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Demography, Population, and Ecology | Finance | Social and Behavioral Sciences | Sociology

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The Effects of Control Beliefs

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Introduction

Unprecedented growth in the number of older adults in conjunction with medical advances and the resulting increase in life expectancies will yield a global demographic shift with significant economic and social implications. In the United States, in particular, the demographic shift will impact the procurement of retirement income. Baby boomers, individuals born between 1946 and 1964, will live longer and spend more years in retirement than did earlier generations (Panis, 2004), relying on a retirement income system that is not designed to provide income for the period that it will be needed. Individual workers are required to save and invest for the own retirement (Burtless, 2006), while the government and employers become less accountable for retirement income. As a result, adults are expected to take greater responsibility and control of their financial situation, but are often not equipped to assume that responsibility.

Moreover, the traditional sources of retirement income, namely Social Security, private pensions, and saving, may not be available to future generations. Social Security, for example, faces a long-term financial imbalance (Engen, Gale, & Uccello, 1999). Fewer workers will finance the retirement of the growing baby boom generation, yielding a system of benefits and current tax rates that are not sustainable in the future. Private pensions are also experiencing a shift. The transition from defined benefit plans to defined contribution plans requires employees and retirees to manage their retirement accounts. Because these individuals often do not have the education or experience to manage their retirement accounts effectively (Lusardi & Mitchell, 2007a; 2007b), they receive less than the adequate levels of retirement income. Saving rates among households in the United States have declined over the past few decades. Americans

today have more debt than in decades past, which adds complexity to the planning and assurance of a financially secure retirement.

Two less traditional sources of retirement income, namely, home equity and employment, may become sources of income that older adults increasingly rely upon for financial sustenance in old age (Lusardi & Mitchell, 2007a; 2007b Home equity will be affected by the recent boom and bust of the housing market. At this time it is unclear how the current and future state of the housing market will affect retirement income-related decisions. Delaying retirement could also could improve the retirement security of older adults. Munnell and Sass (2008) reported that older adults gain three potential benefits by working longer. These benefits include an increase in monthly Social Security benefits, the build-up of larger 401(k) balances, and a shorter timeframe in which to rely on retirement assets.

Additionally, income security available during retirement will be altered by the changes in the cost and provision of health care. As corporations reduce the health care benefits available to workers and retirees, individuals will be responsible for much of the cost of their own retiree health care. Potential changes in Medicare, which could result in decreased health care benefits received by retirees, may add burden to the financial security of the elderly. Monies allocated by individuals for retirement may be insufficient because of the projected increase in out-of-pocket expenses associated with health care.

Based on the potential decrease in income from traditional retirement income sources, namely, Social Security, private pensions, and saving, the uncertainty of home equity and late-life

employment opportunities, and the projected increase in the cost of health care, the financial well-being of future retirees may not be as assured as it was for earlier generations. The provisioning of retirement income is undergoing a structural shift, and as a result, the future viability of each income source is less certain than it was in the past.

This structural shift pertains to policies that place greater responsibility on individual workers to save and invest for their own retirement (Burtless, 2006). The government and employers have become less accountable for the provision of retirement income. As a result, individuals are required to exercise greater control over their financial well-being as they age.

The lack of control over one's finances exposes adults to financial risk in retirement, which can have adverse and long-term consequences. Although poverty levels among older adults have improved over the past decades, certain segments of the older adult population are at risk of a reduced standard of living in old age. Those at risk are growing in number, which could reverse these positive trends.

A review of the literature indicates that there is an imbalance in the research that has been conducted on the level of control older adults exercise over different aspects of their life. Historically, researchers have focused on control exercised by older adults as it relates to health (Krause & Shaw, 2003; Rodin, 1986; Rodin, Timko, & Harris, 1985; Steinbrook, 2006). Yet, little research has been conducted on control as it relates to financial issues and work. By understanding older adults and the degree of control they have over their finances and work, individuals may be in a position to advocate for policy interventions that improve the financial

situations of older adults and positively affect their future levels of income and wealth so financial hardship may be averted.

Since little research has been conducted measuring control beliefs as factors affecting the relationship between personal attributes and financial well-being of older adults, this current research examines the mediating effects of general sense of control and domain-specific measures of control on the relationship between personal attributes and financial well-being, which is defined as financial satisfaction. The main aim of this study includes:

Aim: Determine whether or to what extent the general sense of control and domain-specific levels of control mediate the relationship between personal attributes of older adults and their financial satisfaction.

