

Three Essays on Personality Characteristics and Financial Satisfaction

by

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B.S., Iowa State University, 2012
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AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

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School of Family Studies and Human Services
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Abstract

Little is known about the relationships between personality characteristics and financial satisfaction. This dissertation examines three questions. First, what are the relationships between personality characteristics and financial satisfaction at the American state level? Second, what are the relationships between personality characteristics and financial satisfaction at the individual level? Third, what are the relationships between personality characteristics and financial satisfaction among financially strained households?

Essay one utilizes data aggregated at the state level from two nationally representative datasets in order to examine the relationships between Big Five personality traits (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) and financial satisfaction at the American state level. Results from bivariate analyses and a two-block hierarchical regression model indicate that conscientiousness is negatively associated with financial satisfaction and extraversion is positively associated with financial satisfaction at the American state level.

Essay two utilizes data from the 2012 wave of the Health and Retirement Study (HRS) to examine relationships between personality characteristics (Big Five personality traits and positive/negative affect) and financial satisfaction at the individual level. Results from a three-block ordinal logistic regression model indicate that personality characteristics are important predictors of financial satisfaction. Extraversion is positively associated with financial satisfaction while neuroticism and agreeableness are negatively associated with financial satisfaction when Big Five personality traits were the only personality characteristics incorporated into the model. However, when positive affect and negative affect were added to the model, only agreeableness remained negatively associated with financial satisfaction, while

both positive and negative affect were positively and negatively associated with financial satisfaction, respectively.

Essay three utilizes data from the 2012 wave of the HRS to examine relationships between personality characteristics (Big Five personality traits and positive/negative affect) and financial satisfaction among individuals in households exhibiting both objective and subjective indicators of financial strain. Results from a series of ordinal logistic regressions indicate that individual level associations between personality characteristics and financial satisfaction remained largely the same among households exhibiting financial strain, though evidence suggests that interventions aimed at influencing positive affect may be an effective means to enhancing well-being among financially strained populations.

Overall, personality characteristics were found to be important predictors of financial satisfaction which have been largely overlooked in prior models of financial satisfaction. Going forward, a better understanding of the relationships between personality characteristics and subjective measures of economic well-being will be needed in order to determine how consumer well-being can be most effectively promoted.

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Approved by:

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Dedication

To my wife

Chapter 1 - Introduction

Statement of the Problem

Enhancing financial well-being is a primary objective of financial planners, counselors, and therapists. Yet, while it is widely recognized that in order to help consumers achieve better financial well-being we must first understand what financial well-being is (Consumer Financial Protection Bureau, 2015), there is still much about financial well-being that we simply do not know. This dissertation aims to address a considerable gap in the existing literature by investigating relationships between personality characteristics and financial satisfaction, which is an important subjective indicator of financial well-being.

Personality traits have consistently been found to be one of the strongest predictors of life subjective well-being assessments, including life satisfaction (Steel, Schmidt, & Shultz, 2008). Financial satisfaction is believed to be an important component of both general and financial well-being (Campbell, 1981; Easterlin, 2006). Yet, despite both the apparent importance of financial satisfaction as an indicator of subjective well-being and the known relationships between personality characteristics and subjective well-being assessments, little is known about the relationships between personality characteristics and financial satisfaction. Given how strong the relationships are between personality traits and other measures of subjective well-being, it is reasonable to suspect that individual differences in personality traits may play a large role in shaping financial satisfaction. If this is the case, then developing a more thorough understanding of the relationships between personality characteristics and financial satisfaction is important for anyone interested in promoting higher levels of financial well-being, including researchers, financial professionals, regulators, policy makers, and consumers themselves.

Purpose

This dissertation investigates relationships between personality characteristics and financial satisfaction. These relationships are examined at several levels and among different populations. First, essay one investigates the relationships between personality traits and financial satisfaction at the American state level. This essay provides the first investigation of aggregate level relationships between personality traits and financial satisfaction, which should yield some foundational knowledge and may also generate insights which are helpful in evaluating important public policy questions. Second, essay two investigates relationships between personality traits and financial satisfaction at the individual level. This essay provides the first individual level investigation of personality traits and financial satisfaction utilizing a nationally representative dataset, which should yield important insights into the ways in which personality traits influence one's ability to achieve financial well-being. Third, essay three investigates relationships between personality traits and financial satisfaction among individuals within households exhibiting objective or subjective indicators of financial strain. This essay provides the first investigation of personality traits and financial satisfaction among the financially strained, which should yield important insights into protective or detrimental roles that personality characteristics may serve for consumers facing financial strain.

Description of Studies

Essay One

Essay one investigates two primary research questions utilizing state level data from the 2009 State-by-State National Financial Capability Study (NFCS) and a nationally representative internet survey of personality traits conducted from 1999 through 2005. First, do Big Five personality characteristics add predictive power beyond a model of only socio-demographic

characteristics at the American state level when predicting financial satisfaction? Second, how are personality traits associated with financial satisfaction at the American state level?

The five-factor model of personality traits (Big Five) developed by Costa and McCrae (1985) is utilized to operationalize personality at the American state level. The Big Five model posits that five broad dimensions exist among personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Based on state level z scores of Big Five personality traits reported in Rentfrow, Gosling, and Potter (2008) as well as state level measures of financial satisfaction and demographic controls created from the 2009 NFCS, a total of 49 observations will be created representing each U.S. state and Washington D.C., with the exception of Alaska and Hawaii, which, consistent with prior literature, will not be included within this analysis due to their unique personality profiles.

Essay one will first utilize bivariate tests to examine associations between Big Five personality traits and financial satisfaction. Due to the exploratory nature of this study as well as the limited number of observations that are available when conducting a state level analysis, bivariate tests between key demographic variables (percentage male, percentage white, and percentage with income less than \$50,000) and both personality traits and financial satisfaction will be conducted. A two-block hierarchical regression model will be utilized to explore the relationship between Big Five personality traits and financial satisfaction at the American state level. The first model will explore the associations between a block of demographic variables (percentage male, percentage white, and percentage with income less than \$50,000) and financial satisfaction. In the second model, Big Five personality characteristics (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) will be added and the model

will be tested for improved fit, as well as individual associations between Big Five personality traits and financial satisfaction.

Essay Two

Essay two investigates four questions utilizing the 2012 wave of the Health and Retirement Study (HRS). First, do Big Five personality traits add predictive power over a theoretically robust model of determinants of financial satisfaction? Second, do negative and positive affect add predictive power over a theoretically robust model of determinants of financial satisfaction augmented to include Big Five personality traits? Third, what are the associations between Big Five personality traits and financial satisfaction at the individual level? Fourth, how are positive affect (PA) and negative affect (NA) associated with financial satisfaction at the individual level? An augmentation of Joo and Grable's (2004) model of determinants of financial satisfaction will be utilized as the theoretical framework for essay two. Specifically, this study will introduce personality traits through the inclusion of Big Five personality traits as well as positive affect and negative affect.

Essay two will utilize an ordinal logistic regression model to estimate the probability that an individual reported a higher level of financial satisfaction. The analysis will be conducted as a three-block hierarchical model in order to first evaluate whether the addition of Big Five personality traits enhances the predictive ability of the model relative to a model of other known determinants of financial satisfaction, and then evaluate whether the addition of positive and negative affect enhances the predictive ability of the model relative to a model of known determinants of financial satisfaction augmented to include Big Five personality traits.

Essay Three

Utilizing the 2012 wave of the Health and Retirement Study (HRS), essay three examines the associations between personality characteristics (Big Five personality traits and positive/negative affect) and financial satisfaction among the financially strained. Financial strain is operationalized through both subjective and objective indicators of financial strain. Subjective indicators include self-reported difficulty paying bills and self-reported ongoing financial strain of 12-months or longer. Objective indicators include a solvency ratio of less than one, a liquidity ratio of less than three, or an investment assets ratio of less than .25. An augmentation of Joo and Grable's (2004) model of determinants of financial satisfaction is utilized as the theoretical framework for essay three. Specifically, this study introduces personality traits through the inclusion of Big Five personality traits as well as positive and negative affect, while restricting the samples to only include those categorized as financially strained. Essay three utilizes a series of ordinal logistic regressions to estimate the probability that an individual reported a higher level of financial satisfaction among various financially strained households.

Potential Implications and Summary

Understanding the relationships between personality characteristics and financial satisfaction has important implications for consumers, financial professionals, policy makers, and researchers. First, there is a considerable gap to address in the existing literature. While prior research has found that personality traits are one of the strongest predictors of life satisfaction (Steel et al., 2008), it is not known whether the similar relationships exist among personality characteristics and financial satisfaction. If such relationships do exist, then understanding the

relationships between personality characteristics and financial satisfaction is important for anyone who is interested in enhancing financial well-being.

Second, this dissertation will help provide a better understanding of aggregate level measures of financial satisfaction for the purposes of public policy analyses. As more data becomes available and researchers continue to develop statistical and econometric tools that allow for examining important public policy questions, interest in aggregate level social indicators of well-being will likely only increase. Having a more thorough understanding of the relationships between aggregate level personality characteristics and financial satisfaction may help guard against spurious findings in future research.

Third, the investigation of the relationship between personality characteristics and financial satisfaction among those experiencing financial strain may provide important insights into how various personality characteristics serve protective or detrimental functions for consumers facing financial strain. This is of particular interest given the theoretical role that positive emotions are believed to play in promoting well-being (Fredrickson, 1998; 2004) as well as prior research which suggests that therapeutic interventions can increase positive affect—potentially giving financial planners, counselors, and therapists new tools to promote financial well-being among their clientele. Additionally, such information could potentially be directly beneficial to consumers as well, if consumers can use that information to promote well-being in their own life.

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Chapter 2 - Personality Traits and Financial Satisfaction: A State

Level Analysis

Introduction

Personality traits have been found to be one of the strongest and most consistent predictors of subjective well-being and general life satisfaction (Steel, Schmidt, & Shultz, 2008). Yet, while there is a substantial amount of literature on the associations between personality characteristics and life satisfaction, much less is known about associations between personality characteristics and financial satisfaction—which is believed to be a component of both financial well-being and subjective well-being more generally (Campbell, 1981; Easterlin, 2006). This gap in the empirical literature is notable given how strong the associations are between personality characteristics and subjective well-being, as well as the amount of research focused on financial satisfaction and the important role that it plays as a normative objective in family policy (Joo & Grable, 2004; Zimmerman, 1995). Given the importance of financial satisfaction as a variable in the study of personal financial planning and consumer well-being, a better understanding of the associations between personality characteristics and financial satisfaction is crucial for developing a richer and fuller understanding of those who experience satisfaction within the financial realm of their life.

In addition to the importance of understanding the associations between personality characteristics and financial satisfaction at the individual level, understanding associations between personality characteristics and financial satisfaction at aggregate levels can also provide important insights. Researchers in many fields have been giving increasing attention to geographic variation in personality traits and relationships that exist among a wide range of important indicators, such as health and mortality (Bogg & Roberts, 2004), career success

(Barrick & Mount, 1991), creative ability (Dollinger, Urban, & James, 2004), and criminal behavior (Shiner, Masten, & Tellegen, 2002).

Aggregate level geographic analyses remain underexplored in the personal financial planning literature, including aggregate level measures of financial well-being. However, a more thorough understanding of financial satisfaction at aggregate levels can provide an important foundation for future research. A better understanding of relationships between aggregate level personality characteristics and financial satisfaction may be of particular importance to future public policy analyses. While panel data sufficient for conducting state level analyses is often limited for many variables of interest within the field of personal financial planning, popular datasets do include cross-sectional data suitable for pooled time-series cross-section analysis (Podestà, 2002). As future versions of these studies are conducted and the amount of data available grows larger, more opportunities to utilize statistical and econometric methods to examine the impact of state level public policy will arise. Assuming the strength of the relationships between personality characteristics and financial satisfaction are similar to those between personality characteristics and other measures of subjective well-being, a more thorough understanding of the relationship between personality characteristics and financial satisfaction is needed to avoid spurious empirical findings.

The purpose of this study was to investigate the associations between Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) and financial satisfaction at the state level. This study combines state level aggregate data from the 2009 State-by-State National Financial Capability Study and a nationally representative internet survey of personality characteristics conducted from 1999 through 2005. In each case, data will be aggregated at the American state level. Data from 48 states and Washington D.C.

will be utilized, resulting in a total of 49 observations ($N=49$). Due to the unique personality profiles of Hawaii and Alaska and consistent with prior literature, these states will not be included within the analysis. Bivariate analyses and a two-block hierarchical regression will be utilized to investigate associations between Big Five personality traits and financial satisfaction at the American state level.

Literature Review

Subjective Well-Being

The most thorough meta-analysis on subjective well-being (SWB) was conducted by Diener, et al. (1999). SWB is believed to include emotional responses, domain satisfactions, and global judgments of life satisfaction (Diener et al., 1999). Diener (1984) distinguished between top-down and bottom-up theoretical foundations of the processes that influence SWB. The bottom-up perspective assumes that universal human needs exist, and, if one's circumstances allow an individual to fulfill those needs, that individual will be happy as a result (Diener et al., 1999). While intuitively appealing and initially receiving more scholarly interest, bottom-up perspectives have not fared as well empirically, with past studies failing to yield effect sizes consistent with theoretical predictions. Researchers have consistently found that external, objective variables account for less than 20% of the variance in SWB (Campbell, Converse, & Rogers, 1976; Andrews & Withey, 1976; Argyle, 2003), though certain factors, such as unemployment, have consistently been found to be detrimental to SWB (Di Tella, MacCulloch, & Oswald, 2001; Wolfers, 2003; Helliwell & Huang, 2014),

As a result, the focus of SWB research shifted to evaluating other factors such as temperance, cognitions, goals, culture, and adaptation coping efforts—all of which have been found to moderate the influence of life circumstances and events on SWB (Diener et al., 1999).

Various theoretical models have been developed to explain the moderation and mediation of these various environmental factors on an individual's SWB. In particular, discrepancy theories of satisfaction, such as social comparison theory have held that satisfaction results from discrepancies between an individual's conditions and their standards (Festinger, 1954; Wills, 1981; Diener et al., 1999). A discrepancy based on a comparison that is upward in nature (e.g., an individual comparing their wealth to their wealthier peers), may result in dissatisfaction, whereas a discrepancy based on a comparison that is downward in nature (e.g., an individual comparing their wealth to their less wealthy peers) may result in satisfaction.

Goal attainment has been another focus of theories related to SWB. Wilson (1967) believed that modest aspirations were important to achieving SWB, as high aspirations would continually result in disappointment with one's achievements. However, contemporary theories related to goal attainment note that both aspirations that are too high and too low can be detrimental to SWB, as aspirations that are too high can result in anxiety or disappointment (Emmons, 1992; Schwandt, 2016) while aspirations that are too low can result in boredom (Csikszentmihalyi, 1990). Further, current theoretical perspectives suggest making progress toward one's goals may be more important than actual goal attainment from the perspective of achieving SWB (Csikszentmihalyi, 1990; Klug & Maier, 2015). In a meta-analysis of goal progress and SWB, Klug and Maier (2015) found a larger association between SWB and goal pursuit when goal pursuit was defined as goal progress rather than goal attainment. Additionally, associations between SWB and goal progress were found to be larger in individualistic cultures rather than collectivist cultures (Klug & Maier, 2015).

Many socio-economic and other demographic variables have been studied in relation to SWB. Both absolute and relative income have been found to be positively associated with SWB

(Ball & Chernova, 2008). Additionally, relative changes in income have been found to have larger effects on SWB than absolute changes (Ball & Chernova, 2008). Income has been found to be positively associated with SWB both within nations (Frey & Stutzer, 2000) and between nations (Diener, Harter, & Arora, 2010). Between nations, the relationship between log income and SWB has been found to be linear while the relationship between raw income and SWB has been found to be convex, suggesting diminishing marginal effects of income on SWB (Diener, Harter, & Arora, 2010). However, materialistic goals and the valuation of money more highly than other goals has been found to reduce SWB (Richins & Dawson, 1992). Though the effect size in many studies of income and happiness has been found to be relatively small, larger effect sizes have been found when utilizing econometric methods to estimate the causal effect of income on SWB (Powdthavee, 2010).

Religiosity has been found to be positively associated with SWB (Ellison, 1991; Lim & Putnam, 2010; Green & Elliott, 2010). Additionally, some evidence suggests that both organizational and non-organizational religion buffer associations with depression for financial and health problems, while non-organizational religion exacerbated associations with depression for abuse, marital problems, and caregiving (Strawbridge, Shema, Cohen, Roberts, & Kaplan, 1998). Studies have consistently found a positive relationship between marriage and SWB (Wilson, 1967; Glenn, 1975; Gove & Shin, 1989). More recent studies have found that self-assessed marital satisfaction is a significant predictor of life satisfaction, though low marital quality can moderate this relationship (Proulx, Helms, & Buehler, 2007; Carr, Freedman, Cornman, & Schwarz, 2014). Life satisfaction has often been found to increase with age (Herzog & Rodgers, 1981; Horley & Lavery, 1995; Larson, 1978; Stock, Okun, Haring, & Witter, 1983), though more recent studies have found a U-shaped relationship between life satisfaction and age

(Deaton, 2008; Schwandt, 2016). Little evidence suggests differences in SWB between men and women after accounting for other demographic variables (Larson, 1978), though some evidence suggests that certain life circumstances may have different effects on men and women. For instance, while unemployment is negatively associated with life satisfaction for both men and women, the effect appears to be bigger for men than women (Van der Meer, 2014). Evidence of a positive association between job satisfaction and life satisfaction has been found (Tait, Padgett, & Baldwin, 1989; Bowling, Eschelman, & Wang, 2010). Prior research has found small but significant associations between education and SWB (Campbell et al., 1976; Diener et al., 1993). Cuñado and Garcia (2012) found both direct and indirect positive effects of education on happiness. SWB has been found to be positively associated with subjective assessments of intelligence (Campbell et al., 1976), though studies have failed to find a relationship between objective intelligence and SWB (Watten, Syversen, & Myhrer, 1995). While race itself has generally not been found to be associated with life satisfaction after controlling for other demographic variables, race-related factors have been found to be associated with life satisfaction. Specifically, Broman (1997) found that blacks who experience discrimination experience lower levels of life satisfaction and that blacks who grow up in predominantly white contexts have higher levels of life satisfaction.

Subjective Well-Being and Personality

One potential explanation for the relationships between SWB and personality is that individuals can have a genetic predisposition towards happiness or unhappiness (Diener et al., 1999). Evidence of this predisposition is based primarily on twin studies. Tellegen et al. (1988) attributed roughly 40% of the variance in positive emotionality and 55% of the variance in negative emotionality to genetics. Lykken and Tellegen (1996) conducted a reanalysis of

Tellegen et al. (1988) and found that heritability of the long-term component of SWB approaches 80%. However, other studies have found significantly smaller relationships between genes and SWB (Baker, Cesa, Gatz & Mellins, 1992; McGue & Christensen, 1997; Gatz, Pedersen, Plomin, & Nesselroade, 1992). Additionally, Diener et al. (1999) warn that genes could lead to behaviors which lead to outcomes associated with SWB, suggesting that predispositions towards SWB may not be as innate or unchangeable. However, subsequent research has identified three genetic loci associated with subjective well-being, two genetic loci associated with depressive symptoms, and 11 genetic loci associated with neuroticism (Okbay et al., 2016), suggesting that more genetic connections may be identified in the future. Other conceptual models for explaining associations between personality and SWB include rewarding behaviors and person-environment fit (Diener, Sandvik, Seidlitz, & Diener, 1993).

Two of the Big Five personality traits which have been found to be the strongest predictors of SWB are extraversion and neuroticism. Extraversion has been found to be positively associated with SWB whereas neuroticism has been found to be negatively associated with SWB (Lucas, Diener, Grob, Suh, and Shao, 2000; Lucas, Le, & Dyrenforth, 2008; Soto, 2015). Evidence of other relationships between personality traits and SWB exist as well. In a nationally representative sample of Australian residents ($N=16,367$), Soto (2015) examined longitudinal relationships between Big Five personality characteristics and SWB. Soto (2015) found that both concurrent and change correlations indicated a positive relationship between SWB and extraversion, agreeableness, and conscientiousness, as well as a negative relationship between SWB and neuroticism. Additionally, Soto (2015) found evidence challenging the assumption that associations between SWB and personality traits are almost entirely due to trait influences on SWB, and, instead, suggested that Big Five personality traits and SWB may

reciprocally influence each other over time. Additionally, self-esteem (Dunning, Leuenberger, & Sherman, 1995; Kong, Zhao, & You, 2013), optimism (Scheier & Carver, 1985; Jibeen, 2014), expectancy for control (Grob, Stetsenko, Sabatier, Botcheva, & Macek, 1999), and self-deception (Erez, Johnson, & Judge, 1995; Sheridan, Boman, Mergler, & Furlong, 2015) have all been found to be associated with SWB. Sheridan et al. (2015) found evidence that self-deception may play a particularly large role in the reporting of SWB, as it was found to not only be positively correlated with SWB, but also a number of other variables that have been found to have direct or indirect relationships with SWB.

Subjective Well-Being and Financial Satisfaction

Subjective well-being is believed to be comprised of various domain satisfactions such as job satisfaction, health satisfaction, marital satisfaction, and social satisfaction. Financial satisfaction has generally been viewed as a component of both SWB and financial well-being (Campbell, 1981; Easterlin, 2006). Financial satisfaction has been found to be a particularly large predictor of SWB. Louis and Zhao (2002) found that job satisfaction, financial satisfaction, and health were the largest predictors of life satisfaction, among the variables they considered. Using data from the Gallup World Poll, Ng and Diener (2014) found that financial satisfaction was the largest predictor of life evaluation within their model, surpassing factors such as autonomy, social support, and respect. Additional studies have found a positive relationship between financial satisfaction and SWB (Graham & Pettinato, 2001; Hayo & Seifert, 2003).

Big Five Personality Traits and Financial Satisfaction

It appears that only one prior study examining the relationships between personality characteristics and financial satisfaction has been conducted. Davis and Runyan (2016) explore the relationship between financial satisfaction and personality in an exploratory study of college

alumni ($N=328$) through the lens of the Metatheoretic Model of Motivation and Personality (3M Model). The 3M Model is a hierarchical model of personality and does include the Big Five personality traits. Within the 3M Model, Big Five personality traits are included at the lowest level of the model (elemental level) along with additional elemental traits of need for material resources, need for arousal, and need for body resources (Mowen, 2000). The 3M Model also contains a hierarchy of second level (compound traits), third level (situational traits), and fourth level (surface traits) (Mowen, 2000), which, within Davis and Runyan's (2016) analysis, were financial behaviors, financial situation, and financial satisfaction, respectively. Davis and Runyan (2016) found that need for material resources was negatively associated with financial satisfaction and emotional instability (i.e., neuroticism) was positively associated with financial satisfaction. These were the only elemental traits that were found to have a direct effect on financial satisfaction. Introversion, openness to experience, need for body resources, agreeableness, conscientiousness, and need for arousal were not found to have a statistically significant association with financial satisfaction (Davis & Runyan, 2016). However, Davis and Runyan (2016) did find some direct and indirect relationships between elemental traits and compound traits (financial behaviors) as well as elemental traits and situational traits (financial situation). Specifically, Davis and Runyan (2016) found that conscientiousness, need for body resources, and need for material resources had negative indirect effects on financial satisfaction through financial behavior.

Theoretical Determinants of Financial Satisfaction

The most comprehensive and theoretically robust model of the determinants of financial satisfaction was developed by Joo and Grable (2004). In an exploratory study of 220 white collar workers, Joo and Grable (2004) utilized path analysis and found that education, financial

knowledge, financial risk tolerance, financial solvency, financial behaviors, financial stress level, and financial stressors all had direct effects on financial satisfaction. Subsequent studies have provided support for many of the relationships within Joo and Grable's (2004) model (Garrett & James, 2013; Xiao, Chen, & Chen, 2014; Seay, Asebedo, Thompson, Stueve, & Russi, 2015; Woodyard & Robb, 2016; Tharp, Seay, Stueve, & Anderson, 2017).

Financial stress. Joo and Grable's (2004) model included a single 10-point Likert-type question to examine financial stress, as well as financial stressors which were measured as binary responses to a list of 24 questions examining potential financial stressors individuals may have experienced. Financial stress was found to have a direct negative association with financial satisfaction while financial stressors had an indirect association through financial stress (Joo & Grable, 2004). Subsequent studies have confirmed the negative association between financial stress and financial satisfaction (Garrett & James, 2013; Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). While the general direction of the relationship between financial stress and financial satisfaction has remained consistent, the methods for measuring financial stress have varied, including analysis of objective measures of stress through the use of variables such as financial ratios (Garrett & James, 2013), income shocks (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), hardship withdrawals from retirement accounts (Woodyard & Robb, 2016), and the use of various forms of debt (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), as well as subjective measures of stress through the use of variables such as self-reported difficulty meeting monthly expenses (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017) and self-assessments of whether a household currently has too much debt (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017).

Financial behavior. Joo and Grable's (2004) theoretical model predicted a positive relationship between prudent financial behaviors and financial satisfaction, and their findings supported this relationship. Subsequent studies have confirmed these findings (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). Prudent financial behaviors, such as paying off a credit card each month, having health insurance, and saving for retirement, have generally been found to be positively associated with financial satisfaction. However, some studies have found more nuanced relationships between seemingly negative financial behaviors and financial satisfaction. Woodyard and Robb (2016) found that having taken a hardship withdrawal was positively associated with financial satisfaction and Tharp et al. (2017) found that having missed a single mortgage payment was positively associated with financial satisfaction. Woodyard and Robb (2016) suggest that this may be an indication that certain behaviors may have different short-term and long-term associations with financial satisfaction, while Tharp et al. (2017) note that discrepancies between when a behavior occurred and when financial satisfaction is measured should be carefully considered.

Financial attitudes. Joo and Grable (2004) included risk tolerance within their theoretical model, positing that risk tolerance may have both direct and indirect effects on financial satisfaction. Joo and Grable's (2004) analysis confirmed this theoretical prediction, finding that risk tolerance was directly negatively associated with financial satisfaction, while overall risk tolerance had a positive effect on financial satisfaction once accounting for indirect effects. Jeong and Hanna (2004) found no direct associations between risk tolerance attitude and financial satisfaction when examining risk tolerance attitude and risk tolerance behavior as two different constructs, though they find that risk tolerance attitude had a positive effect on risk tolerance behavior while risk tolerance behavior had a positive effect on financial satisfaction.

Studies utilizing single-item measures of risk tolerance have found positive associations between risk tolerance and financial satisfaction (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017).

Financial knowledge. Joo and Grable's (2004) theoretical model made no clear predictions regarding the relationship between financial knowledge and financial satisfaction, noting that past literature had been inconsistent and likely was not accounting for indirect effects (Joo, 1998). Joo and Grable (2004) found both direct and indirect positive effects of subjective financial knowledge on financial satisfaction. Subsequent studies have confirmed findings of a positive association between subjective financial knowledge and financial satisfaction while finding objective financial knowledge to be negatively associated with financial satisfaction (Xiao et al., 2014; Seay et al., 2015; Tharp et al., 2017). Another approach that has been utilized in prior literature is to combine objective and subjective financial knowledge into a single measure of four different categories of high objective-high subjective, high objective-low subjective, low objective-high subjective, and low objective-low subjective (Allgood & Wallstad, 2013; Robb, Babiarz, Woodyard, & Seay, 2015; Woodyard & Robb, 2016), finding that overconfidence (i.e., low objective and high subjective financial knowledge) is positively associated with financial satisfaction (Woodyard & Robb, 2016).

