

**Figure 2.11.** Median age of the U.S. population. Median ages for 1929 to 1970 were calculated, and the trend of median age was plotted by the author using the data in statistical tables from various sources: Table 2, Current Population Reports, Series P25-917, U.S. Bureau of the Census, Washington, DC, 1982, and Table 14, Statistical Abstract of the United States, U.S. Bureau of the Census, Washington, DC, 1995, and Series A 29-42, The Statistical History of the United States: Colonial times to 1970, Bicentennial Edition, Part 1, U.S. Bureau of the Census, Washington, DC, 1975.

increase in the median age of the population.

According to the 1990 Census, the elderly population (aged 65 or older) was 31.1 million, or 12.5 % of the total population. The elderly population increased 22 % over the decade of the 1980s. The elderly population will grow to almost 35 million and 12.8 % of the population by the year 2000, and by 2050, over 80 million representing 20.4 % of the population (Day, 1993). About one in eight Americans was elderly in 1990, but about one in five could be elderly by 2030 (Day, 1993). The increased proportion of the elderly people is partially due to birth rate patterns, and it is also related to changes in life expectancy which has been steadily increasing.

### **Changes in the Racial/Ethnic Composition of the U.S. Population**

The U.S. Bureau of the Census classifies race into four major groups: White; Black; American Indian, Eskimo, and Aleut; and Asian and Pacific Islander. According to the 1990 Census, the White population accounted for 84 %, the Black population for 12 %, Hispanic for 8 %, and Asian and others for 3 % of those in the U.S. The White population increased by 8 % between 1980 and 1990, but the growth was not enough to maintain their share of the total population, which fell from 86 % in 1980 to 84 % in 1990. Whites constituted about 89 % of the U.S. population in the 1930s, but the proportion steadily decreased to 83.1 % in 1994 (see Figure 2.12). As Blacks, Hispanics, and Asians increased their proportions of the U.S. population, the White proportion has continuously decreased.

The White population is projected to continue declining as a percent of the total U.S. population, while the other racial/ethnic groups are projected to continue increasing their proportion (Day, 1992). The White proportion of the population is projected to be less than 82 % of the population by the end of the century. About 13 % of the population would be Black, 11 % would be Hispanic origin, and 4.5 % would be Asian and Pacific Islander (Day, 1992). Whites who are not of Hispanic origin were 75.7 % of the population in 1990, but this proportion will steadily decrease to 67.6 % in 2010. The non-Hispanic group of the White population would stop growing by the year 2029, largely due to the cessation of net increase (Day, 1992).

