Budget Allocation Patterns of Hispanic Versus Non-Hispanic White Households

The budget allocation patterns of Hispanic versus non-Hispanic White households were examined. Yearly household level data from 1980 to 1990 including information on expenditure, price, and demographic characteristics were constructed from the Consumer Expenditure Survey (1980-1990), the Consumer Price Index (1980-1990), and the ACCRA Cost of Living Index (1990) resulting in a largest sample of Hispanics (n=474) of any national study to date concerning ethnic differences in budget allocation patterns. A linear approximation of the Almost Ideal Demand System with incorporation of 24 demographic variables was employed to ensure theoretical consistency.

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One of the fastest growing ethnic groups in the United States is the Hispanic population. By the year 2000, this segment is predicted to be the nation's largest minority group overtaking the black population (Hoyer & Deshpande, 1982; Pitts, 1990). The 1988 U.S. Bureau of the Census indicated that there were 14.6 million persons of Spanish origin who resided in the United States in 1980. They represented 6.5 percent of the total U.S. population of 226.5 million people (U.S. Bureau of the Census, 1989). In 1990, Hispanics numbered 22.3 million, a 53 percent increase since 1980, and represented 9 percent of the total U.S. population of 248.7 million people (U.S. Bureau of the Census, 1992).

The term "Hispanic" refers to those individuals with the capability of speaking and comprehending the Spanish language and whose ancestry is based on a Spanish-speaking country, and who identify with the Hispanic culture (Guernica & Kasperuk, 1982). Hispanic Americans are a diverse group whose members trace their origins to Mexico, Puerto Rico, Central America, South America, Cuba, and other Spanish-speaking countries (Ho, 1988; Pitts, 1990). The largest segment of the Spanish-speaking population is concentrated in five Southwestern states: Arizona, California, Colorado, New Mexico, and Texas (Moore & Pachon, 1985; Tobin & Hall, 1986). In March 1988, 62.3 percent of the Hispanic population were of Mexican origin, 12.7 percent were of Puerto Rican origin, 11.5 percent were of Central and South American origin, 5.3 percent of Cuban origin, and 8.1 percent were "other Hispanic" origin (U.S. Bureau of Census, 1989).

The heritage of Hispanic Americans is rich and diverse. Hispanic groups tend to share similarities in terms of values, beliefs, and attitudes, culture and self-perception. These similarities distinguish the Hispanic population from other ethnic and consumer groups (Segal & Sosa, 1983; Cervantes, 1980; Deshpande, Hoyer & Donthu, 1986). The purpose of this study was to analyze ethnic differences among Hispanic households versus non-Hispanic White households in budget allocation patterns. The results of this study could be used for evaluation of public policy and marketing research targeting the Hispanic population. In addition, the results could assist consumer educators to better understand the unique behavior patterns of Hispanic consumers and therefore better meet the needs for this specific ethnic group.

Review of Literature

According to Wagner and Soberon-Ferrer (1990), the effects of income and other socioeconomic and demographic characteristics on household expenditures have been studied by many consumer economists.

However, the effect of ethnicity on household behavior did not emerge as an important research issue until the Civil Rights movement of the 1960s and the explosive growth of the Hispanic population during the 1970s. Empirical studies on this topic were mostly done in the late nineteen eighties after the 1980/1981 publications of Consumer Expenditure Survey (CES), where expenditure data categorized by the ethnic identity of the households were first available.

Ethnic variables have been found significant in various expenditure categories. Using 1980-1981 CES data, the Wagner and Soberon-Ferrer study (1991) found Hispanic households spent more on food at home than households of European origin. This finding was consistent with the Zuiker and Bae's (1993) study which used the 1990 Bureau of Labor Statistic data.

Hispanic households spent significantly more on fuel and utility, compared to non-Hispanic households, holding other things equal (Bae, 1992). Hispanic households spent significantly less on entertainment and transportation than non-Hispanic households (Bae, 1992; Zuiker & Bae, 1993).

In terms of expenditure on education, Hispanic households were found to spend significantly less than non-Hispanic households, holding everything else equal (Bae, 1992; Zuiker & Bae, 1993). Pitts (1990) and Myers (1991) findings also suggested that Hispanic households spent less on reading and education than non-Hispanic households.

Bae's study (1992) also found that Hispanic households spent less on heath care, compared to non-Hispanics households, holding other things equal. Same results could be found in Pitts (1990) and Myers (1991) studies.

Wallendorf and Reilly's (1983) study found that Anglos were the largest consumers of both beer and wine than Mexican Americans and Mexicans. Zuiker and Bae (1993) also found that Hispanic households spent significantly less on alcohol compared to non-Hispanic households, holding other things equal.

Zuiker and Bae's (1993) study found four additional expenditure categories where the ethnic variable was significant for Hispanic households. These expenditure categories included apparel; personal care; shelter; and household operation.

All previous studies had a major statistical problem: small sample size. Therefore, the estimation results could be unrobust. In addition, studies concerned with household budget allocation also had a problem with not imposing budget constraint in empirical modeling, and were therefore inconsistent with economic theory (Bae, 1992; Zuiker & Bae, 1993). Furthermore, none of the existing studies have taken prices of commodities into consideration. Empirical conclusions were therefore weakened by one or all of these limitations. In this study, by using 11 years data of Consumer Expenditure Survey, and by employing a statistical model consisting with neoclassical utility maximization theory, the empirical results should be improved and more reliable.

Theory and Method

To successfully conduct empirical research, a solid theoretical and methodological foundation is required. By employing a complete demand system to analyze the budget allocation patterns of the households in the sample, this study attempted to bridge the gap between well-developed neoclassical consumer demand theory and relatively unsophisticated empirical research on ethnicity and household budget allocation patterns. Incorporating more then twenty demographic variables into the demand system facilitated capturing the many faceted effects of ethnicity on household budget allocation behavior. The linear approximation of the Almost Ideal Demand System (LA/AIDS) first introduced by Deaton and Muellbauer (1980) was selected for this study.

Following Deaton and Meullbauer (1980), the LA/AIDS demand function was specified:

$$w_i=\alpha_i+\sum_j\gamma_{ij}\log p_j+\beta_i\log(M/P^*), \quad (1)$$

where P^*_- was a price index defined by using the Stone index:

$$\log P^* = \sum w_k^* \log p_k. \qquad (2)$$

Twenty-four demographic variables were incorporated into the LA/AIDS demand system using a form close to Blundell, Pashardes and Weber's (1993) specification. This specification was realized by allowing the parameters α and β in the LA/AIDS budget share system, and only these parameters, to vary with the demographic variables. More specifically, the budget share system with demographic variables was specified as

$$w_i = \alpha_{i0} + \sum_{h=1}^{m} \alpha_{ih} D_h + \sum_j \gamma_{ij} \log p_j + (\beta_{i0} + \sum_{h=1}^{m} \beta_{ih} D_h) \qquad (3)$$

where i and j referred to expenditure categories, and the D's were demographic variables. A two-stage tobit procedure was employed correcting for limited dependent variables for expenditure categories alcoholic beverages and tobacco products.

To maintain the theoretical properties of the budget share equation system, the following cross-equation parameter restrictions applied:

$$\begin{aligned} &\sum_k \alpha_{k0} = 1, \quad \sum_k \alpha_{kh} = 0, \quad h = 1, 2, \ldots m \\ &\sum_k \beta_{k0} = 0, \quad \sum_k \beta_{kh} = 0, \quad h = 1, 2, \ldots m \\ &\sum_k \gamma_{jk} = 0, \quad \sum_j \gamma_{jk} = 0, \quad j = 1, 2, \ldots k.. \end{aligned} \qquad (4)$$

The estimation results obtained from the LA/AIDS analysis were then used to simulate household budget allocation patterns for ethnic groups at different total expenditure levels. Then, several reduced models of the LA/AIDS equations without a certain ethnic variable were estimated. Joined F-tests were performed to test the significance of ethnic effects on household budget allocation patterns after adjusting for other economic and demographic differences. Specifically, the F-statistics were formulated as follows:

$$F = \frac{(SSE_R - SSE_F) \,/\, (df_R - df_F)}{SSE_F \,/\, df_F} \qquad (5)$$

where SSE_F was the sum square errors of the full model, in which all the independent variables were included. The SSE_R was the sum square errors of the reduced model, in which the ethnic variable tested was dropped out of the model. The degree of freedom was denoted *df*.

Data and Descriptive Statistics

The three major data sources used in this study included the 1980-1990 Consumer Expenditure Survey (CES), 1980-1990 Consumer Price Index (CPI), both collected by the Bureau of Labor Statistics (BLS), and the 1990 ACCRA Cost of Living Index (CLI), published by the American Chamber of Commerce Researchers Association.

Only households that completed the interview for an entire calendar year were selected. Rural households were excluded. Thirteen mutually exclusive summary expenditure categories were selected: (1) Food at home; (2) Food away from home; (3) Shelter; (4) Fuels and utility; (5) Household services, household equipment and furnishing; (6) Apparel and upkeep; (7) Entertainment; (8) Transportation; (9) Education; (10) Health care; (11) Alcoholic beverages; (12) Tobacco; and (13) Personal care.

The following set of demographic variables were entered into the model: (1) Ethnic dummy variables; (2) Other demographic characteristics of the reference person - age and its squared term, gender, education, occupation, and labor market participation; (3) Demographic characteristics of the household - number of earners, family composition; (4) Tenure choice; (5) Geographical location - region; (6) Time variable - a continuous year variable; (7) Interaction term of the age and time variable.

The income variable used in this study was yearly total expenditure defined by subtracting social security payment, cash contribution, life insurance payment, and net vehicle outlay from the BLS defined total expenditure, and was a sum of the 13 expenditure categories discussed above. A list of variable names for the 13 expenditure categories are defined in Table 1.

Four ethnic groups were defined in this study: Hispanic households, non-Hispanic White households, non-Hispanic Black households, and non-Hispanic Asians. A household was classified into a certain particular group if the reference person was reported as having a particular ethnic background. Households not belonging to any of the above four ethnic groups were excluded from this study.

Table 1
List of Variables

Var.	Description
FDHOME:	Food at home
FDAWAY:	Food away
SHELTER:	Shelter
UTILITY:	Utility
HOUSEO:	Equip. & oper.
APPAREL:	Apparel
ENTERT:	Entertainment
TRANSP:	Transportation
HEALTH:	Health care
EDUCAT:	Education
ALCHOL:	Alcohol
TOBACC:	Tobacco
PERSCA:	Personal care

[a]Variables beginning with "W" stand for the budget shares of the corresponding expenditure categories; Variables beginning with "P" stand for the prices of the corresponding expenditure categories.

The education level of the reference person for White households had a higher proportion of college or more education (24%), compared to the Hispanic household (10%). On average, Hispanic households had a larger family size than White households, 3.66 and 2.59, respectively.

