Economic Adjustments to Perceived Stress

The study verified by path analysis that economic adjustment behaviors actuated by 337 farm respondents were influenced by the resources of the decision situation, the emotional responses of problem perceiving, and cognitive responses of decision making. The lower the income adequacy perception, the higher was the perceived stress and the more economic adjustment behaviors were incorporated. Higher perceived stress led to more economic adjustment behaviors. Those who utilized more cognitive decision making performed fewer economic adjustment strategies.

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Introduction

Economic hardship results when income and/or assets are reduced to the extent that established levels of living can no longer be maintained and changes are required. Household members who experience the various pressures of economic hardship are considered to be under economic stress (Elder & Caspi, 1988) because of their awareness of imbalances in demands and resources. Responses to stress are emotional, cognitive, and behavioral in nature and have been studied concurrently and separately by stress and management scholars (Dollahite, 1988; Folkman et al., 1986). There are few studies of rural residents that have included measures of the emotional, cognitive, and behavioral responses to stress (Rettig, Danes, & Bauer, 1990).

The close relationship of stress and management theories has been discussed by several scholars with a call for more extensive examination of the perceptual component (Danes & Rettig, 1993c) and a need for integration of the theories (Burr, 1990; Dollahite, 1991). In addition, management scholars have wanted decision theories that give more attention to the emotional forces motivating behavioral adaptations to change (Bahr, Ahlander & Wilcox, 1993) and studies that examine both environment and decision making responses (Godwin & Scanzoni, 1989).

Consumer researchers have also recognized that the role of emotions as primary motivators of behavior (Tomkins, 1970) has been given minimal attention in consumer research (Allen, Machleit & Schultzkleine, 1992). Holbrook and others (1982, 1983, 1986) warned consumer researchers that affective motives are critically important and should not remain only in the domain of marketing practitioners.

The purpose of the present research is to take a first step in exploring the emotional, cognitive, and behavioral responses to stress using a managerial conceptual framework. A unique contribution of the study is the inclusion of measures of several phases of the management process from problem perception to decision making and decision implementation.

Conceptual Framework and Related Literature

The conceptual framework in the present study has the potential for incorporating the key concepts from both stress and management theories and for giving increased attention to perception as the first stage of consumer choice (Paolucci, Hall & Axinn, 1977). In addition, the framework recognizes the importance of emotional energy as one of the forces leading to cognitive appraisal about how to respond to environmental and personal changes as well as a force leading to the behavioral actions that create desired changes.

The environment for respondents in the present study was the national agricultural crisis that involved many factors beyond the control of

individuals, but created severe difficulties for farms that had high debt levels. The environment would be considered a chronic stressor situation since it involved disturbed equilibrium over a long period of time (Boss, 1988). The stressor event was a written notice received by respondents that they were required to participate in Mandatory Farm Credit Mediation because of the high debt levels and insufficient resources for meeting payments. A stressor event is an "occurrence of significant magnitude to provoke change in the family system" (Boss, 1988, p. 36).

The conceptual framework for the present study viewed the management subsystem of individuals and/or families as having the functional components of a decision situation, decision maker, and decision processes (Danes & Rettig, 1993a; Rettig, 1993). The decision situation is the presenting problem, conflict, and/or opportunity for the decision maker that occurs at the interface of environmental and decision maker systems where problems are brought to the level of consciousness at a particular time and place. The decision situation involves existing resource flexibilities and constraints, risks and consequences, and the particularistic human resources of the decision maker (Rettig, 1993; Rettig & Dahl, 1993).

Decision makers are the individuals who find themselves in the decision situation and must compare alternative courses of action by weighing the evidence and considering the multiple interacting variables in order to make a judgment about the course of action to select. The managerial processes used by decision makers include perceiving needed and wanted changes (problem sensing, facing, and defining), deciding what to do alone or with others (decision making), and actuating the decisions and plans (decision implementation) (Rettig, 1993). The problem sensing or perceiving phase of the management process is more emotional in nature while the deciding phase is more cognitive in emphasis and the actuating phase is more behavioral. The perceiving, deciding, and actuating processes are influenced by the resources of the decision situation and the nature of the problems and opportunities that are present.

Hypotheses

The objective of the study was to verify that the economic adjustment strategies actuated by respondents would be influenced by the resource availabilities in the decision situation and the perceiving and deciding processes of the decision maker in that situation. The decision situation included the economic resources of available money and time and the particularistic human resources of age, education, and income adequacy perception. The resources of the decision situation were hypothesized to influence the perceiving of emotional stress that would lead to the motivation for initiating the cognitive deciding processes that would eventually lead to actuating the behavioral economic adjustment strategies.

Methods

Sample

Questionnaires were mailed in March of 1987 to recently completed cases of Mandatory Farm Credit Mediation in 29 randomly selected counties of a midwestern state that resulted in a response rate of 42% of all households contacted. Respondents (n=337) were primarily Caucasian (97%) with German and Norwegian ethnicity and Protestant (65%) and Catholic (25%) religions. Most respondents were 49 years of age (mean) and in a first marriage (84%) with a mean duration of 26 years that had produced 3.5 children who were often no longer at home (38%). Nearly one-fourth of the households (23%) in the sample reported income losses in 1986. The median adjusted gross income taken from line 32 of the federal tax form in 1986 was $9,412. The study sample was similar to the national population of farm operators that had a reported average age of 50.5 years and Caucasian race (97%) but different because there were more children per family ($\underline{M}$=3.5) than in the national farm population of 2.14 (U.S. Department of Commerce,

1986).

Analyses

Preliminary analyses for the study involved the use of frequencies, principal components factor analyses, reliabilities, and correlations. Path analysis was used to examine the total, direct, and indirect relationships among variables (Alwin & Hauser, 1981).

Measures of the Dependent Variables

The three dependent variables used in the path analysis represented the emotional, cognitive, and behavioral phases of the management process that were called perceiving (problem perception and definition), deciding (decision making), and actuating (decision implementation) (Rettig, 1993). The theoretical concepts were operationalized and labeled as "perceived emotional stress," "cognitive decision processes," and "behavioral economic adjustment strategies."

Perceived emotional stress. The measure of perceived emotional stress was an index created from five questions. Respondents were asked how they felt since they received the mediation notice. The five items provided for their responses were: hopeless; under strain and pressure; anxious or upset; downhearted; and tired, worn out, or exhausted. The possible answers were "never" (coded 0), "rarely" (1), "sometimes" (2), "often" (3), or "always" (4). The range of the index scores was from 3 to 20 with mean and median of 12 and standard deviation of 3.27. Cronbach's alpha for internal consistency reliability was .82 for the index.

Cognitive decision processes. The measure of the cognitive decision processes was an index created from six questions. Respondents were asked how they had responded to stress since receiving the mediation notice. The six items were: analyze the situation, clarify my values, seek information about the situation, think of alternatives to farming, set new goals, and plan for the future. The responses were "never, rarely, sometimes, often, or always" and were coded as in the description of the previous variable. The range of the index scores was from 0 to 24 with mean 15.47, median 15, standard deviation 3.44, and Cronbach's alpha .70 for all items.

Behavioral economic adjustment strategies. The economic adjustment strategies were different behavioral adjustments that are used when responding to changes in income and income demands (Caplovitz, 1981; Rettig, 1982). The 37 items were developed by theoretical criteria and verified by factor and reliability analyses (Danes & Rettig, 1993b). Respondents were asked: "People adjust in different ways when there are changes in income or expenses. We would like to know what strategies you have used since you received the Mediation notice. Think about any changes you may have made in your personal financial management since you entered mediation. These strategies do not apply to your business situation."

The possible answers were: not done before or after mediation (coded 0), done a lot less since mediation began (1), done less since mediation began (2), still done with the same amount of frequency (3), done more since mediation began (4), done a lot more since mediation began (5), and done the most that can be done (6). The scale included four verified factors of: increasing and extending money income (12 strategies, alpha .78), decreasing money expenditures (10 strategies, alpha .72), increasing household labor income (8 strategies, alpha .78), increasing household management income (7 strategies, alpha .72). The mean for the total scale was 118.09, median 117, standard deviation 25.16, and Cronbach's alpha .91 for all items.

Measures of the Independent Variables

The independent variables represented the decision situation that exists at the interface of environmental and decision maker systems where problems are brought to the level of consciousness and emotional energy is created that motivates managerial adjustments. The economic resources were the available money and time for actuating the behavioral economic adjustment strategies and the

particularistic human resources were age, education, and income adequacy perception. The income adequacy perception (human resource) and perceived emotional stress (problem perceiving) were the variables that represented the emotional energy necessary to generate the cognitive and behavioral processes of decision making and implementation.

Economic resources. The money that might be available for performing the economic adjustment strategies was estimated by using a created variable to control for the income demands of household size. The variable was labeled "income adequacy" since it represented the degree to which money income provided a level of living that was lower or higher than the requirements of minimum subsistence indicated by poverty level income. A review of the literature and justification for alternative measures of income adequacy can be found in Elder (1988). The variable was calculated by taking the adjusted gross income for 1986 from line 32 of the federal tax form and dividing it by the 1986 poverty level income for the household size to provide the income-to-needs ratio. The mean for the variable was .745, median 1.04 (SD =7.55).

The time that would be available to perform the various family economic adjustment strategies was called "time adequacy" and was estimated by using a created variable. The variable was calculated as follows: The total number of hours available within one week minus the sum of the average number of reported hours spent in the activities of sleep, farm work, and off-farm jobs (Danes and Rettig, 1993b). The range of values for the variable was 2.25 to 129.75 hours with mean of 73.26 hours (SD = 26.27).

Human resources. The range in ages of respondents was from 23 to 78 years with a mean of 49 years and standard deviation of 11.65. Education was measured by number of years of schooling completed and ranged from 2 to 21 years with a mean of 12 years (high school) and standard deviation of 2.10. The perception of income adequacy was measured by one item that asked respondents how they felt about the adequacy of their income. The answers were: not at all adequate (coded 1, and reported by 19% of respondents), can meet necessities only (43%), can afford some of the things wanted (32%), can afford about everything wanted (4%), can afford about everything wanted and still save money (coded 5, and reported by 2% of respondents). The mean of 2.27 indicated that incomes were perceived to meet necessities only (SD = .89).

Results

The fully recursive path model consisting of three regression analyses is described in Figure 1 using the standardized beta coefficients for the path model. Three additional regression analyses

Figure 1. Path Analysis Diagram

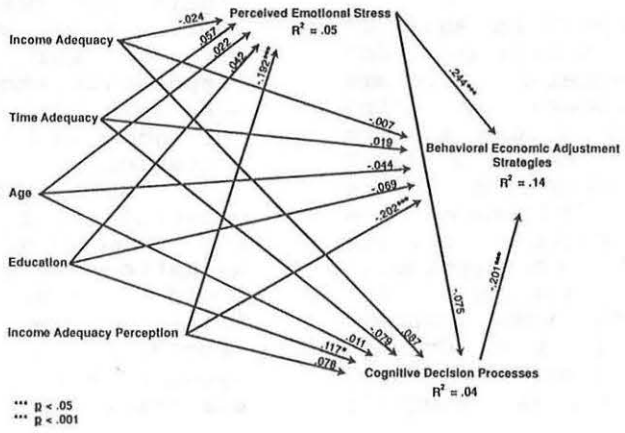

Table 1
Total, Direct, and Indirect Effects of the Path Model.

Dependent Variable	Predetermined Variables	Total Effects	Direct Effects	Indirect Effects Via: Perceived Emotional Stress	Indirect Effects Via: Cognitive Decision Processes
Perceived Emotional Stress	Income adequacy	-.024	-.024	---	---
	Time adequacy	.057	.057	---	---
	Age	.022	.022	---	---
	Education	.042	.042	---	---
	Income adequacy perception	-.192	-.192***	---	---
Cognitive Decision Processes	Income adequacy	.089	.087	.002	---
	Time adequacy	-.083	-.079	-.004	---
	Age	.009	.011	-.002	---
	Education	.114	.117*	-.003	---
	Income adequacy perception	.092	.078	.014	---
	Perceived emotional stress	-.075	-.075	---	---
Behavioral Economic Adjustment Strategies*	Income adequacy	.004	-.007	-.006	.017
	Time adequacy	.016	.019	.013	.016
	Age	-.037	-.044	.005	.002
	Education	-.036	-.069	.009	.024
	Income adequacy perception	-.231	-.202***	-.044	.015
	Perceived emotional stress	.229	.244***	---	-.015
	Cognitive decision processes	.201	.201***	---	---

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

were completed to compute the indirect effects presented in Table 1 (Alwin & Hauser, 1981). Residual analyses for each of the equations indicated that there were no outliers and the error terms were normally distributed.

