

The Predisposition of Women to Use the Services of a  
Financial Planner for Saving and Investing

Dissertation

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By

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## **ABSTRACT**

This is a study of the decision to use a financial planner in saving and investing decisions. Satterthwaite's (1979) improvements upon Stigler's (1961) model of the economics of information were used to define the practice of financial planning as a reputation good. The theory of the economics of information was used to model the likelihood of married couple households to prefer the services of a financial planner over other sources of information. In addition to search theory, seminal and current help-seeking articles revealed a need to place significant emphasis on the differences between men and women in their external search efforts for a financial professional.

The objective of this study was to examine the predisposition of women to ask for help in financial affairs over men. An unweighted sample of 2,691 married couple households from the 2004 Survey of Consumer Finances was used to obtain the data necessary to achieve this objective. The respondent of the survey was the spouse who was most familiar with the household's finances. Each household was instructed to select the financially most knowledgeable spouse as the respondent for the survey. Within the sample of married couple households and only among those who used a financial planner, a weighted 23% of households had husband respondents who used a planner and 24% of households had wife respondents who used a planner.

An initial logit model revealed that compared to male respondents in a married couple household, being a female respondent was positively associated with the likelihood of choosing a financial planner for saving and investment advice; having household income in the 10% and 15% tax bracket in 2004 was negatively associated with using a financial planner compared to households in the 25% bracket; having greater than or equal to \$100,000 in financial assets was positively associated with using a financial planner; and being willing to take financial risks was negatively associated with using a financial planner.

The method for testing the predisposition of women to use a financial planner is known as decomposition analysis and was used to enable the empirical model to allow the independent variable coefficients to differ between male and female spouses. The findings from the decomposition method did not allow for the rejection of the null hypothesis that men and women exhibit the same association between their personal characteristics and the likelihood of using a planner, but these findings were clouded by multicollinearity. As a result, emphasis is placed on the findings from the reduced empirical model.

Based on the findings of this study, implications are drawn for the use of consumers, financial planners, and financial governing boards such as the Securities Exchange Commission and the Financial Industry Regulatory Authority. Respondents

with at least \$100,000 in financial assets are more than twice as likely to turn to a financial planner for saving and investment advice as those with financial assets fewer than \$50,000 (see table 5.2). Significant amounts of wealth are thus entrusted to an advisor. Consumers must consequently take care in making sure their planner is trustworthy, fair and accurate.

The nature of the business of financial planning is such that interaction with couples is a highly regular occurrence. The findings from this study, among other things, suggest that a planner should be conscious of who considers themselves the financially most knowledgeable spouse in a married couple household. Based on this study's results, that simple identification process could produce a wealth of information about the clients before they even begin to fill out the client intake forms. Targeted questions can be created for households in which the husband is the financially most knowledgeable and consequently for wives with the same designation.

Finally, based on the findings of this study, existing resources for consumers of financial services such as those provided by the Financial Industry Regulatory Authority (FINRA), the Certified Financial Planner Board of Standards Inc. (CFP), the Securities and Exchange Commission (SEC) and the Financial Planning Association (FPA) should be able to begin formulating targeted information for men and women separately. The

needs of husbands clearly differ from those of wives who manage the household's financial resources based on the findings in this study.

Dedicated to Sheelagh, the financially most knowledgeable spouse in our economic unit.

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## PUBLICATIONS

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2. Evans, D. A. & Lown, J. M. (2008). Predictors of Chapter 13 completion rates: The role of socioeconomic variables and consumer debt type. *Journal of Family and Economic Issues*, June 2008 special edition, 202-218.
3. Lee, Y., & Evans, D. A. (2005) Home equity borrowing in the United States. *Journal of Asian Regional Association for Home Economics*, 12(3), 157-166.

## **FIELDS OF STUDY**

Major Field: Human Ecology. My areas of emphasis were Finance and Statistics. I have focused my research program on the study of financial planner use among women in married couple households. Differences between the reasons why men and women use financial planners will guide future research endeavors.

## TABLE OF CONTENTS

	Page
Abstract .....	ii
Dedication .....	vi
Acknowledgments .....	vii
Vita .....	x
List of Tables .....	vii
List of Figures .....	xvii
 CHAPTERS	
1. INTRODUCTION .....	1
1.1 The Role of Financial Advisers.....	2
1.2 Purpose of the Study .....	3
1.3 Research Question.....	4
1.4 Key Definitions .....	6
1.5 Format of Dissertation.....	8
2. REVIEW OF LITERATURE .....	9
2.1 Help-Seeking .....	9
2.1.1 Help-Seeking: Addiction Counseling.....	10
2.1.2 Help-Seeking: Mental Health Services .....	12
2.1.3 Help-Seeking: Summary .....	18
2.2 Gender Roles: Saving and Investing .....	19

2.3 Marital Status .....	22
2.4 External Information Search .....	23
2.4.1 External Information Search: Extent of Search.....	24
2.4.2 External Information Search: Source of Advice .....	26
2.4.3 External Information Search: Paid Professionals.....	27
2.4.4 Combining Extent and Source of Information .....	35
2.5 Summary .....	40
3. THEORETICAL BACKGROUND .....	42
3.1 Information Search .....	42
3.1.1 Why Do U.S. Households Use Financial Planners? .....	42
3.1.2 Measuring Benefits to Search .....	43
3.1.3 Measuring Costs of Search .....	45
3.2 Theoretical Framework .....	48
3.3 Hypotheses .....	49
3.4 Summary .....	65
4. METHODS .....	66
4.1 Data .....	66
4.1.1 The Survey of Consumer Finances .....	66
4.1.2 The Two-Sample Method.....	67
4.1.3 Missing Variables.....	69
4.1.4 Repeated Imputation Inference (RII) .....	69
4.1.5 The Sample.....	70
4.1.6 The Respondent .....	71
4.2 Measures.....	71

4.2.1 The Dependent Variable.....	71
4.3 Independent Variables.....	73
4.3.1 Demographics.....	73
4.4 Financial Variables.....	75
4.4.1 Income.....	75
4.4.2 Financial Assets.....	77
4.5 Attitudes and Expectations.....	78
4.5.1 Financial Risk Tolerance.....	78
4.5.2 Respondent Savings Motives.....	80
4.6 Interaction Terms.....	81
4.7 Descriptive Analysis.....	82
4.7.1 Chi Square Test of Independence.....	82
4.8 Multivariate Analysis and Decomposition.....	83
4.8.1 The Logistic Regression Model.....	83
4.8.2 Decomposition.....	83
4.8.3 The Full Interaction Model.....	86
4.9 Summary.....	88
5. RESULTS.....	89
5.1 Overview.....	89
5.2 Descriptive Analysis.....	90
5.3 Descriptives: Men and Women and the Use of Financial Planners.....	90
5.3.1 Demographics.....	90
5.3.2 Income and Financial Assets.....	94
5.3.3 Attitudes, Behaviors and Expectations.....	96
5.3.4 Summary.....	97

5.4	Hypotheses Tests.....	97
5.4.1	Initial Binary Logistic Regression.....	99
5.4.2	Financial Characteristics .....	100
5.4.3	Attitudes, Behaviors and Expectations.....	101
5.5	Full Interaction Logistic Regression .....	101
5.5.1	Unexplained Gender Differences .....	102
5.5.2	Demographics.....	102
5.6	Summary .....	103
5.6.1	Reduced Model .....	103
5.6.2	Full Model.....	107
6.	DISCUSSION, IMPLICATIONS AND CONCLUSIONS .....	110
6.1	Overview .....	110
6.1.1	Discussion .....	110
6.2	Decision to Use a Financial Planner .....	111
6.2.1	Age, Education, Race and Household Size.....	112
6.2.2	Income and Financial Assets.....	113
6.2.3	Attitudes and Expectations.....	114
6.2.4	Summary .....	115
6.3	Implications and Limitations.....	115
6.3.1	Implications for Consumers .....	115
6.3.2	Implications for Financial Planners.....	117
6.3.3	Implications for Policy.....	118
6.4	Implications for Future Research and Limitations.....	118
6.5	Summary and Conclusions.....	120

APPENDICES

Appendix A Federal Reserve Board Supplied SAS Code for Dataset..... 123

Appendix B Initial Binary Logistic Regression RII Technique Code ..... 162

BIBLIOGRAPHY ..... 168



## LIST OF TABLES

Table	Page
2.1 Help-Seeking Scales.....	15
4.1 Long-term and Short-term Savings Motives.....	80
4.2 Description of Variables.....	85
5.1 Descriptive Statistics: Weighted Percentage of Households Who Indicated they would use a Financial Planner for Saving and Investment .....	94
5.2 Initial Binary Logistic Model.....	98
5.3 Full Interaction Model.....	104

## LIST OF FIGURES

Figure	
5.1 Education of respondent in Relation to Planner Use and Females .....	91
5.2 Patterns of Financial Planner Use and Female Respondent Households in relation to Household Income.....	95
5.3 Patterns of Financial Planner Use and Female Respondent Households in relation to Financial Assets.....	96

## **CHAPTER 1**

### **INTRODUCTION**

Recent statistics show that Americans are more vulnerable to economic turmoil than ever before. In 2004 nearly 60% of surveyed workers described their level of retirement savings as “low” (Anthes, 2004). That year the savings rate in the United States hovered around 2% (the year the survey data were collected for this study). Half of all Americans reported living paycheck to paycheck while 4 of 10 workers aged 55 and over reported having no retirement savings at all (Anthes, 2004). The debt service burden for households making less than \$50,000 annually reached 40% of their after tax income.

Unstable social security, and personal savings rates hovering around zero are warning signs of future problems for retiring Americans. Compared to households in the early 20<sup>th</sup> century, modern American households spend less time accumulating wealth and have more time to spend it (Harris, 2008). Despite the financial challenges families face, those who use a comprehensive financial planner have a more positive attitude about retirement and their financial futures than those without a comprehensive plan (Harris, 2008). The Financial Planning Association<sup>®</sup> and Ameriprise<sup>®</sup> report on the value of financial planning conducted in the summer of 2008 (Harris, 2008) revealed that 50% of those with a comprehensive financial plan felt in control of their financial futures

compared to only 28% of those who managed their own finances. Comprehensive financial planning clients also felt as though their financial direction was clear and were more likely to say they felt that their goals and dreams were financially secure compared to those who managed their own finances without the help of a planner. In addition, those who had a comprehensive financial planning relationship felt better situated to make the transition into retirement (Harris, 2008).

### **1.1 The Role of Financial Advisors**

According to the financial planning study, the number one reason why people start working with a financial planner is to start preparing for retirement. Approximately 42% of older Baby Boomers reported using a financial planner because they were nearing retirement and were also concerned about leaving an inheritance. Families with less than \$100,000 in assets reported preparing for retirement and help in achieving financial goals as their top two reasons for using a planner. For those with \$100,000 or more in assets, the top two reasons for working with a financial planner were planning for retirement and nearing retirement. Overall, those who work with a financial planner are generally older and wealthier than those who do not (Harris, 2008).

Those who do not have a comprehensive financial planning relationship said they did not have enough assets to benefit from the services provided by a planner. Among those in Generation X, 41% thought that professional financial planning was too expensive and 38% said they did not have enough investable assets to benefit from the

services of a planner. Twenty-eight percent of those who manage their own finances said they do not believe they need the services of a planner at all (Harris, 2008).

Those who use a planner reported that the planner allowed them to take advantage of the widest variety of beneficial services, including: investment planning, understanding retirement needs, defining goals, establishing a budget and estate planning. Those in a comprehensive planning relationship said that their planner played an essential role in helping them achieve their short, medium and long-term goals. Planners were also used by their clients during challenging market environments as a source for advice and specific recommendations. Overall, those who use a financial planner report more confidence in their financial futures, feel better informed in their financial decision-making, better prepared for emergencies and equipped to navigate changing market conditions (Harris, 2008).

## **1.2 Purpose of the Study**

This study investigates the differences between men and women in the propensity to seek advice from a financial planner when faced with savings and investment decisions. Recent studies provide conclusions regarding the sources used for saving and investment advice (Chang, 2005; Lin & Lee, 2004; Loibl & Hira, 2006), while some have pointed out the extent to which households turn to these sources (Chang, 2005; Czaja, Manfredi, & Price, 2003; Elmerick, Montalto, & Fox, 2002; Lin & Lee, 2004). Others have highlighted the relationship between the types of sources and the number of sources used for investment advice (Bi, Montalto & Fox, 2002; Kwon, 2002; Loibl & Hira,

2006). However the problem is approached, searching for information on savings and investments can be complicated (Banjo, 2009).

Research shows that men and women approach complicated decisions based on their perception of whether the solution to the problem matches their gender roles (Brown & Chen, 2008). This study investigates the differences between males and females in married couple households and their propensity to seek advice from a financial planner. By emphasizing gender differences this study extends previous research showing no differences between men and women when engaged in financial asset investment activities such as certificates of deposit and stocks (Embrey & Fox, 1997). This is not the first study to investigate differences between genders as they pertain to making financial decisions in married-couple households (Ferber & Lee, 1974; Lyons, Neelakantan, & Scherpf, 2008; Roszkowski, Delaney, & Cordell, 2004; Sung & Hanna, 1998; Yao & Hanna, 2005). However, this study's emphasis on the examination of women's predisposition to use a financial planner is unique. In order to achieve this purpose, a method of decomposition was employed to allow the estimated coefficients on each independent variable to differ between males and females.

### **1.3 Research Question**

The shift away from professionally managed pensions into individually managed defined contribution tools places a new burden on the shoulders of the individual investor. Consumers are now expected to invest their savings with the same prowess of a seasoned mutual fund manager, consumers who rarely have the capacity to

make such complicated decisions on their own (Fox, Bartholomae, & Lee, 2005; Greenspan, 2005; Lusardi, 2006). According to the latest version of Morningstar Principia® there are over 10,000 different stocks to choose from. If the average investor prefers to diversify their investment portfolio with fewer overall funds required, there are 12,768 mutual funds and 482 exchange traded funds from which to choose. The average consumer must decide whether to do their own financial planning, seek the advice of a financial planner, which usually comes at a significant cost (whether direct or indirect), or rely on their friends, family, co-workers and other networks to assist them in the process of preparing and saving for retirement.

Past empirical studies suggest that gender, age, education, race, household size, income and financial assets are associated with the likelihood of using specific sources of information for saving and investment advice (Chang, 2005; Elmerick, 2002; Sorhaindo & Kim, 2007). This study focuses on financial planners as the source to which married households turn for saving and investment advice and furthers the investigation by decomposing the effects of gender on the likelihood of using a financial planner. Only by allowing the coefficients to vary for men and for women in the sample can the predisposition of women to seek advice over men be observed. The research question is: Which factors (demographic, financial and attitudinal) have differing effects between men and women in their decision to use a financial planner for saving and investing?

## **1.4 Key Definitions**

Two definitions are required in order to understand the depth and detail of the research question stated above. First, the respondent is the individual to whom all of the financial and attitudinal questions were directed in the 2004 Survey of Consumer Finances. This individual is generally known and recognized as the primary respondent in the survey. When the survey interviewer arranges the appointment for the interview, he or she specifically asks for the spouse in a married couple household who is “the financially most knowledgeable.”

The financially most knowledgeable person, once designated, is the one to whom all of the financial questions are directed including attitudinal questions such as risk tolerance and attitudes toward the use of credit. Most importantly, for this study, the respondent is the individual to whom the question is asked, “when making saving and investment decisions with your spouse, to whom do you turn for advice.” One of the options on the list available to the respondent is that of financial planner. It is important for the reader to understand that when this key question is asked it is implied that the respondent is or has included their spouse in the decision of which source of information they will turn to. Thus, whenever the decision of the respondent is mentioned in this study, it will be understood that he or she could very well have been influenced by their spouse when choosing to use a financial planner for saving and investing.

The second key definition is that of a financial planner and for the purposes of this study is: the label used by the respondent to indicate the use of a financial professional whose services differ from those of a banker, broker, lawyer or accountant. The four

other professionals listed previously could have also been chosen by the respondent as a source to which they turn for saving and investment advice.

The functions and fee structures (e.g. fee only, fee-based or commission) of the planners mentioned in this study are not reported in the Survey of Consumer Finances, which is the main information source used in this study. Since means of planner compensation are not included in the extensive interview process for the Survey of Consumer Finances, the above, single, definition of a financial planner will be used throughout the study.

Another unique feature of this study is its emphasis on married couple households. The need for an emphasis on married couple households was emphasized by related literature with respect to single household characteristics of survey respondents in the SCF (Embrey & Fox, 1997; Lewellyn, Lease & Schlauerbaum, 1977; Sunden & Surette, 1998). Men who reported being single, either previously married or not, tended to be much younger than their female counterparts. Other important factors differed significantly between these two groups of respondents making it difficult to distinguish between gender differences and differences in other characteristics besides gender. Since the respondent was either the male or female spouse in a married couple household in this study, comparisons based on gender differences can still be constructed. While there may be a slight bias towards the other spouse's opinion (Sung & Hanna, 1996) this sample of married couples provides a rich resource for the purposes of this study.



## **1.5 Format of Dissertation**

The next chapter reviews the relevant research in two bodies of knowledge: help-seeking and information search. The help seeking literature provides the background for understanding the fundamental differences between men and women and their propensity to seek help from professionals when help is needed. The information search review of literature describes the work in which scholars have been engaged to understand the extent to which and the sources from whom individuals seek advice for saving and investment decisions.

Following the review of literature, chapter three describes the theoretical model used to generate hypotheses regarding the differing effects of certain factors between men and women and their search for saving and investment advice. Chapter four describes in detail the method used to test the hypotheses including the decomposition method used to illustrate any predisposition of women to ask for help over men. Chapter five contains the results obtained from the hypothesis tests. Finally, chapter six includes a discussion of the results within the context of the literature, implications, limitations, suggestions for continued research and a summary and conclusions section.

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

This chapter reviews the empirical literature on the differences between men and women and the ways they differ in terms of help-seeking behaviors, attitudes and likelihood of the use of professional services. In addition, a review of the literature pertaining to research on the topic of information search for financial services is presented. The final section reviews the empirical literature on the sources of advice to which households turn when making critical financial decisions.

#### **2.1 Help-Seeking**

In the area of help-seeking, there are numerous studies of males' low propensity to seek advice or counseling on sensitive issues (Addis & Mahalik, 2003; Good, Dell, & Mintz, 1989; Jarrett, Bellamy, & Adeyemi, 2007; Leong & Zachar, 1999; Mackenzie, Scott, Mather, & Sareen, 2008; Mansfield, Addis, & Mahalik, 2003; Moynehan & Adams, 2007; Noone & Stephens, 2008; Pederson & Vogel, 2007; Teahan, McNamee, & Donnelly, 2006). It is well-documented in such literature that men and women have equal probabilities of medical or mental health problems but vary widely in the use of and

attitudes toward professionals who may be able to help resolve them (Leong & Zachar, 1999; Mackenzie et al., 2008; Teahan et al., 2006).

For example, the medical field has moved past the question of why these differences exist and into adaptive solutions to ensure greater help-seeking propensities among men (Jarrett, et al., 2007; Mansfield, et al., 2003; Morales, et al., 2004; Noone & Stephens, 2008). As a result, recent research in medical services journals direct their attention toward changes that must be made in the profession to encourage or lower the barriers to help-seeking (Jarrett, et al., 2007; Mansfield, et al., 2003; Noone & Stephens, 2008) rather than attempting to understand why the differences exist. Conversely, psychological studies on the propensity of individuals to seek the help of mental health services providers used a different approach. Psychology scholars are still interested in why men and women differ in their search for services and consequently, scales are widely used in psychology to ascertain these differences (see table 2.1). Prior to a detailed discussion of mental health services, the next section provides a review of help-seeking articles in the area of addiction counseling. Addiction counseling research provides a good example of how researchers have approached the help-seeking problem.

### **2.1.1 Help-seeking: Addiction Counseling**

Few differences have been found between men and women as they pertain to seeking help for addiction problems (Crisp, et al., 2004; Longshore, Grills, Anglin, & Annon, 1997; Potenza, et al., 2001; Wu & Ringwalt, 2004). Men and women utilize different resources for help with addictions, but their propensity to seek help is similar

(Potenza, et al., 2001). When asked, men and women generally categorize addictions to drugs, alcohol and gambling as male specific (Potenza, et al., 2001), yet women are increasingly becoming the recipients of counseling geared towards correcting these potentially harmful addictions (Crisp, et al., 2004). In Australia, using a sample of 694 women and 813 men, Crisp, et al. discovered that half of the calls to a problem gambling help-line were made by women, an increase in the number of women who used the help-line from previous years. The authors also found that women were more likely to turn to community help centers while men utilized veteran's clinics. While they may use different types of counseling services, the frequency of use remains the same among men and women with problem addictions. Predictors of treatment utilization, however, differ between genders (Wu & Ringwalt, 2004).

In a study utilizing the National Household Survey on Drug Abuse, Wu & Ringwalt (2004) discovered differences in the use of treatment services among women and among a sample of men. The female sample contained 17,379 respondents. Using logistic regression analysis, it was determined that the youngest women in the sample (18-25) were less likely than their older female counterparts (34-65) to use treatment services. African American women were more likely to utilize treatment services than their Caucasian counterparts. Finally, among the women in the sample, those who lived in metropolitan areas were more likely to use treatment services than those in non-metropolitan areas (Wu & Ringwalt, 2004). Different predictors of treatment utilization were found among males in the same population.

The sample of males in the Wu & Ringwalt study consisted of 15,249 respondents. The likelihood of men with dependent children to utilize treatment services was four times that of men with no children. Men with a recognized dependence on drugs were three times as likely to use the services of a treatment center as those who reported no such dependence. Thus men were more likely to seek help from a treatment center if they had children or recognized the problem. Women were more likely to seek help in middle age, if living in a metropolitan area or if they were African American. However, the model statistics for each logit (male and female) were not significantly different, indicating that no overall differences existed between genders in the utilization of treatment services.

In summary, men and women seem to be similar in their propensity to seek help for addiction problems. However, the sources from which men and women sought help were dissimilar. A review of the help-seeking literature as it relates to mental health services follows.

### **2.1.2 Help-seeking: Mental Health Services**

Help-seeking and related scales have existed for nearly four decades. Some scales measure attitudes and behaviors (Fischer & Turner, 1970; Good, et al., 1989), while others measure barriers to and/or the likelihood of help-seeking (Good, et al., 1989; Lane & Addis, 2005; Mansfield, Addis, & Courtenay, 2005). In general, these help-seeking scales exist together with other, more generalized scales such as the Gender Role Conflict Scale (GRCS), the Liverpool Stoicism Scale (LSS), the Toronto Alexithymia Scale

(ATS) and others (Downs & Englesons, 1982; O'Neil, Helms, Gable, David, & Wrightsman, 1986; Sifneos, 2000). Used together these scales add depth to the available knowledge on the topic of gender-specific help-seeking attitudes and behaviors and help researchers answer questions as to why men and women differ in their help-seeking strategies. See Table 2.1 for a brief description of scales used in help seeking literature.

One of the most common scales used in the help-seeking literature is the Attitudes Toward Seeking Professional Psychological Help Scale (ASTPPH). Findings from studies employing the ASTPPH find that men and women differ in their help-seeking attitudes, and that gender roles play a large part in determining those attitudes (Ang, Lim, Tan, & Yau, 2004; Good, et al., 1989; Leong & Zachar, 1999). For example, women in general have more positive attitudes towards help-seeking compared to males and were found to have a greater recognition of a need for help (Ang, et al., 2004; Leong & Zachar, 1999).

Ang et al. (2004) found no significant difference between men and women in terms of their confidence in the provider of mental health services while Leong & Zachar (1999) concluded that significant differences existed in confidence. These two studies were conducted in different countries among women of two unique cultures. Ang et al. (2004) observed 163 teacher trainees in Singapore while Leong and Zachar's (1999) respondents were all Caucasian female college students from an American university. Thus, the reliability of the scale should not be in question.

The ASTPPH was used in conjunction with three other attitudinal scales by Good, Dell & Mintz (1989) whose findings suggested that negative attitudes towards help-

seeking were associated with traditional attitudes about the male's role in society as well as concern about expressing affection and emotion. Good et al. (1989), using a sample of 401 undergraduate, male students concluded that a significant relationship exists between the male sex role and overall help-seeking attitudes and behaviors.

Another conclusion from Good et al. (1999) suggested that men with high levels of restrictive emotionality had lower likelihoods of past help-seeking behavior. However, this finding was achieved by employing the Help-Seeking Attitudes and Behaviors Scale in conjunction with the Gender Role Conflict Scale.

The Gender Role Conflict Scale or GRCS measures four aspects of male gender role conflict: success, power and competition (e.g. men's desires to gain power and success); restrictive emotionality (e.g. fear of expressing one's feelings); restrictive affectionate behavior between men (e.g. fear of sharing feelings with other men); and conflicts between work and family relationships. From studies utilizing the tools available in the GRCS higher success, power and competition scores were found to be associated with decreases in men's willingness to seek help from familiar sources such as friends and family and more likely to turn to the internet for anonymous help (Lane & Addis, 2005). The GRCS, however, is designed to capture within gender differences.

<b>Scale</b>	<b>Developer(s)</b>	<b>Description</b>
Attitudes Toward Seeking Professional Psychological Help (ATSPPH)	(Fischer & Turner, 1970)	Measures attitudes toward help-seeking.
Gender Role Conflict Scale (GRCS)	(O'Neil, et al., 1986)	Designed to measure aspects of male gender role conflict.
GRCS Subscales		
Success, Power, Competition (SPC)	(O'Neil, et al., 1986)	Describes men's desires and worries regarding success, failure, superiority and competition.
Restrictive Emotionality (RE)	(O'Neil, et al., 1986)	Describes fear of expressing one's feelings or describing one's emotions.
Restrictive Affectionate Behavior Between Men (RABBM)	(O'Neil, et al., 1986)	Shows men's discomfort in expressing their feelings, especially toward other men.
Conflicts Between Work and Family Relationships (CBWF)	(O'Neil, et al., 1986)	Describes difficulty in balancing work/school with family/leisure and the related stress.
Barriers to Help Seeking Scale (BHSS)	(Mansfield, et al., 2005)	Measures variables men classify as being barriers to seeking help for physical or mental health problems.

Continued

**Table 2.1 Help-Seeking Attitudes and Behavior Scales**



Table 2.1 Continued

Attitudes Toward Men Scale (AMS)	(Downs & Englesons, 1982)	Designed to measure the support of current stereotypes toward masculinity.
Help-Seeking Attitudes and Behaviors Scale (HABS)	(Good, et al., 1989)	Measures individual's attitudes and behaviors toward help seeking.
Toronto Alexithymia Scale (TAS)	(Sifneos, 2000)	Assesses key features of Alexithymia including difficulty in identifying and describing feelings and bodily sensations, and a lack of inner emotion and fantasy life.
Patterns of Help Seeking Scale (PHSS0)	(Lane & Addis, 2005)	Intended to indicate an individual's likelihood of seeking help from different sources.

Based on an analysis of variance for key scales, Judd, Komiti & Jackson (2008) found that men scored higher on measures of stoicism (e.g. a lack of emotional involvement) and stigma than females. Their sample consisted of 244 men and 335 women from rural Victoria, Australia. Men were also found to be less open in their expression of feelings, actions and values than females. While these are interesting differences between men and women, they do not tell us much, if anything, about the

likelihood of seeking help from a mental health or other service provider. In fact, only two of the articles reviewed contained scales that directly measured the likelihood that an individual would seek help from a professional service provider: The Patterns of Help-Seeking Scale (PHSS) and the Help-Seeking Attitudes and Behaviors Scale (HABS) (Good, et al., 1989; Lane & Addis, 2005).

Lower degrees of willingness to seek help were associated with higher restrictive emotionality and restrictive affectionate behaviors towards other men (Lane & Addis, 2005). When dealing with conflicts between work and family relations men were more likely to seek help from groups on the internet. These findings were derived from a sample of 60 U.S. male college students. From a sample of 45 Costa Rican men the authors found that participants were more likely to seek help from a doctor if their restrictive emotionality and family/work conflict scores were higher. In Costa Rica, men were more likely to seek help from their mothers if they had higher aspirations for success and power (Lane & Addis, 2005). These findings provide further evidence that cultural differences within gender exist, though the sample sizes are too small for generalization to a larger population than the ones under study.

Age differences in help-seeking have also received attention by psychologists and other researchers (Brown & Chen, 2008; Judd, et al., 2008; Mackenzie, et al., 2008). One study in particular offers a clear example of how gender roles impact help-seeking behaviors. In a qualitative assessment of 20 caregivers 60 years old or more, Brown and Chen (2008) discovered that indeed males and females differed in their help-seeking behaviors. Both men and women believed that they could provide the best care for their

mentally ill spouse, however men were more inclined to seek help from family, friends, community sources and professionals than women (Brown & Chen, 2008).