Financial Well-Being

There is an emergence of research suggesting that policy decisions be more heavily influenced by issues related to well-being and less heavily influenced by economic outcomes. From an economic perspective, the earliest work on economics and happiness was done by Easterlin (1995). Subsequent to that initial article, significant research has been published on economics and well-being. Kahneman and Krueger (2006) found that from 2001 to 2005, more than 100 papers were written analyzing data on self-reported life satisfaction or happiness, according to a tabulation of *EconLit*; this is up from just four in 1991–1995. Additionally, with more sophisticated measures of subjective well-being, research on subjective well-being could have a useful role in the measurement of consumer preferences and social welfare, in general

(Kahneman & Krueger, 2006). Kahneman and Krueger (2006) also asserted that economists have used subjective well-being data to examine micro as well as macro-oriented questions. And Branchflower and Oswald (2007) espoused that when constructing new economic and social policies, well-being should be more of a goal than real income and GDP measures. Kahneman, Krueger, Schkade, Schwarz, and Stone (2004) concluded in their paper presented at the 116th annual meeting of the American Economic Association that because the goal of public policy is not to maximize Gross Domestic Product, the use of National Well-Being Accounts that include the measurement of subjective experiences, could help to inform policy.

As pioneers in the field of positive psychology, Diener and Seligman (2004) claimed that well-being, which they define as peoples' positive evaluations of their lives, should become the primary focus of policy makers. They (2004) proposed that well-being needs to be assessed more directly because there are large slippages between economic indicators and well-being; this is evidenced by a dramatic divergence in income and life satisfaction in the US between 1940 and 2000. Easterlin (1995) found that between 1958 and 1987 in Japan real income increased fivefold, while self-reported levels of happiness remained stagnant. Helliwell and Putnam (2005) claimed that although real per capita incomes have quadrupled in the past 50 years in most advanced economies, aggregate levels of subjective well-being have remained essentially unchanged.

Due to the lack of large-scale measures of subjective well-being having robust psychometric properties, the use of subjective well-being, as a measure, is somewhat limited. However, there are a number of small-scale measures that can effectively measure different aspects of well-

being. This study focuses on financial satisfaction as a subjective measure of financial well-being and draws on a self-report indicator of financial satisfaction, as measured in the psychosocial leave-behind questionnaire of the HRS. Two questions related to one's level of financial satisfaction were asked of adults aged 51 and greater in 2006. The responses to these two questions are combined and used as the measure of financial satisfaction in this paper and is described by the overall level of satisfaction an individual experiences with his/her financial circumstances.

Joo and Grable (2004) ascertained that by increasing our understanding of the factors that influence financial satisfaction, policy-makers will be able to promote efficient ways to improve the quality of life for individuals and families. Through this preliminary research that uses financial satisfaction as a measure of financial well-being, this study is intended to impact future research that targets the assessment of societal well-being. Financial satisfaction is one of many domains of life that can impact an individual's well-being. Additional domains that may be used as a measure of well-being in the future include health, work (van Praag, Frijters, & Ferrer-i-Carbonell, 2003), and housing. By converging these additional domains to assess well-being, and through the use of existing measures in combination with the development of improved measures, society will benefit through improved policy decision-making.

Control Beliefs

To understand the control adults exercise over their financial circumstances requires an understanding of control as a psychological construct. As a cognitive attribute (Ross & Sastry, 1999), the construct of control has occupied a central place in the social and psychological

literature for the past few decades (Krause, 2003). It has been discussed in the social and

behavioral sciences in a variety forms including: personal control, locus of control,

instrumentalism, self-efficacy, mastery, self-directedness, personal autonomy, helplessness, and

sense of control. Although these terms are often used interchangeably, they have distinct

features. Skinner (1996) found consistency among the findings about control, but an

inconsistency in the terminology used by researchers. The consistency of the findings

demonstrates that sense of control is a robust predictor of physical and mental well-being. The

inconsistency of the terminology is described in two parts. Where the term 'control' is used,

variations include: personal control, sense of control, locus of control, and cognitive control, to

name a few. Alternatively, another set of constructs that is closely related uses the descriptors:

helplessness, efficacy, agency, capacity, and mastery. In this research, the term 'control beliefs'

will be used synonymously with personal control, sense of control, locus of control, and

cognitive control, and will be operationalized as initially described by Rotter (1966).

Rotter (1966) initiated research on control by designing a measure known as locus of control

(LOC), which has two components: internal LOC and external LOC. With origins in social

learning theory, LOC represents the varied degree of perceived control people believe they have

over their lives. Distinguishing between internal and external control, in his classic work Rotter

stated:

> When a reinforcement is perceived by the subject as following some
> action of his own but not being entirely contingent upon his action,
> then, in our culture, it is typically perceived as the result of luck,
> chance, fate, as under the control of powerful others, or as
> unpredictable because of the great complexity of the forces
> surrounding him. When the event is interpreted in this way by an
> individual, we have labeled this a belief in *external control*. If the
> person perceives that the event is contingent upon his own behavior or

his own relatively permanent characteristics, we have termed this a belief in *internal control* (Rotter, 1966, p. 1).