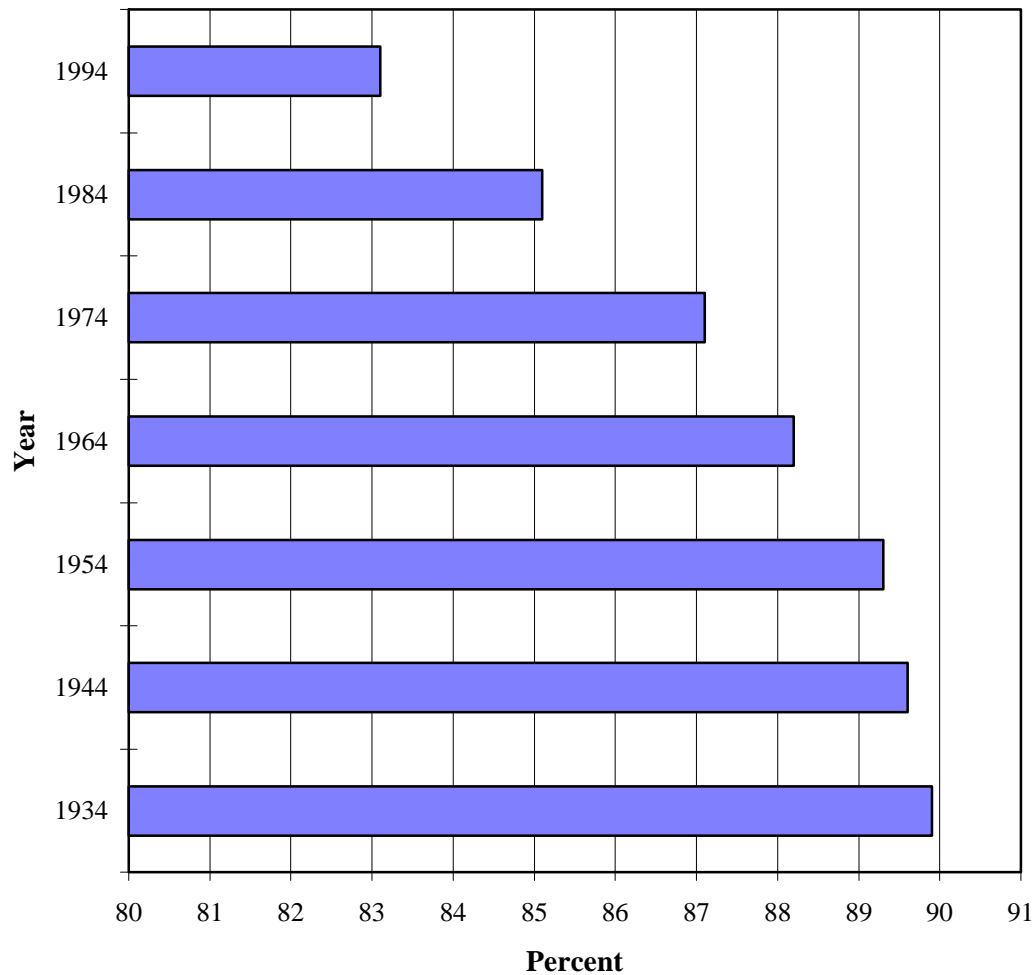


Figure 2.12. Whites as percentage of U.S. population, selected years 1934-1994. The proportions of Whites were calculated and plotted by the author using the data in statistical tables from various sources: Table 2, Current Population Reports, Series P25-917, U.S. Bureau of the Census, Washington, DC, 1982, and Table 18, Statistical Abstract of the United States, U.S. Bureau of the Census, Washington, DC, 1995, and Series A 23-28, The Statistical History of the United States: Colonial times to 1970, Bicentennial Edition, Part 1, U.S. Bureau of the Census, Washington, DC, 1975.

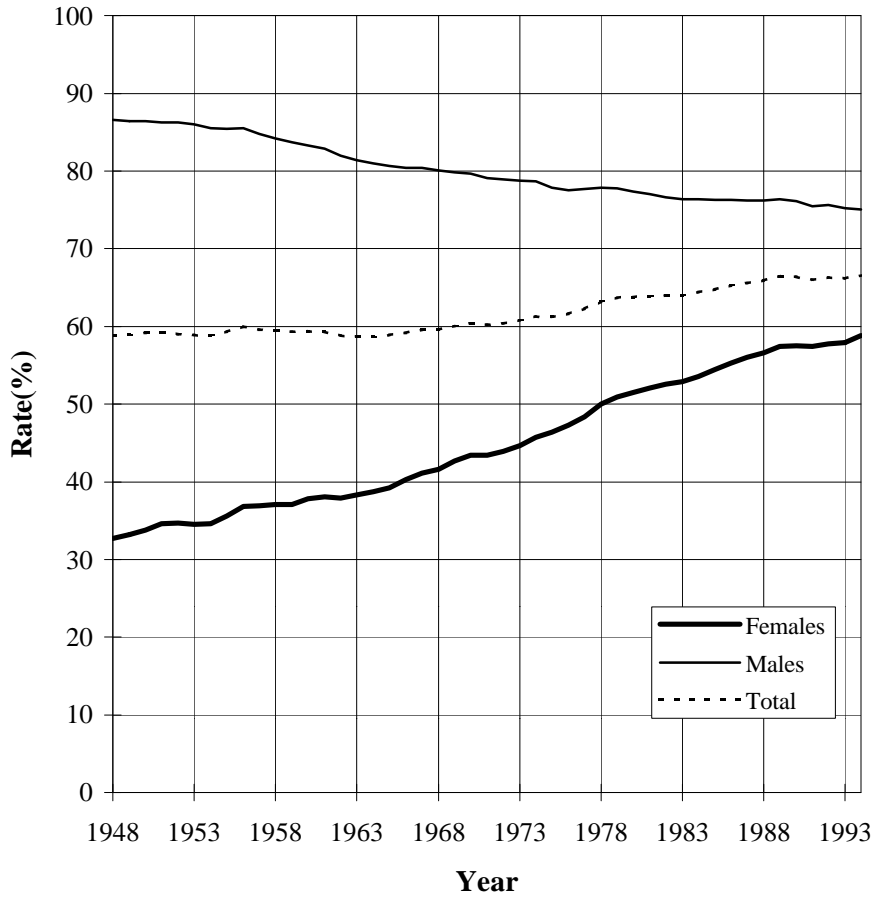
### **Changes in the Labor Force Participation of Women**

In the United States, the civilian labor force participation rate, or the ratio of the number of persons in the labor force to the number of persons sixteen years or older, has been rising almost steadily throughout the post World War II period. Increases in the labor force participation of women have been large and persistent, more than offsetting the decrease among men (see Figure 2.13). In 1995, women constituted 46 % of the civilian labor force. The labor force participation rate of women in the civilian labor forces reached 58.9 % in 1995, from 45 % twenty years before.