Male caregivers did not perceive caretaking responsibilities as a typical male gender role and were thus uninhibited by stereotypes and gender role expectations in their strategies to cope with the stress associated with caretaking. Women took care of their spouse alone for longer periods than men and when the physical and emotional cost of caring for them exceeded their own self-determined threshold they sought first the help of a professional (Brown & Chen, 2008). Family, friends and community services were not employed by women caretakers until a professional had been contacted, the exact opposite behavior of male caretakers. When asked how they cope with the stress of caretaking, men were more likely to have stated that they took time to take care of themselves through exercise or other forms of relaxation. Women were reluctant to care for themselves declaring a need to stay with their spouse as much as possible (Brown & Chen, 2008).

### **2.1.3 Help-seeking: Summary**

Help-seeking propensities among men and women with problem addictions are becoming more and more similar. Seeking help for addiction problems seems to be losing its male-centered stigma leading to an increase in the amount of women seeking help with addictions.

Help-seeking scales used in the field of psychology tend to place a greater amount of emphasis on differences within the male gender (Downs & Englesons, 1982;

Mansfield, et al., 2005; O'Neil, et al., 1986; Sifneos, 2000) rather than comparing men and women, suggesting a similar trend to that of the medical profession (i.e. in general, men seek-help at lower rates than women). In order to understand this trend, psychologists have used and continue to use scales that identify masculine traits together with help-seeking scales which measure an individual's attitudes, behaviors and the likelihood of using professional help for mental health problems (Fischer & Turner, 1970; Good, et al., 1989; Kessler, Olfson, & Berglund, 1998; Lane & Addis, 2005; Leong & Zachar, 1999; Olfson, et al., 2000).

Gender roles have a significant impact on the likelihood of help-seeking behaviors of men and women (Ang, et al., 2004; Brown & Chen, 2008; Good, et al., 1989; Lane & Addis, 2005; O'Neil, et al., 1986). If a particular problem is perceived as being masculine or feminine in nature, the corresponding gender of the person experiencing the dilemma will dictate their propensity (or the lack thereof) to seek out help in solving the problem (Brown & Chen, 2008). Thus, women's propensity to seek help differs for masculine problems compared to feminine problems.

## **2.2 Gender Roles: Saving and Investing**

The following paragraphs contain a review of empirical literature that suggests a clear distinction between men and women and their perceptions regarding the division of labor in managing household finances. This division portrays the perception of men and women in terms of the gender to which they assign the role of family financial manager.

As more and more women not only enter the workforce, but increasingly earn salaries comparable to men's, they have transitioned into the role of family financial officer. Accompanying this transition is a documented anxiety over financial matters and a higher aversion to financial risk than their male counterparts (Stinerock, Stern & Solomon, 1991). Over 600 surveys were returned and used in a study of men and women and their differences in the use of consumer surrogates for financial services. Of the males in the study, 36% said they used a financial surrogate compared to 48% of females in the study. Anova statistics revealed a statistically significant difference in the use of financial surrogates between men and women (Stinerock et al., 1991). The authors suggested that historical shifts in female workforce participation had much to do with the reason why women were more likely to use a financial surrogate than men. Similar to the conclusions of Brown and Chen (2008), Stinerock et al. posit a tendency for individuals to seek the assistance of others when faced with changing gender role responsibilities. Thus as women started making a larger percentage of the household income their roles shifted within the family structure. This shift led to a new role, that of family financial manager.

In a study of household level investment allocation, Lee & Yang (2005) surveyed 335 dual income and 275 single income households in Korea and found that significant differences existed with respect to role division in household financial management. More significant economic roles were given to the wives in a dual-income situation compared to women in single-income households. The roles taken on by husbands were most well-defined in vehicle purchases and saving and investment decisions.

In a related study, Lindamood & Hanna (2006) reported on a sample of married and unmarried opposite sex partner couples in five different years of the Survey of Consumer Finances. The head of the household was 50 years or older and the purpose of the study was to determine predictors of the likelihood that the wife was the respondent in the survey. The sample size consisted of 5,435 older couple, opposite sex households. Only 3.3% of these households in the combined set of surveys were unmarried, the rest were married couple households.

As the age of the male member of the couple increased, the likelihood of the female being the respondent (or as defined in the survey the more financially knowledgeable partner/spouse) lessened. If the spouse or partner of the respondent was present during the entire interview (roughly 3 hours in length) the more financially knowledgeable spouse/partner was more likely to be the wife. If the female was the more educated of the two, she was more likely to be the respondent and the same was true for the male spouse or partner. That is, if the male had a higher level of education, he was more likely to be the respondent.

The spouse or partner in better health was more likely to be the survey respondent and homeownership was correlated with the likelihood of the respondent being the female spouse or partner. The likelihood of the female being the respondent decreased as income and assets (both financial and non-financial) increased. The selection of a family financial manager clearly varies in married couple households. In summary, when income was earned by both the husband and the wife, or when women had high levels of education in married couple households, the odds of being the financially most

knowledgeable spouse were no greater for the male member of the married couple than they were for the female. However, when financial characteristics such as income and assets begin to grow, men tended to take a more active role in the family finances.

### **2.3 Marital Status**

There is no paucity of research comparing men and women and their differences in financial behaviors (Cornwell & Rupert, 1997; Cox & Deck, 2006; Davies, Mangan, & Telhaj, 2005; Hira & Mugenda, 2000; Phipps & Burton, 1998; Prince, 1993). More specific studies on the savings and investment decisions and gender differences are also prevalent (Bajtelsmit, 1996; Embrey and Fox, 1997; Graham, Stendardi, Myers, & Graham, 2002; Niessen & Ruenzi, 2006; Sunden & Surette, 1998). One study in particular revealed differences between men and women and their investment behaviors, but the most relevant finding was actually one of its limitations. Single male and single female household financial behaviors were observed using the 1995 Survey of Consumer Finances in a study conducted by Embrey and Fox (1997). By splitting the sample between single males and single females, the authors were attempting to create a more accurate comparison of men and women. However, what Embrey & Fox discovered was a significant difference in the life-cycle stages of single men and single women in the 1995 Survey of Consumer Finances. Single men tended to be younger with above average income. The single men in the sample were also less likely to have ever married. Single women on the other hand had, on average, smaller incomes and were more likely

to have been married before. Thus age, income and marital status differences made it difficult to suggest that investment differences were purely gender specific.

For the purposes of this study, only married couple households were selected from the 2004 Survey of Consumer Finances. The decision to use this specific sample was driven in part by Embrey and Fox's (1997) discovery that single households present a comparison challenge when gender differences are the focus of attention. Building off of previous work regarding the selection of the most financially knowledgeable spouse (Lindamood & Hanna, 2006) the sample for this study will be split according to these specifications. That is, if the male member of a married couple household was determined to be the financially most knowledgeable spouse, his household was selected into the male sample. If the female member of one of the married couple households was determined to be the financially most knowledgeable spouse, her household was selected into the female sample. More details on this particular aspect of the sample can be found in chapter four.

## **2.4 External Information Search**

With help-seeking differences well defined between men and women and justifications for including only married-couple households established, a review of the literature aimed at determining the factors associated with the extent of external information search by U.S. households and subsequently, the types of information to which households turn is in order. The literature on these two important topics provides a background for two critical aspects of this study. First, the roots of external information



search are embedded in the theory of the search for information. Consequently, an introduction to the empirical literature on the topic of external information search is needed to set the stage for the following chapter which provides a timeline of theoretical progress in the field of information economics. Second, these topics lay out the foundation from which the independent variables were chosen for the current study.

#### **2.4.1 External Information Search: Extent of Search**

Studying the extent to which an individual is willing to search for information regarding financial decisions leads to a better understanding of the types of sources sought after in the search process. Using the Survey of Consumer Finances, Bi, Montalto and Fox (2002) found that in nearly every situation (saving, borrowing or comprehensive information search) the number of sources to which a household turned for help in financial decision-making increased with search and shopping. For instance, among those households who sought credit and borrowing advice exclusively from a financial planner, nearly 60% made it a habit to shop around “a lot” for better lending terms and roughly 18% shopped around very little. Thirty-seven percent of those who use a financial planner exclusively for saving and investment advice reported a lot of shopping around for better rates of return on investments. Twenty-three percent shopped around very little. And finally, of those who used a financial planner for both borrowing and saving advice, 52% shopped around a lot for lending terms and 45% for better rates of return. Twelve percent and 17% of those households respectively shopped around very little. This

suggests a strong relationship between the quantity of sources of help to which households turn and the extent to which they shop around for related information.

In the Bi, Montalto and Fox (2002) study the three information search categories refer to questions in the Survey of Consumer Finances. Respondents are asked to select from a list, the sources to which they would turn for credit and borrowing advice. The same question and list are presented in terms of saving and investment advice. Combining the respondents who chose sources from both of the lists resulted in the “comprehensive” category of information searchers. The extent to which survey respondents “shop around” for financial advice is also determined by a question from the survey. While the question is stated in terms of interest rates for credit cards, it can be used to determine the type of searcher the respondent is. The question asks, generally speaking, how much effort the respondent puts into the search for the best rates for consumer credit.

Yang & DeVaney (2006) studied factors associated with the extent of search for saving and investment information using the 2001 Survey of Consumer Finances. Those households with income in the 2<sup>nd</sup> quintile were more likely to search for investment information than those in the bottom quintile. Additionally, it was found that as age increased, the extent of search decreased. In terms of marital status, couples and single female-headed households were more likely to search for investment information than single male household heads. Yang & DeVaney (2006) concluded that those who were most likely to engage in extensive search efforts for information on saving and investing

were generally regular savers, typically deal with above average numbers of financial institutions and have higher levels of risk tolerance.

Investors exhibiting more diligent pre-purchase investment actions and high interest in investing are typically engaged in greater levels of information search (Loibl & Hira, 2007). However, women are more likely to conduct simpler information searches. That is, they used fewer sources of information than men and reported less frequent use of such sources. Lower information search levels were generally correlated with better attitudes toward advisors (Loibl & Hira, 2007). In direct contrast from another study of the extent of search for information, however, those who used the highest number of sources for information were typically those who used paid professionals (Lee & Cho, 2005). Lin & Lee (2004) reported that consumers who engaged in more information search were more risk tolerant and had higher levels of household income.

Conflicting findings in studies of the extent to which consumers search for financial information may be due to limitations in data collection. The studies mentioned here were limited to databases that were not specifically designed around the question: “To what extent do consumers search for financial advice?” Despite this limitation, we do gain a better understanding of the extent to which consumers will search for information regarding personal financial situations.

#### **2.4.2 External Information Search: Sources of Advice**

The following review builds on the issue of the extent of search and consists of research centered on the types of advice to which households turn when making financial

decisions. A stream of information search studies has emerged recently using data from the Survey of Consumer Finances (Bi, Montalto & Fox, 2002; Chang, 2005; Elmerick, Montalto & Fox, 2002; Yang & DeVaney, 2006). The variables of interest in these studies indicate to which sources U.S. households turn when making household financial decisions. Some have distinguished between saving and investment related decisions and credit and borrowing decisions. The Survey of Consumer Finances provides information for either approach.

### **2.4.3 External Information Search: Paid Professionals**

In two of the following studies, three types of households were created using the types of advice to which each one turned for help from a financial planner (Bi, Montalto & Fox, 2002, Elmerick, Montalto & Fox, 2002). If the household used a financial planner for saving and investment decisions only, it was classified as a saving only household. Credit only households were those who used a financial planner for credit and borrowing advice only. And finally, if the household turned to a financial advisor for help in decision-making for both saving and borrowing advice their financial decisions were considered comprehensive. The use of a financial planner was typically associated with those seeking saving and investment advice as opposed to credit and borrowing advice or a combination of saving and borrowing advice. Household use of easy to obtain or free information sources such as the use of media sources, the internet or simply calling around for advice were more likely to be in search of information related to credit and borrowing situations. (Bi, Montalto & Fox, 2002).

Other datasets besides the SCF were used in similar research. Sorhaindo & Kim (2007) used the 2003 Mature Market Survey (n = 353) to study the financial information search behaviors of households interested in obtaining help in designing a retirement plan or managing an IRA or 401(k) plan. The initial binary logistic regression model used to determine the association between the types of sources used in the search for help in designing these plans and a set of demographic and financial control variables produced the following results: Age, income, gender, marital status and current financial situations played significant roles in determining the likelihood of seeking help in designing retirement plans (Sorhaindo & Kim, 2007).

Older heads of household were less likely to seek help from personal sources than their younger counterparts. Financially distressed households with incomes above \$50,000 were more likely to obtain help for the creation and management of their retirement portfolios through the internet and other media related sources. Using the internet as a source of help was significantly associated with being younger (Sorhaindo & Kim, 2007).

Males were more likely to use banks while couples preferred the advice of financial professionals. An ordered logistic regression model using the extent to which households sought help for retirement plan management as a dependent variable was used to provide some similar results. Males tended to seek help for plan design more than females, those with higher incomes had higher search levels and younger households tended to search for more assistance than older households.

When asked about their preferences in terms of sources of information, 56% preferred investment advice to be delivered by a financial planner (Prudential, 2005). Fifty-one percent preferred to plan for retirement with a financial planner while 50% desired to learn how much they needed for retirement from a planner. Forty-nine percent preferred to invest in IRAs with the help of a financial planner, 46% would feel more comfortable discussing estate plans, trusts and wills with a planner than any other source. Brochures were the preferred method for learning about long-term care insurance (40%) vs. learning from a planner about such insurance (36%).

Chang (2005) asserted that race and age characteristics were influential in determining the sources of information to which households turn in certain financial decision-making processes. The type of financial advice sought was generally associated with characteristics such as education, net worth, financial assets and an overall perception of the value of such advice (Chang, 2005; Elmerick et al., 2002; Lee & Cho, 2005).

Lin and Lee (2004) show that households earning less than \$35,000 per year were less likely to search for information through financial literature means while those with \$100,000 or more of income per year were more likely to do so. Using media as the primary source for financial information was associated with higher subjective knowledge, higher risk tolerance and older, higher income investors. Internet use was typical of younger investors, those with higher risk tolerance and higher subjective knowledge. Younger less knowledgeable investors used friends and family, while older,

less knowledgeable investors with more risk tolerance sought professional services (Lin & Lee, 2004).

Lee & Cho (2005) found that the perceived value of using a financial intermediary was highest among those who used paid for the services rendered compared to consumers of free financial information. Risk averse consumers were more willing to pay for financial advice. Households with income between \$20,000 and \$39,999 were less likely to pay for financial advice than those earning \$100,000 or more per year. Those who used the highest number of sources for information were those who used paid professionals. Those who use free information sources such as bankers were also more likely to consult financial literature and the Internet (Lee & Cho, 2005).

Loibl & Hira (2006) discussed the findings from a workplace and gender related perspective on financial planning information sources. More males than females reported co-workers as sources for financial planning information, used the employee-provided financial newsletter, financial publications, financial planning software and the internet. Males scored higher on knowledge questions than females. Fifty-eight percent of men and 24% of women answered more than half of the general financial knowledge questions correctly.

No significant differences were found in understanding how to manage credit use among men and women. However, significant slope differences suggested gender differences in the use of financial publications and the internet to estimate self-reported financial knowledge about retirement needs. Significant slope differences suggested gender differences in the use of financial publications and software to estimate self-

reported results about how to invest and for the use of financial planning software to estimate self-reported knowledge about how to provide for their financial future (Loibl & Hira, 2006).

In research closely related to research conducted in this study, Elmerick et al., 2002 found that once income rose above the \$75,000 threshold the differences in the likelihood of using an investment advisor vs. any other source of financial information became statistically significant (Elmerick et al., 2002). Households making more than \$75,000 were more likely than their lower income counterparts to use a financial advisor for savings and investment decisions.

Using the 1998 Survey of Consumer Finances, Elmerick, Montalto and Fox (2002) found that as household size increased so did the likelihood of using a financial planner for credit and borrowing situations. Two models of household planning were explored: planner model vs. specialization model. The planner model is defined as the use of a planner for both saving/investment decisions as well as credit/borrowing decisions. The specialization model refers to a household who chooses to use a financial planner for saving/investment decisions *or* credit/borrowing decisions separately. The likelihood also increased as the head of household reached middle age and as their debt-income ratios increased. Heads of household who reported their ethnicity to be black, non-Hispanic were also more likely to use a planner for credit and borrowing advice as opposed to that sought for saving and investment decisions.

Those who used a planner for saving and investment advice tended to be approaching retirement (usually age 55 and older). The likelihood of using a financial



planner also increased as income and financial asset values grew. Net worth was not found to have any impact on the likelihood of using a financial planner strictly for saving and investment advice.

Net worth did play a significant role in the determination of the likelihood of using a financial planner for both saving and investing as well as credit and borrowing advice. The likelihood of using a financial planner simultaneously for credit/borrowing *and* saving/investing advice increased with net worth. Households were likely to have healthy overall financial situations when they employed the planner versus the specialization model. That is, when a planner is used to bring a group of professionals together for the good of the client (planner model), the household is benefited more than if they only focus on one financial issue or the other (specialization model).

Using the 1998 Survey of Consumer Finances, Chang (2005) examined the use of a paid financial professional by U.S. households. Rather than focusing on the types of advisors utilized in credit/borrowing or saving/investment decisions, Chang focused on networking strategies. In addition, Chang breaks down the sources of information used when making saving/investment decisions. The categories of financial intermediaries examined in this study were friends/relatives, paid professionals, bankers and the media. Paid professionals were combined as a group to include financial planners, accountants and lawyers while bankers were categorized separately and were assumed to be the representative that helps with setting up accounts etc., rather than the actual manager of the financial institution.

Chang (2005) found that the use of a paid professional increased with education, liquid assets, age, race (Black), and the financial risk tolerance of the individual. The only variable with a negative influence on the likelihood of using a paid professional was that of race. Compared to those who identified themselves as White, Non-Hispanic, those of another race besides Black were significantly less inclined to use the services of a paid professional.

The significant results were found amid those who used lawyers when making their savings/investment decisions. The characteristics associated with a higher likelihood of the use of such a professional included education, income and liquid assets from a socioeconomic standpoint. A single female-headed household was more likely to use a lawyer for savings decisions than a married couple household. However, single male-headed households weren't any more or less likely to use a lawyer for saving and investing than the household run by a married couple. Those who identified themselves as Black, non-Hispanic householders were more likely to use a lawyer for saving and investing than their White, non-Hispanic counterparts. Those who were included in the 'Other' category (including Hispanic households and others) were significantly less likely to use a lawyer than White, non-Hispanic households. As the respondents' age increased, so did the likelihood of using a lawyer. And finally, just as with age, financial risk tolerance also contributed to a positive likelihood of lawyer usage (Chang, 2005).

Single, female-headed households were no more or less likely to seek the advice of an accountant than their married couple household counterparts. Nor was it any more or less probable that they would use the services of a broker than those who were

married, although, they were more apt to use a financial planner. The coefficient for the financial planner is half the size of the coefficient for the use of a lawyer. While the analysis was done using bivariate probit analysis and nothing can be said of the magnitude of the coefficients, the fact remains that the use of a lawyer among single, female-headed households was indisputable (Chang, 2005).

Male-headed households exhibited statistically significant differences in terms of paid professionals that were completely opposite of the female-headed households in the Chang (2005) study. Male-headed households were more prone to use the services of a broker, but less likely to use the services of an accountant than their married couple-headed household counterparts.

No significant differences were found for the probability of using a broker or an accountant as income increased. As for liquid assets, however, as the value rose, the likelihood of using all four types of paid professionals increased. Thus, Chang concluded that income alone cannot be used to predict the likelihood of using one form of advice over another. Just because income increased it did not mean that there was an automatic endowment of funds that could be invested or saved. However, evidence from Chang's study suggested that an increase in the value of liquid assets would create the need for advice, and that the advice would come from one of several sources.

The list of paid professionals to which these higher liquid asset owning households would turn was not exhaustive, however it did capture the majority of professionals to whom individual households were most likely to turn in the event of an increase in liquid assets. These liquid assets include savings and checking accounts,

certificates of deposit, bonds, mutual funds and stocks. Chang (2005) found that as overall wealth increased the likelihood of using more than one financial advisor increased while the likelihood of using someone within the respondents' "network" decreased. That is, the richer the household, the less they depended on family and friends to help them make savings and investment related decisions.

#### **2.4.4 Combining Extent and Source of Information**

In an attempt to combine sources and extent of search some researchers have turned to the use of cluster analysis. Loibl & Hira (2007) revealed five classifications of investors using such an approach. First, the balanced investor; investors in this category typically used multiple sources of information on a highly regular basis. The internet investor, second, tended to use online sources of information such as email newsletters, market watch websites and investment analysis software and was likely to have an online trading account. The internet investor used multiple online sources frequently. Third, the moderate investor used multiple categories of information at lower frequencies. Fourth, the workplace investor was very selective about which types of information sources she would use but would most likely turn to the workplace for advice. However, the frequency of information search was low for the workplace investor. Finally, the reluctant investor would only use a financial planner for investment advice and the usage rates would be very low.

In the Loibl and Hira study over 67% of women belonged to the lower information search clusters (workplace and reluctant) compared to only 47% of men.

Men were most likely to be found in the higher information search clusters (balanced, online and moderate) at a rate of roughly 53%. One-third of the women in Loibl & Hira (2007) were categorized in the high information search clusters. The proportion of women in the workplace cluster was 1.5 times greater than that of men. Similarly, the share of women in the reluctant group of investors was 1.4 times greater (Loibl & Hira, 2007).

Both men and women investors who belonged to the balanced investor category displayed high interest in investing and impressive pre-purchase investment actions. Women balanced investors tended to have larger assets, higher risk tolerance levels and less interest in passive investment strategies. Men in the same category had similar attributes as the women, with a higher propensity to consult with a financial advisor (Loibl & Hira, 2007).

Online investors were similar among men and women except that women had more negative attitudes towards financial advisors and men were more highly educated and could tolerate greater amounts of risk. None of the antecedent variables were statistically significant for the women in the moderate investor category. Men, however, were generally younger, employed part or full-time, exhibited lower degrees of financial satisfaction, had strong interest in investing, but would rarely consult a financial advisor (Loibl & Hira, 2007).

Loibl and Hira found that both male and female workplace investors were typically fully employed, had fewer assets, and were generally introduced to saving and investing behaviors by their parents. Women in this category had high levels of interest in

investing, but typically favored a more passive investment strategy. The male workplace investor was less educated, worked in service occupations and was more present than future oriented. Men were also more likely to consult with a financial advisor and exhibited high degrees of financial satisfaction.

Reluctant investors, whether male or female tended to be less educated, less disciplined in terms of investment goal achievement, less interested in investing overall and less likely to exhibit diligent investment pre-purchase actions. Women had fewer financial obligations and had positive attitudes towards financial advisors. Men in this category were typically more likely to consult with an advisor and less likely to report feelings of stress associated with investing. Male reluctant investors were less likely to receive investment advice from their parents growing up. Overall, Loibl & Hira (2007) reported that men and women use interpersonal sources of investment information at very similar rates.

According to Kwon (2003) the number of sources used in saving situations was associated with age, education, race, transaction account ownership, directly held mutual fund possession, the possession of stocks and other financial assets and the household's ability to tolerate risk. Younger households (under 35) were more likely to use higher quantities of information sources than their older (45 to 54) counterparts. More educated households were more likely to use multiple sources of information than those with fewer degrees.

Black, non-Hispanic households were more likely than their White, non-Hispanic counterparts to use multiple sources for investing decisions (Kwon, 2003). Sources of

information increased with the possession of financial assets and lower risk tolerance led to the use of few information resources. Clusters of households were created by combining the types of information and the extent to which information sources were consulted for financial decisions. Four groups were formed. First, mass media oriented light users: 32% consulted mail solicitations, 28% T.V./Radio programs and 31% advertisements. Second, comprehensive expert users: 63% consulted bankers while 56% used a financial planner. Third, assertive users: 96% read magazines and newspapers, 88% talked to friends and relatives, 76% read mail solicitations, 75% tuned in to T.V. and radio programming, 66% paid attention to advertisements, 49% used the services of an accountant, 49% surfed the internet and 45% had a broker. Finally, technical/investment oriented expert users: 70% had a broker, 46% employed an accountant and 36% used a financial planner for financial decision-making (Kwon, 2003).

The likelihood of being a mass media oriented light user was associated with low risk tolerance in the Kwon study. No mention was made of a relationship between the sources of information used and the likelihood of being categorized as a comprehensive expert user. Assertive users were more likely to say that they save money in order to enjoy life. Assertive users were also highly tolerant of risk. Technical/investment oriented expert users had high net worth, were more likely to own stock, had a retirement account and earned high levels of income.

#### **2.4.5 The Cost-Benefit Analysis for the Use of a Financial Planner**

The articles reviewed in previous paragraphs make significant contributions to the research on financial planning. However, none attempted to measure the direct and indirect costs and benefits of using a planner. Such a direction is relevant to any discussion about the use of financial services. Consumers are expected to calculate the expected benefits of using a financial planner and compare them with the expected costs. In some instances the direct costs of financial planning services are calculated easily, like in the case of fee-only financial planners. While in others, the method of calculating the cost is more complicated, such as attempting to calculate the commissions paid to a broker from one's securities trading events. Regardless of the type of financial service provided, calculating a benefit or cost of using them can lead to better decision-making on the part of the consumer.

In order to start a dialogue concerning the matter of cost and benefit measurement for financial planner usage, Warschauer (2008) presents several formulas and utility functions to represent expected consumer benefits with respect to the employment of common financial planner recommendations. Well over a dozen recommendations were analyzed for their potentially quantifiable benefit to consumers. Four categories were created from the list of recommendations: those that would have positive net present value (NPV) effects (e.g. refinancing high interest loans or choosing investments with a positive alpha), those that would have insurable risk reduction effects (e.g. recommending an adequate amount of life insurance), those with uninsurable risk reduction effects (e.g. having sufficient liquid assets in case of an emergency), and finally



those recommendations which would result in increased consumer utility (e.g. setting and monitoring achievable financial goals).

The NPV formulas presented by Warschauer in order to quantify the benefits of using a financial planner were introduced along with utility functions to represent the same notion for the less quantifiable constructs (e.g. the feelings associated with setting achievable goals). The ultimate result of Warschauer's work was the introduction of a set of formulas that could possibly be used to quantify the value of a financial planner's recommendations to his or her clients. Some theoretical assumptions were made in order to simplify the formulas and future research will be required to estimate reliable dollar values for the utility expressions presented. An important step, however, was achieved in the progress towards understanding why consumer use financial planners. If the formulas presented by Warschauer hold, it will be easier to answer this question. In the following section, a theoretical model is presented using constructs that match up with some of the reasons why consumers use financial planners. The model is used to generate several hypotheses regarding the use of planners which will be tested via an empirical model described in chapter four.

## **2.5 Summary**

The bulk of the research regarding the types of intermediaries utilized in financial decision-making situations is primarily a-theoretical. From this body of exploratory research we learn that sources of financial advice vary with certain financial situations (Chang, 2005; Loibl & Hira, 2007), and that married couples share the role of family

financial officer (Ferber & Lee, 1974; Lindamood & Hanna, 2006) in diverse ways depending on the age and wealth level of the household head. It is also recognized throughout the literature on this subject that certain demographic characteristics are associated with the type of advice sought and the extent to which the search continues (Bi, Montalto & Fox, 2002; Chang, 2005; Elmerick, Montalto & Fox, 2002; Lee & Cho, 2005).

Unique to this study is its focus on the theoretical explanations of advice-seeking behaviors among married-couple households and an in-depth analysis of the differences found among male and female managed financial households. The driving theory behind the question of which types of information sources are sought after in financial decision-making situations originates from the field of economics. It is posited that in order to reduce the asymmetry of information in a given market, consumers will expend a great deal of resources searching for information about goods and services. The search for a financial planner, for instance, is connected with a very high consequence decision and will thus require larger amounts of time and effort in the search process. The following chapter presents a conceptual framework based on this notion of resource management in search efforts with an emphasis on the benefits and costs of using a planner.

## **CHAPTER 3**

### **THEORETICAL BACKGROUND**

In this chapter gender differences in help-seeking behavior are combined with the cost-benefit analysis concepts based on the theory of information search in development of formal hypotheses. Following this brief introduction, a discussion about why individual households use the services financial planners provide sets the stage for further discussions of the costs and benefits of using financial planners for saving and investing. Following the costs and benefits sections is an explanation of the theoretical framework employed in this study, and finally, the hypotheses are presented. Each hypothesis contains two parts, a null and an alternative hypothesis for the differences between men and women as well as a null and alternative hypothesis for respondents in general.