Noticeable family structure differences were observed among the two ethnic groups. Apparently, about half of the White households enjoyed a relatively "modern" life style where they either remained single or married without children. On the other hand, Hispanic households were more likely to be traditional families. Slightly more than half of the Hispanic households in the sample consisted of a husband, a wife, and children or grandparents. Tenure choices can be observed among the two ethnic groups. Hispanic households were more likely to be renters (51.5%) compared to White households (24.3%). Homeownership with a mortgage was more prevalent among White households (47.2%) than among Hispanic households (35.0%). The geographical distribution of residences also reveals certain patterns and habits for different ethnic groups. The residence sites of White households were relatively evenly distributed in the Northeast (26.1%), Midwest (30.1%), South (24.0%), and West (19.9), while the Hispanic households tended to reside in the South (37.3%) and the West (41.4%).

On average, White households had a mean after-tax income of $23,078 a year, while Hispanic households had a mean yearly after-tax income of only $17,052. The per capita after-tax income and the total expenditure follow the same pattern.

Results and Discussion

To test whether households in these two ethnic groups have significantly different household budget allocation patterns, unadjusted two-sample t-tests on budget shares were performed. The t-tests results are summarized in Table 2.

Unadjusted T-Tests. The results of the unadjusted t-tests support the existence of significant differences in household budget allocation patterns among the two ethnic groups. Hispanic households allocated a significant larger proportion of their budget to food at home, but a significant smaller share to personal care than the White households. The test results also suggest that Hispanic households allocated a significantly smaller share of their budget to eight of the thirteen categories refer to Table 2.

Although these t-tests are not adjusted for households' economic and demographic characteristics, it is still valid to conclude the observed budget allocation patterns are significantly different among the two ethnic groups. Further statistical analysis takes differences in household characteristics into consideration.

Table 2
Results of t- and F-tests

Budget Shares	Unadjusted Two-Sample T-Tests		Adjusted Joint F-Tests	
FDHOME	.08[a]	(14.5)	.01[a]	(30.6)
FDAWAY	-.02[a]	(-9.3)	-.00[c]	(2.8)
SHELTER	.03[a]	(4.5)	.02[a]	(10.5)
UTILITY	.00	(-1.4)	.01[a]	(7.9)
HOUSEO	-.02[a]	(-6.8)	-.01[c]	(2.7)
APPAREL	.00	(1.5)	.01[a]	(9.9)
ENTERT	-.02[a]	(-11.7)	-.02[a]	(20.7)
TRANSP	.00	(-0.9)	-.00	(1.5)
EDUCAT	-.01[a]	(-2.7)	.00	(1.2)
HEALTH	-.03[a]	(-9.5)	-.01[a]	(17.5)
ALCHOL	-.00[a]	(-5.1)	.00	(0.0)
TOBACC	-.01[a]	(-7.1)	-.01[a]	(108.6)
PERSCA	-.02[a]	(-3.3)	.00	-

a = 99% significance level,
b = 95% significance level,
c = 90% significance level

By controlling for household characteristics other than ethnic background, the effects of culture and habit differences can be isolated and analyzed.

Adjusted F-Tests. The results of the two-sample t-tests suggest that there are significant differences in observed patterns of budget allocation among different ethnic groups. However, the two-sample t-tests are unadjusted for economic and demographic effects other than ethnicity. Thus, many factors other than ethnicity, such as total expenditure, life cycle stage, can contribute to the significant differences in budget allocation patterns among ethnic groups. Therefore, adjusted F-tests were performed to test the effects of ethnicity on budget allocation after controlling for other effects. The tests were performed by testing the joint significance of the specific ethnic variables. The results of the joint F-tests are summarized in Table 4, along with the budget share differences predicted at sample mean level.

Holding everything else at sample mean level, Hispanic households allocated significantly more of their budget to food at home, shelter, utility and apparel than non-Hispanic White households, while non-Hispanic White households allocated significantly more to food away from home, household equipment and operation, entertainment, health care, and tobacco products than Hispanic households.

Everything else at sample mean level, a typical Hispanic household would spend about $200 more on food at home, but about $36 less on food away from home than a typical non-Hispanic White household every year. The same Hispanic household would also spend about $432 more on shelter than a typical non-Hispanic White household. This typical Hispanic household balanced its budget by spending about $293 per year less on entertainment, about $214 per year on tobacco products, and about $141 less on health care than an everything else equal non-Hispanic household.

This study supports previous findings that Hispanic households allocated more of their budget to food at home than other ethnic groups, holding other things equal (Segal & Sosa, 1983; Wagner & Soberon-Ferrer, 1991; Bae, 1992; Zuiker & Bae, 1993). An explanation is that family-oriented consumption and expenditure are important to Hispanic households (Segal & Sosa, 1983) which may also explain why Hispanics spent significantly more on shelter than White households. Another explanation is suggested in the Wagner and Soberon-Ferrer (1990) study that Hispanics may be less likely to frequently go to exclusive restaurants where the food is expensive and the atmosphere less conducive to bringing a family due to their strong family orientation. This may also explain why Hispanics spent significantly more on shelter than White households, since they value the family and the home is considered a place where the family can gather together.

Conclusions and Implications

The results of this study indicate that Hispanic households have different values and lifestyles than White households. For example, Hispanic households are more likely to be a traditional family with a larger family size versus the "modern" lifestyle and smaller family size of the White households. This finding may be why they are more likely to allocate more of their budget to family gatherings and related expenditures, such as food at home and shelter.

The results of this study have very important implications for marketing practice, consumer education and financial planning, and empirical expenditure or consumption research.

Implications for Marketing Practice

The results of this study may also be useful for marketing practice. By understanding and recognizing ethnic differences in preference structure and budget allocation patterns, the production sector can better identify market segments for their line of products, so that more information can be provided to the specific market segment to increase market efficiency, especially in those areas where the proportion of minority population is high. On the other hand, special consumer needs could be better identified and product design could be more customized.

An example of this would be the housing market in the Southern and Western regions, where about 80% of the Hispanic households in the sample resided. Given the information that Hispanic households allocated more of their budget to shelter than other ethnic groups, housing developers could target this Hispanic market segment by analyzing their special housing needs and by building houses matching their taste.

Previous research regarding Hispanic consumers have consistently shown that Hispanic households allocate more of their budget to food at home than other ethnic groups (Segal & Sosa, 1983; Wagner & Soberon-Ferrer, 1991; Bae, 1992; Zuiker & Bae, 1993). This consistent finding may be due to the large family size of Hispanic households. Another reason may be due to consistent findings that Hispanic consumers are brand loyal (Deshpande, Hoyer, & Donthu, 1986; Segal & Sosa, 1983). Given this information, marketing researchers in the food industry could target this Hispanic market segment by analyzing their special food needs and market products to match their taste.

Implications for Consumer Education and Financial Planning

The results of this study may also be used by consumer educators and financial planners to help those households who are at a relative economic disadvantage and in financial trouble.

To better help households who are in financial trouble, consumer educators and financial planners need first to understand the households they are helping. The information provided in this study is especially useful to them to understand ethnic differences in preference structure and budget allocation behavior, given that minority groups are at a relative economic disadvantage and disproportionately in financial trouble.

An example of using the information provided in this study could be the development of expert system software, where a client could find out how similar American households with the same demographic characteristics allocate their budgets. The client could input their financial and demographic data, and the computer would use these data to give a prediction of the budget allocation pattern. It is true that averages are not necessarily the best. But given that the criterion of good or bad is a value judgement and differs by individuals and, also, since average American households have not run into financial trouble, the predicted budget allocation pattern may be used as a reference point for those consumers who have similar financial and demographic characteristics but run into financial trouble due to mismanagement. The client could then use the information provided by the computer to examine the difference in the predicted and actual budget allocation of his or her family, identify the problem and find ways to adjust its budget allocation. Given that each ethnic group has its preference bias for certain expenditure categories, it is important to take ethnic differences into consideration when advising clients, so that any suggestion to the client would match the client's preference structure as closely as possible.

This study had the largest sample size of any national study of ethnic differences in expenditure categories, yet even in this study, it was not feasible to distinguish among subgroups within the Hispanic population. Recent studies have indicated that in order to effectively target this ethnic group one should keep in mind that the Hispanic population is a diverse group. Instead of treating them as a single group, businesses and educators should capitalize on shared traits.

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Endnotes

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Ethnicity and Automobile Financing

This study examined the effects of ethnicity and other socioeconomic and demographic variables on the decision of automobile financing. The findings from logistic regressions show that blacks were more likely to use credit to purchase automobiles than whites after controlling for other socioeconomic factors. In addition, higher earned income, being a female householder, having fewer young children, and owning a home with mortgages were positively associated with the likelihood of automobile financing.

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Automotive lending was the largest segment of consumer lending totaling 150% growth over the last decade. Car loans rose from $111.9 billion outstanding in 1980 to $285 billion by December 1990, accounting for 39% of consumer installment debt (Federal Reserve Statistical Release, 1993). This enticing market segment has received attention from both marketers and researchers (Jenster & Lindgren, 1988).

Culture plays an important role in determining an individual's behavior. Duesenberry (1949) suggests that activities in which people engage are culturally determined. Hair and Anderson (1972) postulate that culture pervades all aspects of consumer purchase behavior. Therefore, it is critical for marketers to understand the intricacies of culture in order to develop successful marketing strategies.

Other factors may affect the use of credit in automobile purchasing. For instance, the supply or availability of credit, the demand for credit, interest rates, or the condition of the economy may have an impact on credit usage. When interest rates decline, the demand for credit increases. When economic conditions are favorable, consumers usually demand substantial amounts of credit to finance automobiles (Federal Reserve Bank of Chicago, 1990).

Little research has been conducted on the credit use of minority consumers. Is there any difference in credit use by ethnicity? No study has been carried out to investigate credit use on buying a car among different ethnic groups. The purpose of this study is to examine ethnic variations in automobile financing. Four distinct groups will be compared: non-Hispanic whites, non-Hispanic blacks, Hispanics, and Asians. Furthermore, the study examines the factors affecting financing by stratifying the sample by ethnic background.

Background

Ethnic Population in the U. S.

The population of the United States consists of many other ethnic groups in addition to whites, namely, blacks, Hispanics, Asians and Pacific Islanders, and native Americans. The largest minority group is blacks. In 1990, there were 29 million blacks in the United States, representing 12.3% of the population (Bennett, 1992). The second largest minority group is Hispanics. The 1990 Census data show that there were 22 million Hispanics, representing 11.7% of the population (Garcia & Montgomery, 1991). The third largest minority group is Asians and Pacific Islanders. The population of Asians and Pacific Islanders was about 7 million in 1990, representing about 3% of the United States population (Bennett, 1992).

Consumption Resources and Credit Usage

Consumption is an activity in which goods are purchased and yield satisfaction in the current period (Bryant, 1990). Consumer credit provides the opportunity to alter the timing of resource use (Deacon & Firebaugh, 1988). It allows people to acquire money, goods, or services by undertaking an obligation to repay from future income. The advantages of using credit include the possibility of meeting emergency expenses when no other means are available, the use of durable goods while paying back in installment, and the opportunity to repay the debt in cheaper, inflated money during times of rising prices (Deacon & Firebaugh, 1988; Garman & Forgue, 1991).