The most striking change in the labor force during the last several decades was the dramatic increase in the participation of married women. Since the 1960s, married women with children under six years old have more than tripled their labor force participation to almost 64 % (U.S. Bureau of the Census, 1996). Of all employed married women in 1995, those with children between the ages of six and seventeen had the highest participation rate of 76.2 % (U.S. Bureau of the Census, 1996). Higher educational attainment is apparently related to the labor force participation of women. The more education a woman has, the more likely she is to be in the labor force. In 1990, more than 81 % of women who had four or more years of college education were in the labor force, compared with 68.6 % of high school graduates and 46.2 % of those with less than a high school education (U.S. Bureau of the Census, 1992, 1996). Since the early 1970s, women's participation in professional jobs and occupations traditionally dominated by men has increased dramatically. These include middle- and executive-level management, professional jobs, and technical and scientific positions.

### **Previous Research on Clothing Consumption**

Clothing expenditure and clothing demand studies have been conducted with time-series and cross-sectional analyses. A cross section is a sample of a number of observational units all drawn at the same point in time, for example, a year. A time series is a set of observations drawn on the same observational unit at a number of points in time, for example, multiple years. In both types of research, income or total consumption



**Figure 2.13.** Participation rate in the labor force by males and females, 1948-1994. Participation rates in the labor force were plotted by the author using the data in statistical tables from various sources: Table 5, Handbook of Labor Statistics, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2340, Washington, DC, 1989, and Table 616, Statistical Abstract of the United States: 1994, 1996, U.S. Bureau of the Census, Washington, DC.

expenditure is an important determinant of clothing expenditures and demand. Price variables are also important economic variables, but usually omitted in cross-sectional studies because of lack of data and the assumption of constant prices across sample units. Besides income and price, demographic variables such as age, sex, family composition, and education are included in both cross-sectional and time-series clothing consumption studies. In such research, demographic variables serve as useful proxies for the taste changes and differences in consumption patterns among individuals or households.

Cross-sectional clothing consumption studies have been more focused on demographic effects in detail because of the nature of the data sets. Population age, elderly population, non-White population, and women's labor participation in the U.S. are included in the present study as demographic variables. These demographic variables may have important implications for demand patterns of clothing categories and shoes.

Norton and Park (1986) conducted a comprehensive review of a large number of clothing consumption studies, which were mostly clothing expenditure studies. A comprehensive review here of those previous expenditure studies would be redundant. Thus, the following discussion focuses on time-series and cross-sectional clothing consumption studies which are generally more recent and which are most relevant to this present research.

### **Time-Series Studies**

For time-series consumption studies, two general approaches are used: single equation model and demand system model. A single equation model is for a single good or category of goods. A demand system model involves the estimation of a system of equations encompassing all, or a large segment of, spending by consumers. A demand system provides important information on the interrelatedness of demand. Most time-series studies for clothing consumption have used the single equation approach in which interdependence of consumer decision making in purchasing goods was ignored. In some studies using demand systems (Blanciforti, Green, & King, 1986; Deaton & Muellbauer, 1980; Fan, Lee, & Hanna, 1996), clothing was included as one of the goods along with other consumption goods. The fundamental approach of the present study is a

theoretically plausible system of demand equations within a time-series framework. Therefore, the following review of literature focuses on recent and related topics.

### **Price and Income Elasticities for Clothing**

Income and price elasticities for aggregate clothing expenditures have been estimated in time-series studies. Several time-series analyses have shown that clothing expenditures are income inelastic, which indicates a necessity good (Bryant & Wang, 1990; Eastwood & Craven, 1981; Hamburg, 1960; Jackson & Al-Douri, 1977; Mokhtari, 1992; Norum, 1990; Winakor, 1962). Norum's study (1990) yielded an income elasticity close to one for clothing expenditures (0.974). Most time-series studies have reported clothing demand to be price inelastic. Mokhtari (1992) found that, in the short run, clothing expenditures are highly price elastic (-1.9), but in the long run have unitary elasticity. Bryant and Wang (1990), employing Chow's stock adjustment model, found a short-run price elasticity of -1.08 for clothing and shoes. Winakor (1979) reported that demand for clothing or shoes as a whole is price inelastic. Interestingly, Fan, Lee, and Hanna (1996), using an Almost Ideal Demand System (AIDS) model, estimated the income elasticity for apparel to be 1.46 and the own price elasticity to be -1.75, suggesting that apparel is a luxury good and is very price elastic. Mack (1954) reported that consumer shoes expenditure is income inelastic (0.75).