#### **3.1.1 Why Do U.S. Households Use Financial Planners?**

Not all U.S. households actively seek the help of a third-party professional to assist in the process of financial planning. Some households are sold financial planning services while others employ the services of a planner who was recommended by a friend or family member. The reasons for using a financial planner may also vary between households with differing levels of income, wealth or family size. Ultimately, though, the

reasons why U.S. households do or do not use a financial planner are usually the result of one critical question: Do the benefits of employing a financial planner exceed the costs? Stigler (1961) phrased the question in this way: Is the cost of search small enough, relative to the dispersion of prices in the market, to justify an additional unit of search, or rather, one more search event? If the cost is low enough or the benefit great enough, the consumer will benefit from one more search. If not, the searching will stop because the marginal cost of the search will exceed the marginal benefit. These costs and benefits can be either direct (e.g. money) or indirect (e.g. time). According to the law of diminishing marginal utility, it will always hold that increased amounts of search will produce diminishing marginal returns. In the context of using a financial planner for saving and investment advice, households will experience declining marginal returns as the consumption of financial services continues. Even more relevant to the question at hand, however, is the definition of the benefits and costs that will persuade the household to engage the services of a planner.

### **3.1.2 Measuring Benefits to Search**

The direct benefits of using a financial planner include the creation and maintenance of more efficient investment portfolios, protection against financially devastating perils and improved rates of return on investments, all things financial planners are expected to do. While it is becoming easier for individual investors to create their own portfolios using online investment companies, a financial planner adds value by generating alternatives and providing access to several types of portfolios customized to

the needs and preferences of his or her client. In addition, the planner can and should be expected to act as a source of trusted information with respect to risk factors and fees associated with each available portfolio. While risk factors and fees information is available online and in print, the planner can assess the client's needs and circumstances and tailor his or advice accordingly.

Many financial planning firms in business today began by selling life insurance contracts to individuals (e.g. Prudential, First Command, Nationwide and Mass Mutual). The benefit of using a financial planner in the search for information on insurance products comes mainly from the planner's access to several different sources. This economy scope (Elmerick, Montalto & Fox, 2002) is also useful in terms of tax, investment and estate planning. Protection against financially devastating perils is not limited to the loss of an income earner's wages due to death, job loss or disability. Financial perils can also take the form of investment fraud and improperly prepared tax returns. Financial planners provide their own expertise and access to a network of professionals with skill sets sufficient to avoid obvious and hidden financial hazards.

Improved rates of return should be expected from clients of a financial planner. The planner's access to professional networks and their own training will allow them to provide information on fees, taxes and penalties associated with the types of investments in which their client is interested. Avoiding unnecessary expenses has a direct impact on the net returns of an investment portfolio. Thus the use of a financial planner for saving and investment advice can have immediate impact on household financial well-being. All four direct benefits of using a financial planner mentioned above are critical to the

consumer information search process and should be considered by each household planning to allocate their financial resources efficiently.

The indirect benefits of using a financial planner include the ability of households to spend their time earning wages in the market, in home production (e.g. raising children), in leisure activities (e.g. reading a book or planning a vacation) or to spend less time worrying about whether their finances are in order. The reason why some households use a financial planner may not be due to an inability to search for and implement financial strategies. Households with educated or financially experienced members may simply choose to spend their time in activities unrelated to financial planning. A financial planner, would thus provide an indirect benefit allowing the household to engage in other types of activities they wish to pursue.

In addition, the stress related to satisfying oneself with enough information to make an educated decision regarding investments, insurance, estate planning and taxes can be daunting. Paying a third-party financial professional to manage one's financial affairs allows the household to function under less pressure, producing an indirect psychological (and potentially physical) benefit. This topic leads well into the discussion of the costs of using a financial planner seen below.

### **3.1.3 Measuring Costs of Search**

From Stigler's (1961) seminal article on the economics of information it is learned that the expected savings obtained from one additional search event is measured by multiplying the quantity of the market good which the consumer intends to buy by the

expected reduction in price which can be achieved as a result of the search. This definition of expected savings from search produces two key notions. First, greater expected savings from search will be associated with large variations in price. Or in the context of financial planning services, the more options available to the consumer, the greater will be the expected savings from search.

Second, expected savings will be greater as expenditures on the market good rise (Stigler, 1961). This can also be seen as the result of finding a highly qualified financial planner whose advice produces savings in the form of legal tax avoidance and fee reductions for certain financial services products such as no-load mutual funds or municipal bonds.

Another main determinant of the amount of search includes the individual's expenditures on the commodity. A consumer with a large income will generally place greater value on his/her time than a lower income counterpart and consequently spend relatively less time in the search process, *ceteris paribus*. The greater the expenditure, the more in-depth the search is expected to be (Stigler, 1961). Finally, in order to reduce the cost of search, consumers engage in a form of networking or pooling of information. Pooling happens when two or more individuals share information about a certain product's price, or in the case of financial planners, their credibility and performance measures as well. Pooling is more common for some goods than it is for others. For instance, one might be more inclined to ask a neighbor about the price of a painting contractor or financial planner than the price of eggs. Despite the positive benefit of pooling, it comes with a significant limitation: reliability. Pooling is relevant in a

discussion of search efforts for financial planning services. Most households will turn to family, friends and other networks for guidance in the decision of which financial planner to use (Chang, 2005). While this is an important aspect of the economics of information, the measurement of the extent to which households engage in pooling strategies is beyond the scope of this study.

The costs of using a financial planner are both direct (e.g. a \$400 fee for a one-time comprehensive plan) and indirect. Indirect costs are best thought of in terms of the costs associated with the search efforts required to find a suitable financial planner as well as time spent meeting with the planner and implementing his or her recommendations. All variables used to measure the costs and benefits associated with the use of, and in some cases the search for financial planners are presented and discussed in the following paragraphs.

To revisit the notion of why consumers use financial planners it is important to remember that consumers will conduct a cost-benefit analysis of some sort before the search process. The benefits and costs may be direct or indirect. For example, higher educated households may see greater benefits to using a financial planner than a less educated respondent because they can see the long-term benefits from saving and investing more clearly. On the other hand, being highly educated can potentially lower the household's cost of doing their own financial planning because the ability to synthesize and utilize large amounts of information has already been proven. This example illustrates the complicated nature of determining which factors are associated



with the use of a financial planner and in what way they affect the household's search efforts for fiscal advice.

The theoretical model used in this study focuses on three aspects of a household's economic organization: Demographics, financial characteristics and financial attitudes and behaviors. Within each category, multiple variables will be used to represent direct and indirect benefits and costs of using a financial planner. The hypotheses that follow are based on the cost/benefit assumptions from the theory of the economics of information and previous findings in related literature.

### **3.2 Theoretical Framework**

Guiding the decision to conduct an external search for information are the notions from the theory of the economics of information presented above. The likelihood of searching for information for saving and investment decisions is expected to be a function of the costs and benefits associated with said search.

$$L_p = f(B - C)$$

**[Equation 3.1]**

Where  $L_p$  is the likelihood of searching for information from a financial planner;  $B$  is the benefit to search and  $C$  is the cost.

Gender is also expected to play a role in the decision to use a financial planner. This study attempts to examine the possibility that being female affects the value of perceived benefit to search and the pain of each cost. In other words, the coefficients associated with the likelihood of search will vary between men and women.

$$L_p = f(B_G - C_G)$$

**[Equation 3.2]**

Where  $B_G$  and  $C_G$  are the benefits and costs of search mediated by the gender of the consumer. Another purpose of the study is to examine the unexplained differences between men and women and the likelihood of searching for information from a financial planner.

Hypotheses based on the theoretical framework above follow. For each relationship, a hypothesis is presented regarding the relationship between variables chosen to represent constructs of the theory of information search and the likelihood of using a financial planner. A second set of hypotheses place an emphasis on the way gender may affect the relationship between the independent variables in the empirical model and the likelihood of using a planner. In addition, a unique hypothesis is presented for the gender variable, describing the expected relationship between the likelihood of using a financial planner and being female. Where theoretical constructs are unable to be proxied, hypotheses are presented based on previous empirical literature.

### **3.3 Hypotheses**

#### **3.3.1 Gender**

*Ho-1: The respondent's gender is not associated with the likelihood of using a financial planner.*

*Ha-1: The respondent's gender (female) is positively associated with the likelihood of using a financial planner.*

It is expected that women will engage in greater amounts of what Stigler (1961) describes as pooling effectively reducing the cost of search. Consumer socialization research shows that women are more likely to report parents and social networks as their primary sources of consumer socialization (Dotson & Hyatt, 2005). Women will see the benefits of using a financial planner for saving and investment advice and will more easily select a planner for their specific needs based on the results of pooling information derived from personal networks (Chang, 2005).

### **3.3.2 Age**

*Ho-2: The respondent's age is not associated with the use of a financial planner.*

*Ha-2: The respondent's age is positively associated with the use of a financial planner.*

### **Age and Gender**

*Ho-2a: Men and women exhibit the same association between age and the use of a financial planner.*

*Ha-2a: Men and women do not exhibit the same association between age and the use of a financial planner.*

It is expected that younger households will have more time to search for information on saving and investing than middle aged households. This potential discretionary time may be due to smaller family sizes or lesser demands from work.

When time is at a high premium during the middle and late income earning years it is expected that households will be more likely to seek the help of a financial planner who may be able to save them time by serving as an agent of information. Thus, seeking the help of a financial planner can be seen as a way for the household to produce more in the way of information on saving and investing using financial capital (paying fees) rather than human capital (time spent searching).

As the respondent's age increases and they begin to near retirement, the costs and benefits of searching for a financial planner increase. While time for search may be more plentiful for a nearly retired household, the energy required to conduct a comprehensive search for information on saving and investing will have its limits. Thus respondents in higher age categories will be more likely to use the services of a financial planner as a means to delegate the energy (mental and physical) required to be properly informed on saving and investment information. This hypothesis carries strong support from the applied information search literature (Chang, 2005; Elmerick, Montalto & Fox, 2002; Lin & Lee, 2004).

The information search patterns of respondents are not necessarily expected to differ based on the gender of the respondent. Being a husband or wife will not change the fact that comprehensive information search becomes more complicated with age. Older men, however, may feel less inclined to use a financial planner if they perceive the task of managing the household's finances as a subset of their gender role. If the wife is the respondent, it will be assumed that she has adopted the role of household financial manager and will thus be no more likely than a husband respondent to seek the help of an

advisor. Thus, wife respondents will be only slightly more likely to use a financial planner because they will be less threatened by the planner's ability to gather and present information regarding savings and investments.

### **3.3.3 Education**

*Ho-3: Education is not associated with the use of a financial planner.*

*Ha-3: Education is associated with the use of a financial planner.*

#### Education and Gender

*Ho-3a: Women and men exhibit the same association between education and the use of a financial planner.*

*Ha-3a: Women more than men exhibit a positive association between education and the use of a financial planner.*

Higher educated individuals, recognizing that saving and investing is a lifelong endeavor with long-term expenditure implications will require more information (Stigler, 1961) and see the benefits of using a financial planner. Since financial investment decisions require a high degree of information retention and utilization, it is no surprise that current literature on the search for financial information services suggests that education is associated with the type of source to which consumers turn for advice in such matters (Chang, 2005; Elmerick et al., 2002; Lee & Cho, 2005). This relationship may be explained by the relative ease with which the highly educated household consumes financial information and understands it. Thus, in contrast to the previous

argument, the household may actually place less value on the services of a financial planner.

Differences between husband and wife respondent households are expected to be very small in terms of the use of a financial planner among those with varying levels of education. The effects of education on the respondent's perceived benefit of using a financial planner will thus be similar for both husband and wife respondent households. Differences may be more likely with lower levels of education due to a potential polarization towards traditional gender roles for each spouse. That is, households with wife respondents without a college degree may be more likely to seek the help of a financial planner than a husband with a similar education because she feels less comfortable in the role of financial manager for the family.

On the other hand, the opposite might be true because a household with a wife respondent who has a low level of education may have been in the role of financial manager for the household for several years and will thus be less likely to seek the help of a professional because she is well acquainted with the intricacies of household financial management. In this case, her comfort with the role she plays in the family will make her less likely to perceive the benefits of a financial planner favorably.

#### **3.3.4 Race**

*Ho-4 The respondent's race is not associated with the use of a financial planner.*

*Ha-4 The respondent's race is associated with the use of a financial planner.*

## Race and Gender

*Ho-4a: Men and women exhibit the same association between race and the use of a financial planner.*

*Ha-4a: Men and women do not exhibit the same association between race and the use of a financial planner.*

Households in which the respondent is Black (non-Hispanic) are expected to be more likely to use a financial planner based on findings from previous, related research (Chang, 2005; Elmerick, Montalto & Fox). These studies differ, however, in their findings, making it difficult to create a directional hypothesis. Chang found that Black (non-Hispanic) households were more likely to use a financial professional (not a financial planner specifically), while Elmerick et al. found that Black households were more likely to use a planner for credit and borrowing situations rather than advice for saving and investment decisions. It was expected, based on these findings, that Black households would not be associated with the use of a planner for saving and investment decisions. Race will be used as an important control variable in the empirical model.

Gender's effect among the varying household races and ethnicities is most likely to be influential in households where the culture places an unequal emphasis on one sex in particular. Thus, where household roles are more well-defined, and strictly adhered to greater differences would be expected to exist. However, this study assumes that the respondent has already established him or herself as the financial expert in the family and consequently, very little differences are expected in the rate of financial planner use across races and ethnicities.

### 3.3.5 Household Size

*Ho-5: Household size is not associated with the use of a financial planner.*

*Ha-5: Household size is positively associated with the use of a financial planner.*

#### Household Size and Gender

*Ho-5a: Men and women exhibit the same association between household size and the use of a financial planner.*

*Ha-5a: Men and women do not exhibit the same association between household size and the use of a financial planner.*

Household size will affect the respondents' overall time constraint. A larger household may require the attention of the financially most knowledgeable individual in the household to be utilized in other areas of home management. This appropriation of skill should increase the perceived benefit of the services of a financial planner and thus increase the likelihood that he or she will select a financial planner as an external information source for saving and investment decisions (Nelson, 1970). However, from what is known about household size and information search for financial services, consumers in search of advice related to saving and investment decisions were not any more or less likely to indicate the use of a planner (Elmerick, Montalto & Fox, 2002).

Household size is expected to have a greater impact on wife respondent households than it does on those with husband respondents. Wife respondents with dependent children and the added responsibilities that accompany the role of the family



finance expert are expected to see great benefits in outsourcing their information search efforts to a financial planner. As traditional roles continue to change in the United States and elsewhere, this assumption that women spend more time raising the children becomes less credible.

### **3.3.6 Labor Force Participation**

*Ho-6: Labor force participation is not associated with the use of a financial planner.*

*Ha-6: Labor force participation is associated with the use of a financial planner.*

#### Labor Force Participation and Gender

*Ho-6a: Men and Women exhibit the same association between labor force participation and the use of a financial planner.*

*Ha-6a: Men and women do not exhibit the same association between labor force participation and the use of a financial planner.*

The respondent's labor force participation status is expected to influence his or her decision regarding the use of a financial planner. The benefit of using a financial planner while employed can be thought of in terms of enjoying the assistance of a professional in the process of implementing savings strategies that are tax efficient. This can be most useful during times of full employment when income and consequently, the respondent's tax bracket is high. Full employment will effectively tighten the time constraint imposed on these households, making it more beneficial to use the services of

a planner. As time for planning decreases, the need to pay for these services to be done outside of the home by a third party grows.

For unemployed and consequently less time-constrained respondents the indirect costs of using a financial planner are low, but the direct costs will be too high. For retired individuals, the benefits of using a financial planner will exceed the direct costs due to the ability of retired households to replace housing or other pre-retirement costs with those required to employ a financial planner. The indirect costs of using a planner should be low since time is a more abundant resource, however, due to the protective nature of post-retirement planning (i.e. older households are sometimes targeted for fraud), the indirect benefit of worrying less about financial security and fraud greatly outweighs the direct cost of employing a financial planner. Retired persons are often bombarded by requests from financial services professionals to enroll in programs that promise guaranteed income and other tempting financial offers. A planner provides the peace of mind that comes with the knowledge that one will be protected from fraudulent offers.

Wife respondents who are not in the labor force are expected to vary from husband respondents in their likelihood to use a financial planner. They may be more likely to use a planner since their current employment status may not be affecting the overall financial well-being of the household. On the other hand, a husband respondent who is not in the labor force could be experiencing a period of unemployment and may thus be more concerned about current rather than future financial consequences of his employment status.

Wife respondents who are self-employed or employed by another person or business aren't expected to be any more or less likely to use a financial planner than a husband respondent in the same employment circumstances because they will both be equally likely to need the services of a planner. Their time constrained schedules will demand the services of someone who can perform the necessary search efforts required to obtain information regarding critical saving and investment decisions. Being both employed (or self-employed) and in charge of the household's finances is expected to have a constricting effect on one's time no matter what gender they may be.

### **3.3.7 Income**

*Ho-7: Household income is not associated with the use of a financial planner.*

*Ha-7: Household income is positively associated with the use of a financial planner.*

#### **Income and Gender**

*Ho-7a: Men and women exhibit the same association between income and the use of a financial planner.*

*Ha-7a: Men and women do not exhibit the same association between income and the use of a financial planner.*

Household income represents the household's ability to earn wages in the marketplace. Three possible explanations of the effect of income on the likelihood of using a financial planner are discussed herein. First, when deciding how much time a household should spend searching for information, the rational household should consider how much their time is worth and will, according to the theory of the economics

of information, search less when their income is larger and more when it is small. In the case of searching for information on saving and investment decisions, turning to a financial planner is a time-saving activity. Thus, the second effect of income is mediated by the services provided by a financial planner, or in other words, as income grows, so will the likelihood of demanding the services of a financial planner as a means to consolidate the sources to which one would have to turn for advice on saving and investing.

Finally, since the household with higher income can now afford the services of a financial planner, they will be more likely to use them. Thus, income becomes a means by which the household is able to consume a normal good that they may not have previously been able to afford. As this ability increases, the likelihood of using a financial planner to help manage savings and investments will increase as well (Nelson, 1970).

Income generation is rarely an indication of fiscal conservatism; in fact, it may be a better indicator of the opposite behavior (Chang, 2005). Households with higher incomes tend to match their incomes with their consumption and thus may be more likely to perceive greater benefits from the services of a financial planner who can re-direct their spending into more prudent venues such as savings and investments.

This particular effect was illustrated by Hanna and Lindamood's (2006) finding regarding the likelihood of a respondent to be either male or female. As household income grew, males tended to gravitate towards becoming the respondent. This finding indicates a preference of men to manage household financial affairs when there are sufficient resources to manage. It should be expected that as income rises, men are more

likely to see themselves in the role of financial manager, which, according to the help-seeking literature would make them less likely than women to use a financial planner.

Among those households with the most income (i.e. greater than \$319,100), wife respondents are expected to be more likely to use a financial planner than their husband respondent counterparts. Wives in the role of family financial expert may be more willing at higher income levels to share the responsibility of managing the households finances with the help of a professional. Husband respondents at this income level may have the same desire to share the responsibilities of managing the household's finances but have been shown in previous research to be less likely to do so (Barber & O'Dean, 2001). Thus, when the money is more likely to be available to pay the fees for the services of a financial planner, wife respondents are expected to be more willing than husbands to seek their advice.

### **3.3.8 Financial Assets**

*Ho-8: Financial assets are not associated with the use of a financial planner.*

*Ha-8: Financial assets are positively associated with the use of a financial planner.*

#### Financial Assets and Gender

*Ho-8a: Men and women exhibit the same association between financial assets and the use of a financial planner.*

*Ha-8a: Men more than women exhibit a positive association between financial assets and the use of a financial planner.*

High financial asset households benefit greatly from the services of a financial planner. As Stigler (1961) states, the greater the expenditure on the good, the more extensive the search. If the household with large quantities of financial assets turns to an adviser whose fees are based on assets under management, the benefit of additional search will be expected to exceed the cost for quite some time. The benefits of planning and implementing sound financial strategies has the greatest potential benefit for households with large quantities of financial assets, and for this reason it is expected of these higher financial-asset-owning-households to be more likely to use a financial planner. As financial assets grow the severity of losses and the value of gains increases, consequently, the complexity of retaining assets and legally shielding a portion of them from the IRS becomes an important matter. Financial planners have an array of tools and typically a strong network of professional tax and estate planners who can assist the planner's clients in their efforts to retain and grow their assets (Chang, 2005).

Having large quantities of financial assets to invest poses a potential dilemma for both husband and wife respondent households. It is not expected that the likelihood of using a financial planner will be any different for a wife respondent with substantial financial assets (i.e. greater than \$500,000) than it would for a husband respondent household. The benefits of using a financial professional to manage all or a portion of the household's wealth is expected to be perceived equally in the eyes of any household financial expert.

### 3.3.9 Risk Tolerance

*Ho-9: Risk tolerance is not associated with the use of a financial planner.*

*Ha-9: Risk tolerance is positively associated with the use of a financial planner.*

#### Risk Tolerance and Gender

*Ho-9a: Men and women exhibit the same association between risk tolerance and the use of a financial planner.*

*Ha-9a: Men and women do not exhibit the same association between risk tolerance and the use of a financial planner.*

The subjective risk tolerance of the financially most knowledgeable spouse in a married couple household will affect not only their likelihood of seeking advice from a financial planner but the extent to which they seek for the advice (Grable & Joo, 1999). Measuring the extent of search is beyond the scope of this study. On the likelihood of using a financial planner, those with greater tolerance for risk may be less likely to seek the advice of a financial planner in their saving and investment decisions because they are more willing to experience the consequences of faulty or non-existent planning (i.e. the indirect benefits of using a planner do not exceed the direct costs). However, the most financially knowledgeable individual in a married couple may cater to the risk preference of his or her spouse, thus confounding or masking the true risk preferences of this key respondent (i.e. the financially most knowledgeable spouse). Regardless of this potential “spouse effect” (Sung & Hanna, 1998) the subjective risk tolerance of the respondent will be tested for its impact on the likelihood of selecting a financial planner for saving and investment decisions.

Gutter, Tabassum & Gross (2003) using the 1998 Survey of Consumer Finances reported that men were more likely to have higher subjective risk tolerance levels than women. However, objective risk tolerance measures were not different between men and women. Objective risk tolerance measures were found by dividing financial assets by total wealth and by dividing risky assets by total wealth. Risk tolerance can be seen as a proxy for an opportunity cost of saving and investing. More search will reduce the perceived risk of saving and investing. Thus lower levels of risk tolerance are expected to increase the amount of search in which one engages. Consulting a financial planner will also serve as a mechanism for reducing the opportunity cost of saving and investing, or the potential stress and anxiety associated with this activity. Thus the benefits of a financial planner will be of high value to a low risk tolerant individual.

On the other hand, someone with a greater tolerance for risk may see a benefit to using a financial planner, since a planner has the tools to objectively measure the benefits of taking financial risks. Thus, being willing to take risks with one's finances may lead to a greater likelihood of turning to a financial planner for saving and investment advice. Since husbands and wives have documented differences in risk tolerance (Gilliam, Goetz & Hampton, 2008) it is expected that female respondents will be more likely than male respondents to use a financial planner because their levels of risk tolerance are generally lower.

Wife respondents are expected to be more risk averse and thus be more likely to seek the advice of a financial planner for saving and investment advice. A recent study



suggests that high levels of the hormone testosterone are associated with taking financial risks. In general, men in study of 500 MBA students at the University of Chicago had higher levels of testosterone and were more likely to choose a risky, fictitious lottery payout as opposed to a fixed payout (Sapienza, Zingales & Maestripieri, 2009). In addition, women with higher levels of testosterone were nearly seven times more likely to take financial risks than women with lower levels of testosterone. Thus, wife and husband respondents are expected to differ significantly in terms of the likelihood of each to use a financial planner who is expected to reduce the perceived riskiness of investing by providing sound advice combined with experience.

### **3.3.10 Savings Motives**

*Ho-10: Savings motives are not associated with the use of a financial planner.*

*Ha-10: Savings motives are associated with the use of a financial planner.*

#### Savings Motives and Gender

*Ho-10a: Men and women exhibit the same association between savings motives and the use of a financial planner.*

*Ha-10a: Men more than women exhibit a positive association between financial assets and the use of a financial planner.*

Some savings motives are considered long-term while others are short-term motives. For those with longer time frames, the benefits of using a financial planner to assist in the process of saving for such an event is expected to be greater than the direct

costs involved. Husband and wife respondents are not expected to differ in terms of their likelihood of using a financial planner whether their savings goals are long-term or short-term in nature. A wife respondent with long-term savings motives is not expected to be any more or less likely than her husband respondent counterpart to use a financial planner for saving and investment advice.

### **3.4 Summary**

Ten hypotheses were presented based on the notion that certain variables can be used as proxies for the reasons why people use financial planners. The benefits and costs of using planners were considered for each variable and provide a framework from which an empirical model was tested. The following chapter describes the measurement of each variable in detail and lays out the blueprint for the empirical analysis.

## **CHAPTER 4**

### **METHODS**

This chapter will cover the method used to test the hypotheses presented in the preceding chapter. This chapter includes a description of the Survey of Consumer Finances (SCF) and the sampling procedures used in data collection. Following the SCF description, a detailed account of the measures used in the study is presented. The logit model used to test the hypotheses is presented in this chapter along with a description of the decomposition techniques employed to identify any differences between men and women.

#### **4.1 Data**

##### **4.1.1 The Survey of Consumer Finances**

The 2004 Survey of Consumer Finances (SCF) was used for this study. It is sponsored by the Federal Reserve Board and is designed to collect financial information every three years from a nationally representative sample of U.S. households. The year 2004 was the most recent version of the survey at the onset of this study and contains attitudes and behaviors of American households that reflect prosperous economic circumstances. The survey is conducted via face-to-face interviews with participants by

professional interviewers from the National Organization of Research housed at the University of Chicago. When necessary or preferred by the participant, interviews are conducted via telephone (Kennickel, 2005).

The survey offers detailed information regarding household level demographics, income, expenses, assets and liabilities. In addition, respondents (as opposed to household level data) are asked questions concerning their attitudes toward credit, their saving behaviors and tolerance for risk. Specific questions regarding the respondent's preferences as they relate to sources of information chosen for savings and investments decisions make the SCF an ideal dataset for testing hypotheses related to help seeking and information search. Beyond the level of detail on individual balance sheets for Americans, what sets the SCF apart from other surveys of comparative size (e.g. the Panel Survey of Income Dynamics or the Health and Retirement Study) is its focus on wealthy households. The Federal Reserve Board goes to great lengths to obtain information on wealth from households across the full wealth distribution. Efforts to ensure that an adequate supply of very wealthy households are included in the study is necessary when detailed information about investments is desired. The SCF consequently contains households who are going to be pre-disposed to the types of problems that lead to the search for information and assistance provided by financial services professionals.

#### **4.1.2 The Two-Sample Method**

Two-thirds of the SCF sample consists of households drawn from a stratified area-probability sampling technique. The other one-third of the survey respondents are

obtained from the Internal Revenue Service's (IRS) Statistics of Income (SOI) division. The former sample is stratified by geographic population so that smaller populations of the United States are equally as likely to be selected in the sampling process as large metropolitan areas. In fact, since home-based interviews are used to collect information for the survey, sample selection continues until a geographically compatible sample is isolated. Consequently, interviews are scheduled around that particular region of the country. This sampling method reduces the cost of the survey by minimizing travel related expenses. Households from the latter sample (the SOI list) are then chosen based on their proximity to the households in the former sample (Kennickel, 2007).

The SOI list consists of households that are more likely than average to be high-income and thus have high tax-expenses. In addition to the sample drawn from the SOI list a random sample is drawn and the overall survey sample is complete. When the two samples are combined they collectively offer a more suitable data set in studies of wealthy households and their decisions than could be provided by a large random area-probability sample alone. The survey is used for research and policy decisions related to matters that can only be addressed by sampling the wealthiest households. In essence, the SCF could not be utilized as broadly and effectively as it is today if it were not for the over-sampling techniques presently employed (Kennickel, 2007).

### **4.1.3 Missing Variables**

Due to the very nature of the SCF missing data are expected. The occurrence of missing data in the SCF is within the normal range of other similar surveys (Montalto & Sung, 1996). Since 1989, the SCF has used a multiple imputation method to replace missing information (Lindamood, Hanna & Bi, 2007). As a result, five separate implicates (datasets) are created for each surveyed household. Using all five implicates combined with the repeated imputation inference procedure described below, produces better variance estimates than would be generated by using just one of the implicates (Lindamood, Hanna & Bi, 2007). Montalto & Sung (1996) described the benefit of multiple imputation as a means by which an improved approximation to the true sampling distribution can be achieved. This study employs all five implicates and the RII procedure described in the following section.

