U.S. Aggregate Demand for Clothing and Shoes, 1929-1994: 
Effects of Changes in Price, Nondurables Expenditures, and Demographics

by

Kisung Kim

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Marjorie J. T. Norton, Chair
Jessie Chen-Yu
E. Thomas Garman
Lester H. Myers
Everett B. Peterson

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(ABSTRACT) 

The main objective of this study was to evaluate the effects of the changes in total 
nondurables expenditures, prices, and demographics on the U.S. aggregate demand for 
clothing categories and shoes. In particular, this study focused on identifying and 
parameterizing the effects of such changes. To this purpose, a demand system for two 
clothing categories, shoes, and other nondurable commodities for the U.S. was estimated 
using aggregate time-series data sets (1929-1994), and a second-stage budgeting model 
was developed and estimated. The basis for the demand model was the Almost Ideal 
Demand System model, which was modified to account for the demographic effects. 
Demographic variables included in the final model were age distribution of the U.S. 
population (median age and variance), proportion of non-White population in the total 
U.S. population, and labor force participation rate of U.S. women. The main data sources 
were documents published by the Bureau of the Census, Bureau of Labor Statistics, and 
Bureau of Economic Analysis in the U.S. Department of Commerce. 

The results indicate that the total nondurables expenditures is a significant 
variable in determining consumers’ nondurables expenditure allocation on clothing 
categories and shoes. The estimated total expenditure elasticities suggest that the clothing 
categories and shoes are expenditure elastic, ranging from 1.1019 to 1.4944. Most own 
and cross prices appear to be significant variables in determining the consumer budget 
allocations for clothing categories and shoes. The median age and non-White population 
variables evidence as significant variables that affect the U.S. aggregate nondurables 
expenditure allocation on men’s and boys’ clothing and on shoes. Women’s labor force
participation rate evidences as a significant variable that affects the U.S. aggregate nondurables expenditure allocation on women’s and children’s clothing. The estimated own-price elasticities of demand for clothing categories and shoes indicate that all the clothing categories and shoes are inelastic (i.e., -0.3908 to -0.9175). The estimated cross-price elasticities of clothing categories, shoes and other nondurable goods show substitution and complementary relationships between the categories. The demand elasticities with respect to the demographic variables were also estimated.
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CHAPTER 1
INTRODUCTION

Various indicators suggest that the consumption pattern for clothing and shoes in the United States is changing. Based on the data in The National Income and Product Accounts of the U.S. (NIPA), consumer expenditure categories have changed in importance in the United States over the past sixty years. For example, the shares of personal consumption expenditures for food, medical care, recreation, and housing have changed substantially. The expenditure share of clothing and shoes in personal consumption expenditures in nominal terms decreased from 12.1% in 1929 to 5.3% in 1994. The share of clothing and shoes in real personal consumption expenditures decreased from 7.4% in 1929 to 4.5% in 1970, but the share has increased since 1970 reaching 5.8% in 1994. During World War II, the budget shares of clothing and shoes were higher than the shares of those during the other periods of time. Despite the governmental implementation of restrictions on clothing production and of price controls and shoes rationing, on average, U.S. consumers spent 13.2% of their personal consumption expenditures in nominal terms on clothing and shoes during the years 1942-1945 in comparison with the postwar periods in which they spent 7.6% of their personal consumption expenditures on those items.

According to the NIPA price indexes for personal consumption expenditures by type of product, the price for clothing items and shoes increased faster, at an average annual rate of 1.7%, than the price of all goods together during the years 1930-1970. Over 1971-1994, the price of all goods rose faster than the price of clothing and shoes that rose 5.33% per year on average. Combined with the lowered relative price of clothing and shoes, the increased real expenditure share of clothing and shoes may indicate that the purchased quantity of clothing increased relative to that of all goods since the early 1970s.

The U.S. has had many changes in the population structure over the past several decades. The United States is aging in two dominant ways that include the aging baby-
boomer generation and the increased numbers of elderly people (65 years old and over). The adult population between 30 and 50 in the United States is expanding. The proportion of elderly people was 9.8% of the U.S. total population in the 1970 Census, but increased to 12.7% by 1994. The median age of the U.S. population in 1994 was 34 which was four years older than the median age in the 1980 Census (U.S. Bureau of the Census, 1995).

