CHAPTER 4
RESULTS AND DISCUSSION

This chapter presents and discusses the results of estimating the MIMIC model given by Equations 3.9 and 3.10, for the 15 women's clothing categories for the four ethnic groups. The model is briefly reiterated for the sake of clarity in explaining the results. The first section presents and discusses the general results of the model. The second presents and discusses the hypothesis tests. The third section summarizes the findings.

In the estimated MIMIC model, the dependent variables in the latent quality equation (Equation 3.9) were the latent quality variable and the clothing expenditure share. For each ethnic group, the latent quality variable was estimated as a function of annual total household expenditures, dummy variables for the reference person's education level, marital status and home ownership, and continuous variables for the age of the reference person and for the numbers of adults and children in the household. A dummy variable for urban or rural residence also was included for White households, but was excluded for Asian, Black, and Hispanic households, because households belonging to these three ethnic groups were mostly urban residents; in those latter cases, the dummy variable did not vary enough to allow the estimation of correlations with other demographic variables. For each ethnic group, each of the 15 clothing expenditure shares was estimated as a function of annual total consumption expenditures, age of the reference person, and numbers of adults and children in the household. A dummy variable for urban or rural residence also was included for only White households. The dependent variables in the measurement equation (Equation 3.10) were per capita annual total household expenditures on clothing and per adult annual total household expenditures on personal care and services. The independent variable was the latent quality variable.

Results of the MIMIC Model Estimation

Tables 9 through 13 summarize the results for the latent variable equation; these results show the total effects of annual total household expenditures and demographic variables on the latent quality variable and on the expenditure share for each clothing category. A

total effect is the sum of the direct and the indirect effects of the independent variables on a latent variable, either the quality variable or the expenditure share. In the model given by Equations 3.9 and 3.11, the direct effects of the independent variables on the latent variables are contained in the $\boldsymbol{G}$ matrix. The independent variables also affect the latent variables indirectly through the $\boldsymbol{b}$ matrix. Thus, the total effect of an independent variable on the latent variable is the sum of the effects contained in the $\boldsymbol{G}$ and the $\boldsymbol{b}$ matrices; the results presented in Tables 9 through 13 refer to the total effects. See Appendix B for details of the relationship among the direct, total, and indirect effects.

Tables 14 and 15 summarize the results of the parameter estimates for $\boldsymbol{b}_{i21}$, which are the effects of the latent quality variables on the expenditure shares (see Equations 3.9 and 3.11). Detailed tables containing all the parameter estimates are included in the Appendix (Tables A1 through A14). Parameters were not estimated for the effects of the latent quality variables on per capita annual total household clothing expenditures ($\boldsymbol{l}_{i11}$), because each of those parameters was constrained to equal one to provide a measurement scale for the latent quality variable in each estimation. The various tables mentioned above are inserted at the appropriate places as they are cited in discussing the results.

Effects of the Independent Variables on the Latent Quality Variables

Tables 9 and 10 show the influences of the independent variables on the latent quality variable for each expenditure share. The signs show positive and negative effects at the 0.05 confidence level, and no sign indicates nonsignificance. Table 11 shows the range of the effects of each independent variable on the latent quality variable for each expenditure share. Looking across the four ethnic groups, the variables with the largest numbers of significant effects on the latent quality variables associated with the clothing categories were annual total household expenditures and the numbers of children and adults in the household. As Table 9 shows, annual total expenditures had a positive and significant effect on the latent quality variables associated with eight of the 15 women's clothing categories for Asian households and with all 15 clothing categories for Black, Hispanic, and White households. Thus, overall, the quality levels chosen, and thereby the prices paid, by households increased with increasing annual total expenditures.

Table 9

Directions of the Effects of Annual Total Expenditures, Numbers of Adults and Children, and Age of the Reference Person on the Latent Quality Variable for Each Clothing Category

	Independent variables															
Clothing category	Annual total Expenditures				Numbers of children				Numbers of adults				Age of reference person			
	A	**B**	**H**	**W**	**A**	**B**	**H**	**W**	**A**	**B**	**H**	**W**	**A**	**B**	**H**	**W**
Jackets[a]		+	+	+			-	-		-	-	-		-		
Coats[b]	+	+	+	+	-		-	-	-	-	-	-			-	-
Suits	+	+	+	+	-	-	-	-		-	-	-				-
Vests		+	+	+		-	-	-		-	-	-				-
Sweaters[c]	+	+	+	+		-	-	-		-	-	-			-	-
Trousers[d]		+	+	+	-	-	-	-	-	-		-	-	-	-	-
Shorts, short sets		+	+	+			-	-			-	-		-	-	-
Dresses		+	+	+	-	-	-	-	-	-	-	-	-		-	-
Skirts and culottes	+	+	+	+	-		-	-	-	-	-	-		-		
Shirts[e]	+	+	+	+	-	-	-	-	-	-	-	-		-		-
Undergarments		+	+	+	-	-	-	-		-	-	-			-	-
Hosiery		+	+	+	-		-	-	-	-	-	-			-	-
Nightwear[f]	+	+	+	+	-	-	-	-	-	-	-	-	-		-	-
Accessories	+	+	+	+	-		-	-	-	-	-	-	-			-
Active sportswear	+	+	+	+	-		-	-	-	-	-	-	-			-

