

Three essays on entrepreneurship and personal finance

by

Derek Potter

B.A., Loyola University Maryland, 2005
M.B.A., Loyola University Maryland, 2009

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Personal Financial Planning
College of Health and Human Sciences

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2019

Abstract

Self-employment and the operation of private businesses form an important sector of the U.S. labor market, accounting for over 400,000 new organizations launched annually in recent years and nearly two-thirds of job creation according to the Small Business Administration. Yet, ownership of a business is fraught with financial risks, leading some economists to suggest that the average lifetime earnings of private business owners trail those of traditional employment. The three essays that follow explore (a) the motives that may drive people to pursue entrepreneurship despite the financial risk, (b) the asset allocation behavior of practicing entrepreneurs, and (c) the resulting satisfaction levels of those who transition into entrepreneurship.

The first essay examines a population of users in the pre-launch phase of business development. Past research has suggested that given the lower expected financial returns from entrepreneurship that motivations to launch a business might be driven by preferences for high degrees of autonomy, overly optimistic assessments of financial outcomes, or higher risk preferences. Measures of each of these phenomena are included in a cohesive model guided by the Theory of Planned Behavior along with other relevant variables. Logistic regression predicting intent to launch a business in the future reveals that more general attitudes towards entrepreneurship increase the likelihood of interest in business ownership, while financial motivations are tied to decreased likelihood.

The second essay examines the impact of business ownership during the operation of the business. Granted that business owners possess illiquid private organizations, Modern Portfolio Theory might predict that they reduce exposure to other risky asset classes (e.g., stocks). This essay examines stock ownership with consideration given to entrepreneurial status as well as the

level of risk exposure stemming from owning a business. Logistic regression using data from the 2016 Survey of Consumer Finances reveals that business owners are less likely to participate in the stock market. An Ordinary Least Squares regression modeling the ratio of equity to total financial assets, however, reveals no significant differences in levels of equity ownership among business owners and the traditionally employed. Collectively, these findings may indicate that entrepreneurs face initial barriers to stock market investment that later fade if participation in the equity market does begin.

Finally, the third essay utilizes longitudinal 2008-2014 Health and Retirement Study data to examine levels of job, financial, and life satisfaction. Variable selection is guided by the Job-Demand-Control model, and three random effects cumulative logits are produced. Findings suggest that transitions into entrepreneurship are associated with increased odds of job satisfaction but reduced odds of financial or life satisfaction.

Results from these three studies imply that individuals might pursue entrepreneurship for non-financial reasons. However, engaging in the launch of a business could affect financial decision making and asset allocation behavior, as well as subsequent levels of satisfaction with personal finances and life. Implications for organizations and professionals who support prospective entrepreneurs are discussed.

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Major Professor
Stuart Heckman, Ph.D.

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Acknowledgements

This dissertation and completion of the Kansas State University program would never have been possible without the support and encouragement from dedicated family. With my parents and my brother, Ryan, I was fortunate to be surrounded at a young age by smart people who valued education and the opportunities that it affords. To my wife, Briana, you served as the biggest source of inspiration to complete this degree. Not only did you encourage me when I felt overwhelmed, but you also provided me with a model of how to balance work and family life while you excelled in your own graduate program. You gracefully navigated academic presentations of your own in Columbia, MO, while also chauffeuring me to and from frozen yogurt stops on Broadway. You also brought a sense of humor to my dissertation process, pointing out that my study of “risky business” might be more appreciated by ‘80’s movie buffs than academics. My kids, Shane and Ivy, also kept me grounded and reminded me that often times bouncing on a trampoline is more important than developing the best statistical model. I thank my in-laws, Mike and Cathy, for providing much-needed support and assistance at home in Baltimore during my trips to Manhattan, KS. Finally, my dogs, Oscar and Violet, are worthy of honorary degrees for the amount of time they spent sitting in my lap during the writing process.

My professional support network begins with the mentorship that I received at Loyola University Maryland and the academic advising from Dr. Charlie LoPresto and Dr. Stephen Walters. This mentorship continued at Kansas State. Dr. Stuart Heckman, your role in my development cannot be overstated. You introduced me to the research process, taught me most of what I know about statistics, gave me the freedom to pursue projects that interested me, and did all of this while also serving as a gracious host during my trips to Manhattan. I hope to continue our collaboration for years to come. To my committee, I am indebted to you for your timely

input on my proposal and dissertation drafts. Dr. Sonya Lutter, Dr. Maurice MacDonald, Dr. James Bloodgood, and Dr. Kevin Sauer, thank you for your feedback that undoubtedly improved my dissertation. Finally, I thank my cohort, who became my surrogate family during all of the travel during the program. From Nashville to Albuquerque, or Brussels to Rotterdam, you helped provide a home away from home.

Chapter 1 - Introduction

Nearly one in seven U.S. working adults pursue a career in entrepreneurship and function as business owners. While this career path may aid the economy by potentially creating jobs and fostering innovation, it is also fraught with financial risk for the entrepreneur. Business founders encounter high rates of failure, costs associated with securing capital, inconsistent annual income, and a personal balance sheet that concentrates assets in an illiquid private business. Despite the risks, many new entrepreneurs are minted each year, leading some researchers to believe that these business founders must have motives that are not strictly financial. The three essays that follow examine (a) the motives behind intent for entrepreneurial pursuit, (b) the financial behavior and asset allocation behavior of acting entrepreneurs, and (c) the resulting overall satisfaction with life domains following transitions into entrepreneurship.

The first essay explores the motives that are predictive of intent to form a business. Isolated studies have determined that business founders may be influenced by a high preference for autonomy in work-related decision making, overly optimistic outlooks on prospects for business success, or low levels of risk aversion. While these disparate studies have contributed to the understanding of entrepreneurial motives, this study aims to consolidate the three plausible explanations for entrepreneurship into a cohesive model. Guided by the Theory of Planned Behavior, analysis is conducted on data from the Panel Study of Entrepreneurial Dynamics. Logistic regression is utilized in order to predict individuals' intent to form a business in the future. Findings suggest that favorable general attitudes towards business ownership greatly increase the likelihood of pursuing entrepreneurship and that those whose career motivations are predominantly financial are less likely to pursue the practice. Results are discussed in more detail in Chapter 2.

The second essay reviews the literature on the personal asset allocation behavior of practicing business owners. Given that entrepreneurs concentrate assets in illiquid businesses, it stands to reason that they may avoid investment in other risky asset classes like stocks. Several studies have shown that entrepreneurs may substitute away from stock investments, but those studies fail to account for varying degrees of risk among business ventures. This essay reviews Survey of Consumer Finances data through the lens of Modern Portfolio Theory, and it accounts for entrepreneurs' heterogeneous risk exposure by measuring the volume of personal assets tied to the business endeavors. Stock market participation and the ratio of stock holdings to total financial assets are modeled via multivariate analyses, the results of which will contribute to the literature by increasing the understanding of how entrepreneurs approach investing personal assets in other risky asset classes. Findings reveal that a multitude of factors influence stock market investment decisions, and private business owners are less likely to participate in the equity market. Among the subsample of participants who do decide to participate in the stock market, however, there are no significant differences in the levels of equity investments between business owners and those who do not operate businesses. The results seem to suggest that business owners face an initial barrier discouraging equity investment but behave similarly to those who do not own businesses if they do enter the stock market.

The third essay examines well-being variables and their relationships to transitions into or out of entrepreneurship. Using the job-demand-control model and longitudinal data from the Health and Retirement Study, three random effects regression models are produced. Job satisfaction, life satisfaction, and financial satisfaction serve as dependent variables, while the key independent variable of interest is self-employment status. The results of this study shed light on entrepreneurs' satisfaction with decisions to start businesses and indicate that

entrepreneurs demonstrate greater odds of job satisfaction. Those owning businesses, though, were less likely to be satisfied financially or satisfied with life, possibly indicating a tradeoff between job satisfaction and satisfaction with other life domains for entrepreneurs.

Collectively, these studies examine entrepreneurship before, during, and after the creation of businesses. An increased understanding of the motives to start a business, the financial behavior while operating a business, and the resulting changes in well-being following business formation will aid entrepreneurs themselves as well as the advisors who work with business owners.

Chapter 2 - Behavioral Predictors of Entrepreneurship

Nascent businesses are prevalent in the United States, but the financial returns to business owners often lag those of the general job market (Hamilton, 2000; Moskowitz & Vissing-Jørgensen, 2002). Small businesses, or those privately-held companies with fewer than 500 employees, comprise over 99% of U.S. firms, have accounted for 63% of private-sector job creation from 1992 to 2013, and contribute over a third of U.S. export value (Small Business Administration, 2016). Although entrepreneurs may invest time and money into these vital economic units, 20–25% of entrepreneurs' businesses fail within one year and 49–55% close within five years (Bureau of Labor Statistics, 2016). In addition to this risk of failure, studies have suggested that business owners experience an earnings differential that is 35% lower than that of paid employees, making the financial returns to private business ownership inferior despite greater risk (Hamilton, 2000; Moskowitz & Vissing-Jørgensen, 2002). Taken together, these phenomena indicate that business founders are either irrational or place greater value on the non-financial elements of entrepreneurship.