Socio-demographic, financial, and other characteristics. Due to differences in datasets and the limited number of studies which have examined financial satisfaction in-depth, less consistency exists among findings related to relationships between socio-demographic, financial, and other characteristics with financial satisfaction. However, studies have consistently found a positive relationship between income and financial satisfaction (Garrett & James, 2013; Xiao et al., 2014, Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). Other factors that have

been found to be positively associated with financial satisfaction include homeownership (Garrett & James, 2013; Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017) and marriage (Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017). Factors that have been found to be negatively associated with financial satisfaction include having financial dependents (Joo & Grable, 2004; Xiao et al., 2014; Woodyard & Robb, 2016), age (Garrett & James, 2013; Woodyard & Robb, 2016; Tharp et al., 2017), and being male (Xiao et al., 2014; Tharp et al., 2017). Education appears to possibly exhibit a U-shaped relationship with financial satisfaction, with the lowest and highest levels of education being associated with higher levels of financial satisfaction (Joo & Grable, 2004; Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017). Xiao et al. (2014) found lower levels of financial satisfaction among white respondents, though other studies have not found statistically significant relationships between race and financial satisfaction once controlling for other factors (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). However, to the extent that more granular models of financial satisfaction cannot be analyzed, race and other socio-demographic factors may serve as crude proxies for attempting to control for unobserved heterogeneity.

Geographical Variation in Personality Characteristics

Rentfrow, Gosling, and Potter's (2008) theory of the emergence, persistence, and expression of geographic variation in personality characteristics will be utilized to examine associations between personality characteristics and financial satisfaction at the American state level. Rentfrow et al., (2008) developed their theory to address the potential causes, persistence, and expression of personality characteristics at the geographic level. Potential causes include genetic founder effects and social founder effects (Rentfrow et al., 2008). Genetic founder effects refer to the possibility that immigrants who chose to leave their homelands may have shared

genetic commonalities. Rentfrow et al. (2008) suggest that if there was a genetic basis to immigration, then regional differences in personality may have emerged from the nonrandom samples of personality traits among those who selected into immigration behavior. Social founder effects refer to the ways in which those who select into immigration behavior develop social norms which influence regional differences in behavior and personality (Rentfrow et al., 2008; Kitayama, Ishii, Imada, Takemura, & Ramaswamy, 2006).

Rentfrow et al. (2008) identify three potential mechanisms for explaining the persistence of geographic variation in personality: selective migration, social influence, and environmental influence. Rentfrow et al. (2008) suggest that people who share common traits may selectively choose to relocate. For instance, an individual born in rural America who scores high on extraversion and openness to new experience may find that living in a diverse urban environment provides for a lifestyle that better aligns with their psychological and behavioral tendencies. Social influence refers to the ways in which a social environment and common personality traits could be mutually reinforcing, resulting in persistent geographic differences (Rentfrow et al., 2008). Rentfrow et al. (2008) note that this could be either due to individuals adopting the behavioral and psychological tendencies of people around them, or due to common traits that emerge due to the social environment, such as individuals developing low levels of trust when they live in a high crime environment. Finally, environmental influence itself could lead to the persistence of behavioral and psychological tendencies, as climate, physical environment, and housing or neighborhood characteristics could all vary in attractiveness based on the personality of an individual (Rentfrow et al., 2008). Rentfrow et al. (2008) identify five particular paths through which personality could become expressed at a geographic level: (1) personality affecting behavior, (2) group behavior affecting geographic representation, (3) social influence

affecting behavior, (4) institutions affecting behavior, and (5) social norms affecting trait prevalence.

Regional variations in personality characteristics have received increased attention from researchers in recent history. Based on maps provided within Florida (2010) the following generalities regarding regional variations in personality characteristics within the United States can be stated: the most extraverted people are found in the Midwest and Southeastern United States, with the highest levels of extraversion found around Chicago, Atlanta, and Miami regions; the most agreeable people are found in the Southeastern United States, with the highest levels found around the Atlanta region and southern Georgia; the individuals with the highest levels of openness to experience are found on the coasts, with the highest levels exhibited in New York City, Los Angeles, and San Francisco regions; the most neurotic people are found in the Northeastern United States, with the highest levels exhibit in the New York City region; and the most conscientious people are found in the Southeastern United States, with the highest levels of conscientiousness exhibited around Atlanta and southern Georgia. The state level data from Rentfrow et al. (2008) is visualized in Figures 2.1 through 2.5.

Figure 2.1 Geographic Variation in Openness to Experience

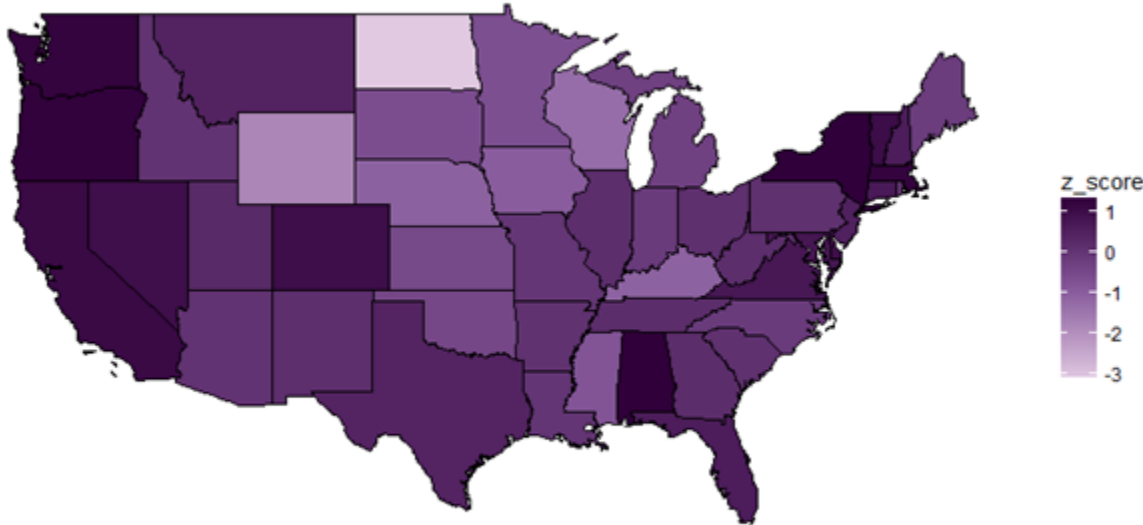


Figure 2.2 Geographic Variation in Conscientiousness

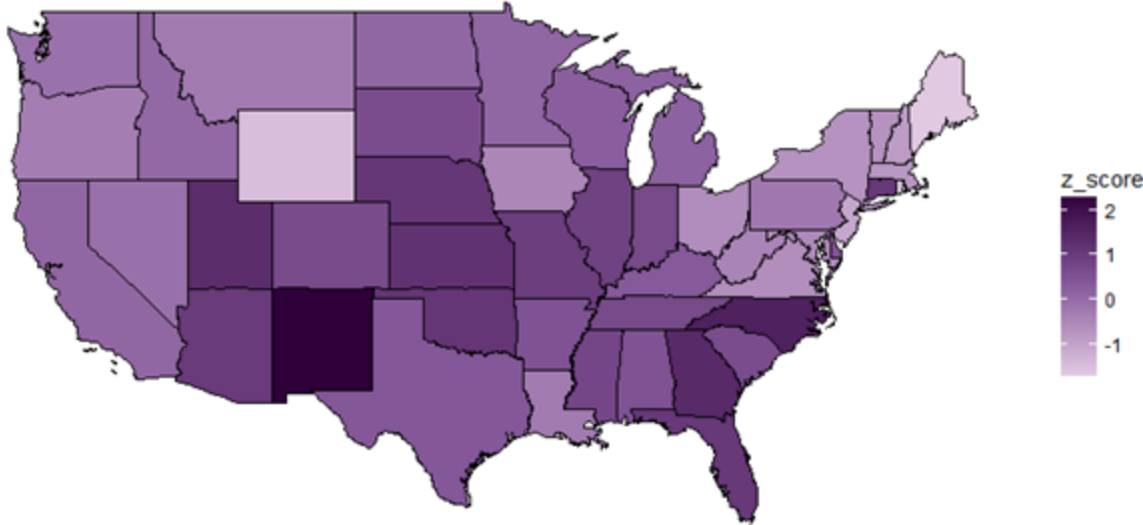


Figure 2.3 Geographic Variation in Extraversion

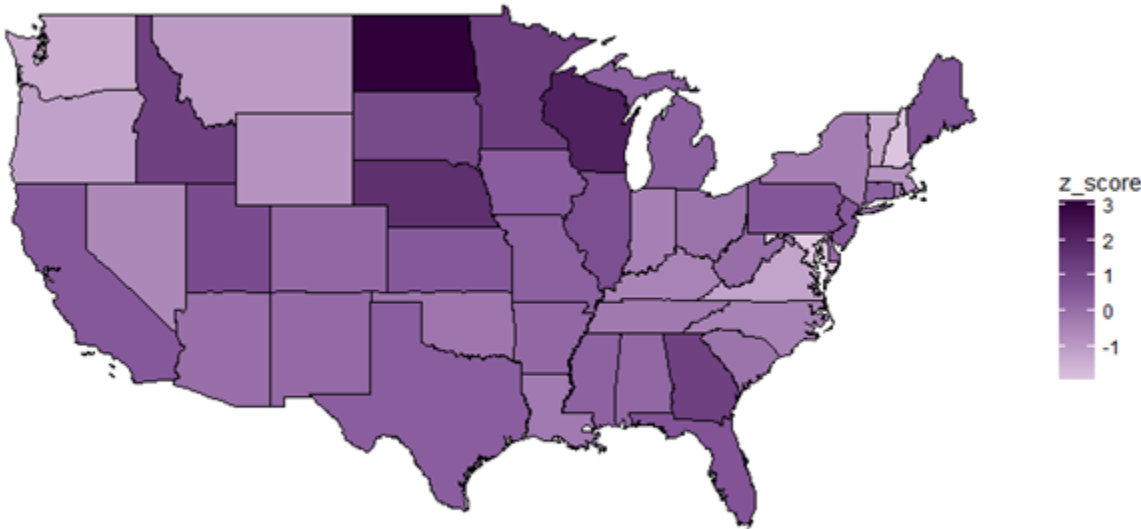


Figure 2.4 Geographic Variation in Agreeableness

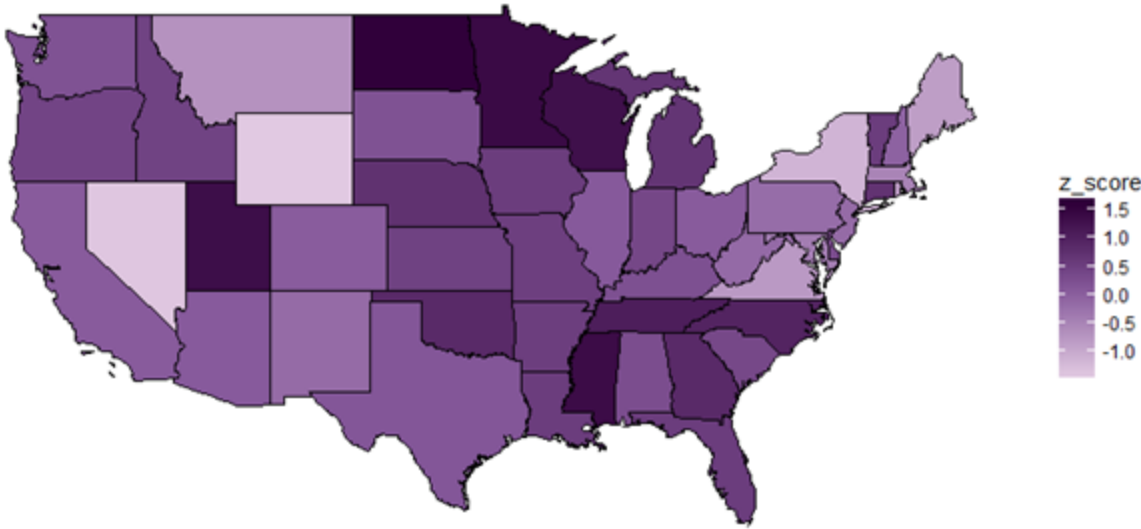
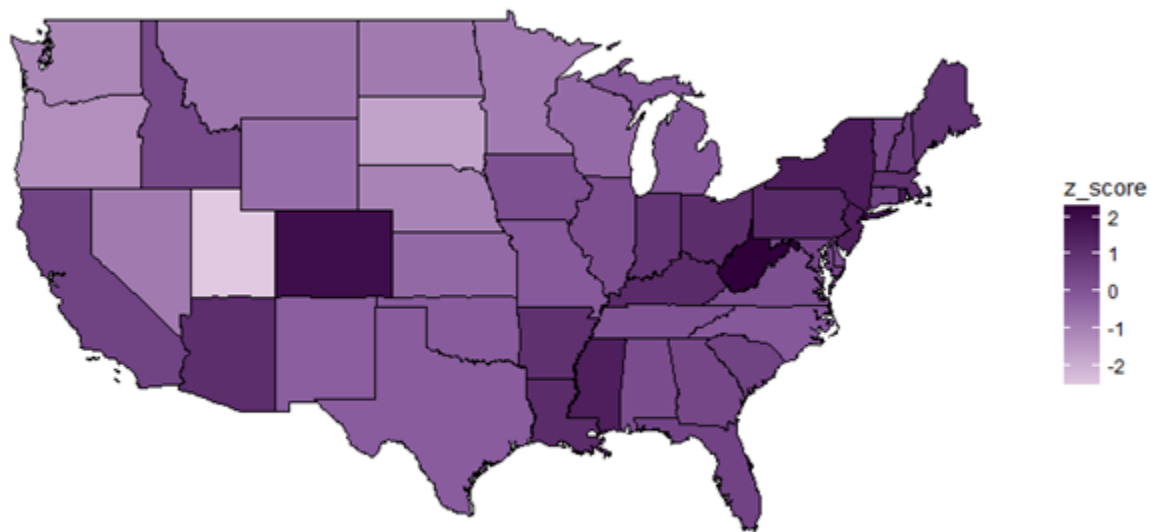


Figure 2.5 Geographic Variation in Neuroticism



Theoretical Framework and Hypotheses

Theoretical Framework

The five-factor model of personality traits (Big Five) is widely used in psychological literature for understanding the five broad dimensions of personality. These five dimensions include: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. While some scholars trace the foundations of personality trait theory as far back as ancient era scholars (Matthews, Deary, & Whiteman, 2009), Francis Galton (1884) first proposed examining a taxonomy of personality types through language (Matthews et al., 2009). Allport and Odbert (1936) attempted to test his hypothesis by identifying a large number of English adjectives related to personality traits (Matthews et al., 2009; Costa & McCrae, 1985). Cattell (1945) refined this list through the use of factor analysis and generated what would ultimately become the foundation for the development of the Sixteen Personality Factor Questionnaire

(16PF) (Cattell & Ebel, 1964), which, in turn, was further refined by Costa and McCrae (1985) into the NEO Personality Inventory. The NEO Personality Inventory identified three broad dimensions of personality characteristics: neuroticism, extraversion, and openness to experience (Costa & McCrae, 1985; Matthews et al., 2009). The NEO Personality Inventory was later expanded by Costa and McCrae (1992) into the NEO-PI-R, which continues to be one of the most widely used assessments of the Big Five personality characteristics (Matthews et al., 2009).

Empirical evidence suggests each of the five personality traits within the Costa and McCrae five factor model of personality are comprised of lower-level trait facets. For instance, neuroticism has been found to be associated with anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability; extraversion has been found to be associated with warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive emotions; openness has been found to be associated with fantasy, aesthetics, feelings, actions, ideas, and values; agreeableness has been found to be associated with trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness; and conscientiousness has been found to be associated with competence, order, dutifulness, achievement striving, self-discipline, and deliberation (Matthews et al., 2009).

Hypotheses

Though there has been little exploration of the associations between Big Five personality characteristics and financial satisfaction, guided by prior literature on personality characteristics and SWB, the following hypotheses will be tested:

H1: Big Five personality factors add predictive power over a model of only socio-demographic factors.

H2: Openness to experience is positively associated with financial satisfaction at the state level.

H3: Conscientiousness is positively associated with financial satisfaction at the state level.

H4: Extraversion is positively associated with financial satisfaction at the state level.

H5: Agreeableness is positively associated with financial satisfaction at the state level.

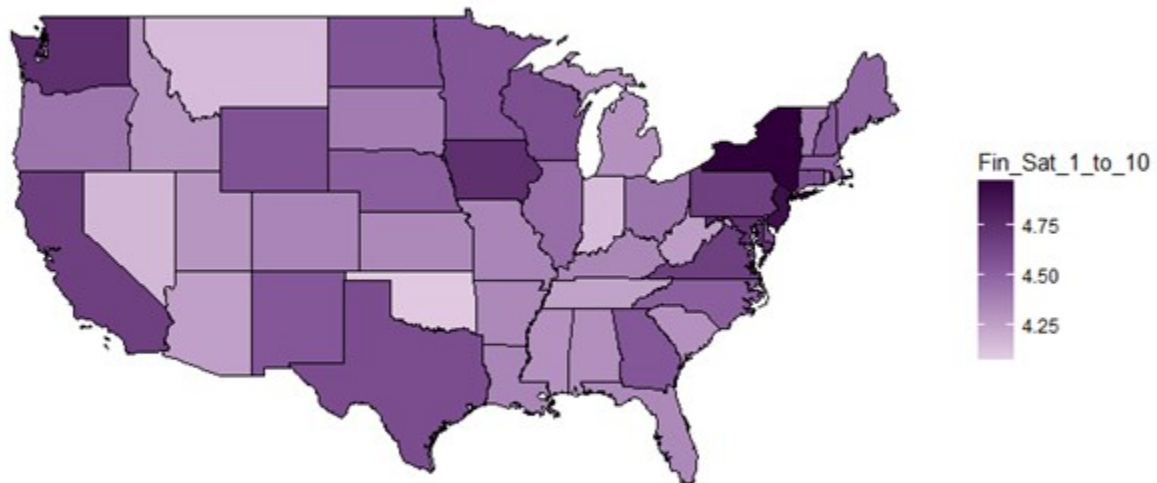
H6: Neuroticism is negatively associated with financial satisfaction at the state level.

Methods

Data

This study will combine state level data from the 2009 State-by-State National Financial Capability Study (NFCS) and a nationally representative internet survey conducted from 1999 through 2005. Data from the NFCS will be weighted at the state level in order to assign a financial satisfaction score as well as scores for other key demographic variables to each state. A visualization of state level financial satisfaction scores is provided in Figure 2.6.

Figure 2.6 Geographic Variation in Financial Satisfaction



Data from the nationally representative internet survey was utilized by Rentfrow et al. (2008) to create state level measures of the Big Five personality characteristics. State level z scores of Big Five personality characteristics reported in Rentfrow et al. (2008) will be utilized to assign Big Five personality scores to each state. In each case, data from 48 states and Washington D.C. will be utilized resulting in a total of 49 observations ($N=49$). Due to the unique personality profiles of the states of Hawaii and Alaska and consistent with prior literature, these states will not be included within the analysis.

The NFCS is a nationally representative study commissioned by the FINRA Investor Education Foundation to benchmark key indicators of financial capability. Respondents to the NFCS include approximately 500 individuals from each state and Washington D.C. ($N=27,664$). The nationally representative internet survey conducted from 1999 through 2005 was one of the first attempts to gather robust data on the geographic variations of personality characteristics

within the United States ($N=619,397$). Because the timing of the two datasets does not overlap, the earliest available state-by-state data from the NFCS is utilized.

Dependent Variable

The dependent variable for this analysis will be financial satisfaction. Financial satisfaction was measured by a single question within the NFCS, “Overall, thinking of your assets, debts, and savings, how satisfied are you with your current personal financial condition?” Potential responses were on a Likert-type scale from 1 (*not at all satisfied*) to 10 (*extremely satisfied*). Data will be coded so that higher scores are associated with higher levels of financial satisfaction. NFCS data will be weighted at the state level.

Key Independent Variables

The key independent variables for this analysis will be the Big Five personality traits measured at the state level. State level personality factor scores are based on z scores provided by Rentfrow et al. (2008). State level personality factor scores were aggregated based on a nationally representative survey of 619,397 respondents between 1999 and 2005. The internet survey was conducted under the name of The Big Five Project and originally administered through a website accessible through the URL www.outofservice.com. The survey utilized the Big Five Inventory (John, Donahue, & Kentle, 1991). The Big Five Inventory (BFI-44) is a 44 item self-report inventory designed to measure the Big Five dimensions. The BFI-44 has been found to have adequate reliability and validity when tested against the NEO-PI-R (Rammstedt & John, 2007).

The BFI-44 is designed to be a shorter survey than other measures of the Big Five, such as the 240 item Revised NEO Personality Inventory (NEO-PI-R) or the 60 item NEO Five-Factor Inventory (NEO-FFI). Respondents rated 44 different statements on a five-point Likert-type

scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Statements within the BFI-44 are all descriptions which generally range from two to five words. For each statement, respondents are asked, “I see myself as someone who...” Sample responses include, “...Is talkative,” “...Does a thorough job,” and “...Is reserved” (John et al., 1991). In order to score the BFI, all negative-keyed items are first reverse-scored and then a scale is created by averaging the scores for each Big Five dimension. For the purposes of this study, raw respondent data was not available. The analysis was based only on state level *z* scores published in Rentfrow et al. (2008).

Control Variables

Additional control variables will include state level demographic and socioeconomic characteristics including percentage male, percentage white, and percentage income less than \$50,000. Percentage-based control variables will be utilized in order to avoid issues related to multicollinearity among predictor variables. Additionally, consistent with prior studies, certain control variables which are available and have been found to be associated with life satisfaction, such as education, will not be included due to potential issues of multicollinearity among other predictor variables, such as income. All control variables will come from NFCS data and will be weighted at the state level when determining aggregate level percentages.

Analysis

Bivariate tests will first be utilized to examine associations between Big Five personality characteristics and financial satisfaction. Due to the exploratory nature of this study as well as the limited number of observations that are available when conducting a state level analysis, bivariate tests between key demographic variables (percentage male, percentage white, and percentage with income less than \$50,000) and both personality characteristics and financial satisfaction will be conducted.

A two-block hierarchical regression model will be utilized to explore the relationship between Big Five personality characteristics and financial satisfaction at the American state level. The first model will explore the associations between a block of demographic variables (percentage male, percentage white, and percentage with income less than \$50,000) and financial satisfaction. In the second model, Big Five personality characteristics (openness, conscientiousness, extraversion, agreeableness, and neuroticism) will be added and the model will be tested for improved fit, as well as individual associations between Big Five personality characteristics and financial satisfaction.

Results

Descriptive Statistics

Weighted descriptive statistics are provided for the full sample in Table 2.1. The sample consisted of each U.S. state and Washington D.C., with the exception of Alaska and Hawaii. Overall, the mean financial satisfaction score weighted at the state level was 4.47 on a ten-point scale. The state with the lowest financial satisfaction level was Oklahoma (4.10) and the state with the highest level of financial satisfaction was New York (4.99). From a demographic perspective, the majority of the sample was female (51%), white (76%), and had an income less than \$50,000 (57%).

Sample Characteristics of Continuous Variables (n = 49)

Table 2.1 Sample Characteristics of Continuous Variables (n=49)

Variable	Mean (unweighted)	SD	Mean (weighted)	SD	Min	Max
Dependent variable						
Financial satisfaction	4.55	0.21	4.47	0.20	4.10	4.99
Control variables						
Percentage male	0.47	0.02	0.49	0.01	0.47	0.50

Percentage white	0.76	0.14	0.76	0.14	0.36	0.96
Percentage income less than \$50,000	0.53	0.07	0.57	0.07	0.41	0.74
Big Five personality traits						
Openness to experience	--	--	0.15	0.97	-3.12	3.26
Conscientiousness	--	--	0.23	0.86	-1.64	2.40
Extraversion	--	--	0.15	0.98	-1.99	3.08
Agreeableness	--	--	0.27	0.76	-1.44	2.13
Neuroticism	--	--	0.26	0.96	-2.52	2.36

Note: Sample characteristic presented unweighted and with normalized population weights applied at the state-level.

Table 2.2 State Level Z Scores for Each Big Five Personality Trait (n=49)

State	Openness	Conscientiousness	Extroversion	Agreeableness	Neuroticism
Alabama	1.32	0.53	0.22	0.27	0.26
Arizona	0.02	1.06	0.03	0.06	1.09
Arkansas	0.06	0.54	0.21	0.53	1.01
California	1.05	0.13	0.57	0.04	0.53
Colorado	0.97	0.69	0.19	0.03	1.97
Connecticut	0.65	1.11	0.36	0.72	0.54
Delaware	0.93	0.48	0.15	0.29	0.21
D.C.	3.26	0.61	1.73	2.13	0.35
Florida	0.59	1.11	0.65	0.55	0.50
Georgia	0.19	1.43	1.22	0.87	0.39
Idaho	0.02	0.09	1.22	0.45	0.36
Illinois	0.17	0.90	0.80	0.07	0.21
Indiana	-0.18	0.71	-0.36	0.38	0.88
Iowa	-0.97	-0.44	0.45	0.54	0.15
Kansas	-0.52	1.24	0.56	0.47	-0.44
Kentucky	-1.10	0.37	-0.41	0.22	1.17
Louisiana	-0.01	-0.24	-0.20	0.55	1.14
Maine	-0.22	-1.64	0.64	-0.86	0.90
Maryland	0.74	-0.51	-1.99	-0.42	0.45
Massachusetts	1.20	-0.75	-0.81	-0.51	0.98
Michigan	-0.30	0.21	0.37	0.69	-0.09
Minnesota	-0.67	0.14	1.29	1.41	-0.80
Mississippi	-0.80	0.79	0.34	1.39	1.50
Missouri	-0.04	0.97	0.35	0.51	-0.09
Montana	0.43	-0.24	-0.94	-0.71	-0.71

Nebraska	-1.07	1.15	1.71	0.74	-1.00
Nevada	0.94	-0.06	-0.55	-1.41	-0.83
New Hampshire	0.58	-0.82	-1.87	-0.05	0.70
New Jersey	0.49	-1.03	0.54	-0.17	1.47
New Mexico	0.14	2.40	0.15	-0.17	-0.20
New York	1.32	-0.67	-0.31	-1.17	1.55
North Carolina	-0.18	1.65	-0.39	0.98	-0.06
North Dakota	-3.12	0.13	3.08	1.60	-0.84
Ohio	0.12	-0.56	-0.05	0.04	1.10
Oklahoma	-0.46	1.16	-0.14	0.86	-0.15
Oregon	1.26	-0.31	-1.10	0.42	-1.27
Pennsylvania	0.09	-0.19	0.60	-0.21	1.22
Rhode Island	0.04	-1.55	-0.61	-0.84	1.61
South Carolina	0.09	0.66	-0.07	0.36	0.53
South Dakota	-0.61	0.65	0.97	0.19	-1.68
Tennessee	0.19	0.72	-0.19	1.08	0.11
Texas	0.40	0.42	0.42	0.12	-0.17
Utah	0.28	1.36	0.89	1.36	-2.52
Vermont	0.99	-0.66	-1.22	0.55	0.43
Virginia	0.71	-0.58	-1.16	-0.80	0.18
Washington	1.20	-0.07	-1.37	0.19	-1.10
West Virginia	0.15	-0.41	0.06	-0.15	2.36
Wisconsin	-1.31	0.29	2.14	1.32	-0.45
Wyoming	-1.80	-1.46	-0.78	-1.44	-0.59

Note: Data source Rentfrow et al. (2008).