Note. **A** = Asians; **B** = Blacks; **H** = Hispanics; **W** = Whites.
+ positive effects, $p \leq 0.05$; - negative effects, $p \leq 0.05$. No sign indicates nonsignificance.
[a] Coats, jackets, and furs
[b] Sport coats and tailored jackets
[c] Sweaters and sweater sets
[d] Trousers, slacks, jeans, and dungarees
[e] Shirts, blouses, and tops
[f] Nightwear and loungewear

Table 10

Directions of the Effects of Home Ownership, Marital Status and Education Level of the Reference Person, and Urban Residence on the Latent Quality Variable for Each Clothing Category

	Independent variables															
Clothing category	Home ownership				Marital status of reference person				Education level of reference person				Urban Residence			
	A	**B**	**H**	**W**	**A**	**B**	**H**	**W**	**A**	**B**	**H**	**W**	**A**	**B**	**H**	**W**
Jackets[a]								+	+				X	X	X	
Coats[b]		-			+			+					X	X	X	
Suits		-				-	+	+		-			X	X	X	
Vests	+	-				-		+	+			-	X	X	X	
Sweaters[c]		-					+	+		-		-	X	X	X	
Trousers[d]					+	-		+					X	X	X	
Shorts, short sets								+				-	X	X	X	
Dresses		-			+	-		+		-			X	X	X	
Skirts and culottes	-	-			+			+					X	X	X	+
Shirts[e]						-		+					X	X	X	
Undergarments		-			+	-	+	+		-			X	X	X	
Hosiery					+		+	+				-	X	X	X	
Nightwear[f]	-	-			+			+				-	X	X	X	
Accessories		-			+		+	+				-	X	X	X	
Active sportswear		-			+			+					X	X	X	

Note. **A** = Asians; **B** = Blacks; **H** = Hispanics; **W** = Whites. The following categories were created for the dummy variables: home ownership (1=owns home, 0=does not own home); marital status (1=married, 0=non-married); education level of the reference person (1=college graduate, 0=non-college graduate); and residence (1=urban residence; 0=rural residence). X: not applicable; + positive effects, $p \leq 0.05$; - negative effects, $p \leq 0.05$. No sign indicates nonsignificance.

[a] Coats, jackets, and furs

[b] Sport coats and tailored jackets

[c] Sweaters and sweater sets

[d] Trousers, slacks, jeans, and dungarees

[e] Shirts, blouses, and tops

[f] Nightwear and loungewear

Table 11

Range of the Effects of each Independent Variable on the Latent Quality Variable for Each Expenditure Share

	Asians		Blacks		Hispanics		Whites	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Annual total expenditures	0.51	1.02	0.57	1.27	0.64	0.82	0.63	0.93
Numbers of children	-0.39	-0.84	-0.19	-0.47	-0.31	-0.48	-0.23	-0.50
Numbers of adults	-0.54	-1.03	-0.14	-0.50	-0.38	-0.61	-0.39	-0.62
Age of reference person	-0.22	-0.37	-0.15	-0.19	-0.22	-0.24	-0.16	-0.24
Home ownership	-0.15	0.49	-0.16	-0.37	XX	XX	XX	XX
Marital status	0.39	0.64	-0.11	-0.31	0.21	0.27	0.15	0.28
Education level of reference person	0.48	0.84	-0.27	-0.35	XX	XX	-0.11	-0.15
Urban residence	X	X	X	X	X	X	0.09	0.09[a]

Note. Only effects significant at the $p \leq 0.05$ are included. X: not applicable; XX: none of the effects were significant. The following categories were created for the dummy variables: home ownership (1=owns home, 0=does not own home); marital status (1=married, 0=non-married); education level of the reference person (1=college graduate, 0=non-college graduate); and residence (1=urban residence; 0=rural residence).

[a] The minimum and maximum values are the same because only one of the 15 parameter estimates was significant.