### **Stock Adjustment Model in Clothing Consumption Studies**

The stock adjustment model, based on a partial adjustment model, has been widely applied to analyzing the demand for particular commodities (Chow, 1960; Griliches, 1960; Nerlove, 1956; Stone & Rowe, 1960). Demand for durable goods in any one period reflects the difference between actual stock and some "optimal" desired stock of durable goods. The desired level is usually taken to be some function of the level of income and relative prices; in each period the consumer adds to his stock to achieve the optimal stock. The fact that adjustment to the desired level of stock may not be instantaneous is the basis of the "stock adjustment" model. Actual stock does not normally equal desired stock, but is determined by partial adjustment; the partial adjustment equals a proportion of the difference between desired and actual stock. In the

stock adjustment model, the stocks of durable goods are generally assumed to depreciate at a constant rate per period and can therefore be related to quantities purchased of the goods in a given period. The present quantity purchased can be divided into a replacement demand and additional purchases. The replacement demand matches some depletion in the stock and the additional purchases represent new demand; together these can result in a net increase in the stock. Depreciation rate can be interpreted as the fraction of beginning-period stock which becomes unusable during the period. Thus, the present quantity purchased is influenced not only by income and relative price but also by net additions to stock and replacement purchase: total purchases are equal to net additions to stock plus physical deterioration.

Winakor (1969) developed a clothing consumption process model in which the acquisition, use, maintenance, storage, and discard of clothing are main components. The model recognizes the durable nature of clothing: current household clothing demand is explicitly affected by the stock of clothing held currently as well as prices and household income. Thus, the current demand for clothing can be represented by a function of net additions and the replacement that results from the depreciation of clothing. Norum (1990) and Bryant and Wang (1990) used this premise in their research on clothing consumption.

Bryant and Wang (1990) conducted a time-series analysis of the U.S. demand for various durable goods, nondurable goods, and services. The main purpose of the research was to determine the effects of the changes in male and female wage rates on the demand for durables, nondurables, and services. They used national aggregate, quarterly time-series data on the components of personal consumption expenditures (PCX) in the United States National Income and Product Accounts from 1955 to 1984. They modeled clothing and shoes as a durable category, though these goods are classified as nondurables in The National Income and Product Accounts of the U.S. For the study, they developed a stock adjustment model of durable goods in which per household constant dollar expenditures on durables were expressed as a function of real nonwage income per household, male and female wage rates, own prices, and the percent of the population age 20-34 years, as



well as lagged terms of all these variables. According to their results, the demand for clothing and shoes increased as female and male wage rates increased, and the demand for clothing and shoes was unitary price elastic (-1.08) but inelastic with respect to wage rates and permanent income (i.e., 0.05, female wage; 0.48, male wage; 0.69, permanent income). The parameter estimation, however, showed that the effect of changes in the female wage rate on clothing and shoes consumption was not statistically significant at the 0.05 level. Changes in the age distribution of the population, as measured by the percent of the population age 20-34, appeared to influence the demand for clothing and shoes. In addition, the estimated annual depreciation rate and adjustment rate of clothing and shoes were 0.607 and 0.6511, respectively; the depreciation rate means that only one percent of the initial stock of clothing and shoes remains after five years, and the value for the adjustment parameter of 0.6511 suggests that 65 % of the desired stocks of clothing and shoes is made up during a year. The annual adjustment rate of clothing and shoes was relatively higher than those of other durable goods. The authors mentioned that the remarkably high adjustment rate for clothing and shoes, as compared with other durables, is due to clothing and shoes having the attributes of more fashion driven goods.

Norum (1990) based her study on that of Bryant and Wang (1990). Using annual data from 1929 to 1987 in The National Income and Product Accounts of the U.S., she investigated the relationship between U.S. aggregate expenditures on clothing and selected economic and demographic factors (clothing price, disposable income, population size). The model included dummy variables to account for the depression years and World War II. Expenditures and income were not expressed on a per capita basis; thus, the aggregate increases in expenditure and income may reflect population growth over time. The parameter estimation showed that the effects of current and lagged prices of clothing and the effects of World War II and the depression years were not statistically significant, but, curiously, population size had a significant negative effect on annual clothing expenditures. The estimated elasticities indicated that clothing demand in the U.S. is both own price and income inelastic. This study ignored cross price effects, which may affect clothing demand. The estimated clothing depreciation rate was

0.22395, and the estimated adjustment rate was 0.11008; both are much different from those of Bryant and Wang (1990). The presented Durbin-Watson statistics are not valid for this autoregressive model; other methods are required for testing autocorrelation. She suggested that including other characteristics of the population, such as age of the population, labor force participation of women and racial categories, in future research could provide insights into how clothing expenditures could be expected to change as these demographic factors change.