Direct Effects

The first regression equation explored emotional motivations for management in the perceiving problems phase of the process by using perceived emotional stress as the dependent variable. The resources of the decision situation were hypothesized to influence the perceiving of emotional stress. Tentative support for the hypothesis was provided by the analysis. The independent variables were economic resources of income and time adequacy and human resources of age, education, and income adequacy perception.

The R^2 of .05 for the equation indicated that 5% of the variance of perceived emotional stress was explained by the independent variables (F-score = 3.2, $p < .0001$). The human resource of income adequacy perception was the only statistically significant predictor of perceived emotional stress. Higher stress levels were experienced by respondents who felt their incomes were less adequate, when controlling for income and time adequacy, age and education.

The second regression equation explored the hypothesis that, given the resources of the decision situation, perceived emotional stress would motivate respondents to initiate the cognitive deciding processes of management. The hypothesis was not confirmed by the analysis. The dependent variable was

cognitive decision processes and the independent variables were income and time adequacy, age, education, income adequacy perception, and perceived emotional stress.

The R^2 for the equation indicated that 4% of the variance was explained by the set of independent variables (F-score 2.5, $p < .05$). Education was the only statistically significant predictor of cognitive decision processes. Respondents with more years of schooling were more likely to initiate the cognitive decision processes of management, while controlling for economic and human resources.

The third regression equation explored the hypothesis that the perceiving processes (perceived emotional stress) and the deciding processes (cognitive decision processes) of the decision maker would influence the actuating of the decisions (economic adjustment strategies) controlling for economic and human resources. The hypothesis was supported by the analysis.

The R^2 for the equation indicated that 14% of the variance was explained by variables in the model (F-score = 7.7, $p < .001$). Income adequacy perception, perceived emotional stress, and cognitive deciding processes were statistically significant predictors of behavioral economic adjustment strategies with stress as the most important variable. Higher levels of emotional stress and fewer uses of cognitive decision processes were associated with the performance of more economic adjustment behaviors while higher levels of income adequacy perception resulted in the use of fewer economic adjustment strategies.

Indirect Effects

Indirect effects are the parts of a variable's total effect which are mediated through intervening variables identified within the model. Table 1 identifies the total, direct, and indirect effects. The discussion will center around the proportion of the total effects that is determined by the direct effects or indirect effects mediated through the intervening variables. The proportions were calculated as recommended by Alwin and Hauser (1981).

Indirect effects were not a factor for the first dependent variable of perceived emotional stress. For the second dependent variable, most of the total effect of the variables on cognitive decision processes was determined by the direct effect of each independent variable. As an example, income adequacy perception had a total effect of .092 on cognitive decision processes, of which .014 (15%) was transmitted via perceived emotional stress, and .078 (85%) was unmediated by variables in the model.

Income adequacy had a total effect of .004 on economic adjustment strategies of which -.006 (20%) was transmitted through perceived emotional stress, .017 (57%) through cognitive decision processes, and -.007 (23%) was unmediated by variables in the model (direct effect). Of the effect of time adequacy on behavioral economic adjustment strategies, a little over a fourth was due to perceived emotional stress, about a third was explained by the cognitive decision processes, and 40% was a direct effect and not explained by either emotional stress or decision process.

The greater portion of the total effect of age (86%) on economic adjustment strategies was a direct effect; 10% of the effect is transmitted via emotional stress and 4% through decision processes. Of the total effect of education on economic adjustment strategies, 8% was transmitted through perceived emotional stress and 24% through cognitive decision processes. Seventeen percent of the total effect of income adequacy perception was an indirect effect transmitted through perceived emotional stress and 6% through cognitive decision processes. The remainder was unmediated by variables in the model.

Summary and Discussion

Results of the path analysis verified that the resources of the decision situation and the perceiving and deciding processes of the decision maker were directly related to the performance of economic adjustment strategies. These results need to be viewed as tentative since the percentage of variance explained

by the independent variables was not high in any of the regression equations.

The analysis failed to confirm a direct significant relationship between perceived emotional stress and the initiation of cognitive decision processes. However, 6% of the total effect of perceived emotional stress on economic adjustment strategies was transmitted through cognitive decision processes.

The results may imply that there are at least two management styles that are operating in stressful decision situations: action and deliberation and action. The reflective or contemplative (analyst-synthesist) and the action-oriented (realist-pragmatist) approaches to financial decision making have been previously identified (Rettig & Schulz, 1991). Informal observation and intuition suggest that some people who experience stress have a great need to DO something or to act more than to think while others prefer to reflect on the possibilities before doing anything. These variations in managerial styles need to be explored in future research.

The results also imply that emotional energy is one of the important forces leading to behavioral actions that create desired changes or the action style of management. The deliberation and action style was affected most by one's educational background. People who had more years of schooling were more likely to engage in deliberated, cognitive decision making processes that would guide their behavioral actions.

The present study can contribute to the literature by calling attention to the roles of perception and emotionality in decision making and by verifying the importance of perception as a first step in the decision processes leading to choice.

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Endnotes

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Behavioral Adjustments Made by Overextended Consumers

Today more families have obligations beyond their current financial resources than ever before. The purpose of this study was to identify which, if any, behavior adjustments were made by families in debt and whether or not the adjustments were perceived helpful. Preliminary results suggest that families engage in different behavioral adjustments depending upon the reason for being in debt and some adjustments in behavior are more likely to lead to successful elimination of debt than others.

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Introduction

Financial problems, broadly defined as having insufficient money to pay for all that a family or individual wants and needs, are pervasive managerial concerns (Hogan & Bauer, 1988). Despite variations in families, most families experience cycles of too few resources for existing demands and the potential for the abuse of credit is great.

Previous research studies have focused on behavioral changes in the individual's and family's credit practices (Vallade, 1980). However, there are few studies which have identified changes in behavior by families when recovering from extreme debt. Four major adjustment concepts that have been identified. They are: a) rescaling the level of consumption, b) changing income adequacy, c) improving the effectiveness of managerial processes and d) changing gender role responsibilities (Hogan & Bauer, 1988). The purpose of this research was to identify the family/individual/debt variables common to each of the adjustment concepts, and which specific behaviors proved to be most effective in helping families out of debt.

Behavioral Adjustments

Rescaling the Level of Consumption

Family financial counselors have long recommended one procedure for rescaling the level of consumption; budgeting (Davis & Helmick, 1985). Given the amount of advice dispensed on the subject, relatively few studies have investigated the extent to which families use the recommended procedures and whether or not the procedures were effective in gaining control over the family's financial situation.

While lowering one's level of living may be the most logical solution to the problem, by the time a family may seek help for financial trouble, as was in this study, living expenses most often are already at a minimum level. However, if families in debt view the financial crisis to be temporary, an unexpected expense, and view budgeting as a short term adjustment it may be perceived as the solution and therefore more likely to be implemented.

Behaviors associated with rescaling the level of consumption, as defined in this study, included cutting back on food at home; on food away from home; housing; clothing; recreation; cable television; transportation; and gift giving.

Changing Income Adequacy

Families in financial trouble often think that if they only had more income, everything would adjust and their problems would be solved. Recommendations for increasing income, such as working overtime or having the non-employed spouse enter or re-enter the labor market may not be viable options to families today (Caplovitz, 1983). Additional employment, whether it be overtime or taking on a second or third job, is usually viewed by the family as a short term solution and for a specific purpose such as getting out

of debt or purchase of a special good or service.

The possibilities for increasing income adequacy were defined as working overtime; obtaining a second job; securing a promotion; changing employment; borrowing from a friend or relative; borrowing against an insurance policy; tax rebates or food stamps; using community resources; improving or repositioning assets; expanding business; turning a hobby into a business; utilizing more coupons and shopping sales more frequently than before (Williams, 1988).

Improving Managerial Effectiveness

Professionals can help families manage their debts through financial management. Both the procedures of how finances are handled and the attitudes toward money and financial affairs can be changed (Williams, 1988). These recommendations may produce long term changes in the family's financial practices thus reduce the chances for repeated behaviors.

Managerial activities related to better financial management in this study included increasing communication; better planning; meeting deadlines; writing budgets; establishing financial objectives; implementing plans; increasing joint/family decision making; planning menus; using only cash for living expenses; using shopping lists and shopping less frequently.

Changing Gender Role Responsibilities

Families today do not have the option to ignore financial decisions if they are to gain satisfaction and avoid problems. Some method of money management needs to be established and agreed upon. Role structure and family financial responsibilities need to be examined and not assumed across families. Divorce, remarriage, cohabitation, later marriage, mother's employment patterns and changing attitudes regarding gender roles all contribute to the diverse decision-making patterns in families (Fishman 1983; Rosen & Granbois 1983; Schaninger & Russ 1986; Slusher, Helmick & Metzen 1983). A change in how the finances are managed may be a substitute measure for increased communication between family members thereby reducing the likelihood of repeating the same spending mistakes. Any change in who handled the family finances was measured as a change in the gender role responsibilities for the purposes of this study.

Study Design

Clients who had successfully completed the Consumer Credit Counseling Service Debt Management Program with the Albuquerque Office or had dropped out of the program during the calendar year (May 1988-May 1989) were asked to participate in the study. The clients who participated in this study were from the entire state of New Mexico, since the Albuquerque office provides services statewide. Data for this study were collected from two sources: the CCCS application files and a self-administered two page questionnaire. The CCCS application form provided the demographic, social and financial characteristics on each client, entry/exit date from the program and the reason why they were in debt. The questionnaire, developed by the author, identified adjustments in behavior during the time the family was a client at CCCS. The behaviors were categorized according to Hogan and Bauer (1988). Refer to Table 1.

Means and standard deviations were computed on all applicable variables. A t-test was computed to determine if there was a difference at a .05 level of significance in the number of behavior adjustments made between the clients who had successfully completed the CCCS program and those that had not successfully completed the program. Successful completion of the program was defined as those clients who eliminated all debt or left the program with three or fewer months to go. Clients were determined to be unsuccessful if they declared bankruptcy or quit the program with more than three months left. It was assumed that if a family left the program with three or less months to completion they would be able to assume and manage their debts. A second comparison was made by reason of debt; controllable (overspending)

and uncontrollable (medical expenses). It was assumed that more behavior adjustments that were made the more committed the family was to getting out of debt.

Results

Sample Description

Fifty-five of 153 questionnaires were returned by the post office. This is one indication of the high mobility rate among the families and individuals who are experiencing high debt. There were 35 useful questionnaires returned. The participants ranged in age from 28 to 56 with an average age of 31. There were eight single individuals (six female), four young couples, 12 single parents (all female), five couples with preschool age children, three couples with school age children, two families with teenagers and one couple whose children were no longer present in the household.

The participants spent an average time of 14 months with CCCS, ranging from 3 to 35 months. Participants averaged 12 credit cards, ranging from three to 27. The average debt was $17,733, ranging from $1,189 to $51,557, not including mortgage debt.

The income (monthly take home pay) ranged from $320 to $3,253 with a mean of $1,640. Monthly expenses varied from $160 to $2,153, averaging $1,023. The amount of discretionary income, or that money left over after living expenses was considered but before debt payments, ranged from $156 to $1,386; averaging $648. Savings were almost non-existent. Only four participants had any savings, totaling $1,160, ranging from $50 to $500. The sample average was $33. This certainly could be a reflection of the families financial situation at the time of the study.

Behavior Adjustment Differences

The participants averaged 19 behavior adjustments with a standard deviation of 8.25, ranging from 8 to 47. Refer to Table 1 for the breakdown by category.