Bivariate Analysis

Due to the exploratory nature of this study, bivariate analyses were examined between Big Five personality traits and financial satisfaction. The results revealed only one statistically significant association between financial satisfaction and Big Five personality traits at the state level. A moderate negative association (-0.28) was found between financial satisfaction and conscientiousness which was statistically significant at a level of $\alpha = 0.10$. Among Big Five traits at the state level, statistically significant correlations were found between openness and

extraversion (-0.38), conscientiousness and extraversion (0.37) conscientiousness and agreeableness (0.56), conscientiousness and neuroticism (-0.28), extraversion and agreeableness (0.57), and agreeableness and neuroticism (-0.25). See Table 2.3 for a correlation matrix including financial satisfaction and Big Five personality traits.

Table 2.3 Correlations Between Financial Satisfaction and Big Five Personality Traits

Measure	1	2	3	4	5	6
1. Financial satisfaction	--					
2. Openness to experience	0.22	--				
3. Conscientiousness	-0.28†	-0.04	--			
4. Extroversion	0.09	-0.38**	0.37**	--		
5. Agreeableness	-0.06	-0.14	0.56***	0.57***	--	
6. Neuroticism	0.07	0.19	-0.28*	-0.18	-0.25†	--

†p < .10. *p < .05. **p < .01. ***p < .0001.

Among financial satisfaction and the control variables at the state level, statistically significant correlations were found between financial satisfaction and the percentage of white respondents (-0.31) and financial satisfaction and the percentage of respondents with income less than \$50,000 (-0.63). Among Big Five traits and control variables at the state level, statistically significant correlations were found between openness and percentage male (-0.35), openness and percentage white (-0.31), openness and percentage with income less than \$50,000 (-0.63), conscientiousness and percentage white (-0.36), conscientiousness and percentage with income less than \$50,000 (0.27), extraversion and percentage male (0.25), and neuroticism and percentage male (-0.47). Among control variables at the state level, statistically significant correlations were found between percentage white and percentage income less than \$50,000 (0.29). See Table 2.4 for a full correlation matrix including financial satisfaction, Big Five personality traits, and control variables at the state level.

Table 2.4 Correlations Between All Model Variables

Measure	1	2	3	4	5	6	7	8	9
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1. Financial satisfaction	--								
2. Openness to experience	0.22	--							
3. Conscientiousness	-0.28†	-0.04	--						
4. Extroversion	0.09	-0.38**	0.37**	--					
5. Agreeableness	-0.06	-0.14	0.56***	0.57***	--				
6. Neuroticism	0.07	0.19	-0.28*	-0.18	-0.25†	--			
7. Percentage male	-0.27	-0.35*	0.10	0.25†	-0.02	-0.47**	--		
8. Percentage white	-0.31*	-0.51**	-0.36*	-0.04	-0.06	-0.14	0.31	--	
9. Percentage income less than \$50,000	-0.63***	-0.39**	0.27†	0.16	0.20	-0.04	0.06	0.29*	--

†p < .10. *p < .05. **p < .01. ***p < .0001.

Ordinary Least Squares Regression Results

A series of multiple OLS linear regressions on financial satisfaction at the state level were conducted. Results of the two-block hierarchical regression model are presented in Table 2.5. All state level variables utilized in the analysis were created using normalized weights. The variance inflation factor (VIF) of each variable was analyzed in order to evaluate potential issues due to multicollinearity. The results indicated that no variables exhibited VIFs greater than three, indicating that multicollinearity is not a considerable problem within this analysis (Bowerman & O’Connell, 1990).

Table 2.5 Results of OLS Regression Predicting Financial Satisfaction Levels

Variable	Model 1			Model 2		
	<i>b</i>	<i>SE b</i>	<i>VIF</i>	<i>b</i>	<i>SE b</i>	<i>VIF</i>
Intercept	7.782***	1.351	--	8.957***	1.267	--
Gender						
Percent male	-4.690	0.038	1.107	-6.906**	2.645	1.705
Race						
Percent white	-0.094	0.160	1.206	-0.311**	0.144	2.255
Income						
Percent less than \$50,000	-1.672***	0.239	1.094	-1.519***	0.186	1.476
Big Five personality traits						
Openness to experience	--	--	--	-0.017	0.018	1.902
Conscientiousness	--	--	--	-0.077**	0.030	2.343
Extroversion	--	--	--	0.065**	0.025	2.017
Agreeableness	--	--	--	-0.003	0.046	2.253
Neuroticism	--	--	--	-0.031	0.019	1.471

R ²	0.456	0.589
Adjusted R ²	0.419	0.507
F-Test for change in R ²	--	2.587**

Note: Analyses conducted using normalized population weights at the state-level.

*p < .05. **p < .01. ***p < .0001.

Model One. Model one examined the relationships between financial satisfaction and basic socio-demographic characteristics at the American state level. A simple model of state level measures of gender, race, and income was found to have an adjusted R^2 value of 0.42. Holding all else equal, only income was found to have a statistically significant association with financial satisfaction. Specifically, a one percentage point increase in the percentage of the state population with an income of less than \$50,000 was associated with a 1.7 unit reduction in financial satisfaction.

Model Two. Model two added the Big Five personality traits to the analysis. Once state level variation in personality traits were accounted for, all three demographic variables—gender, race, and income—were statistically significant at the level of $\alpha = 0.01$. Specifically, a one percentage point increase in the percentage of male individuals within a state was associated with a 6.9 unit reduction in financial satisfaction, a one percentage point increase in the percentage of white individuals within a state was associated with a 0.3 unit reduction in financial satisfaction, and a one percentage point increase in the percentage of households with annual income less than \$50,000 was associated with a 1.5 unit reduction in financial satisfaction.

Among the Big Five personality traits, two were found to have a statistically significant relationship with financial satisfaction at the level of $\alpha = 0.01$. Specifically, holding all else equal, a one standard deviation increase in state level conscientiousness was associated with a 0.07 unit decrease in financial satisfaction, while a one standard deviation increase in state level extraversion was associated with a 0.07 unit increase in financial satisfaction. An F -test was

conducted to examine whether the incorporation of Big Five personality traits added predictive power over a model of only socio-demographic factors. The F -ratio of 2.59 does suggest that the addition of Big Five personality traits added predictive power to the state level model at the level of $\alpha = 0.01$.

Discussion

This study explored relationships between Big Five personality traits and financial satisfaction at the American state level. These relationships were examined through the use of multiple ordinary least squares regression. The results suggest that Big Five personality traits are associated with financial satisfaction at the state level, even after controlling for key socio-demographic variables such as gender, race, and income.

This analysis did support hypothesis one, as Big Five personality factors were found to add predictive power over a model of only socio-demographic variables. Given the importance of Big Five personality traits in predicting other state level measures of subjective well-being, this finding is not necessarily surprising, but it does make an important contribution to the literature as Big Five personality traits and financial satisfaction have not previously been examined at the state level. Additionally, the change in adjusted R^2 from model one to model two—an increase from 0.42 to 0.51—suggests that differences in personality are important predictors of state level financial satisfaction. From a theoretical perspective, this analysis reinforces the findings of prior literature that state level variation in Big Five personality traits are associated with a wide range of subjective well-being measures. The findings of this analysis are largely consistent with the top-down theories of subjective well-being assessment, which have found that personality permeates through many different facets of life—including cognitive assessments of well-being, but also factors such as attitudes, behaviors, and preferences—which

result in differences in subjective well-being assessment even after accounting for objective predictors of subjective well-being (Lucas & Diener, 2010).

The findings of this analysis also support hypothesis four, as extraversion was found to be positively associated with financial satisfaction at the state level. This finding is consistent with the considerable literature that has found a positive association between extraversion and subjective well-being (Lucas et al., 2000; Lucas, Le, & Dyrenforth, 2008; Soto, 2015). While the findings of this study do not support hypothesis three—as conscientiousness was hypothesized to have a positive association with financial satisfaction—a statistically significant relationship between conscientiousness and financial satisfaction at the state level was found nonetheless. While the negative association between conscientiousness and financial satisfaction at the state level was unexpected, this finding is not entirely inconsistent with other findings from cross-sectional analyses of financial satisfaction that have identified relationships which may differ between analyses conducted on a cross-sectional versus a longitudinal basis. For instance, objective financial knowledge has consistently been found to be negatively associated with financial satisfaction (Mugenda, Hira, Fanslow, 1990; Xiao et al., 2014; Seay et al., 2016; Tharp et al., 2017), though it has been noted that this may be the result of indirect effects or effects which may emerge over time (Joo & Grable, 2004). While it may be the case that higher levels of objective financial knowledge result in lower levels of satisfaction in the present, all else equal, it may also be the case that those with higher levels of objective financial knowledge make better financial decisions or engage in better financial practices which influence other factors, such as income and wealth, that have positive relationships with financial satisfaction. Because conscientiousness is associated with characteristics such as self-discipline, planned behavior, and striving for achievement (Matthews et al., 2009), it is possible that those who

exhibit high levels of conscientiousness may be more critical in evaluating their financial standing in the present, even if those same factors contribute towards behaviors or attitudes which are positively associated with financial satisfaction over longer time horizons.

The findings of this analysis did not support hypotheses two, five, or six, as openness to experience, agreeableness, and neuroticism were not found to have any statistically significant association with financial satisfaction at the state level. While it is not surprising that statistically significant relationships were not found among all Big Five personality traits, the lack of a statistically significant relationship between neuroticism and financial satisfaction at the state level is of particular interest, given the general strength of associations between neuroticism and subjective well-being in prior literature (Lucas et al., 2000; Lucas, Le, & Dyrenforth, 2008; Soto, 2015). One possible explanation for this finding is that relationships that exist at the individual level do not always exist at aggregate levels. Another explanation may be that there is something unique about financial satisfaction which correlates more strongly with other dimensions of personality at the state level. Additionally, it is also worth noting that while a statistically significant relationship was not found, the negative coefficient was consistent with hypothesis six and the heteroscedasticity-consistent standard errors generated a p value of 0.102. Thus, while both the exploratory nature of this study and the uncertainty which existed at the time of generating hypotheses makes this author reluctant to utilize evaluative criteria which can appropriately be applied to directional hypotheses, it is the case that these findings would have been very close to finding a statistically significant relationship between neuroticism and financial satisfaction at the state level if standards for evaluating directional hypotheses would have been utilized. Combining the findings of this study with theoretical insights on the role that

neuroticism plays in subjective well-being evaluation may provide justification for the use of evaluative criteria consistent with directional hypotheses in future analyses.

From a clinical perspective, relationships between aggregate level measures can provide some insight into the macro level environment in which a professional is practicing. Understanding both the ways in which different regions exhibit different personality characteristics and the ways in which those personality characteristics may influence subjective economic wellbeing assessment may provide useful insight that is helpful in making clinical decisions. Clinicians should be aware that clientele concentrated in one geographic region may provide systematically different responses on scales or other measures which were designed utilizing nationally representative samples. For instance, based on the findings of this study, practitioners within regions which exhibit higher levels of conscientiousness may want to be aware financial satisfaction assessments may be biased lower than national measures, even after accounting for socio-demographic differences. Alternatively, practitioners utilizing scales and other measures that were developed from a sample within a single region—particularly scales which have only been examined in pilot or small scale clinical studies which have not been replicated elsewhere—should note the possibility for even larger differences based on regional variation.

Limitations

The present study does have several limitations. First, the datasets which were merged for this analysis did not come from the same time period or sample of respondents. The personality data were gathered through an online survey from 1999 to 2005, while the financial and socio-demographic data were gathered in 2009. Migration, aging, changing dynamics within local communities, and public policy changes are just a few examples of changes that could have

occurred over this time period that would bias the state level results. Additionally, other biases related to differences in the nature of the sampling methods or survey methodologies may influence these results. Future analyses which can examine personality traits and financial satisfaction utilizing overlapping time periods and underlying samples can improve upon the limitations faced within this analysis.

Second, this analysis is limited due to the small sample size which is inherent to state level analyses given the small number of states within a country such as the United States. Harrell Jr. (2015) suggests that regression models contain 10 to 20 observations per independent variable. Given the eight independent variables within this study, this would suggest an ideal minimum sample size in the range of 80 to 160 observations, which is far more than the 49 observations actually utilized. Given the exploratory nature of this study, relationships were examined on both a bivariate and multivariate basis. For conscientiousness and extraversion—the two Big Five traits which were found to have a statistically significant association with financial satisfaction—the direction of the coefficients within the bivariate analysis were the same as the multivariate analysis, though notably the association between extraversion and financial satisfaction was not statistically significant on a bivariate basis and the association between conscientiousness and financial satisfaction was only statistically significant at the level of $\alpha = 0.10$. Additionally, concerns about sample size resulted in a need to leave variables known to be associated with financial satisfaction out of the model. The use of different statistical or econometric methods may allow future analyses to overcome some of these limitations.

Another limitation of this study is that it is merely correlational. While the aim is simply to describe state level relationships between Big Five personality traits and financial satisfaction, this study cannot provide causal inferences. While this limitation is inherent to cross-sectional

analyses, future studies which utilize panel data and econometric techniques which can differentiate between correlation and causation may yield important insights regarding the causal relationships, if any, between Big Five personality traits and financial satisfaction.

Conclusion

This study provides insights into the relationships between Big Five personality traits and financial satisfaction at the American state level. This study found that Big Five personality traits do add predictive power over a model of only socio-demographic factors when predicting financial satisfaction at the state level. Additionally, this study found a negative association between conscientiousness and financial satisfaction and a positive association between extraversion and financial satisfaction at the American state level.

Given the aggregate nature of this study, the results may be particularly useful for researchers, regulators, and policy makers who have an interest in financial satisfaction as an indicator of societal well-being. As the results suggest, reported differences in financial satisfaction may be the result of factors other than objective financial criteria. As additional data suitable for state level analyses becomes available, it will be important to understand the many different factors which can influence subjective well-being measures. In addition, financial counselors, therapists, and planners may want to consider the roles that personality traits may play in consumer assessment of financial well-being.

Financial satisfaction is an important aspect of both financial and general well-being. While the research on this measure of subjective well-being has been limited, this study suggests that personality does play an important role in financial satisfaction at the American state level. Additionally, this study finds that both conscientiousness and extraversion are associated with financial satisfaction at the American state level.

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Chapter 3 - Personality Characteristics and Financial Satisfaction at the Individual Level

Introduction

Little is known about the relationships between personality characteristics and financial satisfaction. While personality characteristics have been found to be important predictors of life satisfaction (Steel, Schmidt, & Shultz, 2008), only one prior study (Davis & Runyan, 2016) has examined relationships between personality characteristics and financial satisfaction at the individual level. This lack of examination persists despite the perceived importance of financial satisfaction as a component of subjective well-being (Campbell, 1981; Easterlin, 2006) and despite the importance of financial satisfaction as an outcome sought by financial counselors and therapists (Garrett & James, 2013). Previous studies examining financial satisfaction at the individual level have had limited ability to evaluate associations between personality characteristics and financial satisfaction. Studies based on nationally representative data have typically not had detailed personality characteristics available (Xiao, Chen, & Chen, 2014; Seay, Asebedo, Thompson, Stueve, & Russi, 2015; Woodyard & Robb, 2016; Tharp, Seay, Stueve, & Anderson, 2017) and studies based on convenience samples have either lacked personality characteristic data (Joo & Grable, 2004) or been exploratory in nature and based on a small number of observations (Davis & Runyan, 2016).

Given the strong associations between personality characteristics and other measures of subjective well-being, it is reasonable to suspect that relationships between personality characteristics and financial satisfaction exist at the individual level. A better understanding of financial satisfaction is needed in order to help promote the financial well-being of consumers. This study investigates the associations between personality characteristics (openness to

experience, conscientiousness, extraversion, agreeableness, neuroticism, positive affect, and negative affect) and financial satisfaction at the individual level. This study utilizes data from the 2012 wave of the Health and Retirement Study (HRS) to evaluate the relationships between personality characteristics and financial satisfaction. A three-block ordinal logistic regression is utilized to investigate associations between personality characteristics (Big Five personality traits and positive/negative affect) and financial satisfaction at the individual level, as well as examine whether the addition of personality characteristics significantly enhances the predictive ability of a model comprised of known determinants of financial satisfaction.

Literature Review

Personality Characteristics

Big Five personality traits. The Big Five (Five Factor Model) personality traits have been widely used in psychological literature for examining five broad dimensions of personality: openness, conscientiousness, extraversion, agreeableness, and neuroticism. The development of the Big Five stems from a lexical approach to classifying personality traits, based on belief that the most important personality traits would eventually emerge within a language. Francis Galton (1884) first proposed examining personality types through language (Matthews, Deary, & Whiteman, 2009), and Allport and Odbert (1936) attempted to examine this hypothesis by identifying a large number of English adjectives related to personality traits (Matthews et al., 2009; Costa & McCrae, 1985). Cattell (1945) conducted factor analyses which refined this list into what would ultimately become the foundation for the Sixteen Personality Factor Questionnaire (16PF) (Cattell & Eber, 1964), before being further refined by Costa and McCrae (1985) into the NEO Personality Inventory, which is made up of three broad dimensions of personality characteristics: neuroticism, extraversion, and openness to experience (Costa &

McCrae, 1985; Matthews et al., 2009). The final step in the development of the Big Five model was an expansion of the model by Costa and McCrae (1992) to also include agreeableness and conscientiousness. The expanded model was referred to as the NEO-PI-R, and continues to be one of the most widely used assessments of the Big Five personality traits (Matthews et al., 2009).

Because the NEO-PI-R consists of 240 items, the Midlife Development Inventory Personality Scales (MIDI) were developed with the intent of being able to reliably measure personality characteristics in less than five minutes by either telephone or mail (Lachman & Weaver, 1997). The full MIDI consists of six personality trait scales including neuroticism, extraversion, openness to experience, conscientiousness, agreeableness, and agency. The MIDI was developed first by identifying the most popular adjectives among personality trait inventories. The adjectives with the highest correlations or factors loadings were identified, and then the list was further refined through forward regression seeking the smallest number of items needed to account for over 90% of the scale variance (Lachman & Weaver, 1997).

Positive and negative affect. Watson and Tellegen (1985) proposed a two-dimensional model of mood comprised of positive affect (PA) and negative affect (NA). In contrast to previous two-dimensional models of mood which focused on arousal (Thayer, 1978), Watson and Tellegen (1985) proposed a model which would encompass nearly all moods. Watson and Tellegen (1985) emphasize that PA and NA are not opposites of one another. Instead, only the high end of either PA or NA is indicative of emotional arousal, whereas the low end of either PA or NA is indicative of an absence of emotional arousal (Tellegen, 1985). For instance, PA contrasts positive emotions such as excitement (high PA) with sluggishness (low PA), whereas NA contrasts negative emotions such as nervousness (high NA) with calmness (low NA)

(Tellegen, 1985; Matthews et al., 2009). Watson and Tellegen's (1985) PA and NA constructs have typically been measured utilizing the Positive and Negative Affect Schedule (PANAS) (Watson, Clark, & Tellegen, 1988), which was later expanded into the Positive and Negative Affect Schedule – Expanded Form (PANAS-X) (Watson & Clark, 1999).

Personality Characteristics and Subjective Well-Being

Big Five personality traits. Big Five personality characteristics have consistently been found to be one of the strongest predictors of life satisfaction and subjective well-being (SWB). A 2008 meta-analysis found that personality accounts for as much as 39% to 63% of total variance in subjective well-being after accounting for attenuation (Steel, Schmidt, & Shultz, 2008). SWB appears to be both stable and heritable. Adoption and twin studies have indicated that genetic factors account for roughly 80% of SWB stability (Lykken & Tellegen, 1996; Nes, Røysamb, Tambs, Harris, & Reichborn-Kjennerud, 2006). Additionally, personality traits appear to be stable. Panel data from the Household Income and Labour Dynamics in Australia (HILDA) survey suggests meaningful personality change cannot be linked to adverse life events, including negative employment, health, or family events (Cobb-Clark & Schurer, 2012).

Positive and negative affect. The growth of the field of positive psychology has spurred interest in the ways in which psychological factors can influence the flourishing of individuals, communities, and societies (Seligman & Csikszentmihalyi, 2014). Evidence from self-report, observational, and longitudinal studies suggests that positive emotions play a role in promoting SWB (Fredrickson, 2004; Fredrickson, 2013). Fredrickson's (1998; 2004) broaden-and-build theory of positive emotions provides a theoretical foundation for explaining the role that positive emotions play in promoting well-being. In contrast to negative emotions which often narrow one's thought-action repertoire (e.g., fear, anger, anxiety), positive emotions are believed to

expand one's thought-action repertoire, which, in turn, encourages behaviors believed to facilitate the acquisition of personal and social resources which promote flourishing and resilience, such as learning, exploration, and striving (Fredrickson, 2004; Fredrickson, 2013). For instance, in contrast to a feeling of fear which may narrow one's thought-action focusing resources solely on a fight or flight response, a positive feeling such as gratitude may expand one's thought-action repertoire and create an urge to be prosocial, which then helps build social bonds which may serve as valuable resources in the future (Fredrickson, 2013). The continued acquisition of resources as the result of feeling positive emotions is believed to be the mechanism by which positive emotion can promote long-term well-being, beyond the momentary boosts in short-term well-being that may be experienced as well (Fredrickson, 2004; Fredrickson, 2013). Consistent with Fredrickson's (1998; 2004) broaden-and-build theory of positive emotion, Lyubomirsky, King, and Diener (2005) reviewed a body of 225 papers—including cross-sectional, longitudinal, and experimental analyses—and found evidence that the causality between happiness and success is bidirectional, suggesting that positive affect may engender success beyond the positive affect experienced as the result of success.

Financial Satisfaction and Subjective Well-Being

Financial satisfaction is believed to be an important component of subjective well-being (Campbell, 1981; Easterlin, 2006), as well as an important outcome sought by financial counselors and therapists (Garrett & James, 2013). Subjective well-being is believed to be comprised of various domain satisfactions (e.g., job satisfaction, health satisfaction, marital satisfaction, and social satisfaction). A 2004 meta-analysis found that domain satisfactions were strongly linked to life satisfaction, but only weakly linked to one another (Heller, Watson, & Ilies, 2004). Additionally, based on the results of their meta-analysis, Heller et al. (2004) found

that four of the Big Five traits (conscientiousness, agreeableness, extraversion, and neuroticism) were substantially associated with various domain satisfactions, as well as subjective well-being. The connection between financial satisfaction and subjective well-being is particularly strong, with one global study finding financial satisfaction was the strongest predictor of life evaluation, which is a component of SWB (Ng & Diener, 2014). Utilizing nation level data from the Gallup World Poll, Ng and Diener (2014) examined whether financial satisfaction and postmaterialist needs (autonomy, social support, and respect) were universal predictors of different SWB components, including life evaluation and affect. Ng and Diener (2014) found that financial satisfaction, followed by income, were the strongest predictors of life evaluation. Additionally, respect was the strongest predictor of positive affect, while financial satisfaction and respect were the strongest predictors of negative affect (Ng & Diener, 2014).

Personality Traits and Financial Satisfaction

Big Five personality traits. There appears to only be one study examining Big Five personality traits and financial satisfaction that has been conducted to date. Davis and Runyan (2016) utilized data from a survey of university alumni ($N = 328$) to examine personality traits through the lens of Mowen's (2000) Metatheoretic Model of Motivation and Personality (3M Model). While the 3M Model makes use of the five personality characteristics included within the Big Five (openness, conscientiousness, extraversion, agreeableness, and neuroticism), the 3M Model also adds three basic traits to the lowest level (elemental level) of the model: need for material resources, need for arousal, and need for body resources (Mowen, 2000). In addition to elemental level traits, Mowen's (2000) 3M Model adds compound traits (predispositions to act that emerge from the interaction of elemental traits and are not situationally dependent),

situational traits (behavioral patterns within a situational context), and surface level traits (behavioral dispositions within a category-specific context).

Of the eight elemental level traits within Davis and Runyan's (2016) 3M Model, only neuroticism and need for material resources were found to be directly associated with financial satisfaction, which was measured based on an adaptation of Loibl and Hira's (2005) seven-item financial satisfaction scale. Davis and Runyan (2016) found that neuroticism was positively associated with financial satisfaction and the need for material resources was negatively associated with financial satisfaction. Conscientiousness, need for body resources, and need for material resources were found to have indirect effects on financial satisfaction through financial behavior, which was measured based on an adapted version of a financial behavior scale originally developed by Grable and Joo (2006). Specifically, conscientiousness and need for body resources were positively associated with financial behavior, while need for material resources was negatively associated with financial behavior (Davis & Runyan, 2016). Need for material resources, openness to experience, financial behaviors, and agreeableness were found to indirectly effect financial satisfaction through financial situation, which was measured based on a scale of the adequacy of one's financial situation determined based on factors such as current savings, monthly savings rate, and degree of indebtedness (Davis & Runyan, 2016).

Positive and negative affect. Though the literature on the relations between affect and financial satisfaction is limited, early studies have indicated that a positive relation between positive affect and financial satisfaction may exist. Diener, Scollon, Oishi, Dzokoto, and Suh (2000) utilized a simple two factor model of income and positivity to predict financial satisfaction. Diener et al.'s (2000) results indicated that dispositional positivity was associated with financial satisfaction at both the individual and the national level. Though examining

retirement satisfaction rather than financial satisfaction, Asebedo and Seay (2014) utilized the 2006 and 2008 waves of the Health and Retirement Study to investigate relations between positive psychological attributes and retirement satisfaction. Operationalizing positive emotion through dispositional optimism, Asebedo and Seay (2014) found a positive association between positive emotion and retirement satisfaction.

Theoretical Determinants of Financial Satisfaction

Joo and Grable (2004) developed the most thorough and theoretically robust conception of the determinants of financial satisfaction. Through a path analysis conducted on a convenience sample of white-collar clerical works ($N = 220$), Joo and Grable (2004) found evidence that financial satisfaction is directly and indirectly related to financial behaviors, financial stress levels, income, financial knowledge, financial solvency, risk tolerance, and education. Based on Joo and Grable's (2004) framework, direct determinants of financial satisfaction include demographic characteristics, solvency, financial stressors, financial stress, financial behavior, financial knowledge, and risk tolerance. Factors which indirectly influence financial satisfaction through solvency include demographic characteristics, financial stressors, and financial knowledge; factors which indirectly influence financial satisfaction through financial behavior include demographic characteristics, financial stressors, financial knowledge, and risk tolerance; factors which indirectly influence financial satisfaction through risk tolerance include financial knowledge, financial stressors, and demographic characteristics; and factors which indirectly influence financial satisfaction through financial stress include solvency, demographic characteristics, financial stressors, financial behavior, financial knowledge, and risk tolerance (Joo & Grable, 2004).