### **Effect of Physical and Psychological Stocks on Clothing Consumption, and Clothing Demand Estimations with the Almost Ideal Demand System (AIDS)**

Houthakker and Taylor (1970) conducted a comprehensive study of habit formation (psychological stock) using a state adjustment model, which was the first dynamic demand model that embodied the effects on current demand of physical stock and habits formed in past consumption. They hypothesized that the quantity demanded of a good is a function of physical stock or psychological stock of habits, price, and income. They analyzed 82 categories of goods using Department of Commerce data, 1929-1966. They reported aggregated clothing as a durable good having a strong physical stock effect (-0.1503). Clothing demand was elastic in the short run with respect to total expenditures, but inelastic in the long run. Purchases of women's clothing were subject to habit formation (0.1075), but men's clothing was subject to physical stock effect (-.0615). Although they presented Durbin-Watson statistics, they acknowledged that the statistics were not appropriate to test autocorrelation in this type of dynamic model because of the presence of the first-order difference of an independent variable as a predictor. They did not estimate price effects of clothing categories on expenditures for clothing categories. Using the state adjustment model, Lee (1970) and Sexauer (1977a, 1977b) obtained similar results for clothing. However, when Sexauer (1977b) examined stock effects monthly, quarterly, and semi-annually, men's and boys' clothing and women's and girls' clothing were subject to inventory at all three intervals; but, only women's and girls' clothing was subject to habit (0.0096) when annual data from 1947 to 1972 were used.

Pollak (1970) developed a habit formation model combined with the linear

expenditure system (LES). The underlying assumption in this habit formation model is that preferences may change as a result of the consumer's development of habit so that the consumer's current preferences depend on his past consumption patterns (Pollak, 1970). According to Pollak's (1970) specification, the minimum subsistence parameter in the LES can be interpreted as embodying a "physiologically necessary" component or a "psychologically necessary" component that should depend on past consumption of the good. Ray (1984) and Blanciforti et al. (1986) incorporated extensions of Pollak's (1970) psychological habit formation model into the "Almost Ideal Demand System" (AIDS) model. The AIDS model developed by Deaton and Muellbauer (1970) is a theoretically plausible system of demand equations. There have been a fairly large number of studies and many comprehensive surveys of consumer demand patterns through use of the AIDS model, but only a few studies with the AIDS model where the demand estimation included clothing in the set of commodities. The main use of the AIDS model has been in food product demand estimations, which may be because the time-series data on food products have been well organized and disaggregated at a micro level. The following discussion briefly presents the studies of U.S. clothing demand utilizing the AIDS model; the food product demand estimations are excluded here.

Blanciforti, Green, and King (1986) used annual time series data, 1947-1978, on personal consumption expenditures and prices for 11 commodity groups, to compare the static and dynamic forms of AIDS models and the linear expenditure system (LES). Pollak's specification of psychological habit formation was incorporated in the dynamic AIDS model. Full information maximum likelihood (FIML) estimation was used for the LES and the AIDS. Ordinary least squares (OLS) and seemingly unrelated estimation (SUR) techniques were used with a linearized AIDS (LAIDS) model. The estimated OLS values from LAIDS were used as initial parameter values in the estimation of the AIDS using FIML. In the study, clothing expenditures included maintenance, storage, jewelry, clothing, and shoes. Blanciforti et al. reported that the dynamic models generally were preferable to static ones. According to their results, current clothing consumption was subject to psychological habit formation (0.063 with the LAIDS, and 0.26 with the

dynamic LES), although the habit effect was not significant with the LAIDS. Clothing demand was inelastic with respect to total expenditures and own price. The autocorrelation test of both LAIDS and DLES, using the log likelihood ratio test, showed evidence of autocorrelation in both models. This study ignored the estimation of cross price elasticities of clothing demand.

Fujii, Khaled, and Mark (1985) used the AIDS model to analyze expenditure patterns, by visitors to Hawaii, for six different classes of goods: food, lodging, clothing, transportation, entertainment, and other goods. Annual data from 1958 to 1980 on expenditures by visitors and on prices were obtained from Hawaii's Income and Expenditure Accounts. The estimated clothing demand elasticity with respect to visitors' total expenditures for the six classes of goods was almost unitary (0.91), and the own price elasticity of clothing was -0.793. The results of the estimated cross price elasticities of clothing (-0.313) indicated that clothing has some complementary effects on lodging.