### **4.1.4 Repeated Imputation Inference (RII)**

Since each implicate varies slightly from the others, and because  $p$ -values and standard error estimates are desired, it is necessary to use a procedure known as repeated imputation inference (RII) for regression analysis (Montalto & Sung, 1996; Rubin, 1987). The most accurate means of deriving a single point estimate of a particular parameter from each of the five implicates is to average the estimate from each one. Variance estimates are slightly more complicated to derive. One must estimate what Montalto & Sung refer to as the “within” and the “between” imputation variances. Within imputation variance is calculated by averaging the variance estimates produced by each implicate

separately. Between imputation variance is the sum of the squared difference between the observed point estimate in each implicate and the overall average point estimate, all divided by the number of implicates minus one.

Finally, using the point estimates and variance estimates produced by the RII techniques, one can calculate confidence intervals from which significance tests can be produced. Using these techniques in multiple scenarios with data from the 1992 SCF, Montalto & Sung's (1996) results confirmed Rubin's (1987) conclusion that RII techniques provide more complete outcome variables than what could be provided by a single imputation inference or the use of only one implicate. RII techniques will be used to generate point and variance estimates and significance tests in this study.

#### **4.1.5 The Sample**

The SCF consists of several household types: married couple households, co-habiting households and single head households. The composition of these households varies as well, with same-sex households and mixed-race partnerships as well as married couple households and unmarried male and female headed households. In order to focus on the search behaviors of men and women in male-female couples, only married opposite sex partner couples were selected. A household is categorized as a married couple household only if the respondent specifies that a spouse of the opposite sex resides in the household. This particular form of sample selection provides for a more accurate comparison of male and female search behaviors by ensuring a higher percentage of respondents in similar age groups (Lindamood & Hanna, 2006) and levels of wealth .

#### **4.1.6 The Respondent**

As already specified by the SCF, male and female respondents were chosen based on the information given during the initial contact with the interviewer. After conducting a standard information gathering procedure during which the size of the household and the number of children is determined, the interviewer asks, “For this study, we would like to interview the head of the household or that person’s spouse or partner if they are more knowledgeable about the household finances. Who would this be?” If more probing is necessary, the interviewer is instructed to carry out the task of identifying who is the most knowledgeable about the household finances by employing an additional set of questions concerning who owns the house or whose name is on the lease. If the series of additional questions fails to identify the most knowledgeable spouse, the default respondent becomes the person who is closest in age to 45 or that person’s spouse or partner if they are more knowledgeable about the household finances.

## **4.2 Measures**

### **4.2.1 The Dependent Variable**

The key dependent variable for this study utilizes the following question from the Survey of Consumer Finances which asks the respondent,

*“ How do you (and your [husband/wife/partner])make decisions about saving and investments? (Do you call around, read newspapers, magazines, material you get in the mail, use information from television, radio, an online service or advertisements? Do you get advice from a friend, relative, lawyer, accountant, banker, broker, or financial planner? Or do you do something else?). ”*



The respondent can choose as many sources as they would like, however, most limit their selection to fewer than three sources (Gutter & Clement, 2005). This study compares those married couple households who choose to make their saving and investment decisions using a financial planner with those who did not use a planner. A dummy variable indicating whether or not the respondent selected a financial planner from the list of possibilities was created to serve as the dependent or outcome variable for this study.

Fortunately, the list of possible responses includes such financial professionals as brokers, accountants, bankers and lawyers. Thus we can reasonably conclude that when financial planners are selected these other professionals are not included in the respondent's definition of a financial planner. Otherwise, they would have chosen only the broker or the banker. Unfortunately, the survey does not distinguish among financial planners, leaving out the distinction between fee-only, commission only, and fee-based planners. Fee-only planners typically charge a flat fee based on the overall assets they manage for the client. Commission planners collect a percentage of each security they sell to their client and fee-based planners charge a fee based on a percentage of assets under management.

### **4.3 Independent Variables**

The three categories of independent variables used to model the likelihood of using a financial planner are demographics, financial information and the attitudes and preferences of the respondent. Each category was chosen for its relevance in regards to the theory of information search. The following paragraphs provide the reader with

descriptions of each independent variable in the study and how it will be operationalized. The dummy category with the highest frequency was selected as the reference category.

#### **4.3.1 Demographics**

In an attempt to observe a possible non-linear relationship between age and the use of a planner, age will be measured by five dichotomous variables: “under 35,” “35 to 44,” “45 to 54,” “55 to 64,” and “over 65.” The increase from age 30 to 35 is not expected to have the same effect on the likelihood of using a financial planner as, say, the increase from age 50 to 55. For this reason, dummy variables for each category were created with the 45 to 54 year old category as the reference group.

These categories cannot measure time constraint directly, however, younger, middle-age and older households’ likelihood of using a financial planner can be measured. Thus, time constraint is proxied by each age category. The perceived benefit of using a financial planner is also represented. As the respondent ages they are expected to view the services of a financial planner as more beneficial and will be more likely to use a planner for saving and investment decisions. Young respondents may also see the benefit of using a financial planner in terms of the time they have left to invest. Finally, middle-age households are expected to benefit from a financial planner as a means of saving time and energy on search efforts. Using categories, all three of these scenarios can be examined.

The education attained by the respondent of the survey will be categorized into four dichotomous variables: “less than high school diploma,” “obtained high school

diploma,” “some college experience,” and “obtained college degree or more.” The reference group will be those with a college degree. Increases in respondent education can have differing impacts on the use of a financial planner. Respondents with college degrees may have a greater thirst for information which could lead them to see the benefits of using a financial planner as an information agent. Higher educated respondents may also view the services of a planner as less desirable since information can be understood with greater ease. Both of these concepts can be measured using the categories described above.

Household size was measured using three dichotomous variables, “0,” “1,” “2” and “3 or more” with “0” as the reference category.” Time constraint cannot be measured by these categories directly. However, whether the household is going to produce information on saving and investments through its own search efforts or by outsourcing that information to a financial planner becomes more of an important question as household size, and therefore the constraint on household time increases. With each increase in household size the respondent is expected to be more likely to use a financial planner.

The respondent’s race/ethnicity will be divided into four dichotomous variables: “white non-Hispanic,” “black non-Hispanic,” “Hispanic,” and “other.” The “white non-Hispanic” category will be used as the reference. These dummy variables will serve as control variables in the empirical model. Race/ethnicity was determined by a combination of variables “X6809” and “X7004.” The former identifies the race and the latter identifies whether the respondent’s ethnicity is Hispanic or not.

Finally, labor force participation was captured in four categories. The respondent's labor force status was chosen to represent that of the family. While this may not always be the official labor force participation status of the household it is consistent with the other variables in the model. The first category contains all respondents who are employed by someone other than themselves. The second category consists of those respondents who are self-employed. The third, of those who would be considered voluntarily unemployed such as students, homemakers and retired individuals age 65 and older. The fourth category contains all other types of individuals mainly those under 65 who are not in the labor force.

#### **4.4 Financial Variables**

##### **4.4.1 Income**

Variable "x5729" in the 2004 Survey of Consumer Finances is the sum of several preceding variables (or interview questions). These questions refer to income from wages and salary before deductions for taxes or anything else including overtime, bonuses and tips (x5702); a business, professional practice, LLC, or farm (x5704); non-taxable investments (x5706); other interest (x5708); dividends (x5710); the net sale of mutual funds, stocks, bonds or real estate in 2003 before deductions for taxes (x5712); net rent, trusts or royalties (x5714); unemployment or worker's compensation (x5716); child support or alimony (x5718); TANF, food stamps or another form of welfare assistance (x5720); retirement income including Social Security, other pensions, annuities, or disability (x5722); and any other source of income (x5724).

Household income consists of six dichotomous variables. These variables were created to capture any potential curvilinear relationships with the dependent variable and represent the 2004 tax brackets for married couples filing jointly in 2004. The categories include: “less than \$14,300 annually,” “\$14,300 to \$58,099,” “\$58,100 to \$117,249,” “\$117,250 to \$178,649,” “\$178,650 to \$319,099” and “at least \$319,100.” The reference category will be those with an annual income between \$58,100 and \$117,249. The tax bracket of the respondent can be measured by each dummy variable. As the respondent’s tax bracket increases, his or her opportunity cost of search will go up. This increase is expected to raise the likelihood that the household will use a financial planner. An increase in income will also signify a growing ability for the respondent to afford the services of a financial planner, also resulting in a higher likelihood that the household will use a financial planner. With higher income brackets come greater tax liabilities. Households in the higher income brackets will be more likely to use a planner for legal tax avoidance strategies.

#### **4.4.2 Financial Assets**

The complete set of Federal Reserve Board code used to calculate financial assets can be found in Appendix A.1. Included here are the asset classes used in the calculation of financial assets. It is the sum of all of the household’s liquid assets, certificates of deposit, stocks, bonds, quasi-liquid retirement funds (e.g. sum of IRAs, thrift accounts, and future pensions), savings bonds, the cash value of whole life insurance, other managed assets (e.g. trusts, annuities and managed investment accounts) and other

financial assets (e.g. loans from the household to someone else, future proceeds, royalties, futures, non-public stock, deferred compensation, and oil/gas/mineral investments).

Non-financial assets include the value of all vehicles owned by the household, the value of a primary residence, farm or business minus any mortgages; other residential real estate properties other than the principal residence(e.g. time shares and vacation homes); and other non-financial assets which include such items as guns, stamp collections, art, cemetery plots, musical instruments, livestock, horses, computers, equipment, tools and other miscellaneous assets. The sum of all financial assets and non-financial assets is the value of the household's total assets.

For the purposes of statistical analyses five dichotomous variables were used: "less than \$50,000," "\$50,000-\$99,999," "\$100,000-\$299,999," "\$300,000-\$499,999," "greater than \$500,000." The response variable is "less than \$50,000." These categories were chosen based on the distribution of household's financial assets within the sample, with 63% of the sample falling in the lowest asset range. This category was used to allow comparisons between those with average financial assets and those with higher levels of financial assets.

## **4.5 Attitudes and Expectations**

This section outlines the categories used to describe five attitudes and expectations of the respondent. These include financial risk tolerance, financial luck, savings behavior, time horizon, and economic outlook. Each attitude/expectation is divided into categories which are then converted into separate dichotomous variables.

### **4.5.1 Financial Risk Tolerance**

The risk tolerance question in the SCF is phrased in the following way:

*Which of the following statements comes closest to describing the amount of financial risk that you are willing to take when you save or make investments?*

The four possible answers are, “[I] take substantial financial risks expecting to earn substantial returns,” “take above average financial risks expecting to earn above average returns,” “take average financial risks expecting to earn average returns,” and “not willing to take any financial risks.” A dummy variable was used to simplify the responses into two categories: Willing and unwilling to take financial risks. Those respondents who were willing to take any level of financial risk were lumped into the “willing” category while all others were considered “unwilling” to take financial risks.

It is important to note here that financial risk tolerance does not capture any other sort of tolerance(s) for risk. That is, a respondent who enjoys skydiving could be unwilling to take any risks with their earned wages or retirement account. Creating two mutually exclusive categories also reduces confusion between the relatively ambiguous

differences between respondents who indicate “high” “medium” and “low” levels of financial risk tolerance.



Long-term	Short-term
Education	Can't Save
Children's/grandchildren's education	Don't/can't save; "no money"
Own or spouse/partner's education	Family
Retirement/Wealth Preservation	For the children/family
Burial/ funeral expenses	Wedding/Bar Mitzvah, etc.
Retirement/ old age	To have children/ a family
Wealth preservation/ maintain lifestyle	Home
Investments/ The Future	Buying own house
Buying/investing in own business/farm	Purchases
Investments reasons	To move
To advance standard of living	Purchase of cottage/ second home
For the future	Buy a car, boat or other vehicle
	Home improvement/ repairs
	To travel or take vacations
	Buy appliances etc. or hobbies
	Charitable or religious donations
	"To enjoy life"
	To meet contractual commitments
	Ordinary living expenses
	Pay taxes
	To give gifts, "Christmas"
	Liquidity
	Reserves if unemployed
	In case of illness; medical/dental
	Emergencies, independence
	Liquidity; to have cash available
	No particular reason
	Had money leftover, no purpose

**Table 4.2 Long-term and Short-term savings motives**

#### 4.5.2 Respondent Savings Motives

The final attitudinal variable is the respondent's savings motives. It is posited that those with long-range savings motives will find greater benefits from the use of a financial planner. That the respondent would indicate the use of a planner for saving and investing suggests a tendency for the respondent to look ahead in financial matters.

Savings motives in the SCF are complex and cover a broad range of topics from bequest motives to purchases of household goods. For the purposes of this study, all responses were divided into two categories: Long-term savings motives and short-term savings motives. Table 4.1 shows how each possible response was treated in the categorization process. The question regarding savings motives was phrased the following way by the interviewer:

*Now I'd like to ask you some questions about your attitudes about savings. People have different reasons for saving, even though they may not be saving all the time. What are your most important reasons for saving?*

This study uses Federal Reserve guidelines for categorizing savings motives into nine initial groups, namely, “can’t save,” “education,” “family,” “home,” “purchases,” “retirement/wealth preservation,” “liquidity,” “investments/the future,” “no particular reason.” Each of the preceding nine categories contained one or more specific reasons for saving which can be seen in detail in table 4.1.

#### **4.6 Interaction Terms**

An interaction term for each of the above dummy variables was included in the empirical model and the presence of these terms allows for the effects of each independent variable to vary between male respondents and female respondents. Each independent variable was interacted with a dummy variable labeled “female” which gives all of the male respondents in the sample a value of zero (0) and the female respondents a value of one (1).

## **4.7 Descriptive Analysis**

The descriptive analysis is comprised of chi-square comparisons between men and women for each categorical variable. There were no continuous variables in this study, thus each variable will be used in these comparisons. The actual chi-square value for the comparison will be reported along with asterisks to illustrate the statistical significance.

### **4.7.1 Chi-Square Tests of Independence**

In the initial phase of the analysis variables will be compared using Chi-square tests. For these tests data pooled from all five implicates will be analyzed. A weight variable is used for descriptive analysis, this variable will be divided by a factor of five for data pooling and consequently the provision of meaningful chi-square statistics. A chi-square test of statistical significance was used to examine the probability that the categories within each variable are unrelated in the population. The null hypothesis is that there is no association between the categories of the variables and the use of a financial planner. The alternative hypothesis is that the categories are associated with the use of a planner.

## 4.8 Multivariate Analysis and Decomposition

### 4.8.1 The Logistic Regression Model

The dichotomous nature of the dependent variable (i.e. whether the respondent chose a financial planner as one of his/her sources for advice related to saving and investing) lends itself to logistic regression analysis. A value of one signifies the choice of a planner while a value of zero means that the respondent did not prefer saving and investment advice from a financial planner. Notation for the dependent variable was written in the following form:

$$\text{logit}\left(\frac{p_i}{1-p_i}\right)$$

**[Equation 4.1]**

The notation  $p_i$  represents the probability of using a financial planner. Thus, the previous notation represents the log odds of using a financial planner. Dummy variables were created for each independent variable as noted above. Reference groups were labeled in each applicable table for ease of interpretation.

### 4.8.2 Decomposition

Each set of hypotheses contains a subset of hypotheses related to the decomposition technique employed in this study. These hypotheses suggest that the gender differences in the determinants of the likelihood of using a financial planner should be better explained by considering the gender differences in the explanatory factors than by only considering an indicator of gender as the factor for the difference. The gender variable was tested first as an independent factor in what can be thought of as

the initial logit model. This initial model is represented in the following way:

$$\begin{aligned}
 \text{logit}\left(\frac{p_i}{1-p_i}\right) &= \beta_0 + \beta_{Female}\chi_{Female} + \beta_{30}\chi_{30} + \beta_{40}\chi_{40} + \beta_{60}\chi_{60} + \beta_{70}\chi_{70} \\
 &+ \beta_{<HighSchool}\chi_{<HighSchool} + \beta_{OnlyHighSchool}\chi_{OnlyHighSchool} \\
 &+ \beta_{SomeCollege}\chi_{SomeCollege} + \beta_{One}\chi_{One} + \beta_{Two}\chi_{Two} + \beta_{Three}\chi_{Three} \\
 &+ \beta_{Black}\chi_{Black} + \beta_{Hispanic}\chi_{Hispanic} + \beta_{Other}\chi_{Other} \\
 &+ \beta_{LaborSelf}\chi_{LaborSelf} + \beta_{LaborRetired}\chi_{LaborRetired} + \beta_{LaborOut}\chi_{LaborOut} \\
 &+ \beta_{Income1}\chi_{Income1} + \beta_{Income2}\chi_{Income2} + \beta_{Income4}\chi_{Income4} \\
 &+ \beta_{Income5}\chi_{Income5} + \beta_{Income6}\chi_{Income6} + \beta_{75}\chi_{75} + \beta_{200}\chi_{200} \\
 &+ \beta_{400}\chi_{400} + \beta_{500}\chi_{500} + \beta_{Unwilling}\chi_{Unwilling} + \beta_{Long-term}\chi_{Long-term} \\
 &+ E
 \end{aligned}$$

**[Equation 4.2]**

The following table (4.2) provides a description of the variables used in the descriptive analysis as well as the empirical models described in this section. Variable names appear in the same way that they are displayed in equations 4.1 and 4.2. Descriptions of each variable also appear in table 4.2.

Variables	Description
Gender of respondent (reference category: male)	
Female	=1 if respondent is female
Age of respondent (reference category: 45-54)	
30	=1 if respondent < 35
40	=1 if respondent is 35-44
50	=1 if respondent is 45-54
60	=1 if respondent is 55-64
70	=1 if respondent is >65
Education of respondent (reference category: some college)	
Less than High School	=1 if respondent education < High School
Only High School	=1 if respondent education = High School
Degree	=1 if respondent education $\geq$ College Degree
Household size (reference category: No dependents)	
One	=1 if respondent has no dependents under 19
Two	=1 if respondent has one dependent under 19
Three	=1 if respondent has three or more dependents under 19
Race (reference category: White (non-Hispanic))	
Black	=1 if respondent is Black (non-Hispanic)
Hispanic	=1 if respondent is Hispanic
Other	=1 if respondent is not White, Black or Hispanic
Labor Force Participation (reference category: Employed by another)	
Self-employed	=1 if respondent is self-employed
Retired	=1 if respondent is retired
Not in Labor Force	=1 if respondent is unemployed, but not retired
Income (reference category: Respondent's income is in the 25% tax bracket)	
10% bracket	=1 if income is in the 10% tax bracket
15% bracket	=1 if income is in the 15% tax bracket
28% bracket	=1 if income is in the 28% tax bracket
33% bracket	=1 if income is in the 33% tax bracket
35% bracket	=1 if income is in the 35% tax bracket or higher
Financial assets (reference category: financial assets less than \$50,000)	
75	=1 if financial assets between \$50,000 and \$99,000
200	=1 if financial assets between 100,000 and 299,999
400	=1 if financial assets between 300,000 and 499,999
500	=1 if financial assets > 500,000

Continued

**Table 4.2 Description of Variables**

Table 4.2 continued

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Financial risk tolerance (reference category: Willing to take financial risks)	
Unwilling	=1 if unwilling to take financial risks
Savings Motives (reference category: Short-term savings motives)	
Long –term	=1 if respondent’s savings motive are long-term

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### 4.8.3 The Full Interaction Model

The method for testing the predisposition of women to use a financial planner is known as decomposition analysis and will be used to enable the empirical model to allow the independent variable coefficients to differ between male and female spouses. Ultimately the predisposition of women to utilize the services of a financial planner will be exposed via this method. The full model including the interaction terms is shown below.

$$\begin{aligned}
& \text{Full logit} \left( \frac{p_i}{1 - p_i} \right) \\
& = \beta_0 + \beta_{\text{Female}} \chi_{\text{Female}} + \beta_{30} \chi_{30} + \beta_{40} \chi_{40} + \beta_{60} \chi_{60} + \beta_{70} \chi_{70} \\
& + \beta_{<\text{HighSchool}} \chi_{<\text{HighSchool}} + \beta_{\text{OnlyHighSchool}} \chi_{\text{OnlyHighSchool}} \\
& + \beta_{\text{SomeCollege}} \chi_{\text{SomeCollege}} + \beta_{\text{One}} \chi_{\text{One}} + \beta_{\text{Two}} \chi_{\text{Two}} + \beta_{\text{Three}} \chi_{\text{Three}} \\
& + \beta_{\text{Black}} \chi_{\text{Black}} + \beta_{\text{Hispanic}} \chi_{\text{Hispanic}} + \beta_{\text{Other}} \chi_{\text{Other}} \\
& + \beta_{\text{LaborSelf}} \chi_{\text{LaborSelf}} + \beta_{\text{LaborRetired}} \chi_{\text{LaborRetired}} + \beta_{\text{LaborOut}} \chi_{\text{LaborOut}} \\
& + \beta_{\text{Income1}} \chi_{\text{Income1}} + \beta_{\text{Income2}} \chi_{\text{Income2}} + \beta_{\text{Income4}} \chi_{\text{Income4}} \\
& + \beta_{\text{Income5}} \chi_{\text{Income5}} + \beta_{\text{Income6}} \chi_{\text{Income6}} + \beta_{75} \chi_{75} + \beta_{200} \chi_{200} \\
& + \beta_{400} \chi_{400} + \beta_{500} \chi_{500} + \beta_{\text{Unwilling}} \chi_{\text{Unwilling}} + \beta_{\text{Long-term}} \chi_{\text{Long-term}} \\
& + \beta_{30} (\chi_{30} * \chi_{\text{Gender}}) + \beta_{40} (\chi_{40} * \chi_{\text{Gender}}) + \beta_{60} (\chi_{60} * \chi_{\text{Gender}}) \\
& + \beta_{70} (\chi_{70} * \chi_{\text{Gender}}) + \beta_{<\text{HighSchool}} (\chi_{<\text{HighSchool}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{OnlyHighSchool}} (\chi_{\text{OnlyHighSchool}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{SomeCollege}} (\chi_{\text{SomeCollege}} * \chi_{\text{Gender}}) + \beta_{\text{One}} (\chi_{\text{One}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{Two}} (\chi_{\text{Two}} * \chi_{\text{Gender}}) + \beta_{\text{Three}} (\chi_{\text{Three}} * \chi_{\text{Gender}}) + \beta_{\text{Black}} (\chi_{\text{Black}} \\
& * \chi_{\text{Gender}}) + \beta_{\text{Hispanic}} (\chi_{\text{Hispanic}} * \chi_{\text{Gender}}) + \beta_{\text{Other}} (\chi_{\text{Other}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{LaborSelf}} (\chi_{\text{LaborSelf}} \chi_{\text{Gender}}) + \beta_{\text{LaborRetired}} (\chi_{\text{LaborRetired}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{LaborOut}} (\chi_{\text{LaborOut}} * \chi_{\text{Gender}}) \beta_{\text{Income1}} (\chi_{\text{Income1}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{Income2}} (\chi_{\text{Income2}} * \chi_{\text{Gender}}) + \beta_{\text{Income4}} (\chi_{\text{Income4}} * \chi_{\text{Gender}}) \\
& + \beta_{\text{Income5}} (\chi_{\text{Income5}} * \chi_{\text{Gender}}) + \beta_{\text{Income6}} (\chi_{\text{Income6}} * \chi_{\text{Gender}}) \\
& + \beta_{75} (\chi_{75} * \chi_{\text{Gender}}) + \beta_{200} (\chi_{200} * \chi_{\text{Gender}}) + \beta_{400} (\chi_{400} * \chi_{\text{Gender}}) \\
& + \beta_{500} (\chi_{500} * \chi_{\text{Gender}}) + \beta_{\text{Unwilling}} (\chi_{\text{Unwilling}} * \chi_{\text{Gender}})
\end{aligned}$$



$$+ \beta_{Long-term}(\chi_{Long-term} * \chi_{Gender}) + E$$

**[Equation 4.3]**

As discussed previously, the full model allows each coefficient on the use of a financial planner to be different for female respondents and male respondents.

#### **4.9 Summary**

Utilizing the cross-sectional survey design of the Survey of Consumer Finances, chi square associations, logistic regression analysis and a form of decomposition analysis, the predisposition of women to use a financial planner over men was examined. An initial logit model including gender as an independent variable was estimated as the first step in the multivariate analysis. The next step consisted of two separate logistic regression models, one for men, the other for women comparing independent variable associations with the likelihood of using a planner between female respondents and male respondents. In order to examine a gender effect, a third logistic regression analysis was conducted interacting gender with each variable in the model. Statistical significance of interaction terms in this third model will be used to determine whether gender has a unique influence on the likelihood of using a financial planner for saving and investment decisions.

## **CHAPTER 5**

### **RESULTS**

#### **5.1 Overview**

This chapter presents the descriptive and multivariate results from the analysis of the 2004 Survey of Consumer Finances conducted to test the hypotheses outlined in chapter three. The descriptive analysis examines the percentages of those who would use a financial planner for saving and investing. Following the descriptive analysis the findings from the logistic regression analyses are presented. The first multivariate model, as described in the previous chapter, was a logistic regression with demographic, financial and attitudinal variables regressed on the likelihood of using a financial planner. Gender was treated as any other variable in its association with the dependent variable. A full logit was conducted to test the second set of hypotheses from each hypothesis group in chapter three. Each variable in this final model was included twice, once as normally included in the preceding models and once interacted with gender.

## **5.2 Descriptive Analysis**

The unweighted total number of households included in the 2004 SCF was 4,519. Only those households who indicated that they were married couples were included in the final sample. Thus an unweighted 2,691 married couple households are found in the following analyses. Approximately 53.5% of households contained male respondents and 46.5% had female respondents. These and subsequent percentages were calculated using population weights provided by the Federal Reserve Board. Less than one-quarter of the sampled male respondents (22.8%) referenced the use of a financial planner when making decisions about saving and investing. A similar percentage (23.9%) of the sampled female respondents also used a planner for such advice (Table 5.1).

## **5.3 Descriptives: Men and Women and the Use of Financial Planners**

This section describes the analysis from table 5.1, a comparison of household use of a financial planner for saving and investing. Each sub-category contains percentages of the households who would use a financial planner.

### **5.3.1 Demographics**

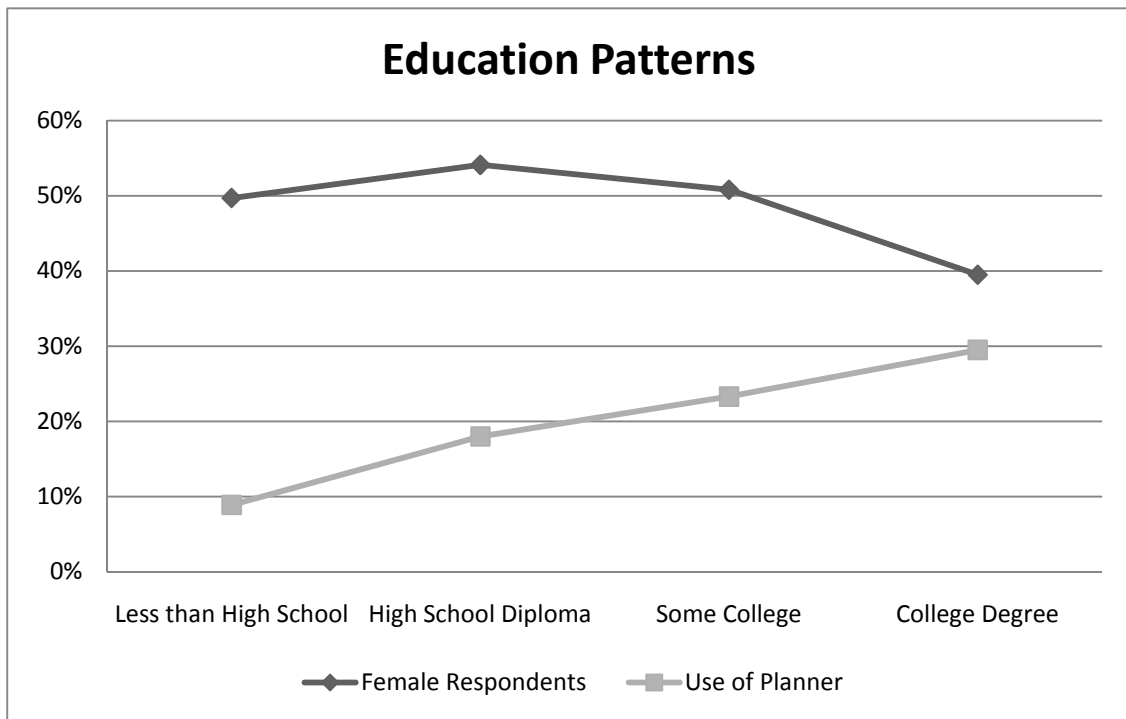
#### Gender and Age

As reported in table 5.1, gender is not independent of planner use. Households with male respondents aged 55-64 had the highest concentration of users of financial planners than any other age group (33.6%). This same age group of women respondents was relatively high compared to other age groups (35.2%). In both cases (male and

female respondent households) the lowest concentration of financial planner use was found in the subsequent age category (65+). Seventeen percent of retirement age men and 16% of retirement age women respondents used a financial planner for saving and investing.