As Table 11 shows, the range of effects was wider for Asian and for Black households than for Hispanic and for White households. There was little variation in the estimates between Hispanic and White households. The magnitude of the effect was highest for skirts and culottes for Asian households, dresses for Black households, accessories for Hispanic households, and vests for White households (Table A1). The magnitude of the effects of annual total expenditures on the latent quality variables varied, however, by clothing category for the four ethnic groups.

The strong positive relationship between annual total household expenditures and the latent quality variables for the women's clothing categories for all four ethnic groups indicates that, overall, the quality levels chosen by households increased with increasing annual total expenditures. Assuming that a higher quality choice implies a higher price choice, there is a positive relationship between annual total expenditures of households and the prices paid for women's clothing. Thus, a household's quality choices for women's clothing are closely related to the household's total expenditures.

Numbers of children and adults had an overall negative and significant effect on the latent quality variables (Table 9), indicating that quality levels chosen by households declined with increasing numbers of adults or children in a household. Numbers of children had a negative effect on the latent quality variables associated with 11 clothing categories for Asian households, seven for Black households, and all 15 clothing categories for Hispanic and White households. Among the four ethnic groups, the range of effects was the largest for Asian households (Table 11). The magnitude of the effects was the largest for sportswear for Asian households, suits and undergarments for Black households, accessories for Hispanics, and sweaters for Whites (Table A2). Also, among the four ethnic groups, the magnitude of most of the effects was largest for Asian households and smallest for Black households.

Numbers of adults had a negative effect on the latent quality variables associated with nine clothing categories for Asian households, 14 clothing categories for both Black and Hispanic households, and all 15 clothing categories for White households. Among the

four ethnic groups, the range of effects was the largest for Asian households. The magnitude of the effects was largest for sportswear for Asian households, sweaters for Black households, and accessories for both Hispanic and White households (Table A3). Overall, the magnitude of the effects was smaller for the Black households than those for households of the other three ethnic groups.

The negative relationship between the latent quality variables and the numbers of adults and children in a household, for all four ethnic groups, may be indicative of resource constraints. A reason why the quality levels chosen, and thereby the prices paid, by households decreased with increasing numbers of family members, could be that clothing (or other) items must be purchased for all the family members, and having high-quality clothing for the mother or other women in the household may not be an important consideration.

Other independent variables with negative effects on the latent quality variables were age of the reference person and home ownership (Tables 9 and 10). Age of the reference person was negatively and significantly related to the latent quality variables associated with five clothing categories for both Asian and Black households, eight clothing categories for Hispanic households, and 13 for White households. None of the latent quality variables showed a positive and significant relationship with age of the reference person. For Asian households, home ownership had a negative and significant effect on latent variables associated with two clothing categories and a positive and significant effect on the latent quality variable associated with one clothing category. Home ownership had a negative and significant effect on ten latent quality variables for Black households. Home ownership had no significant effects on any of the latent quality variables for either Hispanic or White households. Overall, the magnitude of the effects related to age of the reference person and home ownership was smaller than the magnitude of the effects related to numbers of adults and children in a household (see Table 11 and Tables A2 through A5).

A possible reason for the negative relationship between age of the reference person and the latent quality variables is that older persons who are no longer active in the paid work force may not choose to invest in high-quality clothing. Also, older persons' medical care may be a major or even overriding concern, and clothing quality for the woman or women in the household may not be an important consideration.

The negative relationship between home ownership and the latent quality variables, predominantly for Black households, may imply that Black home owners experience resource constraints, expressed as homeowners' lower quality choices for women's clothing than renters' quality choices. According to Gouke (1987), racial discrimination has resulted in Blacks traditionally renting, and not owning homes, and Black households often experience anxiety and economic insecurity in making the long-term commitment to home ownership through loans or mortgages. Once having made the commitment to home ownership, Blacks may anticipate resource constraints in the future, and clothing quality for the woman or women in the household may not be regarded as important. For Hispanics and Whites, home ownership did not significantly affect the latent quality variables, and for Asians, home ownership had few significant effects.

Marital status and education of the reference person had mixed effects on the latent quality variables (Table 10 and Tables A6 and A7). For Asian, Hispanic, and White households, marital status had a positive and significant effect on the latent quality variables associated with nine, five, and 15 clothing categories, respectively, whereas for Black households, the effect was negative and significant for six categories. These results indicate that for Asians, Hispanics, and Whites, when the reference person is married, the households chose higher levels of quality for some categories of women's clothing than did households with non-married persons; however, the opposite occurred for Black households. The range and the magnitude of the effects were larger for Asian households than for the other three ethnic groups (Table 11, Table A6). The positive relationships between married reference persons and the latent quality variables for Asian, Hispanic, and White households, and the negative relationship for Black households, imply that for

married households quality is of greater consideration than for households where the reference person is not married, whereas the opposite holds for Black households.