Rescaling the level of consumption. Reducing food eaten away from home was identified by more of the sample (91.4%) than any other single behavior adjustment made and was considered as helpful in reducing debt (See Table 1). Clothing was also identified as a behavior adjustment families did and believed helpful followed by recreation, gifts and food at home. Reducing expenses for housing and transportation were the most frequently identified behavior adjustments that were not changed and would not be helpful in successfully getting out of debt. This could possibly due to the hesitation of families and individuals to make drastic, long term changes to what they may perceive as a short-term problem.

Changing income adequacy. Shopping sales more frequently than before (65%) and an increase use of coupon (60%) were identified by the sample as things they did and were helpful. All other behavior adjustments in this category, increasing income adequacy, were not viewed as options for the families at this point in time. Perhaps already explored these possibilities or the resources were simply not available, as in the case of borrowing from a relative or insurance policy.

Improving management effectiveness. Planning (80%) and making shopping lists (74%) were identified as being the most frequent management related behavior adjustments as being helpful and made by families in a financial crisis. The managerial activities appear to be more evenly split between believing to be helpful and made and not helpful and therefore not made than the other categories. For example, budgeting was identified by 15 participants as believing to be a helpful adjustment whereas 17 reported it was not. Twenty-five participants reported reducing housing expenses was not a viable option and seven reported that it was, thus reducing the chances of this suggestion to be implemented.

Changing gender role responsibilities. Twenty-nine of the families expressed no change in manager, of those however, 20 (8 individuals and 12 single parents) had no spouse to change to, leaving nine families who did not exercise

Table 1
Number of Families Indicating the Behavior Adjustment by whether it was Helpful in Reducing Debt (n=35).

	Helpful and done	Helpful but not done	Not Helpful and done	Not Helpful and not done
Rescaling level of consumption				
Food at home	26	1	0	8
Food away	32	1	0	1
Housing	7	3	0	7
Clothing	30	2	0	3
Recreation	29	1	0	5
Cable TV	17	3	1	14
Transportation	11	3	2	20
Gift Giving	29	1	0	5
Changing Income Adequacy				
Overtime	11	0	0	24
Second Job	6	0	0	28
Sought new job	3	0	2	30
Promotion	6	0	0	29
Other person	6	0	0	29
Borrow relative	11	0	0	23
Borrow Insurance	3	0	0	33
Food Stamps	0	0	0	35
Coupons	21	2	0	12
Sales	23	0	2	10
Managerial Activities				
Communication	21	0	0	14
Planning	28	0	0	7
Deadlines	22	1	0	12
Budgeting	15	3	0	17
Financial Goals	16	2	0	17
Implementing	21	1	0	13
Decision Making	18	0	0	17
Menus	16	2	0	17
Cash	23	0	0	17
Lists	24	2	0	12
Shopping Lists	26	0	0	9
Changing Managers				
No change	29			
Wife to joint	2			
Wife to husband	2			
Husband to wife	2			

this option. Two families switched from wife to joint managing, two fromwife to husband and two from husband to wife. This finding, perhaps more than the others, may be a reflection of the CCCS policy to encourage both adults in the household to actively participate in the debt management plan.

Outcome of program. Families defined as successfully gaining control over their finances as demonstrated by completing the program or leaving in the last three months made more overall behavior adjustments (38) than those families who left the program without eliminating their debts (30). This comparison was significant. Refer to Table 2. There were no differences between the successful group and the unsuccessful group in the behavioral adjustment categories of rescaling the level of consumption (reducing expenses) or income adequacy

Table 2
Mean, Standard Deviation and Results of t-test Analysis of Number of Behavior Adjustments by Category; By Outcome of Program and Reason for Debt.

Outcome of Program:	Successful n=18		Unsuccessful n=17		
Category	Mean	(SD)	Mean	(SD)	t-test
Rescaling level of consumption	5.7	(1.6)	6.8	(9.9)	-1.4592
Income Adequacy	3.3	(1.3)	5.7	(1.3)	.0320
Managerial Activity	29.6	(10.3)	17.3	(6.4)	4.1894*
Manager	.0	na	.3	(.4)	.0000
TOTAL	38.6	(11.84)	30.2	(11.7)	2.1182*
Reason for Debt:	**Uncontrollable n=12**		**Controllable n=23**		
	Mean	(SD)	Mean	(SD)	t-test
Rescaling level of consumption	4.0	(2.6)	5.5	(8.7)	.5562
Income Adequacy	6.4	(1.5)	5.3	(1.3)	-2.1202*
Managerial Activity	29.9	(13.3)	20.3	(7.1)	-2.7740*
Manager	.1	(.4)	.1	(.4)	.0524
TOTAL	40.5	(14.01)	31.4	(10.3)	-2.1921*

(increasing income). While it was not measured as a statistical difference, no family that was defined as successful changed financial managers. However, in the area of managerial activities there was a statistical difference between the two groups. Families who successfully completed the program implemented on the average 29, an additional 12 managerial activities, compared with 17 for families who did not complete the program.

Reason for debt. Families, who found themselves in debt through no fault of their own spending habits (uncontrollable), appear to be more likely to implement behavior adjustments by increasing income adequacy and managerial activities. There was a difference between the two groups in these two categories as well as in the overall total. This can be interpreted, with caution, that families who find themselves in debt through no fault of their own (medical reasons) appear to be more committed to working their way out of debt. There was no statistical difference between the number of families who were in debt for medical reasons compared with over spending in the outcome of the program.

Major Study Findings

There appears to be some behavior adjustments that families and individuals are more likely to incorporate than others into any plan whether or not that behavior leads to financial success, defined as being rid of debt. These include cutting back on food, clothing, recreation and gift giving. However, suggestions for changing housing and transportation are not likely to be implemented or perceived helpful. Families appear to be resistant to any lowering of standards or major life style changes.

This is also apparent in the changing of income adequacy category. The fact that families are willing to use coupons and shop sales, is one indicator that they would like to maintain their current level of living at less cost without the additional stress or time demands of another job.

The change of manager within a family may have been the identified behavior, but perhaps it was an indicator of the lack of communication, joint decision making and other managerial activities that may not have exist prior to coming to CCCS.

Clearly, the number of

managerial activities of those families and individuals who were successful in completing the program stands out. There was an increase of 29 management related activities by families who were successful compared with 17 adjustments made by families who not successful in completing the program. The emphasis placed on managerial activities by CCCS may account for some of this difference. In any case, it makes a strong case for management education.

Clearly much more work needs to be done before one can say confidently what unique effects management practices have on household financial welfare and satisfaction (Davis & Helmick, 1985). Educating families and individuals to be better managers may be a long term solution if another financial crisis is to be avoided. Additional income and rescaling consumption are short term fixes to long term, persistent problems.

It must be noted when working with families in debt, managerial activities were viewed as not helpful in as many instances as they were viewed as helpful. Therefore, there may be great resistance to change and, therefore, no implementation. The real job of the professional may be in convincing the families of the importance of management.

It needs to be noted that the sample of this study was small and rather homogeneous and while the purpose of this study was not to evaluate Consumer Credit Counseling Services, clearly families that remain in the debt management program achieved their goal of being debt free. They also had the support of a professional staff during the process. The effects of CCCS, while not measured in this study, must be a consideration when interpreting the results and in any future study.

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Endnotes

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The Propensity to Save Different Types of Income in Peninsular Malaysian Households

This paper provides an empirical investigation on the effect that sources of income have on the savings behavior of Peninsular Malaysian households. It is shown that the marginal propensities to save out of earned income representing returns to labor, and other income representing returns on capital are .45 and .71 respectively. The results imply that household savings can grow 105% and 41% of the growth in the two types of income, with the implication that household savings can be relied upon as an important source for investments in the economic development of the country.

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Introduction

Malaysia has set forth an ambitious national development plan to achieve the status of a fully developed nation by the year 2020. The economy is poised for high performance based on optimistic high rates of domestic savings, private investment, and an accelerated growth of exports.

The mobilization of savings is a paramount prerequisite for capital formation and hence, national development. Historically, Malaysia has been able to maintain a level of savings which is ranked amongst the highest in the world. The ratio of savings to gross national product had increased steadily from an average of 18% in the 1960s to an estimated 32.3% in 1992. This high rate of savings has enabled Malaysia to achieve a high rate of economic growth, averaging 8.3% per year during the 1987-92 period (Yan, 1993).

The dearth of empirical evidence on household savings in Malaysia is primarily due to the unavailability of data on household savings. Most of the studies ignore the sectoral components of savings, with their varied behavior and focus instead on aggregate savings accomplishments.

Whereas, this approach may produce simple and useful short-run forecasts, it offers only limited insight into the understanding of savings decision-making processes. Understanding of household's savings behavior is crucial in formulating domestic macroeconomic and microeconomic policies Malaysia household's ratio of personal savings to disposable income ranged from 30.9% in 1987 to 16.3% in 1992 (Yan, 1993). Even though the method used in deriving these ratios utilized proxies for household income and consumption expenditures[3], the figures indicate the importance of household savings as a component of the aggregate savings in Malaysia and dramatize the need for an in-depth analysis of the determinants of household savings.

Using data from the Second Malaysian Family Life Survey, the objective of this paper is to provide an analysis of household savings behavior in Peninsular Malaysia. It examines the impact on savings of different types of income as well as selected sociodemographic characteristics.

The Saving Function and Hypotheses

Following Modigliani and Brumberg (1954), we start with the following simple version of life-cycle model of savings simulating the behavior of households in peninsular Malaysia:

$$S=a+b_1Y+b_2A+b_3W+b_4N \qquad (1)$$

where S is savings per year for the household, Y is the household after-tax income per year, A is the age of the respondent, W is the net worth of the household, and N is the number of persons.

The early work of Friend and Kravis (1957), and Houthakker (1961)

asserted that income recipients have different savings behavior depending on the source of income regardless of its size. The empirical evidence of studies that followed on savings by sources of income, points towards higher average and marginal savings rates of non-wage income (Gupta, 1970; Holbrook & Stafford, 1971; Kelley & Williamson, 1968).

In this study, household income is subdivided into two types. Earned income represents returns to labor in the form of wages and salaries, and other income represents returns on capital and includes interest on savings, dividends from stock, government and other pensions, and rent from land or other properties. It is hypothesized that the marginal propensity to save from other income would be larger than that from earned income.

Empirical evidence indicates that the effect of age on savings could be either positive or negative (Kumcu, 1989). Therefore, there is no aforestated hypothesis regarding age in this study.

In a life-cycle model of savings behavior, the importance of net worth as a determinant of savings is recognized. However, this datum is not available in the survey. Instead, we have utilized a proxy measure of household net worth, a dummy variable distinguishing households who own some kind of property.

Theoretically, if the property owned is purchased on credit and still is being paid for, we generally would expect a negative impact of property ownership on the savings of households. However, if the property owned has already been paid for, we might expect a positive relationship between property ownership and savings.

A similar variable representing household property ownership was used by Kumcu (1989). A significant and positive coefficient was found in that study. It is hypothesized, however, in this study, that property ownership would have a negative impact on household savings since the majority of the Malaysian households purchase property on credit.

As household size increases, other things being equal, a larger share of its income will be allocated to the consumption of its members. Therefore, the relationship between household size and savings is expected to be negative.

In order to permit variation in the savings function due to marital status, ethnicity, type of husband's employment, husband's occupation, urbanization, and wife's labor force participation, these variables are also included. To allow for a non-linear response of savings to the two types of income, the square of each type of income is added to equation (1). In addition, interactions between the two types of income and marital status are also tested. Thus, the extended saving function will take the following form:

$$S = a + b_1Y_1 + b_2Y_2 + b_3A + b_4W + b_5N + b_6MS + b_7E + b_8HE + b_9O + b_{10}U + b_{11}WL + b_{12}Y_1^2 + b_{13}Y_2^2 + b_{14}(Y_1 \times MS) + b_{15}(Y_2 \times MS) \quad (2)$$

where Y_1 is earned income, Y_2 is other income, MS is a dummy variable for marital status, E is a vector of ethnicity dummy variables, HE is a vector of type of husband's employment dummy variables, O is a vector of occupational dummy variables, U is a dummy variable distinguishing urban and rural households, and WL is a dummy variable distinguishing households with wives in the labor force.

Method

The data analyzed in this study are drawn from the Second Malaysian Family Life Survey. The survey was conducted over the period, August 1988-January 1989. The data comprise one of four samples of the household population of Peninsular Malaysia. The sample consists of 2,184 women aged 18-49 at the time of the initial visit, of which 1,496 provided complete information on the variables used in the analysis. Regression technique is used to estimate the impact of various household variables on savings.