Using time-series-cross-section data (panel data set) from the Consumption Expenditure Survey 1980-1990, Fan, Lee, and Hanna (1996) conducted a study of household expenditure shares of apparel (including expenditures for clothing, footwear, and other apparel products and services) with the AIDS model incorporating socio-demographic variables. They used dummies for parameter estimation of socio-demographic variables. Major findings of the study are: the older the household reference person, the more income and price elastic the household apparel expenditures; low-income households (having total expenditure of less than \$5,000 for all goods) had the highest expenditure and own price elasticities of all the income groups analyzed. It was also found that increase in the age of reference persons has a positive relationship with the budget share of apparel. The expenditures of White and Black non-Hispanic households were subject to higher expenditure elasticities than were those of Asian and Hispanic households. Fan et al. also found that the apparel expenditures of Asian and White households were more own price elastic than were those of Black and Hispanic households. The mean expenditure elasticity for clothing over all income groups was 1.46, suggesting that clothing is a luxury good, and the own price elasticity for clothing

was estimated to be  $-1.75$ , suggesting that clothing is very price elastic. The major limitation of the study, however, was data sources, particularly in price data. Their assumption that households in certain region/city size combinations faced the same price might not be realistic. Although the authors mentioned that they used a complete demand system model, the model did not encompass all consumer expenditure categories. They ignored cross price effects between apparel and other goods, despite including twelve other expenditure categories in the model.

### **Error Correction Mechanism (ECM) Model on Clothing Consumption**

Mokhtari (1992) estimated an error correction mechanism (ECM) model of U.S. clothing expenditures, for the period 1929-1987, using a cointegration technique to model nonstationary variables. According to him, a nonstationary variable does not possess constant mean and variance; use of nonstationary variables in a regression analysis leads to the violation of Gauss-Markov assumptions and may cause inconsistency in parameter estimates. He used the Dickey-Fuller t-test to test the existence of nonstationarity in clothing expenditure data. He maintained that the usual inferences from t-tests and F-tests are invalid for a clothing consumption study because time-series clothing expenditure data show nonstationarity which may cause inconsistent parameter estimates, but that the ECM model combined with the cointegration technique provides a richer dynamic structure than conventional models such as the partial adjustment model. Annual data on real per capita clothing expenditures and disposable incomes, for the period 1929-1987 in The National Income and Product Accounts, were used for the study. The elderly population ratio (aged 65 and over) and unemployment rate were also included in the model.

All variables in Mokhtari's (1992) study exhibited nonstationarity, but stationarity at first order integration in the testing for nonstationarity. The test of nonstationarity of the estimated residuals in the cointegration regression for the long-run equilibrium model indicated that the estimated residuals were stationary. Thus, a simple OLS model was used to estimate the long-run relationships. For the short-run relationships (i.e., effects of lagged variables,  $t-1$ ), the ECM model was estimated. Mokhtari's (1992) estimates of the

short-run and long-run elasticities of clothing expenditures, with respect to disposable income and prices, indicated that demand for clothing is highly price elastic (i.e., -1.9, short run; -1.0, long run), though income inelastic. The parameter estimates on the elderly population ratio and unemployment rate showed that long-run expenditures on clothing in the U.S. decreased as these two ratios increased. Autocorrelation tests of the model, using the Lagrange multiplier (LM) test and the auto-regressive conditional heteroscedasticity (ARCH) test, showed no first-order autocorrelation and no heteroscedasticity among the disturbances. One limitation of this study is that cross price elasticities are lacking.

### **Cross-Sectional Studies**

A great advantage of cross-sectional studies is that all prices facing households in the cross section can be treated as constant. Thus, researchers are able to concentrate on the relationship between household consumption for particular commodities and household income or total expenditure. Preferences may differ among households or among consumers according to income level and such socio-demographic factors as household size and composition, age, social class, and education. In cross-sectional studies, demographic variables serve as useful proxies for the taste differences reflected in consumption patterns among individuals or households. Aggregate values of demographic variables change slowly over time and hence often can be ignored in time-series studies, whereas considerable variation is to be expected over a typical cross section. Some potential problems in cross-sectional analyses are that the demographic variables may correlate with income, so their inclusion can yield biased estimates of coefficients (Norton & Park, 1986), and also that biased estimates of coefficients and income elasticities will likely result if demographic variables are omitted from the estimating equation.