Education level of the reference person had a positive and significant effect on the latent quality variables associated with two clothing categories for Asian households, indicating that, for these two clothing categories, households with college-educated reference persons chose higher levels of quality for women's clothing than did households with non-college educated reference persons. Opposite effects were seen for Black or White households: households with college-educated reference persons chose lower levels of quality than did households with non-college educated reference persons in the cases of four and six clothing categories, respectively. Education level of the reference person had no effect on the latent quality variables for any clothing category for Hispanic households. For White households, residence location had a significant effect for only one clothing category (Table 10 and Table A8): urban residents chose a higher level of quality than did rural residents in the case of skirts and culottes.

Overall, education level of the reference person and urban residence (applicable only to White households) affected few of the latent quality variables, indicating that these variables do not have a strong impact on households' quality choices for women's clothing. Taken together, however, the results for the effects of the independent variables on the latent quality variable imply that socio-economic variables impact consumers' quality choices for women's clothing.

Effects of the Independent Variables on the Clothing Expenditure Shares

The socio-economic independent variables, including annual total expenditures, numbers of children and adults, age of the reference person, and urban residence (for White households only), significantly affected several clothing expenditure shares for the four ethnic groups. Table 12 shows the influences of the independent variables on the expenditure shares. The signs show positive and negative effects at the 0.05 confidence level, and no sign indicates nonsignificance. Table 13 shows the range of the effects of each independent variable on the expenditure shares. It is important to note that the Engel

Table 12

Directions of the Effects of the Independent Variables on the Clothing Expenditure Shares

	Independent variables															
Clothing category	Annual total Expenditures				Numbers of children				Numbers of adults				Age of reference person			
	A	**B**	**H**	**W**	**A**	**B**	**H**	**W**	**A**	**B**	**H**	**W**	**A**	**B**	**H**	**W**
Jackets[a]				+	-			+				+		-		-
Coats[b]				+			-	-				-	-	+		-
Suits	+		+	+	-						-	-	-			-
Vests		-		+	+								+	-		-
Sweaters[c]		-		+						+						-
Trousers[d]		+	-	+	+	-	+	+			+	+				-
Shorts, short sets				+						+				-		-
Dresses			+	+	-	+	-	-		+		-		-		-
Skirts and culottes									+				-	+		
Shirts[e]				+				-				-	+			-
Undergarments		-		+	+			-				-				-
Hosiery										-						
Nightwear[f]		+		+	-				-	-		+		+		-
Accessories				+	+				+				+	+	+	-
Active sportswear				+				-	-			-				-

(table continues)

Table 12 (continued)

	Independent variable			
Clothing category	Urban residence			
	A	**B**	**H**	**W**
Jackets[a]	X	X	X	+
Coats[b]	X	X	X	
Suits	X	X	X	+
Vests	X	X	X	
Sweaters[c]	X	X	X	+
Trousers[d]	X	X	X	
Shorts, short sets	X	X	X	
Dresses	X	X	X	
Skirts and culottes	X	X	X	
Shirts[e]	X	X	X	
Undergarments	X	X	X	-
Hosiery	X	X	X	
Nightwear[f]	X	X	X	
Accessories	X	X	X	
Active sportswear	X	X	X	-

Note. **A** = Asians; **B** = Blacks; **H** = Hispanics; **W** = Whites. Urban residence was a dummy variable categorized as (1=urban residence, 0=rural residence).
X: not applicable; + positive effects, $p \leq 0.05$; - negative effects, $p \leq 0.05$. No sign indicates nonsignificance.
[a] Coats, jackets, and furs
[b] Sport coats and tailored jackets
[c] Sweaters and sweater sets
[d] Trousers, slacks, jeans, and dungarees
[e] Shirts, blouses, and tops
[f] Nightwear and loungewear

Table 13

Range of the Effects of each Independent Variable on the Clothing Expenditure Shares

	Asians		Blacks		Hispanics		Whites	
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Annual total expenditures	0.45	0.45[a]	-0.37	0.66	-0.13	0.38	0.20	0.93
Numbers of children	0.23	0.64	0.35	0.35[a]	0.23	-0.25	-0.13	0.29
Numbers of adults	0.66	0.88	0.19	-0.29	0.13	-0.18	-0.10	-0.29
Age of reference person	-0.16	0.26	0.14	-0.33	0.19	0.19[a]	-0.11	-0.24
Urban residence	X	X	X	X	X	X	0.09	-0.23

Note. Only effects significant at the $p \leq 0.05$ are included. X: not applicable. Urban residence was a dummy variable categorized as 1=urban residence, 0=rural residence.
[a] The minimum and maximum values are the same because only one of the 15 parameter estimates was significant.

function for each clothing category was separately estimated and that the effects of the socio-economic variables on the expenditure shares do not sum to zero.