The life-cycle hypothesis (Ando & Modigliani, 1963) postulates that individuals save and dissave during their lifetime. An individual's income is low at a young age, rises in mid-age when one usually has professional achievements, and then falls after retirement. As a result, young people often borrow against their future income to smooth the gap between consumption and income. The median age for each ethnic group differed slightly, with 33.9 years old for whites, 30.4 years old for Asians and Pacific Islanders, 28.0 years old for blacks and 26.2 years old for Hispanics. Given that the average ages of minority groups are younger than whites, it is expected that they tend to borrow more than whites. Avery, Elliehausen and Canner (1984) also reported that the ratio of monthly installment payments to monthly income was generally higher for nonwhites than for whites. However, the median net worth of nonwhites was much lower than that of whites.

The available economic resources directly affect consumption. Hirschman (1985) suggested that consumption resource stratification by race is distinct. According to Hirschman, blacks are at the lower end of the socioeconomic continuum. Hispanics are low to low-intermediate. All white groups are high-intermediate to very high. During the time of the study, Asian Americans were not considered a large group and were not included on the "continuum". With the highest educational attainment level and the highest income level among all subgroups, including whites, Asians are expected to be at the high to very high end of the continuum.

A higher resource group and a lower resource group would behave differently in purchasing or consumption patterns. At the lower end, average blacks or Hispanics have low asset holdings, a low savings rate, and a high debt burden (Myers, 1991). The 1990 Census data show that the median family income of Asian and Pacific Islanders, who had the highest average educational attainment, was the highest among the four groups. It peaked at $42,250 in 1990, compared to $36,920 for whites, $23,400 for Hispanics, and $21,420 for blacks. Therefore, it is expected that blacks have limited resources available for purchasing consumables. Therefore, they are more likely to use more credit towards consumption.

Methods

Data

Data for the study were from the 1990 Consumer Expenditure Survey, conducted by the Bureau of Labor Statistics. The data were collected quarterly from a rotating panel survey in which approximately 5,000 households were interviewed each quarter, with each household being interviewed for five consecutive quarters. Twenty percent of the households were dropped from the sample in each quarter and an equivalent number added (U.S. Department of Labor, 1990). Native Americans were not included because of their small number in the sample. Households who had at least one car were included in the sample. The majority of households reported their cars were for personal use. A total sample of 9,998 households were included in the final analysis. There were 7,965 white, 1,110 black, 618 Hispanic, and 305 Asian households in the sample.

Dependent Variable

The dependent variable is how the purchase of automobile was made. It is a dichotomous variable, coded as 0 (not financed) and 1 (financed). Households may have reported more than one car, and each car might have been financed differently. The first car reported by the household was used for this study.

Independent Variables

Based on the previous studies on credit use and expenditure analysis, the independent variables included in this study are earned income before taxes, unearned income before taxes, educational attainment, age, marital status, gender, number of children under 18 years of age, home ownership, whether the household lives in a metropolitan area, and region.

Several studies indicated a positive relationship between income and credit use (Bloom & Steen, 1987; Canner & Fergus, 1987; Horner, 1981; Pearce, 1985). In a study examining the demand for credit, Horner (1981) identified higher income as the major factor affecting growth in consumer credit. Pearce (1985) also reported that households with high income were more likely to borrow. None of these studies differentiated the effects of earned income and unearned income on the use of credit. However, the sources of income may have different effects on car financing. Thus, earned income[3] and unearned income[4] were separated in this study.

Education is closely related to credit use. Bloom and Steen (1987) reported that households headed by college graduates were more likely to have greater consumer debt than households headed by persons who had never attended high school. Avery et al. (1984) also suggested that consumer debt increased with educational attainment. In this study, educational attainment is a categorical variable with five categories: grade 0 to 8, grade 9 to 12, high school graduates, some college, college degree, and over.

Studies have shown that younger households tended to borrow more compared with older households (Jensen & Reynolds, 1986; Luckett & August, 1985; Pearce, 1985; Peterson, 1977). The study by Luckett and August (1985) suggested that the 25-34 and 35-44 age groups used larger amounts of consumer credit because they were more likely to borrow at this stage of the family cycle. Pearce (1985) also reported that younger households had more debt relative to their income and assets. Their debt-to-income ratios increased up to the age of 44 and then declined. Age is a continuous variable in this study.

Married couples may use more credit than not-married households. Bloom and Steen (1987) reported that two-person households had more consumer debt than single-person households. Kinsey (1981) found that married households held more credit cards than single-person households. In this study, marital status is a dummy variable coded 1 if married, 0 if not.

Female's financial management and purchase decisions are likely strained and financially difficult to make. Credit may be one mechanism which these types of households could use to alleviate financial stress (Heck, 1987). On the other hand, from the point of credit rating, creditor granters may consider females as greater credit risks. The study by Lindley et al. (1989) found females were more likely to use credit cards to purchase household goods and clothing than males. Gender of the household head is a dummy variable coded as 1 if male and 0 if female.

More young children in a family means more expenses on food, clothing, education and transportation. The demand for credit may be high. A large household size, however, limits discretionary income of the households. In other words, available credit may be constrained because of the financial constraint faced by the households with more children.

Homeowners, compared to renters, might have to deal with financial management activities, such as emergency repairs or remodeling which might necessitate the use of other types of consumer credit (Heck, 1987). In their study, Sullivan and Worden (1986) identified that homeowners with an outstanding mortgage balance had a significantly higher probability of using consumer debt than homeowners without a mortgage balance. Housing status is classified as own home without mortgage, own home with mortgage, and rented.

Households living in metropolitan areas may have different choices on automobile financing than those living outside metropolitan areas. A study by Jung (1990) examined finance charges on car loans. He reported that the consumers in small or middle cities paid higher finance charges than those in big cities. In this study living in metropolitan areas and living outside metropolitan areas are examined.

Regional area where the respondent resided may have an effect on credit use. A study conducted by Avery et al. (1984) reported that households in the south had the highest debt burden compared to other regions. So northeast, midwest, and west were grouped as one group to make a comparison between the south and the other regions.

Analysis

Because the dependent variable is dichotomous, logistic regression was employed to obtain unbiased estimates (Kennedy, 1985; Maddala, 1983). First, all households were examined with the ethnicity variable as an independent variable. Second, the sample was stratified by ethnicity to identify factors affecting the decision on automobile financing.

Table 1
Results from Catmod Procedure for All Ethnic Groups

Variables (n)	all (7217)	whites (5886)	blacks (673)	Hispanics (436)	Asians (222)
ethnicity					
Blacks	.3141***				
Hispanics	-.1561				
Asians	-.0493				
(whites)					
earned income	6.2E-6***	5.4E-6***	.0001*	.0001**	7E-6
unearned income	-.0002***	-.0002***	.0001	5.5E-6	-.0003
education					
0-8	-.0610	-.0329	-.3615	-.4159*	.3890
9-12	-.0621	-.0367	-.3756*	-.1383	.4125
H.S.	.0527	.0476	.0049	.1182	-.0730
some college	.1309**	.1218*	.0878	.2067	-.0379
(college graduate)					
age	-.0105***	-.0136***	.0077	.0135	-.0038
marital status					
married	.0888**	.0823*	.1074	.1976	.2788
(not-married)					
gender					
male	-.0937**	-.0799	-.2472*	-.3392*	.0654
(female)					
# children<18	-.1244***	-.1018***	-.1791*	-.2209*	-.1488
housing status					
w/mortgage	.3606***	.3531***	.3844**	.3628*	.3635
w/o mortgage	-.3578***	-.3505***	-.2817	-.6493*	-.5810
(rented)					
metropolitan area					
inside	-.1188**	-.0924	-.2901	-.3985*	-.5972
(outside)					
region					
other	-.1185***	-.1020***	-.1637	-.2950**	-.2856
(south)					
constant	.9437***	.9610**	.5322	-.0084	1.1924
X^2	1020.90***				

* $p<.05$ ** $p<.01$ *** $p<.001$

Ethnic Differences in Auto Financing

A CONTRAST statement is carried out to test if the significance between ethnic groups exists. CONTRAST procedure is used to obtain pairwise comparisons among multiple groups (SAS Institute, 1989). The results show that blacks are significantly more likely to finance automobiles than whites (Chi-square = 25.30, $p < .0001$). In addition, Hispanics are significantly less likely to finance than blacks (Chi-square = 11.96, $p < .001$). There are no significant differences among the other groups.

Contributing Factors Affecting Automobile Financing

The estimated results from logit analysis are presented in Table 1. The results show that blacks are significantly more likely to finance automobiles than whites, while there is no significant difference between Hispanics, Asians and whites. One possible reason is that blacks tend to buy more expensive cars (Mahony, 1991). There may be other reasons, such as culture, preferences, or tastes affecting automobile financing.

Earned income has a positive effect on automobile financing. The higher the earned income, the more likely one is to use credit when purchasing automobiles. In contrast, unearned income is negatively related to financing decisions for the entire sample and whites. The higher the unearned income, the less likely one is to finance an automobile purchase. Individuals with high earned income tend to have a high level of financial resources, and they may not need to borrow money. On the other hand, the level of earned income is used by creditors in their credit scoring system to help determine credit worthiness (Heck, 1987). High income households are viewed as low credit risks in general. Therefore, they may be able to obtain credit whenever needed. Unearned income, however, may have a different effect. People with a high level of unearned income may have large amount of cash holdings or liquid assets, and thus are less likely to use credit.

The results for education are somewhat mixed. For the entire sample and white sample, people with some college education are significantly more likely to finance automobile purchases than college graduates. But for blacks and Hispanics, individuals with lower than a high school education are less likely to finance than college graduates. Previous studies (Avery et al., 1984; Bloom & Steen, 1987) noted that educational attainment was positively related to credit use. But the studies did not differentiate among ethnic groups.

Age is negatively related to credit use by whites only. Insignificant effects are found in models for the other ethnic groups. As expected and consistent with previous studies (Luckett & August, 1985; Pearce, 1985), older people are less likely to finance automobiles. Credit grantors are likely to consider older consumers to be a lower credit risk because these consumers tend to be more economically, socially, and psychologically stable. On the other hand, these stability characteristics may lower the older consumer's demand for credit (Heck, 1987). In addition, older households spent less on consumer goods and services at all levels of income (Danziger et al., 1982).

Previous studies have suggested that married households are likely to use more credit than non-married households (Bloom & Steen, 1987; Kinsey, 1981). In this study it is found that it has a significant effect in the white sample only. Married couples may feel more secure and stable financially. These families may also be at a higher consumption level compared to other types of families. Credit grantors may be willing to give credit to these types of households because they tend to have great consumption.

Female-headed households are more likely to finance than male-headed households in all four models. The result contradicts the previous findings on credit card use (Heck, 1987). Previous studies indicated that male-headed households used more credit cards than female-headed households. The findings from this study suggest that although there might be possible discrimination in credit supply, the demand for credit by female-headed households exceeds the possible discrimination in the credit market.

Families with more children younger than 18 years of age are also less likely to use credit in all four models. These families are faced with heavier consumption needs (Heck, 1987). Credit suppliers may have conflicting views. On one hand, these large families may be attractive to credit suppliers for possible high revenue. On the other hand, the financial constraint on these families may limit the discretionary income, which may affect credit granting decisions.