Variables

The sample means of the variables used in this study are reported in Table 1. The following is a description of the variables.

Earned income - the reported yearly figure of after-tax income for the household and represents returns to labor in the form of wages and salaries.

Other income - the yearly returns on household capital, including interest on savings, dividends, pensions, and rent from land or other properties.

Savings - the portion of total income not consumed per year.

Household size - the number of people in the household.

Age - age of the respondent in years.

Marital status - 1, if the respondent is not married (never married, widowed, divorced, separated); 0, if married.

Table 1
Sample Means of Variables

Variable	Mean (N=1496)
Earned income (in M$)	12,970
Other income (in M$)	3,233
Savings (in M$)	5,559
Household size	5.14
Age (years)	31.57
Marital status	.096
Property ownership	.175
Ethnicity	
Chinese	.231
Indians	.188
Type of husband" s employment	
Paid employee	.691
Self-employed	.181
Employer	.049
Occupation	
Sales	.098
Craft	.017
Technical	.060
Operatives (assemblers)	.066
Operatives (transportation)	.076
Laborer (non-farm)	.067
Laborer (farm)	.220
Service	.184
Clerical	.038
Urban	.423
Wife's labor force participation	.475

Property ownership - 1, if the household owns some kind of property (i.e. land, house); 0, otherwise.

Ethnicity - 1, if the respondent is either Chinese or Indian; 0, if the respondent is Malay.

Type of husband's employment - 1, if either paid employee, or self-employed (persons who work for profits or fees in their own business, farm, shop, office, etc. and do not employ others to help them), or employer (persons who run an enterprise and employ others to help run its business); 0, if unpaid family member (person who works for no pay on a family farm or business. Room and board, food, and a cash allowance are not counted as pay for family workers).

Occupation - 1, if belongs to any of the following: sales, craft, technical, operatives (assemblers), operatives (transportation), laborer (non-farm), laborer (farm), service, and clerical; 0, if managerial.

Urban - 1, if respondent lives in urban areas; 0, if rural.

Wife's labor force participation - 1, if wife is employed full-time in the labor market; 0, otherwise.

Findings and Discussion

The regression results given in Table 2 relate to the savings function represented by equation (2), where the variables are defined as in the previous section above.

The theory and empirical results of research on savings behavior of households propose that the intercept of the savings function would not be significantly different from zero (Kumcu, 1989). The results of this paper support the theoretical and empirical evidence of past research by showing that the intercept (constant) of the savings equation is not statistically different from zero at the point .05 level.

The regression coefficients of earned income and other income representing the marginal propensities to save for the two types of income are .45 and .71 respectively, which are substantially higher than the average propensity to save of .34. Therefore, the elasticities of savings with respect to earned income and other income

Table 2
Regression Estimates of Savings in Peninsular Malaysia

Independent Variable	Regression Coefficient	Beta Coefficient
Earned income	.45***	.420
Other income	.71***	.664
Earned income squared (x 1.0E-05)	.16***	.166
Other income squared (x 1.0E-06)	.17	.019
Marital status	11.95	.000
Earned income x marital status	.06	.020
Other income x marital status	-.05	-.010
Household size	-244.34***	-.033
Age	-60.20***	-.028
Property ownership	-643.79*	-.016
Ethnicity		
Chinese	-3233.60***	-.092
Indians	-1035.81***	-.027
Type of husband's employment		
Paid employee	-953.53	-.030
Self employed	-659.18	-.017
Employer	-2502.67***	-.036
Occupation		
Sales	349.35	.007
Craft	1707.33*	.015
Technical	1118.88*	.018
Operatives (assemblers)	2164.86***	.036
Operatives (transportation)	1961.88***	.035
Laborer (non-farm)	1892.90***	.032
Laborer (farm)	1624.95***	.045
Service laborer	1883.39***	.049
Clerical	2377.51***	.031
Urban	-1206.97***	-.040
Wife's labor force participation	-567.62**	-.019
Constant	1331.81	
Adjusted R^2	.93***	

* P<.05
** P<.01
*** P<.001

(calculated at the means) are 1.05 and .41 respectively.

These results imply that household savings can grow 105% and 41% of the growth in earned household income and other household income respectively. If government policies in Malaysia are effective in sustaining a satisfactory rate of growth of earned income, household savings can be relied upon to grow slightly more than income.

The coefficient of earned income squared is positive and statistically significant, indicating that the marginal propensity to save rises as income increases (i.e. the response of savings to earned income is non-linear). However, the response of savings to other income does not exhibit such non-linearity as shown in Table 2.

The regression coefficient of household size is negative and statistically significant at .001 level. It indicates that household savings decline by M$244.34 a year for each additional member of the

household, other things being equal.

The age of the respondent is negatively associated with the amount of yearly household savings. Each additional year of the respondent decreases household savings by M$60.20 a year.

Property ownership has a significant and negative impact on savings of Malaysian households. This is due to the fact that the age of the respondent in the sample ranges from 18 to 49. One would expect that the majority of owners in this range of life-cycle are still paying for their property from current income and consequently saving less than their counterparts who do not own property, other things being equal.

The results in Table 2, show that the ethnic Chinese and Indian households save less than the Malay households. Since the majority of the Malay households are Moslems, they are bound by the teachings of Islam to the payment of "zakat" (a constant ratio of net worth) to any or all of eight worthy causes specified in Chapter 9, verse 61 in the Quran. Since "zakat" is determined as a ratio of net worth and not only on income, the wealth-owner-households would tend to increase their saving ratio in order to prevent the level of their wealth from decreasing (Kahf, 1976).

The results indicate that a household with a husband whose employment is classified as an employer saves less than a household with a husband whose employment is classified as an unpaid household member. Also, the coefficients on the occupational dummy variables are positive and statistically different from that of the omitted category (managerial groups). This implies that occupation of the husband has an impact on the consumption pattern of the household that would lead to a different savings behavior.

Consistent with the results of previous research urban households save less than rural households, other things being equal (Kelley & Williamson, 1968; Kumcu, 1989). It has been argued in the literature that the relative instability of farm income and the permanent income hypothesis of consumption behavior jointly imply that the marginal propensity to save out of current income is apt to be higher for rural households than for urban households.

The results in Table 2 show that a household with a wife in the labor force saves M$567.62 a year less than a household with a wife as a homemaker. The independent variables in the savings equation explained 93% of the variability in the yearly savings of the Malaysian households, a remarkably good statistical fit for cross-section analysis. The beta coefficients in Table 2 indicate that other income, earned income, and earned income squared are the most important variables in explaining the variability in the savings of the Malaysian households. A stepwise regression performed on the data shows that other income explain 64% of the variability in savings. Other income and earned income jointly explain 89.9% of the variability, and when earned income squared is included in the equation, the three variables explain 91.1% of the variability in savings. Therefore, other variables in the equation only added 2.9% to the explanation in variability of households savings.

Conclusions and Implications

Malaysia is pursuing an optimistic aggressive economic development plan with the goal of achieving the status of a developed country in the year 2020. The availability of savings, particularly household savings plays a vital role in the realization of high rate of economic growth.

Empirical evidence on the determination of household savings in Malaysia is sparse and national surveys on household savings are lacking. In this paper an attempt was made to fill this void, by analyzing the savings behavior of Peninsular Malaysian households. As its basis, it used the Second Malaysian Family Life Survey.

Although the survey was primarily designed to provide data covering fertility related issues, information was also collected on earnings, expenditures, assets, employment, and other variables. Thus, savings were derived residually from the reported income and

consumption expenditures.

The sources of income effect on savings was examined by relating savings to earned income representing returns to labor, and "other income" representing returns on capital. It was observed that the propensity to save out of "other income" was higher than the propensity to save out of earned income.

The estimated saving elasticities with respect to earned income and "other income" were 1.05 and .41 respectively, implying that household savings can grow 105% and 41% of the growth in the two types of incomes.

The implication of the findings is that household savings in Malaysian can be relied upon as an important source for investments needed in the economic development of the country should the country's current and future economic policies continue to be effective in maintaining a satisfactory rate of growth of earned income.

From a theoretical point of view, our savings model shows that the two types of incomes explained the major part of the variability in the Malaysian household savings behavior (91.1%). Other sociodemographic variables only added very little to the explanation of variability to household savings.

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Endnotes

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3. Savings = Income-Private consumption; where, income is derived using the "adjusted gross product" approach, i.e.[Gross National Product - (capital depreciation and undistributed corporate profits + surplus of non-financial public enterprises + taxes)] and private consumption includes household as well as corporate consumption expenditures.

Factors Related to Household Saving

The 1983 and 1986 SCF panel data were used to explore the effect of income uncertainty, expected income growth, and demographic characteristics on saving (non-housing asset increase.) The independent variables accounted for 69% of the variance in saving. Income uncertainty was positively related to saving. A positive relationship was found between expected income growth and household saving. White Non-Hispanic households had higher predicted saving for positive income growth and greater dissaving for negative income growth, compared to other racial/ethnic groups.

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A household's saving represents a decision to either increase asset accumulation or to consume less of current income in order to meet household financial goals. Motives to save include retirement, precautionary saving and bequests (Sturm, 1983). This paper identifies factors related to household non-housing asset accumulation (saving) in a two-period time frame.

The Literature

Life Cycle Hypothesis

The life cycle hypothesis of saving has saving for retirement as its basis (Modigliani and Brumberg, 1954). The hypothesis suggests that the build-up of assets in individuals' working lives is mainly to finance consumption after retirement when earned income is reduced. In the basic life cycle model, the household bases its decisions on events which are assumed to be known with certainty. Income, however, is neither constant nor certain. Households may accumulate extra assets to provide for emergencies or to allow for random income fluctuations.

Factors Related to Saving

The relationship between income uncertainty and saving has been discussed extensively in the literature of optimal saving and consumption (e.g., Leland, 1968; Levhari & Srinivasan, 1969; Sandmo, 1970; Mirman, 1971; Dreze & Modigliani, 1972; Hey, 1979, 1980; Skinner, 1985; Zeldes, 1989; Caballero, 1991). Income uncertainty can be measured by a variance measure (σ^2) of expected future income (Leland, 1968; Sandmo, 1970). An increase in income uncertainty should lead to an increased demand for precautionary saving (Leland, 1968; Levhari & Srinivasan, 1969; Sandmo, 1970; Mirman, 1971; Dreze & Modigliani, 1972; Hey, 1979, 1980; Skinner, 1988; Zeldes, 1989; Caballero, 1991).

The rational expectations life cycle-permanent income hypothesis refines the basic life cycle model by considering the role of income variability in saving behavior. The refined hypothesis suggests that consumers estimate the probability distributions of lifetime resources and adopt sequential policies for spreading resources over time (Hall, 1978). Therefore, saving may be in anticipation of a decrease of income (Campbell, 1987).

Individuals differ not only according to the degree of income uncertainty that they face but also according to their risk attitudes. A consumer with greater aversion to risk would have a larger precautionary demand for saving.

Lastly, the level of asset accumulation is affected directly by different household demographic and economic characteristics (Solmon, 1975; Hefferan, 1982; Mullis, 1984). Empirical studies of income uncertainty also have shown that households with different demographic and economic characteristics are subject to different degrees of

income variability (Fisher, 1956; Mirer, 1974; Bensus, 1974; Grosse & Morgan, 1981). The studies have not, however, had consistent findings in terms of the effects of household characteristics on levels of household saving.

Purpose of This Study

There have been few empirical analyses of the impact of income uncertainty, expectations of future income, and risk attitude on household asset accumulation. The present study aims to incorporate all possible factors which influence the household saving decision. Factors affecting household saving identified in this study include income uncertainty, expected income growth, static household demographic and economic variables, dynamic variables between two periods of time, expectational and attitudinal variables.

Methodology

Model

Given the assumption of a time independent and additive utility function, a general life cycle model of optimal consumption and saving with income uncertainty is used as the theoretical framework in this study (Chang, 1993.) The empirical analysis is confined to a two-period time frame. The model included a number of demographic variables, as well as variables related to income uncertainty and expected income growth.