To exemplify Rotter's definitions of internal and external LOC (I-E LOC), Ross and Mirowsky (2002) described people with a high degree of internal LOC as responsible for their own successes and failures. Alternatively, if people believe that personal problems result from bad luck and feel they are powerless to achieve their desired ends, they have a high degree of external LOC (Ross & Mirowsky, 2002). As a general construct, an individual's general sense of control varies by degree, ranging from fatalism and a deep sense of helplessness and powerlessness to instrumentalism and a firm sense of personal mastery (Ross & Mirowsky, 2002). Rotter developed the I-E LOC Scale that measures internal and external constructs of control. Mirels (1970) described Rotter's Internal-External Scale as a measure of individual differences in the generalized belief that a person can control his own destiny.

As significant as Rotter's contributions were, his work was the subject of a controversy. Specifically, the uni-dimensionality and generality of the I-E LOC Scale have been criticized. Due to these criticisms, the concept of control was expanded from one that was uni-dimensional in nature to one that is multi-dimensional and includes a number of key dimensions as measures.

For example, Lachman (1986) claimed situational factors influence behaviors. As Lachman (1986a) espoused, along with personality constructs, locus of control was recognized as susceptible to situational influences. Individuals could now be expected to show internally-oriented behaviors in one behavioral domain and externally-oriented behaviors in another. As a result, Lachman (1986) claimed that domain-specific measures of locus of control have been

developed to tap perceived control in specific domains. Research focused on domain-specific measures of control includes control over situations that pertain to health, work, finances, and more recently, housing. Lachman and Weaver (1998) found that domain-specific beliefs may be more closely tied to behaviors in a given situation.

Based on this overview, the research as it pertains to locus of control and older adults is ripe for investigations that focus on individual demographic variables and the construct of control beliefs, as generalized and domain-specific measures. As stated earlier, adults are expected to take greater responsibility and control of their financial well-being as they age, but they may not be equipped to assume that responsibility. Little research has been conducted measuring general control beliefs and domain-specific control as factors that mediate the relationship between the personal attributes and financial satisfaction of older adults. This research is intended to address this gap in the literature. Adults are expected to exercise greater fiscal responsibility as they age; therefore, it is critical that we as researchers understand the dynamics between personal attributes of older adults, namely their age, gender, marital status, educational levels, race, financial planning horizons, health status, income levels, and employment status, and their financial satisfaction, and how that relationship may be mediated by control beliefs, which include a general sense of control and domain specific measures of control.

Since there is no evidence to date that claims a general sense of control affects one's level of financial well-being, the present research measures the effects of two types of control beliefs: a perceived level of control, to be measured using Rotter's I-E Scale as revised by Lachman and

Firth (2004), and domain specific measures of control related to control over work, health, and finances.

Based on this research design, it is hypothesized that the control beliefs will mediate the relationship between the personal attributes of the respondents and their financial satisfaction. In particular, domain-specific control beliefs are expected to have greater predicted value as mediators than will the general sense of control measure.

H1: The relationship between the independent variables and financial satisfaction is mediated by general sense of control.

H2: The relationship between the independent variables and financial satisfaction is mediated by control over health.

H3: The relationship between the independent variables and financial satisfaction is mediated by control over work.

H4: The relationship between the independent variables and financial satisfaction is mediated by control over finances.

Methods

This research uses a mediation model to test the indirect effects of general and domain-specific control beliefs on the relationship between personal attributes of older adults and their financial well-being. Using The University of Michigan Health and Retirement Study (HRS), a panel study completed every two years that represents all persons over 50 in the United States, this study identifies the extent to which the mediating effects of control beliefs (general sense of control and domain-specific control) account for the relationship between the independent variables (personal attributes) and the dependent variable, financial satisfaction.

This study utilizes the test for mediation described by Baron and Kenny (1986), who claimed that a given variable may be said to function as a "mediator" to the extent that it accounts for the relationship between the predictor and criterion variables. In this study, control beliefs are the mediating variables. The mediated pathway is depicted as follows:
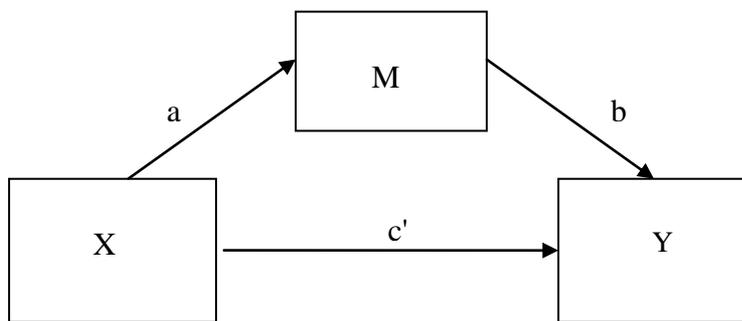
I tested the effects of control beliefs on the relationship between the predictor variable, personal attributes, and the criterion variable, financial satisfaction.

