure relatives were used to estimate the number of clothing expenditure units in the population as of July 1 for each year from 1929 to 1956. These are shown in index number form in table 2.

**Final Evaluation**

In evaluating final results, the data and assumptions should be kept clearly in mind. The final set of weights are based on limited information; they required various adjustments, some necessarily rough. The clothing expenditure relatives apply directly to only a part of the population at a specific period of time. When alternative information or procedures were available, the selection was made primarily on the basis of personal judgment. Obviously, the results depend on the particular choices made. The final series is believed to be an acceptable one, but others might be equally acceptable.

As noted earlier, in an attempt to obtain confirmation for the assumption that the clothing expenditure relatives given in Williams and Hanson (*12*), as adjusted, can be taken as representative of the age-expenditure pattern of consumers in the United States over time, comparisons were made, to the extent possible, with information from other studies. In general, comparisons were favorable to the assumption. For example, the usual ranking in order of importance in clothing expenditure for adults and children by sex is as follows: (1) Female adults; (2) male adults; (3) female children; (4) male children; and (5) infants (children under two). The adjusted clothing expenditure relatives conform to this ranking.

In addition, relative differences in the magnitude of expenditures at the adult level and separately for the children appear to be consistent. This does not hold, however, for differences between the two groups by sex. Thus, on the basis

TABLE 6.—*Clothing expenditure relatives used to weight population by age and sex*

| Age | Male | Female |
|---|---|---|
| *Years* | | |
| Under 5 | 0. 27 | 0. 29 |
| 5–9 | . 47 | . 47 |
| 10–14 | . 60 | . 70 |
| 15–19 | . 93 | 1. 10 |
| 20–24 | 1. 02 | 1. 29 |
| 25–29 | 1. 00 | 1. 21 |
| 30–34 | . 95 | 1. 14 |
| 35–39 | . 88 | 1. 05 |
| 40–44 | . 82 | . 96 |
| 45–49 | . 76 | . 85 |
| 50–54 | . 71 | . 75 |
| 55–59 | . 65 | . 64 |
| 60 and over | . 49 | . 43 |

Computed from data given in Williams and Hanson (*12*) and adjusted as described on pp. 44–47.

of the adjusted clothing expenditure relatives, expenditures for clothing for children (2 to 15 years of age) are slightly more than 60 percent of those of their adult counterparts. Information from other surveys, however, tends to show a smaller percentage relationship. A comprehensive study reported by the United States National Resources Planning Board (*11*) shows that average clothing expenditures per person for boys and girls (2 to 15 years of age) in 1935–36 were about 41 and 38 percent, respectively, of those of men and women (16 years and over). In a nationwide study of family expenditures in 1941 (*4*), this percentage was computed to be about 45 percent for both sexes.

This difference in the magnitude of the relationship between adults and children may reflect in part the fact that calculation of the original clothing expenditure relatives by age and sex (see table 4) was made with family income and family size held constant. Using unadjusted data from Williams and Hanson (*12*), average clothing expenditures per person for boys 2 to 17 years of age were estimated to be 55 percent of those for men 18 years and over, and for girls 50 percent of those of women. The corresponding percentage for the adjusted data was 70 percent for both sexes. Other factors that may account for the differences in magnitude include differences in the coverage of the several surveys and the use of information from the 1940 Census of Population for combining and adjusting the clothing expenditure relatives.

Some consideration was given to development of a separate set of weights or clothing expenditure relatives for the post-World War II period, using primarily data reported by Brew, O'Leary, and Dean (*1*). This was abandoned because of (1) the limited coverage of this survey and (2) the fact that more similarities than differences were found with the expenditure weights calculated from the data in Williams and Hanson (*12*).

## Literature Cited


(*1*) Brew, Margaret L., O'Leary, Roxanne R., and Dean, Lucille C.
1956. FAMILY CLOTHING INVENTORIES AND PURCHASES . . . WITH AN ANALYSIS TO SHOW FACTORS AFFECTING CONSUMPTION. U. S. Dept. Agr. Agr. Inform. Bull. 148, 175 pp.

(*2*) Cohen, Morris
1955. TEXTILE TRENDS: LONG AND SHORT MODELS. BUSINESS RECORD. 12:164–168, illus. New York, National Industrial Conference Board.

(*3*) United States Bureau of Labor Statistics
1941. FAMILY EXPENDITURES IN SELECTED CITIES, 1935–36. VOLUME III. CLOTHING AND PERSONAL CARE. U. S. Bur. Labor Statis. Bull. 648, 578 pp., illus.

(*4*) ———
1945. FAMILY SPENDING AND SAVING IN WARTIME. U. S. Bur. Labor Statis. Bull. 822, 218 pp., illus.

(*5*) United States Bureau of the Census
1943. POPULATION CHARACTERISTICS OF PERSONS NOT IN THE LABOR FORCE 14 YEARS OLD AND OVER. 117 pp., illus. [From the 16th Census of the U. S., 1940.] Washington.

(*6*) ———
1943. [U. S.] CENSUS OF POPULATION: 1940. VOLUME IV, CHARACTERISTICS BY AGE; PART 1, UNITED STATES SUMMARY. 183 pp., illus. Washington.

(*7*) United States Bureau of the Census
1954. ESTIMATES OF THE POPULATION OF THE UNITED STATES AND OF THE COMPONENTS OF CHANGE, BY AGE, COLOR, AND SEX: 1940 TO 1950. U. S. Bur. Census. Current Population Rpts.; Population Estimates, Ser. P–25, No. 98, 20 pp. [Processed.]

(*8*) ———
1955. ESTIMATES OF THE POPULATION OF THE UNITED STATES, BY AGE, COLOR, AND SEX: 1900 TO 1940. U. S. Bur. Census Current Population Rpts.; Population Estimates, Ser. P–25, No. 114, 11 pp. [Processed.]

(*9*) ———
1955. REVISED PROJECTIONS OF THE POPULATION OF THE UNITED STATES, BY AGE AND SEX: 1960 TO 1975. U. S. Bur. Census Current Population Rpts.; Population Estimates, Ser. P–25, No. 123, 10 pp., illus. [Processed.]

(*10*) ———
1956. ESTIMATES OF THE POPULATION OF THE UNITED STATES, BY AGE, COLOR, AND SEX: JULY 1, 1950 TO 1956. U. S. Bur. Census Current Population Rpts.; Population Estimates, Ser. P–25, No. 146, 17 pp., illus. [Processed.]

(*11*) United States National Resources Planning Board.
1941. FAMILY EXPENDITURES IN THE UNITED STATES. 209 pp., illus. Washington.

(*12*) Williams, Faith M., and Hanson, Alice C.
1941. MONEY DISBURSEMENTS OF WAGE EARNERS AND CLERICAL WORKERS, 1934–36. U. S. Bur. Labor Statis. Bull. 638, 402 pp., illus.