The U.S. population has become more diverse in racial and ethnic composition. As Blacks, American Indians, Asians, and Hispanics have increased in their proportions of the total population, the White proportion of the population has declined (Day, 1992). By the turn of the century, the White proportion of the population is projected to be less than 82% (Day, 1992).

The civilian labor force participation rate for persons 16 years or older has been rising almost steadily through the postwar period. The labor force participation of women has increased continually since World War II. The civilian labor force participation rate of women reached 58.8% by 1994, from 45.0% 20 years ago (U.S. Bureau of the Census, 1995).

Understanding of consumer demands for clothing categories, shoes, and other nondurable commodities is important not only to apparel and retail businesses, but also to public policy makers in such an area as international textile and apparel trade, where such consumer expenditure and demand patterns are important information in guiding the decisions of policy makers. Most of today’s clothing firms are challenged by market-driven demand (American Apparel Manufacturers Association [AAMA], 1995). Managers of apparel manufacturing and retail firms recognize that demographic changes influence the present and future demand for different categories of clothing and the sales of clothing and shoes merchandise at retail (AAMA, 1984; Discount Store News, 1996; Dutter, 1995; Edwards, 1994; Fearnley-Whittingstall, 1994; MacDonald & McAllister, 1996; Organization for Economic Cooperation and Development [OECD], 1983; Rossi, 1994). How consumers allocate their limited budgets to clothing categories and shoes and other nondurable goods when relative prices for purchased goods and consumers’ income
change, and how demands of clothing categories and shoes change when demographic or economic variables change are the essential questions to understand.

Despite the remarkable changes in demographic characteristics (i.e., age, race and ethnicity, and women’s labor participation) and in expenditure allocations among consumption goods in the U.S., information regarding the demand patterns for clothing categories and shoes is limited. Many cross-sectional analyses of U.S. clothing consumption have incorporated demographic variables. The cross-sectional studies have mainly used a single equation approach by assuming that a household’s or consumer’s decisions about expenditures on clothing were independent of its decisions about expenditures on other commodities (Fan, Lee, & Hanna, 1996). As well, due to data availability, such studies usually have not addressed price effects. Within the time-series framework, some studies of clothing consumption expenditures have been conducted. Several previous time-series studies (Bryant & Wang, 1990; Fan, Lee, & Hanna, 1996; Mokhtari, 1992; Norum, 1990; Winakor, 1989) have focused on the estimation of clothing consumption as one consumption category. Houthakker and Taylor (1970) and Blanciforti, Green, and King (1986) conducted comprehensive demand analyses of different categories of consumption goods, but these studies lacked the effects of demographic variables on clothing categories and shoes. No demand analysis of clothing categories (i.e., women’s and children’s clothing, men’s and boys’ clothing) and shoes has been conducted with a demand system that accounts for the interdependence of consumer decision making in purchasing goods.

The present study has two main objectives. The first objective is to evaluate the effect of the changes in total expenditures and prices on the U.S. aggregate demands for women’s and children’s clothing, men’s and boys’ clothing, and shoes. The second objective is to determine the impacts of the changes in selected demographic variables (i.e., median age, age distribution of U.S. population, ratio of non-Whites to total U.S. population, and women’s labor force participation) on the U.S. aggregate demands for those clothing categories and shoes. To address the objectives of the study, the Almost Ideal Demand System (AIDS) model developed by Deaton and Muellbauer (1980) was

The analysis using the AIDS model for clothing categories and shoes in the present study provides estimations of a set of key parameters for summarizing consumer behavior related to the demand for clothing categories and shoes. Price, total expenditure, and the selected demographic elasticities of demands for the clothing categories and shoes estimated in this study can provide valuable information on consumer demand patterns of clothing categories and shoes. The related issues of economic theories and econometric methods explored in the study will be useful for future consumption studies regarding clothing and shoes.