Testing Mediation

The path diagram shown above will be used to assess the mediation model. Based on the literature (Baron & Kenny, 1986; Judd & Kenny, 1981; Kenny, Kashy, & Bolger, 1998), I fit the following three regression models:

Step 1: $Y = B_1 + c\,X + e_1,$

Step 2: $M = B_2 + a\,X + e_2,$

Step 3: $Y = B_3 + c'\,X + b\,M + e_3,$

where the *B*s (betas) are the intercepts, the e_s are the model fit errors, and the *a, b, c*, and *c'* terms

are the regression coefficients capturing the relationships between the three main variables

(Iacobucci, 2008), namely the independent, mediating, and dependent variables.

Kenny et al. (1998) claimed that step 1 of the three-step process is necessary because it

establishes that there is an effect that may be mediated. If the test results in step 1 indicate that an

independent variable is not significant when the dependent variable is regressed on the

independent variable, the independent variable will be excluded from the analysis. Without

significance between the independent and dependent variables, there is no effect that can be

mediated.

The Sobel (1982) test was used to measure the effect of mediation:

$$\textit{Sobel test statistic} \;=\; a * b / \text{SQRT} (b^2 * s_a^2 + a^2 * s_b^2)$$

To determine the degree of reduction in regression coefficients, the Sobel test was used to assess

each mediation model (Jang, Chiriboga, & Small, 2008). The Sobel test is a statistical method for

determining the influence of a mediator on an outcome variable (MacKinnon & Dwyer, 1993).

The test derives a ratio that establishes a Z-value. A Z-value that is larger than 1.96 is significant

at the .05 level. In the equation above, the Sobel test can be conducted using standardized and

unstandardized coefficients. In this study the unstandardized coefficient, *B* and the

unstandardized coefficient, standard error, *SE B*, are used. The investigator examines the

significance of the coefficients and their absolute size. This series of regression analyses and

tests for significance were run at the *p = .05* level.

Before examining whether the relationship between an individual's personal attributes and financial satisfaction is mediated by control beliefs (general sense of control and domain specific control: health, work, and finances), the independent variables used in this study are tested. As stated earlier, this establishes which variables will be included in the final analysis.

Multiple regression procedures are conducted to explore the magnitude and statistical significance of the beta (ß) coefficients. All independent variables are included in this initial regression analysis. The dependent variable, financial satisfaction was regressed on the ten independent variables. The independent variables having Standardized Beta coefficients with significance of $p \leq .05$ are included in the regression analysis. Following are the variables that are tested initially. The independent variables are reduced in number by the aforementioned step.

Independent Variables	Mediating Variables	Dependent Variable
Age	General Sense of Control	Financial Satisfaction
Age-squared	Domain-Specific Control	
Gender	Health	
Marital Status	Work	
Education	Finances	
Race		
Planning Horizon		
Health Status		
LN Income		
Work Status		

HRS Data

This research consists of a cross-sectional, quantitative secondary data analysis using the University of Michigan's Health and Retirement Study (HRS). Supported by the National

Institute on Aging and the Social Security Administration, the HRS is a panel study that surveys more than 22,000 Americans every two years, representing all persons over the age of 50 in the United States. The HRS was launched in 1992, and since that time, it has provided an overview of America's growing older adult population, revealing detail about their physical and mental health, insurance coverage, financial situation, family support systems, work status, and retirement situation (HRS, 2009). When the HRS originated, research on psychosocial issues in aging was not an initial goal of the survey (Juster & Suzman, 1995). A unique quality of the survey was to address unanswered questions regarding the economics of retirement (Gustman, Mitchell, & Steinmeir, 1995).