Data and Sample

Data were drawn from the 1983 and 1986 Survey of Consumer Finances (SCFs), the most recent and usable panel data available from the survey. The survey instruments were designed to gather exhaustive detail on all household assets and debts, providing family financial information at two points of time. The 1983 and 1986 surveys allow a researcher to relate changes in a household's balance sheet and asset allocation to changes in the household's characteristics. This study used a weighted and imputed data file (Chang, 1993). A total of 2,116 households was used for the empirical analysis, with the special non-probability high income sample excluded.

Measurement of Selected Variables

A total of 87 independent variables was included in empirical analysis. In addition to variables directly available in the data set, this study constructed two other variables, expected real income growth and income uncertainty, to help explaining saving behavior.

Saving. This study adopts a balance sheet perspective and defines effective saving as the net increase in the amount of wealth (excluding the home) between survey dates. The net worth in both 1983 and 1986 were measured by gross assets excluding pension plus total net present value of pensions minus total debt. The measure of saving in this study excludes changes in net home equity. Although other components of asset accumulation could be unplanned, the increase in net worth from home appreciation may be unplanned.

Expected real income growth. Under the assumption that individuals hold rational expectations of future income, households should be able to predict their future income flows based on their demographic and economic characteristics, as well as expectations about future events related to income change. In this research, the expected real income of 1984-1985 is estimated from an income prediction equation which uses actual income of 1984-1985 as the dependent variable and the following independent variables measured as of 1983: household size, educational level of the respondent, race, age of the respondent, age squared, occupation of the respondent, marital status of the respondent, job status of the respondent, actual total household income, income squared and selected interaction terms between these variables. A stepwise regression analysis is used for estimation. The final regression model consists of 37 explanatory variables. The R^2 of the income prediction equation is 0.81 indicating that 81% of the variation in future income can be accounted for by the independent variables. Presumably, the other 19% of the variation could be characterized as

uncertainty. Results of income prediction regression equation are discussed in Chang and Hanna (1994).

Measurement of predicted income growth is straightforward once the real expected income of 1984-1985 is estimated. The expected income growth variable is simply equal to the difference between predicted 1984-1985 income and actual 1982-1983 income. Note that Consumer Price Index (CPI) from the 1983 respondent-interview month to the 1986 respondent-interview month increased 11.25% (Avery & Kennickell, 1988). To adjust the reported income to constant 1986 dollar amounts, the income for each was multiplied by the ratio of the 1986 CPI to that year's CPI. All expected incomes growths reported are thus the real expected income growths, and do not include the effect of inflation.

The mean of the real expected income growth was $4,486 and the median was $5,211. The lower 10% of the sample expected a real income decrease of $6,493, while the top 10% of the sample expected a real income increase of $16,665 between the 1982-1983 and 1984-1985 periods.

Income uncertainty. The theory of consumption and saving under uncertainty predicts that under income uncertainty, saving is a function of the risk aversion and the (subjective) variance of expected future income. This study develops a measure of cohort variability of the expected income growth to represent income uncertainty. The larger the variability, the larger the income uncertainty. Specifically, income uncertainty is measured by the standard deviation of the real expected income growth divided by a measure of permanent income, for groups of households classified by education, occupation, and age. Each of the characteristics consists of five categories, with a total of 125 household classification groups was identified. The variability measure is computed for each demographic group using the formula:

$$\frac{\sigma_{[E(I_{1984\text{-}1985})-I_{1982\text{-}1983}]}}{permanent\ income} \qquad (1)$$

where $\sigma_{\{E[I(1984\text{-}1985)]\text{-}I(1982\text{-}1983)\}}$ is the standard deviation of the difference between real expected 1984-1985 income and actual household 1982-1983 income for each group; permanent income is the average of the four-year incomes for each group (1982-1985). This approach gives an approximate measure for the unobservable income uncertainty in the model.

Method of Analysis

Stepwise regression analysis was used to estimate parameters of the saving equations. With stepwise regression, it is possible to test the potential effects of a large number of independent variables in an equation by dropping the insignificant variables from the regression run. Furthermore, the "best" subset of independent variables can be obtained with the stepwise search procedures (Neter, Wasserman, & Kutner, 1989). A list of variables included for possible entry into the saving equation is available from the first author.

Results

Between 1983 and 1986, 63% of the sample had a real increase in net worth and 60% of the sample had a real increase in net non-housing assets. The mean value of real non-housing asset accumulation between the two periods was $9,658, and the median value was $2,455. About 90% of the households did not change their marital status during the two survey periods; either staying married or staying single. Individuals who had no spouse in 1983 but had a spouse in 1986 had the highest average income growth and highest level of saving. During the same period of time, household size stayed constant in about two-thirds of the sample. Households with an increase of two family members had the highest increase in real income. Households with an increase of one family member had the highest level of saving. Households with a decrease of two family members had decreases in real income and saved the least.

Regression Results

The final step of regression had 18 independent variables, which explained 69% of saving. The regression results are presented in

Table 1 below. By including the dynamic variables available in the data set, and the variables of income uncertainty and expected income growth, the performance of the saving regression model was substantially better than other studies using the same data set. Avery and Kennickell (1991) achieved an R^2 of only 16% with the same data (although they included the non-probability high income sample in their analysis).

Table 1
Stepwise Regression Results

Variables	Coefficient
Income uncertainty	53.096
Net Non-Housing Assets in '83	-1.143
Net Non-Housing Assets in '83 x Age	0.015
Period 1 Income/1000	1390.092
Period 1 Income^2/1000000	-1.463
Risk Taking	24849.057
Craftsman	-85610.099
Change in # of earners	14864.486
Laid off in '83	93775.484
Employed in '83 and '86	-27578.382
Windfalls	0.897
Married in '83	-36500.258
Social Security Coverage	0.327
Exp. inc. growth x White	3.071
Exp. inc. growth x Age^2	-0.001
Exp. inc. growth x Edu=12 yrs	3.731
Exp. inc. growth x Self-employed	1.388
Exp. inc. growth x Craftsman	17.141
Intercept	-33162.529
R^2=0.692	

All variables significant at .05 level or higher. All figures reported are weighted; n=2,116

Net Non-Housing Assets in 1983 and Period 1 Income (1982-1983 income) were the two most important variables in determining household saving behavior as they entered the model first and explained more variation of the dependent variables than any other independent variables. Predicted saving increased with initial income and decreased with initial net non-housing asset levels. Predicted level of saving was $24,849 higher in for those who said they were willing to take above average risks with their investments than the level for otherwise similar households. The amount of windfalls received between the two survey years had a positive effect on household saving. For every dollar of windfalls received, household saving increased by 90 cents. This finding suggests that between 1983 and 1986, instead of consuming out of the transitory income, households saved a large fraction and only consumed a small fraction of the windfalls received.

As expected, in general, there was a significant and positive relationship between income uncertainty and saving. The results suggest a precautionary demand for non-housing asset accumulation as income being more uncertain.

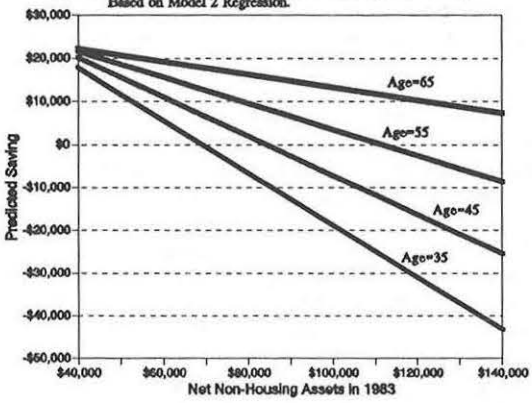
The interaction terms make interpretation difficult, so for illustration, graphs were produced, using simulations with assumed values for the independent variables. Except as otherwise noted, all independent variables are assumed to be at the mean levels for the entire sample. It should be noted that the predicted levels of saving may be distorted for particular combinations of variables, but general patterns are illustrated.

Net non-housing assets, age, and saving. Net Non-Housing Assets alone had a negative effect on saving. The interaction term for Age and Net Non-Housing Assets, however, was positively related to saving. The predicted relationships between saving and initial Net Non-Housing Assets for selected ages (and at the mean values of other variables) are presented in Figure 1. The graph clearly shows that the overall effect of Net Non-Housing Assets on saving was dependent on the age of the households. In general, Net Non-Housing Assets had a negative effect on saving except for the very old households (age 75 or older). The younger the household and the larger the Net Non-Housing Assets the household held, the smaller the amount saved. Households aged 35 had negative predicted saving if their initial non-housing assets amounted to $70,000 or more. At age 45, predicted saving was negative for initial non-housing asset levels of $85,000 or more. For ages of 55 and higher, predicted saving was negative for initial non-housing asset levels of $112,000.

Within the range of initial net non-housing assets considered in the

graph, Age was positively related to saving. Furthermore, the gaps in saving levels among different age groups become larger as initial net non-housing assets increased.

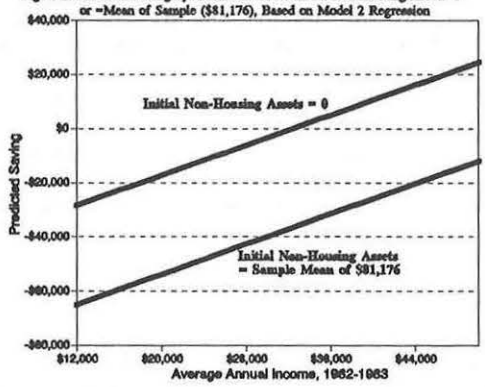
Figure 1. Predicted Saving by Initial Net Non-Housing Assets and Age Based on Model 2 Regression.



Period 1 income and saving. Both Period 1 Income and Period 1 Income Squared entered the regression. Predicted saving increased with Period 1 income, although at a decreasing rate as income increased. To illustrate, in Figure 2, the horizontal axis is shown as the average annual income for Period 1, and the vertical axis is predicted saving, based on the assumption that all independent variables were at the mean levels for the sample, except for initial Non-Housing Asset Level, which was assumed to equal zero for one simulation and the mean level for the sample ($81,176) for the other simulation. For initial Non-Housing Assets of zero, predicted saving was negative for households with average annual incomes in Period 1 below $33,000 per year (Figure 2). For initial Non-Housing Assets of $81,176, predicted saving was negative until average annual incomes n Period 1 reached $60,000 per year.

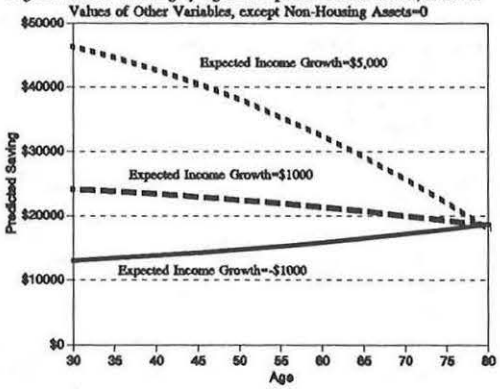
Many households, especially the young ones, do not initially have non-housing assets. In order to focus on the effects of variables on saving for households who did not initially have non-housing assets, in two simulations reported below, it was assumed that initial non-housing assets equalled zero, and that all other independent variables (other than those being discussed) were at the sample mean values.

Figure 2. Predicted Saving by Income Level for Initial Non-Housing Assets=0 or =Mean of Sample ($81,176), Based on Model 2 Regression



Expected income growth, age, and saving. Figure 3 shows the relationships between saving and age for three levels of expected income growth. For those who could have predicted an income increase of $5,000 and $1,000, predicted saving decreased with age. For those who could have predicted a decrease in real income of $1,000 the predicted saving level increased with age.