Recent research has identified founders' low risk aversion, excessive optimism, social connections to other entrepreneurs, and utility from nonpecuniary, or non-monetary, benefits as potential motives spurring entrepreneurship; however, each factor has been studied primarily in isolation (Åstebro, Herz, Nanda, & Weber, 2014; Lindquist, Sol, & Van Praag, 2015). The Theory of Planned Behavior (TPB: Ajzen, 1991) provides a framework to explore these motivations in a cohesive manner. The TPB posits that attitudes, subjective norms, and perceived behavioral control (PBC) influence the intent to engage in a specific behavior. That intent, combined with actual control, is then predictive of behavioral enactment. Optimism, nonpecuniary utility, and risk aversion are attitudes towards business formation, while social

connections to other entrepreneurs are a facet of subjective norms. Through the TPB, disparate explanations for entrepreneurship can be examined within a unified framework.

The purpose of this study is to disentangle and compare the factors that prior literature has suggested as motivations for business formation. Data were drawn from the Panel Study of Entrepreneurial Dynamics I (PSED I), a longitudinal survey that spanned nearly five years and queried a nationally representative sample of individuals considering entrepreneurship, as well as a control group. A binary dependent variable measuring intent to form a business was constructed and analyzed using logistic regression. Key predictor variables included measures of founder optimism, nonpecuniary motives, social connections to other entrepreneurs, and risk aversion. It was anticipated that optimism, value placed on nonpecuniary benefits, and social connections to entrepreneurs would be positively associated with the intent to form a new business, while risk aversion would demonstrate a negative association with intent to become a business owner.

Findings from this study increase understanding of the behavioral motives to launch a new business, enabling financial planners to help potential founders frame financial expectations as well as understand the risks involved with new ventures. Likewise, government organizations may benefit by increasing their awareness surrounding potential behavioral implications resulting from policy change. Finally, results will aid potential entrepreneurs by allowing them to consider their own motives to pursue new business formation and determine whether this career path will align with their goals.

Theoretical Framework and Related Literature

While theories that predict behavior based on general personality traits or dispositions explain aggregate behavioral tendencies in diverse situations, the TPB was developed in order to

be applicable to specific situations where general dispositions are less influential (Ajzen, 1991). Thus, all constructs must be considered within the context of the behavior that is being examined. According to this framework, attitudes toward a specific behavior, subjective norms, and PBC influence intention to perform the behavior. Intention, PBC, and actual behavioral control then help mold behavior (Ajzen, 1991).

Attitudes towards a behavior reflect the degree of positive or negative value that individuals place on that behavior (Ajzen, 1991). Attitudes are said to be influenced by behavioral beliefs, which reflect the strength of expectations that the specified behavior will lead to a desired outcome (Ajzen, 1991). In addition to personal attitudes, subjective norms also help shape intention. Subjective norms represent the perceived social pressure to perform a specific action, and normative beliefs are their antecedents. Normative beliefs stem from the expectations held by important referent others, such as family members, friends, coworkers, or those whose opinions are valued by the decision maker (Ajzen, 1991).

The third and final factor that helps shape intention is a substantive addition to the theory of reasoned action, which preceded the TPB (Ajzen, 1991). PBC is an individual's belief that they are capable of performing a specific behavior. It is the individual's perception of the ease or difficulty entailed in carrying out the behavior. The PBC construct possesses several unique qualities that must be considered. First, PBC is said to vary across situations, unlike the similar concept of locus of control, which remains stable in a variety of circumstances in alternate theories (Ajzen, 1991; Rotter, 1954). Additionally, PBC becomes more influential as volitional control declines. Thus, in situations where behavior is affected by factors other than the actor's degree of motivation, PBC increases in importance (Ajzen, 1991). Finally, in addition to directly influencing intention, PBC also moderates the role of intention in shaping behavior, particularly

with those behaviors that are more difficult to execute (Ajzen, 1991). Control beliefs help forge PBC, and they are composed of the factors that enhance or reduce performance of a specific behavior. Control beliefs may entail such things as the actor's perceptions of resource adequacy or the presence of impediments to a behavior (Ajzen, 1991).

Attitudes, subjective norms, and PBC combine to help form intention, which captures the motivational factor of behavior. Intention represents the degree of effort that one is willing to exert to enact a behavior (Ajzen, 1991). Intention can fully impart its influence on behavior when the behavior is under volitional control. However, many behaviors are not fully controllable, leading some researchers to include actual behavioral control within the TPB (Ajzen, 1991). Actual behavioral control is a representation of an individual's possession of the prerequisites required for a behavior, such as time, skills, knowledge, money, or social cooperation. Though actual behavioral control is at times included in studies utilizing the TPB, many researchers proxy this construct through PBC (Ajzen, 1991). The resulting model is depicted in Figure 2.1.

Figure 2.1. The Theory of Planned Behavior

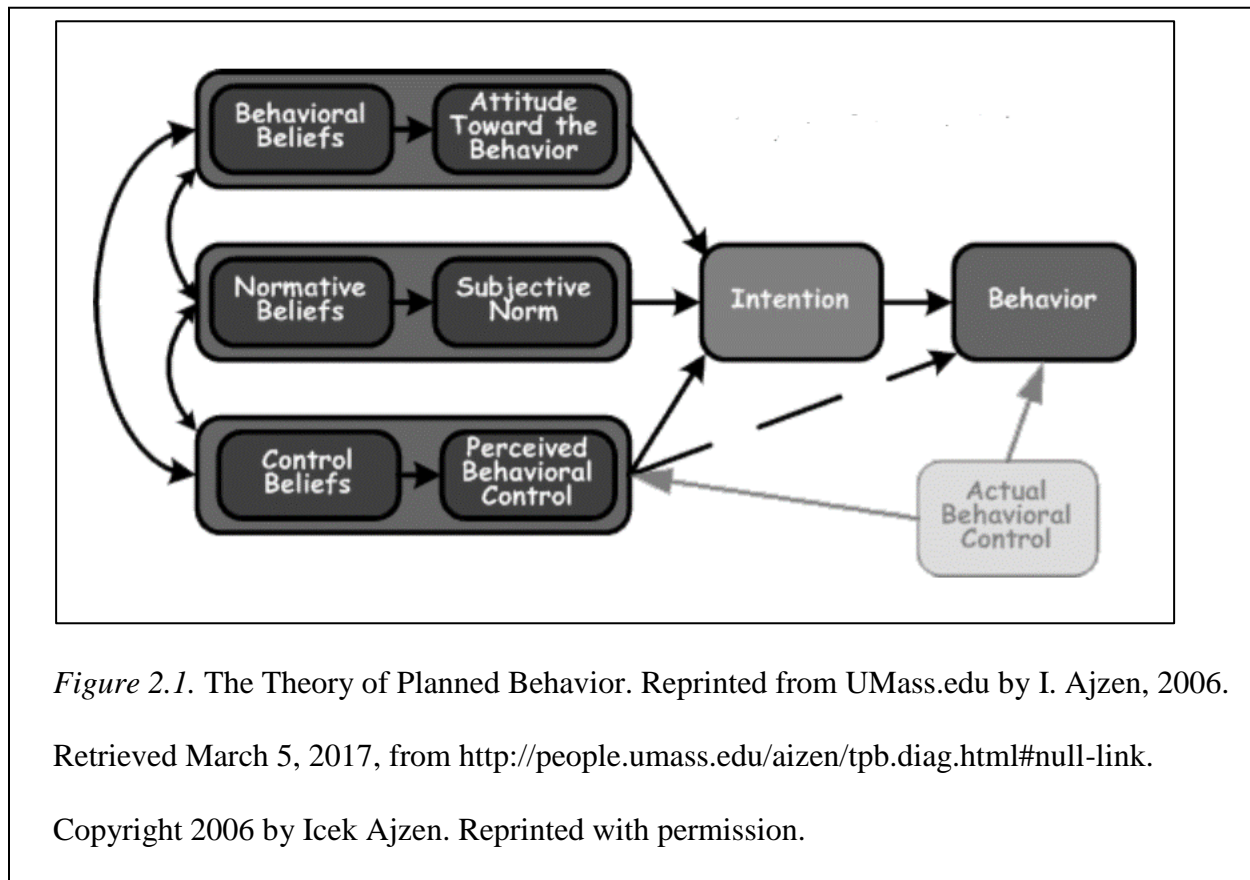


Figure 2.1. The Theory of Planned Behavior. Reprinted from UMass.edu by I. Ajzen, 2006.

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The TPB has been empirically supported within the context of entrepreneurship in prior literature and has historically been the most commonly utilized framework to examine the formation of entrepreneurial intentions (Kautonen, van Gelderen, & Fink, 2015). Frequently, entrepreneurship researchers have omitted the intention-behavior relationship and focused on one or the other as a dependent variable of interest (Schlaegel & Koenig, 2014). A more recent study incorporated the full model, including the intention-behavior relationship, and found that attitudes, subjective norms, and PBC explained 59% of the variation in intention. Intention and PBC explained 31% of behavior (Kautonen et al., 2015). All hypothesized relationships between variables were supported in the study, and the results were robust to variations in age, gender,

experience, and education level (Kautonen et al., 2015). Such findings indicate that the TPB may be an appropriate framework through which to analyze entrepreneurial behavior.