Families who own their homes with mortgages are more likely to finance automobile purchases than renters, while those who own homes without mortgages are less likely to finance, as compared to renters. Homeowners with mortgage debt may have a large monthly payment and are forced to use credit for other expenses. Compared to renters, the ability of homeowners to obtain a mortgage indicates credit worthiness to a potential creditor (Heck, 1987). Homeowners free of mortgages tend to be older and are generally economically better off and tend to use less credit in purchasing.

In the entire sample and in the Hispanics sample, households who reside in metropolitan areas are less likely to finance than those who are not living in metropolitan areas. The results somewhat contradict our knowledge regarding the availability of credit in different areas of population. Consumers residing in large metropolitan areas tend to have more access to banks, dealers, and other financial institutions. The extensive exposure to these financial instruments may be positively related to credit use. Households in the northeast, midwest, and west are less likely to get financed than those in the south for the entire sample, whites, and Hispanics. The results are consistent with the previous research in that households in the south had higher consumer debt than those in the other areas (Avery et al., 1984).

Conclusions

This study examined the differences in auto financing among different ethnic groups of consumers. While there is no significant difference between Hispanics and whites, and between Asians and whites, blacks are more likely to use credit to purchase automobiles than whites after controlling for other socioeconomic factors. The study also examined the factors associated with automobile financing by stratifying consumers according to their ethnic background. The results demonstrate that different factors affect the financing decision on automobile purchasing for each ethnic group. Earned income, gender of the household head, number of children under 18 years of age, home ownership, and education have a significant effect on credit use for all groups except Asians. Households with a higher earning, headed by females, having fewer children, owning a home, and having a high level of education tend to finance automobile purchases. Unearned income, age, and marital status are significant in the white sample only.

None of the variables in the Asian model is significant. One reason could be the relatively small sample size. Another important point is that Asians are such a diverse group. It includes individuals from all different countries including Pacific Islanders. The diversity among them calls for future research. It also has implications for future data collection. Surveys may be carried out for each individual countries or regions instead of putting all the Asians and Pacific Islanders together.

This study provides some insights for credit grantors. Creditors may benefit from targeting marketing strategies toward consumer groups with the characteristics of a high possibility of financing. In this study, gender appears to be a very significant factor for all ethnic groups. Female-headed households finance more on automobile purchase than male-headed households. As more and more women enter into the labor market and achieve their successful careers, creditors may need to target them as a potential group of credit users. Homeowners have proven themselves the credit worthiness for being able to obtain a mortgage installment debt. Also homeowners who still own a mortgage debt may need more financial support for other expenses while paying mortgages. Credit grantors may achieve potential revenue by granting them credit while facing relatively low risks.

This study also provides some implications for consumer educators. As the minority population increases, an important consumer segment is emerging. This study suggests that blacks tend to borrow significantly more money to purchase automobiles than any other ethnic groups. Given the limited resources for every person, will their borrowing affect their economic well-being? Will the excessive use of credit cause themselves overburdened? Consumer educators have the responsibility to help these families use financial instruments correctly.

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Endnotes

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3. Earned income includes wage and salary, income from farm and non-farm business, partnership or professional practice.
4. Unearned income includes income from Social Security and railroad retirement benefit, Supplemental Security Income, workers' compensation, unemployment compensation, public assistance, food stamps, interest, dividends, trusts, royalties, pensions, rent, alimony, child support, and other income.

Money Management Needs and Help of Elderly Living in the Community

This paper uses the 1989 National Long Term Care Survey to study the elders who are most likely to need assistance with their money management, their helpers, and the factors which explain the need for assistance. Those more likely to need help had impaired mental functioning, were older, lived with their children, and were helped by their daughter. The implications for education, collaboration, and policy are discussed.

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As the number and proportion of elderly increase it is critical to understand changes in the ability of elders to live independently. Most elderly have a goal to manage their own affairs and/or to live independently with support systems where they have lived most of their lives. One standard way to monitor and assess changes in elderly individuals is to examine Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs). These are measures of self or personal care abilities and independent daily living household tasks. A change in any of the ADLs or IADLs is a potential indicator of need for help. Help can be found either in the formal network of services available in the community or in informal networks of family and friends. Services available in communities to assist elderly are clearly increasing.

The assessment of older people's level of functioning is a complex process and requires evaluation from several vantage points (Lawton & Brody, 1969). IADLs include a range of activities more complex than those needed for personal self-care (ADLs). The items measured are sensitive to variations in mood and emotional health as well as to motivation and opportunity for assistance (Kane & Kane, 1981). One IADL that has received little attention is money management and it is the focus of this paper. The focus on this IADL, who needs help and what network is utilized has implications for financial management education. Understanding elders in the community with money management needs can assist financial education and service to elder consumers. The purpose of this paper is to examine: (a) Which elders are more likely to need assistance with their money management? (b) What do we currently know about who helps elders to manage their money? and (c) What factors explain the need for money management assistance? These baseline questions will provide insight into how family and consumer economists can prepare for serving an aging population.

Literature Review

Few studies have been conducted which examine the elderly and their money management needs. Stone and Murtaugh (1990) reported on the prevalence of assistance needed for IADLs in the U.S. population using the 1984 National Long Term Care Survey. They weighted the sample to represent the U.S. population. The most help was needed for grocery shopping (11.1%) followed by money management (8.6%), laundry (8.1%), and help in getting around outside (7.2%). Assistance in all os the other activities was required by less than 5.7% of the population.

<u>Who helps?</u>

Additional studies suggest the number of elders who need assistance with money management is estimated to be in the range of 5-10% (National Center for Health Statistics, 1987; Wilber, 1991).

Miller, McFall, and Montgomery (1991) found that females are more likely than males to be caring for elders with slightly greater physical and cognitive problems. Adult children were likely to be caring for persons with greater cognitive disabilities and the adult child and parent lived together.

A research study of 1422 Chicago residents in 1983 gave some insight into the perception of support systems to help with money matters (Cook & Kramek, 1986). In a search for the best way to measure economic hardship, elderly respondents (over 65 years old) were asked if they had a support system for help with food, help when sick, a place to stay, and help with money matters. Slightly over 35% of the sample perceived they had no one to help them with money matters. Percentages of elders with no one to help were higher for blacks (59.8%) and lower for whites (25%).

Elderly who knew of a support system to help them with money matters were asked to tell which type of support they would use. Elders in the 65-74 age group named a bank (44%), child (29%), sibling (16%), friend (3%), and a parent (1%). The order changed for those over 75 years with the child as the first source (43%), followed by a bank (34%), sibling (12%), and friend (4%).

A recent study of financial abuse of elders by Stein and Kushman (1992) indicated that financial abuse was more associated with the helper (abuser) than the elderly client. Clients who had experienced financial abuse were more likely to be a substance abuser, non-white, in poor mental health, and low income. Stein and Kushman suggested that other variables such as mental illness, marital status, and living arrangement should be included in future studies because they may have some association to the pattern of financial abuse. These also may be associated with the need for help with money management.

Methodology

Data Source and Sample

Data for this study are from the 1989 National Long Term Care Survey (NLTCS) conducted by the U.S. Bureau of Census and sponsored by the U.S. Department of Health and Human Services. The 1989 NLTCS is the third wave in a longitudinal survey of a nationally representative sample of Medicare beneficiaries. The survey includes the personal characteristics and use of health-related services by non-institutionalized and institutionalized disabled elderly in the United States. The initial 1982 NLTC survey interviewed Medicare enrollees through a screening process—residents 65 and older who were disabled for at least three months. Disability was defined as one or more limitations in activities of daily living (ADLs) or instrumental activities of daily living (IADLs).

The 1989 community-dwelling sample (N-4463) consisted of the respondents in the 1982 and 1984 waves reinterviewed, individuals who turned 65 between 1984 and 1989, and individuals previously sampled and screened out because they did not meet the disability criteria. More detail on the sampling and inclusion in the waves are described in Manton, Corder, and Stallard (1993) and Manton (1988).

Dependent Variable

The dependent variable for this study was compiled from two questions in the data set: (a) "Do you need any help managing money like keeping track of bills or handling cash for. . .?" and (b) "Does someone usually help you to manage your money, like keeping track of bills or handling cash for. . .?" In the final regression for the study the groups were: needed help (n=1401) which consisted of those who needed help and received help, and no help needed (n=3062).

This study is concerned with everyday money management needs like keeping track of bills and handling cash. The questions in this study do not directly cover more advanced areas of financial planning.

Independent Variables

The independent variables for this study were socioeconomic items, mental functioning, physical abilities, and helper items. These were included based on the literature or to be proxy for other items.

Age was measured by the actual age. The grouped age was used for the sample description and the chi-square analysis. The continuous variable was used in the regression equation.

Gender was a dummy variable used for the sample characteristics, chi-square and logistic regression analysis.

Education was a continuous variable and the actual number of years was used. Education was grouped for the sample description and for the chi-square analysis. The education variable was not used in the logistic regression equation since the mental functioning scale being adjusted for education.

Marital status was a categorical variable consisting of married, widowed, divorced, separated, and never married. Race was a categorical variable including: white, Black, Hispanic, and other. Race was not used in the logistic regression since the mental functioning scale was adjusted for race.

Yearly household income was created from all sources of income for all household members. The income was logged using the continuous income variable for the logistic regression analysis.

Living arrangement was a categorical variable and the categories were: live alone, spouse, spouse and child, child, other relative, and other.

The mental functioning capacity was measured by the standardized short portable mental status composed of 10 items (Pfeiffer, 1975). Scores were computed and adjusted according to the education and race criteria for the standardized scale. Refer to Pfeiffer (1975) and Ernst and Ernst (1984) for details on the scale.

The number of days (0-7) of help in the past week was used as a proxy for physical functioning. The assistance was computed for both the ADL and IADL assistance. It was assumed that the more disabled the elder was, the more physical assistance was needed to maintain independent living.

The relationship of the helper to the elder in the study was combined into 8 groups consistent with the caregiving literature. The groups were spouse, son, daughter, sibling, child-in-law, relative, hired help, and organizational help. A bank is an example of organizational help.

Analysis

Logistic regression was used to examine whether or not the need for help with money management can be predicted. Logistic regression models allowed for the study of the probability of the odds of having a need for assistance with money management, relative to no assistance with money management, when analyzing various variables that could influence the probability. A logit model assumed that there was an underlying response variable $\mathbf{Y}_i^*$. The binary variable $\mathbf{Y}_i$ (observable) was defined by: **0** if there was no assistance needed for money management, and **1** if there was assistance needed for money management.

SPSS/PC+ 4.0 routines were used for the frequency, crosstabs, correlation, and logit regression analyses (Norusis, 1990). In the logit regression the computer program assigned a 0 and 1 for the dependent variable, with 0 as the base value. The interpretation of the logit model was written as to the odds of the need for money management assistance occurring. For each variable the probability of need for money management assistance could be computed. The logit coefficients were useful in determining the direction of the effect of the independent variables. The magnitude of the effect of the logit coefficient (log odds) was assessed by the odds ratio. The odds ratio for a dichotomous or categorical variable was calculated by taking the natural anti-logarithm of each log odds (Morgan & Teachman, 1988; Shehan, Bock, & Lee, 1990).