The literature includes descriptive cross-sectional studies on household clothing expenditures (Britton, 1974; Courtless, 1988; Winakor, 1966; Winakor, McDonald, Kunz, & Saladino, 1971). Multivariate statistical analysis also has been employed to determine the factors affecting household clothing expenditure patterns. The Consumer Expenditure Survey (CES) data issued by the Bureau of Labor Statistics have been a main source of

data for cross-sectional analyses of household clothing expenditures. Previous studies indicate household characteristics shown to influence household clothing expenditures: household income, family life cycle and age of household head, age/sex composition of household members, household size, education and occupation of household head and spouse, residential location, and race. Although the present research was designed within a time-series framework, a review of the related cross-sectional studies on clothing consumption is necessary because the present study addresses the effects of demographic changes in age, women's labor force participation, and racial composition of the U.S. population.

### **Household Income**

Several researchers have found that clothing expenditures were elastic with respect to total consumption expenditure, and clothing was categorized as a luxury (i.e., income elasticity is greater than one) (Dardis, Derrick, & Lehfeld, 1981; Nelson, 1989; Winakor, 1962, 1989). Dardis, Derrick, and Lehfeld (1981) found that, when disposable income was used as the income measure, the income elasticity was less than one (i.e., necessity), but, when total expenditure was used as a proxy for income, the elasticity was slightly greater than one. Norum (1989) and Zhang and Norton (1995) found that income elasticity of clothing expenditure was less than one with respect to disposable income. Particularly, Zhang and Norton (1995) showed that all categories of clothing were income inelastic: from 0.16 to 0.48 (men's clothing categories); from 0.21 to 0.60 (women's clothing categories); from 0.12 to 0.52 (boys' clothing categories); from 0.17 to 0.34 (girls' clothing categories). Based on the Consumer Purchases Study of 1935-36, conducted by the Bureau of Home Economics and the Bureau of Labor Statistics, Mack (1954) reported that shoes expenditure was income inelastic (0.75). Income has been proven a major determinant of household clothing expenditures in most research. Income is positively related to household clothing expenditures. Estimated total expenditure elasticities have been greater than one, whereas disposable or after-tax income elasticities have been less than one. Horton and Hafstrom (1985) found a higher permanent income elasticity than current income elasticity for clothing.

### **Family Life Cycle and Age of Household Head**

Household expenditure for clothing declines with increased age of household head (Chung & Magrabi, 1990; Dardis, Derrick, & Lehfled, 1981; Hager & Bryant, 1977; Norum, 1989), and, in parent-child households, the highest expenditures tend to occur when the parents are in their 40s (Zhang & Norton, 1995). Multivariate analysis of the 1972-1973 CES data has shown that expenditures on clothing decline in the later stages of the family life cycle (Dardis, Derrick, & Lehfled, 1981), which the researchers attributed to the accumulation of clothing inventories over the family life cycle and to rising expenditures for health and other age-related services. Elderly families generally experience a reduction in income, an increase in time available for leisure and consumption activities, and the cessation of an assortment of job-related expenses (McConnel & Dejavan, 1983). Thus, the adjustment process accompanying retirement is expected to entail significant changes in the composition of purchases as well as the household's consumption response to future variations in its income (McConnel & Dejavan, 1983). Hitschler (1993) pointed out that elderly households not only spend considerably less than non-elderly households, both in terms of total consumption and most components of spending, but also have substantially lower incomes. Using 1980-1981 quarterly CES data, Norum (1989) found that households with householders aged 25 or less spent more on apparel in all seasons than did elderly consumer units with householders aged 65 or over; household clothing expenditures increased as the age of the household head increased, but at a decreasing rate.

The publication Consumer Expenditure Survey, 1990-1991 of the U.S. Bureau of Labor Statistics reports that the expenditure budget share for clothing decreases considerably with age of reference person, with the highest share for the age group under 25 years old and the lowest for the age group 65 and over. Using 1990 CES data, Abdel-Ghany and Sharpe (1997) conducted multivariate tobit analysis to examine spending pattern differences between households with a reference person aged 65-74 (young-old) and households with a reference person aged 75 and older (old-old). Significant differences evidenced in those two groups' expenditures on apparel and apparel services.



The total expenditure elasticity of apparel and apparel services for the age group 65-74 was much lower than that for the age group 75 and older. In both groups, spending on apparel and apparel services was expenditure inelastic, but spending on such categories as food away from home, transportation, and personal insurance was expenditure elastic.

Horton and Hafstrom (1985) found no age effect with respect to clothing expenditures for neither female-headed nor two-parent families. In Norum's (1989) quarterly household expenditure study, she found that marital status had a significant effect on clothing expenditures in three out of four quarters. Households with a married head spent an average of 24-32 % more on clothing than did households in which the head was not married. Nelson (1989) found, in comparing households with young and old mothers, that young mothers were associated with greater clothing expenditures for girls and that old mothers were associated with greater clothing expenditures for boys. In DeWeese and Norton's (1991) research on the impact of married women's employment on household members' clothing expenditures, however, wife's age was not significant for any member-level clothing expenditure.