Attitudes

Attitudes within the TPB reflect the value that an individual places on a behavior based on the subjective association between that action and a desired outcome (Ajzen, 1991). Several studies have supported a link between attitudes and intent to pursue business formation. A recent meta-analysis of 98 studies revealed a positive and statistically significant relationship between variables representing general attitudes towards entrepreneurship and intent to launch a business venture (Schlaegel & Koenig, 2014). More favorable attitudes towards entrepreneurship appear to encourage the intent to launch a business.

Aside from general attitudes, the attitudes towards nonpecuniary benefits of business creation have also been suggested as leading motivators to pursue entrepreneurship (Hurst & Pugsley, 2011). In a sample comprised of participants in 12 countries, attitudes towards entrepreneurship were measured by variables gauging autonomy preferences, importance of personal wealth, and achievement orientation (Engle et al., 2010). Within the U.S., autonomy preference was found to be positively associated with intention to pursue entrepreneurship (Engle et al., 2010). A separate longitudinal study also supported a positive relationship between attitudes towards nonpecuniary benefits and intent (Kautonen et al., 2015). Within this study, several indices were utilized to operationalize attitudes, including measures of preferences for autonomy and desire for self-realization. Another study employed an experimental design on a sample consisting of business school alumni, undergraduates, and graduate students. Participants were asked to work alone or in groups to complete Graduate Management Admission Test questions and were allowed to bid up to \$10 for the right to work alone. Current entrepreneurs in

the study were more likely to pay to work alone, demonstrating a preference for autonomy and control (Cooper & Saral, 2013). Finally, prior research has found that entrepreneurs are more likely to indicate that they never plan to retire, which may be an indication that they derive nonpecuniary benefits from working (Puri & Robinson, 2013).

Collectively, the studies reviewed indicate that the value placed on nonpecuniary benefits, like autonomy, is a key component to entrepreneurial intention. Therefore, in the present study it was hypothesized that:

H1: Respondents who place greater importance on nonpecuniary benefits from business formation will be more likely to demonstrate intent to start a business.

Recently, studies have also identified optimism as a key attitude related to entrepreneurial intent. This line of research has largely measured optimism as a dispositional factor. For example, one study compared participants' stated life expectancies to those predicted by actuarial tables, finding an association between overestimation of life expectancy and entrepreneurship (Puri & Robinson, 2013). This optimism has also been found to extend to economic beliefs, as well. Entrepreneurs have been said to maintain more positive beliefs about economic conditions than the general population (Bengtsson & Ekeblom, 2014). Optimists have also demonstrated a greater propensity to participate in skewed lotteries with similar expected returns as those from entrepreneurship, where very high prospective payouts occur at low rates (Åstebro, Mata, & Santos-Pinto, 2015). Thus, it was hypothesized that:

H2: Optimism will have a positive association with intent to start a business.

Another critical attitude that may influence perspectives on entrepreneurship involves risk aversion. Prior research has linked low risk aversion with entrepreneurial venturing (Ahn, 2010). Additionally, entrepreneurs have been shown to undertake other risky financial behaviors.

Participation in the stock market has been found to be higher among entrepreneurs, as has the fraction of wealth invested in stock (Hvide & Panos, 2014). Entrepreneurs also demonstrate lower income to debt and wealth to debt ratios, perhaps suggesting that they are more comfortable with the risk of leveraged financial positions (Hvide & Panos, 2014). This low risk aversion may contribute to more favorable attitudes towards risky endeavors like new business formation. In this study it is expected that respondent risk aversion will have a relationship with intent to start a business, such that:

H3: Lower risk aversion will be associated with increased likelihood to indicate intent to start a business.

Subjective Norms

Opinions held by important referent others help shape individuals' subjective norms within the TPB. Meta-analyses have revealed support for a positive relationship between referent others' endorsement of entrepreneurship and intent to form a business (Schlaegel & Koenig, 2014). This relationship between subjective norms and intent has been found to be stronger in more individualistic western cultures like the United States (Schlaegel & Koenig, 2014).

Social connection to entrepreneurs can take many forms. Prior exposure to family business through relatives has been linked to increases in intent to form a business, highlighting an intergenerational influence (Carr & Sequeira, 2007). Coworkers, too, may play a role in affecting intent to launch a business. Employees whose coworkers have entrepreneurial experience have been found to have a higher likelihood of subsequently becoming entrepreneurs in a longitudinal study (Nanda & Sorensen, 2010). This relationship was more potent in smaller firms and among workers whose parents were business owners, lending further support for the

association between the experiences of referent others and entrepreneurial intent (Nanda & Sorensen, 2010). Given the social influences on entrepreneurship, it was hypothesized that:

H4: Respondents whose parents were business owners will be more likely to indicate intent to start a business.

H5: Respondents whose friends have owned businesses will be more likely to indicate intent to start a business.

Perceived Behavioral Control (PBC)

PBC entails individuals' perceptions of competence in performing a behavior and ability to enact it. In a meta-analytic study, the effect size for the relationship between PBC and entrepreneurial intent was found to be larger than that of intent and attitudes or subjective norms (Schlaegel & Koenig, 2014). However, not all studies have supported a positive relationship between measures of control and behavior. Historically, mixed results have been obtained in studies examining the relationship between internal locus of control and entrepreneurship (Kroeck, Bullough, & Reynolds, 2010). Often, such studies failed to place measures of control within the context of entrepreneurship, relying instead on participants' general perceptions of control (Kroeck et al., 2010). This spurred contributions to the literature that contextualized control measures by using domain-specific survey questions.

One such contribution utilized a nine-item scale comprised of items pertaining to business formation to measure perceptions of control over new venture launch. An ANOVA analysis on a nationally-representative sample of nascent entrepreneurs and non-business founders revealed that the former group demonstrated higher perceptions of control over business formation (Kroeck et al., 2010). Further analysis indicated that gender and ethnicity also played a role in predicting domain-specific locus of control.

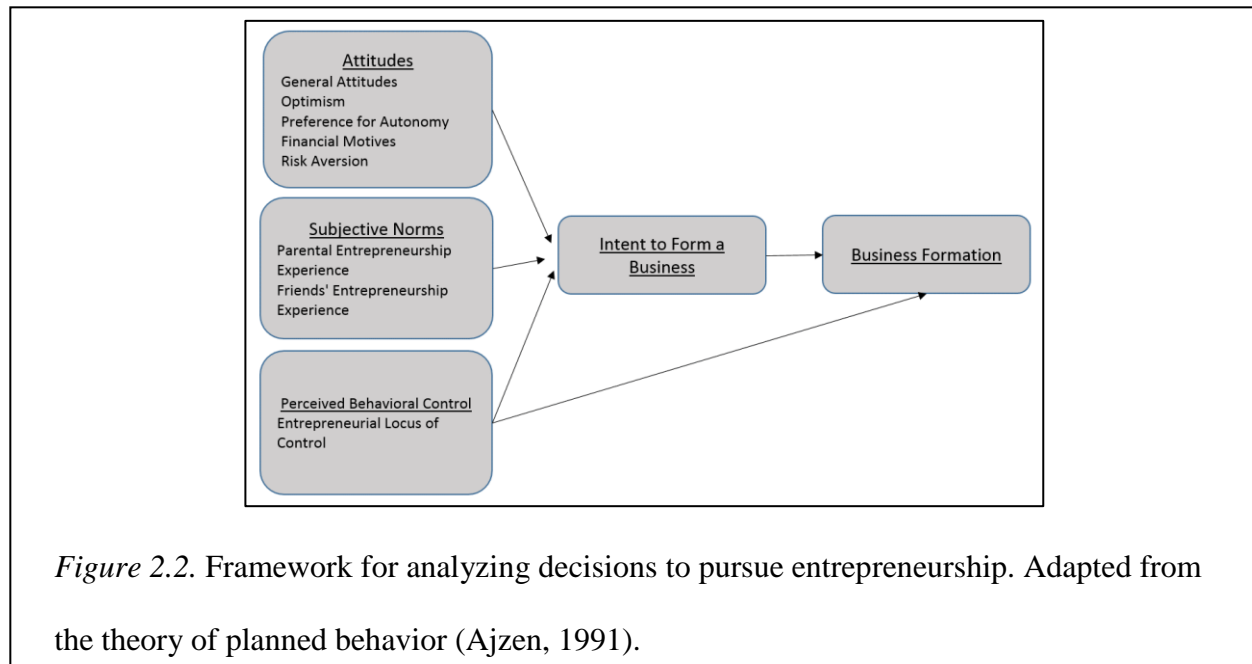
Another more recent study echoed the sentiment that general locus of control measures may be too multidimensional for use in predicting decisions to launch a business, as well. This study laid the foundation for measuring entrepreneurial locus of control within the PSED I. Using exploratory and confirmatory factor analysis on a sample of aspiring entrepreneurs within the PSED I, the authors constructed a reliable three-item scale to measure perceptions of control (Schjoedt & Shaver, 2012). Validity was demonstrated using an additional primary dataset developed by the authors. The newly-constructed scale was shown to correlate highly with other generally accepted locus of control scales within the sample (Schjoedt & Shaver, 2012).

