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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Dr. Marjorie J. T. Norton, Chair
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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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TABLE OF CONTENTS

ABSTRACT ii

ACKNOWLEDGMENTS iv

LIST OF TABLES ix

LIST OF FIGURES x

CHAPTER 1. INTRODUCTION 1

CHAPTER 2. REVIEW OF LITERATURE 5

Trends in Clothing and Shoes Consumption, the Economy, and Demographics in the United States 5

Changes in Clothing and Shoes Consumption in the U.S. 5

Clothing and Shoes Consumption and Government Regulations in the World War II Period 9

The U.S. Economy in the Twentieth Century: Trends 15

United States Population Trends and Projections 23

Changes in the Age Distribution of the U.S. Population 24

Changes in the Racial/Ethnic Composition of the U.S. Population 26

Changes in the Labor Force Participation of Women 28

Previous Research on Clothing Consumption 28

Time-Series Studies 30

Price and Income Elasticities for Clothing 31

Stock Adjustment Model in Clothing Consumption Studies 31

Effect of Physical and Psychological Stocks on Clothing Consumption, and Clothing Demand Estimations with the Almost Ideal Demand System (AIDS) 34

Error Correction Mechanism (ECM) Model on

Clothing Consumption 37
Cross-Sectional Studies 38
Household Income 39
Family Life Cycle and Age of Household Head 40
Employment and Occupation 41
Race/Ethnicity 43
Economic Foundations of Demand Theory 44
Utility Maximization and Consumer Demand 44
Cost Minimization and Consumer Demand 45
Properties of Demand 46
Two-Stage Budgeting and Separability 47
Aggregation 49
Demographic Translating and Scaling 51
Functional Forms of Demand 53
The Linear Expenditure System (LES) 53
The Rotterdam Model 54
The Indirect Translog Model 55
The Almost Ideal Demand System (AIDS) Model 55
Summary 57
CHAPTER 3. SETTING OF THE RESEARCH PURPOSE 59
Assumptions 59
The Purposes of the Study 60
Research Hypotheses 61
Total Expenditures for Nondurable Goods and Prices 61
Median Age, Variance and Skewness of the Population 62
Proportion of Non-White Population 64
Labor Force Participation of Women 64
World War II Period 65
Limitations and Delimitations of the Study 65

CHAPTER 4. METHOD 67
Model Specification 67
Choice of Model 67
Proposed Model 68
Data and Variables 69
Estimation Method and Procedure 78
CHAPTER 5. RESULTS AND DISCUSSION 83
Results of LAIDS Analyses 83
Total Expenditure Variables 86
Price Variables 86
Own Prices 86
Cross Prices 87
Demographic and Dummy Variables 88
Median Age of U.S. Population 88
Variance of the Age Distribution of the U.S. Population 89
Proportion of Non-White Population 90
Labor Force Participation Rate of Women 91
Dummy for World War II Period 91
Demand Elasticities of the LAIDS Model 29A 92
Total Expenditure and Price 92
Demographics 95
Demand Elasticities of the LAIDS Model 48A 96
Total Expenditure and Price 96
Demographics 98
CHAPTER 6. CONCLUSIONS AND IMPLICATIONS 100
Major Findings 100
Implications 103
Recommendations for Future Research 107

REFERENCES 108
APPENDIX A 117
APPENDIX B: DATA 133
VITA 150

LIST OF TABLES

2.1	Average Annual Rates of change (%) in Consumption Expenditures, U.S. Selected Periods	6
2.2	Average Annual Rates of Change (%) in Prices of Clothing and Shoes, U.S. Selected Periods	12
4.1	Descriptive Statistics of Variables	77
4.2	Variables Included in the Four LAIDS Models	79
5.1	Parameter Estimates of the LAIDS Model 29A for 1929-1994	84
5.2	Parameter Estimates of the LAIDS Model 48A for 1948-1994	85
5.3	Estimated Elasticities with respect to Total Nondurables Expenditure, Prices, and Demographics: the LAIDS Model 29A	93
5.4	Estimated Elasticities with respect to Total Nondurables Expenditure, Prices, and Demographics: the LAIDS Model 48A	97
6.1.	1994 and Forecasted Nondurables Budget Shares for the Clothing Categories and Shoes	104

LIST OF FIGURES

2.1	Clothing and shoes consumption expenditures as a share of total personal consumption expenditures, 1929-1994	7
2.2	Major consumption expenditures as shares of total personal consumption expenditures, 1929-1994	8
2.3a	Expenditure shares of clothing categories and shoes in total personal consumption expenditures, 1929-1994	10
2.3b	Expenditure shares of clothing categories and shoes in total personal consumption expenditures in constant dollars, 1929-1994	11
2.4	Relative prices of clothing categories and shoes (1987=100), 1929-1994	13
2.5	Real Gross National Product, 1929-1994	16
2.6	Percentage change in the GNP deflator, 1930-1994	18
2.7	Civilian unemployment rates, 1929-1993	19
2.8	Personal income, personal consumption expenditures, and real personal consumption expenditures; 1929-1994	20
2.9	Personal consumption expenditures for durables, nondurables, and services; 1929-1994	21
2.10	Distribution of consumption expenditures, 1934, 1954, 1974, and 1994	22
2.11	Median age of the U.S. population	25
2.12	Whites as percentage of U.S. population, selected years 1934-1994	27
2.13	Participation rate in the labor force by males and females, 1948-1994	29
4.1	U.S. population age distribution with high, medium, and low variance, for 1929-1994	73
4.2	U.S. population age distribution with high, medium, and low skewness, for 1929-1994	74

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

used. For the study, annual time series data from 1929 to 1994 were compiled from various sources: The National Income and Product Accounts of the U.S., Statistical Abstract of the U.S., Handbook of Labor Statistics, and Historical Statistics of the U.S: Colonial Times to 1970.

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.