Until recently, support for Joo and Grable's (2004) theoretical model of the direct and indirect determinants relied primarily on the convenience sample utilized in their study. However, more recent analyses have examined components of Joo and Grable's (2004) model utilizing large, nationally representative datasets (Garrett & James, 2013; Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). Garrett and James (2013) examined data from the 2008 Health and Retirement Survey ($N = 6,932$) utilizing Joo and Grable's (2004) framework and found evidence that solvency ratios were associated with financial satisfaction; Xiao et al. (2014) examined data from the 2009 National Financial Capability Study ($N = 26,900$) and found a positive association between perceived financial capability and financial satisfaction, as well as a negative association between risky financial behavior and financial satisfaction; Seay et al. (2015) examined data from the 2012 National Financial Capability Study ($N = 3,142$) and found evidence that after accounting for financial capability and belief measures about debt, no relationship remained between holding a mortgage in retirement and financial satisfaction; Tharp et al. (2017) examined data from the 2012 National Financial Capability Study ($N = 13,066$) and found a positive association between homeownership and financial satisfaction, as well as a negative association among homeowners between having a mortgage and financial satisfaction; and Woodyard and Robb (2016) utilized data from the 2012 National Financial Capability Study ($N = 19,557$) to examine aspects of behavior, financial strain, attitude, and financial knowledge that are associated with financial satisfaction. Woodyard and Robb (2016) adapted Joo and Grable's (2004) framework to present financial stress, financial behavior, financial attitudes, financial sophistication, and personal characteristics as theoretical determinants of financial satisfaction.

Financial stress. Joo and Grable (2004) originally examined subjective financial stress levels through the use of a single 10-point Likert-type question asking individuals about their overall levels of financial stress, finding financial stress to be negatively associated with financial satisfaction. Additionally, Joo and Grable (2004) incorporated objective financial stressors into their model, asking individuals to provide binary responses to whether they experienced any stressful events among a list of 24 potential financial stressors. While stressors were not found to be directly associated with financial satisfaction, stressors were positively associated with financial stress and negatively associated with positive financial behavior.

Other studies have utilized financial ratios as objective indicators of financial stress in a household (Baek & DeVaney, 2004; Kim & Lyons, 2008; Garrett & James, 2013). Garrett and James (2013) utilized a solvency ratio (total assets/total debts), a liquidity ratio (liquid assets/monthly income), and an investment assets ratio (investment assets/net worth), in order to examine financial stress. After controlling for income and wealth, Garrett and James (2013) found that solvency ratios were most strongly associated with financial satisfaction levels when utilizing cross-sectional methods of analysis, but changes in investment asset ratio were most strongly associated with changes in financial satisfaction when utilizing longitudinal methods. More recent studies have accounted for both objective and subjective measures of financial stress. Previously used objective indicators of financial stress include income shocks (Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017), needing to take hardship withdrawals from retirement accounts (Woodyard & Robb, 2016), and the presence of various forms of debt (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). Subjective measures of financial stress have included self-assessments of difficulty paying monthly expenses and household debt levels (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). In most

cases, past studies have found both objective and subjective forms of financial stress to exhibit negative associations with financial satisfaction.

Financial behavior. Considerable research has examined relationships between financial behavior and financial satisfaction. Joo and Grable (2004) utilized a scale of 4-point Likert-type questions to examine the relationship between financial behaviors and financial satisfaction. Based on a scale developed by Joo (1998), positive financial behaviors, such as setting money aside for savings, setting money aside for retirement, planning to reach one's financial goals, having a budget, paying credit card bills in full, not reaching the maximum limit on a credit card, not spending more money than one has, not having to cut one's living expenses, not having to use a credit card because one has run out of cash, and not having financial troubles because one does not have enough money, were found to be positively associated with financial satisfaction and negatively associated with financial stress level (Joo & Grable, 2004).

Subsequent studies have confirmed the findings of Joo and Grable (2004). Utilizing data from the 2009 National Financial Capability Study ($N = 1,466$), Robb and Woodyard (2011) found evidence of a positive association between financial behaviors identified as best practices by Huston (2010) and financial satisfaction. Specifically, having an emergency fund, checking one's credit report, not overdrafting a checking account, paying off a credit card balance monthly, having a retirement account, and having at least two of four categories of examined insurance (health insurance, homeowner's or renter's insurance, life insurance, and auto insurance) were positively associated with financial satisfaction (Robb & Woodyard, 2011). Xiao et al. (2014) examined associations between financial behaviors and financial satisfaction across two different dimensions of financial behavior: desirable financial behavior and risky financial behavior. To examine desirable financial behavior, an index was created from 14

behavioral variables identified as desirable or positive financial behaviors. Specifically, having an emergency fund, having a 529 college savings plan, calculating retirement need, requesting a credit report, requesting a credit score, comparing professionals who give financial advice, checking professionals who give financial advice, contributing to a 401(k), comparing mortgage offers, comparing credit card offers, comparing auto loan offers, rebalancing a 401(k), and keeping up with economic and financial news were examined. To examine risky financial behavior, Xiao et al. (2014) created an index of risky financial behavior from nine behavioral variables identified as risky or negative financial behaviors. Specifically, spending more than income, overdrawing from one's checking account, taking a 401(k) loan, keeping a balance on a credit card, having made minimum credit card payments, being late in paying a credit card, using a credit card over its limit, using a credit card for a cash advance, and being late in making a mortgage payment were examined (Xiao et al., 2014). Xiao et al. (2014) found evidence that desirable or positive financial behaviors were positively associated with financial satisfaction, while risky or negative financial behaviors were negatively associated with financial satisfaction. Subsequent studies have replicated the findings that positive financial behaviors were positively associated with financial satisfaction (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017).

Financial attitudes. The financial attitude which has been most frequently examined in prior research with respect to financial satisfaction is risk tolerance. Other factors that have been identified as worthy of consideration include perceptions of financial wellness and goal setting (Robb & Woodyard, 2011). Joo and Grable (2004) identified risk tolerance as a potential attitudinal variable which may impact financial satisfaction either directly or indirectly. To examine this relationship, Joo and Grable (2004) utilized a scale of six 4-point Likert-type

questions developed by Grable (2000). Specifically, respondents were asked to rate their agreement on a scale from 1 (*strongly agree*) to 4 (*strongly disagree*) with statements related to preference of safety over returns when investing, comfort putting money in a bank account relative to the stock market, association of the word “risk” with the term “loss,” making money in investments being based on luck, lacking knowledge to be a successful investor, and investing being too difficult to understand (Grable, 2000). Joo and Grable (2004) found evidence that risk tolerance is negatively associated with financial satisfaction directly, but overall had a positive effect on financial satisfaction after accounting for indirect effects.

Utilizing the same risk tolerance attitude scale as Joo and Grable (2004), Jeong and Hanna (2004) found no evidence of a direct association between risk tolerance attitude and financial satisfaction based on a survey conducted through a popular website for women in South Korea ($N = 607$). Notably, however, the model utilized by Jeong and Hanna (2004) differentiated between risk tolerance attitude and risk tolerance behavior, with the latter being measured as the share of risky assets in an individual’s portfolio. While no direct association was found between risk tolerance attitude and financial satisfaction, risk tolerance attitude was found to have a positive effect on risk tolerance behavior, while risk tolerance behavior had a positive effect on financial satisfaction (Jeong & Hanna, 2004). Other studies utilizing a single-item measure of financial risk tolerance which asked respondents to rate their willingness to take risk on a scale from 1 (*not at all willing*) to 10 (*very willing*) have found positive associations between risk tolerance and financial satisfaction (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017).

Financial knowledge. Prior studies have examined financial knowledge as an objective measure, subjective measure, and a combination of both objective and subjective measures. Joo

and Grable (2004) utilized a single-item question in order to evaluate an individual's subjective financial knowledge. Specifically, individuals were asked, "How would you rate your financial knowledge level?" Joo and Grable's (2004) findings suggest that subjective financial knowledge has both direct and indirect positive effects on financial satisfaction. Xiao et al. (2014) measured subjective knowledge utilizing a 7-point Likert-type scale asking individuals how much they agree or disagree with the statement, "I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses." Xiao et al. (2014) found that subjective financial knowledge was positively associated with financial satisfaction. Other studies have also found a positive association between subjective financial knowledge and financial satisfaction when examining large national datasets (Seay et al., 2015; Tharp et al., 2017).

Several studies have examined relationships between objective financial knowledge and financial satisfaction independently from subjective financial knowledge and financial satisfaction (Xiao et al., 2014; Seay et al., 2015; Tharp et al., 2017). While subjective financial knowledge is typically found to be positively associated with financial satisfaction, objective financial knowledge has been found to be negatively associated with financial satisfaction (Xiao et al., 2014; Seay et al., 2015; Tharp et al., 2017). While Xiao et al. (2014) did find a positive correlation between objective financial knowledge and financial satisfaction through bivariate analysis, the relationship was reversed in their multivariate model.

One explanation for the differing relationships between objective and subjective financial knowledge is that knowledgeable individuals may more accurately perceive their financial deficiencies (Mugenda, Hira, & Fanslow, 1990). Another approach utilized in past research has been to combine subjective and objective knowledge into a single measure which can capture

inaccurate assessments of one's financial knowledge, commonly referred to as financial sophistication (Allgood & Wallstad, 2013; Robb, Babiarz, Woodyard, & Seay, 2015; Woodyard & Robb, 2016). By categorizing individuals into one of four distinct knowledge groups (high objective-high subjective, high objective-low subjective, low objective-high subjective, or low objective-low subjective), Woodyard and Robb (2016) found that individuals in the low objective-high subjective and high objective-low subjective groups were significantly different from those in the reference group of low objective-low subjective. Specifically, the low objective-high subjective group exhibited higher financial satisfaction than the reference group, while the high objective-low subjective group exhibited lower financial satisfaction (Woodyard & Robb, 2016).

Socio-demographic, financial, and other characteristics. Among commonly used demographic measures, only education was found to have a direct effect on financial satisfaction in Joo and Grable's (2004) analysis, though significant indirect effects were found among income, ethnicity, financial dependents, and housing. Due to variations in the datasets and models utilized among various analyses, less consistency exists among findings related to associations of socio-demographic, financial, and other household characteristics with financial satisfaction, though some more consistent findings include a positive association between income and financial satisfaction (Garrett & James, 2013; Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), a positive association between homeownership and financial satisfaction (Garrett & James, 2013; Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017), a positive association between being married and financial satisfaction (Garrett & James, 2013; Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017), a negative association between having financial dependents and financial satisfaction (Xiao et al.,

2013; Woodyard & Robb, 2016), significant associations between education and financial satisfaction—often exhibiting a U-shaped relationship where those with the highest and lowest levels of education exhibit higher levels of financial satisfaction (Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017), negative associations between age and financial satisfaction (Garrett & James, 2013; Woodyard & Robb, 2016; Tharp et al., 2017), men exhibiting lower levels of financial satisfaction (Xiao et al., 2014; Tharp et al., 2017), and no significant relationships between race and financial satisfaction (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), though Xiao et al. (2014) did find lower levels of financial satisfaction among white respondents. A summary of findings from prior studies is provided in Table 3.1.

Table 3.1 Summary of Prior Associations with Financial Satisfaction

Variable	Included in Current Analysis	Garrett and James (2013)	Xiao et al. (2014)	Seay et al. (2015)	Woodyard and Robb (2016)	Tharp et al. (2017)
Gender (male)	X	Null	+	Null	Null	+
Marital status	X	Null	+	Null	+	+
Age	X	Null	+	Null	-	-
Race (white)	X	Null	-	Null	-	Null
Education	X	Null	-	Null	-	-
Income	X	+	+	+	+	+
Net worth	X	+				
Employment status	X		Null			Null
Self-employment status						-
Homeownership status	X	+	+		+	+
Mortgage status	X		-	-		-
Mortgage underwater				-		Null
Children status		Null				
Financial dependent status			-	Null	-	Null
Health status		-				
Non-mortgage debt	X		-	Null		-
Retirement plan status	X		-	Null	Null	Null
Separate retirement plan				+	+	
Non-retirement plan investments	X		+	+	+	+
Regular contributions					Null	
Financial stress	X					
Emergency fund	X			+	+	+

Overdraw account				-	
Hardship withdrawal				+	
Whether planned for retirement			+	+	
Check credit report				Null	
Health insurance coverage	X			+	+
Credit card debt				-	-
Has credit card		+		Null	+
Objective financial knowledge		-	-		-
Subjective financial knowledge		+	+		+
Financial sophistication*				+	
Risk tolerance			+	+	+
Financial stressors					
Financial solvency		+			
Liquidity ratio		+			
Investments ratio		+			
Retirement status		+			
Income shock (drop)		-	-	-	-
Math ability		-	Null		Null
Financial capability		+			
Positive financial behavior		+			
Negative financial behavior		-			
Pension income			Null		
Social Security income			Null		
Liquid savings			Null		
Other real estate			Null		
Difficulty paying bills			-	-	-
Spend more than income			-		-
Received financial advice			Null		+
Believe too much debt			-	-	-
Financially fragile				-	
Day-to-day financial matters			Null	Null	

Note: All significance levels $p < .05$.

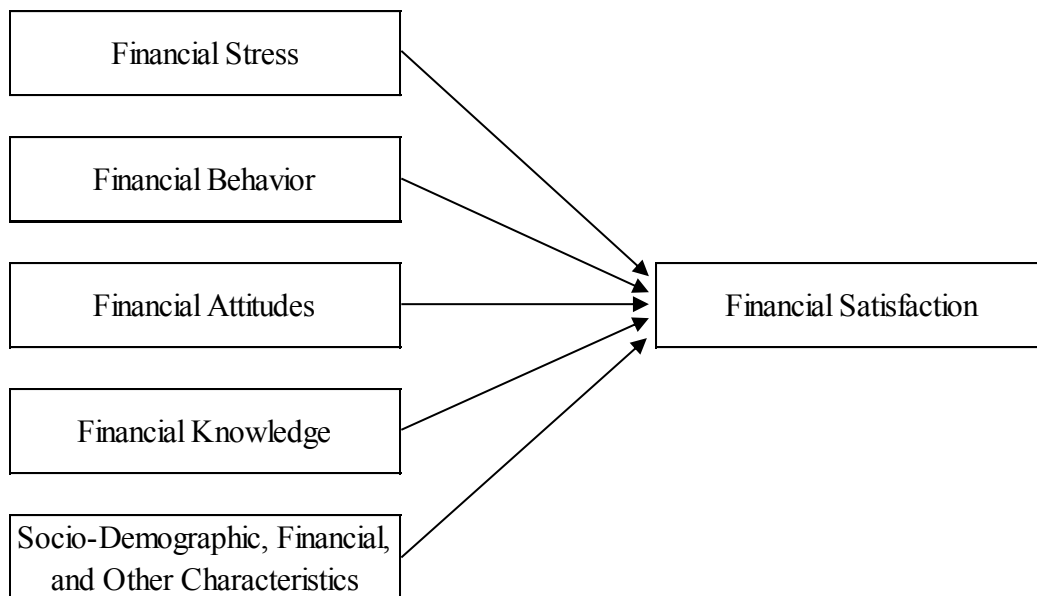
*Low objective and low subjective knowledge vs. low objective and high subjective.

Theoretical Framework and Hypotheses

Theoretical Framework

This study utilizes an augmentation of Joo and Grable's (2004) model of financial satisfaction as the theoretical framework. This study introduces personality characteristics through the inclusion of Big Five personality traits as well as positive affect (PA) and negative affect (NA). While Joo and Grable's (2004) model did not explicitly identify personality traits as factors for potential inclusion, the evidence of the large role that personality traits play in other subjective well-being domains warrants the augmentation of Joo and Grable's (2004) framework to examine whether similar associations exist between personality traits and financial satisfaction.

Figure 3.1 Theoretical Determinants of Financial Satisfaction



Theoretical determinants of financial satisfaction. Adapted from Joo and Grable (2004).

Hypotheses

Based on guidance from prior literature on associations between personality characteristics and financial satisfaction (as well as subjective well-being more generally), the following hypotheses are examined:

H1: Big Five personality traits add predictive power over a model of known determinants of financial satisfaction.

H2: Negative and positive affect add predictive power over a model of determinants of financial satisfaction augmented to include Big Five personality traits.

H3: Openness to experience is positively associated with financial satisfaction at the individual level.

H4: Conscientiousness is positively associated with financial satisfaction at the individual level.

H5: Extraversion is positively associated with financial satisfaction at the individual level.

H6: Agreeableness is positively associated with financial satisfaction at the individual level.

H7: Neuroticism is negatively associated with financial satisfaction at the individual level.

H8: Positive affect is positively associated with financial satisfaction at the individual level.

H9: Negative affect is negatively associated with financial satisfaction at the individual level.

Methods

Data

This study utilizes data from the 2012 wave of the Health and Retirement Study (HRS). The HRS is a biennial longitudinal study of over 26,000 Americans sponsored by the National Institute on Aging and the Social Security Administration. The HRS is representative of the United States population over the age of 50. Certain populations, such as Blacks, Hispanics, and Florida residents, are oversampled. As a result, sample weights are utilized to account for the complex sample design. This study will utilize the RAND version of the HRS core data file as well as the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire. Because the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire is only administered to alternating halves of the full sample after the primary interview in each wave, utilizing the questionnaire reduces the number of respondents available for observation within a given wave by a factor of roughly two.

Dependent Variable

The dependent variable for this analysis is financial satisfaction. Financial satisfaction is measured by a single question asking respondents to indicate their current level of financial satisfaction. This single item measure is consistent with prior research on financial satisfaction (Joo, 1998; Joo & Grable, 2004; Garrett & James, 2013; Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017). Respondents were asked, “Please think about your life and situation right now. How satisfied are you with your present financial situation?” Potential responses included: completely satisfied, very satisfied, somewhat satisfied, not very satisfied, and not at all satisfied. Data will be coded as an ordinal measure as follows: 1 (*not at all satisfied*), 2 (*not*

very satisfied), 3 (*somewhat satisfied*), 4 (*very satisfied*), and 5 (*completely satisfied*). Financial satisfaction measurement is summarized in Table 3.1.

Table 3.2 Measurement of Financial Satisfaction

Variable	Measurement
Financial Satisfaction	5-point ordinal measure with higher scores indicating higher levels of financial satisfaction.

Key Independent Variables

The key independent variables for this analysis will be personality characteristics, including both the Big Five personality traits as well as negative and positive affect. Big Five personality traits are measured utilizing a 31-item assessment derived from Midlife Development Inventory (MIDI) Personality Scales (Lachman & Weaver, 1997). While the full version of the inventory developed by Lachman and Weaver (1997) includes the five-factor model traits as well as a sixth trait (agency), only the five-factor model traits are utilized within the HRS LB Psychosocial and Lifestyle survey. Additionally, the inventory was expanded in 2010 to incorporate coverage of sub-facets of conscientiousness based on items from the International Personality Item Pool (IPIP), bringing the total item count to 31 (Smith et al., 2013). Respondents rated how well 31 different adjectives described themselves utilizing a 4-point Likert-type scale, ranging from 1 (*a lot*) to 4 (*not at all*). For the purposes of this analysis, items will be reverse coded so that higher scores indicate stronger identification with an item, with the exception of items where lower identification with a particular item is indicative of the stronger presence of a particular personality trait (e.g., the item “calm” is used to evaluate neuroticism, yet calmness is negatively associated with neuroticism). Final scores will be set to missing if more than one half of the items have missing values within a given sub-dimension (Smith et al., 2013).

Big Five personality traits. Measurement of the Big Five trait of openness to experience is based on an average of the reverse-coded respondent ratings of the following seven adjectives: creative, imaginative, active, careless, broad-minded, sophisticated, and adventurous. Measurement of the Big Five trait of conscientiousness is based on an average of the reverse-coded respondent ratings of the following ten adjectives: reckless (not reverse-coded), organized, responsible, hardworking, self-disciplined, careless (not reverse-coded), impulsive (not-reverse coded), cautious, thorough, and thrifty. Measurement of the Big Five trait of extraversion is based on an average of the reverse-coded respondent ratings of the following five adjectives: outgoing, friendly, lively, active, and talkative. Measurement of the Big Five trait of agreeableness is based on an average of the reverse-coded respondent ratings of the following five adjectives: helpful, warm, caring, softhearted, and sympathetic. Measurement of the Big Five trait of neuroticism is based on an average of the reverse-coded respondent ratings of the following seven adjectives: moody, worrying, nervous, and calm (not reverse-coded). Personality characteristic measurement is summarized in Table 3.2.

Table 3.3 Measurement of Big Five Personality Traits

Variable	Measurement
Openness to experience	Average of 7 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.
Conscientiousness	Average of 10 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.
Extraversion	Average of 5 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.
Agreeableness	Average of 5 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.

Neuroticism

Average of 7 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.

Positive and negative affect. Positive and negative affect will be examined utilizing measures from the 2012 HRS Leave-Behind Psychosocial and Lifestyle Questionnaire. Specifically, respondents were given a list of 25 single-word items and asked, “During the last 30 days, to what degree did you feel...” Potential responses ranged from 1 (*very much*) to 5 (*not at all*). The 13 words given to respondents to evaluate positive affect included: determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, and excited. The 12 words given to respondents to evaluate negative affect included: afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, and distressed. These words were selected from the Positive and Negative Affect Schedule – Expanded Form (PANAS-X), which is an expanded version of the PANAS, originally developed by Watson, Clark, and Tellegen (1988). Additionally, Smith, Fisher, Ryan, Clarke, House, and Weir (2013) indicate that some of the words were selected based on the work of other researchers (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Watson & Clark, 1999). Responses are utilized to create separate positive and negative affect scales. The positive affect scale consists of 13 words, while the negative affect scale consists of 12. In both cases, responses are reverse-coded and averaged across the number of words in the scale. Based on the guidelines provided by Smith et al. (2013), final scores will be set to missing if more than six items contain missing values. Both the positive and negative affect scales exhibited high levels of reliability based on full samples of the 2008 and 2010 waves of the HRS. Specifically, the positive affect scale had a Cronbach’s alpha of 0.92 and 0.92 in 2008 and 2010, respectively, while the negative affect scale

had a Cronbach’s alpha of 0.89 and 0.90 in 2008 and 2010, respectively (Smith et al., 2013).

Positive and negative affect measurement is summarized in Table 3.3.

Table 3.4 Measurement of Positive and Negative Affect

Variable	Measurement
Positive affect	Average of 13 ordinal variables measured separately on a 5-point scale with higher scores indicating higher levels of positive affect.
Negative affect	Average of 12 ordinal variables measured separately on a 5-point scale with higher scores indicating higher levels of negative affect.

Control Variables

Additional control variables will include socio-demographic characteristics, financial characteristics, financial stress, and financial behaviors. Consistent with prior literature, socio-demographic characteristics will include gender, marital status, age, race, and education. Financial characteristics will include income, net worth, employment status, homeownership, mortgage status, retirement plan ownership, and ownership of investments outside of retirement accounts. Financial stress will be measured based on difficulty paying bills. Financial behaviors will include maintaining an emergency fund, having health insurance, and having non-mortgage debt. Significant theoretical determinants of financial satisfaction utilized in Joo and Grable’s (2004) model that are not accounted for in this model include financial knowledge and risk tolerance, as measures of these variables were not available for waves within the HRS containing key psychological variables of interest. A summary of control variables is provided in Table 3.4.

Table 3.5 Measurement of Control Variables

Variable	Measurement
Gender and marital status	
Single male	1 if single male; else 0
Single female	1 if single female; else 0
Married male	1 if married male; else 0

Married female	1 if married male; else 0
Age	
Age 50 to 59 years old	1 if age 50 to 59; else 0
Age 60 to 69 years old	1 if age 60 to 69; else 0
Age 70 to 79 years old	1 if age 70 to 79; else 0
Age 80+ years old	1 if age \geq 80; else 0
Race	
White	1 if white; else 0
Black	1 if black; else 0
Other	1 if race other than black or white; else 0
Education	
Less than high school	1 if less than high school; else 0
High school	1 if high school; else 0
Some college	1 if some college; else 0
College graduate	1 if college graduate; else 0
Income	Natural logarithm of 1 if income = 0; else natural logarithm of income
Net worth	$\ln(\text{net worth} + 1 + a)$ where $a = \min(\text{net worth}) $
Employment status	1 if considers self fully retired; else 0
Homeownership and mortgage	
Homeowner (no mortgage)	1 if homeowner without mortgage; else 0
Homeowner (mortgage)	1 if homeowner with mortgage; else 0
Non-homeowner	1 if non-homeowner; else 0
Non-mortgage debt	1 if non-mortgage debt; else 0
Retirement plan status	1 if retirement plan owner; else 0
Non-retirement plan investments	1 if non-retirement plan investments; else 0
Current financial strain	5-point Likert-type scale with higher scores indicating higher perceived inability to pay bills
Emergency fund	1 if computed emergency fund ratio is \geq 3 months; else 0

Health insurance coverage

1 if has government or private health insurance coverage; else 0

Analysis

An ordinal logistic regression model will be utilized due to the five ordered categories of the dependent variable. The model will be constructed in a manner to estimate the probability that an individual reported a higher level of financial satisfaction. The analysis will be conducted as a three-block hierarchical model in order to first evaluate whether the addition of Big Five personality traits enhances the predictive ability of the model relative to a model of other known determinants of financial satisfaction, and then evaluate whether the addition of negative and positive affect enhances the predictive ability of the model relative to a model of known determinants of financial satisfaction augmented to include Big Five personality traits. Block one will include socio-demographic characteristics, financial characteristics, financial stress, and financial behaviors. Block two will add the Big Five personality traits. Block three will add positive and negative affect. The Taylor series method (Wolter, 1985) will be utilized in order to address the HRS' weighting and complex sampling design.

Results

Descriptive Statistics

Both weighted and non-weighted descriptive statistics are provided for the full sample and various financially strained subsamples in Table 3.4 and Table 3.5. The full sample consisted of 3,984 observations. Overall, the mean weighted financial satisfaction score was 3.29 on a five-point scale. From a demographic perspective, the majority of the sample was single (52%), female (53%), white (87%), age 50 to 69 (65%), and had completed high school degree or less education (65%). Additionally, a majority did not consider themselves retired (54%), were

homeowners (79%), did not have non-mortgage debt (63%), did have retirement plan investments (55%), did not have non-retirement plan investments (74%), did not have an emergency fund (65%), and had health insurance (82%). Average current financial strain was rated as 2.04 on a five-point Likert-type scale. On four-point scales, respondents reported a highest level of agreeableness (3.48), followed by conscientiousness (3.27), extraversion (3.14), openness to experience (2.96), and neuroticism (2.00). On five-point scales, respondents reported higher levels of positive affect (3.55) than negative affect (1.78). All scale measures exhibited reasonable levels of internal reliability (see Table 3.5), with Cronbach's alpha scores of 0.70 or higher found for all of the psychometric variables utilized within this analysis (Field & Miles, 2012).