Annual total expenditures had mixed effects on the clothing expenditure shares[9]. For Asian households, annual total expenditures had a positive and significant effect on only the expenditure share of suits (see Table A9), indicating that, for Asian households, expenditure shares for suits increased with increasing annual total expenditures. Annual total expenditures did not significantly affect any other expenditure shares for Asian households. For Black households, annual total expenditures had positive and significant effects on three expenditure shares, and negative and significant effects on three expenditure shares. For Hispanic households, annual total expenditures had positive and significant effects on two expenditure shares and negative and significant effects on one expenditure share. For White households, the only significant effects were positive, and those were for 12 expenditure shares. Also, the range of effects was the largest for White households (Table 13).

Thus, annual total expenditures positively affected most of the clothing categories for White households, but only few expenditure shares for the other three ethnic groups. Annual total expenditures positively affected expenditure shares for suits for Asian households, trousers and nightwear for Black households, and suits and dresses for Hispanic households (see Table A9). The positive effects of total expenditures on certain clothing categories may be related to the functions of these categories. Zhang and Norton (1995) note that certain clothing categories fulfill more of a social-psychological function and other clothing categories serve more of a physical function. According to the authors, "…physical functions may represent lower order needs related to the basic functioning of the body, whereas social-psychological functions may represent higher order needs related to individuals' enhancement of social identity and interactions or

[9] In order to determine an average unit change in the expenditure share given a unit change in annual total expenditures, the parameter estimates associated with annual total expenditures should be divided by the mean value of annual total expenditures, because annual total expenditures are expressed in logarithmic form in the estimated model. The results of this computation are not included; Table A9 contains the actual parameter estimate values.

promotion of self-actualization" (p. 333). With increased levels of total expenditures, households may be able to allocate more resources to buy garments in which social-psychological functions predominate over physical ones, leading to larger expenditure shares for clothing categories that provide psychological gratification more than satisfying physical needs. Thus, suits may be the only common clothing category across Asian, Hispanic, and White households for which the social-psychological function predominates. It is possible that, due to cultural and lifestyle differences, the clothing categories that satisfy more social-psychological than physical needs differ across ethnic groups.

Numbers of children and adults also had mixed effects on the clothing expenditure shares. As seen in Table 12, numbers of children in a household had positive and significant effects on four, one, one, and two expenditure shares for Asian, Black, Hispanic, and White households, respectively, and negative and significant effects on four, one, two, and five expenditure shares for Asian, Black, Hispanic, and White households, respectively. The two clothing categories significantly affected for all four ethnic groups were trousers and dresses (see Table A10). Numbers of adults had positive and significant effects on two, three, one, and three expenditure shares for Asian, Black, Hispanic, and White households, respectively, and negative and significant effects on two, two, one and six expenditure shares for Asian, Black, Hispanic, and White households, respectively. Overall, the range and the magnitude of the effects were the largest for Asian households (Table 13 and Table A10).

A possible reason for the mixed effects of numbers of children and adults in a household on the clothing expenditure shares for the four ethnic groups, is that the numbers of children and adults involve varying resource constraints. When there are more resource constraints, one might expect less resources diverted towards the satisfaction of social-psychological needs as compared to physical needs, and due to cultural and lifestyle differences, the categories of clothing that satisfy social-psychological more than physical needs may differ across ethnic groups. Usually, not more than two earning adults (generally a couple) live in a single household; as children approach adulthood and

become earners, they typically move into independent households. The presence of increased numbers of adults in a single household may indicate that some of the adults are dependents, such as older relatives being cared for. Previous literature (e.g., Nelson, 1989, Zhang & Norton, 1995) indicates that, with increasing numbers of children in a household, expenditures are increasingly diverted away from the mother's clothing to children's clothing. With fewer resources, given the necessity of satisfying the physical needs of the household, there may be less expenditure allocated to satisfy social-psychological needs as may be reflected in high-quality women's clothing.

Age of the reference person had mixed effects on the expenditure shares for Asian and Black households, and negative effects on most of the expenditure shares for White households (Table 12), indicating that for White households, expenditure shares for most clothing categories decreased with increasing age of the reference person. For Asian households, the effects of age were negative and significant for three and positive and significant for three expenditure shares. For Black households, the effects were positive and significant for four and negative and significant for four expenditure shares. For Hispanic households, the effects were positive and significant for one expenditure share; no negative and significant effects were found for Hispanic households. For White households, age had negative and significant effects for 13 expenditure shares and no positive and significant effects.