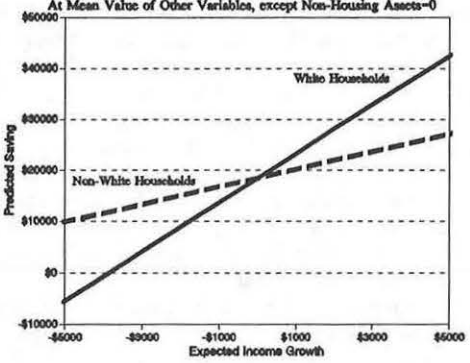
Figure 3. Predicted Saving by Age and Expected Income Growth, At Mean Values of Other Variables, except Non-Housing Assets=0



At the mean value of all other variables, White Non-Hispanics had predicted saving $13,775 higher than other groups. All other things equal, White Non-Hispanic households had higher predicted levels of saving, *if* the Expected Income Growth was positive. The reverse pattern held if the Expected Income Growth was negative -- White Non-Hispanic households had greater predicted dissaving. As Figure 4 shows, for expected income growth of $5,000, predicted saving was $42,491 for White Non-Hispanic households and $27,139 for Non-White households. If

these two groups had equal amounts of money to invest, apparently Non-White households were less successful in investing than White households. On the other hand, for expected income growth equalled $-5,000, Non-White households had predicted saving of $10,006, but White households had predicted dissaving of $5,346. It is possible that White households had better access to credit.

Figure 4. Predicted Saving by Race and Expected Income Growth, At Mean Value of Other Variables, except Non-Housing Assets=0



Effects of other factors on saving. All other things equal, households who said in 1983 that they were willing to take above average or substantial risks to obtain a higher return on investments accumulated $24,849 more between 1983 and 1986 than those who were only willing to take average or no risks in investments.

The only education term to enter was interaction of education equals 12 years and expected income growth entered the regression. At the mean values of other variables, respondents who had 12 years of schooling saved $13,182 more than respondents with other educational levels. Those who were married in 1983 had predicted non-housing asset accumulation lower than those who were not married in 1983, holding other things constant.

Of the eight dummy variables indicating different occupations of the households, only Craftsman and Self-employed entered the regression. The coefficient of Craftsman was large and negative, however, coefficients of interaction terms of expected income growth and craftsman and expected income growth and self-employed were positive. Overall speaking, at the mean value of other variables, households in self-employed occupation saved $8,927 more than households in other occupations and saved $14,941 more than households in craftsman occupation.

One variable indicating dynamic employment status of the household entered the regression. The results showed that households who were employed in both survey years saved significantly less than those with other patterns of employment status between 1983 and 1986.

The amount of windfalls received between the two survey years had a positive effect on household saving. For every dollar of windfalls received, household saving was increased by 90 cents. This finding suggests that between 1983 and 1986, instead of consuming out of this transitory income, households saved a large fraction and only consumed a small fraction of the windfalls received.

Change in number of earners was found to affect household saving positively. The results showed that each additional earner in the labor force between 1983 and 1986 was associated with a $14,864 increase in asset accumulation.

A positive relationship was found between amount of social security coverage and non-housing asset accumulation. For every dollar increase in the amount of social security coverage, household asset accumulation was increased by 33 cents.

Among the variables that did not enter the regression were household size, gross value of pensions (as estimated by the Federal Reserve), and whether the respondent owned a home in 1983.

Conclusions And Implications

Some important conclusions emerge from this study. The first is that there is strong evidence of a precautionary demand for asset accumulation, at least within the context of sources considered in this study. This study also shows that any attempt to estimate asset accumulation/saving functions without considering sources of uncertainty may be misspecified, which might lead to inaccurate forecasts of household

saving behavior and a consequent reduction in the explanatory power of the equation.

The results provide another confirmation of the theoretical expectation that saving will be higher for households facing greater income uncertainty. However, the generally positive relationship between expected income growth and saving casts doubt upon the proposition that people behave the way assumed by the rational expectations/life cycle model. Some explanations of the results are that the measure of saving in this study is realized saving rather than planned saving, and the value of assets may change due to unexpected changes in market value, or people may just be slow in adjusting their consumption to changes in income, so that increases in income will show up as increases in assets.

The lack of significance of the home ownership variable does not support the existence of a tradeoff between housing and other assets, but clearly a more complex analysis of this issue would be appropriate.

The results show that those with a high level risk tolerance accumulated more than those with low risk tolerance. It is possible that those who state that they have a low risk tolerance do not understand the variety of risks they face, and focus on the short-term fluctuations of the stock market and similar investments with a high average real rate of return. Households who receive windfalls, such as inheritances, tend to invest most of their windfalls.

Households with annual incomes below $33,000 per year in 1983 (roughly equivalent to $47,793 per year in 1993) and zero initial Non-Housing assets had predicted accumulations less than zero. An income of $33,000 per year in 1983 could be interpreted as a threshold level for positive accumulation of non-housing assets, at least at the average age and average levels of other variables except initial assets. For those with substantial initial assets, the threshold income for asset accumulation was at a higher level.

The finding that predicted *dissaving* was greater for White households than for non-White households when expected real income growth was negative, suggests that either discrimination or lack of information may be a serious problem for non-White households. Clearly, non-White households will provide an important market for financial services and education in the future.

The significance of the interaction term between White Non-Hispanic and Expected Income Growth also has possible implications for public policy. On the one hand, there is some evidence of a lack of access to credit for those other than White Non-Hispanics. On the other hand, there is evidence that White Non-Hispanics who have positive Expected Income Growth are much more successful in accumulating assets than are other groups. A combination of educational programs and stricter regulation may be needed to deal with these two problems.

There is no consistent evidence that persuasion or education programs will increase the amount of saving. More vigorous economic growth that helps more segments of the population to increase their income growth would help increase saving. At the same time, greater income uncertainty for individual households should increase the saving rate, but policies designed to accomplish that goal would probably not be politically palatable. It is possible that a national health system would decrease the saving rate. As the population ages, the saving rate should increase.

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Endnotes

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Saving Motives and Saving Behavior of the Elderly

Saving motives of the elderly were measured by reported saving reasons. Effects of saving motives on the incidence of saving, the level of total savings, and levels of savings in several asset categories were investigated. Probit and multiple regression results revealed that some reported saving reasons had negative effects on the incidence of saving, savings in paper assets, cash values of life insurance, and stock accounts, and a positive effect on savings in equity of primary residence.

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Saving behavior of the elderly has been extensively studied. Saving motives were often indirectly examined in many studies. However, the associations between saving motives and saving behavior were rarely examined. The purpose of this study is to investigate the association between saving motives and saving behavior of the elderly. Here, "the elderly" refer to people at near or after retirement age. This study attempts to examine the effects of saving motives on the incidence of saving, the level of total savings, and levels of savings in various asset categories. Considering the economic diversity of the older population (Burns, 1990; Zhong, Titus, & Johnson, 1993), several socio-economic characteristics were used as control variables when the investigation was undertaken.

Literature Review

In reviewing several saving models it was observed that people nearing their retirement ages exhibit different saving behavior. The assumption that elderly people dissave after retirement is central to the Life Cycle Hypothesis of Savings (Ando & Modigliani, 1963). Dissaving is also consistent with the other widely accepted theories of consumption behavior, the Relative Income Hypothesis (Duesenberry, 1949) and the Permanent Income Hypothesis (Friedman, 1957). In both theories, the assumption is that a decline in current income will lead to a decline in consumption as well as in savings (Stoller & Stoller, 1987; Bryant, 1990).

An opposing view is offered by another competing model of saving, the inter-generational transfer model (Barro, 1978; Kurz, 1984). This model posits that people will save more as they get older and these savings will be for their children and grandchildren. The behavioral life-cycle hypothesis views saving behavior in a different perspective (Shefrin & Thaler, 1988). It argues that people's propensities to consume from different asset categories are different.

Recent findings have challenged some of the above theories in indicating that the elderly as a group continue to save rather than dissave and many are able to avoid substantial decumulation of assets after retirement. Using the data from six waves (1969-1979) of Retirement History Survey, Hogarth (1991) identified five patterns of saving behaviors among the elderly (aged 58 to 63 in 1969), in which only 4.2% of the sample showed a continuing dissaving pattern, in contrast to those who had a continuing saving pattern (43.5%).

Hammermesh (1984) reported that the post-retirement decline in income led to consumption expenditure levels initially exceeding income. A downward adjustment in consumption shortly following retirement, however, soon leaves consumption spending below disposable income for the average retired couple (Stoller & Stoller, 1987). Danzier (1982) and his colleagues and Mirer (1979) also concluded that the elderly continue

saving during retirement, and they save a higher proportion of their income than other groups.

In investigating the individual household saving behavior, Davis and Schumm (1987) found that family income and wealth (in terms of total assets and home ownership) showed a strong relationship to savings. One would expect that a household's income would be a major determinant of its level of savings (Foster, 1981; Hefferan, 1982). However, a household's wealth is a better predictor of the level of savings: the greater the family's wealth, the more it is likely to save (Hefferan, 1982). Education of the household head also had a significant relationship on the level of savings (Hefferan, 1982).

Various types of retirement preparation are greater among older age groups and presumably retirement planning increases with age. Evans, Ekerdt, and Bosse (1985) found that proximity to retirement was a significant predictor of the amount of preparation regardless of the attitudes held about retiring. Some researchers have suggested that pre-retirees may be preparing for retirement as early as 15 years prior to retirement (Kilty & Behling, 1986; Block, 1984). Retirement preparation consists of activity that some suggest is least pursued by those who need it the most (Beck, 1984; Fillenbaum, 1971). Fillenbaum, George, and Palmore (1985) reported that the perceived adequacy of their incomes motivate those of upper economic levels to take action to preserve their current standard of living as much as possible during retirement.

Some of the reasons why retired people want to continue to save and accumulate assets are to even out the irregularities in the flow of income coming to an individual, ability to pay for long-term health care, and avoidance of becoming a burden on adult children (Schulz, 1985). Davis (1981) reported a slow rate of wealth decumulation rather than continued accumulation and pointed out that uncertainty about the length of one's life is theoretically a rational reason for retaining wealth.

The literature on saving behavior can be summarized as follows: first, people approaching retirement age or those who have retired still save; and second, income, wealth, educational level, age, household size, home ownership, life cycle stage, and other household characteristics influence the saving behavior of the elderly. But there are several limitations that are evident in the previous studies. Saving motives are usually not explicitly investigated but implicitly assumed when modeling saving behavior. The second limitation is the lack of examination of the associations between saving behaviors and saving motives. The third limitation is that previous studies treated savings as an aggregate variable, which means savings in checking accounts has the same connotation as savings in stock accounts. This study attempted to fill some of these research gaps.

Hypotheses

The research hypotheses for this study are the following.

H_1: Saving motives have positive effects on the decision to save.

H_2: Saving motives have positive effects on the level of total savings.

H_3: The effects of saving motives on savings in different asset categories will differ. Some motives may have positive effects on savings in some asset categories, and no effect in some other asset categories.

The first two hypotheses are straightforward. If the elderly have saving motives, the likelihood of being savers or the level of total savings should be higher than those who do not have saving motives, given that the other conditions remain the same.

The third hypothesis was formulated based on the framework of the behavioral life-cycle hypothesis (Shefrin & Thaler, 1988). One of the major differences between the behavioral life-cycle hypothesis and other competing saving models was whether release the fungibility assumption. In other competing saving models, such as the traditional life-cycle model, the permanent income model, or the inter-

generational transfer model, savings in different asset categories were treated as identical and freely exchangeable. However, in the behavioral life-cycle hypothesis, savings in different asset categories were treated as unique and unexchangeable. It assumed that consumers have different propensities to spend from different asset categories, which implied that saving behaviors in different asset categories were dissimilar. Thus, effects of saving motives on savings in different asset categories would be different. If some asset categories were not considered relevant to a certain saving motive, the saving motive would have no effect on savings in these asset categories.

Methodology

Data

Panel data from the Survey of Consumer Finances collected in 1983 and 1986, by the Survey Research Center at the University of Michigan, and sponsored by the Federal Reserve Board and several other federal agencies were used (Avery, Elliehausen, & Kennickell, 1987). Respondents aged 55 years or older in 1983, and those interviewed in both waves were selected for this study, but high income samples drawn from tax files were excluded. The final sample size was 811.

Two features of this data set were especially helpful for this study. The survey provided data on saving motives as reported by the respondents. The saving motives data were collected in 1983, and the savings between 1983 and 1986 in various asset categories were also included in the data set.