In this study, locus of control is similarly contextualized to the domain of business formation activity. It was expected that:

H6: Higher perception of control over business formation will correlate with greater likelihood of indicating intent to start a business.

This paper adds to the literature by combining several factors from disparate studies into one cohesive model. Past research has examined the behavioral elements that are associated with entrepreneurship, leading to multiple suggestions regarding the motives that may drive individuals to entrepreneurship. Rather than view these elements in isolation, this research integrated these factors into the TPB constructs. Risk aversion, optimism, preference for nonpecuniary benefits, social connections to entrepreneurs, entrepreneurial control, and intent to form a business were aligned via the framework depicted in Figure 1.2.

Figure 2.2. Theoretical Framework



Methods

Data

Data were drawn from the first wave of the Panel Study of Entrepreneurial Dynamics I (PSED I). Preceding the PSED II, PSED I data collection began in 1998 and followed respondents for four waves of data collection. The data set was designed to include representative samples of active nascent entrepreneurs within the United States as well as a control group of those not seeking to start a business (“Panel Study of Entrepreneurial Dynamics,” n.d.). PSED I data focus largely on nascent entrepreneurs’ personal characteristics, start-up activities, and attitudes, as opposed to the macroeconomic conditions that affect business formation (Reynolds & Curtin, 2008). These data are unique in that they examine those interested in pursuing entrepreneurship prior to the actual launch of their businesses rather than describe functioning entrepreneurs after business formation.

Initial screening for PSED I respondents took place from 1998-2000, via a commercial survey firm that queried 64,000 typical adults aged 18 and over (Kroeck et al., 2010). Candidates for participation were screened on multiple items regarding present efforts to start a new business, start-up activities in the past year, anticipated ownership in a business, and current business status. Those who indicated that they actively attempted in the previous 12 months to form a new business in which they would be at least partial owners were considered nascent entrepreneurs provided that they did not already have a functional business launched (Reynolds & Curtin, 2008). These candidates were then contacted by phone for 60-minute detailed interviews, which were supplemented by self-administered mail questionnaires (Reynolds & Curtin, 2008). The resulting 830 nascent entrepreneurs were then issued three follow-up interviews over the following four years (Reynolds & Curtin, 2008). In addition, responses from a comparison group of 431 non-entrepreneurs were included in the data set (Reynolds & Curtin, 2008).

This study focused on the respondents who completed the supplemental mail questionnaire within the PSED I. This selection criterion was implemented because the supplemental questionnaire contained key items measuring TPB constructs, including variables representing behavioral control. More than 75% of respondents completed the questionnaire, yielding a final sample size of 746 for analysis. Data were drawn from the first wave of the PSED I.

Empirical Model

Attitudes, subjective norms, and PBC influence intentions within the TPB. Figure 2.2 predicts entrepreneurial intent with a focus on the behavioral characteristics that prior research has associated with entrepreneurship. Intent to form a business is modeled as a function of

general attitudes towards business formation, optimism, preferences for autonomy, financial motivation, risk aversion, the entrepreneurship experience of influential others, entrepreneurial locus of control, and control variables.

Dependent Variable. The dependent variable is a binary measure of entrepreneurial intent, indicating the presence or absence of a desire to start a business. PSED I participants designated as part of the control group in the data set were coded as 0, indicating no entrepreneurial intent. Those in the nascent entrepreneur group within the data set were coded 1. Distinctions between the control group and the nascent entrepreneur group were formed by the data collectors through a series of sequential questions. Participants were first asked, “Are you, alone or with others, now trying to start a new business?” Responses of “no” to this question were necessary for screened participants to be eligible for the control group (Gartner, Shaver, Carter, & Reynolds, 2004). Those that answered “yes” received additional questioning and needed to satisfy further criteria to be considered a nascent entrepreneur. Nascent entrepreneurs needed to also indicate that they (a) had taken steps to form a business in the prior 12 months, (b) anticipated ownership in the business, and (c) did not possess an operational business at the time of screening (Gartner et al., 2004). Those who replied that they were intending to form a business during the original screening question, but who failed to meet the three additional criteria, were omitted from the data set.

Attitudes. Attitudes within the TPB represent the subjective value that individuals place on a specified behavior. Within this study, general attitudes towards entrepreneurship, degree of optimism, preferences for autonomy, financial motives, and risk aversion were operationalized. Six variables were considered for inclusion as measures of general attitudes towards entrepreneurship, which were factor analyzed for consolidation. Three of these items were

recorded on a response scale from 1 to 5, where 1 = completely disagree and 5 = completely agree. These three items asked respondents whether they agree that those with successful businesses are highly admired, that business formation is a better career opportunity than existing alternatives, and that business formation will help them in achieving other life goals. Another three items were measured on a bipolar 5-point scale, where 1 = completely untrue and 5 = completely true. These survey questions asked whether respondents would rather own a business than pursue other career interests, be proud of their children if they became entrepreneurs, or be impressed with personal contacts who launch businesses.

An exploratory factor analysis (EFA) on the six general attitude items was conducted by using squared multiple correlations as prior communality estimates (O'Rourke & Hatcher, 2013). Factors were extracted using the principle factor method and a direct oblimin oblique rotation (O'Rourke & Hatcher, 2013). This produced one meaningful factor with three items loading at .40 or greater. These items are depicted below, and a factor-based scale was constructed using the mean values of the three items as a measure of general attitudes towards entrepreneurship ($\alpha = .77$):

Table 2.1 Factor-Based General Attitudes Scale

Variable	Item
General Attitudes	Starting a business is much more desirable than other career opportunities I have.
General Attitudes	If I start a business, it will help me achieve other important goals in my life.
General Attitudes	I would rather have my own business than pursue another promising career.

Next, preferences for autonomy were measured via a binary variable. Respondents were presented a choice between two business scenarios each offering the same annual income of

\$100,000. In one scenario, they would be allowed to work alone, while the other would require collaboration with four equal partners despite the respondents' personal income remaining the same. Those who preferred to work alone were coded as 1, and those who were willing to work with partners were coded 0.

Another measure included in the model explored the financial motives that might underlie the intent to form a business. A series of questions within the PSED I explore entrepreneurship motivations, and prior studies have used these questions to form a financial security scale (Manolova, Brush, and Edelman, 2008). Each question asked respondents the extent to which each item was important, where 1 = to no extent and 5 = to a very great extent. Via an EFA with direct oblimin rotation, three items loaded highly on a financial security factor ($\alpha = .78$). The mean of these responses formed the financial security variable comprised of the items below:

Table 2.2 Factor-Based Financial Security Scale

Variable	Item
Financial Security	To give myself, my spouse and children financial security.
Financial Security	To earn a larger personal income.
Financial Security	To have a chance to build great wealth or a very high income.

Another attitude of interest concerned optimism. Optimism was measured as respondents were asked for their confidence that (a) “you will be successful in completing new tasks,” (b) “you can reach goals you set for yourself,” and (c) “you will be successful when confronting obstacles.” Each variable was reverse coded so that 1 indicated low confidence and 5 indicated high confidence. EFA revealed that these three items loaded highly on a single factor ($\alpha = .88$), and the mean of responses to these items formed a measure of optimism used in analysis.

Finally, a measure of risk aversion asked participants to rate the accuracy of a statement indicating that they enjoy the challenge of risky endeavors. This variable was reverse coded so that 1 = completely true and 5 = completely untrue. Thus, higher numbers were indicative of higher risk aversion.

Subjective Norms. Subjective norms pertain to individuals’ perceptions of important referent others’ opinions towards a specific behavior. Two items within the PSED I ask participants about exposure to personal contacts who became entrepreneurs. First, participants were asked to indicate their level of agreement with the statement, “many of my friends have started new firms,” where 1 = completely disagree and 5 = completely agree. Similarly, respondents indicated their agreement level with the statement, “many of my family and kin have started new firms.” Together, these variables account for participants’ experience with close personal contacts engaging in entrepreneurship.

Perceived Behavioral Control. PBC within the PSED I is proxied through a scale constructed to measure locus of control. Prior research has examined traditional locus of control scales and found that they loaded on multiple different factors, leading to the development of a scale specific to entrepreneurship (Schjoedt & Shaver, 2012). The resulting three-item measure of entrepreneurial locus of control (ELOC) was validated in a primary sample, where it correlated highly with traditional, general locus of control scales (Schjoedt & Shaver, 2012). The items that comprise the scale specific to the PSED I asked participants to rate statements from 1 to 5, where 1 = completely untrue and 5 = completely true. The three core statements included:

Table 2.3 Entrepreneurial Locus of Control Scale

Variable	Item
ELOC	When I make plans, I am almost certain to make them work.
ELOC	When I get what I want, it is usually because I worked hard for it.

The mean of responses to these three items formed the entrepreneurial locus of control variable.