The results on age imply that age has greater influence on the clothing expenditure patterns of White households than on those of the other three ethnic groups.
A reason may be the older average age of the reference persons in the White households in the sample (see Table 8) than in the Asian, Black, and Hispanic households. These results support those of Zhang and Norton (1995), who found that households with older reference persons spent less on several categories of women's clothing than did households with younger reference persons. Although Zhang and Norton's (1995) results are not directly comparable with the results of this research because the authors used dollar values as dependent variables and not expenditure shares, it is possible that older persons allocate less expenditures to clothing categories that fulfill social-psychological

needs as compared to physical needs. This is most evident in the case of Asian households, for whom age had a negative effect on expenditure shares for suits and for sport coats and tailored jackets (Table A12); both of these clothing categories may satisfy physical needs less than social-psychological needs.

As seen in Table 12, urban residence was positively and significantly related to three expenditure shares, and negatively and significantly related to two, for White households. A possible reason for the mixed effects of urban versus rural residence on the expenditure shares for White households is that people have more encounters with strangers in an urban environment than in a rural one, and they may feel more pressure to dress up to make a better first impression or to be accepted (Kaiser, 1997). For White, urban households, the clothing expenditure shares positively affected (see Table A13), including coats, jackets and furs, suits, and trousers, slacks, jeans and dungarees, may be for clothing categories that fulfill social-psychological needs more than physical needs, and the clothing expenditure shares negatively affected, including shirts and active sportswear, may be for clothing categories that satisfy physical more than social-psychological needs.

Together, these results imply that socio-economic variables affect women's clothing expenditure shares, but not as broadly as they affect the latent quality variables; that is, the socio-economic variables affect many more latent quality variables associated with the clothing categories than they do the expenditure shares for the categories.

Effects of the Latent Quality Variables on the Clothing Expenditure Shares

Table 14 shows the influences of the latent quality variables on the clothing expenditure shares for all four ethnic groups, and Table 15 shows the ranges of these effects. The latent quality variables had positive and significant effects on seven expenditure shares for Asian households, eight expenditure shares for Black households, two expenditure shares for Hispanic households, and seven expenditure shares for White households. The latent quality variables had negative and significant effects on six expenditure shares for Asian households, four expenditure shares for Black households, one for Hispanic

Table 14

Directions of the Effects of the Latent Quality Variables on the Clothing Expenditure Shares

	Ethnic Groups			
Clothing category	**A**	**B**	**H**	**W**
Coats, jackets and furs		+	+	
Sports coats and tailored jackets	+	+		+
Suits	-			
Vests	+	-		-
Sweaters and sweater sets	+	-		-
Trousers, slacks, jeans, and dungarees	-	+		
Shorts and short sets				+
Dresses	+	-		+
Skirts and culottes	-	+		+
Shirts, blouses and tops	+	+		+
Undergarments	-			
Hosiery	-	-		+
Nightwear and loungewear	+	+		-
Accessories	-	+	-	-
Active sportswear	+	+	+	+

Note. **A** = Asians; **B** = Blacks; **H** = Hispanics; **W** = Whites.
+ positive effects, $p \leq 0.05$; - negative effects, $p \leq 0.05$. No sign indicates nonsignificance.

Table 15

Ranges of Effects of the Latent Quality Variables on the Clothing Expenditure Shares

Asians		Blacks		Hispanics		Whites	
Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
0.40	-3.16	-0.70	5.07	0.74	-1.04	0.45	1.69

households, and four for White households. As compared to the other three ethnic groups, the magnitude and the range of the effects were the largest overall for Black households (see Tables 15 and Table A14). Expenditure shares for accessories and sportswear showed significant effects for all four ethnic groups, although only sportswear showed a positive effect for all four ethnic groups, indicating that a higher quality choice leads to larger expenditure shares for sportswear across ethnic groups (Table A14).
The results show that, overall, the latent quality variables affected few expenditure shares for Hispanic households, as compared to the other three ethnic groups. In general, households that choose a higher or lower quality may decrease the quantity purchased, thereby leaving the expenditure share unaffected.