### **Employment and Occupation**

Changes in labor force participation have been notable among married women, generating significant increases in the number and percentage of dual-income households (Rubin, Riney, & Molina, 1990). Households with dual earners generally have higher levels of income than households with one earner (Wang, Abdel-Ghany, & Sharpe, 1993). Although dual-earner family income tends to be higher than one-earner family income, the two-earner household does not appear to have a higher level of living due to the higher cost of earning the second income (Lazear & Michael, 1980). Working-wife families have job-related expenses such as clothing, transportation, and childcare; consumption differences between job-related and nonjob-related items suggest that the wife's labor force participation may affect the allocation of financial resources in her household (Wang, Abdel-Ghany, & Sharpe, 1993).

Using data from the 1989 Consumer Expenditure Survey, Wang, Abdel-Ghany, and Sharpe (1993) analyzed differences in consumption expenditure patterns between

working-wife and nonworking-wife families. They found expenditure allocation differences in consumption categories between working-wife and nonworking-wife families: working-wife families allocated more of their higher expenditures to transportation, entertainment, education and reading, and personal insurance, whereas nonworking-wife families allocated more of their expenditure budget to food at home, food away from home, alcohol and tobacco, housing, apparel and apparel services, health, personal care, and miscellaneous expenditures. The marginal propensities to consume apparel and apparel services were significantly different between family types: nonworking-wife families showed a higher inclination to spend more on apparel and apparel services when their incomes increased.

To analyze the impact of a wife's employment status (in nonworking-wife families, full time working-wife families, and part time working-wife families) on household expenditures, Rubin, Riney, and Molina (1990) used the 1972-1973 and the 1984 CES data. Only at income levels under \$20,000 in 1972-1973 was the employment status of wives a significant determinant of the expenditure budget share for apparel and apparel services. The authors also maintained that, when analyzing by the wife's work status, income was the most important determinant of household expenditures. In relation to clothing consumption, McCall (1977) and Schaninger and Allen (1981) suggested that the wife's employment influenced the lifestyle and consumption of the entire family as well as her own clothing expenditure behavior. Cassill and Drake (1987) found that women's employment orientation had a significant effect on their lifestyles and clothing selection criteria.

DeWeese and Norton (1991) conducted a study of the impact of married women's employment on individual household member expenditures for clothing, using the 1980-1981 CES. They found that the wife's occupation affected expenditures for other family members' clothing in addition to her own and that employed-wife households spent significantly more on women's clothing than did nonemployed-wife households. Households with professionally employed wives spent more on clothing for men than when wives were not employed, and households with wives employed in traditional

female occupations, such as clerical jobs, spent more on girls' clothing than did nonemployed-wife households. Nelson (1989) and DeWeese (1993), using CES data for 1984-1985 and 1985 respectively, found that higher educational attainment levels of the mother were associated with higher expenditures for clothing. DeWeese (1993) reported that white-collar women, whether married or single parents, spent more on their own clothing than did comparable nonemployed women.

### **Race/Ethnicity**

Different racial and ethnic groups consume differently (Fan, 1994, 1997; Fan & Zuiker, 1994; Wagner & Soberon-Ferrer, 1990). Wagner and Soberon-Ferrer (1990) suggested that ethnicity may affect any dimension of lifestyle, including the way in which households spend their money. Their results showed that high expenditures for food at home were dominant in Hispanic households, whereas high expenditures for clothing and low expenditures for food away from home were apparent in Black households. Using the Consumer Expenditure Survey panel data from 1980 to 1990, Fan and Zuiker (1994) conducted a study on household budget allocation patterns of Asian-Americans. They found that Asian-American households allocated a significantly smaller proportion of their budget to food at home, fuel and utilities, and apparel than did either Black or Hispanic households, but a significantly larger proportion to education than did any of the other ethnic groups analyzed (Black, White, and Hispanic households). In research on budget allocation patterns of Hispanic households, using the same panel data set for 1980-1990, Fan (1994, 1997) found that the budget allocation patterns were significantly different between Hispanic households and White households. Hispanic households allocated a significantly larger proportion of their budgets to food at home, but a significant smaller share to personal care than did the White households. The budget allocation for apparel was not significantly different between the two ethnic groups.

Dardis, Derrick, and Lehfeld (1981) and Horton and Hafstrom (1985) reported that Black households spent more on clothing than did non-Black households; however, Zhang and Norton (1995) reported that non-Whites spent less on clothing than did Whites, except for a few categories of clothing. Norum's analysis of quarterly clothing