Education

Of those males with less than a high school education 6.3% indicated they would use a financial planner for saving and investing, while 11.6% of similarly educated women said they would do the same (see table 5.1). As seen in Figure 5.1, the higher the education of the respondent, the greater the concentration of planner-using households.



**Figure 5.1 Education of respondent in relation to planner use and female respondents**

The opposite was true for wife respondents. The higher the education level attained, the lower the percentage of households using a financial planner. Thirty-four percent of women with a college degree and 27% of similarly educated men used a financial planner. The comparison here, between men and women was statistically significant. Use of a financial planner appears to be independent of gender for those respondents who have at least one college degree.

Race/ethnicity, household size and labor force participation

Independence between gender and the use of a financial planner was not found among any of the categories for race/ethnicity. Neither was gender independent of the use of a financial planner for any of the household size categories.

	Total	Male	Female	$\chi^2$
All Households Who Used a Planner	2691	1721	970	
Household Characteristics	100.00	22.77	23.87	0.3866
Age				
<35	18.82	17.14	20.39	0.0754
35-44	21.35	20.30	22.22	0.7327
45-54	26.07	25.80	26.34	0.2892
55-64	34.18	33.56	35.18	0.0204
≥65	16.77	17.12	16.04	0.1022
Education				
<High school	8.91	6.25	11.60	1.9202
High school	17.97	20.07	16.18	1.5937
Some college	23.34	23.24	23.44	0.0022
≥College	29.54	26.77	33.78	5.7831*
Race				
White (non-Hispanic)	25.45	25.67	25.19	0.0521
Black (non-Hispanic)	16.72	15.26	17.87	0.1864
Hispanic	15.17	11.60	19.38	2.8896
Other	15.43	11.23	22.47	2.3671
Dependents				
No dependents	23.60	22.87	24.68	0.4436
One dependent	25.76	23.40	28.01	1.3985
Two dependents	21.44	22.96	19.87	0.6626
≥Three dependents	20.94	20.83	21.03	0.0018
Labor Force Participation				
Employed by Another	24.13	23.13	25.38	0.8688
Self-Employed	27.48	28.18	26.24	0.1455
Retired/Homemaker	19.20	18.93	19.65	0.0347
Not in Labor Force	20.23	8.09	21.76	2.6675
Financial Characteristics:				
Household Income:				
<\$14,300	6.54	6.78	6.23	0.0111
14,300-58,099	15.22	14.56	15.90	0.3276
58,100-117,249	28.12	27.48	28.74	0.1588
117,250-178,649	30.74	26.63	36.84	2.8321
178,650-319,099	36.55	33.53	43.90	1.2022
≥319,100	49.61	48.41	54.28	0.1549

Continued

**Table 5.1 Descriptive Statistics: Weighted Percentage of Households Who Indicated They Would Use a Financial Planner for Saving and Investments**

Table 5.1 continued

Financial Assets:				
<\$50,000	15.82	13.32	18.02	5.7636*
50,000 – 99,999	27.50	23.20	33.29	2.7040
100,000 – 299,999	35.14	32.74	38.45	1.1851
300,000 – 499,999	41.46	44.90	34.29	1.1844
≥500,000	38.94	37.32	44.58	0.8209
Attitudes and Behaviors:				
Risk Tolerance				
Willing	30.26	28.99	31.94	1.5243
Unwilling	9.77	8.18	11.18	1.9792
Savings Motive (Long Term)				
Short Term	18.44	23.80	24.80	0.1568
Long Term	26.34	14.94	19.56	0.2207

Note: Tests for statistical differences between male and female respondents were conducted using chi-square analysis. All percentages and statistical differences were calculated based on weighted analysis of all five implicates of the 2004 SCF.

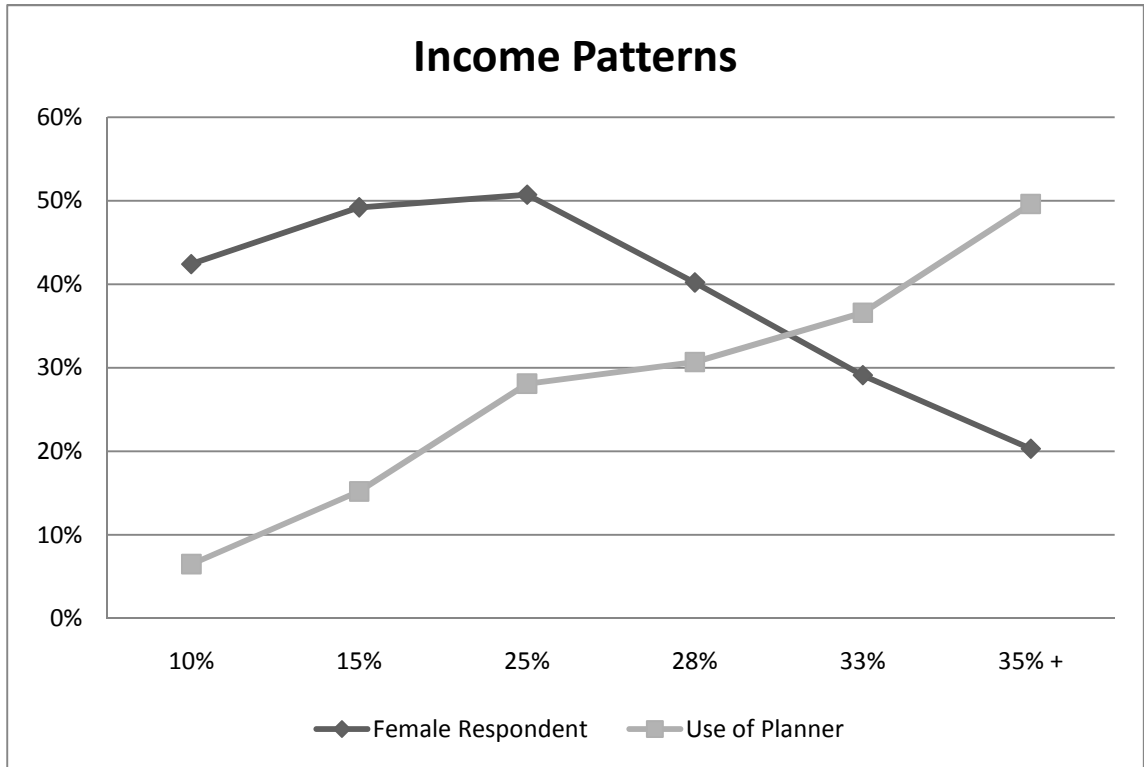
\* $p < .05$ .

### 5.3.2 Income and Financial Assets

As seen in figure 5.2 there is a consistent incline in the percentage of female-respondent households who use a financial planner. Figure 5.2 depicts an intersecting relationship between the use of a financial planner and the percentage of female-respondent households for each income category. While the percentage of female-respondent households increases at every income level, the concentration of female-respondent households experiences a consistent decline after reaching the 25% tax bracket.

Figure 5.3 reveals a similar pattern in the financial asset categories. As financial assets increase, the percentage of female-respondent households declines. In contrast, as

financial assets increase, the percentage of planner-using households goes up. In both the income and financial asset categories, a sort of “tag” occurs from wife to husband as income increases and as financial assets improve. Findings from Table 5.1 indicate that gender is independent of the use of a financial planner for those households in the lowest income category.

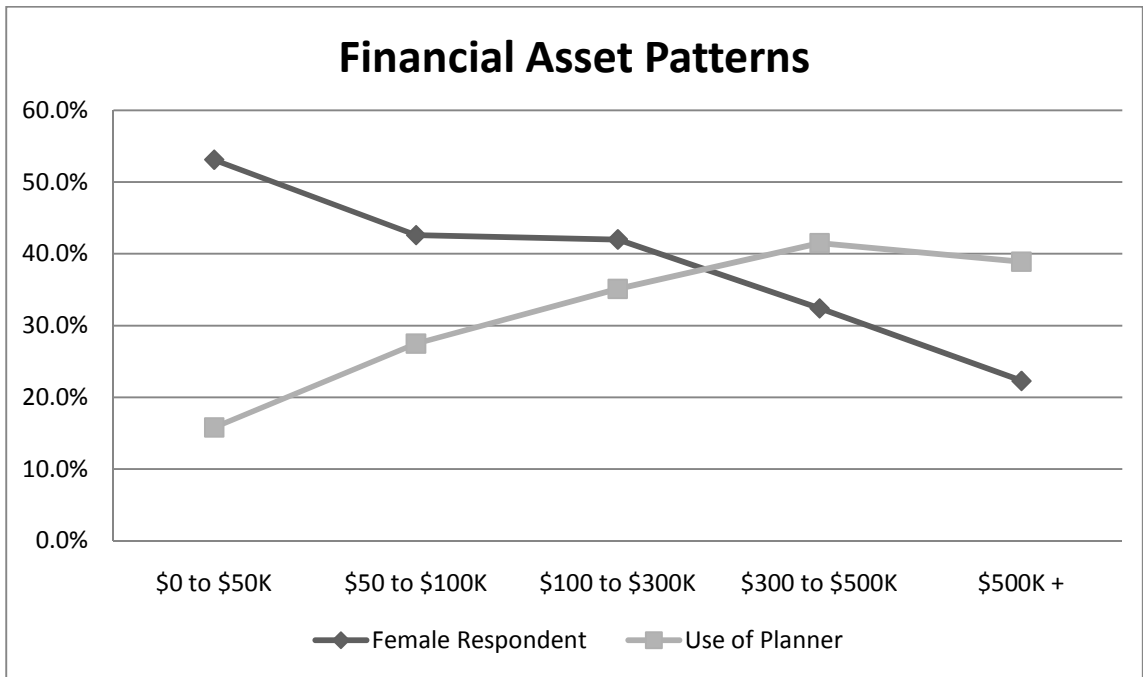


**Figure 5.2 Patterns of Financial Planner Use and Female Respondent Households in Relation to Household Income**

Finally, comparing the percentages in table 5.1 reveals another difference between men and women and the use of a financial planner. As financial assets grow, the percentage of male-respondent households using a financial planner increases until the highest category of assets at which point the percentage drops back to previous levels.



Female-respondent households, however, drop-off one category earlier which represents a change in financial professional preference (e.g. men may prefer brokers over planners) or a sense that the planners job is done. The differences are clear, but the reasons are not.



**Figure 5.3 Patterns of Financial Planner Use and Female Respondent Households in Relation to Financial Assets**

### 5.3.3 Attitudes, Behaviors and Expectations

Among male and female respondent households and those who are willing and unwilling to take financial risks, the differences between male and female respondents were not statistically significant. In general, male and female respondent households share similar concentrations of financial planner use for each behavioral category.

### **5.3.4 Summary**

Overall, male and female respondent households share similar concentrations of planner use. The most significant differences lie between the various income and financial asset categories. In addition, wives and their husbands appear to be switching roles with each other at certain financial benchmarks. When substantial household income is earned or when financial assets reach well into the six figure category, the percentage of female-respondent households declines sharply. The percentages of households using a financial planner increases as well.

### **5.4 Hypotheses Tests**

The following paragraphs are presented according to the hypotheses found in chapter 3. Each group of hypotheses included a set of hypotheses that could be tested by Chi-square analysis and the initial binary logistic regression model (see equation 4.1 in chapter 4) as well as a set of hypotheses testable by the full interaction logistic model (see equation 4.2). The results from the initial binary logistic model (equation 4.1) are presented first, and are organized by the related hypotheses. Next, the results from the full interaction logistic model (equation 4.2) are presented according to their related set of hypotheses. In all instances, only those results that were statistically significant ( $p < .05$ ) were presented.

Explanatory Variable	Reduced Model			
	Odds Ratio	Standard Error	P-Value	Coefficients
Intercept		0.2224	0.0001	-1.2079
Demographic Characteristics				
Female	1.329	0.1084	0.0089	0.2847
<35	0.986	0.1824	0.9342	-0.0214
35-44	1.020	0.1394	0.8567	0.0064
45-54: reference category				
55-64	1.332	0.1351	0.0454	0.2852
≥65	0.954	0.1735	0.6304	-0.0653
<High school	0.777	0.2982	0.3034	-0.2627
High school	0.913	0.1435	0.4875	-0.0979
Some college	1.002	0.1356	0.8013	0.0114
≥College: reference category				
White (non-Hispanic): reference category				
Black (non-Hispanic)	0.876	0.2488	0.6316	0.0981
Hispanic (non-Hispanic)	0.998	0.2010	0.9134	-0.0480
Other	0.656	0.2536	0.1015	0.1134
No dependents: reference category				
One dependent	1.110	0.1323	0.5180	-0.1091
Two dependents	0.954	0.1406	0.5983	-0.0073
≥Three dependents	1.122	0.1631	0.6131	-0.4099
Labor Force Participation Status				
Employed by Another: reference				
Self-employed	0.817	0.1144	0.0713	-0.2070
Retired	0.845	0.1616	0.3318	-0.1610
Not in Labor Force	0.868	0.1858	0.5473	-0.1326
Financial Characteristics				
Household Income				
<\$14,300	0.413	0.4549	0.0521	-0.8317
14,300-58,099	0.701	0.1484	0.0165	-0.3226
58,100-117,249: reference category				
117,250-178,649	0.809	0.1680	0.2077	-0.0953
178,650-319,099	0.935	0.1836	0.7142	-0.0852
≥319,100	1.000	0.1711	0.9984	0.0250

Continued

**Table 5.2 Initial Binary Logistic Model**

Table 5.2 continued

Financial Assets:				
<\$50,000: reference category				
50,000 – 99,999	1.415	0.1986	0.0805	0.3645
100,000 – 299,999	2.169	0.1604	<.0001	0.7265
300,000 – 499,999	2.249	0.2157	0.0002	0.7668
≥500,000	2.210	0.1860	<.0001	0.7825
Attitudes and Behaviors:				
Willing to take Risk: reference category				
Unwilling	0.412	0.1472	<.0001	-0.8984
Savings Motive				
Short-term: reference category				
Long-term	1.040	0.0989	0.6901	0.0409
-2 Log Likelihood	3207.24			

The following results describe the findings from the initial binary logistic regression model used to test the first set of hypotheses that certain demographic financial and attitudinal characteristics of married couple households were associated with the use of a financial planner (see Table 5.2). This model included gender as an associated factor of the likelihood of these households to indicate that they would use a financial planner for saving and investment advice.

#### 5.4.1 Initial Binary Logistic Regression

The null hypothesis (Ho-1) that the respondent's gender is not associated with the likelihood of using a financial planner was rejected suggesting that the alternative hypothesis may be more appropriate (Ha-1: The respondent's gender (female) is

positively associated with the likelihood of using a financial planner). Households in which the wife is the financially most knowledgeable spouse were more likely to use a financial planner for advice on saving and investing (see table 5.2). Compared to middle-aged respondents (45-54), older respondents were more likely to use a financial planner (p-value 0.04). This result confirms the decision to reject the null hypothesis that age and the use of a financial planner are not related. All other hypotheses related to the association between household demographics and the use of a financial planner, (Ho-3 through Ho-6) were not rejected.

#### **5.4.2 Financial Characteristics**

The null hypothesis that income is not associated with the likelihood of using a financial planner was rejected (Ho-7). When compared to households in the 25% tax bracket who were making between \$58,100 and 117,249 annually, those in the lowest tax brackets were less likely to use a financial planner. Nearly every level of financial assets was positively associated with the likelihood of selecting a financial planner as the source to which the household would turn for saving and investment advice (see table 5.2). Thus, the null hypothesis (Ho-8) that financial assets are not associated with the likelihood of using a financial planner was rejected. The alternative hypothesis (Ha-8), that financial assets are positively associated with the likelihood of using a planner may be more appropriate, based on the results from table 5.2. Compared to those with fewer

than \$50,000 in financial assets those with greater than or equal to \$100,00 in financial assets were more likely to use a planner for saving and investment decisions (p-values <.0001; see table 5.2).

### **5.4.3 Attitudes, Behaviors and Expectations**

The following results describe the relationship between household attitudes, behaviors and expectations and the use of a financial planner. Compared to those who demonstrated a willingness to take financial risks, those who were unwilling to take such risks were less likely to use a financial planner (p-value <.0001). The null hypothesis that respondent risk tolerance is unrelated to the use of a financial planner was rejected based on this finding. It was expected that risk tolerance would be positively associated with the use of a financial planner. Those *unwilling* to take on any risk at all were unlikely to use a financial planner (odds ratio: 0.412, p-value <.0001). Savings motives, however, were not significantly associated with the use of a financial planner.

### **5.5 Full Interaction Logistic Regression**

The following paragraphs describe the results of the full interaction model (equation 4.2 from chapter 4) which was used to test the second set of hypotheses in each group. These hypotheses were tested to demonstrate whether men and women exhibited the same association between their characteristics (demographic, financial, attitudinal and behavioral) and the use of a financial planner.

### **5.5.1 Unexplained Gender Differences**

There do not appear to be any unexplained differences between men and women in terms of their likelihood to use a financial planner (Odds ratio 1.33, p-value .4767). Based on this finding, the null hypothesis that there is no significant difference does not exist between women and men and the use a financial planner (Ho-1a) was not rejected. However, because of the issue of multicollinearity discussed in section 5.6.2, there may be significant differences between men and women. The observation does not end, here, however. The following sections describe instances in which women differed from men in their association with certain demographic characteristics.

### **5.5.2 Demographics**

The results that follow describe the relationship between the interaction terms (see equation 4.2) and the likelihood of using a financial planner. According to the full interaction model, compared to those with a college degree, females with a high school diploma were less likely than men in the same category to indicate that they would turn to a financial planner for advice. This finding supports the decision to reject the null hypothesis (Ho-3a) that women and men exhibit the same association between levels of education and the use of a financial planner.

## **5.6 Summary**

### **5.6.1 Reduced Model**

In the reduced (i.e. initial binary logit) empirical model, the strength of the relationship between household characteristics and the use of a financial planner was strongest in the areas of gender, household income, financial assets, and risk tolerance. It was found that female respondents (compared to their male counterparts) were more likely to use a financial planner for saving and investing. The statistically significant likelihood that households in which the wife is considered the most financially knowledgeable spouse are more likely to use financial planners supports the alternative hypothesis (Ha-1) that females are more likely to seek help than their male counterparts. Household age, size, and labor force status each failed to demonstrate statistically significant differences in the use of a financial planner.

The reduced empirical model also confirmed an existing relationship between income (Ha-7) and the use of a planner as well as financial assets (Ha-8) and the use of a planner. In the reduced model, those unwilling to take financial risk were more than twice as likely to use a financial planner compared to those willing to do so ( $p < .0001$ ). This finding supports (Ha-9) in which respondent use of a financial planner was expected to be related to risk tolerance. The direction of the relationship, however, is opposite that of Ha-9 which states that risk tolerance is positively associated with the use of a planner for saving and investing.



	Logit Estimates			Coefficients	Tolerance
	Odds Ratio	Standard Error	P-Value		
Intercept		0.2498	<.0001	-1.2388	
Demographic Characteristics					
Female	1.328	0.3990	0.4767	0.4065	0.0584
<35	1.001	0.2687	0.9981	0.0163	0.3306
35-44	1.058	0.1848	0.7586	0.0422	0.3711
45-54: reference category					
55-64	1.258	0.1645	0.1626	0.2348	0.3869
≥65	0.971	0.1996	0.8829	-0.0545	0.3308
<High school	0.825	0.4231	0.6495	-0.1973	0.3624
High school	1.325	0.1932	0.1457	0.2728	0.3708
Some college	1.125	0.1802	0.5130	0.1520	0.4733
≥College: reference category					
White (non-Hispanic): reference category					
Black (non-Hispanic)	0.976	0.3673	0.9466	0.0255	0.4233
Hispanic (non-Hispanic)	0.802	0.2849	0.4386	-0.2293	0.4497
Other	0.752	0.3205	0.3727	-0.2779	0.5960
No dependents: reference category					
One dependent	1.056	0.1676	0.7470	0.0498	0.4651
Two dependents	0.944	0.1765	0.7441	-0.0570	0.4025
≥Three dependents	1.111	0.2114	0.6179	0.1042	0.3891

Continued

**Table 5.3 Full Empirical Model**

Table 5.3 continued

Labor Force Participation Status					
Employed by Another: reference					
Self-employed	0.874	0.1351	0.3191	-0.1566	0.4706
Retired	0.826	0.1931	0.3218	-0.2018	0.3881
Not in Labor Force	0.334	0.6394	0.0863	-1.0825	0.1181
Financial Characteristics:					
Household Income:					
<\$14,300	0.291	0.6320	0.0509	-1.0934	0.4750
14,300-58,099	0.608	0.2096	0.0177	-0.3738	0.2808
58,100-117,249: reference category					
117,250-178,649	0.689	0.2220	0.0935	-0.2127	0.4213
178,650-319,099	0.797	0.2262	0.3159	-0.1835	0.4484
≥319,100	0.854	0.2039	0.4375	-0.0628	0.2175
Financial Assets:					
<\$50,000: reference category					
50,000 – 99,999	1.193	0.2760	0.5229	0.2610	0.4818
100,000 – 299,999	2.170	0.2222	0.0005	0.7954	0.3776
300,000 – 499,999	2.411	0.2783	0.0016	0.8942	0.4583
≥500,000	2.412	0.2360	0.0002	0.8914	0.1683
Attitudes and Behaviors:					
Willing to Take Risk: reference					
Unwilling to Take Risk	0.394	0.2067	<.0001	-0.9568	0.3868
Savings Motives					
Short-term: reference category					
Long-term	1.037	0.1218	0.7666	0.0197	0.5808
Female*<35	0.942	0.3749	0.8726	-0.0958	0.2905

Continued

Table 5.3 continued

Female*35-44	0.889	0.2882	0.6824	-0.1219	0.2942
45-54: reference category					
Female*55-64	1.317	0.3020	0.3614	0.2637	0.3702
Female* $\geq$ 65	0.690	0.4720	0.4315	-0.3526	0.3055
Female* $<$ High school	0.767	0.6093	0.6634	-0.2673	0.3183
Female*High school	0.408	0.2945	0.0023	-0.8973	0.2887
Female*Some college	0.712	0.2789	0.2226	-0.3868	0.3866
$\geq$ College: reference category					
White (non-Hispanic): reference					
Female*Black (non-Hispanic)	0.782	0.5064	0.6277	-0.3091	0.4031
Female*Hispanic	1.511	0.4115	0.3157	0.4255	0.4327
Female*Other (non-Hispanic)	0.680	0.5333	0.4692	-0.3668	0.5869
No dependents: reference category					
Female*One dependent	1.177	0.2835	0.5657	0.1564	0.3523
Female*Two dependents	1.061	0.3010	0.8433	0.0619	0.3201
Female* $\geq$ Three dependents	1.106	0.3442	0.7688	0.0919	0.3207
Employed by Another: reference					
Female*Self-employed	0.748	0.2656	0.2754	-0.2382	0.4979
Female*Retired	1.220	0.3816	0.6024	0.2284	0.2824
Female*Not in Labor Force	2.677	0.6747	0.1444	0.9955	0.1104
Female* $<$ \$14,300	2.042	0.9275	0.4416	0.5051	0.4394
Female*14,300-58,099	1.390	0.3021	0.2754	0.1542	0.2316
58,100-117,249: reference category					

Continued

Table 5.3 continued

Female*117,250-178,649	1.430	0.3446	0.2995	0.2664	0.4321
Female*178,650-319,099	1.540	0.4022	0.2830	0.2736	0.5002
Female*>319,100	1.499	0.4117	0.3253	0.1587	0.2646
<\$50,000: reference category					
Female*50,000 – 99,999	1.548	0.4079	0.2843	0.2582	0.4838
Female*100,000 – 299,999	0.956	0.3272	0.8908	-0.2030	0.3805
Female*300,000 – 499,999	0.794	0.4558	0.6129	-0.3481	0.4794
Female*≥500,000	0.724	0.4151	0.4370	-0.2838	0.2086
Willing to Take Risk: reference					
Female*Unwilling to Take Risk	1.069	0.2974	0.8228	0.0968	0.3110
Short-term: reference category					
Female*Long-term (Savings motive)	1.019	0.2135	0.9301	0.0659	0.2688
-2 Log Likelihood	3207.24				

### 5.6.2 Full Model

The full model did not provide adequate evidence to support the claim that women and men exhibit an otherwise unexplained difference in their association with the likelihood of using a financial planner. Controlling for variables theoretically relevant to the research question and then interacting each one with gender (female=1) produced a p-value of .4676 on the variable: female. This change in significance from the reduced model to the full interaction model is discussed below.

The tolerance factors included in table 5.3 reveal whether it is possible that multicollinearity is confounding the results in this final model or not. A tolerance value

less than 0.40 for any given variable indicates a potential correlation with a combination of other variables in the model (Allison, 1999). Thus, multicollinearity, rather than a true lack of effect may be contributing to the shortage of significance for the gender variable and others. Indeed, the Variance Inflation Factor (i.e.  $1/\text{tolerance}$ ) for the female variable in table 5.3 is roughly 17. This means that the estimated variance of the female variable is 17 times higher than it is suggesting, so that the "true" standard error is much lower than estimated. Therefore, the coefficient for female may be significantly greater than zero. Thus, a particular household that demonstrates all of the reference categories for the interaction terms will indeed be more likely to use a financial planner than households with husband respondents.

A significant effect for respondents aged 55-64 interacted with the female variable was expected, but not found (p-value 0.3614, tolerance 0.3702). The relatively low tolerance factor suggests a possible multicollinearity problem. Other interaction terms expected to be significant, but were not, and whose tolerance factors were less than 0.40 included self-employed respondents, respondents with income in the \$14,300 to 58,099 range, those with financial assets between \$117,250 and \$178,649, those with greater than \$319,100 and respondents who reported being unwilling to take financial risks (tolerance values: 0.3702, 0.2316, 0.3805, 0.2086 and 0.3110, respectively). Based on the tolerance factors in table 5.3 it does not appear that the lack of significance for the self-employed interaction term nor the interaction term for those with \$178,650 to 319,099 in financial assets is due to multicollinearity (tolerance values: 0.4979 and 0.4794, respectively).

From the results of the full model we find that many variables with significant effects in the reduced model lost their significance when combined with interaction terms. Using a test for multicollinearity, it appears that some of the lost significance is due to multicollinearity, not necessarily a true lack of effect. Thus, interpretation of the results must be done very carefully as to not discount the possibility for women to have some unexplained differences from men to use a financial planner. The following chapter discusses some of the implications from the findings in chapter 5 and presents future research plans to explore this issue further.

## **CHAPTER 6**

### **DISCUSSION, IMPLICATIONS AND CONCLUSIONS**

#### **6.1 Overview**

This chapter provides a discussion of the results within the context of existing research and theory. Following the discussion, implications and limitations of the study are presented. Finally conclusions are drawn to summarize the principal implications of the findings.

##### **6.1.1 Discussion**

This section places in theoretical and empirical context the results described in the previous chapter. First, the results pertaining to the hypotheses regarding the relationship between household characteristics and the likelihood of choosing a financial planner for saving and investment decisions are discussed in terms of their relation to existing research. Next, those results supporting the hypotheses regarding the unique relationship between gender and the choice of selecting a financial planner as the primary information source for financial advice on saving and investment decisions are discussed in relation to the help-seeking literature.

In the paragraphs that follow, the relationship between household demographic characteristics, financial characteristics, attitudes and behaviors is discussed in relation to existing research. Where necessary, the constructs of costs and benefits of using a financial planner were provided with proxies in order to connect the theory of information search with the findings of this study.