Table 3.6 Sample Characteristics of Categorical Variables (n=3984)

Variable	n (unweighted)	% (unweighted)	% (weighted)
Gender and marital status			
Single male	602	15.11%	16.85%
Single female	1557	39.08%	34.72%
Married male	1115	27.99%	30.47%
Married female	710	17.82%	17.96%
Age			
50 to 59	1027	25.78%	31.71%
60 to 69	1032	25.90%	33.58%
70 to 79	1267	31.80%	22.13%
80 or higher	658	16.52%	12.59%
Race			
White	3087	77.48%	86.75%
Black	672	16.87%	8.47%
Other	225	5.65%	4.78%
Education			
Less than high school graduate	552	13.86%	9.96%
High school graduate	2145	53.84%	51.52%
Some college	280	7.03%	7.04%
College graduate	1007	25.28%	31.49%
Considers self retired			
Yes	2105	52.84%	45.97%
No	1879	47.16%	54.03%

Homeownership and mortgage status			
Homeowner (no mortgage)	1826	45.83%	44.16%
Homeowner (mortgage)	1161	29.14%	35.16%
Non-homeowner	997	25.03%	20.68%
Has non-mortgage debt			
Yes	1419	35.62%	37.01%
No	2565	64.38%	62.99%
Has retirement plan			
Yes	1856	46.59%	54.66%
No	2128	53.41%	45.34%
Has non-retirement plan investments			
Yes	898	22.54%	26.39%
No	3086	77.46%	73.61%
Has emergency fund			
Yes	1355	34.01%	35.15%
No	2629	65.99%	64.85%
Has health insurance			
Yes	3408	85.54%	82.47%
No	576	14.46%	17.53%

Note: Sample characteristic presented unweighted and with normalized population weights applied.

Table 3.7 Sample Characteristics of Scales and Continuous Variables (n=3984)

Variable	Mean (unweighted)	SD	Min	Max	Mean (weighted)	Cronbach's Alpha
Financial satisfaction	3.30	1.16	1.00	5.00	3.29	--
Income	10.42	1.49	0.00	15.11	10.62	--
Net worth	14.41	0.35	0.00	16.51	14.44	--
Financial stress	2.06	1.07	1.00	5.00	2.04	--
Big Five						
Openness to experience	2.92	0.57	1.00	4.00	2.96	0.80
Conscientiousness	3.27	0.41	1.60	4.00	3.27	0.74
Extroversion	3.15	0.57	1.00	4.00	3.14	0.78
Agreeableness	3.50	0.50	1.00	4.00	3.48	0.81
Neuroticism	1.99	0.62	1.00	4.00	2.00	0.72
Affect						
Positive affect	3.55	0.82	1.00	5.00	3.55	0.93
Negative affect	1.77	0.66	1.00	5.00	1.78	0.91

Note: Sample characteristic presented unweighted and with normalized population weights applied. The Taylor series method (Wolter, 1985) was utilized to account for the HRS's complex sample design.

Hierarchical Ordinal Logistic Regression Results

Results of the three-block hierarchical ordinal logistic regression analysis can be found in Table 3.6. Overall, results suggest that personality characteristics are important predictors of financial satisfaction. In Model 1, results were largely consistent with prior findings regarding the associations between various characteristics and financial satisfaction. In Model 2, extraversion was found to be positively associated with financial satisfaction, while agreeableness and neuroticism were found to be negatively associated with financial satisfaction. In Model 3, positive affect was found to be positively associated with financial satisfaction, while negative affect was found to be negatively associated with financial satisfaction. Additionally, while three of the Big Five traits were found to be significantly associated with financial satisfaction in Model 2, only agreeableness remained negatively associated with financial satisfaction after adding both positive and negative affect to the model.

Table 3.8 Results of Hierarchical Ordinal Logistic Regression Predicting Financial Satisfaction Levels (n=3984)

Variable	Model 1			Model 2			Model 3		
	<i>b</i>	<i>SE b</i>	<i>OR</i>	<i>b</i>	<i>SE b</i>	<i>OR</i>	<i>b</i>	<i>SE b</i>	<i>OR</i>
Intercept 5	-11.108*	4.224	--	-10.444**	3.808	--	-11.566**	4.194	--
Intercept 4	-9.211*	4.219	--	-8.486*	3.802	--	-9.568*	4.187	--
Intercept 3	-6.640	4.234	--	-5.845	3.806	--	-6.850	4.189	--
Intercept 2	-4.761	4.261	--	-3.930	3.829	--	-4.849	4.211	--
Gender and marital status									
Single male	--	--	--	--	--	--	--	--	--
Single female	-0.101	0.131	0.904	-0.063	0.127	0.939	-0.148	0.129	0.863
Married male	0.186	0.127	1.204	0.159	0.120	1.173	0.093	0.118	1.097
Married female	0.295	0.151	1.343	0.345*	0.157	1.412	0.251	0.159	1.285
Race									
White	--	--	--	--	--	--	--	--	--
Black	-0.036	0.118	0.965	-0.164	0.125	0.849	-0.228	0.134	0.796
Other	0.385	0.214	1.470	0.329	0.210	1.389	0.285	0.213	1.330
Age									
Age 50 to 59 years old	--	--	--	--	--	--	--	--	--
Age 60 to 69 years old	-0.215	0.111	0.807	0.147	0.109	1.158	0.091	0.109	1.095

Age 70 to 79 years old	-0.425**	0.115	0.654	0.360**	0.118	1.433	0.326**	0.119	1.385
Age 80 and higher	-0.840***	0.147	0.432	0.771***	0.146	2.163	0.799***	0.144	2.222
Education									
Less than high school	--	--	--	--	--	--	--	--	--
High school graduate	-0.624***	0.105	0.536	-0.693***	0.105	0.500	-0.707***	0.100	2.027
Some college	-0.600***	0.127	0.549	-0.699***	0.141	0.497	-0.665***	0.133	1.945
College degree	-0.712***	0.148	0.491	-0.788***	0.160	0.455	-0.771***	0.151	2.161
Annual income									
Log annual income	0.067	0.039	1.069	0.048	0.037	1.049	0.035	0.037	1.036
Net worth									
Log net worth	0.737*	0.296	2.089	0.655*	0.263	1.925	0.706**	0.287	2.026
Employment status									
Retired	0.087	0.117	1.091	0.149	0.119	1.161	0.188	0.116	1.207
Homeownership and mortgage status									
Homeowner (no mortgage)	--	--	--	--	--	--	--	--	--
Homeowner (mortgage)	0.023	0.088	1.023	0.062	0.093	1.064	0.040	0.095	1.041
Non-homeowner	-0.119	0.110	0.888	-0.085	0.109	0.919	-0.104	0.108	0.901
Non-mortgage debt									
Non-mortgage debt	-0.330**	0.089	0.719	-0.361**	0.092	0.697	-0.355**	0.098	0.701
Retirement plan status									
Retirement plan	0.250**	0.076	1.284	0.245**	0.079	1.278	0.216**	0.077	1.241
Non-retirement plan investments									
Non-retirement plan investments	0.235	0.120	1.265	0.298*	0.115	1.347	0.267*	0.119	1.306
Financial stress									
Financial stress	-1.452***	0.061	0.234	-1.389***	0.061	0.249	-1.322***	0.063	0.267
Emergency fund									
Emergency fund	0.192	0.099	1.212	0.222*	0.099	1.248	0.241*	0.096	1.272
Health insurance coverage									
Health insurance coverage	0.338**	0.114	1.402	0.348**	0.118	1.416	0.373**	0.112	1.452
Big Five personality traits									
Openness to experience	--	--	--	0.092	0.093	1.096	-0.013	0.100	0.987
Conscientiousness	--	--	--	0.183	0.105	1.200	0.045	0.107	1.046
Extroversion	--	--	--	0.441***	0.099	1.554	0.166	0.104	1.181
Agreeableness	--	--	--	-0.253*	0.121	0.776	-0.297*	0.118	0.743
Neuroticism	--	--	--	-0.414***	0.062	0.661	0.026	0.091	1.026
Affect									
Positive affect	--	--	--	--	--	--	0.567***	0.076	1.763
Negative affect	--	--	--	--	--	--	-0.404**	0.103	0.667
<hr/>									
Pseudo R ²	0.536			0.557			0.578		
Likelihood ratio test statistic	--			828180 ***			865063 ***		
Concordance ratio	81.8			82.7			83.3		
<hr/>									

Note: Analyses conducted using normalized population weights. Likelihood ratio test statistics calculated sequentially (i.e., Model 2 (full) versus Model 1 (restricted) and Model 3 (full) versus Model 2 (restricted)).

* $p < .05$. ** $p < .01$. *** $p < .0001$.

Model 1. Results of the ordinal logistic regression in Model 1 were largely consistent with results from prior studies. Overall, Model 1 exhibited a pseudo R^2 value of 0.54 and a concordance ratio of 81.8. Among the control variables at the individual level, net worth, having retirement plan assets, and having health insurance coverage were positively associated with financial satisfaction. Age, education, having non-mortgage debt, and financial stress were negatively associated with financial satisfaction. The negative association between financial stress and financial satisfaction was particularly strong. All else equal, a one-unit increase in financial stress was associated with a 77% reduction in the odds of reporting higher level of financial satisfaction. Gender and marital status, race, annual income, employment status, homeownership status, non-retirement plan investment status, and having an emergency fund were not found to be associated with financial satisfaction.

Model 2. Results of the ordinal logistic regression which incorporated Big Five personality traits into the model (Model 2) indicated that extraversion was positively associated with financial satisfaction while agreeableness and neuroticism were negatively associated with financial satisfaction. Overall, Model 2 exhibited a pseudo R^2 value of 0.56 and a concordance ratio of 82.7. The log likelihood ratio test statistic between Models 1 and 2 was significant at a value of $p < .0001$, suggesting that the addition of Big Five personality traits in Model 2 does add predictive power over a model of known determinants of financial satisfaction.

Specifically, all else equal, a one-unit increase in extraversion was associated with a 50% increase in the odds of reporting higher levels of financial satisfaction; a one-unit increase in agreeableness was associated with a 22% reduction in the odds of reporting higher levels of

financial satisfaction; and a one-unit increase in neuroticism was associated with a 34% reduction in the odds of reporting higher levels of financial satisfaction. Openness to experience and conscientiousness were not found to be associated with financial satisfaction at the individual level.

Among the control variables included, most directional associations between statistically significant control variables in the prior model and financial satisfaction remained the same. However, once Big Five personality traits were incorporated into the analysis, having an emergency fund, being a married female (relative to a single male), and having non-retirement plan investments were found to also be significantly associated with financial satisfaction. Race, income, employment status, and homeownership status were not significantly associated with financial satisfaction.

Model 3. Results of the ordinal logistic regression which incorporated positive and negative affect into the model (Model 3) indicated that positive affect was positively associated with financial satisfaction while negative affect was negatively associated with financial satisfaction. Overall, Model 3 exhibited a pseudo R^2 value of 0.58 and a concordance ratio of 83.3. The log likelihood ratio test statistic between Models 2 and 3 was significant at a value of $p < .0001$, suggesting that the addition of positive and negative affect in Model 3 does add predictive power over a model of known determinants of financial satisfaction augmented to incorporate Big Five personality traits.

Specifically, all else equal, a one-unit increase in positive affect was associated with a 76% increase in the odds of reporting higher levels of financial satisfaction, while a one-unit increase in negative affect was associated with a 33% reduction in the odds of reporting higher levels of financial satisfaction. Among Big Five personality traits, the negative association

between agreeableness and financial satisfaction remained statistically significant after adding positive and negative affect to the model. Openness to experience, conscientiousness, extraversion, and neuroticism were not significantly associated with financial satisfaction once positive and negative affect were added to the model. Among the control variables, all directional associations between control variables and financial satisfaction remained the same as in Model 2, with the exception that being a married female relative to a single male was no longer statistically significant.

Discussion

The purpose of this study was to investigate the relationships between personality characteristics and financial satisfaction at the individual level. The results of this study suggest that personality characteristics are important predictors of financial satisfaction, even after controlling for a wide range of socio-demographic and financial characteristics. Specifically, this study finds that when personality characteristics are operationalized through the Big Five, agreeableness and neuroticism are negatively associated with financial satisfaction while extraversion is positively associated with financial satisfaction. Additionally, when personality characteristics are operationalized through the Big Five as well as positive and negative affect, agreeableness and negative affect are negatively associated with financial satisfaction while positive affect is positively associated with financial satisfaction.

This analysis supported hypothesis one, as Big Five personality traits were found to add predictive power over a model of known determinants of financial satisfaction. This analysis also supported hypothesis two, as positive and negative affect were found to add predictive power over a model of known determinants of financial satisfaction augmented to include Big Five personality traits. In contrast to the bottom-up models of subjective well-being assessment most

commonly used in the household finance literature, these findings are consistent with top-down theories of subjective well-being assessment—which suggest that personality characteristics play an important role in influencing both the circumstances of one’s life and how they evaluate subjective well-being assessments (Lucas & Diener, 2010). These top-down relationships between personality and financial satisfaction have been largely ignored in prior literature.

Big Five Personality Traits

In order to investigate specific relationships among personality traits, this study utilized the Big Five model of personality traits, which includes openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. The Big Five model of personality traits is one of the most widely used and empirically supported models of personality within the psychological literature.

Openness to experience. This analysis did not support hypothesis three, as openness to experience was not found to be significantly associated with financial satisfaction in either Model 2 or Model 3. This finding is consistent with prior literature, as openness to experience is not one of the dimensions of personality which have been found to be most strongly associated with subjective well-being. This finding is also consistent with Davis and Runyan (2016), as they did not find a directional relationship between openness to experience and financial satisfaction.

Conscientiousness. This analysis did not support hypothesis four, as conscientiousness was not found to be significantly associated with financial satisfaction in either Model 2 or Model 3. This finding is not consistent with prior literature, as prior studies have generally found a positive association between conscientiousness and subjective well-being assessment. However, this finding is consistent with Davis and Runyan (2016), as they did not find a directional relationship between conscientiousness and financial satisfaction.

Extraversion. This analysis did support hypothesis five, as extraversion was found to be positively associated with financial satisfaction in Model 2. This is consistent with prior literature, as extraversion is the Big Five trait which has been found to be most strongly positively associated with subjective well-being assessment in prior research. Extraversion did not remain positively associated with financial satisfaction when positive and negative affect were added in Model 3. This is also consistent with prior literature, given the strong association that generally exists between extraversion and positive affect. These results are important, as Davis and Runyan (2016) found no direct relationship between extraversion and financial satisfaction.

Agreeableness. This analysis did not provide support for hypothesis six, as agreeableness was not found to be positively associated with financial satisfaction. Instead, agreeableness was found to be negatively associated with financial satisfaction within both Model 2 and Model 3. Further, agreeableness was the only Big Five trait which was found to remain statistically significant after the addition of positive and negative affect. This finding is not consistent with prior research, as previous studies have typically found agreeableness to be positively associated with subjective well-being assessment. This study is not consistent with Davis and Runyan (2016), as they did not find a direct relationship between agreeableness and financial satisfaction. Further investigation of this unexpected relationship is warranted. In particular, facet-level analyses may be insightful. The facet-level traits which comprise agreeableness within the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire are helpful, warm, caring, sympathetic, and soft-hearted. This analysis cannot indicate whether all facets are equally contributing to the negative association between agreeableness and financial satisfaction, or whether certain facets may be contributing more than others.

Neuroticism. This analysis did support hypothesis seven, as neuroticism was found to be negatively associated with financial satisfaction in Model 2. This is consistent with prior literature, as neuroticism is the Big Five trait which has been found to be negatively associated with subjective well-being assessment in prior research. Neuroticism did not remain associated with financial satisfaction when positive and negative affect were added in Model 3. This is also consistent with prior literature, given the strong association that has generally been found between neuroticism and negative affect. These results directly contradict Davis and Runyan (2016), as they found a positive association between neuroticism and financial satisfaction.

Positive and Negative Affect

This analysis did provide support for hypothesis eight and nine, as positive and negative affect were found to be positively and negatively associated with financial satisfaction, respectively. These findings are consistent with prior literature, as positive and negative affect are two of the strongest predictors of subjective well-being assessment, though this analysis does provide the first empirical evidence of this relationship between affect and financial satisfaction. These findings largely confirm that the relationships between personality characteristics and financial satisfaction are similar to relationships between personality characteristics and other measures of subjective well-being. While financial circumstances and other characteristics which would be included in a bottom-up model of subjective well-being assessment are related to financial satisfaction, personality characteristics—and particularly positive and negative affect—are also related to financial satisfaction. The findings of this study support both bottom-up and top-down models of subjective well-being assessment, though the top-down findings are particularly notable given their absence in prior studies.

Limitations

This study does have several limitations. First, this study is merely correlational and cannot address causal relationships. As some of this study's more surprising findings suggest, it may be the case that longitudinal relationships between various personality characteristics and financial satisfaction differ on a cross-sectional and a longitudinal basis. For instance, though conscientiousness was not found to be a significant predictor of financial satisfaction within this analysis, it may be the case that conscientiousness has a combination of both short-term and long-term influences on financial satisfaction. Those who are more achievement striving may hold themselves to a higher standard or be more critical in their subjective evaluation of their financial standing in the short-term—thus decreasing financial satisfaction in the present, all else equal—while also developing financial behaviors or attitudes which positively influence long-term financial satisfaction. Although no relationship was found between openness to experience and financial satisfaction, prior studies have noted that migration behavior can have long-term financial benefits (Bowles, 1970) and that not all personality types are equally likely to engage in migration behavior. Specifically, those who exhibit high levels of openness to experience are more likely to engage in migration behavior (Jokela, 2009). Similarly, other studies have noted connections between personality traits and entrepreneurship (Rauch & Frese, 2007), including a positive association between openness to experience and entrepreneurial behavior (Zhao & Seibert, 2006).

Second, this study does rely on imputations within the dataset provided within the RAND HRS data. While there are both advantages and disadvantages associated with utilizing imputed data, under ideal circumstances, imputation would not be needed to deal with missing data.

Third, while this study does use imputed data for the RAND HRS variables, because this study

also utilizes data from the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire and other measures which are not imputed, missing data that is eliminated through the use of listwise deletion could bias the sample. Ideally, missing data would be missing completely at random (MCAR), but when examining something such as the characteristics of individuals who may opt out of answering questions related to their personality, it is likely the case that the underlying traits which make one inclined to opt out of sharing information regarding their personality traits are also associated with specific personality traits themselves.

Implications and Conclusion

Financial satisfaction is an important indicator of subjective economic well-being. This study provides the first examination of relationships between personality characteristics and financial satisfaction utilizing nationally representative data at the individual level. Consistent with relationships between personality and subjective well-being (Steel et al., 2008), personality characteristics were found to be important predictors of financial satisfaction. This study finds that personality characteristics enhance existing models of financial satisfaction. Additionally, relationships between personality characteristics and financial satisfaction were identified. Specifically, agreeableness and neuroticism are negatively associated with financial satisfaction and extraversion is positively associated with financial satisfaction when personality is operationalized through the Big Five. When personality is operationalized through the Big Five as well as positive and negative affect, agreeableness and negative affect are found to be negatively associated with financial satisfaction while positive affect is positively associated with financial satisfaction. These findings suggest that researchers, policy makers, and financial professionals should be aware of the ways in which personality may influence financial satisfaction assessment.

While financial satisfaction has historically been seen as a normative objective of financial professionals, a thorough understanding of the relationships between personality characteristics and the subjective appraisal of one's financial well-being—as well as the different financial behaviors or decision-making tendencies which may influence one's financial circumstances—is crucial for anyone interested in promoting financial well-being. For instance, if individuals with particular personality characteristics are more likely to select into a certain behavior, researchers interested in the relationships between that behavior and financial satisfaction must be careful to demonstrate that differences in financial satisfaction are truly associated with that behavior rather than the evaluative tendencies of those who selected into or out of such behaviors in the first place.

From a clinical perspective, financial planners, counselors, and therapists may want to be cognizant of various personality characteristics which may influence subjective well-being assessments and behavioral predispositions of clients. However, in order to truly put such theory into practice, a more integrative model of financial satisfaction will be needed. Most models in the household finance literature have typically taken a bottom-up approach to subjective well-being assessment. Such models assume that subjective well-being assessments are cognitive reflections of one's underlying circumstances (Lucas & Diener, 2010). However, within the subjective well-being research more broadly, such models have exhibited disappointing levels of success. Increasingly, top-down models—which view subjective well-being assessment as influenced more by stable personality traits than life circumstances—have seen stronger support (Lucas & Diener, 2010). Models of financial satisfaction in the household finance literature must begin to account for these top-down influences on subjective well-being assessment.

The household finance literature typically views financial satisfaction merely as an outcome. As a result, the benefits of financial dissatisfaction are overlooked. A more integrative theoretical approach to financial satisfaction must also consider the differing ways in which financial satisfaction is both an outcome and a functional process which facilitates the attainment of one's goals (Lucas & Diener, 2010). Financial dissatisfaction can play a valuable role when it results in action or behavior change which improves long-term financial well-being. For instance, financial planners have long noted that a strong dissatisfaction with some aspect of one's financial life will motivate a consumer to take action and seek the help of a financial professional. This has spurred the development of a specialty known as client transition planning (Veres, 2012) and even specialized designations such as the Certified Financial Transitionist® (CeFT®). Of course, a stress or dissatisfaction response can result in a range of behaviors—including detrimental behaviors—but the positive role of dissatisfaction should not be overlooked. Rather than focusing merely on increasing financial satisfaction, researchers, financial professionals, and policy makers may want to focus on developing resources and promoting policies which enable those who do experience dissatisfaction to take action which results in an enhancement of long-term financial well-being. Similarly, well-intentioned public policies or clinical practices which diminish healthy forms of financial dissatisfaction may unintentionally reduce consumer well-being.

Given the evidence of a connection between positive and negative emotions and physiological responses (Fredrickson & Levenson, 1998), the relationships between the affective dimensions of personality and subjective financial well-being assessments may also provide significant opportunities for future research. In particular, the connections between the autonomic nervous system (ANS) and emotion have already received considerable investigation

within the psychophysiological literature (Levenson, 2014), though these same concepts remain largely unexplored in a financial context. Particularly in light of the potential malleability of positive emotion through therapeutic interventions (Fredrickson et al., 2008), this study's findings regarding the importance of affective disposition in the assessment of one's subjective financial well-being highlights a need for further investigation of the relationships between financial satisfaction and physiological well-being.

This study provides insights into the relationships between personality characteristics (Big Five personality traits and affective disposition) and financial satisfaction at the individual level. This study found that Big Five personality traits do add predictive power over a model of socio-demographic characteristics, financial characteristics, and financial behaviors.

Additionally, this study found that positive and negative affect do add predictive power over a leading model of financial satisfaction augmented to incorporate Big Five personality traits.

Further, this finds that when adding Big Five personality traits to a leading model of financial satisfaction, extraversion is positively associated with financial satisfaction while agreeableness and conscientiousness are negatively associated with financial satisfaction. However, when positive affect and negative affect are added to a leading model of financial satisfaction augmented to incorporate Big Five personality traits, only agreeableness remains negatively associated with financial satisfaction, while positive affect is found to be positively associated with financial satisfaction while negative affect is negatively associated with financial satisfaction.

These findings suggest that an important component of financial satisfaction has previously been neglected within leading models of financial satisfaction. Consistent with other subjective well-being measures, personality characteristics are associated with financial

satisfaction even after controlling for a wide range of demographic characteristics, financial characteristics, and financial behaviors. These findings suggest that there is still a lot to learn about financial satisfaction, and how financial planners, counselors, and therapists can help consumers achieve higher levels of both subjective and objective well-being.

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Chapter 4 - Personality Characteristics and Financial Satisfaction

Among the Financially Strained

Introduction

A primary goal of financial planners, counselors, and therapists is to help individuals achieve financial satisfaction (Garrett & James, 2013). Yet, in order to fulfill this goal, professionals must understand what financial satisfaction is, who exhibits it, and how it can best be fostered. To date, little is known about the role that personality traits play in financial satisfaction. However, personality traits have been repeatedly shown to be one of the strongest and most consistent predictors of life satisfaction (Steel, Schmidt, & Shultz, 2008). If it is the case that the relationships between personality traits and financial satisfaction are similar to those of personality traits and life satisfaction, then a considerable gap in the present literature exists.

In addition to extensively studied Big Five personality traits (openness to experience, conscientiousness, agreeableness, extraversion, and neuroticism), positive and negative affect are personality traits that are believed to play important roles in the development and maintenance of long-term well-being (Fredrickson, 1998; Fredrickson, 2004). Specifically, those who exhibit more positive emotions have been found to experience a wide range of positive life outcomes, including greater longevity (Ostir, Markides, Black, & Goodwin, 2000; Danner, Snowdon, & Friesen, 2001; Moskowitz, 2003), higher levels of resiliency (Fredrickson, Tugade, Waugh, & Larkin, 2003), and higher levels of resourcefulness (Lyubomirsky, King, & Diener, 2005). Additionally, there is evidence that unlike Big Five personality traits which seem to be fairly static through life (barring some life-cycle patterns) (Donnellan & Lucas, 2008), emotional disposition can change through intervention, as meditation wellness interventions utilizing the

Day Reconstruction Method identified in Kahneman, Krueger, Schkade, Schwarz, and Stone (2004) have found (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008).

If it is the case that positive emotionality can be influenced through intervention and it is further true that positive emotionality influences financial satisfaction, then a potentially effective means to enhancing consumer financial well-being has been largely unexplored. The purpose of this study is to investigate the associations between affect and financial satisfaction among the financially strained. This study utilizes data from the 2010 and 2012 waves of the Health and Retirement Study (HRS) to evaluate relationships between personality traits and financial satisfaction among those who are experiencing financial strain. Ordinal logistic regression is utilized to investigate associations between personality traits and financial satisfaction among samples of respondents exhibiting various forms of financial strain.

Literature Review

Emotion and Subjective Well-Being

The field of positive psychology has greatly enhanced the focus on psychological factors that promote flourishing among individuals, communities, and societies (Seligman & Csikszentmihalyi, 2014). One such factor, affect, can be seen as the experience of particular feelings or emotions (Hogg, Abrams, & Martin, 2010). While similar, affect is distinct from emotion, and the former can be seen as a more general concept which refers to consciously accessible feelings (Fredrickson, 2001). More specifically, emotions typically have a particular object or circumstance of personal significance to the individual feeling an emotion, whereas affect is a more free-floating or objectless concept (Russell & Barrett, 1999; Fredrickson, 2001; Ryff & Singer, 2003; Oatley, Keltner, & Jenkins, 2006).

Evidence from self-report, observational, and longitudinal studies has supported the role that positive emotions play in flourishing and developing psychological resilience (Fredrickson, 2004; Fredrickson, 2013). Fredrickson (2013) notes ten specific positive emotions which have been found to change the ways in which people interpret their circumstances: joy, gratitude, serenity (contentment), interest, hope, pride, amusement, inspiration, awe, and love. This list is not meant to be exhaustive, but is presented simply as a summary of some past positive emotions which have been examined. Fredrickson's (1998; 2004) broaden-and-build theory addresses the ways in which positive emotions are believed to facilitate higher levels of well-being. In contrast to negative emotions—such as anxiety, anger, and despair—which are believed to narrow one's thought-action repertoire, broaden-and-build theory posits that positive emotions expand one's thought-action repertoire, thus encouraging behavior—such as learning, play, exploration, and striving—which facilitate the acquisition of resources that promote flourishing and resilience (Fredrickson, 2004; Fredrickson, 2013).