Control Variables. Additional control variables for gender, race, current employment status, and income were also included. Prior investigations into entrepreneurship have shown gender differences in motivations to pursue the practice (Carter, Gartner, Shaver, & Gatewood, 2003), and intent to pursue entrepreneurship is also more prevalent among Whites (Shinnar, Giacomini, & Janssen, 2012). The unemployed have been shown to consider entrepreneurship at greater rates than the employed, perhaps due to necessity stemming from a lack of other income opportunities (Berglann, Moen, Røed, & Skogstrøm, 2011). Finally, a control for income was included, as well, given past studies that have demonstrated that entrepreneurs tend to come from higher income households (De Nardi, Doctor, & Krane, 2007). The measure for income was continuous and was log-transformed to correct for skewness to the right. The log of 1 was utilized in instances of 0 income values.

Results

Variable weights in the analyses were adjusted in order to correct for differential selection probabilities and differential nonresponse to the mail questionnaire (Gartner et al., 2004). Additionally, adjustments were made in order to ensure that data remained nationally representative after applying inclusion criteria. Weighting methodology mirrored that of prior research and utilized the recommended practices of the PSED I principal investigators. First, weights for both the nascent entrepreneur and comparison subgroups were recentered on a mean of 1.0 in order to avoid biased estimates of standard errors (Gartner et al., 2004). Next, weights for the nascent entrepreneur subsample were adjusted such that they represent 6% of the total sample in alignment with national observations (Gartner et al., 2004). Finally, weights were

recentered once again for the cumulative sample around a mean of 1.0 (Gartner et al., 2004). The final sample consisted of 746 participants.

Weighted descriptive statistics are shown in Table 2.4. Those intending to start a business are a minority of the sample with 6% who expressed intent ($M = 0.06$, $SD = 0.24$). General attitudes towards entrepreneurship within the sample were favorable as respondents averaged a 3.39 on a 5-point scale ($SD = 0.99$, $\alpha = 0.77$). Financial security as a motivation to consider entrepreneurship was high, showing a mean score of 3.96 on a 5-point scale ($SD = 0.93$, $\alpha = 0.78$). Slightly less than half of the sample indicated that autonomy was important ($M = 0.42$, $SD = 0.49$), and respondents were relatively high in optimism overall ($M = 4.10$, $SD = 0.83$, $\alpha = 0.88$). Respondents showed lower scores on risk aversion ($M = 2.29$, $SD = 0.86$), indicating that as a group the sample may be more comfortable with risky endeavors. Participants had moderate exposure to friends and family who were entrepreneurs, scoring 2.43 and 2.53 respectively on 5-point scales measuring this exposure ($SD = 1.18$; $SD = 1.25$). Scores on the ELOC scale were relatively high at 4.10, indicating a high overall sense of control over outcomes ($SD = 0.47$). Finally, from a demographic standpoint, the sample was fairly evenly split in terms of gender with 47% males and 53% females ($SD = 0.50$). Respondents were predominantly White ($M = 0.69$, $SD = 0.46$), and contained a small number of unemployed ($M = 0.12$, $SD = 0.33$). Mean income for the sample was \$54,987.02 ($SD = 34,941.53$).

Table 2.4 Behavioral Predictors of Entrepreneurship: Descriptive Statistics (N=746)

Variable	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>α</i>
Entrepreneurial Intent ^a	0.06	0.24	0 – 1	
General Attitudes	3.39	0.99	1 – 5	.77
Financial Security	3.96	0.93	1 – 5	.78
Autonomy	0.42	0.49	0 – 1	
Optimism	4.10	0.83	1 – 5	.88
Risk Aversion ^b	2.29	0.86	1 – 5	
Entrepreneurial Friends	2.43	1.18	1 – 5	
Entrepreneurial Family	2.53	1.25	1 – 5	
Entrepreneurial Locus of Control	4.10	0.47	1 – 5	.55
Male	0.47	0.50	0 – 1	
White	0.69	0.46	0 – 1	
Unemployed	0.12	0.33	0 – 1	
Income	54,987.02	34,941.53	0-350,000	

Note: Weighted descriptive statistics from the Panel Study of Entrepreneurial Dynamics I.

^aEntrepreneurial Intent: 0 = *not intending to pursue entrepreneurship*, 1 = *intending to pursue entrepreneurship*. ^bRisk Aversion: 1 = *enjoys risky endeavors*, 5 = *does not enjoy risky endeavors*.

A multivariate analysis was employed to examine the relationships among attitude, subjective norm, and PBC variables with intent to form a new business. Since entrepreneurial intent was a binary variable, logistic regression was utilized to model the likelihood of participants to possess entrepreneurial intent as a function of independent variables derived from the TPB. Data were drawn from the first wave of the PSED I in a cross-sectional analysis, and missing data were listwise deleted. Finally, it should be noted that the PSED I utilized a complex sample design that oversampled female and minority populations. Thus, logistic regression analysis was weighted in order to make the sample nationally representative of the population of interest, and weights were adjusted to yield accurate standard errors (Gartner et al., 2004).

The Wald chi-square statistic testing the global null hypothesis was 39.23 and significant at the $p < .001$ level, indicating that at least one coefficient is not equal to 0. Overall, several

variables measuring the attitudes construct in the TPB demonstrated statistical significance. General attitudes towards entrepreneurship had a positive association with likelihood to demonstrate entrepreneurial intent ($e^{\beta} = 2.98$, $p < .001$). Interestingly, the factor measuring financial security as a motivation towards entrepreneurship was negatively related to the likelihood of intent to start a business ($e^{\beta} = 0.69$, $p < .05$). Those who favor autonomy were more likely to intend to pursue entrepreneurship, though the p -value for this variable narrowly exceeded the .05 threshold. Attitudes involving optimism and risk aversion were not significant predictors of intention. Similarly, measures of subjective norms and perceived behavioral control were not significant.

Table 2.5 Summary of Weighted Logistic Regression Analysis Predicting Entrepreneurial Intent (N=746)

Variable	β	SE β	e^{β}
General Attitudes	1.09***	0.22	2.98
Financial Security	-0.37*	0.18	0.69
Autonomy	0.58	0.33	1.79
Optimism	0.16	0.23	1.17
Risk Aversion	0.03	0.18	1.04
Entrepreneurial Friends	-0.01	0.17	0.99
Entrepreneurial Family	-0.09	0.15	0.92
Entrepreneurial Locus of Control	-0.44	0.39	0.64
Male	0.53	0.35	1.70
White	0.30	0.38	1.35
Unemployed	-0.03	0.56	0.97
Income (log)	0.24	0.25	1.28
Constant	-7.39**	2.98	
χ^2 (df)		39.23 (12)	
C		0.76	

Note: Data from the Panel Study of Entrepreneurial Dynamics. * $p < .05$. ** $p < .01$. *** $p < .001$.

e^{β} = exponentiated β .

Conclusion and Implications

This study forms a cohesive model that investigates plausible motives to pursue entrepreneurship that have separately been identified in prior literature. Researchers, noting that entrepreneurship does not appear to be the financially optimal career choice, have explored non-financial explanations as to why the practice remains prominent (Hamilton, 2000; Moskowitz & Vissing-Jørgensen, 2002). A desire for greater autonomy, an overly optimistic estimate of the likelihood of success in business ownership, and a low degree of risk aversion have been previously presented as possible justifications for entrepreneurial pursuit (Engle et al., 2010; Puri & Robinson, 2013; Ahn, 2010). The findings from this study examine each of these motives as well as the desire for financial gain in order to understand the relative importance of each factor in shaping entrepreneurial intention.

Prior to considering results from this study, though, it is important to note a few limitations. First, comparison group data is only collected in the PSED I for the initial wave. Thus, analyses that compare nascent entrepreneurs to those not aspiring to form businesses must be limited to cross-sectional examinations based on survey data prior to any businesses being launched. It is possible that career motivations differ among those intending to become entrepreneurs versus those who are successful in doing so over time, and the PSED I will be better equipped to examine the former audience. Aside from possible differences between aspiring and functional entrepreneurs, prior research has also noted that individuals may change their reported motives for entrepreneurship pursuit over time, which is presumed to be due to recall bias (Cassar, 2007). Thus, when comparing this study to other studies of entrepreneurial intent, the timing of survey delivery must be considered. Future research into the nuances between entrepreneurial intent and entrepreneurial outcomes may be warranted.

It should be noted, too, that results differ slightly when logistic regression analysis is unweighted. The proportion of nascent entrepreneurs to those not intending to pursue the practice is higher in the raw sample than in the general population. Thus, nascent entrepreneur weighting is generally lower in order to make the sample nationally representative. An unweighted analysis generally produces similar results; however, preference for autonomy and gender become significant variables in an unweighted model. In such a model, a desire for autonomy increases the odds of intending to form a business, and Whites also demonstrate higher odds of entrepreneurial intent. Though the weighted and unweighted models differ slightly in outcomes, the PSED I codebook encourages the use of weighted analysis (“Panel Study of Entrepreneurial Dynamics,” n.d.). Weighting produces a sample that is not only nationally representative, but the weights also are intended to correct differing nonresponse rates (“Panel Study of Entrepreneurial Dynamics,” n.d.).