## **6.2 Household Characteristics and the Decision to Use a Financial Planner**

When available the demographic information of households in this study is compared to similar findings in empirical work with a similar purpose. Table 5.1 shows a slight difference in the rates of financial planner use among men and women (22.8% and 23.9% respectively). However, when relevant factors were controlled for, it was found that wife respondents in married couple households were more likely to use a financial planner than husband respondent households, *ceteris paribus* (Odds Ratio 1.329, p-value .0089). This finding is contrary to the findings reported by Sorhaindo & Kim (2007) in which they discovered that men were *more* likely to use a financial planner. Other related studies (Chang, 2005; Elmerick, Montalto & Fox, 2002; Lee & Cho, 2005) included gender as an associated factor, but did not find statistical significance sufficient to reject the null hypothesis that gender is not associated with the use of a planner.

However, when the gender dummy variable was included in the full interaction model (see table 5.3 and equation 4.2), the likelihood of a female to use the services of a financial planner was not statistically significant. In fact, the standard error of the coefficient was nearly four times that of the same variable in the reduced model.



Consequently, the p-value for the female variable in the full model was 0.4767 (compare to .0089). As mentioned previously, the variance inflation factor test revealed the existence of multicollinearity in the full model. Thus, while the variables of interest may have lost their significance, there is still reason to suggest that wife respondents in married couple households will be more likely to use the services of a financial planner than husband respondents in similar environments. The full empirical model may still contain some interaction effects that might be significant if not for multicollinearity, thus I will focus on the reduced model as interpretation is more straightforward.

### **6.2.1 Age, Education, Race and Household Size**

Results from the reduced empirical model suggest that a relationship exists between being the wife-respondent in a married couple household and using a financial planner for saving and investing. As mentioned earlier, this finding contradicts Sorhaindo and Kim's (2007) discovery that men are more likely to use a planner. Studies using the SCF have previously concluded that gender is not related to the use of a financial planner as well (Chang, 2005; Elmerick, Montalto & Fox, 2002). The difference is this study's focus on married couple households. Because married couple households were the only economic units observed in this study and in none of the other related studies was this the case, differing findings were expected.

Another important finding unique to this study is the association between respondents age 55-64 and the use of a financial planner. Compared to younger married couples (i.e. 45-54) those ages 55-64 were more likely to use a financial planner. No

other age group studied was associated with planner use. All else equal, respondent-households between the ages of 55 and 64 are finding it necessary to seek advice in important financial matters. These households may be facing a time in their lives when they will either be working less or not at all. Thus, it is not surprising that they are more willing than other age groups (*ceteris paribus*) to seek help in financial matters.

For all other demographic characteristics (i.e. race, household size and labor force participation status), the null hypotheses were not rejected. This is contrary to what is currently known about the association between household demographics and the use of a financial planner (Chang, 2005; Elmerick, Montalto & Fox, 2002; Lee and Cho, 2005; Sorhaindo & Kim, 2007). Chang (2005) and Elmerick et al. (2002) concluded that Black respondents were more likely to use a planner. Elmerick et al., however, were referring to the use of a planner for credit and borrowing situations rather than saving and investing.

### **6.2.2 Income and Financial Assets**

In the reduced model income was associated with the use of a financial planner. When married couple households with less than \$58,100 in income were compared to other married-couple households with income between \$58,100 and 117,249, the lower income households were less likely to use a financial planner. It is possible that the direct cost of using a planner exceeded the benefit for the lower income, married couple households. Statistical significance in the association between high-income, married couple households and the use of a financial planner was not found.

Increases in financial assets were positively associated with the use of a planner. This finding is consistent with all other studies (Chang, 2005; Elmerick, Montalto & Fox, 2002; Lee and Cho, 2005; Sorhaindo & Kim, 2007). The benefits of using a planner are valued highly among those with financial resources which they intend to preserve and grow. Thus whenever financial assets are substantial, households have a tendency to look to a financial planner for advice. The benefit of properly managing one's financial resources is evidently well worth the cost of the services required to do so.

Of course, these findings deserve another look from the perspective of a planner. It may be that planners are soliciting only those households with sufficiently high incomes to support high levels of living and still have money left over to invest in the products they sell. In terms of financial assets, however, it does not matter the level on which the household finds themselves, compared to those in the lowest category those with greater than \$100,000 in financial assets are likely to use the services of a planner.

### **6.2.3 Attitudes and Expectations**

Chang's (2005) conclusion that higher levels of risk tolerance were associated with the use of a financial planner was supported from the findings of this study. Compared to those who were willing to take financial risks, those respondents in married couple households who were unwilling to take financial risks were less likely to use a financial planner for saving and investing ( $p < .0001$ ). The nature of these findings may in part be contributed to a sort of marriage effect. When the financially most knowledgeable spouse is unsure about the risks associated with investing, he or she may be likely to

disregard the benefits of using a financial planner. Controlling for other related factors, being unwilling to take financial risks decreases the likelihood that one will seek out the services of a financial planner.

#### **6.2.4 Summary**

Overall, the findings of this study match well with other studies of its kind. In the key category of respondent gender, this study finds that female respondents in married couple households are more likely to seek the advice of a financial planner when compared to male respondents. Other studies found that either males were more likely (Sorhaindo & Kim, 2007) or there was no association at all (Chang, 2005; Elmerick et al., 2002; Lee & Cho, 2005). Differences are found due to the decision to only include married couple households in the current study.

### **6.3 Implications and Limitations**

This section provides implications for consumers, financial planners, self-regulatory organizations and other governing bodies over financial planners as well as implications for future research.

#### **6.3.1 Implications for Consumers**

From the initial binary logistic regression model it was made clear that whether the respondent was male or female, financial assets were positively associated with using a financial planner. Respondents with at least \$100,000 in financial assets would turn to a

financial planner for saving and investment advice at least twice as often as those with financial assets fewer than \$50,000 (see table 5.3). Significant amounts of wealth are thus entrusted to an advisor. Consumers must thus take care in making sure their planner is trustworthy, fair and accurate.

A finding from this study suggests that a strong positive relationship between being completely unwilling to take financial risks and the choice of a financial planner exists. Compared to those willing to take financial risks, risk averse respondents were less likely to use a financial planner (table 5.3). These consumers may be especially prone to financial fraud given their relative distaste for financial planning assistance. Such behavior could expose any consumer to greater degrees of fraud and perhaps tragic financial consequences. Current literature suggests that women are more likely to have risk averse attitudes towards investing (Bajtelsmit, 1996; Embrey and Fox, 1997; Graham, Stendardi, Myers, & Graham, 2002; Niessen & Ruenzi, 2006; Sunden & Surette, 1998) which warrants a warning to female investors to be wary of investment schemes aimed at those who are willing to turn over their finances to someone else simply to avoid the direct effects of risk.

This does not imply that women are any more likely to become victims of scams than men. It is a warning to all risk averse consumers. Being unwilling to take financial risks could mean that they turn to family and friends for advice (Chang, 2005). Such a strategy does not guarantee safe investing. Advice from personal networks carries the same risk as any other source to which consumers may turn for saving and investing. Network sources may offer a false sense of security because the past performance of a

friend's portfolio might be mistaken for a future guarantee. With the current degree of skepticism among investors, it makes sense for consumers (risk averse or not) to turn to a group of professionals who are required to work within a strict ethical standard such as financial planners.

### **6.3.2 Implications for Financial Planners**

The nature of the business of financial planning is such that interaction with couples is a highly regular occurrence. The findings from this study, among other things, suggest that a planner should be conscious of who considers themselves the financially most knowledgeable spouse in a married couple household. Based on this study's results, that simple identification process could produce a wealth of information about the clients before they even begin to fill out the client intake forms. Targeted questions can be created for households in which the husband is the financially most knowledgeable and consequently for wives with the same designation. Planners can also use these findings to anticipate potential problems or opportunities that may arise should changes occur to household income, retirement assets or even a change in educational attainment.

The finding that those with no risk tolerance are less likely to use a financial planner (see table 5.2) underscores the importance of properly assessing the true risk tolerance of each client a planner brings into their firm or practice. This may improve the service they provide, and help retain the clients the planner is currently serving.

Understanding more about a planner's clients is a difficult and time consuming process, but one that can lead to increased trust and loyalty from client to planner. Using the

conclusions from this study, a planner will make clearer, more accurate client assessments leading to longer, more durable relationships.

### **6.3.3 Implications for Policy**

Based on the findings of this study, existing resources for consumers of financial services such as those provided by the Financial Industry Regulatory Authority (FINRA), the Certified Financial Planner Board of Standards Inc. (CFP), the Securities and Exchange Commission (SEC) and the Financial Planning Association (FPA) should be able to begin formulating targeted information for men and women separately. The needs of men clearly differ from those of women based on the findings in this study. This may suggest that women are more willing to ask for help in saving and investing their financial assets which corresponds to the findings in medical help-seeking literature that provide convincing evidence of lower mortality rates for women, due to higher propensities to seek medical attention (Jarrett, Bellamy, & Adeyemi, 2007; Mansfield, Addis, & Mahalik, 2003; Vilhjalmsson, 2005). Efforts to increase the willingness of men to seek the help of a financial planner especially at younger ages should be the goal of agencies such as the FPA and CFP Board.

### **6.4 Implications for Future Research and Limitations**

Due to the cross-sectional nature of the dataset used in this study, only associations between factors can be determined rather than causal relationships. This limitation of the study requires the careful interpretation of all findings. It cannot be

determined whether increases in financial assets led to the use of a financial planner or whether the use of a financial planner led to an increase in financial assets. A future direction for this line of research would take the limitations of cross-sectional research into account and observe the causal relationship between financial planner use and household characteristics in a longitudinal study design.

In the full empirical model, multicollinearity presented itself as a problem for many of the interaction terms. Most importantly, it is suspected that the loss of significance in the key variable: female, is due in most part to its correlation with combined sets of variables in the full empirical model. If not for multicollinearity, this particular variable would be significant, suggesting an unexplained preference among women to use the services of a financial planner. Thus, further research on this topic is recommended.

An additional limitation of this study lies with the lack of an attitudinal scale to capture the subjective attitudes and preferences of men and women as they relate to professional money managers. Future researchers would be wise to develop a scale based on those found in the field of psychology and discussed in the literature review of this study. Simply collecting information on gender roles and attitudes before conducting research of this nature would significantly improve the ability of future studies to understand the preferences of men and women in their search for a financial services provider.



## **6.5 Summary and Conclusions**

The purpose of this study was to examine the predisposition of women to seek help over men for financial services. The research questions guiding this study asked which factors have differing effects between men and women in their decision to use a financial planner for saving and investing. Applying what was learned in previous studies of gender differences in saving and investing, it was decided that a sample of only married couple households would be used from the 2004 Survey of Consumer Finances (Embrey & Fox, 1997). Employing the knowledge obtained by researchers in the field of help-seeking for psychological and medical services, it was determined that the gender differences of those who were respondents of the SCF would be compared. The survey allows investigators to easily separate the respondents by gender since only that spouse who indicates that they are the financially most knowledgeable participates in the full survey (Lindamood & Hanna, 2006).

The theory of the economics of information was engaged to set the background for determining which characteristics were associated with the use of a planner (Stigler, 1961). In observance of recent improvements to the theory, the services of a financial planner were defined as a reputation good (Satterthwaite, 1979). Using these conditions, hypotheses were created for each factor in the empirical model which regressed demographic, financial and attitudinal characteristics on the likelihood of choosing a financial planner. Hypotheses were also created to guide the analysis which determined which factors had differing effects between men and women on the likelihood of choosing a financial planner for saving and investment advice.

Findings similar to those in related empirical studies were discussed with the exception that females were more likely to indicate that they would use the services of a financial planner for saving and investing compared to men in married couple households. Working from that finding, the effects of gender were decomposed for the characteristics of husbands and separately for wives. The findings from the decomposition method did not allow for the rejection of the null hypothesis that men and women exhibit the same association between their personal characteristics and the likelihood of using a planner, but these findings were clouded by multicollinearity. Tolerance factors and the examination of regression coefficients led to a conclusion that despite the lack of significance on the female variable, in general, wife respondents in married couple households are more likely to use a financial planner than husband respondents, except in certain types of households.

At least where wife respondents are concerned, the field of financial planning may have more work to do in terms of improving the perceived benefit of the profession. As of the writing of this dissertation, recent economic trends accompanied by large scale acts of financial fraud may have already worsened the wife investor's perspective of the profession (Banjo, 2009). This study concludes that married couple households in which the wife is the primary caretaker of the family's finances may, in an otherwise unexplained way be predisposed to prefer the services of a financial planner over some other source of saving and investment advice. This finding raises awareness of the demand for financial planning services for women in married couple households and suggests that more research be undertaken to investigate the value of a financial planner

over other professionals in the financial services industry. Such a research stream would complement the findings of this study and provide government and financial services industry decision makers with evidence to propose more consumer-friendly laws as they relate to personal finances.

**APPENDIX A**

**FEDERAL RESERVE BOARD SUPPLIED  
SAS CODE FOR STUDY DATASET**

```
*****
*****
```

### The Dataset

```
*****
*****;
```

```
libname dave 'C:\';
* proc contents data=FINAL;
run;
data final; set dave.scf04;
```

```
implic=y1-(10*yy1);
```

```
wgt=x42001/5;
```

```
nwgt=x42001/24808.3505/5; *mean value of X42001 is 24,808.3505;
```

```
wgt5=0.2;
```

```
*Keep only married couple households;
```

```
if x8023=1; *n=13465 households; *n=3364 households in each implicate;
```

```
*Delete households where respondent and spouse are same sex;
```

```
If x8021=x103 then delete; *n=2 households deleted per implicate where both R and spouse were female;
```

```
*FRB code -- education of the HH head, and categorical variable:
```

```
1=no high school diploma/GED, 2=high school diploma or GED,
```

```
3=some college, 4=college degree;
```

```
EDUC=X5901;
```

```
IF X5904 EQ 1 THEN EDCL=4;
```

```
ELSE IF EDUC GE 13 THEN EDCL=3;
```

```
ELSE IF (X5902 IN (1 2)) THEN EDCL=2;
```

```
ELSE EDCL=1;
```

\*Follow FRB code to create education of the spouse;

EEDUC=X6101;

IF X6104 EQ 1 THEN EEDCL=4;

ELSE IF EEDUC GE 13 THEN EEDCL=3;

ELSE IF (X6102 IN (1 2)) THEN EEDCL=2;

ELSE EEDCL=1;

\*Race/ethnicity of respondent;

\*1=NonHispanic White 2=NonHispanic Black 3=Hispanic 4=Other NonHispanic;

if x6809=1 and x7004=5 then race=1;

else if x6809=2 and x7004=5 then race=2;

else if x7004=1 then race=3;

else race=4;

\*Work status categories for head

1=work for someone else, 2=self-employed/partnership,

3=retired/disabled + (student/homemaker/misc. not working and

age 65 or older), 4=other groups not working (mainly those under

65 and out of the labor force);

LBRFRC=X4106;

IF LBRFRC=1 THEN LBRFRCCL=1;

ELSE IF (LBRFRC IN (2 3 4)) THEN LBRFRCCL=2;

ELSE IF ((X4100 IN (50 52))|(X4100 IN (21 23 30 70 80 97 85 -7) &

x14>=65)) THEN LBRFRCCL=3;

ELSE IF (X14<65) THEN LBRFRCCL=4;

\*work status of spouse/partner;

SPLBRFRC=x4706;

IF SPLBRFRC=1 THEN SPLBRFRCCL=1;

ELSE IF (SPLBRFRC IN (2 3 4)) THEN SPLBRFRCCL=2;

ELSE IF ((X4700 IN (50 52))|(X4700 IN (21 23 30 70 80 97 85 -7) &  
x19>=65)) THEN SPLBRFRCCL=3;

ELSE IF (X19<65) THEN SPLBRFRCCL=4;

else if x19>=65 then SPLBRFRCCL=3; \* misc elderly spouses = retired;

else SPLBRFRCCL=0;

\*When X8000=1 the original respondent and spouse/partner variables have been reversed;

\*When X8000=5 the original respondent and spouse/partner variables have not been reversed;

\*Use information from x8000 to create variables for sex, age, and education of the original respondent and spouse;

if x8000=1 then do; \*original respondent and spouse/partner variables have been reversed;

\*Respondent;

rsex=x103;

```

rage=x19;
reduc=x6101;
    rretire_full=x5222;
    rretire_part=x5221;
redcl=eedcl;
    rlbrfrcl=splbrfrcl;
*Spouse of respondent;
ssex=x8021;
sage=x14;
seduc=x5904;
    sretire_full=x4622;
    sretire_part=x4621;
sedcl=edcl;
    slbrfrcl=lbrfrcl;
end;
if x8000=5 then do; *original respondent and spouse/partner variables have NOT been
reversed;
*Respondent;
rsex=x8021;
rage=x14;
reduc=x5904;
    rretire_full=x4622;

```



```

        rretire_part=x4621;

redcl=edcl;

        rlbrfrcl=lbrfrcl;

*Spouse of respondent;

        ssex=x103;

        sage=x19;

        seduc=x6101;

        sretire_full=x5222;

        sretire_part=x5221;

        sedcl=eedcl;

slbrfrcl=splbrfrcl;

end;

*****
***;
*   Recoding rsex to 0,1;
    if rsex=1 then gender=0;
    else gender = 1;

    if gender=1 then female=1; else female=0;
    if gender=0 then male=1; else male=0;

*   demographic variables;

*   age of the household head, and categorical variable:
    1:<35, 2:35-44, 3:45-54, 4:55-64, 5:65-74, 6:>=75;
    AGE=X14;
    AGECL=1+(AGE GE 35)+(AGE GE 45)+(AGE GE 55)+(AGE GE 65)+(AGE GE
75);

*   age squared;
    ragesq=age**2;

```

```

* log of age;
  lograge=log10(rage);

* number of children (including natural children/step-children/
  foster children of head/spouse/partner);
* NOTE: from 1995 forward, household listing information collected
  for one fewer HH member;
  ARRAY REL{*} X108 X114 X120 X126 X132 X202 X208 X214 X220 X226;
  KIDS=0;
  DO I=1 TO DIM(REL);
    KIDS=KIDS+(REL {I}=4|REL {I}=13|REL {I}=36);
  END;

```

```

*****;

```

```

*Years to Retirement;

```

```

stopfull=x4524;

```

```

if stopfull <-1 then stopfullcl= -2;
else if stopfull <0 then stopfullcl = 0;
else if stopfull <11 then stopfullcl=10;
else if stopfull <21 then stopfullcl=20;
else if stopfull <31 then stopfullcl=30;
else if stopfull <41 then stopfullcl=40;
else stopfullcl = 50;

```

```

stop=x4526;

```

```

if stop <-1 then stopcl=-2;
else if stop <0 then stopcl=0;
else if stop <11 then stopcl=10;
else if stop <21 then stopcl=20;
else if stop <31 then stopcl=30;
else if stop <41 then stopcl=40;
else stopcl = 50;

```

\*\*\*\*\*

\*\*\*;

\* income variables;

\* income squared;  
incomesq=x5729\*\*2;

\* log of income  
logincome=log10(x5729);

\* Scaled income;  
incomescale=x5729/1000;

\*\*\*\*\*

\*\*\*;

\* assets, debts, networth, and related variables;

\*\*\*\*\*

\*\*\*;

\* financial assets and related variables;

\* checking accounts other than money market;  
CHECKING=MAX(0,X3506)\*(X3507=5)+MAX(0,X3510)\*(X3511=5)  
+MAX(0,X3514)\*(X3515=5)+MAX(0,X3518)\*(X3519=5)  
+MAX(0,X3522)\*(X3523=5)+MAX(0,X3526)\*(X3527=5)  
+MAX(0,X3529)\*(X3527=5);

\* have any checking account: 1=yes, 0=no;  
HCHECK=(((X3507=5)+(X3511=5)+(X3515=5)+(X3519=5)  
+(X3523=5)+(X3527=5)+(X3527=5))>0);

\* have no checking account: 1=no checking, 0=have checking;

\* NOTE: NOCHK=0 may include instances where R has a money market  
account that is used for checking;  
NOCHK=(X3501=5);

\* people w/o checking accounts: ever had an account?: 1=yes, 5=no;  
EHCHKG=X3502;

\* people w/o checking accounts: why have no account?:  
1=don't write enough checks to make it worthwhile,  
2=minimum balance is too high, 3=do not like dealing with banks,  
4=service charges are too high, 5=no bank has convenient hours

or location, 12=checkbook has been/could be lost/stolen,  
 13=haven\*t gotten around to it, 14=R has alternative source of  
 checking services (MMA, MIA, etc) (does not include individuals  
 who write checks for R), 15=R not allowed to have account (e.g.,  
 asset test for welfare), 20=R does not need/want a checking  
 account (NEC), 21=credit problems, bankruptcy, R does not meet  
 depository\*s qualifications for having an account, 95=don\*t have  
 (enough) money, -1=can\*t manage/balance a checking account,  
 -7=other, 0=inapplicable. (R has a checking account: X3501=1);

- \* NOTE: codeframe varies over the survey years, so beware of  
 constructing overly specific comparisons of the distribution of  
 households over these categories over time;  
 WHYNOCKG=X3503;

- \* savings accounts;

SAVING=MAX(0,X3730\*(X3732 NOT IN (4 30)))  
 +MAX(0,X3736\*(X3738 NOT IN (4 30)))  
 +MAX(0,X3742\*(X3744 NOT IN (4 30)))+MAX(0,X3748\*(X3750 NOT IN (4  
 30)))  
 +MAX(0,X3754\*(X3756 NOT IN (4 30)))+MAX(0,X3760\*(X3762 NOT IN (4  
 30)))  
 +MAX(0,X3765);

- \* have savings account: 1=yes, 0=no;  
 HSAVING=(SAVING>0);

- \* money market deposit accounts;

- \* NOTE: includes money market accounts used for checking and other  
 money market account held at commercial banks, savings and  
 loans, savings banks, and credit unions;

MMDA=MAX(0,X3506)\*((X3507=1)\*(11<=X9113<=13))  
 +MAX(0,X3510)\*((X3511=1)\*(11<=X9114<=13))  
 +MAX(0,X3514)\*((X3515=1)\*(11<=X9115<=13))  
 +MAX(0,X3518)\*((X3519=1)\*(11<=X9116<=13))  
 +MAX(0,X3522)\*((X3523=1)\*(11<=X9117<=13))  
 +MAX(0,X3526)\*((X3527=1)\*(11<=X9118<=13))  
 +MAX(0,X3529)\*((X3527=1)\*(11<=X9118<=13))  
 +MAX(0,X3730\*(X3732 IN (4 30))\*(X9259>=11 & X9259<=13))  
 +MAX(0,X3736\*(X3738 IN (4 30))\*(X9260>=11 & X9260<=13))  
 +MAX(0,X3742\*(X3744 IN (4 30))\*(X9261>=11 & X9261<=13))  
 +MAX(0,X3748\*(X3750 IN (4 30))\*(X9262>=11 & X9262<=13))

+MAX(0,X3754\*(X3756 IN (4 30))\*(X9263>=11 & X9263<=13))  
 +MAX(0,X3760\*(X3762 IN (4 30))\*(X9264>=11 & X9264<=13));

- \* money market mutual funds;
- \* NOTE: includes money market accounts used for checking and other money market account held at institutions other than commercial banks, savings and loans, savings banks, and credit unions;

MMMF=MAX(0,X3506)\*(X3507=1)\*(X9113<11|X9113>13)  
 +MAX(0,X3510)\*(X3511=1)\*(X9114<11|X9114>13)  
 +MAX(0,X3514)\*(X3515=1)\*(X9115<11|X9115>13)  
 +MAX(0,X3518)\*(X3519=1)\*(X9116<11|X9116>13)  
 +MAX(0,X3522)\*(X3523=1)\*(X9117<11|X9117>13)  
 +MAX(0,X3526)\*(X3527=1)\*(X9118<11|X9118>13)  
 +MAX(0,X3529)\*(X3527=1)\*(X9118<11|X9118>13)  
 +MAX(0,X3730\*(X3732 IN (4 30))\*(X9259<11|X9259>13))  
 +MAX(0,X3736\*(X3738 IN (4 30))\*(X9260<11|X9260>13))  
 +MAX(0,X3742\*(X3744 IN (4 30))\*(X9261<11|X9261>13))  
 +MAX(0,X3748\*(X3750 IN (4 30))\*(X9262<11|X9262>13))  
 +MAX(0,X3754\*(X3756 IN (4 30))\*(X9263<11|X9263>13))  
 +MAX(0,X3760\*(X3762 IN (4 30))\*(X9264<11|X9264>13));

- \* all types of money market accounts;  
 MMA=MMDA+MMMF;
- \* have any type of money market account: 1=yes, 0=no;  
 HMMA=(MMA>0);
- \* call accounts at brokerages;  
 CALL=MAX(0,X3930);
- \* have call account: 1=yes, 0=no;  
 HCALL=(CALL>0);
- \* all types of transactions accounts (liquid assets);  
 LIQ=CHECKING+SAVING+MMA+CALL;
- \* have any types of transactions accounts: 1=yes, 0=no;
- \* here include even accounts with zero reported balances;  
 HLIQ=(LIQ>0 | X3501=1 | X3727=1 | X3929=1);
- \* include accounts with zero balances (for tabling program);  
 LIQ=MAX(HLIQ,LIQ);
- \* certificates of deposit;  
 CDS=MAX(0,X3721);
- \* have CDs: 1=yes, 0=no;

HCDS=(CDS>0);

- \* mutual funds;
- \* stock mutual funds;  
STMUTF=(X3821=1)\*MAX(0,X3822);
- \* tax-free bond mutual funds;  
TFBMUTF=(X3823=1)\*MAX(0,X3824);
- \* government bond mutual funds;  
GBMUTF=(X3825=1)\*MAX(0,X3826);
- \* other bond mutual funds;  
OBMUTF=(X3827=1)\*MAX(0,X3828);
- \* combination and other mutual funds;  
COMUTF=(X3829=1)\*MAX(0,X3830);
- \* other mutual funds;  
OMUTF=(X7785=1)\*MAX(0,X7787);
- \* total directly-held mutual funds, excluding MMMFs;  
NMMF=STMUTF+TFBMUTF+GBMUTF+OBMUTF+COMUTF;  
NMMF=NMMF+OMUTF;
  
- \* have any mutual funds excluding MMMFs: 1=yes, 0=no;  
HNMMF=(NMMF>0);
  
- \* stocks;  
STOCKS=MAX(0,X3915);
- \* have stocks: 1=yes, 0=no;  
HSTOCKS=(STOCKS>0);
- \* number different companies in which hold stock;  
NSTOCKS=X3914;
- \* Wilshire index of stock prices;  
  
WILSH=X33001;
  
- \* bonds, not including bond funds or savings bonds;
- \* tax-exempt bonds (state and local bonds);  
NOTXBND=X3910;
- \* mortgage-backed bonds;  
MORTBND=X3906;
- \* US government and government agency bonds and bills;  
GOVTBND=X3908;
- \* corporate and foreign bonds;  
OBND=X7634+X7633;
  
- \* total bonds, not including bond funds or savings bonds;

BOND=NOTXBND+MORTBND+GOVTBND+OBND;

\* have bonds: 1=yes, 0=no;

HBOND=(BOND>0);

\* quasi-liquid retirement accounts (IRAs and thrift-type accounts);

\* individual retirement accounts/Keoghs;

IRAKH=SUM(0,X6551,X6559,X6567,X6552,X6560,X6568,X6553,X6561,  
X6569,X6554,X6562,X6570);

\* allocate the pension mopups;

\* where possible, use information for first three pensions to infer  
characteristics of this amount;

\* where not possible to infer whether R can borrow/make withdrawals,  
assume this is possible;

\* where not possible to determine investment direction, assume half  
in stocks;

/\* Commenting out part giving errors

PMOP=.;

IF (X4436>0) THEN DO;

IF (PTYPE{1} IN (1 2)|PTYPE{2} IN (1 2)|PTYPE{3} IN (1 2)|

PWIT{1}=1|PWIT{2}=1|PWIT{3}=1|PBOR{1}=1|PBOR{2}=1|PBOR{3}=1)

THEN PMOP=X4436;

ELSE IF (PTYPE{1}^=0 & PTYPE{2}^=0 & PTYPE{3}^=0 & PWIT{1}^=0 &  
PWIT{2}^=0 & PWIT{3}^=0) THEN PMOP=0;

ELSE PMOP=X4436;

THRIFT=THRIFT+PMOP;

IF (REQ>0) THEN PENEQ=PENEQ+PMOP\*(REQ/RTHRIFT);

ELSE PENEQ=PENEQ+PMOP/2;

END;

PMOP=.;

IF (X5036>0) THEN DO;

IF (PTYPE{4} IN (1 2)|PTYPE{5} IN (1 2)|PTYPE{6} IN (1 2)|

PWIT{4}=1|PWIT{5}=1|PWIT{6}=1|PBOR{4}=1|PBOR{5}=1|PBOR{6}=1)