The goodness of fit measure was a summary statistic indicating the accuracy with which a model approximated the observed data. Because the dependent variable was qualitative, accuracy can be judged either based on the fit between the calculated probabilities and observed response frequencies (prediction percentages) or the model to forecast observed responses (Maddala, 1983).

Findings

Characteristics of the Sample

In this nationally representative sample of elders, 31.4% needed help with daily money management and 68.6% did not need help (Table 1). The mean age for those needing help was 80.7 while those not needing help were younger (77.4 M). All of the respondents in this sample were born in 1924 or before. The age distribution in the needed help group was skewed to older people. The 85+ group comprised 27.5% of the total needed help group and this needed help older group was almost 47% of the over 85 years old group.

Males who needed help were 35.3% of the need help sample and only 31.9% of those who did not need help. The women who needed help versus no help needed were 64.2% and 67.7%, respectively. Those who needed help had a lower mean level of education (9.5 years) compared to the 11.1 years for those who did not need help with money management. In the sample, those who needed help were more non-white (17.8% than those who did not need help (14.4%). Slightly more were widowed in the needed help group (49.3%) than in the no help needed group (46%).

Factors That Make a Difference

The logistic regression model was highly significant (.001) for the variables used: age, gender, yearly income (logged), living arrangement, mental functioning, number of helper days, and helper relationship. These factors explained what determines whether or not an elder has a need for help with money management (Table 2).

As expected, mental functioning is a major factor in explaining need for help. Mental functioning was significant at the .001 level and had the highest odds in the analysis. A person with more impaired mental functioning has the odds of being 1.6 times more likely to need help than a person with less impairment or intact mental functioning.

The older the person, the more likely that they would need help with money management matters. However, when considering all of the factors, age alone only increases the odds 1.04 times. Age was less likely to increase the odds than was the gender of the person.

The living arrangement made a difference in the need for help with money management. Those who lived with their children were 1.329 times more likely to need help than those who had other living arrangements.

The number of helper days in the past week was used as a proxy for physical functioning. Those who needed more help with physical functioning were 1.179 times as likely to need help with their money management.

Who helps elders with their money management? For those who needed help, their daughters were 1.389 times more likely to help than hiring out the service (significant at .01 level). Those who needed help were also less likely by .627 times that the person helping is related in other than a spouse, son, daughter, sibling, or child-in-law. This would mean a cousin, niece, or nephew would be the helper.

Discussion and Implications

Elders in this nationally representative sample were considered to have a disability as defined by functioning levels standard in the health and aging fields. This study analyzed those who needed assistance with one of the instrumental activities of daily living—money management.

The percent of disabled medicare sample living in the community and needing help with money management was 31%. This is higher than the total population weighted estimates of 5-10% by Stone and Murtaugh (1990). However, it is not a majority of those with a disability. Thus, this study allows us to concentrate on the population in the context of those who are considered to have a disability. The persons needing help with money management had other health and disability problems. This would imply that those persons needing money management assistance are likely to need other types of assistance.

The findings of this study were not surprising. Such findings are similar to other studies using this

Table 1
Sample Characteristics for Money Management Needs of Disabled Elderly

Variable (Algorithm Coding)	Help Needed (n=1401) Number	%	No Help Needed (n=3062) Number	%
Age (actual age)				
65-74	330	23.6	1136	37.1
75-84	621	44.3	1411	46.2
85+	451	27.5	513	16.6
Missing	---		2	.1
Gender				
Male (0)	495	35.3	976	31.9
Female (1)	900	64.2	2074	67.7
Missing	6	.4		
Education				
8 years or less	741	54.8	1261	42.0
9-11 years	199	14.8	521	17.4
12 years	267	19.7	729	24.3
12+ years	146	10.8	489	16.3
Missing	48	3.4	62	2.0
Marital status				
Married (1)	564	40.3	1270	41.5
Widowed (2)	690	49.3	1407	46.0
Divorced (3)	68	4.9	190	6.2
Separated (4)	9	.6	44	1.4
Never married (5)	64	4.6	137	4.5
Missing	6	.4	14	.5
Race				
White (1)	1151	82.2	2628	86.9
Black (2)	189	13.5	328	16.9
Hispanic (3)	23	1.6	48	1.6
Other (4)	17	1.2	19	.6
Missing	21	1.5	39	1.3
Household income (yearly)				
> $5,000	182	14.1	479	17.0
$5,000 - 9,999	419	32.4	1011	35.9
$10,000 - 24,999	414	32.1	866	30.7
$25,000+	277	21.4	462	16.4
Missing	109	7.8	244	8.0
Mental functioning				
Intact functioning (1)	779	79.4	2546	89.4
Mild impairment (2)	141	14.4	237	8.3
Moderate impairment (3)	52	5.3	57	2.0
Severe impairment (4)	9	.9	9	.3
Missing	420	30.0	213	7.0
Number of days in past week				
0	101	7.3	430	20.8
1	103	7.4	380	18.3
2	74	5.3	166	8.0
3-5	122	8.7	240	11.5
5+	993	70.9	856	41.3
Missing	8	.6	990	32.3
Helper relationship				
Spouse (1)	453	32.3	649	31.0
Son (2)	99	7.1	142	6.8
Daughter (3)	383	27.3	356	17.0
Sibling (4)	52	3.8	63	3.0
Child-in-law (5)	60	4.3	63	3.0
Relative/friend (6)	125	8.9	293	14.0
Hired (7)	155	11.1	361	17.2
Organizations (8)	70	5.0	166	8.0
Missing	4	.3	969	31.6

Table 2
Logistic Regression for Money Management Needs of Disabled Elderly

Variable	Estimated Coefficient	Standard Error	Wald[a]	Odds
Age	.040	.007	37.946***	1.041
Gender			7.491**	
Female	.142	.052		1.153
Male (omitted)				
Yearly income (log)	.035	.059	.347	1.035
Living arrangement			12.296*	
Live alone	-.186	.114	2.674	.830
Spouse	-.166	.137	1.609	.847
Spouse & child	.021	.168	.015	1.021
Child	.284	.135	4.421*	1.329
Other relative	.210	.195	1.161	1.234
Other (omitted)				
Mental functioning	.484	.087	31.235***	1.623
Number of helper days in past week	.164	.017	89.755***	1.179

population of elders in the community and fairly independent even though they experienced one or more ADLs/IADLs (Stum, Bauer, & Delaney, 1992). Elders who are more likely to need help with money management are those with impaired mental functioning, older, live with their children, and have other physical functioning needs in comparison to their cohorts. They were also more likely to be helped by their daughter.

Elders who are seeking assistance from consumer and family economists may need assistance in more than one area of functioning. Since they have other needs for assistance, a mixture of services and service providers is probably a normal situation. Therefore, linking with case management services such as transportation, home care agencies, or medical services will provide elder consumers with the most appropriate services. This may mean team building with social workers and other human service providers.

The amount of assistance needed may vary depending on the mental functioning of the elder. The mini-mental scale used for this study is a very common assessment tool utilized by such professionals. Consumer and family economists working with an aging population may find it useful to learn about these assessment tools.

It appears that the need for money management help is not a function of the amount of income an elder has or whether they can afford to hire help. These findings are important to consumer and family economists. This means that the overlap of the economic and family system must be considered when discussing the needs of elderly. The findings also highlight the need to understand the context of elders in relation to the need of money management assistance. It is the family system that is the important factor in the likelihood of an elder needing assistance.

Elders who live with children and have daughters as helpers would be a family system group to target for educational programs and information. As people age, some assistance for help with money management can be predicted. How can we as educators and employees in organizations assist in elders transition? Goetting and Schmall (1993) suggest it is important to talk over money management before a crisis occurs. They suggest that a crisis is when a parent suffers mental incapacity. This study would support their suggestion, recognizing that loss of mental capacity usually occurs over time.

Early discussion of options for handling money management seems to be warranted. These discussions and educational programs to help families should include an understanding of the family dynamics and how to establish a good relationship or maintain an established working relationship between parent and child when the child is the helper. The content could focus some on the shifts in roles, power, and control issues.

It is highly suggested that current programs for older women include topics on helping parents with their money management. This may also be an appropriate area for research to discover what techniques work the best in assisting elderly parents with their money management or even other ADLs and IADLs than their financial situation. The need for money management assistance will be transitional. Thus helping the family and also the elder through the process until they have stable (consistent) services will be necessary.

An aging population will experience changes in levels of independence and go through transitions. The needs and changes go beyond purely physical to include money management. The challenge is to understand the relationships among IADLs/ADLs and develop appropriate and interconnected approaches.

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Endnotes

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Long-Term Care Insurance: Is It a Rational Purchase in the 1990s?

Long-term care insurance is one option to prepare for the risk of catastrophic long-term care expenses. Although availability of the insurance has dramatically increased in recent years, few consumers have purchased it. This paper explores possible explanations for the low purchase rate, including whether insurance is the best option for most consumers, the quality and affordability of today's policies, and the implications of national health care reform.

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In a USA Today/CNN/Gallup poll of 1,011 adults, 66% worried about being able to pay for long-term care for themselves or a relative (Keen & Goodavage, 1993). With nursing home costs averaging $35,000 per year (Congressional Budget Office [CBO], 1991) and even part-time at-home nursing care costs at $5,000 to $10,000 annually (Doyle, 1992), it is not surprising that people are concerned.[2]

Private long-term care (LTC) insurance[3] is one way to prepare for the financial risk of catastrophic LTC costs. A little known product until the late 1980s, the number of policies in force more than doubled from 1987 to 1993 (Families USA, 1993; Van Gelder & Johnson, 1991). Yet only about 4% of the elderly have purchased the insurance (Cohen, Kumar, McGuire, & Wallack, 1991) and nationally it pays only 1% to 2% of total nursing home care costs (Pauly, 1990; Pepper Commission, 1990).

If individuals are concerned about their ability to pay for long-term care, why have so few purchased insurance? Section 1 of this paper discusses factors that might motivate individuals to adopt strategies other than insurance to plan for the risk of LTC costs. It also reports the results of a consumer survey. Section 2 explores the quality of LTC policies; if today's policies are no better than those marketed in the 1980s, one might expect low demand. Another explanation for low demand might be that policies are not accessible. The final section of the paper discusses the implications of national health care reform for financing LTC costs.

Is LTC Insurance a Rational Strategy to Prepare for Long-Term Care Risks?

Review of Literature

Depending on their resources, consumers may choose from a variety of strategies to prepare for the financial risk of catastrophic LTC costs. In addition to purchasing LTC insurance, consumers might choose to save or invest to accumulate the funds, to rely on Medicaid, to convert the equity in their home through a reverse mortgage, and/or to seek family help (Wilcox, 1992).

Standard advice to consumers in insurance purchases is to self-insure against low-loss, high-probability events and buy insurance coverage for high-loss, low-probability events. While the data on LTC usage and costs are fragmentary, the following statements are generally confirmed by research and appropriately characterize LTC as high-loss, low-probability:

* Among people turning age 65 in 1990, 36% to 45% will use a nursing home before they die (Pepper Commission, 1990).