The narrowing of one's thought-action repertoire in response to negative emotions is believed to have played an important evolutionary role, particularly as a means to address threats faced in one's environment (Fredrickson, 2001). Narrowing of the thought-action repertoire focuses one's attention on the immediate threat before them. A rustling in the brush elicits a feeling of fear, which narrows one's focus and directs mental and bodily resources towards the fight-or-flight response which may be needed for survival (Fredrickson, 2001; Cannon, 1932). From an evolutionary perspective, narrowing potential responses to address an immediate threat can help facilitate survival. However, psychologists have historically struggled to explain the role of positive emotions from an evolutionary perspective. Fredrickson's (1998; 2004) broaden-and-build theory provides a theoretical explanation that positive emotions facilitate the

acquisition of resources which can only be gained through a broadened thought-action repertoire. For instance, feelings of joy elicit the thought-action tendency to play or get involved, which facilitates the ability to gain skills through experiential learning (Fredrickson, 2013). Similarly, feelings of hope elicit the thought-action tendency to plan for a better future, which allow individuals to develop resilience and optimism (Fredrickson, 2013). A summary of additional emotional labels and corresponding appraisal themes, thought-action tendencies, and resources accrued is provided in Fredrickson (2013).

The continued acquisition of resources gained as a result of positive emotion is believed to be the mechanism by which resilience and higher subjective well-being are experienced by individuals with greater levels of positive emotion. Rather than simply boosting short-term subjective well-being, broaden-and-build theory posits that individuals who experience greater levels of positive emotions will accumulate more skills and resources that they can utilize in the future (Fredrickson, 2004). Further, this accumulation of psychological skills and resources helps explain why long-term enhancements in well-being may be expected even though changes in subjective well-being are believed to quickly revert back to more stable baselines after both positive and negative change (Frederick & Loewenstein, 1999), as the effect in any one instance may be small, but the accumulation over time may be significant. In other words, positive emotions are seen to be an enduring personal resource that not only reflect resilience, but build it as well (Fredrickson, 2004).

Summarizing experimental research including both induced and naturally varying emotions, Cohn and Fredrickson (2006) note that people in positive emotional states have been found to take a bigger picture view (Fredrickson & Branigan, 2005); utilize adapting, reframing, and perspective-taking coping skills more (Fredrickson & Joiner, 2002); and possess a broader

sense of self (Waugh & Fredrickson, 2006). Fredrickson (2013) further summarizes that additional research has found that those who experience or express positive emotions more frequently exhibit higher levels of resiliency (Fredrickson, Tugade, Waugh, & Larkin, 2003), higher levels of resourcefulness (Lyubomirsky et al., 2005), are more socially connected (Mauss et al., 2011), and more likely to function at optimal levels (Fredrickson & Losada, 2005; Mauss et al., 2011).

Emotion and Financial Satisfaction

Limited research has explored the associations between emotional disposition and financial satisfaction. Diener, Scollon, Oishi, Dzokoto, and Suh (2000) utilized a simple two factor model of income and positivity to predict financial satisfaction at both the individual level and the national level. Results indicated that, at the individual level, both income and positivity were significant predictors of financial satisfaction (Diener et al., 2000). However, at the national level, only positivity remained significant (Diener et al., 2000). Though not looking at financial satisfaction specifically, Asebedo and Seay (2014) utilized the 2006 and 2008 waves of the Health and Retirement Study to examine retirement satisfaction and positive psychological attributes. Specifically, Asebedo and Seay (2014) utilized factors from Seligman's (2012) PERMA framework (positive emotion, engagement, positive relationships, meaning, and accomplishment) to predict retirement satisfaction. Positive emotion was operationalized through dispositional optimism, which was measured based on six-point Likert-type scale responses to questions related to optimism, expectations during uncertain times, and expectations that more good things than bad will happen to an individual. Asebedo and Seay (2014) found that optimism—their proxy for positive emotion—was a significant predictor of retirement satisfaction.

Big Five Personality Traits

The Big Five model (Five Factor Model) has been widely used in psychological literature for examining broad dimensions of personality. Specifically, these dimensions are: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. The Big Five has its origins in a lexical approach to trying to classify personality characteristics. Francis Galton (1884) believed it would be possible to examine common human characteristics based on examining human language (Matthews, Deary, & Whiteman, 2009). Allport and Odbert (1936) attempted to test Galton's theory by searching the English language for adjectives that described personality (Matthews et al., 2009; Costa & McCrae, 1985). Through the use of factor analysis, Cattell narrowed this list (Cattell, 1945) into what would ultimately serve as the foundation for the Sixteen Personality Factor Questionnaire (16PF) (Cattell & Eber, 1964), before being further refined by Costa and McCrae (1985) into the NEO Personality Inventory. The NEO Personality Inventory only included three broad dimensions of personality traits (neuroticism, extraversion, and openness to experience) (Costa & McCrae, 1985; Matthews et al., 2009), but Costa and McCrae (1992) would go on to eventually add agreeableness and conscientiousness, rounding out the Big Five. This expanded model was known as the NEO-PI-R and continues to be one of the most widely used assessments of personality traits (Matthews et al., 2009).

Affect and Big Five Personality Traits

Significant research has examined associations between personality traits and affect, and particularly associations between affect and the traits of extraversion and neuroticism, finding that extraversion is generally positively associated with positive affect while neuroticism is positively associated with negative affect (Costa & McCrae, 1980; Emmons & Diener, 1985; McCrae & Costa, 1991; Watson & Clark, 1997). Studies that have examined associations

between all Big Five traits and affect have generally found positive associations between openness to experience, agreeableness, and conscientiousness and positive affect, as well as negative associations between agreeableness and conscientiousness and negative affect (McCrae & Costa, 1991; Watson & Clark, 1992). However, some researchers have noted that these results may be partially due to both conceptual and time frame overlap of the scales used to examine both personality characteristics and affect (Yik & Russell, 2001). In order to address this overlap, Yik and Russell (2001) examined associations between momentary affect and the Big Five personality traits. Yik and Russell (2001) found that extraversion and neuroticism were the two dimensions most predictive of momentary affect, and that the Big Five traits predict roughly one third of the total variance in an individual's momentary affect. Additionally, Yik and Russell (2001) found that affect was generally negatively associated with neuroticism, positively associated with extraversion, positively associated with conscientiousness, negatively associated with openness to experience, and not associated with agreeableness (though in all cases some results varied based on the methods used for measuring affect).

Utilizing data from the 2010 and 2012 waves of the Health and Retirement Study, Asebedo (2016) examined associations between Big Five personality characteristics and affect. Asebedo (2016) found that positive affect was positively associated with openness to experience, conscientiousness, and extraversion; negatively associated with neuroticism; and no significant association was found with agreeableness. Additionally, Asebedo (2016) examined the associations between negative affect and Big Five personality characteristics, finding that conscientiousness and extraversion were negatively associated with negative affect; agreeableness and neuroticism were positively associated with negative affect; and no association was found between openness to experience and negative affect.

Big Five Personality Traits and Subjective Well-Being

Prior studies have consistently found the Big Five personality traits to be one of the strongest predictors of subjective well-being (SWB). Steel, Schmidt, & Shultz (2008) have conducted one of the most thorough meta-analyses examining Big Five personality traits and SWB, finding that as much as 39% to 63% of the total variance in SWB is attributable to personality after accounting for attenuation. Researchers have also found that SWB appears to be both stable and heritable, with twin and adoption studies indicating that genetic factors account for roughly 80% of SWB stability (Nes, Røysamb, Tambs, Harris, & Reichborn-Kjennerud, 2006). In addition to the stability of SWB, personality traits themselves exhibit a high level of stability, with analyses based on panel data from the Household, Income, and Labour Dynamics in Australia (HILDA) survey finding that meaningful personality change cannot be linked to negative employment, health, family, or other adverse life events (Cobb-Clark & Schurer, 2012).

Financial Satisfaction and Subjective Well-Being

Subjective well-being is believed to be comprised of various domain satisfactions (e.g., job satisfaction, marital satisfaction, health satisfaction, and social satisfaction). Researchers have long believed that financial satisfaction is an important domain satisfaction which contributes towards subjective well-being (Campbell, 1981; Easterlin, 2006). In fact, the connection between financial satisfaction and life satisfaction is believed to be particularly strong, with one global study finding financial satisfaction was a stronger predictor of life evaluation than postmaterialist needs of autonomy, social support, and respect (Ng & Diener, 2014). Based on the factors evaluated in their study, Ng and Diener (2014) found that financial satisfaction, followed by income, were the strongest predictors of life evaluation. Additionally, financial satisfaction and respect were the strongest predictors of negative affect, while respect

was the largest predictor of positive affect (Ng & Diener, 2014). Other studies have found lower levels of financial satisfaction to be associated with lower subjective well-being (Graham & Pettinato, 2001; Louis & Zhao, 2002; Hayo & Seifert, 2003). Louis and Zhao (2002) found that within a model examining childhood experiences, adulthood experiences, and demographic characteristics, the three most important predictors of life satisfaction were job satisfaction, financial satisfaction, and health.

Big Five Personality Traits and Financial Satisfaction

Little research currently exists on the relationships between personality characteristics and financial satisfaction. However, one survey of university alumni ($N = 328$) conducted by Davis and Runyan (2016) has examined personality traits through the lens of Mowen's (2000) Metatheoretic Model of Motivation and Personality (3M Model). The 3M Model is a hierarchical model and does include the Big Five personality characteristics (openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) at the lowest level (elemental level) of the model, along with three additional elemental traits: need for material resources, need for arousal, and need for body resources (Mowen, 2000). Davis and Runyan (2016) found that of the eight elemental level personality traits, only neuroticism and need for material resources were directly associated with financial satisfaction. Specifically, Davis and Runyan (2016) found that neuroticism was positively associated with financial satisfaction while need for material resources was negatively associated with financial satisfaction. Additionally, Davis and Runyan (2016) did find that conscientiousness, need for body resources, and need for material resources had negative indirect effects on financial satisfaction through financial behavior.

Theoretical Determinants of Financial Satisfaction

To date, the most comprehensive and theoretically robust model of the determinants of financial satisfaction was developed by Joo and Grable (2004). Their model includes demographic characteristics, financial stressors, financial knowledge, solvency, financial behavior, risk tolerance, and financial stress. While the development of their model was based on path analysis conducted on a convenience sample of white-collar clerical workers ($N = 220$), empirical support for their model has been developed based on analysis of large, nationally representative datasets (Garrett & James, 2013; Xiao, Chen, & Chen, 2014; Seay, Asebedo, Thompson, Stueve, & Russi, 2015; Woodyard & Robb, 2016; Tharp, Seay, Stueve, & Anderson, 2017).

Financial stress. Joo and Grable (2004) utilized a single 10-point Likert-type question to examine financial stress, finding financial stress to be negatively associated with financial satisfaction. Additionally, Joo and Grable's (2004) model incorporated additional variables classified as financial stressors. Financial stressors were measured based on binary responses to a list of 24 questions examining potential financial stressors that individuals may have experienced. The results of Joo and Grable's (2004) path analysis revealed financial stress to be directly negatively associated with financial satisfaction. Additionally, financial stressors were positively associated with financial stress, but did not have a direct effect on financial satisfaction (Joo & Grable, 2004).

Other studies have continued to confirm the importance of the relationship between financial stressors and financial satisfaction. While Joo and Grable (2004) evaluated solvency separate from other financial stressors (higher levels of solvency were positively associated with financial satisfaction), low levels of solvency and other poor financial ratio measures can be seen

as indicators of financial stress (Baek & DeVaney, 2004; Kim & Lyons, 2008; Garrett & James, 2013). Garrett and James (2013) evaluated relationships between financial satisfaction and solvency ratio (total assets/total debts), liquidity ratio (liquid assets/monthly income), and investment asset ratio (investment assets/net worth). Garrett and James (2013) found that the solvency ratio was most strongly associated with financial satisfaction when analyzing cross-sectional data, yet changes in investment asset ratio were most strongly associated with changes in financial satisfaction when utilizing longitudinal data. Other studies have incorporated both objective and subjective measures of financial stress. Objective measures of financial stress have included unexpected declines in income (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), needing to take a hardship withdrawal from a retirement account (Woodyard & Robb, 2016), having various forms of debt (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), and financial ratios (e.g., solvency ratio, liquidity ratio, and investment asset ratio) (Garrett & James, 2013). Subjective measures of financial stress have included self-reported difficulty meeting monthly expenses and self-assessments of whether a household currently has too much debt (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). Past studies have found that both objective and subjective forms of financial stress are typically negatively associated with financial satisfaction. However, it should be noted that some prior findings do not align with theoretical expectations, as both hardship withdrawals from retirement accounts (Woodyard & Robb, 2016) and having missed a mortgage payment (Tharp et al., 2017) have been found to be positively associated with financial satisfaction. It has been suggested that these results may be due to either short-term reduction in stress which may not result in long-term financial satisfaction (Woodyard & Robb, 2016) or temporal differences

between when a stressor occurred and when financial satisfaction was measured (Tharp et al., 2017).

Financial behavior. Prior research has examined relationships between financial behavior and financial satisfaction. Joo and Grable's (2004) theoretical model posited a positive association between prudent financial behaviors and financial satisfaction. Their analysis found a positive relationship between good financial behaviors and financial satisfaction, as well as a negative relationship between good financial behaviors and financial stress (Joo & Grable, 2004). Other studies have consistently confirmed their findings, generally finding that good financial behaviors (e.g., paying off a credit card each month, having health insurance, saving for retirement) are positively associated with financial satisfaction (Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016, Tharp et al., 2017).

Financial attitudes. The financial attitude which has most frequently been examined in prior research is risk tolerance, though other factors that have been identified as worthy of consideration include perceptions of financial wellness and goal setting (Robb & Woodyard, 2011). Joo and Grable's (2004) theoretical model posited that risk tolerance could have both direct and indirect effects on financial satisfaction. Joo and Grable's (2004) analysis found that risk tolerance was negatively associated with financial satisfaction directly, but overall had a positive effect on financial satisfaction once accounting for indirect effects. Utilizing the same risk tolerance measure as Joo and Grable (2004), Jeong and Hanna (2004) found no direct relationship between risk tolerance attitude and financial satisfaction. However, unlike Joo and Grable (2004), Jeong and Hanna (2004) differentiated between risk tolerance attitude and risk tolerance behavior, finding that risk tolerance attitude had a positive effect on risk tolerance behavior, and that risk tolerance behavior had a positive effect on financial satisfaction. Other

studies have utilized single-item measures of risk tolerance attitude and found positive relationships between risk tolerance and financial satisfaction (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017).

Financial knowledge. Financial knowledge has been examined as an objective measure, a subjective measure, and a mix of both objective and subjective measures. Joo and Grable's (2004) framework does not make a clear prediction regarding the relationship between financial knowledge and financial satisfaction, noting that past literature has been inconsistent and that indirect effects may be interfering with results (Joo, 1998). Joo and Grable's (2004) analysis utilized a subjective measure of financial knowledge and found that subjective financial knowledge had both direct and indirect positive effects on financial satisfaction. Other studies have also found positive associations between subjective financial knowledge and financial satisfaction based on analyses of large, nationally representative datasets (Xiao et al., 2014; Seay et al., 2015; Tharp et al., 2017).

When examining objective financial knowledge based on a respondent's ability to correctly answer financial questions, studies have typically found objective financial knowledge to be negatively associated with financial satisfaction (Xiao et al., 2014; Seay et al., 2015; Tharp et al., 2017). Some studies have found a positive relationship between objective financial knowledge and financial satisfaction based on bivariate analysis, but that relationship was not observed once controlling for other socio-demographic and financial factors (Xiao et al., 2014). It has been suggested that the differing relationships financial satisfaction seems to have with objective and subjective financial knowledge may be due to the fact that knowledgeable individuals are able to more accurately perceive their financial deficiencies (Mugenda, Hira, & Fanslow, 1990).

Another approach to measuring financial knowledge has been to combine measures of both objective and subjective financial knowledge. Commonly referred to as financial sophistication, some studies have classified respondents into one of four categories: low objective-low subjective, low objective-high subjective, high objective-high subjective, and high objective-low subjective (Allgood & Wallstad, 2013; Robb, Babiarz, Woodyard, & Seay, 2015; Woodyard & Robb, 2016). This approach allows researchers to explore differing relationships that may exist among those who correctly and incorrectly assess their own level of knowledge. Studies utilizing this method did find statistically significant differences between those who have low objective and high subjective knowledge (i.e., the overconfident) and a reference group of those with low objective and low subjective financial knowledge (Woodyard & Robb, 2016).

Socio-demographic, financial, and other characteristics. Due to varying measurement methods and the differing levels of complexity between models, there are few consistent findings among socio-demographic, financial, and other characteristics. One of the more consistent relationships that has been found in past studies is a positive relationship between income and financial satisfaction (Garrett & James, 2013; Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). While income did not have direct effects on financial satisfaction within Joo and Grable's (2004) analysis, the indirect effects of income were positive. Garrett and James (2013) found a positive relationship between net worth and financial satisfaction, though most other studies have not looked at net worth. Homeownership has also consistently been found to be positively associated with financial satisfaction (Garrett & James, 2013; Xiao et al., 2014; Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017). In studies that have found significant relationships, marriage has consistently been associated with higher levels of financial satisfaction (Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al.,

2017). The presence of financial dependents has been negatively associated with financial satisfaction in some studies (Joo & Grable, 2004; Xiao et al., 2014; Woodyard & Robb, 2016). Tharp et al. (2017) also found a negative relationship between dependent children and financial satisfaction, though the relationship was not significant at a level of $p < .05$. Garrett and James (2013) also found a negative though non-significant relationship between having children and financial satisfaction, though their analysis did not require that children be financial dependent. Most studies have found a significant association between education and financial satisfaction (Joo & Grable, 2004; Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017). While different methods of measuring education make it difficult to generalize the findings, it has generally been the case that, all else equal, those with the lowest and the highest levels of education seem to exhibit higher levels of financial satisfaction, with those in the middle exhibiting somewhat lower levels of financial satisfaction. Financial satisfaction generally seems to decrease with age or is at least highest among the youngest individuals (Garrett & James, 2013; Woodyard & Robb, 2016; Tharp et al., 2017), though variation exists depending on the granularity and number of age categories utilized in a given analysis. Two studies have found men to exhibit higher levels of financial satisfaction, all else equal (Xiao et al., 2014; Tharp et al., 2017). Most studies have found no significant relationship between race and financial satisfaction (Seay et al., 2015; Woodyard & Robb, 2016; Tharp et al., 2017), though Xiao et al. (2014) did find lower financial satisfaction among white respondents, all else equal.

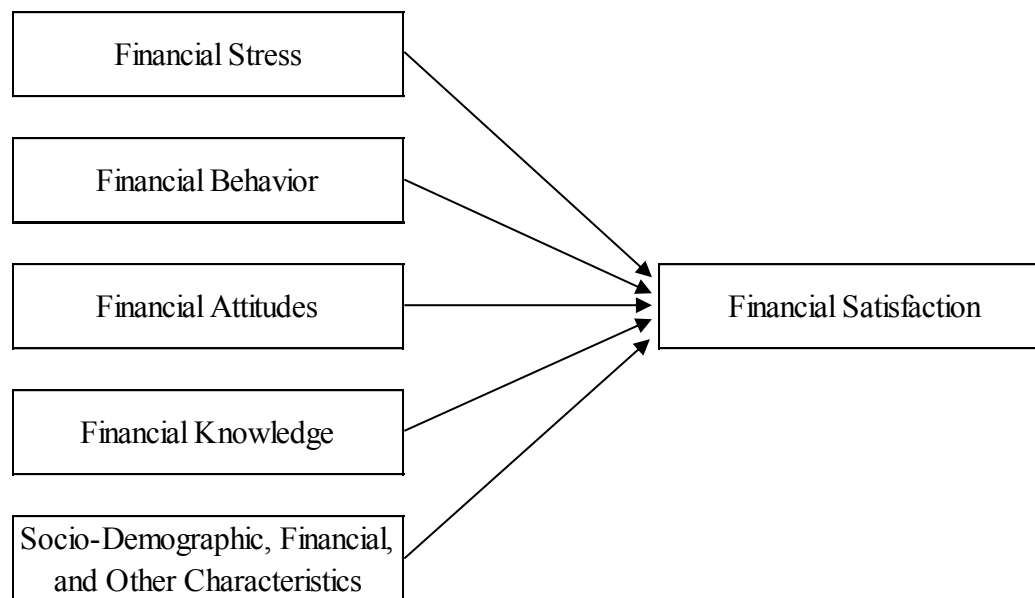
Theoretical Framework and Hypotheses

Theoretical Framework

This study will augment the financial satisfaction model developed by Joo and Grable (2004) to incorporate Big Five personality traits as well as positive and negative affect. While

not explicitly outlined within Joo and Grable's (2004) framework, both Big Five personality traits and affect are considered by other literature to be important personality characteristics which are associated with a large number of indicators of subjective well-being, including both broad and domain-specific measures of life satisfaction.

Figure 4.1 Theoretical Determinants of Financial Satisfaction



Theoretical determinants of financial satisfaction. Adapted from Joo and Grable (2004).

Hypotheses

Based on guidance from prior literature on associations between personality traits and financial satisfaction (as well as subjective well-being more generally), the following hypotheses will be examined:

H1: Positive affect will be positively associated with financial satisfaction.

H2: Negative affect will be negatively associated with financial satisfaction.

Consistent with Fredrickson's (1998; 2004) broaden-and-build theory, it is expected that individuals who exhibit higher levels of positive affect will exhibit higher levels of financial

satisfaction, after controlling for other theoretical determinants of financial satisfaction.

Conversely, it is expected that those who exhibit higher levels of negative affect will exhibit lower levels of financial satisfaction.

H3: Openness to experience is positively associated with financial satisfaction.

H4: Conscientiousness is positively associated with financial satisfaction.

H5: Extraversion is positively associated with financial satisfaction.

H6: Agreeableness is positively associated with financial satisfaction.

H7: Neuroticism is negatively associated with financial satisfaction.

In addition to examining Fredrickson's (1998; 2004) broaden-and-build theory in the context of financial satisfaction, this study is also interested in examining the Big Five personality traits which are associated with higher levels of financial satisfaction among those facing financial strain.

Methods

Data

This study will utilize data from the 2012 wave of the Health and Retirement Study (HRS). The HRS is a biennial longitudinal study of over 26,000 Americans sponsored by the National Institute on Aging and the Social Security Administration. The HRS is representative of the United States population over the age of 50. Certain populations, such as Blacks, Hispanics, and Florida residents, are oversampled. As a result, sample weights will be utilized to account for the complex sample design. Specifically, this study will utilize the RAND version of the HRS core data file as well as the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire. Because this study is interested in examining personality traits and financial satisfaction among

the financially strained, the sample will be restricted to only include those who are determined to be experiencing some form of subjective or objective financial strain.

Sample restriction criteria. In order to examine relationships between personality characteristics and financial satisfaction among households experiencing various forms of financial strain, analyses will be conducted on various financially strained subsamples. A total of five subsamples will be analyzed, two of which will be restricted based on indicators of subjective financial strain and three of which will be restricted based on indicators of objective financial strain. Subjective and objective financial strain measurement criteria are summarized in Table 4.1.

Subjective financial strain. Subjective financial strain will be examined utilizing two different measures of self-reported financial strain: current financial strain (self-reported difficulty paying bills) and ongoing financial strain (self-reported financial strain of twelve months or longer). Specifically, current financial strain will be operationalized through responses to the question, “How difficult is it for (you/your family) to meet monthly payments on (your/your family's) bills?” Potential responses ranged from 1 (*not at all difficult*) to 5 (*completely difficult*). For the purposes of this study, a respondent is assumed to be experiencing current financial strain if they provided a response of 3 (*somewhat difficult*) or higher. Ongoing financial strain will be operationalized through responses to a question asking whether financial strain is a current and ongoing problem that has lasted twelve months or longer. Potential responses included: no, didn’t happen; yes, but not upsetting; yes, somewhat upsetting; and yes, very upsetting. Data will be coded as an ordinal measure as follows: 1 (*no, didn’t happen*), 2 (*yes, but not upsetting*), 3 (*yes, somewhat upsetting*), and 4 (*yes, very upsetting*). For the purposes

of this study, a respondent is assumed to be experiencing ongoing financial strain if they provided a response of 2 (*yes, but not upsetting*) or higher.

Objective financial strain. Objective financial strain will be examined utilizing three different ratios utilized in prior research to identify financially strained households: the solvency ratio, liquidity ratio, and investment assets ratio (Kim & Lyons, 2008; Garrett & James, 2013). Specifically, respondents will be assumed to be financial strained if they have a household solvency ratio (total assets/total debt) of less than 1.0, a liquidity ratio (liquid assets/monthly income) of less than 3.0, or an investment assets ratio (investment assets/net worth) of less than 0.25. These ratios are consistent with those used in prior research (Kim & Lyons, 2008; Garrett & James, 2013), with the exception of increasing the liquidity ratio from 2.5 to 3.0. This adjustment was made to be more inclusive of families which may be experiencing financial strain, as financial planners have suggested families hold somewhere between two and six months' worth of living expenses in an emergency fund (DeVaney, 1997). Because the RAND version of the HRS dataset includes cleaned and imputed values of net worth, income, and other financial variables, imputed measures included within the RAND version of the HRS dataset are used in all cases for calculating household financial ratios. Specifically, financially strained households, as determined by the solvency ratio, are operationalized as any instances in which a household's net worth is less than \$0. Financially strained households, as determined by the liquidity ratio, are operationalized as households in which liquid assets (checking, savings, and money market funds) divided by total monthly household income is less than 3. If a household's total monthly income was \$500 or less, then total household income was assumed to be \$500 for the purposes of determining one's liquidity ratio. Financially strained households, as determined

by the investment assets ratio, are operationalized as any household in which investment assets (non-housing net worth) divided by net worth is less than .25.

Table 4.1 Measurement of Subjective and Objective Financial Strain

Variable	Measurement
Current financial strain	5-point ordinal Likert-type scale with higher scores indicating higher levels of difficulty paying bills.
Ongoing financial strain	4-point ordinal Likert-type scale with higher scores indicating higher levels of ongoing financial strain.
Solvency ratio	If total household assets / total household liabilities ≤ 1 then financially strained; else not financially strained.
Liquidity ratio	If total household liquid assets / total household monthly income ≤ 3 months then financially strained*; else not financially strained.
Investment assets ratio	If total household non-housing net worth / total household net worth ≤ 0.25 then financially strained; else not financially strained.

*If household monthly income $< \$500$, then household monthly income = $\$500$.

Dependent Variable

The dependent variable for this analysis will be financial satisfaction. Financial satisfaction will be measured by a single question asking respondents to indicate their current level of financial satisfaction. This single item measure is consistent with prior research on financial satisfaction (Joo, 1998; Joo & Grable, 2004; Garrett & James, 2013; Xiao et al., 2014; Woodyard & Robb, 2016; Tharp et al., 2017). Specifically, respondents were asked, “Please think about your life and situation right now. How satisfied are you with your present financial situation?” Potential responses included: completely satisfied, very satisfied, somewhat satisfied, not very satisfied, and not at all satisfied. Data will be coded as an ordinal measure as follows: 1

(*not at all satisfied*), 2 (*not very satisfied*), 3 (*somewhat satisfied*), 4 (*very satisfied*), and 5 (*completely satisfied*). Financial satisfaction measurement is summarized in Table 4.1.