Results of the Hypothesis Tests

Differences Between the Ethnic Groups in the Effects of Annual Total Expenditures on the Expenditure Shares for each Clothing Category

Table 16 presents the t-statistics, computed according to Equation 3.25, to test for significant differences between the ethnic groups in the effects of annual total expenditures on the expenditure shares for each category of women's clothing. Column 1 of Table 16 contains the t-statistics comparing Asian households and households of the other three ethnic groups, Column 2 contains the t-statistics comparing Black and Hispanic households and comparing Black and White households, and Column 3 contains the t-statistics comparing Hispanic and White households. The values of most of the computed t-statistics indicate significant differences between the parameter estimates. Hypothesis 1, stating that, for each category of women's clothing, the relationship between annual total expenditures and expenditure shares would differ significantly across the four ethnic groups, was largely supported.

As seen in Column 1, the effects of annual total expenditures on the expenditure shares for Asian households differ significantly from those for Black and for Hispanic households for 12 of the 15 clothing categories and from those for White households for 14 clothing categories. The effects of annual total expenditures on the clothing

Table 16

T-Statistics for Differences in Parameter Estimates of the Effects of Annual Total Expenditures on the Expenditure Shares

	1 Differences between Asians and:		
Clothing categories	Blacks	Hispanics	Whites
Coats, jackets and furs	-8.06****	5.14****	-34.85****
Sport coats and tailored jackets	1.05	1.80	0.75
Suits	12.84****	3.98****	-15.84****
Vests	23.87****	-13.70****	-75.54****
Sweaters and sweater sets	14.64****	-2.04*	-20.78****
Trousers, slacks, jeans, dungarees	-17.93****	6.00****	-23.03****
Shorts and short sets	-8.17****	-8.75****	-9.70****
Dresses	1.73	-12.01****	-13.20****
Skirts and culottes	-15.76****	-18.78****	-15.28****
Shirts, blouses and tops	-11.93****	-1.23	-18.36****
Undergarments	31.19****	14.43****	-17.47****
Hosiery	0.00	12.43****	12.05****
Nightwear and loungewear	-0.72	10.22****	-16.55****
Accessories	3.04***	6.74****	-11.64****
Active sportswear	-4.27****	-0.77	-22.34****

(table continues)

	2		3
	Differences between Blacks and:		Differences between Hispanics and:
Clothing categories	Hispanics	Whites	Whites
Coats, jackets and furs	21.87****	-42.20****	-107.85****
Sport coats and tailored jackets	0.00	-0.76	-3.34****
Suits	-21.45****	-64.01****	-69.18****
Vests	-45.59****	-132.23****	-87.84****
Sweaters and sweater sets	-57.69****	-161.14****	-77.34****
Trousers, slacks, jeans, dungarees	66.62****	-10.84****	-181.84****
Shorts and short sets	0.00	-2.22*	-7.89****
Dresses	-32.72****	-40.24****	-3.90****
Skirts and culottes	-4.02****	4.60****	10.36****
Shirts, blouses and tops	27.01****	-16.20****	-68.01****
Undergarments	-43.03****	-128.77****	-123.70****
Hosiery	25.23****	26.22****	-2.87***
Nightwear and loungewear	25.83****	-44.12****	-89.82****
Accessories	11.03****	-65.11****	-65.40****
Active sportswear	7.16****	-48.49****	-53.01****

* $p \leq 0.05$ ** $p \leq 0.02$ *** $p \leq 0.01$ **** $p \leq 0.002$

expenditure shares for Asian households are significantly smaller than those for Black or Hispanic households for seven clothing categories and significantly smaller than those for White households for 14 clothing categories. Thus, overall, annual total expenditures have less effect on the clothing expenditure shares of Asian households than of households of the other three ethnic groups.

Comparing Black households with Hispanic or White households (Column 2), the t-statistics indicate that annual total expenditures have a significantly different effect on the expenditure shares for 12 clothing categories for Black households than for Hispanic households, and for 14 clothing categories for Black households than for White households. Compared to Hispanic households, the effects are significantly smaller on the expenditure shares for Black households for six clothing categories, and significantly larger for six clothing categories. Compared to White households, the effects are significantly smaller on the expenditure shares for Black households for 12 clothing categories, and larger for only two clothing categories. Lastly, Column 3 shows that annual total expenditures have a significantly smaller effect on the expenditure shares for 13 clothing categories for Hispanics than for Whites, and a significantly larger effect on the expenditure share for only one category for Hispanics than for Whites. These results indicate that annual total expenditures have the largest effects on the expenditure shares for White households, and the smallest effects on the shares for Asian households. The results support the conclusions of Paulin (1998) and Wagner and Soberon-Ferrer (1990), in that different ethnic groups have distinct expenditure patterns due to differences in socio-economic characteristics. In this research, the distinct expenditure patterns of the four ethnic groups are reflected in the significantly different effects of annual total expenditures on the expenditure shares for most categories of women's clothing for the four groups.