In 2003, the NIA-HRS Data Monitoring Committee commissioned a report by Carol Ryff of the University of Wisconsin, describing research opportunities that would be available by expanding the survey in the psychosocial arena. Ryff (n.d.) made a case for the inclusion of individual difference variables central to psychological studies of aging, which would include personality traits, sense of control, coping strategies, and goal orientations. Based on Ryff's report, the HRS added a new feature for data collection in the form of a self-administered questionnaire in 2004, which was left with respondents upon the completion of an in-person Core Interview and is referred to as a "Leave-Behind Questionnaire." The Psychosocial Leave-Behind Participant Lifestyle Questionnaire measures psychosocial issues that include social support, sense of control, religiosity, personality, chronic stressors, and financial strain. The revised and updated version of the Psychosocial Leave-Behind Participant Lifestyle Questionnaire that was administered in 2006 is used in this research, with a specific focus on the survey questions related to general and domain-specific control and financial satisfaction.

For researchers using the HRS, the Rand Corporation has produced data descriptions, documentation, and data from the public version of the HRS data. The RAND HRS Data file is a clean, streamlined version of the HRS with derived variables covering a broad, though not complete range of measures that are named consistently across waves. The development and continued maintenance of the RAND HRS Data are supported by the NIA and the Social Security Administration. The core data utilized in this research comes from the RAND HRS Data files. Through the merge of these two datasets, the Rand HRS data files and the Psychosocial Leave-Behind Participant Lifestyle Questionnaire, which will be referenced as HRS data in this paper, this research was designed to address the aforementioned gaps in the research and increase our knowledge of control beliefs and the overall psychosocial needs of America's growing older adult population.

Variables and Measurements

This section explains the measurements of the mediating, independent and dependent variables employed in this study.

Mediating Variables

Control beliefs, used as the mediating variables in this study, are assessed through a battery of questions used initially on the Midlife Development Inventory (MIDI) study and applied to the HRS Psychosocial Leave-Behind Participant Lifestyle Questionnaire (LBQ) in 2006 because of their importance in understanding the construct of control as a general measure and as a domain-

specific measure. Control beliefs are operationalized along two dimensions: a general sense of control and a domain-specific level of control. General sense of control is measured by averaging two control subscales: perceived constraints and personal mastery, each consisting of five items. Perceived constraints and personal mastery are measured through the creation of two indices that average the scores across each of the five items from each of the two sub-domains, perceived constraints (Q22a-Q22e) and personal mastery (Q23a-Q23e). Perceived constraints indicate to what extent one believes that there are obstacles or factors beyond one's control that interfere with reaching one's goals. Personal mastery refers to one's sense of efficacy or effectiveness in carrying out goals. These dimensions are consistent with prior research (Bandura, 1997; Lachman & Weaver, 1998a; 1998b; Prenda & Lachman, 2001; Skinner, 1997). Each of the items was assessed on a 6-point scale.

Perceived Constraints: Five items are used to assess perceived constraints. The respondent is asked to respond to the following questions on a scale of 1 - 6, where 1 = strongly disagree and 6= strongly agree.

Please say how much you agree or disagree with each of the following statements.

- I often feel helpless in dealing with the problems of life.
- Other people determine most of what I can and cannot do.
- What happens in my life is often beyond my control.
- I have little control over the things that happen to me.
- There is really no way I can solve the problems I have.

Personal Mastery: Five items are used to assess personal mastery. The respondent is asked to respond to the following questions on a scale of 1 - 6, where 1 = strongly disagree and 6= strongly agree.

Please say how much you agree or disagree with each of the following statements.

A. I can do just about anything I really set my mind to.

B. When I really want to do something, I usually find a way to succeed.

C. Whether or not I am able to get what I want is in my own hands.

D. What happens to me in the future mostly depends on me.

E. I can do the things that I want to do.

The items for perceived constraints are reverse coded such 1 = strongly agree and 6 = strongly disagree and an index was created. As recommended by), this is done to create internally consistent scales and to create a uni-dimensional scale (the General Sense of Control scale) in which the higher obtained score, the higher the standing in that dimension. This matches the value of a higher score in the index measuring personal mastery.

Single-item measures of domain-specific control: health, work, and finances are used as specific measures of control.

All respondents are asked:

Using a 0 to 10 scale where 0 means "no control at all" and 10 means "very much control," how would you rate the amount of control you have over your health these days? (Circle one number.)

Using a 0 to 10 scale where 0 means "no control at all" and 10 means "very much control," how would you rate the amount of control you have over your work situation these days? (Circle one number.)

Using a 0 to 10 scale where 0 means "no control at all" and 10 means "very much control," how would you rate the amount of control you have over your financial situation these days? (Circle one number.)

Higher scores on domain-specific control indicate that the respondent has a high degree of control over that aspect of life: health, work, finances.

Dependent Variable

Financial satisfaction is the dependent variable in this study and is measured by combining two items found in the Psychosocial LBQ. The respondent is asked:

Please indicate which of the following choices best describes how you feel about your current financial situation.