Variables Measuring Saving Motives

Saving motives were measured by several reported saving reasons. In the original survey questionnaire, the respondents were asked to answer an open-ended question, "What were the household's most important reasons for saving?" Based on respondents' answers, two variables indicating the most important saving reasons were coded and included in this data set. For each variable, 25 categories of saving reasons were recorded (Avery & Elliehausen, 1988). Based on these categories, the reported saving reasons were recoded into six dummy variables: DAILY (saving for daily expenses), PURCHASE (for purchase plans), EMERGE (for emergencies), RETIRE (for retirement), CHILD (for children or grandchildren), GROW (for a better life, advancement of standard of living, or other intangible reasons). For example, if a respondent mentioned "save for daily expenses", DAILY would be coded as 1, otherwise, it would be 0.

Variables Measuring Saving Behavior

Several dependent variables were constructed to measure the saving behavior of the elderly. They were assessed by the dollar value differences between 1983 and 1986, adjusted for the price change.

NETWORTH (change in value of net worth) measures the total savings. Variables measuring savings in different asset categories were the following: PAPER (change in value of all paper assets), EQUITY (change in value of the equity of primary residence). Changes in values of eight paper asset categories were also included: CHCK (checking and savings accounts), CD (certificate deposits and money market accounts), IRA (retirement accounts), THRFT (all other saving plans), LIFE (cash value of life insurance), BOND (all bonds excluding ones in IRA), STCK (all stocks excluding ones in IRA), and OASST (other assets). NW was a dummy variable measuring the incidence of saving or dissaving.

Control Variables

Based on the literature review (Hefferan, 1982; Davis & Schumm, 1987; Hogarth, 1991), variables that might influence the saving behavior of the elderly were included as control variables when the associations between saving motives and saving behaviors were examined. They are INC83 (annual income of the household in 1983), NETWTH83 (net worth of the household in 1983), HHSIZE (total number of persons in the household), OWNHS (a dummy variable indicating home ownership status), JOB (a dummy variable where 1 = working more than 20 hours a week, and 0 = otherwise), RACE (race

of the household head), AGE (age group of the household head), SEX (gender of the household head), ED (years of education of the household head), MARRY (marital status of the household head), and SMSA (geographic location of the household).

Procedures

A Probit model was used to test the first hypothesis, H_1, and investigate the incidence of being savers or dissavers. To test the second and third hypotheses and examine associations between saving motives and saving behavior, the following model was formulated:

$$S_i = \alpha_i + \Sigma\alpha_{ji}M_j + \Sigma\alpha_{ki}C_k + \mu_i \quad (1)$$

where: S_i = savings in asset category i or total savings; M_j = saving motive j; C_k = Control factor k; α_i, α_{ji}, α_{ki} = coefficients to be estimated, μ_i = effects of all uncontrolled factors.

Multiple regression models were used when the dependent variable was (1) the total savings (NETWORTH), (2) the total savings of the "saver" group (if NETWORTH>0) or the "dissaver" group (if NETWORTH<0), (3) savings in PAPER or EQUITY, or (4) savings in one of eight paper asset categories: CHCK, CD, IRA, THRFT, LIFE, BOND, STCK, and OASST.

The first and second sets of regression models tested the second hypothesis, H_2. The purpose of the second set of regression model was to explore whether or not there were systematic behavioral differences between "savers" and "dissavers". The third and fourth sets of regression models examined the third hypothesis, H_3, to test if the effects of saving motives on savings in different asset categories were different.

Findings and Discussions

Saving Motives and Saving Behavior

Only "saving for purchase" and "for retirement" influenced the incidence of saving or dissaving (Table 1, Column 2). Respondents who reported these two reasons were less likely to be savers, which refuted the first hypothesis, H_1. "Saving for emergency" and "for retirement" had the same negative effects on total savings (Table 1, Column 3). When the sample was disaggregated into "saver" and "dissaver" groups, no effect of saving motives on total savings was found (Table 1, Column 4 and 5). All of these findings were not consistent with the second hypothesis, H_2.

All saving motives except "saving for children" and "for retirement" had negative influences on savings on paper assets (Table 1, Column 6), which rebutted the third hypothesis, H_3. "Saving for emergency" and "for children" had positive impacts on savings in the equity of the primary residence (Table 1, Column 7), which was consistent with Hypothesis Three.

Among eight paper assets, savings in two categories were influenced by saving motives to some degree. Savings in STCK were negatively affected by all saving motives but "saving for children" and "for retirement" (Table 2, Column 5). Only "saving for purchase" negatively influenced savings in LIFE (Table 2, Column 4). These findings were not consistent with Hypothesis Three.

The majority of the findings provided evidence against the proposed hypotheses. There are several possible explanations for these inconsistencies. The first possibility is that the elderly would like to save but are unable to do so and hence the saving motives did not have positive effects on savings. Further, saving motives reported by the elderly may be better indicators of perceived financial needs. They wish they could save for some reasons, but they lacked resources to achieve these goals.

Table 1
Effects of Saving Motives and Control Variables on Total Savings and Savings in Asset Categories

	NW	NETWORTH	NETWORTH[b]	NETWORTH[c]	PAPER	EQUITY
Sample size	776	776	402	374	776	776
Saving Motives						
DAILY	-.361	-39582	-38457	-23086	-36010*	10011
PURCHASE	-.446*	-22440	16171	-13414	-21697*	3199
EMERGE	-.205	-33939*	-2303	2712	-22747*	9336*
RETIRE	-.467*	-44133*	2921	-23815	-22389	833
CHILD	-.144	22711	20653	-917	6379	11011*
GROW	-.206	-33788	-6440	-17072	-28611*	2987
Control Var.						
INC83	.18E-5*	.61*	.87*	-.075	.22	.42*
NETWORTH83	-1.73	-.075*	.48*	-.29*	.15*	-.036*
SMSA						
big city	.218	8383	-22925	23326	-701	8426*
small city	.0682	7963	5181	14362	15933	1327
rural area[a]						
OWNHS						
nonowner	-.244	-22031	3585	16896	-8844	1591
home owner[a]						
HHSIZE	-.0121	-7921	-5327	-1598	-3744	-573
RACE						
nonwhite	-.0315	1726	-6928	-11215	7608	-3459
white[a]						
MARRY						
unmarried	.248	-1260	-11990	803	-4520	-1824
married[a]						
JOB						
not work	.518*	17123	-8175	18182	19222	-2703
working[a]						
AGE						
55-64	-.240	-2194	22757	-10785	-15974	-3250
65-74	-.317	10817	5627	-19271	-12950	-1480
75 or older[a]						
SEX						
male	.261	9533	-9191	-12911	-1972	1138
female[a]						
ED						
<8 yrs.	-.764*	-89E3*	-33231	22313	-29861	4952
8-12 yrs.	-.544*	-74E3*	-35212	22686	-32452*	4149
13-15 yrs.	-.426	-64E3*	-54605*	53920*	-18534	7501
16 or more[a]						
F value		2.29	21.92	24.65	9.27	3.33
R^2		.06	.55	.59	.20	.09
Prob.		.0009	.0001	.0001	.0001	.0001
Log Likelihood		-503				

[a] reference category
[b] "saver" group
[c] "dissaver" group
* $p<.05$

Table 2
Effects of Saving Motives and Control Variables on Savings in Selected Paper Asset Categories

	CHCK	IRA	LIFE	STCK
Sample size	776	229	316	220
Saving Motives				
DAILY	-5392	1160	-11	-98128*
PURCHASE	1536	-7922	-648*	-61995*
EMERGE	-2197	-1338	-596	-53014*
RETIRE	2674	-8839	75	-40917
CHILD	936	-12150	-125	51395
GROW	-1747	-6388	-737	-78133*
Control Var.				
INC83	-.09	.086	-.0061	-.42
NETWTH83	.022*	.015	-.0011*	.21*
SMSA				
big city	-2533	-8246	-219	30578
small city	768	5180	229	55061*
rural area[a]				
OWNHS				
renter	645	6836	13	8152
home owner[a]				
HHSIZE	.24	1320	-11	-8283
RACE				
nonwhite	2204	-765	-73	-47534
white[a]				
MARRY				
unmarried	1268	948	287	26007
married[a]				
JOB				
not work.	2796	11643*	330	56859*
working[a]				
AGE				
55-64	-6407	2757	648	-38837
65-74	-6700	-2575	40	-23896
75 or older[a]				
SEX				
male	4284	4345	864*	-43239
female[a]				
ED				
<8 yrs	-3471	20416	149	-29056
8-12 yrs	2044	-4427	-347	-39960*
13-15 yrs	3787	-3967	518	1508
16 or more[a]				
F value	2.03	1.80	2.90	5.76
R^2	.0534	.1545	.1714	.3792
Prob.	.0043	.0202	.0001	.0001

[a] reference category
* $p<.05$

Control Factors and Saving Behavior

Current income, net worth, job status, educational level, and geographic location showed effects on being a saver, total savings, and savings in some asset categories. Household head's gender influenced savings in LIFE. Household head's age, race, marital status, home ownership status, and household size did not show any effects on all saving behavior variables (Table 1 and 2).

Some of the findings of this study concurred with the results of previous studies, such as the positive effects of income (Hefferan, 1982; Davis & Schumm, 1987; Hogarth, 1991), while other findings differed. For example, net worth exhibited mixed results: sometimes it had positive, and at other times negative effects on savings. More importantly, the above results showed that effects of these household characteristics on savings in different asset categories were different. Job status had positive effects on savings in IRAs and stock accounts, and no effects on savings in other asset categories.

Conclusions and Implications

A major limitation of this study is that voluntary and involuntary savings are not distinguished. A geographic variable was used to control some environmental factors of family saving behavior, which is far from enough and caution is needed when interpreting the results.

Keeping the above limitation in mind, the findings of this study can be summarized as follows: the reported saving reasons are better indicators of perceived financial needs instead of predictors of saving behavior. These reported saving reasons usually have negative impact on total savings or savings in some asset categories. The saving behaviors of "savers" and "dissavers" are different and saving patterns in different asset categories are dissimilar.

These results have implications for public policy makers. When surveys on saving motives are conducted, the meaning of these reported saving motives may be used as reflection of financial needs perceived by the elderly. Since the elderly treat their different accounts in dissimilar ways, policies that will influence private savings should take this factor into account.

Results of this study give practitioners of financial counseling and planning services helpful clues in effectively dealing with the elderly. Saving goals or reasons reported by older clients should be better interpreted as their perceived financial needs and corresponding measures should be taken into consideration to help plan or reorganize their finances. Their financial goals and the associations of these goals with various financial instruments should be explored and identified. Financial plans or advice for "savers" and "dissavers" should be different, as these two types of people behave in dissimilar patterns and exhibit different saving motives.

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Endnotes

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Expectations for the Future, Attitudes Toward Credit and the Use of Consumer Loans

3143 households from the 1989 Survey of Consumer Finance were analyzed to examine the influences of expectations for the future, attitudes towards credit and financial risks on the use of consumer loans. The results of the Tobit model indicate that negative attitude toward future economy and positive attitude toward credit are associated with more use of consumer loans.

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Introduction

The changes in the population and economic conditions have led to numerous studies of socio-economic factors associated with consumer credit use (Avery, Elliehausen & Canner, 1984; Avery, Elliehausen & Kennickell, 1987; Duca & Rosenthal, 1991; Danes & Hira, 1986; Dunkelberg & Stafford, 1971; Heck, 1983, 1987; Luckett & August, 1985; Sullivan & Worden, 1986). However, most prior research focused on the relationship between household debt use and demographic characteristics. Factors of consumer psychology were hardly discussed. Limited studies have dealt with the effect of consumer attitude toward credit on credit use (Danes & Hira, 1986; Duca & Rosenthal, 1991; Heck, 1983, 1987; Sullivan & Worden, 1986). The influences of expectations for future economy, and perceived financial risks, left to explore. The need to examine these psychological effects on credit use can be supported by the cyclicalty of the U.S. economy (Avery, Elliehausen & Kennickell, 1987) which may affect consumer expectations toward the future, and therefore affect current credit behavior.

Life cycle theory (Ando & Modigliani, 1963; Thurow, 1969) provides a theoretical explanation of how households optimize and maintain the available income resource by saving and borrowing over time. This implies that the psychological mechanism of consumer mental accounting and the forecasting of the future may exist beyond the visible behavior of savings and borrowings, and is of great interest to study.