Differences Between the Ethnic Groups in the Effects of the Latent Quality Variables on the Expenditure Shares for the Each Clothing Category

Table 17 presents the t-statistics, computed according to Equation 3.25, to test for significant differences between the ethnic groups in the effects of the latent quality

Table 17

T-Statistics for Differences in Parameter Estimates of the Effects of the Latent Quality Variables on Expenditure Shares

	1 Differences between Asians and:		
Clothing categories	Blacks	Hispanics	Whites
Coats, jackets and furs	-26.29****	-16.40****	40.00****
Sport coats and tailored jackets	-28.20****	15.31****	20.64****
Suits	-16.96****	-13.83****	-18.44****
Vests	63.96****	37.34****	124.17****
Sweaters and sweater sets	59.52****	46.50****	55.73****
Trousers, slacks, jeans, dungarees	-47.09****	-28.58****	-47.77****
Shorts and short sets	-2.37**	1.21	1.23
Dresses	54.39****	20.62****	23.68****
Skirts and culottes	-59.94****	-44.32****	-96.47****
Shirts, blouses and tops	-30.74****	17.75****	27.86****
Undergarments	-14.82****	-31.21****	-53.48****
Hosiery	37.63****	-34.01****	-60.50****
Nightwear and loungewear	11.97****	47.99****	59.81****
Accessories	-34.22****	-15.97****	-16.73****
Active sportswear	-9.01****	-0.65	11.44****

(table continues)

	2		3
	Differences between Blacks and:		Differences between Hispanics and:
Clothing categories	Hispanics	Whites	Whites
Coats, jackets and furs	19.85****	33.46****	39.38****
Sport coats and tailored jackets	42.83****	52.70****	0.49
Suits	0.98	0.88	-0.56
Vests	-25.59****	-17.83****	17.01****
Sweaters and sweater sets	-13.04****	-19.59****	0.91
Trousers, slacks, jeans, dungarees	39.85****	40.34****	-1.18
Shorts and short sets	5.62****	5.65****	2.61***
Dresses	-42.38****	-63.17****	-1.41
Skirts and culottes	25.76****	28.88****	-2.31*
Shirts, blouses and tops	36.86****	38.61****	1.13
Undergarments	-21.57****	-42.53****	-0.83
Hosiery	-52.60****	-57.91****	-0.34
Nightwear and loungewear	42.28****	58.68****	7.69****
Accessories	55.48****	77.63****	-1.25
Active sportswear	9.18****	33.84****	14.22****

* $p \leq 0.05$ ** $p \leq 0.02$ *** $p \leq 0.01$ **** $p \leq 0.002$

variables on the expenditure shares for each category of women's clothing. Column 1 of Table 17 contains the t-statistics comparing Asian households and households of the other three ethnic groups, Column 2 contains the t-statistics comparing Black and Hispanic households and comparing Black and White households, and Column 3 contains the t-statistics comparing Hispanic and White households. The values of most of the computed t-statistics indicate significant differences between the parameter estimates, though in the case of Hispanics and Whites, the t-statistics indicate significant differences between only a few parameter estimates. Hypothesis 2, stating that, for each category of women's clothing, the relationship between the latent quality variables and the expenditure shares would differ significantly across the four ethnic groups, was partially supported.

Column 1 shows that, for Asians, the effects of the latent quality variables on the expenditure shares are significantly different for 15 clothing categories from those for Blacks, for 13 clothing categories from those of Hispanics, and for 14 clothing categories from those of Whites. The direction of the difference is mixed, however; the latent quality variables had a larger effect on the expenditure shares for Asians for five, six, and eight clothing categories than for Blacks, Hispanics, and Whites, respectively, and the latent quality variables had a smaller effect on the expenditure shares for Asians for ten, seven, and six clothing categories than for Blacks, Hispanics, and Whites, respectively.

Column 2 shows that the latent quality variables had significantly larger effects on the expenditure shares for nine clothing categories for Blacks than for Hispanics and Whites, and significantly smaller effects on the expenditure shares for five clothing categories for Blacks than for Hispanics and Whites. For Hispanics, the effects of the latent quality variables on the expenditure shares are significantly different from those for Whites for only six clothing categories; the effects are larger for five clothing categories and smaller for one, for Hispanics than for Whites. Thus, the differing effects of the latent quality variables on the expenditure shares may reflect the differences in socio-economic characteristics of the ethnic groups, which in turn influence both their quality choices and expenditure decisions. Also, the latent quality variables for all 15 clothing categories

had positive and significant effects on per-adult annual expenditures for personal care and services for all four ethnic groups (see Table A15), indicating that expenditures on personal care and services appear to be a good indicator for the latent quality variables.