Table 4.2 Measurement of Financial Satisfaction

Variable	Measurement
Financial Satisfaction	5-point ordinal measure with higher scores indicating higher levels of financial satisfaction.

Key Independent Variables

Positive and negative affect. Positive and negative affect will be examined in this study utilizing measures from the 2012 HRS Leave-Behind Psychosocial and Lifestyle Questionnaire. Specifically, respondents were given a list of 25 single-word items and asked, “During the last 30 days, to what degree did you feel...” Potential responses ranged from 1 (*very much*) to 5 (*not at all*). The 13 words given to respondents to evaluate positive affect included: determined, enthusiastic, active, proud, interested, happy, attentive, content, inspired, hopeful, alert, calm, and excited. The 12 words given to respondents to evaluate negative affect included: afraid, upset, guilty, scared, frustrated, bored, hostile, jittery, ashamed, nervous, sad, and distressed. These words were selected from the Positive and Negative Affect Schedule – Expanded Form (PANAS-X), which is an expanded version of the PANAS, originally developed by Watson, Clark, and Tellegen (1988). Additionally, Smith, Fisher, Ryan, Clarke, House, and Weir (2013) indicate that some of the words were selected based on the work of other researchers (Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Watson & Clark, 1999). Responses are utilized to create separate positive and negative affect scales. The positive affect scale consists of 13 words, while the negative affect scale consists of 12. In both cases, responses are reverse-coded and averaged across the number of words in the scale. Based on the guidelines provided by Smith et al. (2013), final scores will be set to missing if more than six items contain missing

values. Both the positive and negative affect scales exhibited high levels of reliability based on full samples of the 2008 and 2010 waves of the HRS. Specifically, the positive affect scale had a Cronbach’s alpha of 0.92 and 0.92 in 2008 and 2010, respectively, while the negative affect scale had a Cronbach’s alpha of 0.89 and 0.90 in 2008 and 2010, respectively (Smith et al., 2013).

Positive and negative affect measurement is summarized in Table 4.2.

Table 4.3 Measurement of Positive and Negative Affect

Variable	Measurement
Positive affect	Average of 13 ordinal variables measured separately on a 5-point scale with higher scores indicating higher levels of positive affect.
Negative affect	Average of 12 ordinal variables measured separately on a 5-point scale with higher scores indicating higher levels of negative affect.

Big Five personality traits. In addition to positive and negative affect, the Big Five personality traits will be included as personality characteristics. Big Five personality traits will be measured utilizing a 31-item assessment derived from Midlife Development Inventory (MIDI) Personality Scales (Lachman & Weaver, 1997). While the full version of the inventory developed by Lachman and Weaver (1997) includes the five-factor model traits as well as a sixth trait (agency), only the five-factor model traits are utilized within the HRS LB Psychosocial and Lifestyle survey. Additionally, the inventory was expanded in 2010 to incorporate coverage of sub-facets of conscientiousness based on items from the International Personality Item Pool (IPIP), bringing the total item count to 31 (Smith et al., 2013). Respondents rated how well 31 different adjectives described themselves utilizing a 4-point Likert-type scale, ranging from 1 (*a lot*) to 4 (*not at all*). For the purposes of this analysis, items will be reverse coded so that higher scores indicate stronger identification with an item, with the exception of items where lower identification with a particular item is indicative of the stronger presence of a particular

personality trait (e.g., the item “calm” is used to evaluate neuroticism, yet calmness is negatively associated with neuroticism). Final scores will be set to missing if more than half of the items have missing values within a given sub-dimension (Smith et al., 2013).

Measurement of the Big Five trait of openness to experience is based on an average of the reverse-coded respondent ratings of the following seven adjectives: creative, imaginative, active, careless, broad-minded, sophisticated, and adventurous. Measurement of the Big Five trait of conscientiousness is based on an average of the reverse-coded respondent ratings of the following ten adjectives: reckless (not reverse-coded), organized, responsible, hardworking, self-disciplined, careless (not reverse-coded), impulsive (not-reverse coded), cautious, thorough, and thrifty. Measurement of the Big Five trait of extraversion is based on an average of the reverse-coded respondent ratings of the following five adjectives: outgoing, friendly, lively, active, and talkative. Measurement of the Big Five trait of agreeableness is based on an average of the reverse-coded respondent ratings of the following five adjectives: helpful, warm, caring, softhearted, and sympathetic. Measurement of the Big Five trait of neuroticism is based on an average of the reverse-coded respondent ratings of the following seven adjectives: moody, worrying, nervous, and calm (not reverse-coded). Personality characteristic measurement is summarized in Table 4.4.

Table 4.4 Measurement of Big Five Personality Traits

Variable	Measurement
Openness to experience	Average of 7 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.
Conscientiousness	Average of 10 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.
Extraversion	Average of 5 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.

Agreeableness	Average of 5 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.
Neuroticism	Average of 7 ordinal variables measured separately on a 4-point scale with higher scores indicating higher levels of the trait.

Control Variables

Current financial strain. In addition to serving as a criterion for the purposes of restricting one subsample of this study, current financial strain will serve as a control variable within these analyses. Current financial strain will be measured by a single question asking respondents to indicate their current level of difficulty meeting payments on current bills. This single item measure is consistent with prior financial satisfaction research which has controlled for financial strain (Woodyard & Robb, 2016; Tharp et al., 2017). Specifically, respondents were asked, “How difficult is it for (you/your family) to meet payments on (your/your family’s) bills?” Potential responses included: not at all difficult, not very difficult, somewhat difficult, very difficult, and completely difficult. Data will be coded as an ordinal measure as follows: 1 (*not at all difficult*), 2 (*not very difficult*), 3 (*somewhat difficult*), 4 (*very difficult*), and 5 (*completely difficult*).

Additional control variables. Additional control variables will include socio-demographic characteristics, financial characteristics, and financial behaviors. Consistent with prior literature, socio-demographic characteristics will include gender, marital status, age, race, and education. Financial characteristics will include income, net worth, employment status, homeownership, mortgage status, retirement plan ownership, and ownership of investments outside of retirement accounts. Financial behaviors will include maintaining an emergency fund, having health insurance, and having non-mortgage debt. Significant theoretical determinants of

financial satisfaction utilized in Joo and Grable's (2004) model that are not accounted for in this model include financial knowledge and risk tolerance, as measures of these variables were not available within the HRS waves which include key psychological variables of interest. A summary of control variables is provided in Table 4.5.

Table 4.5 Measurement of Control Variables

Variable	Measurement
Gender and marital status	
Single male	1 if single male; else 0
Single female	1 if single female; else 0
Married male	1 if married male; else 0
Married female	1 if married male; else 0
Age	
Age 50 to 59 years old	1 if age 50 to 59; else 0
Age 60 to 69 years old	1 if age 60 to 69; else 0
Age 70 to 79 years old	1 if age 70 to 79; else 0
Age 80+ years old	1 if age \geq 80; else 0
Race	
White	1 if white; else 0
Black	1 if black; else 0
Other	1 if race other than black or white; else 0
Education	
Less than high school	1 if less than high school; else 0
High school	1 if high school; else 0
Some college	1 if some college; else 0
College graduate	1 if college graduate; else 0
Income	Natural logarithm of 1 if income = 0; else natural logarithm of income
Net worth	$\ln(\text{net worth} + 1 + a)$ where $a = \min(\text{net worth}) $
Employment status	1 if considers self fully retired; else 0
Homeownership and mortgage	
Homeowner (no mortgage)	1 if homeowner without mortgage; else 0
Homeowner (mortgage)	1 if homeowner with mortgage; else 0

Non-homeowner	1 if non-homeowner; else 0
Non-mortgage debt	1 if non-mortgage debt; else 0
Retirement plan status	1 if retirement plan owner; else 0
Non-retirement plan investments	1 if non-retirement plan investments; else 0
Current financial strain	5-point Likert-type scale with higher scores indicating higher perceived inability to pay bills
Emergency fund	1 if computed emergency fund ratio is ≥ 3 months; else 0
Health insurance coverage	1 if has government or private health insurance coverage; else 0

Analysis

An ordinal logistic regression model will be utilized due to the five ordered categories of the dependent variable. The model will be constructed in a manner to estimate the probability that an individual reported a higher level of financial satisfaction. The full model will include socio-demographic characteristics, financial characteristics, financial behavior, Big Five personality traits, and positive and negative affect. In addition to analyzing the full sample, a series of ordinal logistic regressions will be conducted on various financially strained subsamples to examine whether relationships between financial satisfaction and personality traits are consistent across various types of financial strain. The Taylor series method (Wolter, 1985) will be utilized in order to address the HRS' weighting and complex sampling design.

Results

Descriptive Statistics

Full sample. Both weighted and non-weighted descriptive statistics are provided for the full sample and various financially strained subsamples in Table 4.6 and Table 4.7. The full sample consisted of 3,984 observations. Overall, the mean weighted financial satisfaction score was 3.29 on a five-point scale. From a demographic perspective, the majority of the sample was single (52%), female (53%), white (87%), age 50 to 69 (65%), and had a high school degree or less education (61%). Additionally, a majority did not consider themselves retired (54%), were homeowners (79%), did not have non-mortgage debt (63%), did have retirement plan investments (55%), did not have non-retirement plan investments (74%), did not have an emergency fund (65%), and had health insurance (82%). Average current financial strain was rated as 2.04 on a five-point Likert-type scale. On four-point scales, respondents reported a highest level of agreeableness (3.48), followed by conscientiousness (3.27), extraversion (3.14), openness to experience (2.96), and neuroticism (2.00). On five-point scales, respondents reported higher levels of positive affect (3.55) than negative affect (1.78). All scale measures exhibited reasonable levels of internal reliability (see Table 4.7), with Cronbach's alpha scores of 0.70 or higher found for all of the psychometric variables utilized within this analysis (Field & Miles, 2012).

Financially strained subsamples. Consistent patterns were seen across all of the financially strained subsamples. Specifically, relative to the full sample, respondents in the financially strained samples were more likely to be single, female, younger, non-white, lower education, non-retired, homeowners with a mortgage or non-homeowners, non-mortgage debt holders, to not have a retirement account, to not have non-retirement plan investments, to not

have an emergency fund, and to not have health insurance. Additionally, neuroticism was the only Big Five trait to be substantially lower while positive affect was generally lower and negative affect was generally higher among financially strained subsamples.

Current financial strain. The subsample currently experiencing financial strain (operationalized through difficulty paying bills) consisted of 1,819 unweighted respondents. Relative to the full sample, this sample contained a higher proportion of respondents who were single (62% vs. 52%), female (58% vs. 53%), age 50 to 69 (77% vs 65%), black or other race (18% vs. 13%), had a high school degree or less education (70% vs. 61%), did not consider themselves retired (63% vs. 54%), were homeowners with a mortgage (41% vs. 35%) or non-homeowners (33% vs. 21%), had non-mortgage debt (57% vs. 37%), did not have a retirement plan (62% vs. 45%), did not have non-retirement plan investments (89% vs. 74%), did not have an emergency fund (88% vs. 65%), and did not have health insurance (25% vs. 18%). Average current financial satisfaction was lower than the full sample (2.53 vs. 3.29 on a five-point scale) and current financial stress was higher (2.79 vs. 2.04 on a five-point scale). On four-point scales and relative to the full sample, respondents within the subsample currently experiencing financial strain exhibited lower levels of openness (2.94 vs. 2.96), conscientiousness (3.23 vs. 3.27), and extraversion (3.11 vs. 3.14), and higher levels of agreeableness (3.52 vs. 3.48) and neuroticism (2.14 vs. 2.00). On five-point scales and relative to the full sample, respondents within the currently financially strained subsample exhibited lower levels of positive affect (3.38 vs. 3.55) and higher levels of negative affect (1.98 vs. 1.78).

Ongoing financial strain. The subsample currently experiencing ongoing financial strain of twelve months or longer consisted of 1,343 unweighted respondents. Relative to the full sample, this sample contained a higher proportion of respondents who were single (57% vs.

52%), female (56% vs. 53%), age 50 to 69 (75% vs. 65%), black or other race (16% vs. 13%), had a high school degree or less education (66% vs. 61%), did not consider themselves retired (64% vs. 54%), were homeowners with a mortgage (42% vs. 35%) or non-homeowners (28% vs. 21%), had non-mortgage debt (54% vs. 37%), did not have a retirement plan (54% vs. 45%), did not have non-retirement plan investments (85% vs. 75%), did not have an emergency fund (81% vs. 65%), and did not have health insurance (24% vs. 18%). Average current financial satisfaction was lower than the full sample (2.31 vs. 3.29 on a five-point scale) and current financial strain was higher (2.79 vs. 2.04 on a five-point scale). On four-point scales and relative to the full sample, respondents within the subsample experiencing ongoing financial strain exhibited lower levels of openness (2.92 vs. 2.96), conscientiousness (3.20 vs. 3.27), and extraversion (3.09 vs. 3.14), and higher levels of agreeableness (3.49 vs. 3.48) and neuroticism (2.21 vs. 2.00). On five-point scales and relative to the full sample, respondents within the subsample experiencing ongoing financial strain exhibited lower levels of positive affect (3.24 vs. 3.55) and higher levels of negative affect (2.08 vs. 1.78).

Solvency ratio. The subsample exhibiting solvency ratios less than one consisted of 329 unweighted respondents. Relative to the full sample, this sample contained a higher proportion of respondents who were single (69% vs. 52%), female (60% vs. 53%), age 50 to 69 (86% vs. 65%), black or other race (26% vs. 13%), had a high school degree or less education (73% vs. 61%), did not consider themselves retired (67% vs. 54%), were homeowners with a mortgage (38% vs. 35%) or non-homeowners (58% vs. 21%), had non-mortgage debt (90% vs. 37%), did not have a retirement plan (74% vs. 45%), did not have non-retirement plan investments (98% vs. 74%), did not have an emergency fund (97% vs. 65%), and did not have health insurance (28% vs. 18%). Average current financial satisfaction was lower than the full sample (2.27 vs.

3.29 on a five-point scale) and current financial strain was higher (3.07 vs. 2.04 on a five-point scale). On four-point scales and relative to the full sample, respondents within the subsample with solvency ratios less than one exhibited lower levels of conscientiousness (3.17 vs. 3.27) and extraversion (3.13 vs. 3.14), as well as higher levels of openness (2.97 vs. 2.96), agreeableness (3.56 vs. 3.48) and neuroticism (2.18 vs. 2.00). On five-point scales and relative to the full sample, respondents within the subsample with solvency ratios less than one exhibited lower levels of positive affect (3.35 vs. 3.55) and higher levels of negative affect (2.10 vs. 1.78).

Liquidity ratio. The subsample exhibiting liquidity ratios less than three months of income consisted of 2,629 unweighted respondents. Relative to the full sample, this sample contained a higher proportion of respondents who were single (52.0% vs. 51.5%), female (54% vs. 53%), age 50 to 69 (72% vs. 65%), black or other race (17% vs 13%), had a high school degree or less education (66% vs. 61%), did not consider themselves retired (61% vs. 54%), were homeowners with a mortgage (41% vs. 35%) or non-homeowners (25% vs. 21%), had non-mortgage debt (47% vs. 37%), did not have a retirement plan (52% vs. 45%), did not have non-retirement plan investments (83% vs. 74%), did not have an emergency fund (100% vs. 65%), and did not have health insurance (21% vs. 18%). Average current financial satisfaction was lower than the full sample (3.02 vs. 3.29 on a five-point scale) and current financial strain was higher (2.31 vs. 2.04 on a five-point scale). On four-point scales and relative to the full sample, respondents within the subsample with liquidity ratios less than three months of income exhibited lower levels of conscientiousness (3.24 vs. 3.27), equal levels of openness (2.96 vs. 2.96), and higher levels of extraversion (3.09 vs. 3.14), agreeableness (3.49 vs. 3.48) and neuroticism (2.03 vs. 2.00). On five-point scales and relative to the full sample, respondents

within the subsample with liquidity ratios less than three months of income exhibited lower levels of positive affect (3.51 vs. 3.55) and higher levels of negative affect (1.84 vs. 1.78).

Investment assets ratio. The subsample exhibiting investment asset ratios less than 0.25 consisted of 1,170 unweighted respondents. Relative to the full sample, this sample contained a higher proportion of respondents who were single (58% vs. 52%), female (58% vs. 53%), age 50 to 69 (66% vs. 65%), black or other race (20% vs. 13%), had a high school degree or less education (71% vs. 61%), did not consider themselves retired (55% vs. 54%), were homeowners with a mortgage (42% vs. 37%) or homeowners (47% vs. 44%), had non-mortgage debt (45% vs. 37%), did not have a retirement plan (67% vs. 45%), did not have non-retirement plan investments (93% vs. 74%), did not have an emergency fund (86% vs. 65%), and did not have health insurance (19% vs. 18%). Average current financial satisfaction was lower than the full sample (3.00 vs 3.29 on a five-point scale) and current financial strain was higher (2.36 vs. 2.04 on a five-point scale). On four-point scales and relative to the full sample, respondents within the subsample with investment asset ratios less than 0.25 exhibited lower levels of openness (2.91 vs. 2.96), conscientiousness (3.23 vs. 3.27) and extraversion (3.13 vs. 3.14), equal levels of agreeableness (3.49 vs. 3.48), and higher levels of neuroticism (2.03 vs. 2.00). On five-point scales and relative to the full sample, respondents within the subsample with investment asset ratios less than 0.25 exhibited lower levels of positive affect (3.44 vs. 3.55) and higher levels of negative affect (1.84 vs. 1.78).

Table 4.6 Sample Characteristics of Categorical Variables

Variable	Full sample		Current financial strain	Ongoing financial strain	Solvency ratio < 1	Liquidity ratio < 3	Investment assets ratio < 0.25
	n (unweighted)	% (weighted)	% (weighted)	% (weighted)	% (weighted)	% (weighted)	% (weighted)
Gender and marital status							
Single male	602	16.85%	19.62%	18.27%	25.09%	16.27%	17.00%
Single female	1557	34.72%	42.78%	38.41%	44.29%	35.90%	41.16%

Married male	1115	30.47%	21.98%	25.71%	15.07%	30.04%	25.11%
Married female	710	17.96%	15.62%	17.61%	15.56%	17.80%	16.74%
Age							
50 to 59	1027	31.71%	44.62%	43.04%	51.97%	37.64%	32.57%
60 to 69	1032	33.58%	32.06%	32.22%	34.44%	34.48%	33.68%
70 to 79	1267	22.13%	17.26%	17.47%	10.62%	19.31%	21.70%
80 or higher	658	12.59%	6.06%	7.27%	2.98%	8.57%	12.06%
Race							
White	3087	86.75%	81.72%	83.63%	74.41%	82.55%	80.45%
Black	672	8.47%	12.57%	11.03%	15.92%	11.56%	13.21%
Other	225	4.78%	5.71%	5.33%	9.67%	5.89%	6.34%
Education							
Less than high school graduate	552	9.96%	14.24%	10.49%	13.11%	12.06%	18.02%
High school graduate	2145	51.52%	55.27%	55.58%	59.50%	53.44%	53.19%
Some college	280	7.04%	8.89%	8.76%	6.14%	7.42%	7.69%
College graduate	1007	31.49%	21.59%	25.17%	21.25%	27.09%	21.10%
Considers self retired							
Yes	2105	45.97%	36.61%	36.04%	33.12%	38.86%	44.66%
No	1879	54.03%	63.39%	63.96%	66.88%	61.14%	55.35%
Homeownership and mortgage status							
Homeowner (no mortgage)	1826	44.16%	26.62%	30.33%	3.44%	33.95%	47.44%
Homeowner (mortgage)	1161	35.16%	40.75%	42.02%	38.46%	40.85%	42.40%
Non-homeowner	997	20.68%	32.63%	27.64%	58.10%	25.20%	10.16%
Has non-mortgage debt							
Yes	1419	37.01%	57.07%	53.59%	90.02%	46.68%	45.22%
No	2565	62.99%	42.93%	46.41%	9.98%	53.32%	54.78%
Has retirement plan							
Yes	1856	54.66%	38.37%	46.45%	26.04%	48.45%	33.12%
No	2128	45.34%	61.63%	53.55%	73.96%	51.55%	66.88%
Has non-retirement plan investments							
Yes	898	26.39%	11.41%	15.08%	1.92%	17.47%	6.67%
No	3086	73.61%	88.59%	84.92%	98.08%	82.53%	93.34%
Has emergency fund							
Yes	1355	35.15%	12.37%	18.71%	3.46%	0.00%	14.24%
No	2629	64.85%	87.63%	81.29%	96.54%	100.00%	85.76%
Has health insurance							
Yes	3408	82.47%	75.40%	76.35%	72.16%	79.38%	81.05%
No	576	17.53%	24.60%	23.65%	27.84%	20.62%	18.95%
<hr/>							
Number of observations (unweighted)	3984		1343	1819	329	2629	1170

Note: Sample characteristic presented unweighted and with normalized population weights applied.

Table 4.7 Sample Characteristics of Scales and Continuous Variables

Variable	Full sample						Current financial strain	Ongoing financial strain	Solvency ratio < 1	Liquidity ratio < 3	Inv. assets ratio < 0.25
	Mean (unweighted)	SD	Min	Max	Mean (weighted)	Cronbach's Alpha	Mean (weighted)	Mean (weighted)	Mean (weighted)	Mean (weighted)	Mean (weighted)
Financial satisfaction	3.30	1.16	1.00	5.00	3.29	--	2.53	2.31	2.27	3.02	3.00
Income	10.42	1.49	0.00	15.11	10.62	--	10.39	10.11	9.98	10.57	10.15
Net worth	14.41	0.35	0.00	16.51	14.44	--	14.34	14.30	14.17	14.37	14.32
Current financial strain	2.06	1.07	1.00	5.00	2.04	--	2.79	3.36	3.07	2.31	2.36
Big Five											
Openness to experience	2.92	0.57	1.00	4.00	2.96	0.80	2.94	2.92	2.97	2.96	2.91
Conscientiousness	3.27	0.41	1.60	4.00	3.27	0.74	3.23	3.20	3.17	3.24	3.23
Extroversion	3.15	0.57	1.00	4.00	3.14	0.78	3.11	3.09	3.13	3.15	3.13
Agreeableness	3.50	0.50	1.00	4.00	3.48	0.81	3.52	3.49	3.56	3.49	3.48
Neuroticism	1.99	0.62	1.00	4.00	2.00	0.72	2.14	2.21	2.18	2.03	2.03
Affect											
Positive affect	3.55	0.82	1.00	5.00	3.55	0.93	3.38	3.24	3.35	3.51	3.44
Negative affect	1.77	0.66	1.00	5.00	1.78	0.91	1.98	2.08	2.10	1.84	1.84
Number of observations (unweighted)					3984		1819	1343	329	2629	1170

Note: Sample characteristic presented unweighted and with normalized population weights applied. The Taylor series method (Wolter, 1985) was utilized to account for the HRS's complex sample design.

Overlap between subsamples. There was considerable overlap between respondents included in various subsamples. Specifically, 45 unweighted respondents (1% of the full sample) were included in all five subsamples, 628 unweighted respondents (16% of the full sample) were included in four or more subsamples, and 1,364 unweighted respondents (34% of the full sample) were included in three or more subsamples. Percentage overlap between any two subsamples is summarized in Table 4.8

Table 4.8 Respondent Overlap Between Subsamples

Measure	Unweighted percentage in subsample				
	1	2	3	4	5
1. Current financial strain (n = 1819)	--	64%	13%	65%	30%
2. Ongoing financial strain (n = 1343)	87%	--	18%	88%	41%
3. Solvency ratio < 1 (n = 329)	74%	83%	--	23%	96%
4. Liquidity ratio < 3 (n = 2629)	45%	57%	3%	--	38%
5. Investment assets ratio < 0.25 (n = 1170)	47%	57%	27%	85%	--

Note: 45 respondents (1% of full sample) were in all five subsamples. 628 respondents (16% of full sample) were in four or more subsamples. 1364 respondents (34% of full sample) were in three or more subsamples.

Ordinal Logistic Regression Results

Results of the ordinal logistic regression analyses can be found in Table 4.9. Overall, results suggest that relationships between personality characteristics and financial satisfaction are consistent across various financially strained subsamples. Specifically, financial satisfaction is generally negatively associated with agreeableness, positively associated with positive affect, and negatively associated with negative affect.