This study makes several important contributions to the literature. Past economic analyses have suggested that the financial gains from entrepreneurship lag those of traditional employment (Hamilton, 2000; Moskowitz & Vissing-Jørgensen, 2002). Whether or not this financial outlook is known to would-be entrepreneurs, though, has not been studied. The findings from this research suggest that those who are more financially motivated in career choice had lower odds of intent to pursue entrepreneurship. This could be explained by several plausible ideas. First, many U.S. institutions of higher education offer coursework in entrepreneurship, and the Small Business Administration offers several free online courses to current or aspiring business owners. Such educational outreach might be effective in setting financial expectations, affording those considering a business venture realistic expectations about the long-term financial prospects. Alternatively, it could be the case that non-financial motives that are not

measured in this study are drivers of interest in entrepreneurship. For instance, social entrepreneurship has formed a growing movement among business founders (Parrish, 2010). Social entrepreneurship is characterized by business venturing that pays special consideration to the fulfillment of broader social missions or goals when organizing a business, which could provide meaning or purpose to the business founder without overly emphasizing financial returns (Dwivedi & Weerawardena, 2018). Another factor could involve family-run businesses and intergenerational transfers. Family business continuity can be a motivating factor to prolong entrepreneurial endeavors, particularly among cohesive families that may derive social identity from the business (Mahto, Davis, & Khanin, 2013). Of course, these are but a few explanations for the negative relationship between financial motivation and entrepreneurial intent, but each is worthy of future research consideration.

This study aimed to elucidate what some of these non-financial incentives to pursue entrepreneurship might be. Interestingly, however, many of the commonly suggested rationales for business ownership were not significant in the model. Both levels of optimism and risk aversion were insignificant, and preferences for autonomy were relevant only at higher *p*-values. Intent to form a business did have a strong association with general attitudes towards business ownership in this study. General attitudes were measured with factor-based scores derived from three items, two of which asked respondents to compare the possibility of owning a business to available alternatives. Predictably, those with higher general attitudes towards entrepreneurship had higher odds of intending to enter the practice. The reasons as to why some may have more favorable attitudes towards entrepreneurship relative to alternatives remained elusive in the present study. Desire for autonomy, excess optimism, and low risk aversion were not significant predictors of intention. Thus, aspiring entrepreneurs may be driven by alternate motives. One

analysis of nascent entrepreneurs found that motivations to pursue business ownership were surprisingly similar to the motives people have for pursuing traditional careers (Carter et al., 2003). The only group differences were that nascent entrepreneurs demonstrated lower value placed on roles and recognition when considering possible business ownership. Roles in that study dealt with the expectations set by family and members of the community, while recognition entailed the desire to be respected, influential, and occupying a higher position in society (Carter et al., 2003). Future research might explore the lower emphasis that nascent entrepreneurs place on these values and how such values might shape general attitudes towards business formation. In other words, such research might help uncover the issues that cause individuals to perceive entrepreneurship as a better career than available alternatives.

The implications of the current study could be useful to public officials. Agencies like the Small Business Administration as well as regional business and economic development offices offer educational assistance, expert advice, and access to loans or capital. The observed negative relationship between financial motives and intent to pursue entrepreneurship might be indicative of effective financial education available to those considering forming a business, especially in light of research suggesting lower average financial returns to launching a business. If it is true that prospective business owners are well educated on the potential financial results of entrepreneurship, then local and national government agencies may wish to focus future educational efforts on the non-financial outcomes associated with forming a business. Doing so may enable those considering a business launch to best estimate whether entrepreneurship will help them achieve their non-financial goals.

References

- Acock, A. (2005). Working with missing values. *Journal of Marriage and Family*, 67(4), 1012–1028.
- Ahn, T. (2010). Attitudes toward risk and self-employment of young workers. *Labour Economics*, 17(2), 434–442. <https://doi.org/10.1016/j.labeco.2009.06.005>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Åstebro, T., Herz, H., Nanda, R., & Weber, R. (2014). Seeking the roots of entrepreneurship: Insights from behavioral economics. *The Journal of Economic Perspectives*, 28(3), 49–69.
- Åstebro, T., Mata, J., & Santos-Pinto, L. (2015). Skewness seeking: Risk loving, optimism or overweighting of small probabilities? *Theory and Decision*, 78(2), 189–208. <https://doi.org/10.1007/s11238-014-9417-4>
- Bengtsson, O., & Ekeblom, D. (2014). *The Bright but Right View? A New Type of Evidence on Entrepreneurial Optimism*. St. Louis, United States: Federal Reserve Bank of St Louis. Retrieved from http://search.proquest.com.er.lib.k-state.edu/docview/1698469801?rfr_id=info%3Axri%2Fsid%3Aprimo
- Bureau of Labor Statistics. (2016). Entrepreneurship and the U.S. economy. Retrieved May 5, 2017, from https://www.bls.gov/bdm/entrepreneurship/bdm_chart3.htm
- Carr, J., & Sequeira, J. (2007). Prior family business exposure as intergenerational influence and entrepreneurial intent: A theory of planned behavior approach. *Journal of Business Research*, 60(10), 1090–1098. <https://doi.org/10.1016/j.jbusres.2006.12.016>

- Carter, N., Gartner, W., Shaver, K., & Gatewood, E. (2003). The career reasons of nascent entrepreneurs. *Journal of Business Venturing, 18*(1), 13-39.
- Cassar, G. (2007). Money, money, money? A longitudinal investigation of entrepreneur career reasons, growth preferences, and achieved growth. *Entrepreneurship and Regional Development, 19*(1), 89–107.
- Cooper, D., & Saral, K. (2013). Entrepreneurship and team participation: An experimental study. *European Economic Review, 59*, 126–140.
<https://doi.org/10.1016/j.euroecorev.2013.01.003>
- De Nardi, M., Doctor, P., & Krane, S. (2007). Evidence on entrepreneurs in the United States: Data from the 1989-2004 Survey of Consumer Finances. *Economic Perspectives, 18*–36.
- Dwivedi, A., & Weerawardena, J. (2018). Conceptualizing and operationalizing the social entrepreneurship construct. *Journal of Business Research, 86*, 32-40.
- Engle, R., Dimitriadi, N., Gavidia, J., Schlaegel, C., Delanoe, S., Alvarado, I., He, X., Buame, S., Wolff, B. (2010). Entrepreneurial intent: A twelve-country evaluation of Ajzen's model of planned behavior. *International Journal of Entrepreneurial Behavior & Research, 16*(1), 35–57. <https://doi.org/10.1108/13552551011020063>
- Gartner, W., Shaver, K., Carter, N., & Reynolds, D. (2004). *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*. Thousand Oaks, CA: Sage Publications, Inc.
- Hamilton, B. (2000). Does entrepreneurship pay? An empirical analysis of the returns to self-employment. *Journal of Political Economy, 108*(3), 604.
- Hurst, E., & Pugsley, B. W. (2011). What do small businesses do? *Brookings Papers on Economic Activity, 73*–143.

- Hvide, H., & Panos, G. (2014). Risk tolerance and entrepreneurship. *Journal of Financial Economics*, *111*(1), 200–223. <https://doi.org/10.1016/j.jfineco.2013.06.001>
- Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, *39*(3), 655–674. <https://doi.org/10.1111/etap.12056>
- Kroeck, K., Bullough, A., & Reynolds, P. (2010). Entrepreneurship and differences in locus of control. *Journal of Applied Management and Entrepreneurship*, *15*(1), 21–49.
- Lindquist, M. J., Sol, J., & Van Praag, M. (2015). Why do entrepreneurial parents have entrepreneurial children? *Journal of Labor Economics*, *33*(2), 269–296.
- Mahto, R. V., Davis, P. S., & Khanin, D. (2014). Continuation commitment: Family's commitment to continue the family business. *Journal of Family and Economic Issues*, *35*(2), 278-289.
- Manolova, T. S., Brush, C. G., & Edelman, L. F. (2008). What do women entrepreneurs want? *Strategic Change*, *17*(3–4), 69–82. <https://doi.org/10.1002/jsc.817>
- Moskowitz, T., & Vissing-Jørgensen, A. (2002). The returns to entrepreneurial investment: A private equity premium puzzle? *The American Economic Review*, *92*(4), 745–778.
- Nanda, R., & Sorensen, J. (2010). Workplace peers and entrepreneurship. *Management Science*, *56*(7), 1116–1126.
- O'Rourke, N., & Hatcher, L. (2013). *A Step-by-Step Approach to Using SAS for Factor Analysis and Structural Equation Modeling* (2nd ed.). Cary, NC: SAS Institute, Incorporated.
- Panel Study of Entrepreneurial Dynamics. (n.d.). Retrieved April 8, 2017, from <http://www.psed.isr.umich.edu/psed/home>

- Parrish, B. D. (2010). Sustainability-driven entrepreneurship: Principles of organization design. *Journal of Business Venturing*, 25(5), 510-523.
- Puri, M., & Robinson, D. (2013). The economic psychology of entrepreneurship and family business. *Journal of Economics & Management Strategy*, 22(2), 423-444.
- Reynolds, P., & Curtin, R. (2008). Business creation in the United States: Panel study of entrepreneurial dynamics II initial assessment. *Foundations and Trends in Entrepreneurship*, 4(3), 155-307. <https://doi.org/10.1561/03000000022>
- Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.
- Schjoedt, L., & Shaver, K. G. (2012). Development and validation of a locus of control scale for the entrepreneurship domain. *Small Business Economics*, 39(3), 713-726. <https://doi.org/10.1007/s11187-011-9357-0>
- Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice*, 38(2), 291-332. <https://doi.org/10.1111/etap.12087>
- Small Business Administration. (2016). Frequently asked questions. Retrieved from https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf

Chapter 3 - Portfolio Choices of Households Owning Businesses

Entrepreneurs and business owners face unique circumstances when making saving and investing decisions (Kess & Mendlowitz, 2015). Business owners often concentrate large portions of their net worth in illiquid business assets, which they might rationally compensate for by taking more conservative approaches to investing assets held outside of their businesses. In other words, one may logically conclude that business owners would avoid investment in riskier assets like stocks. Conversely, business owners as a group have demonstrated lower levels of risk aversion, a characteristic often associated with increased investment in the stock market (Brown, Dietrich, Nuñez, & Taylor, 2013). This paper further explores the dynamics between business ownership, the risks associated with ownership, and personal portfolio decisions.