Based on a need to expand the focus of previous research, the intent of this paper is to study the relationship between the use of consumer loans and consumer expectations for the future, attitudes towards credit and financial risks, and socio-economic factors. Because of a plethora of research on the installment debts such as credit card revolving and mortgage debts in the past (Canner, 1988; Canner & Luckett, 1992; Garcia, 1980; Heck, 1983, 1987; Sullivan & Worden, 1986; Sullivan, 1987), the use of consumer loans is selected in order to contribute to the knowledge of this type of credit.

Literature Review

Expectations for Future

Few studies have examined the effects of consumer expectations for the future on credit holding. Heck (1983, 1987) proposed that respondents' expectations of future general economic conditions and individual financial situation are important in determining credit card holding and utilization behavior. Consumers with positive expectations toward future financial situation were found more likely to possess and use general purpose credit cards. Those who expect better future economic conditions were found more likely to hold special account cards. Also, consumers who expect a growth in real income are more willing to borrow (Fan, Chang & Hanna, 1992). A decrease in interest rates contributes to more credit use

(Avery, Elliehausen & Kennickell, 1987). If consumers expect higher future interest rates, they would use more credit now when the rates are relatively lower. In relation to the use of consumer loans in the study, consumers who expect it better for future economic conditions and individual financial situation, are hypothesized to use more consumer loans now. Consumers who expect future interest rates to be higher, will use more consumer loans.

Attitudes towards Credit and Financial Risks

Attitude toward credit has been widely studied and has shown consistent findings. McAlister and Kinsey (1979) found that a positive attitude toward consumer credit increases the likelihood of possessing credit cards. This finding is supported by other research (Duca & Rosenthal, 1991; Sullivan & Worden's, 1986). People who feel it all right to borrow will hold more credit (Duca & Rosenthal, 1991). Heck (1983, 1987) found that a negative attitude toward credit has a negative effect on credit card holding and utilization. Therefore, it is hypothesized that consumers who feel positive toward credit will use more consumer loans than consumers who feel negative.

The effects of perceived financial risks on credit use are found to be positive. Families that are more willing to take financial risk are likely to hold more debt (Duca & Rosenthal, 1991). When the future economic condition is perceived to be worse, consumers are expected to borrow less now due to the consideration of less future income and less ability to repay debts. If consumers are not satisfied with the expected retirement income, they may borrow more now to balance the psychological state of deprivation and dissatisfaction (Luckett & August, 1985). The perceived risk of two-digit inflation in the future may drive consumers to stock goods in advance when the economy is thought better and prices relatively cheaper. With this perception and risk estimate, consumers are expected to borrow more now in order to buy more (Luckett & August, 1985). Therefore, consumers who are more willing to take financial risks will use more consumer loans. If consumers feel a great risk of major depression in future economy, they will use less consumer loans. But if they feel a great risk of two-digit inflation in the future, they will use more consumer loans. Also, consumers are less satisfied with the expected retirement income, will use more consumer loans.

Socio-Demographic Variables

Socio-demographic factors associated with credit use have been extensively studied. Family size was found to be positively related to debt use (Hira, 1990), which is in accordance with life cycle theory. People with higher education are expected to use more credit because they approve more of the credit use than the less-educated (Duca & Rosenthal, 1991). Younger married households are more likely to hold consumer debt (Duca & Rosenthal, 1991). The findings of age related to debt use are inconsistent in previous research (Heck, 1983, 1987; Sullivan & Worden, 1986). According to the life cycle hypothesis, a nonlinear relationship between family life stages and credit use is proposed (Thurow, 1969). Thus, it is hypothesized that household size and education level of the household head are positively related to the use of consumer loans. Married households will use more consumer loans than non-married households. Age of the household head is curvilinearly related to the use of consumer loans.

Financial Factors

Financial factors, such as income, mortgage debt, liquid asset, housing status, and number of earners in the household, have been widely examined in the past (Duca & Rosenthal, 1991; Dunkelberg & Stafford, 1971; Heck, 1983, 1987; Sullivan & Worden, 1986). Households with two wage earners, holding mortgage debt, and owning home are found more likely to use consumer credit (Sullivan & Worden, 1986). Normal income has a nonlinear relationship with level of consumer debt (Dunkelberg & Stafford, 1971). Liquid assets are negatively related

to the use and holding of credit cards (Heck, 1983, 1987). Although the preceding economic variables have been discussed widely, the influence of credit rationing or constraint on consumer debt use has rarely examined. Duca and Rosenthal (1991) contributed to the understanding that people who are in the most need of credit are usually to be credit constrained. It is because creditors may view them as least qualified for credit, and therefore they are most likely to be rationed out. Accordingly, income is expected to be curvelinearly related to the use of consumer loans. Liquid asset is negatively related to the use of consumer loans. Home ownership is positively related to the use of consumer loans. Households with mortgage debt or with two wage earners will use more consumer loans. Finally, credit constrained households are hypothesized to have less consumer loans than non-constrained households.

Methodology

Data Source

The data used in this study are the 1989 Survey of Consumer Finances (SCF) conducted by the Survey Research Center of the University of Michigan. The survey consists of a sample of 3143 households which represent the population of the U.S. households. Detailed information on consumer finances such as household assets and liabilities was collected.

Sample

The focus of the study is to examine the attitudinal and the socio-economic determinants of the total dollar amount of consumer loans. The total sample of 3143 households in the Survey of Consumer Finances is used. Among the sample, 1342 households held consumer loans contrary to the rest 1801 households without any debt burden of the same loans.

Dependent Variable

The dependent variable, dollar amount of consumer loans, includes all regular installment credit: (1) vehicle loans, (2) loans for household appliances, furniture, or hobby, or recreational equipment, (3) loans for educational expenses or medical bills, (4) loans from friends or relatives, and (5) other loans not included in the above items or in mortgage or credit card debts. The total dollar amount of consumer loans is computed as a continuous variable. Compared to debts of mortgage or credit card, consumer loans are more diverse in nature and subject to various needs of households at different life stages.

Independent Variables

The independent variables in this study include attitudinal, psychological, socio-demographic, and financial factors. The attitudinal factors regarding the future economy consist of the respondent's expectation for the U.S. economy in the next five years, expectation for future interest rates, and expectation for future income compared to price. The psychological variables relating to financial risks are respondent's willingness to take financial risks, expected risk of depression in the U.S. economy in next ten years, expected risk of double-digit inflation in next ten years, and attitude toward retirement income. The other attitudinal factor is consumer attitude toward credit.

According to life cycle theory, the related explanatory variables include household head's age, education, marital status, and family size. In order to estimate the nonlinear relationship between age and consumer loans, age squared is added to the model. Household financial situation includes household income, liquid asset, housing status, home loan, number of earners and credit constraint. Household income is also squared to examine the existence of nonlinearity.

Analysis

The major statistical method used in this study is Tobit regression analysis. Tobit is appropriate because many observations (n=1801) in the data have a truncated value of zero on the dependent variable (consumer loans). The independent variables in the Tobit

model can be either in a form of discrete or continuous distribution.

Results

Expectations for the future

Three hypotheses relating to the consumer expectations for the future have been proposed. Expectation for future economic condition is found negatively related to the dollar amount of consumer loans, which is in an opposite relationship to the hypothesis.

Past credit studies rarely discuss consumer expectations toward the future. The understanding of this field is limited. Although Heck (1983, 1987) found significant influences of expectations toward the future on credit cards holding and utilization, her results only support one type of credit card. Moreover, the signs of the relationship are inconsistent in her studies, depending on the types of credit cards. The effects of expectations for the future on credit use need further examination.

Attitudes towards credit and financial risks

Attitude toward credit is found positively related to the use of consumer loans. Consumers who feel more positive toward credit, use more consumer loans. One unit increase in attitude toward credit is associated with about 3223 units of increase in dollar amount of consumer loans. Also, it is found that the more willingness to take financial risks, the more use of consumer loans.

Socio-demographics

Four demographic variables are tested. Marital status of the household head is significantly positively related to the dollar amount of consumer loan use. Married households have more consumer loans than singles, which is consistent with life cycle theory. Age of the respondent is found to have a curvilinear relationship with the use of consumer loans. Families of younger and older household heads use less consumer loans than the middle-age households do.

Financial factors

Income, liquid asset, number of earners, and credit constraint are found significantly related to the use of consumer loans. The relationship between income and consumer loans use shows an inverted U curvilinearity. Households with lower or higher income, use less consumer loans. Middle-income group uses more consumer loans. Homeowner households with two earners in the family also use more consumer loans. This reasonably indicates a larger need of these households to incur debts for furniture, appliances, educational, and medical bills. Liquid assets and credit constraint have significantly negative relationship with the use of consumer loans. Households with more liquid asset use less consumer loans. Credit constrained families use less consumer loans. This finding is consistent to previous studies (Duca & Rosenthal, 1991; Peterson & Falls, 1981).

Table 1
Tobit Analysis of Consumer Loans

Variable	Coefficient	Chisq
INTERCEPT	-50272.64	22.57***
FUTURE1	-2875.26	5.86*
FUTURE2	-1538.54	1.57
FUTURE3	525.91	0.23
ATTITUD	3222.8	11.69***
RISK1	2646.46	6.59*
RISK2	-187.20	0.27
RISK3	648.82	2.90
RISK4	-446.64	2.05
HSIZE	682.67	1.37
AGE	1444.58	19.20***
AGESQ	-19.73	34.97***
MSTATUS	6072.23	8.32**
EDU	399.68	1.87
INCOME	0.08	1102.36***
INCOMESQ	-1.44E-9	75.62***
HOMEOWN	4972.25	6.42*
HOMELOAN	3167.31	1.80
LASSET	-0.004	72.04***
EARNER	6883.97	11.11***
CNSTRAIN	-8605.36	20.87***

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

Summary and Conclusions

This paper focused on consumer expectations for the future, attitudes toward credit and financial risks, and the use of consumer loans. A sample of 3143 households from the

1989 Survey of Consumer Finances was analyzed. The results of Tobit analysis show that overall, the proposed research model approximates well to the observed data. Expectations for future general economy, attitude toward credit, and the willingness of financial risk taking are found to be major attitudinal determinants of consumer loans use. Respondents who feel negative toward future economy in the country, positive toward credit, and more willing to take financial risks tend to use more consumer loans. Age, marital status, income, housing status, liquid asset, number of earners in the family, and credit constraint contributed to the explanatory power of the model. Age and income have inverted-U relationships with consumer loans use, which are consistent with life cycle theory and life income hypothesis. The significant results of married marital status, home ownership, and two wage earners in household illustrate the demand theory. Households with more liquid assets utilizing less consumer loans reflect that people with more income resource rely and demand less on consumer credit. The significance of credit constraint from the supply side may offset the influences of attitudinal factors in the demand aspect, which is worth advanced study.

The implications of the findings in this study are, for creditors, the consumer attitudes toward credit and economy in light of another reference of credit services. It is really important for credit grantors to shorten the gap of expectations toward each other between consumers and creditors. For credit researchers, this study support life cycle theory and demand theory not only from the perspective of socio-economics but also from the perspecitive of consumer psychology. This study underlies the aspect of mental accounting and planning along individual life cycle, which leads to overt borrowing and saving behavior over time. On the other hand, it will be interesting to examine how individual perception and forecasting interact with aggregate aspect of economy with relation to socio-economic factors.

The major contributions of this paper are first, the expansion of the focus of credit research from socio-economic factors to a more attitudinal-inclined approach. Eight psychological variables are examined in this study which help credit researchers and credit grantors to achieve a better understanding of the mental attributes of consumers beyond the socio demographics. Second, this article provides the empirical evidences from demand as well supply side. The effect of credit constraint enlightens the need and importance of more related research. Finally, this paper updates the previous credit research (Heck, 1983, 1987; Sullivan & Worden, 1986) by using the 1989 Survey of Consumer Finances data in a thorough way.

With the imputation problem of the 1989 SCF data, the results of this study limit to one data set of the entire data collection. However, the problem is minor and will be solved through imputation of total five data sets. The other problem of the data is the cross-sectional nature with deficiency of time lag restricts the examination of predominant borrowing behavior and therefore lack the understanding of adjustment flow in different time periods along life cycle.

Since the supply-side factor is found strong in explaining credit use, future studies can control this particular variable to see how it affects psychological factors. Also, the major socio-economic characteristics of the sample can be controlled to see how different variables act on the model.

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Endnotes

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