Table 4.9 Results of Ordinal Logistic Regression Predicting Financial Satisfaction Levels

Variable	Full sample			Current financial strain		Ongoing financial strain		Solvency ratio < 1		Liquidity ratio < 3		Investment assets ratio < 0.25	
	<i>b</i>	<i>SE b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>	<i>b</i>	<i>OR</i>
Intercept 5	-11.566**	4.194	--	-16.032	--	-15.973**	--	-9.816***	--	-17.030**	--	-22.435*	--
Intercept 4	-9.568*	4.187	--	-14.647	--	-13.790*	--	-8.210***	--	-15.032**	--	-20.821	--
Intercept 3	-6.850	4.189	--	-11.869	--	-10.903*	--	-4.651*	--	-12.340**	--	-18.028	--
Intercept 2	-4.849	4.211	--	-9.768	--	-8.903	--	-2.541	--	-10.281*	--	-16.143	--
Gender and marital status													
Single male	--	--	--	--	--	--	--	--	--	--	--	--	--
Single female	-0.148	0.129	0.863	-0.310	0.734	-0.165	0.848	0.103	1.109	-0.160	0.852	-0.194	0.823
Married male	0.093	0.118	1.097	0.090	1.094	0.143	1.153	1.299**	3.665	0.095	1.100	0.010	1.010
Married female	0.251	0.159	1.285	0.188	1.207	0.152	1.164	1.038*	2.824	0.174	1.190	0.102	1.107
Race													
White	--	--	--	--	--	--	--	--	--	--	--	--	--
Black	-0.228	0.134	0.796	0.244	1.276	-0.126	0.882	-0.195	0.823	-0.194	0.823	-0.130	0.878
Other	0.285	0.213	1.330	0.240	1.272	0.284	1.329	0.628	1.874	0.230	1.259	0.182	1.200
Age													
Age 50 to 59 years old	--	--	--	--	--	--	--	--	--	--	--	--	--
Age 60 to 69 years old	0.091	0.109	1.095	0.110	1.116	0.056	1.057	0.146	1.157	0.143	1.154	0.037	1.038
Age 70 to 79 years old	0.326**	0.119	1.385	0.380	1.462	0.272	1.313	0.594	1.812	0.280*	1.324	0.265	1.303
Age 80 and higher	0.799***	0.144	2.222	0.988***	2.686	0.831**	2.297	0.921	2.512	0.941***	2.563	0.791**	2.205
Education													
Less than high school	--	--	--	--	--	--	--	--	--	--	--	--	--
High school graduate	-0.707***	0.100	2.027	-0.969***	0.380	-0.771***	0.462	-0.799*	0.450	-0.817***	0.442	-0.687**	0.503
Some college	-0.665***	0.133	1.945	-1.018**	0.361	-0.588**	0.555	-0.829	0.436	-0.777***	0.460	-0.488	0.614
College degree	-0.771***	0.151	2.161	-0.970**	0.379	-1.015***	0.363	-1.294*	0.274	-0.984***	0.374	-0.620*	0.538
Annual income													
Natural log annual income	0.035	0.037	1.036	0.024	1.024	0.090*	1.094	0.058	1.059	0.001	1.001	-0.009	0.991
Net worth													
Natural log net worth	0.706**	0.287	2.026	1.183	3.264	0.864*	2.373	0.590***	1.803	1.116**	3.054	1.537*	4.649
Employment status													
Retired	0.188	0.116	1.207	-0.015	0.985	0.053	1.054	0.037	1.037	0.239	1.270	0.234	1.264
Homeownership and mortgage status													
Homeowner (no mortgage)	--	--	--	--	--	--	--	--	--	--	--	--	--
Homeowner (mortgage)	0.040	0.095	1.041	0.026	1.026	-0.011	0.989	-0.062	0.939	0.037	1.037	-0.090	0.914
Non-homeowner	-0.104	0.108	0.901	-0.151	0.860	-0.054	0.947	0.086	1.089	-0.043	0.958	-0.042	0.959
Non-mortgage debt													
Non-mortgage debt	-0.355**	0.098	0.701	-0.468**	0.626	-0.277	0.758	0.056	1.058	-0.314*	0.730	-0.420**	0.657
Retirement plan status													
Retirement plan	0.216**	0.077	1.241	0.334*	1.396	0.284**	1.328	-0.023	0.977	0.305**	1.357	0.097	1.101
Non-retirement plan investments													
Non-retirement plan investments	0.267*	0.119	1.306	0.319	1.376	0.210	1.233	0.126	1.135	0.068	1.071	0.120	1.128
Financial stress													
Current financial strain	-1.322***	0.063	0.267	-1.414***	0.243	-0.983***	0.374	-1.524***	0.218	-1.323***	0.266	-1.322***	0.267
Emergency fund													
Emergency fund	0.241*	0.096	1.272	0.185	1.203	-0.039	0.962	1.168	3.214	--	--	0.078	1.082
Health insurance coverage													
Health insurance coverage	0.373**	0.112	1.452	0.262	1.300	0.353*	1.423	0.876	2.402	0.381**	1.464	0.191	1.211
Big Five personality traits													
Openness to experience	-0.013	0.100	0.987	-0.131	0.877	-0.127	0.881	-0.248	0.780	-0.124	0.883	-0.096	0.908
Conscientiousness	0.045	0.107	1.046	-0.053	0.949	0.168	1.183	0.361	1.435	0.056	1.058	0.163	1.177
Extroversion	0.166	0.104	1.181	0.142	1.152	-0.086	0.917	0.475	1.608	0.181	1.199	0.182	1.199
Agreeableness	-0.297*	0.118	0.743	-0.524*	0.592	-0.342	0.711	-0.716*	0.489	-0.303*	0.739	-0.311	0.733
Neuroticism	0.026	0.091	1.026	0.277	1.320	0.205	1.228	-0.135	0.874	0.141	1.151	0.218	1.243
Affect													
Positive affect	0.567***	0.076	1.763	0.576***	1.778	0.731***	2.076	0.379	1.461	0.582***	1.790	0.462**	1.587
Negative affect	-0.404**	0.103	0.667	-0.418**	0.658	-0.365**	0.694	-0.426	0.653	-0.423**	0.655	-0.449**	0.638
Pseudo R ²													
	0.578			0.384		0.412		0.591		0.569		0.523	
Concordance ratio													
	83.3			74.0		76.5		80.0		82.5		80.6	
Number of respondents													
	3984			1819		1343		329		2629		1170	

Note: Analyses conducted using normalized population weights.
p* < .05. *p* < .01. ****p* < .0001.

Big Five personality traits. Results of the ordinal logistic regression on the full sample indicated that agreeableness was the only Big Five personality trait found to be significantly associated with financial satisfaction. Specifically, agreeableness was found to be negatively associated with financial satisfaction, and a one-unit increase in agreeableness was associated with a 26% reduction in the odds of reporting higher levels of financial satisfaction. This finding was consistent across financially strained subsamples. Three out of five financially strained subsamples (current financial strain, solvency ratio, and liquidity ratio) exhibited statistically significant negative associations between agreeableness and financial satisfaction, with the remaining two (ongoing financial strain and investment assets ratio) exhibiting negative though not statistically significant associations. Within the subsample of individuals currently experiencing financial strain, a one-unit increase in agreeableness was associated with a 41% reduction in the odds of reporting higher levels of financial satisfaction; within the subsample of individuals exhibiting solvency ratios of less than one, a one-unit increase in agreeableness was associated with a 51% reduction in the odds of reporting higher levels of financial satisfaction; and within the subsample of individuals exhibiting liquidity ratios of less than three, a one-unit increase in agreeableness was associated with a 26% reduction in the odds of reporting higher levels of financial satisfaction.

Positive and negative affect. Results of the ordinal logistic regression on the full sample indicated that positive affect was positively associated with financial satisfaction while negative affect was negatively associated with financial satisfaction. Specifically, all else equal, a one-unit increase in positive affect was associated with a 76% increase in the odds of reporting higher levels of financial satisfaction, while a one-unit increase in negative affect was associated with a

33% reduction in the odds of reporting higher levels of financial satisfaction. These findings were consistent across financially strained subsamples. Four out of five financially strained subsamples (current financial strain, ongoing financial strain, liquidity ratio, and investment assets ratio) exhibited statistically significant associations between affect and financial satisfaction consistent with the full model, with the remaining subsample (solvency ratio) exhibiting directionally consistent though not statistically significant associations. Within the subsample of individuals currently experiencing financial strain, a one-unit increase in positive affect was associated with a 78% increase in the odds of reporting higher levels of financial satisfaction, while a one-unit increase in negative affect was associated with a 34% reduction in the odds of reporting higher levels of financial satisfaction; within the subsample of individuals experiencing ongoing financial strain, a one-unit increase in positive affect was associated with a 108% increase in the odds of reporting higher levels of financial satisfaction, while a one-unit increase in negative affect was associated with a 31% reduction in the odds of reporting higher levels of financial satisfaction; within the subsample of respondents exhibiting liquidity ratios of less than three, a one-unit increase in positive affect was associated with a 79% increase in the odds of reporting higher levels of financial satisfaction, while a one-unit increase in negative affect was associated with a 34% reduction in the odds of reporting higher levels of financial satisfaction; and within the subsample of respondents exhibiting investment asset ratios less than 0.25, a one-unit increase in positive affect was associated with a 59% increase in the odds of reporting higher levels of financial satisfaction, while a one-unit increase in negative affect was associated with a 36% reduction in the odds of reporting higher levels of financial satisfaction.

Socio-demographic, financial, and other characteristics. Results of the ordinal logistic regression regarding socio-demographic, financial, and other respondent characteristics were

largely consistent with the full model. Within the full model, age, net worth, having a retirement plan, having investments outside of a retirement plan, having an emergency fund, and having health insurance coverage were all positively associated with financial satisfaction, while education, having non-mortgage debt, and experiencing current financial strain were negatively associated with financial satisfaction. Currently experiencing financial strain had a particularly strong negative association with financial satisfaction, as a one-unit increase in current financial strain was associated with a 73% reduction in the odds of reporting higher levels of financial satisfaction. Results were largely consistent across the financially strained subsamples, though some notable differences include marriage being positively associated with financial satisfaction among both males ($OR=3.67$, relative to single males) and females ($OR=2.82$, relative to single males) with solvency ratios of less than one, income being positively associated with financial satisfaction among those experiencing ongoing financial strain, and the presence of an emergency fund not being significantly associated with financial satisfaction among any of the financially strained subsamples.

Model fit. Overall, the model fit was relatively consistent between the full sample and various subsamples of financially strained respondents. The full sample exhibited a concordance ratio of 83 and pseudo R^2 of 0.58. Concordance ratios among the financially strained subsamples ranged from 74 to 83, while pseudo R^2 statistics ranged from 0.38 to 0.59. The only two subsamples with pseudo R^2 values below 0.50 were current financial strain (0.38) and ongoing financial strain (0.41).

Discussion

This study investigated associations between personality characteristics and financial satisfaction among the financially strained. This study finds that personality characteristics are

important predictors of financial satisfaction that have previously not been accounted for in most analyses of financial satisfaction. Specifically, this study finds that agreeableness and negative affect are negatively associated with financial satisfaction, while positive affect is positively associated with financial satisfaction, even after controlling for a large number of other important socio-demographic and financial characteristics which have been found to be associated with financial satisfaction. The findings of this study support Hypothesis 1 and Hypothesis 2, as positive affect was found to be positively associated with financial satisfaction while negative affect was found to be negatively associated with financial satisfaction. Hypotheses 3 through 7 were not supported by the findings of this study. However, agreeableness (H6) was found to be significantly associated with financial satisfaction, though not positively associated as hypothesized.

Though the findings consistent with Hypotheses 1 and 2 are not particularly surprising, they do make significant contributions to the literature, as these relationships had not been examined among financially strained respondents prior to this study. Additionally, the existing literature on the malleability of positive affect through therapeutic interventions provides a potential means by which financial planners, counselors, and therapists can aim to enhance the subjective financial well-being of financially strained clients. The strength of the relationship between affect and financial satisfaction is particularly noteworthy, as a one-unit increase in positive affect was found to result in somewhere between a 59% and 108% increase in the odds of reporting higher levels of financial satisfaction, among the financially strained subsamples in which statistically significant relationships were found. Similarly, a one-unit increase in negative affect was found to result in somewhere between a 31% and 36% reduction in the odds of

reporting higher levels of financial satisfaction, among the financially strained subsamples in which statistically significant relationships were found.

The negative relationship between agreeableness and financial satisfaction also warrants further investigation. Literature from other subjective well-being domains largely suggested that a positive association should be expected. For instance, utilizing a nationally representative sample of Australians ($N = 16,367$), Soto (2015) found that both concurrent and change correlations in subjective well-being were positively associated with agreeableness. In a study of high school students ($N = 624$) Suldo, Minch, and Hearon (2015) found that agreeableness was associated with higher levels of life satisfaction among girls, although no association was found among boys. It was also interesting that agreeableness was the only statistically significant Big Five trait when the model also included positive and negative affect. This could be an indication that agreeableness plays a unique role within the assessment of financial well-being.

Alternatively, given the depth of financial variables available within the HRS relative to the limited domain-specific variables often available in other analyses of personality traits and subjective well-being, these findings could suggest that relationships with agreeableness vary as more controls can be added to a model. Yet, in any case, these findings do suggest that personality characteristics are important predictors of financial satisfaction that have been largely neglected.

Limitations

This study does have several limitations. First, the population targeted in the HRS is only Americans age 50 and above. While the HRS is nationally representative of Americans over the age of 50, the findings in this study may not apply to other populations at different stages in the lifecycle. Additionally, this study is merely correlational and cannot address causal relationships.

As is always the case when working with cross-sectional data, the findings of this study may be different on a longitudinal basis. Further, the important roles that various personality characteristics play in one's financial situation may be most important on a longitudinal basis. Additionally, this study does rely on imputations found within the RAND HRS dataset. While there are both advantages and disadvantages associated with utilizing imputed data, under ideal circumstances, data would not be needed and imputation would be unnecessary. Lastly, while this study does use imputed data for the RAND HRS variables, because this study also utilizes data from the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire and other measures which are not imputed, missing data that are eliminated through the use of listwise deletion could bias the sample. If data are not missing completely at random (MCAR), as is likely the case with survey data, it is likely that a sample is influenced by some forms of bias.

Implications and Conclusion

Financial satisfaction is an important aspect of general well-being. Those who cannot find satisfaction in the financial circumstances of their life are likely to experience dissatisfaction with life more generally. Given the beneficial role that positive emotion is believed to play in the acquisition of resources which promote resilience and higher levels subjective well-being (Fredrickson, 1998; 2004), therapeutic interventions aimed at enhancing positive affect can be an important tool for financial planners, counselors, and therapists in promoting the well-being of their clients.

This study provides the first examination of the relationships between personality characteristics—including affective disposition—and financial satisfaction among financially strained populations. Consistent with prior subjective well-being literature, this study finds that important relationships do exist between personality characteristics and financial satisfaction

among financially strained populations. Specifically, this study finds that agreeableness and negative affect are negatively associated with financial satisfaction, while positive affect is positively associated with financial satisfaction. These findings suggest that financial planners, counselors, and therapists may be able to assist financially strained individuals by helping them develop and maintain more positive affective dispositions.

Interventions such as meditation (Fredrickson et al., 2008), positive reappraisal (Garland et al., 2015), and infusing ordinary events with positive meaning (Folkman & Moskowitz, 2000) have all been shown to be successful in increasing positive affect. The malleability of affective disposition—in contrast to stability of other personality characteristics, such as the Big Five personality traits—suggests that a more thorough understanding of the relationships between affective disposition and financial satisfaction provide significant opportunities to enhance consumer welfare. Additionally, the strong reliability of personality characteristic assessments, such as the NEO-PI-R and the PANAS-X, provide a means for financial and mental health professionals to reliably assess a client’s personality type

However, understanding the relationships between personality characteristics and financial satisfaction carries further implications beyond just helping consumers enhance their subjective well-being. First, to the extent that at least some elements of personality are genetically influenced, it is important to recognize that at least some elements of subjective financial well-being assessment may be innate and not influenced by objective financial circumstances. Individuals with certain personality types may simply be predisposed to more positive or negative assessments of their own financial situation. This carries many implications. For instance, this may influence helping clients set and monitor progress toward their financial goals. While financial planners have long acknowledged that different risk preferences warrant

different investment recommendations, it may too be the case that different types of goals are more suitable for different types of personality profiles. For instance, an individual who exhibits high positive affect and low negative affect may have more capacity to tolerate higher failure rates which may inherently come with more aspirational goals, whereas someone who is high on negative affect and low on positive affect may have less emotional capacity to fall short of their goals. As a result, this could influence the types of goals that are best for different types of clients to set. Additionally, the potentially innate nature of some dispositions in the assessment of subjective well-being could influence how financial planners, counselors, and therapists interpret and understand dissatisfaction expressed by clients. While it is important to understand how behavioral tendencies would interact with subjective well-being assessments and there is still much on these subjects we do not know, understanding a client's personality type may influence how a practitioner decides to best respond to dissatisfaction expressed by a client.

From a public policy perspective, there are a few important implications for understanding the role that personality characteristics play in assessing financial satisfaction. First, a topic of increasing attention in recent history has been financial advisor misconduct (Egan, Matvos, & Seru, 2016). An important metric in assessing financial advisor misconduct is consumer complaints. However, given that financial advisors often tend to serve some client populations with underlying similarities (i.e., a “niche”), understanding heterogeneity in the clientele of different financial advisors—including the ways in which personality may influence financial satisfaction and tendencies towards certain behaviors, such as filing complaints—is important for protecting consumers while also not unfairly punishing financial advisors who may simply work with a certain clientele that is more prone to dissatisfaction. Additionally, consumers who exhibit a predisposition towards financial satisfaction may also be more

vulnerable targets for those who wish to engage in predatory financial behavior. This latter concern may be heightened by the positive association that has consistently been found between a lack of financial knowledge and financial satisfaction.

In summary, personality characteristics are important predictors of financial satisfaction. This study finds that those relationships are largely consistent among financially strained populations. Specifically, agreeableness and negative affect are negatively associated with financial satisfaction among the financially strained, while positive affect is positively associated with financial satisfaction among the financially strained. These relationships are consistent across both objective and subjective forms of financial strain. While many personality characteristics are fairly stable, positive affect has been shown to be influenced by therapeutic interventions, and such interventions hold promising potential for financial planners, counselors, and therapists to enhance the well-being of financially strained consumers.

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Chapter 5 - Conclusion

The purpose of this study was to investigate the relationships between personality characteristics and financial satisfaction. Exploring these relationships is crucial to understanding both what financial satisfaction is, and how financial planners, counselors, and therapists can best enhance the subjective financial well-being of their clientele. Prior studies have identified strong relationships between personality and subjective well-being assessment at global level (i.e., life satisfaction) and within specific life domains. In contrast to bottom-up theories of subjective well-being assessment (i.e., the fulfillment of one's needs results in positive subjective well-being assessment), top-down theories of subjective well-being assessment (i.e., personality predisposes one to positive or negative subjective well-being assessments) have received greater empirical support (Diener, 1984; Lucas & Diener, 2010). Within the area of subjective financial well-being assessment, prior research has generally only examined models which are more consistent with bottom-up theories of subjective well-being assessment.

This study provides the first exploration of the relationships between personality characteristics and financial satisfaction utilizing nationally representative datasets at both the state and individual level. Specifically, this study examines three primary questions. First, what are the relationships between personality characteristics and financial satisfaction at the American state level? Second, what are the relationships between personality characteristics and financial satisfaction at the individual level? Third, what are the relationships between personality characteristics and financial satisfaction among financially strained households? To examine these questions, data from the National Financial Capability Study (NFCS), the Health and Retirement Study (HRS), and a nationally representative internet survey of personality traits are utilized. Personality is operationalized through the use of the five-factor model of personality

traits (i.e., the “Big Five” personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism) (McCrae & Costa, 1991; Costa & McCrae, 1992) as well as positive and negative affect (Watson, Clark, & Tellegen, 1988; Watson & Clark, 1999).

Essay One

Essay one provides the first evidence of relationships between Big Five personality traits and financial satisfaction at the American state level. This study utilized state level data merged from a nationally representative internet survey of Big Five personality traits and the 2009 National Financial Capability Study (NFCS). Results indicate that Big Five personality traits are important predictors of financial satisfaction at the American state level, even after controlling for income, race, and gender. Through the use of ordinary least squares regression, conscientiousness was found to be negatively associated with financial satisfaction and extraversion was found to be positively associated with financial satisfaction. These results were consistent with top-down theories of subjective well-being assessment, which suggest that personality influences subjective well-being assessment.

Essay Two

Essay two provides the first evidence of relationships between personality characteristics and financial satisfaction at the individual level utilizing nationally representative data. This study utilized data from the 2012 wave of the Health and Retirement Study as well as the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire. A three-block hierarchical ordinal logistic regression was utilized to examine the relationships between personality characteristics and financial satisfaction after controlling for other known determinants of financial satisfaction (Joo & Grable, 2004). Big Five personality traits of agreeableness and neuroticism were found to

be negatively associated with financial satisfaction, while extraversion was positively associated with financial satisfaction. However, once positive and negative affect were added in the third block of the model, only agreeableness remained negatively associated with financial satisfaction, while positive affect and negative affect were found to be positively and negatively associated with financial satisfaction, respectively. Results suggest that personality characteristics are important predictors of subjective financial well-being assessment at the individual level.

Essay Three

Essay three provides the first examination of personality characteristics and financial satisfaction among financially strained populations. This study utilized data from the 2012 wave of the Health and Retirement Study as well as the HRS Leave-Behind Psychosocial and Lifestyle Questionnaire. A series of ordinal logistic regressions was conducted on various objectively and subjectively financially strained subsamples to examine whether relationships between personality characteristics were consistent across various financially strained groups. Both objective and subjective criteria of financial strain were utilized to limit the subsamples, including self-reported difficulty paying bills, self-reported ongoing financial strain over the past twelve months, a solvency ratio of less than one, a liquidity ratio of less than three, and an investment assets ratio of less than .25. Consistent with the full sample, the Big Five personality trait of agreeableness was found to be negatively associated with financial satisfaction across most subsamples, while positive affect and negative affect were found to be positively and negatively associated with financial satisfaction, respectively. Results suggest that personality characteristics remain important predictors of subjective financial well-being assessment among the financially strained. Further, interventions aimed at increasing positive affectivity could be a

potential means to enhancing subjective financial well-being assessment among the financially strained.

Implications and Future Research

Results of these analyses provide important implications for researchers interested in subjective assessments of financial well-being, as well as financial planners, counselors, and therapists who may wish to enhance the well-being of their clientele. First, personality characteristics are important predictors of financial satisfaction which have largely been overlooked in prior literature. The findings of these analyses are consistent with top down theories of subjective well-being assessment, which indicate that personality is an important contributor to how one assesses subjective well-being. Notably, the findings of this study are not consistent with the only prior analysis which examined relationships between Big Five personality traits and financial satisfaction at the individual level. Davis and Runyan (2016) utilized the Meta-Theoretic Model of Motivation and Personality (3M Model) (Mowen, 2000) to examine relationships between personality and financial satisfaction. Davis and Runyan (2016) found that neuroticism had a direct positive association with financial satisfaction, whereas this present study found a negative association when only Big Five traits were examined. This discrepancy highlights the need for future studies to clarify the relationships between personality traits and financial satisfaction assessment. In any case, going forward, both researchers and practitioners should be mindful of the potential ways in which personality may influence financial satisfaction.

In particular, these findings may be important for researchers engaged in public policy analysis. Due to both the unique ways in which public policy changes can create natural experiments for examining relationships on a causal basis and the broad public interest in

improving societal well-being, indicators of subjective economic well-being—such as financial satisfaction, retirement satisfaction, employment satisfaction—will likely receive increased attention and analysis in the future. As researchers examine these important indicators of subjective economic well-being, it will be important to thoroughly understand the ways in which personality relates to subjective economic well-being assessments at both the individual and the aggregate level. For instance, essay one suggests that, all else equal, states exhibiting higher levels of conscientiousness are more likely to indicate lower levels of financial satisfaction. State level analyses examining the effects of a particular policy on financial satisfaction could reach spurious conclusions if differences in personality cannot be accounted for. Similarly, given the strong relationships between positive and negative affect and financial satisfaction assessment at the individual level, studies which try to evaluate the influence of public policy on financial satisfaction at the individual level may reach the wrong conclusions if personal differences in affective disposition cannot be accounted for.

From a clinical perspective, this study finds evidence that interventions aimed at increasing positive affectivity may be able to influence subjective economic well-being assessments among both objectively and subjectively strained consumers. This finding is consistent with the broaden-and-build theory of positive emotionality, which suggests that positive emotionality can encourage behavior that builds both personal and social resources which can promote well-being (Fredrickson 1998; 2004). In particular, the expansion of one's thought-action repertoire as the result of positive emotionality may be an important means through which both human and social capital can be developed which is associated with enhancements in both momentary assessments of financial satisfaction and objective characteristics which enhance economic opportunity in the long-run. For instance, increasing

one's positive emotionality may result in more instances of experiencing emotions which expand one's thought-action repertoire (e.g., joy), which may result in more prosocial behavior which further helps an individual build social bonds and skills such as teamwork in their employment environment. The development of such resources could then result in more opportunities for promotion, more fulfilling work responsibilities, higher income, and other factors generally associated with higher levels of financial satisfaction. Because prior studies have found that positive affect can be enhanced through therapeutic interventions such as meditation (Fredrickson et al., 2008), positive reappraisal (Garland et al., 2015), and infusing ordinary events with positive meaning (Folkman & Moskowitz, 2000), positive affectivity appears to be sufficiently responsive to therapeutic intervention to warrant further investigation as a means by which financial planners, counselors, and therapists can aim to enhance consumer well-being.

Another clinical implication is the potential need to reassess the longstanding assumption—extending back to at least Zimmerman (1995)—that maximizing financial satisfaction should be a key objective of family policy. First, this conceptualization of financial satisfaction as an outcome which can be achieved is closely aligned with early views of life satisfaction within psychological literature (Lucas & Diener, 2010). However, as subjective well-being has increasingly been thought of as a crucial aspect of an ongoing process rather than merely an outcome—a transition which has coincided with the relative success of top-down theories of subjective well-being assessment over bottom-up theories—the functional role of subjective well-being assessment has been better appreciated (Lucas & Diener, 2010). As Lucas and Diener (2010, p. 796) note, “Negative affect does not simply relay the news that something in one's life is not going well. Instead it provides the motivation and perhaps even the tools that allow for corrections.” Thus, the positive aspects of financial dissatisfaction should not be

overlooked. Further, given the ways in which individuals exhibiting different personality traits may experience financial satisfaction or dissatisfaction differently, financial planners, counselors, and therapists should be aware of the potential for interventions to have different effects on individuals with different personality characteristics.

Another important implication of the current study is the need to better understand the negative association between agreeableness and financial satisfaction. It may be the case that agreeableness is a liability in some economic behavior. Barry and Friedman (1998) found that agreeableness was a liability in distributive negotiations, increased susceptibility to anchoring, and had a negative effect on outcomes for individuals with low levels of aspiration. However, other studies have found a positive association between agreeableness and cooperation (Koole, Jager, van den Berg, VLeek, & Hofstee, 2001), which could also be seen as an asset in many forms of economic behavior. Given that prior studies had more commonly found a positive association between agreeableness and subjective well-being, this finding is intriguing. However, financial planners, counselors, and therapists should be cautious about utilizing this finding to reach clinical conclusions about the role that agreeableness may play in influencing financial satisfaction among clients. It is important to recognize that this is merely a correlational study and it should not be assumed that relationships which may exist on a cross-sectional basis would necessarily exist on a longitudinal basis. This would apply to findings regarding relationships between affective disposition and financial satisfaction as well. However, given prior findings regarding the bidirectional causality between positive emotion and subjective well-being (Lyubomirsky, King, & Diener, 2005), there is greater reason for financial planners, counselors, and therapists to be confident in the role that increased positive emotionality may play in enhancing subjective financial well-being on a longitudinal basis.

Lastly, combining this study's findings regarding the relationship between affective disposition and financial satisfaction with prior research on affective disposition and physiological responses (Fredrickson & Levenson, 1998) may provide an important link for justifying the investigation of relationships between affective disposition, physiological responses, and subjective economic well-being assessment. Regardless of intent, financial planners, counselors, or therapists may sometimes generate physiological stress responses. For instance, a financial counselor may present a client with objective financial information that was previously unknown to the client. Further, such information could educate the client about a negative aspect of their financial situation of which they were previously unaware. It is not unreasonable to anticipate that this could create a near simultaneous decline in financial satisfaction, a momentary decrease in affect, and elicit a physiological stress response. In this context, one can envision the importance of understanding the relationships and interactions between these responses. Further, given the evidence that positive emotions can undo the cardiovascular aftereffects of negative emotions (Fredrickson, Mancuso, Branigan, & Tugade, 2000) and can result in greater recovery with respect to both subjective well-being and objective health after encountering a stressful situation (Tugade & Fredrickson, 2004), the practical application for financial planners, counselors, and therapists is evident.

Conclusion

The study sought out to investigate the relationships between personality characteristics and financial satisfaction. At the state level, conscientiousness was found to be negatively associated with financial satisfaction and extraversion was found to be positively associated with financial satisfaction. At the individual level, extraversion was found to be positively associated with financial satisfaction while neuroticism and agreeableness were negatively associated with

financial satisfaction when Big Five personality traits were the only personality characteristics incorporated into the model. However, when positive affect and negative affect were added to the model, only agreeableness was negatively associated with financial satisfaction, while both positive and negative affect were positively and negatively associated with financial satisfaction, respectively. Lastly, among objectively and subjectively strained subsamples, individual level associations between personality characteristics and financial satisfaction remained largely the same, though evidence suggests that interventions aimed at influencing positive affect may be an effective means to enhancing well-being among financially strained populations. Overall, personality characteristics were found to be important predictors of financial satisfaction which have not been incorporated into prior models. A better understanding of the relationships between personality characteristics and financial satisfaction will be needed in order to determine how consumer well-being can best be promoted going forward.

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