The risks involved with business ownership are varied and abundant. Most well-known perhaps is the risk of business failure, which translates into a quarter of new ventures failing in year one and roughly half ceasing operations within five years (Bureau of Labor Statistics, 2016). Additionally, business owners often place a substantial portion of their wealth into privately-held companies that are less liquid than stocks, limiting their ability to diversify assets and mitigate business failure risks (Hvide & Panos, 2014). Also, owner-funded businesses often face personal financial vulnerabilities (Forster-Holt, 2016; Ji & Hanna, 2012). For example, owners have shown a propensity to enmesh personal and business assets and frequently report being owed money by their businesses (Forster-Holt, 2016). Additionally, household income may be inextricably tied to the business' performance, as owners tend to draw wage income from business operations. Moreover, several businesses may employ owners' spouses, thereby linking another household member's income to the organization (Forster-Holt, 2016). Finally, owner-

funded businesses are often sold at values that are below the worth implied by cash flows from continued operations (Kess & Mendlowitz, 2015).

One seemingly logical way to mitigate the risks of ownership is to seek funding from a third party, but this strategy is not without risk either. Investors commonly seek entrepreneurs willing to accept below-market salaries for the operation of their businesses, and those accepting the lower salaries aim to accumulate wealth through a successful stock offering or sale of the business (Hall & Woodward, 2010). In this scenario, not only is there a risk of business valuation prices below expectations, but there is also risk involving timing of the exit (Hall & Woodward, 2010). Sale or public offering processes that take longer to exit translate into additional years of reduced salaries and have implications for the time value of money of the gains from successful exit. Finally, even if an exit strategy is implemented, it is often the case that investors are paid profits prior to the business founder (Hall & Woodward, 2010).

The purpose of this study is to contribute to the literature regarding business ownership and its relationship with saving and investment decisions that occur outside of the business. Data from the Survey of Consumer Finances (SCF) provide information on household saving and investment decisions as well as balance sheet metrics of households owning small businesses. While prior studies that have analyzed business ownership and asset composition have largely approached the subject with the presumption that all private businesses are inherently risky, the present study accounts for the level of risk that business ownership entails by introducing a measure of leverage. It is hypothesized that owners who take on more collateralized, guaranteed, or cosigned business loans relative to their share of estimated business sale proceeds will be more likely to substitute personal savings and investments away from stocks than those who incur lower amounts of business-related debt. The findings of this study will allow for more

nuance in academic discussion of business owners' portfolio construction as well as inform financial planners, accountants, and other service providers aiding business owners in financial decision making.

Theoretical Framework and Related Literature

Modern portfolio theory (MPT) provides a lens through which to analyze risk and return profiles for investors' various choices among investment vehicles. Predicated on the assumptions that investors can analyze the distributions of expected investment returns and the variability of those returns, the central tenet of the theory is that investors should prefer a maximum level of return for a given risk profile (Markowitz, 1952). The concept of investment risk within MPT stems from two sources. First, systematic risk is common to all investment alternatives and often results from macroeconomic phenomena. Examples might include changes in interest rates or inflation. Unsystematic risk, however, is specific to the investment that is under consideration. Investors can mitigate unsystematic risk by composing a diversified portfolio of investments, provided that those investments' returns are not perfectly correlated (Markowitz, 1952).

Individual investors may differ in their risk propensities, with some preferring either higher or lower levels of risk. However, an efficient frontier of optimal portfolios can be constructed under MPT by plotting expected returns on a vertical axis and risk on a horizontal axis. The efficient frontier curve represents all of the optimal portfolios whereby returns are maximized for each given level of risk (Francis, Kim, & Kim, 2013). Points below the efficient frontier curve demonstrate portfolios with excessive risk for the corresponding level of expected returns. MPT posits that investors can reduce unsystematic risk exposure by constructing portfolios of assets that lie on the efficient frontier curve and consist of holdings with lower

correlations of returns (Markowitz, 1952). This idea can inform our expectations of how entrepreneurs and business owners should behave.

Willingness to Accept Risk and Expected Returns

Prior analyses of investment portfolios have shown that allocations among asset classes form a critical factor in determining portfolio returns, accounting for 80-90% of return variance (Van Vliet & Blitz, 2011). Conventional wisdom regards equity assets as a class with higher expected long-term average returns while also demonstrating greater risk in the form of short-term price volatility (Shahidi, 2015). Recent studies have corroborated this idea by demonstrating that stocks with higher return dispersions have higher average returns, indicative of a risk premium sought by investors (Demirer & Jategaonkar, 2013; Jiang, 2010). Thus, it is predicted that:

H1a: Respondents with greater willingness to accept risk will be more likely to own stock in their portfolios.

H1b: Respondents with greater willingness to accept risk will hold a higher fraction of financial assets in stock.

Privately-owned businesses, too, are a risky asset class, and those that pursue businesses ownership are typically willing to accept higher levels of risk (Bureau of Labor Statistics, 2016). The relationship between entrepreneurship and risk preference has been studied extensively, with findings generally demonstrating that entrepreneurs have low levels of risk aversion. An investigation of responses to risky income gamble questions using the National Longitudinal Survey of Youth found that those who are more willing to accept risky gambles were also more likely to enter self-employment later in life (Ahn, 2010). A one standard deviation increase in risk tolerance was associated with a 13% increase in the likelihood of becoming self-employed

(Ahn, 2010). A prior study utilizing the SCF data set also concluded that business ownership was associated with greater tolerance of risk as well as a higher fraction of wealth held in risky asset classes (Xiao, Alhabeeb, Hong, & Haynes, 2001).

Despite its risks, business owners pursue their lines of work in part due to favorable expectations around business outcomes. Nascent entrepreneurs have been found to be overly optimistic about the probabilities that their start-up activities will result in operating businesses, and entrepreneurship has been linked to higher levels of general optimism, as well (Cassar, 2010; Puri & Robinson, 2013). A cross-cultural study found individuals' assessments of their entrepreneurial knowledge, skills, and abilities to be the strongest predictor of intent to start a business (Koellinger, Minniti, & Schade, 2007). This subjective anticipation of successful ventures may also increase perceptions of expected returns to private business ownership as the self-employed constitute the majority of the individuals in the highest income decile (Quadrini, 1999). Likewise, individuals who start businesses have been found to be more upwardly mobile in socio-economic status than those who do not, perhaps inflating would-be entrepreneurs' expectations regarding their prospects for success (Quadrini, 1999).

Correlation of Stock and Business Ownership Returns

If stock investment and business ownership are both perceived as high-risk, high-reward investment vehicles, then predictions regarding portfolio allocation utilizing MPT hinges on the correlation of returns among these asset classes. A study estimating returns from private business ownership by analyzing tax records showed that entrepreneurial earnings are in fact highly correlated with common stock returns (Heaton & Lucas, 2000). So, investors seeking to reduce unsystematic risk may seek alternate investments with risk and return profiles that do not so closely mirror those of broader equity markets. Therefore, utilizing MPT one may predict that:

H2a: Respondents owning businesses will be less likely to own stock in their portfolios.

H2b: Respondents owning businesses will hold a lower fraction of financial assets in stock.

Business Owners' Portfolios

Though some exceptions exist, research into the portfolios of the self-employed has generally shown that business owners substitute their savings away from the stock market. Governmental data analyzed by the Small Business Administration shows that business owners are less likely to hold assets in retirement vehicles that include stock investment options, choosing instead to leave savings in low-rate bank accounts (Lichtenstein, 2010). Similar lines of inquiry using the SCF have also found that households owning businesses were less likely to own stock and that a stated goal of saving to invest in a business is associated with reduced investment in stocks (Shum & Faig, 2006; Wang & Hanna, 2007). Share of stock holdings appears to be negatively related also to the level of annual business income, and households are more likely to substitute away from stocks in the presence of risks stemming from potential underfunding of business endeavors (Faig & Shum, 2002; Heaton & Lucas, 2000).