THEN PMOP=X5036;

ELSE IF (PTYPE{4}^=0 & PTYPE{5}^=0 & PTYPE{6}^=0 & PWIT{4}^=0 &  
PWIT{5}^=0 & PWIT{6}^=0) THEN PMOP=0;

ELSE PMOP=X5036;

THRIFT=THRIFT+PMOP;

IF (SEQ>0) THEN PENEQ=PENEQ+PMOP\*(SEQ/STHRIFT);

ELSE PENEQ=PENEQ+PMOP/2;

END;

DROP HOLD PMOP;

END;

ELSE DO;

```

*   account-type pension plans (included if type is 401k, 403b,
    thrift, savings, SRA, or if participant has option to borrow or
    withdraw);
*   PENEQ counts thrift amounts invested in stock;
    ARRAY PTYPE1{*} X11000 X11100 X11200 X11300 X11400 X11500;
    ARRAY PTYPE2{*} X11001 X11101 X11201 X11301 X11401 X11501;
    ARRAY PAMT1{*} X11032 X11132 X11232 X11332 X11432 X11532;
    ARRAY PBOR1{*} X11025 X11125 X11225 X11325 X11425 X11525;
    ARRAY PWIT1{*} X11031 X11131 X11231 X11331 X11431 X11531;
    ARRAY PALL1{*} X11036 X11136 X11236 X11326 X11436 X11536;
    ARRAY PPCT{*} X11037 X11137 X11237 X11327 X11437 X11537;
    */
    THRIFT = 0; PENEQ = 0 ;
    RTHRIFT=0; STHRIFT=0;
    REQ=0; SEQ=0;

    /*
    DO I=1 TO DIM(PTYPE1);
        HOLD=MAX(0,PAMT1 {I})*(PTYPE1 {I} IN (5 6 10)|
            PTYPE2 {I} IN (2 3 4 6)|PBOR1 {I}=1|PWIT1 {I}=1);
        IF (I<=3) THEN RTHRIFT=RTHRIFT+HOLD;
        ELSE STHRIFT=STHRIFT+HOLD;
        THRIFT=THRIFT+HOLD;
        PENEQ=PENEQ+HOLD*((PALL1 {I}=1)+(PALL1 {I}=3)*PPCT {I}/100000);
        IF (I<=3) THEN REQ=PENEQ;
        ELSE SEQ=PENEQ-REQ;
    */
*   allocate the pension mopups;
*   where possible, use information for first three pensions to infer
    characteristics of this amount;
*   where not possible to infer whether R can borrow/make withdrawals,
    assume this is possible;
*   where not possible to determine investment direction, assume half
    in stocks;
    /*
    HOLD=.; PMOP=.;
    IF (X11259>0) THEN DO;
        IF (PTYPE1 {1} IN (5 6)|PTYPE1 {2} IN (5 6)|PTYPE1 {3} IN (5 6)|
            PTYPE2 {1} IN (2 3 4)|PTYPE2 {2} IN (2 3 4)|PTYPE2 {3} IN (2 3 4)|
            PWIT1 {1}=1|PWIT1 {2}=1|PWIT1 {3}=1|PBOR1 {1}=1|PBOR1 {2}=1|PBOR1 {3}=1)
            THEN PMOP=X11259;
    */

```



```

ELSE IF (PTYPE1{1}^=0 & PTYPE1{2}^=0 & PTYPE1{3}^=0 &
PWIT1{1}^=0 &
  PWIT1{2}^=0 & PWIT1{3}^=0) THEN PMOP=0;
ELSE PMOP=X11259;
THRIFT=THRIFT+PMOP;
IF (REQ>0) THEN PENEQ=PENEQ+PMOP*(REQ/RTHRIFT);
ELSE PENEQ=PENEQ+PMOP/2;
END;
IF (X11559>0) THEN DO;
  IF (PTYPE1{4} IN (1 2)|PTYPE1{5} IN (1 2)|PTYPE1{6} IN (1 2)|
  PTYPE2{4} IN (2 3 4)|PTYPE2{5} IN (2 3 4)|PTYPE2{6} IN (2 3 4)|
PWIT1{4}=1|PWIT1{5}=1|PWIT1{6}=1|PBOR1{4}=1|PBOR1{5}=1|PBOR1{6}=1)
  THEN PMOP=X11559;
  ELSE IF (PTYPE1{4}^=0 & PTYPE1{5}^=0 & PTYPE1{6}^=0 & PWIT1{4}^=0
&
  PWIT1{5}^=0 & PWIT1{6}^=0) THEN PMOP=0;
  ELSE PMOP=X11559;
  THRIFT=THRIFT+PMOP;
  IF (SEQ>0) THEN PENEQ=PENEQ+PMOP*(SEQ/STHRIFT);
  ELSE PENEQ=PENEQ+PMOP/2;
  END;
  DROP HOLD PMOP RTHRIFT STHRIFT REQ SEQ;
END;
*/
* future pensions (accumulated in an account for the R/S);
FUTPEN=MAX(0,X5604)+MAX(0,X5612)+MAX(0,X5620)+MAX(0,X5628)+
  MAX(0,X5636)+MAX(0,X5644);
* NOTE: there is very little evidence that pensions with currently
received benefits recorded in the SCFs before 2004 were any type
of 401k or related account from which the R was making
withdrawals: the questions added in 2004 allow one to distinguish
such account, and there are 58 of them in that year:
create a second version of RETQLIQ to include this information;

CURRPEN=X6462+X6467+X6472+X6477+X6482+X6487+X6957;
* total quasi-liquid: sum of IRAs, thrift accounts, and future pensions;
* this version includes currently received benefits;
RETQLIQ=IRAKH+THRIFT+FUTPEN+CURRPEN;
* have quasi-liquid assets: 1=yes, 0=no;
HRETQLIQ=(RETQLIQ>0);

* other pension characteristics:

```

ANYPEN: 1=either head or spouse/partner has any type of pension, 0=otherwise,  
 DBPLANCJ: 1=either head or spouse/partner has a defined benefit pension on a current job, 0=otherwise,  
 DBPLANT: 1=either head or spouse/partner has DB plan on current job or some type of pension from a past job to be received in the future, 0=otherwise,  
 DCPLANCJ: 1=either head or spouse/partner has any type of account-based plan on a current job, 0=otherwise  
 BPLANCJ: 1=either head or spouse/partner has both types of pension plan on a current job;

ANYPEN=(X4135=1|X4735=1|X5313=1|X5601=1);

DBPLANCJ=((X11000=4 & X11001^=30)|X11001=1 |  
 (X11100=4 & X11101^=30)|X11101=1|(X11200=4 & X11201^=30)|X11201=1|  
 (X11300=4 & X11301^=30)|X11301=1|(X11400=4 & X11401^=30)|X11401=1|  
 (X11500=4 & X11501^=30)|X11501=1);

DCPLANCJ=(X11032>0|X11132>0|X11232>0|X11332>0|X11432>0|  
 X11532>0|X11032=-1|X11132=-1|X11232=-1|X11332=-1|X11432=-1|  
 X11532=-1);

DBPLANT=(DBPLANCJ=1|(X6461=5|X6466=5|X6471=5|X6476=5|X6481=5|  
 X6486=5)|(X5603 IN (1 3)|X5611 IN (1 3)|X5619 IN (1 3)|  
 X5627 IN (1 3)|X5635 IN (1 3)|X5643 IN (1 3)));

BPLANCJ =(DBPLANCJ=1 & DCPLANCJ=1);

\* savings bonds;

SAVBND=X3902;

\* have savings bonds: 1=yes, 0=no;

HSAVBND=(SAVBND>0);

\* cash value of whole life insurance;

CASHLI=MAX(0,X4006);

\* have cash value LI: 1=yes, 0=no;

HCASHLI=(CASHLI>0);

\* other managed assets (trusts, annuities and managed investment accounts in which HH has equity interest);

ANNUIT=MAX(0,X6577);

TRUSTS=MAX(0,X6587);

OTHMA=ANNUIT+TRUSTS;

\* have other managed assets: 1=yes, 0=no;

HOTHMA=(OTHMA>0);

- \* other financial assets: includes loans from the household to someone else, future proceeds, royalties, futures, non-public stock, deferred compensation, oil/gas/mineral invest., cash n.e.c.;
- \* NOTE: because of the collapsing of categories in the public version of the dataset, both codes 71 (oil/gas/mineral leases or investments) and 72 (futures contracts, stock options) are combined in code 71: thus, the sum will be treated as a nonfinancial asset.  
Additionally, codes 77 (future lottery/prize receipts) and 79 (other obligations to R, tax credits) are combined in code 77;

$$\begin{aligned} \text{OTHFIN} = & \text{X4018} + \text{X4022} * (\text{X4020 IN (61,62,63,64,65,66,71,72,73,74,77,} \\ & \mathbf{80,81,-7)}) + \\ & \text{X4026} * (\text{X4024 IN (61,62,63,64,65,66,71,72,73,74,77,80,81,-7)}) + \\ & \text{X4030} * (\text{X4028 IN (61,62,63,64,65,66,71,72,73,74,77 80,81,-7)}); \end{aligned}$$

- \* have other financial assets: 1=yes, 0=no;  
HOTHFIN=(OTHFIN>0);

- \* financial assets invested in stock:
  1. directly-held stock
  2. stock mutual funds: full value if described as stock mutual fund,  
1/2 value of combination mutual funds
  3. IRAs/Keoghs invested in stock:  
full value if mostly invested in stock,  
1/2 value if split between stocks/bonds or stocks/money market,  
1/3 value if split between stocks/bonds/money market
  4. other managed assets w/equity interest (annuities, trusts, MIAs):  
full value if mostly invested in stock,  
1/2 value if split between stocks/MFs bonds/CDs, or  
"mixed/diversified,"  
1/3 value if "other"
  5. thrift-type retirement accounts invested in stock  
full value if mostly invested in stock  
1/2 value if split between stocks and interest earning assets;

$$\begin{aligned} \text{EQUITY} = & \text{STOCKS} + \text{STMUTF} + .5 * \text{COMUTF} + \text{OMUTF} + \\ & (\text{X6551} + \text{X6552} + \text{X6553} + \text{X6554}) * ((\text{X6555} = \mathbf{1}) + (\text{X6555} = \mathbf{3}) * \text{X6556} / \mathbf{10000}) + \\ & (\text{X6559} + \text{X6560} + \text{X6561} + \text{X6562}) * ((\text{X6563} = \mathbf{1}) + (\text{X6563} = \mathbf{3}) * \text{X6564} / \mathbf{10000}) + \\ & (\text{X6567} + \text{X6568} + \text{X6569} + \text{X6570}) * ((\text{X6571} = \mathbf{1}) + (\text{X6571} = \mathbf{3}) * \text{X6572} / \mathbf{10000}) + \\ & \text{ANNUIT} * ((\text{X6581} = \mathbf{1}) + (\text{X6581} = \mathbf{3}) * \text{X6582} / \mathbf{10000}) + \\ & \text{TRUSTS} * ((\text{X6591} = \mathbf{1}) + (\text{X6591} = \mathbf{3}) * \text{X6592} / \mathbf{10000}) + \text{PENEQ} + \\ & (\text{X6461} = \mathbf{1}) * \text{X6462} * ((\text{X6933} = \mathbf{1}) + (\text{X6933} = \mathbf{3}) * \text{X6934} / \mathbf{10000}) + \end{aligned}$$

$(X6466=1)*X6467*((X6937=1)+(X6937=3)*X6938/10000)+$   
 $(X6471=1)*X6472*((X6941=1)+(X6941=3)*X6942/10000)+$   
 $(X6476=1)*X6477*((X6945=1)+(X6945=3)*X6946/10000)+$   
 $(X6481=1)*X6482*((X6949=1)+(X6949=3)*X6950/10000)+$   
 $(X6486=1)*X6487*((X6953=1)+(X6953=3)*X6954/10000)+$   
 $X5604*((X6962=1)+(X6962=3)*X6963/10000)+$   
 $X5612*((X6968=1)+(X6968=3)*X6969/10000)+$   
 $X5620*((X6974=1)+(X6974=3)*X6975/10000)+$   
 $X5628*((X6980=1)+(X6980=3)*X6981/10000)+$   
 $X5636*((X6986=1)+(X6986=3)*X6987/10000)+$   
 $X5644*((X6992=1)+(X6962=3)*X6993/10000);$

- \* have stock equity: 1=yes, 0=no;  
HEQUITY=(EQUITY>0);
- \* equity in directly held stocks, stock mutual funds, and combination mutual funds;  
DEQ=STOCKS+STMUTF+.5\*COMUTF;
- \* equity in quasi-liquid retirement assets;

RETEQ=(SUM(0,X6551,X6552,X6553,X6554)\*((X6555=1)+(X6555=3)\*X6556/10000)  
+  
SUM(0,X6559,X6560,X6561,X6562)\*((X6563=1)+(X6563=3)\*X6564/10000)+  
SUM(0,X6567,X6568,X6568,X6570)\*((X6571=1)+(X6571=3)\*X6572/10000))+  
PENEQ+X5604\*((X6962=1)+(X6962=3)\*X6963/10000)+  
X5612\*((X6968=1)+(X6968=3)\*X6969/10000)+  
X5620\*((X6974=1)+(X6974=3)\*X6975/10000)+  
X5628\*((X6980=1)+(X6980=3)\*X6981/10000)+  
X5636\*((X6986=1)+(X6986=3)\*X6987/10000)+  
X5644\*((X6992=1)+(X6962=3)\*X6993/10000);  
/\*  
\* ratio of equity to normal income;  
EQUITINC=.;  
EQUITINC=EQUITY/MAX(100,NORMINC);  
\*/  
\* brokerage account info;  
\* have a brokerage account;  
HBROK=(X3923=1);  
\* traded in the past year;  
HTRAD=(X3928>0);  
\* number of trades per year;  
IF (X7193 NOT IN (0 -1 1 2 3 4 5 6 8 11 12 18 25)) THEN PUT  
"WARNING: UNRECOGNIZED FREQUENCY FOR X7193! "; \* ID= X7193;  
PTRAD=((X7193=1)\*250+(X7193=2)\*52+(X7193=3)\*26+(X7193=4)\*12

$$+(X7193=5)*4+(X7193=6)+(X7193=8)+(X7193=11)*2 +$$

$$(X7193=12)*6+(X7193=18)*8*250+(X7193=25)/2);$$

$$NTRAD=PTRAD*MAX(0,X3928);$$

\* total financial assets;

$$FIN=LIQ+CDS+NMMF+STOCKS+BOND+RETQLIQ+SAVBND+CASHLI+OTHMA$$

$$+OTHFIN;$$

\* have any financial assets: 1=yes, 0=no;  

$$HFIN=(FIN>0);$$

\* financial assets squared;  

$$finsq=fin**2;$$

\* log of financial assets  

$$\logfin=\log10(fin);$$

\* Scale of financial assets;  

$$finscale=fin/10000;$$

\*\*\*\*\*

\*\*\*;

\* nonfinancial assets and related variables;

\* value of all vehicles (includes autos, motor homes, RVs, airplanes, boats);  

$$VEHIC=MAX(0,X8166)+MAX(0,X8167)+MAX(0,X8168)+MAX(0,X8188)+$$

$$MAX(0,X2422)+MAX(0,X2506)+MAX(0,X2606)+MAX(0,X2623);$$

\* have any vehicles: 1=yes, 0=no;  

$$HVEHIC=(VEHIC>0);$$

\* vehicle supplied by a business;

\* have a business vehicle: 1=yes, 0=no;  

$$BUSVEH=X2501;$$

\* number of business vehicles;  

$$NBUSVEH=X2502;$$

\* owned vehicles (excludes motorcycles, RVs, motor homes, tractors, snow blowers etc);

\* have an owned vehicle: 1=yes, 0=no;  

$$OWN=(X2201=1);$$

\* number of owned vehicles;  

$$NOWN=X2202;$$

\* value of owned vehicles;

VOWN=X8166+X8167+X8168+X8188;

- \* leased vehicles;
- \* have leased vehicle: 1=yes, 0=no;  
LEASE=(X2101=1);
- \* number of leased vehicles;  
NLEASE=X2102;
- \* value of leased vehicles;  
VLEASE=X8163+X8164;
- \* total number of vehicles (owned and leased);  
NVEHIC=NOWN+NLEASE;
- \* new model-year car (owned or leased);

- \* primary residence;
- \* for farmers, assume X507 (percent of farm used for farming/ranching) is maxed at 90;  
IF (X507>9000) THEN X507=9000;
- \* compute value of business part of farm net of outstanding mortgages;  
FARMBUS=0;  
IF (X507>0) THEN DO;  
  FARMBUS=(X507/10000)\*(X513+X526-X805-X905-X1005);  
  X805=X805\*((10000-X507)/10000);  
  X808=X808\*((10000-X507)/10000);  
  X813=X813\*((10000-X507)/10000);  
  X905=X905\*((10000-X507)/10000);  
  X908=X908\*((10000-X507)/10000);  
  X913=X913\*((10000-X507)/10000);  
  X1005=X1005\*((10000-X507)/10000);  
  X1008=X1008\*((10000-X507)/10000);  
  X1013=X1013\*((10000-X507)/10000);  
  IF (X1103=1) THEN DO;  
    FARMBUS=FARMBUS-X1108\*(X507/10000);  
    X1108=X1108\*((10000-X507)/10000);  
    X1109=X1109\*((10000-X507)/10000);  
  END;  
  IF (X1114=1) THEN DO;  
    FARMBUS=FARMBUS-X1119\*(X507/10000);  
    X1119=X1119\*((10000-X507)/10000);  
    X1120=X1120\*((10000-X507)/10000);  
  END;  
  IF (X1125=1) THEN DO;  
    FARMBUS=FARMBUS-X1130\*(X507/10000);  
    X1130=X1130\*((10000-X507)/10000);  
  END;  
END;

$X1131=X1131*((10000-X507)/10000);$   
 END;  
 END;  
 \* value of primary residence;  
 $HOUSES=SUM(0,X604,X614,X623,X716)+((10000-$   
 $MAX(0,X507))/10000)*(X513+X526);$   
 \* NOTE: if R only owns a part of the property, the values reported  
 should be only Rs share;  
 \* have owned principal residence: 1=yes, 0=no;  
 $HHOUSES=(HOUSES^=0);$   
 \* Home equity equals home value less amount still owed on 1st  
 and 2nd/3rd mortgages and amount owed on home equity lines of credit;  
 $HOMEEQ=HOUSES-X805-X905-X1005-X1108*(X1103=1)-X1119*(X1114=1)-$   
 $X1130*(X1125=1);$   
 \* homeownership class: 1=owns ranch/farm/mobile home/house/condo/  
 coop/etc., 2=otherwise;

$IF (X508 IN (1 2)|X601 IN (1 2 3)|X701 IN (1 3 4 5 6 8)|$   
 $(X701=-7 \& X7133=1)) THEN HOUSECL=1;$

\* other residential real estate: includes land contracts/notes  
 household has made, properties other than the principal  
 residence that are coded as 1-4 family residences, time shares,  
 and vacations homes;

$ORESRE=MAX(X1405,X1409)+MAX(X1505,X1509)+MAX(X1605,X1609)+MAX(0,$   
 $X1619)$

$+(X1703 IN (12,14,21,22,25,40,41,42,43,44,49,50,52,999))*$   
 $MAX(0,X1706)*(X1705/10000)$   
 $+(X1803 IN (12,14,21,22,25,40,41,42,43,44,49,50,52,999))*$   
 $MAX(0,X1806)*(X1805/10000)$   
 $+(X1903 IN (12,14,21,22,25,40,41,42,43,44,49,50,52,999))*$   
 $MAX(0,X1906)*(X1905/10000)$   
 $+MAX(0,X2002);$

\* have other residential real estate: 1=yes, 0=no;  
 $HORESRE=(ORESRE>0);$

\* net equity in nonresidential real estate: real estate other than  
 the principal residence, properties coded as 1-4 family  
 residences, time shares, and vacation homes net of mortgages and  
 other loans taken out for investment real estate;

$NNRESRE=(X1703 IN (1 2 3 4 5 6 7 10 11 13 15 24 45 46 47 48 51 -7))*$

MAX(0,X1706)\*(X1705/10000)  
 +(X1803 IN (1 2 3 4 5 6 7 10 11 13 15 24 45 46 47 48 51 -7))\*  
 MAX(0,X1806)\*(X1805/10000)  
 +(X1903 IN (1 2 3 4 5 6 7 10 11 13 15 24 45 46 47 48 51 -7))\*  
 MAX(0,X1906)\*(X1905/10000)+MAX(0,X2012)  
 -(X1703 IN (1 2 3 4 5 6 7 10 11 13 15 24 45 46 47 48 51 -7))\*  
 X1715\*(X1705/10000)  
 -(X1803 IN (1 2 3 4 5 6 7 10 11 13 15 24 45 46 47 48 51 -7))\*  
 X1815\*(X1805/10000)  
 -(X1903 IN (1 2 3 4 5 6 7 10 11 13 15 24 45 46 47 48 51 -7))\*  
 X1915\*(X1905/10000)-X2016;

\* remove installment loans for PURPOSE=78 from NNRESRE only  
 where such property exists--otherwise, if ORESRE exists, include  
 loan as RESDBT---otherwise, treat as installment loan;  
 IF (NNRESRE^=0) THEN DO;  
   FLAG781=1;  
   NNRESRE=NNRESRE-X2723\*(X2710=78)-X2740\*(X2727=78)-  
 X2823\*(X2810=78)  
   -X2840\*(X2827=78)-X2923\*(X2910=78)-X2940\*(X2927=78);  
 END;  
 ELSE FLAG781=0;

\* have nonresidential real estate assets: 1=yes, 0=no;  
 HNNRESRE=(NNRESRE ^=0);

\* business interests;

\* for businesses where the HH has an active interest, value is net  
 equity if business were sold today, plus loans from HH to  
 business, minus loans from business to HH not previously  
 reported, plus value of personal assets used as collateral for  
 business loans that were reported earlier;

\* for businesses where the HH does not have an active interest,  
 market value of the interest;

BUS=MAX(0,X3129)+MAX(0,X3124)-MAX(0,X3126)\*(X3127=5)+  
 MAX(0,X3121)\*(X3122 IN (1 6))+  
 MAX(0,X3229)+MAX(0,X3224)-MAX(0,X3226)\*(X3227=5)+  
 MAX(0,X3221)\*(X3222 IN (1 6))+  
 MAX(0,X3329)+MAX(0,X3324)-MAX(0,X3326)\*(X3327=5)+  
 MAX(0,X3321)\*(X3322 IN (1 6))+  
 MAX(0,X3335)+FARMBUS+  
 MAX(0,X3408)+MAX(0,X3412)+MAX(0,X3416)+MAX(0,X3420)+  
 MAX(0,X3424)+MAX(0,X3428);

\* have business assets: 1=yes, 0=no;  
 HBUS=(BUS ^= 0);



\* other nonfinancial assets: defined as total value of miscellaneous assets minus other financial assets: includes gold, silver (incl. silverware), other metals or metals NA type, jewelry, gem stones (incl. antique), cars (antique or classic), antiques, furniture, art objects, paintings, sculpture, textile art, ceramic art, photographs, (rare) books, coin collections, stamp collections, guns, misc. real estate (exc. cemetery), cemetery plots, china, figurines, crystal/glassware, musical instruments, livestock, horses, crops, oriental rugs, furs, other collections, incl. baseball cards, records, wine, oil/gas/mineral leases or investments, computer, equipment/tools, association or exchange membership, and other miscellaneous assets;

OTHNFIN=X4022+X4026+X4030-OTHFIN+X4018;

\* have other nonfinancial assets: 1=yes, 0=no;  
HOTHNFIN=(OTHNFIN>0);

\* total nonfinancial assets;

NFIN=VEHIC+HOUSES+ORESRE+NNRESRE+BUS+OTHNFIN;

\* have any nonfinancial assets: 1=yes, 0=no;  
HNFIN=(NFIN^=0);

\* total nonfinancial assets excluding principal residences;  
NHNFIN=NFIN-HOUSES;

\*\*\*\*\*

\*\*\*;

\* total assets;  
ASSET=FIN+NFIN;

\* log of assets  
logasset=log10(asset);

\* have any assets: 1=yes, 0=no;  
HASSET=(ASSET^=0);

\*\*\*\*\*

\*\*\*;

\* debts and related variables;

\* housing debt (mortgage, home equity loans and HELOCs -- mopup LOCs divided between HE and other);  
IF (X1108+X1119+X1130)>=1 THEN DO;

```

HELOC=X1108*(X1103=1)+X1119*(X1114=1)+X1130*(X1125=1)
+MAX(0,X1136)*(X1108*(X1103=1)
+X1119*(X1114=1)+X1130*(X1125=1))/(X1108+X1119+X1130);
MRTHEL=X805+X905+X1005+
X1108*(X1103=1)+X1119*(X1114=1)+X1130*(X1125=1)
+MAX(0,X1136)*(X1108*(X1103=1)
+X1119*(X1114=1)+X1130*(X1125=1))/(X1108+X1119+X1130);
NH_MORT=MRTHEL-HELOC;
END;
ELSE DO;
HELOC=0;
MRTHEL=X805+X905+X1005+.5*(MAX(0,X1136))*(HOUSES>0);
NH_MORT=MRTHEL-HELOC;
END;

```

\* have principal residence debt: 1=yes, 0=no;

```

HMRTHEL=(MRTHEL>0);
HHELOC=(HELOC>0);
HMH_MORT=(NH_MORT>0);

```

\* other lines of credit;

```

IF (X1108+X1119+X1130)>=1 THEN DO;
OTHLOC=X1108*(X1103^=1)+X1119*(X1114^=1)+X1130*(X1125^=1)+
MAX(0,X1136)*(X1108*(X1103^=1)+X1119*(X1114^=1)+
X1130*(X1125^=1))/(X1108+X1119+X1130);
END;
ELSE DO;
OTHLOC=((HOUSES<=0)+.5*(HOUSES>0))*(MAX(0,X1136));
END;

```

\* have balances on lines of credit other than HELOCs: 1=yes, 0=no;

```

HOTHLOC=(OTHLOC>0);

```

\* debt for other residential property: includes land contracts, residential property other than the principal residence, misc vacation, and installment debt reported for cottage/vacation home code 67);

\* NOTE: debt for nonresidential real estate is netted out of the corresponding assets;

```

MORT1=(X1703 IN (12,14,21,22,25,40,41,42,43,44,49,50,52,999))*
X1715*(X1705/10000);
MORT2=(X1803 IN (12,14,21,22,25,40,41,42,43,44,49,50,52,999))*
X1815*(X1805/10000);
MORT3=(X1903 IN (12,14,21,22,25,40,41,42,43,44,49,50,52,999))*

```

X1915\*(X1905/10000);  
 RESDBT=X1417+X1517+X1617+X1621+MORT1+MORT2+MORT3+X2006;  
 \* see note above at definition of NNRESRE;  
 IF (FLAG781^=1 & ORESRE>0) THEN DO;  
   FLAG782=1;  
   RESDBT=RESDBT+X2723\*(X2710=78)+X2740\*(X2727=78)  
   +X2823\*(X2810=78)+X2840\*(X2827=78)  
   +X2923\*(X2910=78)+X2940\*(X2927=78);  
 END;  
 ELSE FLAG782=0;  
 \* for parallel treatment, only include PURPOSE=67 where  
 ORESRE>0--otherwise, treat as installment loan;  
 IF (ORESRE>0) THEN DO;  
   FLAG67=1;  
   RESDBT=RESDBT+X2723\*(X2710=67)+X2740\*(X2727=67)  
   +X2823\*(X2810=67)+X2840\*(X2827=67)  
   +X2923\*(X2910=67)+X2940\*(X2927=67);  
 END;  
 ELSE FLAG67=0;  
  
 \* have other residential real estate debt: 1=yes, 0=no;  
 HRESDBT=(RESDBT>0);  
  
 \* credit card debt;  
 \* NOTE: from 1992 forward, specific question addresses revolving  
 debt at stores, and this amount is treated as credit card debt here;  
   CCBAL = MAX(0,X427)+MAX(0,X413)+MAX(0,X421)+MAX(0,X430)+  
   MAX(0,X424)+MAX(0,X7575);  
 \* have credit card balances: 1=yes, 0=no;  
 HCCBAL=(CCBAL>0);  
  