How satisfied are you with (your/your family's) present financial situation? (Coding: 1=Not at all satisfied, 2=Not very satisfied, 3=Somewhat satisfied, 4=Very satisfied, 5=Completely satisfied)

How difficult is it for (you/your family) to meet monthly payments on (your /your family's) bills? (Coding: 1=Not at all difficult, 2=Not very difficult, 3=Somewhat difficult, 4=Very difficult, 5=Completely difficult)

The second item is reverse-coded, such that 1= Completely difficult and 5=Not at all difficult, and an average was calculated for each item. These two numbers are then averaged and a combined measure is created as a measure of financial satisfaction. Higher scores on each item reflect higher levels of financial satisfaction.

Independent Variables

- *Age.* Age is assessed in chronological years and used as a continuous variable.

- *Age- squared.* Age-squared is measured as the age variable squared.

- *Female.* Respondent's gender is a dichotomous variable: 0=male, 1=female

- *Unmarried.* Respondent's current marital status is a dichotomous variable: 0=married, 1=unmarried.

- *Education.* Education is assessed as the respondent's number of years of education.

- *Non-white.* Respondent's race is a dichotomous variable: 0=white, 1=non-white.

- *Med.Long Plan Horizon.* Respondent's self-reported financial planning horizon is a dichotomous variable: 0=short-term (i.e. next few months through next year), 1=medium-long-term (i.e. next few years and beyond)

- *FairPoor Health Status.* Respondent's self-reported general health status is a dichotomous variable: 0=excellent-good health, 1=fair-poor health

- *Ln Income.* Log of income

- *Income Measure.* Income is the sum of all household income including that of the respondent and spouse. It is a continuous variable with a range from $0 to $13,569,315.

- *Work for Pay:* Respondent's self-reported status whether he/she is currently working for pay. Work status is a dichotomous variable: 0=not working for pay, 1= working for pay.

Results

Sample size, mean, median, minimum value, maximum value, and standard deviation for the independent variables, mediating variables, and dependent variables are presented as Descriptive Statistics in Table 1.

Independent Variables

Age: The mean age of the sample population is 68.32 years. This variable was filtered so that the minimum age in the sample equals 51.

Age-squared: is the age variable squared.

Female: Fifty-nine percent of the sample population is female, totaling 4454 women.

Unmarried: 65 percent of the sample population is married. The remaining 35 percent are unmarried, which includes being partnered, separated, divorced, widowed, and never married.

Education: A respondent's years of education are reported as a continuous variable; mean years of education is 12.65.

Non-white: Race is a dichotomous variable, where 83% of the population is white. The remaining 17% are described as non-white.

Medium-Long-Term Planning Horizon: is a measure of the financial planning horizon of the respondent. Seventy-two percent of the respondents have a long-term planning horizon and the remaining 28% have a short-term planning horizon.

<u>Fair-Poor Health</u>: Health status is the respondent's self-report measure of health. Seventy-three percent of the population report having excellent-very good-good health and the remaining 27% report having fair or poor health.

<u>Ln Income</u>: is the log of income

<u>Income</u>: This variable is reported as total annual earnings. Mean annual income for the sample is $66,629.

<u>Work for Pay</u>: Work status is a self-report regarding whether the respondent is currently working for pay. Sixty-three percent of the respondents are not working for pay; thirty-seven percent are working for pay.

Mediating Variables

<u>General Sense of Control</u> is a composite measure that averages the indices measuring Perceived Constraints and Personal Mastery. The correlation between Perceived Constraints and Personal Mastery is .40. On a scale of 1 - 6, where 1 designates very little control over things in one's life and 6 represents full control, the mean of this measure is 4.78.

<u>Domain-Specific Control</u>: The domain-specific measures of control were measured on a scale of 0 - 10, where 0 means "no control at all" and 10 means "very much control." The respondent was asked how much control do you have over your health, work, and financial circumstances these days. For each of these three constructs, the respondent reported the following:

<u>Mean Level of Control over:</u>

    Health   7.20

Work	6.87
Finances	7.29

Dependent Variable

<u>Financial Satisfaction</u>: Financial satisfaction is a composite measure that averages the responses to questions related to financial satisfaction and difficulty paying monthly bills. The correlation of the two composite measures is .673. One combined measure was created as a measure of overall financial satisfaction. Higher scores on each item reflect higher levels of financial satisfaction. On a scale of 1 – 5, the mean score is 3.6.

Results of Regression Analysis

In Table 2, we see the results of the initial regression equation. For this equation the dependent variable is financial satisfaction. Financial satisfaction is a general measure that asks respondents' how they feel about your current financial situation (Coding: 1=Not at all satisfied, 2=Not very satisfied, 3=Somewhat satisfied, 4=Very satisfied, 5=Completely satisfied). This test asks whether the independent variables, or predictors, add significant predictive value to the dependent variable, financial satisfaction.