* One-half of all nursing home patients will spend less than six months in a nursing home (Spence & Wiener, 1990b).

* Only about 20% of 65-year-olds can expect to receive a year or more of nursing home care in their lifetimes (Rivlin & Wiener, 1988).

* Over their lifetimes, about 15%of elderly will have LTC costs greater than $80,000 (Cohen et al., 1991).

If long-term care is a low-probability, high-loss event, why has demand for LTC insurance been relatively low? Pauly (1990) suggests a number of explanations. He speculates that consumers tend to ignore low-probability, high-loss events that have not occurred recently. Another explanation may be that the elderly are misinformed; they believe Medicare already provides LTC coverage (it only pays for part of the costs of 100 days of skilled nursing home care). In McCall, Rice, and Sangl's (1986) sample, less than one-half were knowledgeable about Medicare coverage of long-term care.

Another explanation for the low rate of purchase of LTC policies may be that consumers plan to rely on Medicaid to pay their LTC costs. However, eligibility for Medicaid, a federal/state welfare program, depends on satisfying stringent asset and income standards set by the state. Spence and Wiener (1990a) estimated that one-quarter of nursing home users spend down to Medicaid eligibility over their lifetimes. On the other hand, there is substantial evidence that individuals are able to retain their assets *and* qualify for Medicaid. Some states have very weak enforcement of asset transfer rules and the rules permit knowledgeable individuals to transfer or shelter property from Medicaid resource limitations (Moses, 1990). Liu, Doty, and Manton (1990) found that almost 90% of nursing home discharges were either on Medicaid at admission or never became Medicaid patients.

Nevertheless, the *fear* of having to liquidate one's assets to pay for LTC may combine with several other factors (Doyle, 1992; Moses, 1990; Pauly, 1990) to motivate consumers to purchase LTC insurance. One motivating factor might be the *fear of impoverishing one's spouse*. However, the 1988 Medicare Catastrophic Coverage Act spousal impoverishment provisions require states to allow spouses to retain a specified level of assets and income when it determines the amounts that nursing home residents must contribute to the cost of care (Pepper Commission, 1990).

The *desire to leave one's assets to heirs* might also motivate an LTC policy purchase. Either the parent or his/her children might purchase the insurance to protect the estate (Moses, 1990; Pauly 1990). On the other hand, if the nursing home stay exceeds the period of coverage, insurance may simply postpone liquidating assets.

Another motivation to buy LTC insurance might be *concern about access to and quality of care received by Medicaid versus private pay patients*. Nationally, Medicaid nursing home rates are estimated to average 20% to 30% below private pay rates (Pepper Commission, 1990). The rate differential combined with the limited supply of nursing home care (Pepper Commission, 1990) suggests it is likely that Medicaid patients have more difficulty entering a nursing home than private pay patients do and may receive poorer care once there.

In addition, consumers may choose not to buy LTC insurance if they believe it to be an inferior product. They may also avoid *any* LTC financing strategy if they think their LTC costs are not their own responsibility.

<u>Results of a Consumer Survey</u>

To assess how consumers perceive LTC insurance, the author randomly selected the names of 400 retired university faculty and staff from the University of Illinois directory. A six-page survey was mailed to each with two follow-up reminders. The survey included about 25 questions on various aspects of LTC insurance as well as questions about demographic characteristics.

The response rate was 80%; 320 individuals returned usable questionnaires. The sample can best be described as retired, married (76%), and male (63%). Although the directory included both faculty and staff, retired faculty were the primary respondents; 55% had completed a graduate degree. Respondents were primarily ages 60 to 84 (86%) earning $50,000 or more annually (41%). While the sample is certainly not representative of the general population, it does represent the population to which LTC insurance is marketed.

A total of 38 or 12% of the respondents had purchased an LTC insurance policy. Most respondents gave multiple reasons for their purchase; the primary ones were to protect family income and assets (45.6%), to avoid depending on one's family (20.6%), and to have the freedom to choose the place and type of care (20.6%).

The 279 respondents who had not purchased an LTC policy also provided multiple reasons for not buying a policy. Most common were the belief they were unlikely to need a policy (22.7%), not liking the policies available (19.7%), and the cost (17.4%). Of the 279 respondents who did not have a policy, 48% did not intend to buy one in the next three years.

Ordinal logistic regression was used to identify variables[4] significantly related to interest in LTC insurance (see Chart 1). The ideal subsample for this analysis would be policyholders. However, since that group was relatively small, it was combined with respondents who reported they would not rule out buying an LTC policy in the next three years. Results are presented in Table 1. The only demographic characteristics significantly related to interest in LTC insurance were gender and education; being female and having a higher educational level were positively associated with owning a policy or considering buying one. A higher estimate of the risks of entering a nursing home, greater knowledge of Medicare coverage of LTC, a higher estimate of the honesty of LTC insurance agents, and a lower estimate of LTC insurance premiums were all associated with a higher probability of interest in LTC insurance. A *lower* estimate of nursing home costs was also positively associated with ownership or possible ownership; perhaps consumers who believe nursing home costs are lower are also more likely to believe they could afford an LTC policy that would actually cover nursing home costs.

Table 1
Ordinal Logistic Regression Results (N=199).

Independent Variables	Estimated Coefficients	Standard Errors
Intercept	-3.83	2.83
Attitudinal Variables		
FEDERAL	.93	.51
NHOME	.81*	.40
NCOST	-.55*	.23
MED	1.18*	.50
PREM	-.40*	.19
HONESTY	1.33**	.46
KNOW	.20	.25
VALUE	.16	.34
NEEDLTC	.30	.50
Demographic Variables		
SEX	-1.51*	.63
MARRIED	.99	.81
EDUC	.48*	.24
AGE	-.16	.40
EMPLOY	.35	.73
INC	-.13	.20

Criteria for Assessing Model Fit (-2 Log Likelihood) .69
Overall Chi-Square = 51.39, 15 d.f., significant at .000 level

*Significant at .05 level
**Significant at .01 level

Quality of Long-Term Care Insurance

The quality of LTC insurance policies has been widely criticized. Consumer Reports (1991) called LTC insurance an "empty promise" to the elderly. Rice, Thomas, and Weissert (1989) concluded that due to policy restrictions, 61% of people who entered a nursing home would not collect any benefits from LTC policies marketed in 1988.

Since 1986, several researchers have analyzed the LTC insurance market from an academic (see, for example, Rice et al., 1989; Wiener, Ehrenworth, & Spence, 1987), a market (see Van Gelder & Johnson, 1991, and annual reviews in Life Association News [LAN]), or a public

Chart 1
Variable Definitions.

Independent Variables

Attitudinal Variables

FEDERAL - Attitude about who is responsible for LTC costs
1: federal/state government should have primary responsibility to pay for LTC
0: otherwise

NHOME - Expectations about entering a nursing home
1: very unlikely
2: possible
3: certain

NCOST - Estimate of average annual local nursing home costs
1: $10,000 to $15,000
2: $20,000
3: $25,000
4: $30,000
5: More than $30,000

MED - Knowledge of Medicare coverage of LTC
1: Correctly answered 2 questions on Medicare coverage of short- and long-term nursing home care
0: Otherwise

PREM - Estimate of annual LTC insurance policy premium (for 65-year-old, daily benefit at least $50 a day, comprehensive care, up to 3 years)
1: Less than $500
2: $500 to $800
3: $801 to $1000
4: $1001 to $1500
5: $1501 or more

HONESTY - Relative honesty of LTC insurance agents compared to other agents
1: Much less honest
2: Less honest
3: About the same
4: More honest or much more honest

KNOW - Self-assessment of knowledge of LTC insurance
1: Know nothing
2: (Only endpoints described)
3: (Only endpoints described)
4: Very knowledgeable

VALUE - Relative value of LTC insurance compared to other insurance
1: Much worse value
2: Worse value
3: About the same
4: Better or much better value

NEEDLTC - Respondent or someone close to respondent needed LTC in last three years
1: Yes
0: No

Demographic Variables

SEX
1: Male
0: Female

MARRIED
1: Married
0: Otherwise

EDUC
1: Attended or completed high school
2: Some college/trade school
3: Completed college/trade school
4: Some graduate work
5: Completed graduate degree

AGE
1: 41-54 years
2: 55-59 years
3: 60-64 years
4: 65 and over

EMPLOY
1: Employed
0: Otherwise

INC
1: Less than $20,000
2: $20,000-$29,999
3: $30,000-$39,999
4: $40,000-$49,999
5: $50,000 or more

Dependent Variable

LTC
1: Own an LTC insurance policy or would not rule out buying one in the next three years
0: Otherwise

policy perspective (see U.S. GAO, 1987). The studies consistently identified significant problems in LTC policies marketed in the 1980s as lack of inflation adjustments, abuses in sales and marketing, provisions requiring prior hospitalization, provisions requiring prior skilled care to receive other levels of care, policy maximums (a 20-day deductible rather than a 100-day deductible, limiting coverage to less than four years), and high premiums (U.S. GAO, 1987; Rice et al., 1989; Wiener et al., 1987).

Comparing the 36 policies reviewed by LAN (Jones, 1993) in 1993 to the 33 LTC policies reviewed by the U.S. GAO (1987) in 1986 clearly indicates an evolution in the product. None of the 1993 policies required prior hospitalization or made eligibility for intermediate or custodial care dependent on first receiving skilled care. Yet these restrictions were common in 1986 policies. Only one 1987 policy offered inflation protection compared to 30 of the 36 policies in 1993.

However, one would expect 1993 policies to meet 1986 standards. A better test of the quality of LTC policies is whether they meet current standards. The standards set forth in the National Association of Insurance Commissioners' (NAIC) LTC model act and regulation may be the most widely accepted.[5]

The American Association of Retired Persons (AARP, 1992) examined 26 individual LTC policies in the first six months of 1991 and compared them to the most current (1990) NAIC model regulation and legislation. All 26 policies satisfied several NAIC standards, including NAICs definition of LTC insurance, guaranteed renewability, coverage beyond skilled care, preexisting conditions defined as occurring no more than six months preceding effective date of coverage, no prior hospitalization requirement, a 30-day free-look period, coverage of Alzheimer's disease, waiver of premium during prolonged institutionalization, and age-based premiums increased only on a classwide basis.

At least 80% of the policies reviewed provided a detailed outline of coverage at initial solicitation and met NAIC minimum standards for home health care benefits. At least 50% included in the signature block a statement about the implications of the applicant providing fraudulent information, used an Activities of Daily Living (ADL)[6] limitation or physician certification to determine eligibility, and covered comprehensive care (nursing home as well as home health care as part of the basic policy).