 \* installment loans not classified elsewhere;  
 \* subdivide into vehicle loans, education loans, and other  
 installment loans;  
   VEH\_INST=X2218+X2318+X2418+X7169+X2424+X2519+X2619+X2625;  
   EDN\_INST=X7824+X7847+X7870+X7924+X7947+X7970+X7179+  
   X2723\*(X2710=83)+X2740\*(X2727=83)+X2823\*(X2810=83)+  
   X2840\*(X2827=83)+X2923\*(X2910=83)+X2940\*(X2927=83);  
   INSTALL=X2218+X2318+X2418+X7169+X2424+X2519+X2619+X2625+X7183  
   +X7824+X7847+X7870+X7924  
   +X7947+X7970+X7179  
   +X1044+X1215+X1219;

\* see notes above at definitions of NNRESRE and RESDBT;  
IF (FLAG781=0 & FLAG782=0) THEN DO;  
INSTALL=INSTALL+X2723\*(X2710=78)+X2740\*(X2727=78)+  
X2823\*(X2810=78)+X2840\*(X2827=78)+X2923\*(X2910=78)+  
X2940\*(X2927=78);  
END;  
IF (FLAG67=0) THEN DO;  
INSTALL=INSTALL+X2723\*(X2710=67)+X2740\*(X2727=67)+  
X2823\*(X2810=67)+X2840\*(X2827=67)+X2923\*(X2910=67)+  
X2940\*(X2927=67);  
END;  
INSTALL=INSTALL+X2723\*(X2710 NOT IN (67 78))+X2740\*(X2727 NOT IN  
(67 78))+X2823\*(X2810 NOT IN (67 78))+X2840\*(X2827 NOT IN  
(67 78))+X2923\*(X2910 NOT IN (67 78))+X2940\*(X2927 NOT IN (67 78));  
OTH\_INST=INSTALL-VEH\_INST-EDN\_INST;  
HVEH\_INST=(VEH\_INST>0);  
HEDN\_INST=(EDN\_INST>0);  
HOTH\_INST=(OTH\_INST>0);

\* have any installment debt: 1=yes, 0=no;  
HINSTALL=(INSTALL>0);

\* margin loans;  
\* except in 1995, the SCF does not ask whether the margin loan  
was reported earlier: the instruction explicitly excludes loans  
reported earlier;

OUTMARG=MAX(0,X3932);

\* pension loans not reported earlier;

OUTPEN1=MAX(0,X11027)\*(X11070=5);  
OUTPEN2=MAX(0,X11127)\*(X11170=5);  
OUTPEN3=MAX(0,X11227)\*(X11270=5);  
OUTPEN4=MAX(0,X11327)\*(X11370=5);  
OUTPEN5=MAX(0,X11427)\*(X11470=5);  
OUTPEN6=MAX(0,X11527)\*(X11570=5);

\* other debts (loans against pensions, loans against life insurance,  
margin loans, miscellaneous);  
ODEBT=OUTPEN1+OUTPEN2+OUTPEN3+OUTPEN4+OUTPEN5+OUTPEN6  
+MAX(0,X4010)+MAX(0,X4032)+OUTMARG;

\* have any other debts: 1=yes, 0=no;

```

HODEBT=(ODEBT>0);

* total debt;
DEBT=MRTHEL+RESDBT+OTHLOC+CCBAL+INSTALL+ODEBT;

* log of debt
logdebt=log10(debt);

* have any debts: 1=yes, 0=no;
HDEBT=(DEBT>0);

***Adjust financial asset;
CPIADJ=1; *WE MADE CPIADJ = 1 - WAS NOT IN ORIGINAL PROGRAM;
LIQ=LIQ*CPIADJ;
CDS=CDS*CPIADJ;
NMMF=NMMF*CPIADJ;
STOCKS=STOCKS*CPIADJ;
BOND=BOND*CPIADJ;
RETQLIQ=RETQLIQ*CPIADJ;
SAVBND=SAVBND*CPIADJ;
CASHLI=CASHLI*CPIADJ;
OTHMA=OTHMA*CPIADJ;
OTHFIN=OTHFIN*CPIADJ;
*****Adjust non-financial asset;
VEHIC=VEHIC*CPIADJ;
HOUSES=HOUSES*CPIADJ;
ORESRE=ORESRE*CPIADJ;
NNRESRE=NNRESRE*CPIADJ;
BUS=BUS*CPIADJ;
OTHNFIN=OTHNFIN*CPIADJ;
*****Adjust debt;
MRTHEL=MRTHEL*CPIADJ;
RESDBT=RESDBT*CPIADJ;
OTHLOC=OTHLOC*CPIADJ;
CCBAL=CCBAL*CPIADJ;
INSTALL=INSTALL*CPIADJ;
ODEBT=ODEBT*CPIADJ;
***Adjust networth, asset,debt,fin,nfin;
FIN=LIQ+CDS+NMMF+STOCKS+BOND+RETQLIQ+SAVBND+CASHLI+OTHMA
+OTHFIN;
NFIN=VEHIC+HOUSES+ORESRE+NNRESRE+BUS+OTHNFIN;
ASSET=FIN+NFIN;
DEBT=MRTHEL+RESDBT+OTHLOC+CCBAL+INSTALL+ODEBT;

```

NETWORTH=ASSET-DEBT;

\* log of networth  
lognetworth=log10(networth);

\*\*\*\*\*.

\*financials;

\*\*\*\*\*.

\*Categorical Income variable;  
If incomescale<14.3 then income=1;  
else if incomescale<58.1 then income=2;  
else if incomescale<117.25 then income=3;  
else if incomescale<178.65 then income=4;  
else if incomescale<319.1 then income=5;  
else income=6;

if income=1 then inc1=1; else inc1=0;  
if income=2 then inc2=1; else inc2=0;  
if income=3 then inc3=1; else inc3=0;  
if income=4 then inc4=1; else inc4=0;  
if income=5 then inc5=1; else inc5=0;  
if income=6 then inc6=1; else inc6=0;

/\* if NETWORTH<0 then NW\_cat= -10;  
else if NETWORTH<30000 then NW\_cat= 15;  
else if NETWORTH<200000 then NW\_cat= 100;  
else if NETWORTH<500000 then NW\_cat=500;  
else NW\_cat= 1000;

if NETWORTH<99701 then NW\_PCTL= 25;  
else if NETWORTH<540501 then NW\_PCTL= 50;  
else if NETWORTH<4788601 then NW\_PCTL= 75;  
else NW\_PCTL= 100;

if networth<50000 then nwcat=1;  
else if networth<100000 then nwcat=2;  
else if networth<300000 then nwcat=3;  
else if networth<500000 then nwcat=4;  
else nwcat=5;\*/

```
if finscale<5 then fincat=1;
else if finscale<10 then fincat=2;
else if finscale<30 then fincat=3;
else if finscale<50 then fincat=4;
else fincat=5;
```

```
if fincat=1 then fincat25=1; else fincat25=0;
if fincat=2 then fincat75=1; else fincat75=0;
if fincat=3 then fincat200=1; else fincat200=0;
if fincat=4 then fincat400=1; else fincat400=0;
if fincat=5 then fincat500=1; else fincat500=0;
```

```
/*if debt<25000 then debtcat=1;
else if debt<50000 then debtcat=2;
else if debt<75000 then debtcat=3;
else if debt<100000 then debtcat=4;
else debtcat=5;*/
```

```
*****;
```

```
*attitudes and expectations;
```

```
*****;
```

```
IF x3006= (-1) THEN SAVRES=1; *can't save;
ELSE IF x3006=1 or x3006=2 THEN SAVRES=2; *education;
ELSE IF x3006=3 or x3006=5 or x3006=6 THEN SAVRES=3; *family;
ELSE IF x3006=11 THEN SAVRES=4; *home;
ELSE IF 12<=x3006<=16 or x3006=27 or x3006=29 or x3006=30 or x3006=9 or
x3006=18 or x3006=20 or x3006=41 THEN
SAVRES=5; *purchases;
ELSE IF x3006=17 or x3006=22 or x3006=93 THEN SAVRES=6; *retirement/wealth
preservation;
ELSE IF 23<=x3006<=25 or x3006=92 THEN SAVRES=7; *liquidity;
ELSE IF x3006=21 or x3006=26 or x3006=28 or x3006=32 THEN SAVRES=8;
*investment/the future;
ELSE SAVRES=9; *no particular reason;
```

```
if savres=2 or savres=6 or savres=8 then motive=1;
else motive=2;
```

if motive=1 then long=1; else long=0;  
if motive=2 then short=1; else short=0;

\*Self-perceived risk tolerance level;  
if x3014=1 then risk=4;            \*substantial risk;  
else if x3014=2 then risk=3;       \*above average;  
else if x3014=3 then risk=2;       \*average;  
else risk=1;            \*take no risk;

if risk>1 then willing=1; else willing=0;  
if risk=1 then unwilling=1; else unwilling=0;

if risk=1 then norisk=1; else norisk=0;  
if risk=2 then average=1; else average=0;  
if risk=3 then above=1; else above=0;  
if risk=4 then sub=1; else sub=0;

\*Retirement adequacy projections;

if x3023=1 then savadeq=5; \*totally inadequate;  
else if x3023 = 2 then savadeq=4; \* somewhat inadequate;  
else if x3023 = 3 then savadeq=3; \*enough to maintain living standards;  
else if x3023=4 then savadeq=2; \*somewhat satisfactory;  
else savadeq=1; \*very satisfactory;

if savadeq=5 then savadeqcl=2;  
else if savadeq=4 then savadeqcl=2;  
else if savadeq=3 then savadeqcl=1;  
else if savadeq=2 then savadeqcl=1;  
else savadeqcl=1;

if savadeqcl=2 then inadequate=1; else inadequate=0;  
if savadeqcl=1 then adequate=1; else adequate=0;

\*Have been lucky in financial affairs;

if x6788=1 then lucky=1; \*agree strongly;  
if x6788=2 then lucky=2;  
if x6788=3 then lucky=3;  
if x6788=4 then lucky=4;



if x6788=5 then lucky=5;

if lucky<3 then luckycl=1;

if lucky=3 then luckycl=2;

if lucky>3 then luckycl=3;

if luckycl=1 then luck=1; else luck=0;

if luckycl=2 then neither=1; else neither=0;

if luckycl=3 then noluck=1; else noluck=0;

if lucky=1 then verylucky=1; else verylucky=0;

if lucky=2 then somlucky=1; else somlucky=0;

if lucky=3 then neither=1; else neither=0;

if lucky=4 then somunlucky=1; else somunlucky=0;

if lucky=5 then veryunlucky=1; else veryunlucky=0;

if x7510=1 then spendmore=1; else spendmore=0;

if x7510=2 then spendequal=1; else spendequal=0;

if x7510=3 then spendless=1; else spendless=0;

if x3008=1 then time\_months=1; else time\_months=0;

if x3008=2 then time\_nxtyr=1; else time\_nxtyr=0;

if x3008=3 then time\_fewyrs=1; else time\_fewyrs=0;

if x3008=4 then time\_fiveyrs=1; else time\_fiveyrs=0;

if x3008=5 then time\_tenyrs=1; else time\_tenyrs=0;

if x301=1 then better=1; else better=0;

if x301=2 then worse=1; else worse=0;

if x301=3 then same=1; else same=0;

\*\*\*\*\*;

\*dependent variable and demographics;

\*\*\*\*\*;

\*Uses a financial planner for investment decisions;

if x7112=12 or x7113=12 or x7114=12 or x7115=12

or x7116=12 or x7117=12 or x7118=12 or x7119=12

or x7120=12 or x7121=12 or X6865=12 or X6866=12

then savplanner=1; else savplanner=0;

if kids<1 then kidcat=0;  
else if kids=1 then kidcat=1;  
else if kids=2 then kidcat=2;  
else kidcat=3;

if kidcat=0 then kid\_0=1; else kid\_0=0;  
if kidcat=1 then kid\_1=1; else kid\_1=0;  
if kidcat=2 then kid\_2=1; else kid\_2=0;  
if kidcat=3 then kid\_3=1; else kid\_3=0;

if rage<35 then ragecat=1;  
else if rage<45 then ragecat=2;  
else if rage<55 then ragecat=3;  
else if rage<65 then ragecat=4;  
else ragecat=5;

if ragecat=1 then rage\_30=1; else rage\_30=0;  
if ragecat=2 then rage\_40=1; else rage\_40=0;  
if ragecat=3 then rage\_50=1; else rage\_50=0;  
if ragecat=4 then rage\_60=1; else rage\_60=0;  
if ragecat=5 then rage\_70=1; else rage\_70=0;

if redcl=1 then nohs=1; else nohs=0;  
if redcl=2 then onlyhs=1; else onlyhs=0;  
if redcl=3 then somecoll=1; else somecoll=0;  
if redcl=4 then degree=1; else degree=0;

if race=1 then racew=1; else racew=0;  
if race=2 then raceb=1; else raceb=0;  
if race=3 then raceh=1; else raceh=0;  
if race=4 then raceo=1; else raceo=0;

if rlbrfrccl=1 then rl laboremp=1; else rl laboremp=0;  
if rlbrfrccl=2 then rlaborself=1; else rlaborself=0;  
if rlbrfrccl=3 then rlaborret=1; else rlaborret=0;

```

if rlbrfrcl=4 then rlaborout=1; else rlaborout=0;

if slbrfrcl=1 then laboremp=1; else laboremp=0;
if slbrfrcl=2 then laborself=1; else laborself=0;
if slbrfrcl=3 then laborret=1; else laborret=0;
if slbrfrcl=4 then laborout=1; else laborout=0;

*interaction terms;

/*iragecat=(ragecat)*(gender);
iredcl=(redcl)*(gender);
irace=(race)*(gender);
ikidcat=(kidcat)*(gender);
iincome=(income)*(gender);
ifincat=(fincat)*(gender);
irisk=(risk)*(gender);
ilucky=(lucky)*(gender);
iX7510=(x7510)*(gender);
isavadeq=(savadeq)*(gender);
iX3008=(x3008)*(gender);
iX301=(x301)*(gender);*/

/*iragecat=(ragecat)+10*(gender);

iredcl=(redcl)+10*(gender);

irace=(race)+10*(gender);

ikidcat=(kidcat)+10*(gender);

iincome=(income)+10*(gender);

ifincat=(fincat)+10*(gender);

irisk=(risk)+10*(gender);

ilucky=(lucky)+10*(gender);

iX7510=(x7510)+10*(gender);

isavadeq=(savadeq)+10*(gender);

iX3008=(x3008)*+10*(gender);

```

iX301=(x301)\*+10\*(gender);\*/

\*INTERACTION TERM VARIABLES;

\*Respondent age;

irage\_30=(rage\_30)\*(gender);

irage\_40=(rage\_40)\*(gender);

irage\_50=(rage\_50)\*(gender);

irage\_60=(rage\_60)\*(gender);

irage\_70=(rage\_70)\*(gender);

\*Respondent education;

inohs=(nohs)\*(gender);

ionlyhs=(onlyhs)\*(gender);

isomecoll=(somecoll)\*(gender);

idegree=(degree)\*(gender);

\*Household size;

ikid\_0=(kid\_0)\*(gender);

ikid\_1=(kid\_1)\*(gender);

ikid\_2=(kid\_2)\*(gender);

ikid\_3=(kid\_3)\*(gender);

\*Race of respondent;

iracew=(racew)\*(gender);

iraceb=(raceb)\*(gender);

iraceh=(raceh)\*(gender);

iraceo=(raceo)\*(gender);

\*Labor force participation;

irlaboremp=(rlaboremp)\*(gender);

irlaborself=(rlaborself)\*(gender);

irlaborret=(rlaborret)\*(gender);

irlaborout=(rlaborout)\*(gender);

islaboremp=(slaboremp)\*(gender);

islaborself=(slaborself)\*(gender);

islaborret=(slaborret)\*(gender);

islaborout=(slaborout)\*(gender);

\*Household income;

iinc1=(inc1)\*(gender);  
iinc2=(inc2)\*(gender);  
iinc3=(inc3)\*(gender);  
iinc4=(inc4)\*(gender);  
iinc5=(inc5)\*(gender);  
iinc6=(inc6)\*(gender);

\*Financial assets;  
ifincat25=(fincat25)\*(gender);  
ifincat75=(fincat75)\*(gender);  
ifincat200=(fincat200)\*(gender);  
ifincat400=(fincat400)\*(gender);  
ifincat500=(fincat500)\*(gender);

\*Risk tolerance;  
inorisk=(norisk)\*(gender);  
iaverage=(average)\*(gender);  
iabove=(above)\*(gender);  
isub=(sub)\*(gender);  
ihigh=(high)\*(gender);  
isome=(some)\*(gender);  
iwilling=(willing)\*(gender);  
iunwilling=(unwilling)\*(gender);

\*Savings motive;  
ilong=(long)\*(gender);

\*Financial luck;  
iluck=(luck)\*(gender);  
ineither=(neither)\*(gender);  
inoluck=(noluck)\*(gender);

\*Retirement income adequacy;  
iinadequate=(inadequate)\*(gender);  
iadequate=(adequate)\*(gender);

\*Savings behavior;  
ispendmore=(spendmore)\*(gender);  
ispendequal=(spendequal)\*(gender);  
ispendless=(spendless)\*(gender);

\*Time horizon;  
itime\_months=(time\_months)\*(gender);

```
itime_nxtyr=(time_nxtyr)*(gender);
itime_fewyrs=(time_fewyrs)*(gender);
itime_fiveyrs=(time_fiveyrs)*(gender);
itime_tenyrs=(time_tenyrs)*(gender);
```

```
*Economic outlook;
ibetter=(better)*(gender);
iworse=(worse)*(gender);
isame=(same)*(gender);
```

```
run;
```

```
DATA DAVE.FINAL6;
SET FINAL;
KEEP IMPLIC--isame x14 x19 x8000 x4524 x4526 wgt nwgt x5729 x301 x3006 x3008
x42001 x7100 x7510 x7402 yy1 y1;
RUN;
```

```
libname dave 'C:\';
data male; set dave.final6;
if gender=0;
run;
```

```
libname dave 'C:\';
data female; set dave.final6;
if gender=1;
run;
```

```
libname dave 'C:\';
data rage 30; set dave.final6;
if rage_30=1;
run;
```

```
libname dave 'C:\';
data rage 40; set dave.final6;
if rage_40=1;
run;
```

```
libname dave 'C:\';
data rage 50; set dave.final6;
if rage_50=1;
run;
```

```
libname dave 'C:\';  
data rage_60; set dave.final6;  
if rage_60=1;  
run;
```

```
libname dave 'C:\';  
data rage_70; set dave.final6;  
if rage_70=1;  
run;
```

```
libname dave 'C:\';  
data nohs; set dave.final6;  
if nohs=1;  
run;
```

```
libname dave 'C:\';  
data onlyhs; set dave.final6;  
if onlyhs=1;  
run;
```

```
libname dave 'C:\';  
data somecoll; set dave.final6;  
if somecoll=1;  
run;
```

```
libname dave 'C:\';  
data degree; set dave.final6;  
if degree=1;  
run;
```

```
libname dave 'C:\';  
data racew; set dave.final6;  
if racew=1;  
run;
```

```
libname dave 'C:\';  
data raceb; set dave.final6;  
if raceb=1;  
run;
```

```
libname dave 'C:\';  
data raceh; set dave.final6;
```

```
if raceh=1;  
run;
```

```
libname dave 'C:\';  
data raceo; set dave.final6;  
if raceo=1;  
run;
```

```
libname dave 'C:\';  
data kid_0; set dave.final6;  
if kid_0=1;  
run;
```

```
libname dave 'C:\';  
data kid_1; set dave.final6;  
if kid_1=1;  
run;
```

```
libname dave 'C:\';  
data kid_2; set dave.final6;  
if kid_2=1;  
run;
```

```
libname dave 'C:\';  
data kid_3; set dave.final6;  
if kid_3=1;  
run;
```

```
libname dave 'C:\';  
data rlaboremp; set dave.final6;  
if rlaboremp=1;  
run;
```

```
libname dave 'C:\';  
data rlaborself; set dave.final6;  
if rlaborself=1;  
run;
```

```
libname dave 'C:\';  
data rlaborret; set dave.final6;  
if rlaborret=1;
```



**run;**

libname dave 'C:\';  
**data** rlaborout; set dave.final6;  
if rlaborout=1;  
**run;**

libname dave 'C:\';  
**data** inc1; set dave.final6;  
if inc1=1;  
**run;**

libname dave 'C:\';  
**data** inc2; set dave.final6;  
if inc2=1;  
**run;**

libname dave 'C:\';  
**data** inc3; set dave.final6;  
if inc3=1;  
**run;**

libname dave 'C:\';  
**data** inc4; set dave.final6;  
if inc4=1;  
**run;**

libname dave 'C:\';  
**data** inc5; set dave.final6;  
if inc5=1;  
**run;**

libname dave 'C:\';  
**data** inc6; set dave.final6;  
if inc6=1;  
**run;**

libname dave 'C:\';  
**data** fincat25; set dave.final6;  
if fincat25=1;  
**run;**

libname dave 'C:\';

```
data fincat75; set dave.final6;  
if fincat75=1;  
run;
```

```
libname dave 'C:\';  
data fincat200; set dave.final6;  
if fincat200=1;  
run;
```

```
libname dave 'C:\';  
data fincat400; set dave.final6;  
if fincat400=1;  
run;
```

```
libname dave 'C:\';  
data fincat500; set dave.final6;  
if fincat500=1;  
run;
```

```
libname dave 'C:\';  
data long; set dave.final6;  
if long=1;  
run;
```

```
libname dave 'C:\';  
data short; set dave.final6;  
if short=1;  
run;
```

```
libname dave 'C:\';  
data willing; set dave.final6;  
if willing=1;  
run;
```

```
libname dave 'C:\';  
data unwilling; set dave.final6;  
if unwilling=1;  
run;
```

**APPENDIX B**

**INITIAL BINARY LOGISTIC REGRESSION  
RII TECHNIQUE CODE**

```

ods rtf file='c:\Reduced RII';
*****RII for Logistic Regression*****;
DATA A; SET dave.final6;
IF IMPLIC=1;
PROC LOGISTIC DESCENDING OUTEST=BETAA COVOUT ;
model savplanner(event='1') = female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA B; SET dave.final6;
IF IMPLIC=2;
PROC LOGISTIC DESCENDING OUTEST=BETAB COVOUT ;
model savplanner(event='1') = female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA C; SET dave.final6;
IF IMPLIC=3;
PROC LOGISTIC DESCENDING OUTEST=BETAC COVOUT ;
model savplanner(event='1') = female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long; DATA D; SET
dave.final6;
IF IMPLIC=4;
PROC LOGISTIC DESCENDING OUTEST=BETAD COVOUT ;
model savplanner(event='1') = female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long; DATA E; SET
dave.final6;
IF IMPLIC=5;
PROC LOGISTIC DESCENDING OUTEST=BETAE COVOUT ;
model savplanner(event='1') = female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
*GENERATE COEFFICIENT VECTOR FROM EACH IMPLICATE;
DATA BETA1; SET BETAA; J+1;
IF J=1;
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;

DATA BETA2; SET BETAB; J+1;
IF J=1;

```

```

KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA BETA3; SET BETAC; J+1;
IF J=1;
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA BETA4; SET BETAD; J+1;
IF J=1;
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA BETA5; SET BETAE; J+1;
IF J=1;
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
*GENERATE VARIANCE-COVARIANCE MATRIX FROM EACH IMPLICATE;
DATA COV1; SET BETAA; J+1;
IF NOT (J=1);
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA COV2; SET BETAB; J+1;
IF NOT (J=1);
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA COV3; SET BETAC; J+1;
IF NOT (J=1);
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA COV4; SET BETAD; J+1;
IF NOT (J=1);
KEEP INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs somecoll
kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2 inc4 inc5
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;
DATA COV5; SET BETAE; J+1;
IF NOT (J=1);

```

KEEP INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs somecoll  
kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2 inc4 inc5  
inc6 fincat75 fincat200 fincat400 fincat500 unwilling long;

**PROC IML;**

\*READ COEFFICIENTS AND VARIANCE-COVARIANCE MATRICES FROM  
BETA# AND COV#

FILES AND GENERATE VECTORS AND MATRICES;

USE BETA1 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO Q1;

USE BETA2 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO Q2;

USE BETA3 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO Q3;

USE BETA4 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO Q4;

USE BETA5 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO Q5;

USE COV1 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO U1;

USE COV2 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO U2;

USE COV3 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

READ ALL INTO U3;

USE COV4 VAR{ INTERCEPT female rage\_30 rage\_40 rage\_60 rage\_70 nohs onlyhs  
somecoll kid\_1 kid\_2 kid\_3 raceb raceh raceo rlaborsel rlaborret rlaborout inc1 inc2  
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};

```

READ ALL INTO U4;
USE COV5 VAR{ INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout inc1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};
READ ALL INTO U5;
*DEFINE M EQUAL TO THE NUMBER OF IMPUTATIONS;
M=5;
*AVERAGE OF THE FIVE POINT ESTIMATES OF THE COEFFICIENTS (Eq. 1);
QBAR=(Q1+Q2+Q3+Q4+Q5)/M;
*AVERAGE WITHIN IMPUTATION VARIANCE (Eq. 2);
UBAR=(U1+U2+U3+U4+U5)/M;
*BETWEEN IMPUTATION VARIANCE (Eq. 3);
BM=((Q1-QBAR)*(Q1-QBAR)+(Q2-QBAR)*(Q2-QBAR)+(Q3-QBAR)*(Q3-
QBAR)
+(Q4-QBAR)*(Q4-QBAR)+(Q5-QBAR)*(Q5-QBAR))/(M-1);
*RII TOTAL VARIANCE OF THE COEFFICIENTS (Eq. 4);
TM=UBAR+(1+1/M)*BM;
TMDIAG=DIAG(TM);
*RII STANDARD ERROR OF THE COEFFICIENTS (Eq. 5);
TSTD=SQRT(TMDIAG);
*RELATIVE INCREASE IN VARIANCE DUE TO NONRESPONSE (Eq. 8);
RM=((1+1/M)*BM)/UBAR;
*DEGREES OF FREEDOM (Eq. 7);
V=(M-1)*(1+INV(DIAG(RM)))##2;
DFV=(VECDIAG(V));
*FRACTION OF INFORMATION ABOUT COEFFICIENTS WHICH IS MISSING
(Eq. 9);
GAMMA=(RM+(2/(V+3)))/(RM+1);
*CHI-SQUARE TEST STATISTIC FOR THE COEFFICIENTS;
CHISQ=((QBAR)##2)*INV(TMDIAG);
PVALUE=1-PROBCHI(CHISQ, 1);
***STEPS TO DERIVE INFORMATION NEEDED FOR THE MODEL TEST
STATISTIC***;
*DEFINE K EQUAL TO THE NUMBER OF INDEPENDENT VARIABLES
EXCLUDING THE INTERCEPT;
K=32;
*BETWEEN IMPUTATION VARIANCE MATRIX EXCLUDING INTERCEPT;
BMINDP=BM(2:K+1, 2:K+1);
*WITHIN IMPUTATION VARIANCE MATRIX EXCLUDING INTERCEPT;
UBARINDP=UBAR(2:K+1, 2:K+1);
*RELATIVE INCREASE IN VARIANCE USED IN CALCULATING MODEL TEST
STATISTIC (Eq. 14);
RM14=(1+1/M)*TRACE(BMINDP*INV(UBARINDP))/K;

```

```

*DENOMINATOR DEGREES OF FREEDOM FOR THE MODEL TEST STATISTIC;
  VDM=(M-1)*(1+INV(RM14))##2;
  DMDF=(K+1)*VDM/2;
***COMMANDS TO CREATE AND PRINT TABLES OF RESULTS;
TABLE1=QBAR`||VECDIAG(UBAR)||VECDIAG(BM)||VECDIAG(TM)||
  VECDIAG(TSTD)||VECDIAG(RM)||VECDIAG(V)||VECDIAG(GAMMA);
TABLE2=QBAR`||VECDIAG(TSTD)||CHISQ`||PVALUE;
TABLE3=RM14||K||DMDF;
NAMES1={ INTERCEPT female rage_30 rage_40 rage_60 rage_70 nohs onlyhs
somecoll kid_1 kid_2 kid_3 raceb raceh raceo rlaborself rlaborret rlaborout incl1 inc2
inc4 inc5 inc6 fincat75 fincat200 fincat400 fincat500 unwilling long};
NAMES2={QBAR UBAR BM TM TSTD RM V GAMMA};
NAMES3={QBAR TSTD CHISQ PVALUE};
NAMES4={RM14 DF1 DF2};
PRINT TABLE1(|ROWNAME=NAMES1 COLNAME=NAMES2|);
PRINT TABLE2(|ROWNAME=NAMES1 COLNAME=NAMES3|);
PRINT TABLE3(|COLNAME=NAMES4|);
run;
ods rtf close;

```



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