For each equation two columns are shown, *b* and *Beta*. As stated in the footnote to the table, the "*b*" column contains the unstandardized regression coefficient with standard error in parenthesis; the "*Beta*" column contains standardized regression coefficients. Significance is measured at the following levels: $*p < .05; **p < .01; ***p < .001$

The following equation was tested:

$$Y = \beta_1\, x_1 + \beta_2\, x_2 + \beta_3\, x_3 + \beta_4\, x_4 + \beta_5\, x_5 + \beta_6\, x_6 + \beta_7\, x_7 + \beta_8\, x_8 + \beta_9\, x_9 + \beta_{10}\, x_{10} + c,$$

where x equals,

$x_1 =$ Age, $x_2 =$ Age-squared, $x_3 =$ Female, $x_4 =$ Unmarried, $x_5 =$ Education, $x_6 =$ Non-white, $x_7 =$ Medium-long-term planning horizon, $x_8 =$ Fair-Poor Health Status, $x_9 =$ LN Income, and $x_{10} =$ Work for Pay

In Table 2, variables with coefficients that are not statistically significant include: age, age-squared, and female. There are seven variables with coefficients that are statistically significant; they include: unmarried, education, non-white, medium- long-term planning horizon, fair-poor health status, log of income, and work for pay.

The mean score for financial satisfaction, the dependent variable, is 3.6. The unstandardized regression coefficients of these seven independent variables can be interpreted as follows:

Unmarried: The unstandardized regression coefficient for unmarried is -.054. This implies that those who are unmarried experience less financial satisfaction than married individuals, holding all else constant.

Education: The unstandardized regression coefficient is .012. Each one-year increase in education is associated with a .012 increase in financial satisfaction, holding all else constant. This implies that it would take 83 = 1 / .012 years of education to achieve a 1-point increase in financial satisfaction. This is not a very large effect.

<u>Non-white</u>: The unstandardized regression coefficient is -.183. The financial satisfaction of non-whites averages .183 less than that of Whites, holding all else constant. Non-whites are less financially satisfied than Whites.

<u>Med.-long term planning horizon:</u> The unstandardized regression coefficient is .264. Individuals with a medium to long-term financial planning horizon experience greater financial satisfaction than those with a short-term planning horizon. Those with medium-long term planning horizons average .264 points higher in financial satisfaction than those with short-term planning horizons.

<u>Fair-poor health status</u>: The unstandardized regression coefficient is -.328. Individuals that report fair to poor health status experience less financial satisfaction than those reporting excellent to good health status, holding all else equal.

<u>LN Income:</u> The unstandardized regression coefficient is .273. As the log of income increases, financial satisfaction increases by .273. Those with a higher log of income are more financially satisfied than those with lower log income levels.

<u>Work for Pay:</u> The unstandardized regression coefficient is .199. Those who work for pay have financial satisfaction that averages .199 points higher than those who do not work for pay.

The results also indicate the following:

	<u>Sum of Squares</u>	<u>df</u>	<u>Mean Square</u>	<u>F</u>	<u>Sig.</u>
Regression	1485	10	148.5	209.1	.000*
Residual	5230	7365	.710		
Total	6715	7375			
Constant:	-.871				

R-squared   .22

The R-square value is our measure of how well we can predict the dependent variable knowing only the independent variable in the model (Allison, 1999). In this case, the R-square value represents the percentage of variance accounted for in the dependent variable, financial satisfaction, by the independent variables. As a result, a value of R-squared of .22 signifies that twenty-two percent of the variance or change in financial satisfaction can be accounted for by the independent variables. Also, the F-value for this model is 209.1, which is significant at the .001 level.

Results of the Mediation Analysis

The present study focused on financial satisfaction, a subjective measure of financial well-being that is highly relevant to policy-related decisions. The primary goal of the analysis was to explore the relationship between personal attributes of older adults and their financial satisfaction, while focusing on the mediating effects of control beliefs, defined as general sense of control and domain specific levels of controls related to work, health, and finances. The results of the study, which were obtained from a series of regression analyses that utilized a sample of approximately 7400 adults, aged 51 and greater, from the 2006 Health and Retirement Study (HRS), provide some support for the four hypothesized models.