However, less than 50% of the policies extended institutionalization benefits through the period of care (44%); met NAIC requirements for application forms (26%); offered an option to increase benefits at a compounded, annual 5% increase (19%); gave a graphic comparison of the effect of inflation protection (20%); disclosed the potential for a premium increase (5%); or included a nonforfeiture provision (19%).[7]

Thus it appears that LTC policies have improved dramatically in many respects.[8] Significant problems appear to remain largely in the area of honestly and consistently communicating information to customers. Also, while most companies offer inflation protection, there still is concern that it is inadequate since most don't use the NAIC model of 5% compounded annually. Inflation protection is important since people ideally purchase policies when they are relatively young and premiums are low but do not use the benefits until years later. And, concern continues about abuses in sales and marketing. For example, the U.S. GAO (1992) found that, except for identifying Medicaid recipients, companies do little to prevent the sale of LTC policies to low-income elderly.

However, as Walden and Hossain (1992) note, improving policies by removing restrictions and limitations increases the price. They found that the very features that regulators have encouraged in LTC policies--no prior hospitalization requirement, shorter elimination periods, and longer benefit periods--make policies more costly.

Families USA (Firman & Polniaszek, 1990; Families USA, 1993) and Cohen et al. (1991) examined LTC policies and all concluded that most seniors cannot afford LTC insurance.

The older the consumer, the less likely s/he was to be a potential purchaser.

Wiener et al. (1987) suggested three strategies for insurers to improve the affordability of LTC policies. The first, to provide less coverage, is clearly *not* a strategy insurers have adopted; the pressures on the industry have been the opposite. The industry does appear to have moved in the direction of the second strategy, to try to sell to people under age 65. In 1986, 12 of 29 (41%) policies were available to consumers under age 50 (U.S. GAO, 1987); in 1993, 22 of 36 (61%) policies were available to those under age 50 (Jones, 1993). The third strategy has also been adopted to a degree; 7% of LTC policies are provided through employer benefit plans (AARP, 1992).

Even if consumers have the income and/or assets to purchase the insurance, their physical and mental condition must meet underwriting requirements. Cohen et al. (1991) found that about 15% of those age 65 and older with the income and assets to finance LTC insurance are currently disabled and can't qualify medically. The U.S. GAO (1992) reported that as many as 23% of persons age 65 could be rejected for LTC insurance because of health problems. If those currently age 65 wait until they are age 75 to apply for insurance, 30% could be rejected.

Thus research paints a relatively dismal picture of the affordability and availability of LTC insurance for the general population over age 65. The evidence suggests that few elderly consumers can afford LTC insurance and many would not qualify for health reasons. This has led many to conclude that a more appropriate solution would be private LTC insurance for middle-income consumers in good health and a public health plan that provides long-term care for low-income and/or chronically ill older consumers.

Implications of National Health Care Reform

In March 1994, health care reform is an evolving issue. As a result, the author can do little but speculate about how health care reform might impact LTC insurance. There are at least six major competing plans (including President Clinton's) currently being debated. While the details of each of the plans are still changing, prescription drug coverage and long-term care have emerged as key reform issues for potent senior citizens' groups, including AARP. In a survey of 1,000 registered voters, 18% identified long-term care as the most important issue for them in health care reform (Dentzer, 1993).

Only three of the six major proposals specifically address long-term care at this writing. The single-payer proposal (American Health Security Act) sponsored by McDermott and Wellstone includes home, institutional, and community long-term care as well as prescription drug coverage. Representative Jim Cooper is reported to be revising his plan (Managed Competition Act) to add long-term care coverage (Dentzer, 1993, 1994).

President Clinton's proposal (Health Security Act) includes the most detail on LTC coverage. The plan would create a separate government program that would pay some additional costs of both home and institutional LTC as well as day care for severely disabled people. Those above the official poverty threshold would pay 20% of the cost of the care; others would pay nothing. Another option exists under the Clinton proposal to make meaningful LTC insurance benefits more affordable for consumers. The insurance coverage could be offered through the health alliances that are a key to the plan (Dentzer, 1993, 1994); in theory, coverage through the health alliances could reduce premiums by increasing efficiency.

Summary and Need for Future Research

This paper reports research that supports arguments that knowledge about Medicare coverage of long-term care and perceptions of LTC costs and risks influence the purchase of LTC insurance. It also provides evidence that the quality of LTC insurance policies has increased but many elderly cannot afford the premiums and/or copayments.

There are many unanswered

questions related to long-term care insurance. Is it a strategy that consumer educators should recommend to prepare for the risk of LTC costs? If so, to which segments of the population? If it is an appropriate strategy, is the product currently available one that meets consumers' needs? Or, is it in the consumer interest to advocate a publicly financed system to pay for long-term care? Consumer educators and researchers are challenged to explore these and the many other questions surrounding LTC insurance.

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Endnotes

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2. Only 10% of all nursing home and home health care users are under age 65 (Latir, 1992). This paper thus focuses on elderly needs.
3. For this paper, the definition of LTC insurance does *not* include "living benefit" insurance policies which pay death benefits prior to death to individuals who become terminally ill.
4. None of the Pearson correlation coefficients between pairs of variables was greater than .4.
5. In 1986, the NAIC adopted a model LTC insurance act and regulation. Both have been updated on a regular basis due to the changing marketplace (Barnes, 1990). While AARP (1992) reported that only 24 states had provisions that met or exceeded the NAIC standards, their existence has probably had a generally positive influence on produce offerings, even in states that have not adopted the standards.
6. ADLs are the basic tasks of everyday independent living--eating, bathing, moving from one location to another, going to the toilet, and dressing.
7. A nonforfeiture provision returns some portion of the premiums paid if the policyholder cancels the policy or dies.
8. Even if policies currently sold are vastly improved, policies purchased in the 1980s still have significant restrictions.

Changes in Financial Well-being of Older Women: Comparison of 1977 and 1988

This study examined the changes in the financial well-being of older women age 55 and over by using data from the 1977 and 1989 Survey of Consumer Finances. Two financial measures were used. The findings showed that older women in 1989 had less adequate emergency funds as compared to older women in 1977. Older women in 1977 had a higher level of debt relative to their income than those of 1989. Education, age, marital status, race, disability, and work history of women were found to be significant contributing factors.

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The elderly are increasingly being given attention by researchers, policy makers, educators, and the media. Few studies, however, have focused solely on older women. Even fewer studies have examined the financial well-being of women over time. Yet, women have a longer life expectancy and comprise a larger percentage of the elderly population.

As a group, the elderly have experienced a higher level of financial well-being (Radner, 1987; Smeeding, 1990; U.S. Bureau of the Census, 1992), but the elderly are not a homogeneous group (Schultz, 1992; Zhong, 1992; Zitter, 1991). The economic well-being of women is lower than that of men; women's financial status varies by their human capital and socio-economic characteristics. For example, the differences in financial status have been attributed to educational attainment, labor force participation, retirement status, race, and marital status. Little research has focused on the contribution of these factors collectively on the financial well-being of older women.

The criteria used to measure financial well-being is important. Different indicators of household financial status may result in different conclusions about the overall financial status of the elderly as well as factors contributing to their financial condition. Radner (1989) stressed the need to examine data about both wealth and income in order to obtain a complete assessment of the economic status of the elderly.

Net worth and income provide valuable insights into the financial stability of a household but further detailed analysis is warranted. For example, these measures of financial well-being do not suggest the ability of a household to meet a financial emergency. Johnson and Widdows (1985) examined differences in the emergency funds of households by stage of life cycle and income, but not by sex of the household head.

Some researchers (Griffith, 1985; Mason & Griffith, 1988; Prather, 1990) have proposed various financial ratios to examine a household's financial status. The importance of evaluating these ratios in terms of household characteristics was suggested. For example, age and income ought to be considered when evaluating financial ratios of household. Little research, however, has applied these suggested or other ratios to examine the financial well-being of older women.

In conclusion, a need exists to study the economic well-being of older women collectively and in terms of other intervening factors. Also, it is important to utilize measures of economic well-being other than net worth and income to provide a more focused examination of the financial status of older women. This study examines data from the 1977 and 1989 Survey of Consumer Finances to compare the financial well-being of women age 55 and over. Two financial measures, emergency fund adequacy and debt-to-income ratio, were utilized.

It further examines factors contributing to their financial well-being.

Related Literature

Measurement of Financial Well-being

There is no single correct measure of economic well-being (Quinn, 1987). Commonly used to measure economic well-being of the elderly are income (Radner, 1987; U.S. Bureau of the Census, 1992), net worth (Hurd, 1990), or a combined income-net worth measure (Radner 1990; Taussig, 1973; Weisbrod & Hansen, 1968).

Although providing insights into financial stability, net worth or income alone do not suggest the ability of a household to meet a financial emergency nor do they provide a detailed financial analysis of net worth. Households could have identical net worth but the composition of their net worth may vary considerably. One household may have a higher percentage of their assets consisting of cash and cash equivalent (e.g., cash, savings account, E.E. savings bonds), another household may have a higher percentage of assets invested (e.g., stocks, bonds, mutual funds), and still a third household may have a majority of its assets consisting of use assets (e.g., personal residence, furnishings, autos). Likewise, two households may have identical assets but their net worth may vary because of differences in debt.

Financial planners and counselors recommend a family have an adequate emergency fund to meet demands upon the household that arise internally (e.g., death, illness, divorce) and externally (e.g., economy). Johnson and Widdows (1985) in analyzing 1977 and 1983 Surveys of Consumer Finances reported that most families had low levels of emergency funds and that the families were less prepared in 1983 than in 1977. The authors examined differences by stage of life cycle and income but not by sex of household head.

Griffith (1985) and Mason and Griffith (1988) proposed various financial ratios to use in analyzing a household's financial well-being. The researchers stress the importance of evaluating ratios in light of a client's situation; specifically, the five factors to be considered are life cycle, family status, economic status, economic environment, and client objectives and preferences. Using 1983 Survey of Consumer Finances, Prather (1990) computed sixteen financial ratios suggested by Griffith (1985) to develop household norms. It was concluded that age and income ought to be considered when evaluating financial ratios of households.

Factors Contributing to Financial Well-being of Elderly

Educational attainment is an indicator of investment in human capital (Becker, 1975). It is positively related to income and net worth of the elderly. Even when controlling for other variables, Maxwell (1986) and Sung (1993) concluded that education is an important indicator of retirement well-being. Wellen and Peck (1990) studied the effects of human capital factors on financial well-being of older women. Education was found to be a significant indicator of income for older unmarried women but not for older married women.

Abbot (1977) and Maxwell (1986) indicated a positive association between the duration of longest job and economic well-being of elderly. Sung (1993), however, concluded that the reason for lower economic well-being of female headed retired households is their lower level of income in their working years. Duration of longest job did not significantly influence income of longest job or economic well-being during retirement.

Hayward, Grady, and McLaughlin (1988) evaluated changes in the retirement process of women between 1972 and 1980. They observed an increase in volume of retirement and labor force participation of women. In addition, an increase in the number of working years of women was found. These changes parallel that found for men. These authors conclude that longitudinal, co-hort specific data are needed to enhance our understanding of women's labor force participation.

Research focusing on the relationship between age and economic well-being of the elderly is inconsistent. Money income has been found to decrease with age. Some researchers, however, attribute the differences to educational level (Mirer, 1979), average job tenure (Horvath, 1981; Mortensen, 1988), and retirement status (Sung, 1993).