In the initial direct effect model, unmarried, education, non-white, medium-long term planning horizon, fair-poor health status, log of income, and work for pay were identified as significant determinants of financial satisfaction. In each of the four mediation models, the results indicate

that the mediating variables contribute to the relationship between the personal attributes (namely, education, medium-long term planning horizon, fair-poor health status, log of income, and work for pay) and financial satisfaction of older adults. Based on the literature and development of psychological control constructs, it was hypothesized that the domain specific levels of control (work, health, and finances) would have greater predicted value as mediators than will the general sense of control measure. This hypothesis was not proven. Of the four models, two models showed some level of insignificance; this related to domain specific measures of health and finances. Of greatest importance to these results is seen in a comparison of results that relate to the general sense of control measure and the domain-specific measures of control. General sense of control measure had equal predictive value to the domain specific construct defined by work and slightly better predictive value than the domain specific constructs defined by health and finances. Based on these results, researchers and social scientists as well as policy makers and educators are better able to understand the links between these factors. Interventions based on increased levels of control beliefs could have a significant impact on levels of financial satisfaction among older adults.

Some limitations to the present study should be mentioned. Since the present study was based on a cross-sectional design, one is unable to draw causal inferences from the data. Future research could include a longitudinal assessment of the mediating effects of control, helping eliminate the limitation of this study. Additionally, there may be cohort differences in the measure of financial satisfaction. Unlike those who may be young and still working, those who are older and living on a fixed income may have a different level of financial satisfaction than adults who are in their fifties and sixties, who are working, and still raising a family. This study could be enhanced by

conducting an analysis that includes cohort effects. And finally, there are a significant number of

variables in this study that could be extrapolated and the research on them expanded. This study

offers a cursory overview of the effects of the mediating effects of control beliefs on the

relationship between personal attributes of older adults and their levels of financial satisfaction.

More detailed analysis of control beliefs in relation to the independent and dependent variables is

warranted.

Table 1
Descriptive Statistics

	N	Mean (SD) or Percent	Minimum - Maximum
Dependent Variables			
Financial Satisfaction	7449	3.6 (.96)	1.0 - 5.0
Independent Variables			
Age	7257	68.32 (9.95)	51 - 104
Female	7549	59%	0, 1
Unmarried	7549	35%	0, 1
Education	7515	12.65 (3.04)	0 - 17
Non-White	7549	17%	0, 1
Medium-LT Plan Horizon	7549	72%	0, 1
Fair-Poor Health	7541	27%	0, 1
LN Income	7515	10.58 (.99)	1.6 – 16.4
Work for Pay	7548	37%	0, 1
Mediating Variables			
General Sense of Control	7254	4.78 (.96)	1.0 – 6.0
Domain-Specific Control			
Health	7442	7.20 (2.41)	0 – 10.0
Work	6712	6.87 (3.38)	0 – 10.0
Finances	7549	7.29 (2.68)	0 – 10.0

Table 2

Financial Satisfaction Regressed on Age, Controlling for Demographic Characteristics

Variables	b	(Beta)
Age	.013 (.009)	.143
Age-squared	8.2E-5 (.000)	.125
Female	-.003 (.021)	-.002
Unmarried	-.054* (.024)	-.027
Education	.012** (.004)	.037
Non-white	-.183** (.028)	-.071
Medium-Long-term Planning Horizon	.264** (.022)	.124
Fair-poor Health Status	-.328** (.024)	-.151
LN Income	.273** (.013)	.283
Work for Pay	.199** (.025)	.101

NOTE:

b = unstandardized regression coefficient with standard error in parenthesis;
Beta = standardized regression coefficient

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

Table 3
Results of Mediation Analysis
Dependent Variable: Financial Satisfaction

Mediator	Independent Variable	Sobel test Statistic	P-Value
GSC*	Unmarried	-7.5450	0
	Education	13.5186	0
	Non-White	-3.1100	.00186
	Medium-LT Plan Horizon	8.6362	0
	Fair-Poor Health Status	-17.0339	0
	LN Income	15.3513	0
	Work for Pay	-13.3580	0
Health:	Unmarried	-1.7197	.08548
	Education	8.8909	0
	Non-White	-1.5000	.1329
	Medium-LT Planning Horizon	4.8198	.00000144
	Fair-Poor Health Status	11.3058	0
	LN Income	10.0192	0
	Work for Pay	-10.3780	0
Work:	Unmarried	-2.6340	.0084
	Education	12.4400	0
	Non-White	-7.1560	0
	Medium-LT Planning Horizon	8.4500	0
	Fair-Poor Health Status	-18.9800	0
	LN Income	14.5900	0
	Work for Pay	-7.8770	0
Finances:	Unmarried	1.7369	.082
	Education	8.5004	0
	Non-White	-1.5355	.12465
	Medium-LT Planning Horizon	7.9900	0
	Fair-Poor Health Status	-15.8767	0
	LN Income	10.9821	0
	Work for Pay	2.8371	.00455

*designates General Sense of Control

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