Elderly whites tend to have higher economic well-being than non-white elderly. These differences have been attributed to differences in education level (Abbot, 1977; Sung, 1993; Zhong, 1992). Other researchers (Garren, 1988) report lower wages for non-whites even when controlling for human capital. Logue (1991) found financial stress to be more likely for black women as compared to white retired women.

Elderly married women are more financially secure than other groups of elderly women. Widowhood brings a decline in well-being (Burkhauser and Duncan, 1989; Holden, 1989) Even when focusing on women who had worked at least ten years in the same job, Logue (1991) concluded that both the prevalence of financial stress and its predictors were statistically different for married and non-married retired women. These findings are important in that women over 65 are more likely to be widowed than married (Zitter, 1991).

In summary, the financial status of elderly women has improved. However, further study of elderly women as a group over time is warranted as well as factors contributing to this improved well-being. Also it is important to examine the economic vulnerability of elderly women utilizing financial measures other than income or net worth. The current study will address these voids.

Methods

Data and Sample

The data for the study are drawn from the 1977 and 1989 Survey of Consumer Finances (SCF), which was sponsored by the Federal Reserve Board and other federal agencies. This is a national survey conducted by the Survey Research Center of the University of Michigan. The data were collected from personal interviews with large number of randomly selected households in the U.S. The basic purpose of the SCF was to obtain information about the financial situation (i.e., asset and debt levels) and socio-demographic information of the households. The 1977 SCF had 3655 and the 1989 SCF had 2,277 households selected by a standard multi-stage area-probability sampling technique. In addition, the 1989 survey had a supplemental sample of 866 high income households drawn from federal income tax files (Kennickell and Shack-Marquez, 1992).

Since the primary objective of this study is to examine the changes in financial well-being of older women, women age 55 and over were selected for the sample. The 1977 survey contains 430 women and the 1989 survey 1020 who are age 55 and over.

Variables

Dependent Variables. Two financial measures are chosen as dependent variables, emergency fund adequacy and debt-to-income ratio. As previously discussed, adequate emergency fund help families and households deal with their financial crisis. It may be more important to financially vulnerable group of population such as older women. Financial planners recommend having a minimum of 2 months after tax income in liquid assets (e.g., savings, checking, money market account) for emergency needs. Therefore, emergency fund adequacy was measured by dividing total liquid assets by 2 months after tax income. A household having a emergency fund adequacy of 1 would have the recommended 2 months emergency fund in liquid assets. Total liquid assets are calculated by summing the dollar value of checking, savings, and money market accounts. Income for 2 months is computed by dividing total household annual after tax income by 6.

Debt-to-income ratio was calculated by dividing total debt by total annual after tax income. A ratio of 1, for example, would indicate the household's total debt is equivalent to their total annual after tax income. The level of total debt is computed by adding the dollar value owed for land, estate, home, consumer credit, durables, and repairs. Total income is measured by the total dollar value of household annual after tax income.

Independent Variables. The review of previous studies results in identifying independent variables in the model. Three major factors were included; human capital-related, work-related, socio-demographic factors. Human capital-related factors include education and health status of the respondent. Labor market-related factors consist of the current employment status and employment history. Socio-demographic characteristics include age, marital status, race, number of children under age 18, and whether the respondent resides in a farming area. All variables used in the analysis are summarized in Table 1.

Table 1
Summary of Variables.

Variables	Measurements	1977	1988
Dependent Variables			
Emergency fundadeq.	liquid assets /2mon. inc.	7.91 (16.32)	3.51 (7.99)
Debt-to-inc. ratio	total debt /tot.inc.	2.77 (7.59)	0.49 (3.50)
Independent Variables			
Categorical Variables with frequency and percentage			
Marital status	=1 if married	407 (58.2)	673 (66.0)
Race	=1 if white	634 (90.7)	870 (85.3)
Farm	=1 if reside in farm	120 (17.2)	48 (4.7)
Disabled	= 1 if disabled	NA	50 (4.9)
Employment=	1 if emp.	197 (28.2)	268 (26.3)
Continuous Variables with Mean and Standard Deviation			
Age	# of year	65.78 (7.92)	66.90 (8.44)
Education	# of years	10.18 (3.57)	12.14 (3.46)
Children	# of child. <18	1.80 (0.73)	0.05 (0.35)
Working years	# of years employed	NA	11.66 (18.82)

Analysis
The financial well-being of older women was compared by using two financial measures computed from the 1977 and the 1989 surveys. The t-test procedure was performed to test whether significant changes in average financial well-being of elderly women has occurred between these two time periods. The nature of the dependent variables, truncated at zero, requires non-linear procedure to examine the contributing factors to financial well-being. The use of linear function (i.e., OLS) leads to biased and inconsistent estimates of the coefficients (Judge, Griffths, Hill, Lutkepohl, & Lee, 1983). Thus, tobit analysis was employed.

Results

Liquid asset holdings of older women in 1977 is 7.9 times greater than the recommended emergency fund (2 months after-tax income) whereas older women in the 1989 survey had liquid asset holdings of 3.5 times the recommended amount. This lesser but more than adequate level of liquid asset holdings in 1989 may be attributed to older women feeling comfortable with investing in other less liquid investments (e.g., CDs, stocks, bonds, mutual funds).

Regarding the ratio of total debt to total income, the total debt level is much lower relative to the total income for older women in 1989 with the ratio of 0.49. This indicates that their total debt could be paid off by spending about a half of their annual income. The ratio of older women in 1977 is 2.78. Older women in 1977 had debt which is almost 3 times greater than their total income. The level of total debt relative to total income was much higher for older women in 1977. These results imply that the financial well-being of older women has improved since 1977 when the ratio of total debt to total income is compared.

Table 2 summarizes the results of tobit analysis that identifies contributing factors to the financial well-being of older women. As expected, education is an important factor in explaining older women's financial status. The emergency fund adequacy of women with higher education tended to exceed that of less educated women. This finding is consistent with studies by Solomon and Taubman (1973), Maxwell (1986), Sung (1993), and Zhong (1992).

Interestingly, the findings indicate that women with more years of formal education are likely to have higher level of debt relative to income in the only 1977 survey. This result indicate that educated women may have more investment assets (i.e., house, land, estate). Further research is needed to examine the financial portfolio structure of older women.

Table 2
Factors contributing to the financial well-being of older women in 1977 and 1989: Results of tobit analysis.

Variables	Emergency fund adeq. 1977	Emergency fund adeq. 1989	Total debt /total inc. 1977	Total debt /total inc. 1989
Human Capital-Related Factors				
Edu.	0.89***	0.53***	0.53**	0.04
Edu.	(0.25)[a]	(0.09)	(0.19)	0.05)
Disabled	NA[b]	3.35	NA	0.3
		(1.01)		(0.54)
Work-Related Factors				
Employ.	-3.23	-0.24	0.84	0.54
	(2.08)	(0.78)	(1.49)	(0.42)
Working	NA	-0.05*	NA	0.03**
		(0.02)		(0.01)
Demographic Factors				
Age	0.22	0.15***	0.35***	-0.13**
	(0.14)	(0.04)	(0.11)	(0.03)
Marital	-0.52	1.26*	1.27	0.69*
	(2.32)	(0.57)	(1.76)	(0.33)
White	8.74**	3.81***	2.79	-0.96*
	(3.34)	(3.81)	(2.51)	(0.40)
#child.	1.11	-0.69	0.70	0.00
<18	(1.54)	(0.83)	(1.24)	(0.37)
Farm	0.66	-1.61	0.88	-1.80
	(2.29)	(1.54)	(1.82)	(1.05)
Log-liklihood	-1639	-3233	-1030	-1408

Note: * p <.05 ** p<.01 *** p <.001
[a]Numbers in parenthesis represents the standard errors.
[b]Data are not available for 1977 survey.

Disabled women tend to have lower emergency fund adequacy than healthy women. The health status of individuals reflects the potential earning power in the labor market. Healthy individuals tend to command higher wages than those with poor health conditions (Grossman & Benham, 1974). Disability may have limited the older women's earning power, which results in the lower level of funds in their savings, or checking accounts.

The women with longer working years have lower emergency fund adequacy and higher level of debt relative to their income in the 1989 survey. These results indicate that older women with longer work experiences are likely to have lower level of cash or cash-equivalent and borrow more than those with short work experiences. Expectation of a constant income stream may have attributed to these findings. By providing additional insights, this research expands upon research conducted by Abbott (1977), Maxwell (1986) and Sung (1993).

Older women are found to have higher emergency fund adequacy and lower level of debt relative to income. As women get older, they tend to have more cash available and pay off their debt. They may have more liquid assets than investment assets (e.g.,, stocks, bonds, mutual funds). This research expands the knowledge base that previously examined income and net worth.

Married older women have a higher level of emergency fund adequacy than non-married women. This may be attributed to husband's income. They also tend to have a higher debt relative to their income. This result suggests that a higher level of resources brought by husband's income may influence married older women to be more risk-tolerant. However, other studies have found widowhood to bring a decline in financial well-being (Burkhauser & Duncan, 1989; Holdern, 1989; Zhong, 1992). Thus, a need exists to educate women on the potential impact widowhood may have on their financial well-being and the need to plan accordingly.

White older women have had a higher level of emergency fund adequacy than non-white older women in both years. They also have a lower level of debt relative to their income in 1989. These results support previous research (Abbott, 1977; Sung, 1993; Zhong, 1992) that indicate whites have a higher level of financial well-being than non-whites.

Conclusion

This study examined older women's financial well-being utilizing two financial measures, emergency fund adequacy and debt-to-income ratio. The financial status of older women in 1977 and 1989 were compared using data from the Survey of Consumer Finances. The results of the comparison indicate that older women in 1989 tend to have less adequate emergency funds as compared to older women in 1977. One of the explanation for these findings may be that older women in 1989 allocate their financial resources to a higher potential return but in riskier investment after having adequate emergency funds. However, older women in both years have adequate level of emergency funds that is recommended by financial planners. Future research is needed to examine the financial portfolio structure of older women.

When contributing factors to emergency fund adequacy were examined, the educated, older, married, and white women tend to have adequate emergency funds in the 1989 data whereas disabled women and women with shorter working years tend to have lower level of adequacy in emergency funds. The findings indicate that the health condition and employment history of older women are important indicators of their ability to manage financial emergencies.

The ratio of debt-to-income shows that older women in 1989 tended to have a lower level of debt relative to their income than those of 1977. In other words, older women in 1989 are in better financial status when the debt to income ratio is compared. Further, the results of tobit analysis suggest that older, non-married, white, and women with fewer working years tend to have lower level of debt relative to income in 1989. Apparently, older women with longer labor market experiences are likely to have lower level of adequacy in emergency funds and higher level of debt to income ratio. This intriguing finding calls for further study to enhance our understanding about the employment effects on the financial well-being of older women.

There are several educational implications of this study. Educational programs need to be developed to help women realize how their decision to participate in the labor market may affect their future financial well-being. Educational strategies are also needed for the disabled women to be aware of government programs that may help them preserve their liquid assets for other possible financial emergencies. In addition, there is a need to educate women, regardless of their marital status, of the importance of controlling debt.

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Endnote

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