Given the correlation between business income and stock returns, much of the empirical evidence aligns with predictions one might expect from MPT. Business owners have generally shown an unwillingness to invest in equities considering the risk-return profile of entrepreneurship. However, a recent study produced conflicting results. An analysis using government data from Norway found that stock market participation, high rates of personal leverage, larger fractions of wealth held in the stock market, and volatility of personal stock holdings were all positively correlated with entry into entrepreneurship (Hvide & Panos, 2014).

Stock investors in this study were found to be 50% more likely to be entrepreneurs (Hvide & Panos, 2014).

Aside from the existence of some conflicting results, the research supporting the view that business owners limit or avoid investment in the stock market largely ignores the possibility that entrepreneurial pursuits might vary in their levels of personal financial risk. The present study aims to account for this heterogeneity in private business risk by including a measure of personal financial obligations related to the funding of the business. Lower levels of liability for adverse business outcomes should reduce risk exposure, while higher levels increase it. As such, MPT might predict that:

H3a: Respondents with higher levels of personal financial obligation to businesses will be less likely to own stock in their portfolios.

H3b: Respondents with higher levels of personal financial obligation to businesses will hold a lower fraction of financial assets in stock.

Demographic and Financial Characteristics

Household financial characteristics have also proven to be important in studies of stock market participation. Prior research into portfolio allocation decisions utilizing the SCF have found correlations between net worth and equity ownership, with wealthier households tending to participate more so than lower net worth households (Heaton & Lucas, 2000). Income, too, has also demonstrated a positive association with stock market participation in the SCF (Shum & Faig, 2006). Finally, several cohorts of SCF respondents have shown an increased likelihood of holding stock if they have corresponded with a financial professional like a lawyer or financial planner (Shum & Faig, 2006).

Demographic characteristics also appear to play an important role in shaping decisions to participate in the stock market. First, increases in age tend to lead to an accumulation of equity assets until the latter phases of life, presumably when households draw down stock assets due to retirement (Heaton & Lucas, 2000; Shum & Faig, 2006). Race has also shown to be a factor in stock market allocation decisions. Minority racial groups participate in the stock market at relatively lower rates, and minority participation appears to be declining in the early part of the 21st century (Hanna & Lindamood, 2008). Education, too, appears to play a role in decision to allocate assets towards stocks. Those with higher levels of education have exhibited a higher propensity to purchase equity assets and hold a greater fraction of wealth in stock (Cooper & Zhu, 2016). Controls for the aforementioned financial and demographic characteristics are included within this study.

Methods

Data

Data for the study were drawn from the 2016 SCF. The SCF is a cross-sectional survey of U.S. families, occurring every three years and sponsored by the Federal Reserve. The survey measures household assets, liabilities, income, net worth, debt, and demographic information. Given that the population of interest in this study centers on business owners, the SCF serves as a useful means of analyzing this audience. Business owners have been found to have higher incomes and net worth than the general population, so the SCF oversampling of high net worth individuals allows for more robust statistical inference when analyzing entrepreneurial households (De Nardi, Doctor, & Krane, 2007). Additionally, the availability of household balance sheet data in the SCF allows for examination of the personal investments utilized in order to fund business operations.

Empirical Model

MPT theorizes that investors can optimize their investment portfolios by constructing combinations of assets that maximize expected returns for a given level of risk. This study analyzes stock market participation and levels of stock market investment as a function of risk preference, business ownership, the financial vulnerability stemming from business ownership, and multiple control variables. Two models are produced, analyzing two distinct dependent variables.

Dependent Variable. The first dependent variable was a binary measure of stock market participation coded as 1 if respondents indicated that they owned financial assets in publicly-traded stocks. Those who do not own equities were coded as zero. This measure was constructed by the Federal Reserve and included in the public data release. Equity participation is constructed by aggregating responses to a multitude of balance sheet questions, and the variable accounts for stocks held directly in brokerage accounts as well as exposure to stock funds through pension accounts, retirement accounts, annuities, or trust funds.

A second dependent variable measured the ratio of stock holdings value to total financial assets and served as a gauge of the relative size of respondents' stock holdings. Total financial assets were also summated by the Federal Reserve and included in SCF data. Total financial assets as determined by the Federal Reserve generally include more liquid assets, such as checking, savings, money market funds, certificates of deposit, equities, bonds, and retirement funds. Less liquid investments like real estate holdings, vehicles, and business interests are omitted from the total financial asset denominator in the second dependent variable. The ratio of stock holdings to total financial assets ranged from 0 to 1.

Willingness to Accept Risk. Respondents' willingness to accept financial risk served as a measure of risk preference. SCF respondents were prompted with the following:

Some people are fully prepared to take financial risks when they save or make investments, while others try to avoid taking financial risks. On a scale from 0 to 10, where 0 is not at all willing to take risks and 10 is very willing to take risks, what number would you (and your {husband/wife/partner}) be on the scale?

Business Ownership. Business ownership was a binary measure indicating the presence or absence of an active management role in a private business. Respondents were classified as owners if either of two conditions were met. First, those who indicate ownership or a share ownership in a non-publicly traded business were coded as 1. Some respondents, however, did not indicate ownership in a business, but identified as being either self-employed or a partner in a law firm, medical practice, or other private business. These participants were similarly coded as 1 for business ownership. All others were considered non-owners and coded as 0.

Financial Vulnerability from Business. To account for the varying degrees of personal financial obligation stemming from the operation of a business, a measure of financial vulnerability from business pursuits was included. Respondents who indicated ownership in a business were asked if they have personally cosigned loans, guaranteed loans, or used personal assets as collateral for business loans. Those that have done so must also indicate the value for which they have cosigned, guaranteed, or collateralized. This value was then added to any amount of money that respondents indicated that the business currently owes to them in order to form the variable measuring financial vulnerability from business ownership. This value was set to 0 for those who do not own businesses. A logarithmic transformation of this variable was conducted to correct for skewness.

Controls. Several demographic variables were included as controls based on findings from prior studies. First, age was a self-reported, continuous variable. To control for a possible curvilinear relationship between age and stock holding as older individuals draw down any retirement assets, a squared age variable was also included. Ethnicity was recorded as a series of categorical variables, with indicators for White, Black, Hispanic, and Other. Finally, respondents' education level within the SCF was measured via a question asking for the highest level of completed education. This variable was coded as categorical, with indicators for less than a high school diploma, high school completion, some college, undergraduate degree holders, and those with greater than an undergraduate degree. Respondents who completed fewer than 12 years of education formed the less than high school diploma category, while those who completed exactly 12 were considered high school graduates. Those with more than 12 but fewer than 16 years of education formed the some college category, and 16 years exactly equated to an undergraduate degree. Finally, those with greater than 16 years of education formed the highest education category.

Controls for financial characteristics included measures of net worth and income. Both variables were self-reported and continuous. To account for positively skewed values, income was log transformed. If initial values were equal to 0, then 1 cent was added before log transformation. Net worth was also skewed; however, it could be positive or negative in initial value. This was addressed by utilizing the inverse hyperbolic sine to transform the net worth measure (Friedline, Masa, & Chowa, 2015).

The final control variable employed involved the use of paid advice in financial decision-making. This was a binary measure composed from two questions asking participants which sources of information that they consult before borrowing or saving. Consistent with prior

measures of this phenomenon that utilized the SCF, respondents who indicated correspondence with a professional were coded as 1, including those that consulted a lawyer, accountant, banker, broker, or financial planner when making borrowing or saving decisions (Park & Yao, 2016; Potter & Heckman, 2018). All others were coded as 0.

Analysis

Two models were produced, the first of which utilized logistic regression to analyze the dichotomous variable indicating ownership of equities as a function of business ownership, financial vulnerability from business interests, willingness to accept risk, and control variables. The logistic regression analysis was unweighted given that previous research using SCF data has found that unweighted multivariate analysis produces more conservative significance tests and may be superior for hypothesis testing (Shin & Hanna, 2017).

Additionally, consideration was given to imputed data within the SCF. SCF participants occasionally will fail to provide responses to each question asked. In such cases, the SCF utilizing multiple imputation in order to estimate those missing values (Lindamood, Hanna, & Bi, 2007). Multiple imputation within the SCF results in the creation of five data sets, or implicates, each containing values for missing data selected from a likely range of responses. This methodology serves not only as a means to reduce instances of missing data, but also provides the survey designers with some protection of privacy for households with extreme response values that could be used to identify the participants (Lindamood, Hanna, & Bi, 2007). The use of multiple implicates provides a range of values for each household, reducing the likelihood of identifying individual households. Analysis in this study made adjustments to account for the use of multiple implicates in the SCF by employing repeated imputation

inference (RII). RII is suggested as a method of producing more accurate estimated variances when working with multiple implicates (Lindamood, Hanna, & Bi, 2007; Rubin, 2004).

A second model focused only on those who indicated ownership of equities. This model was formed with a dependent variable consisting of the ratio of equity value to total financial asset value. Consistent with prior literature examining ratios comprised of business and personal assets, ordinary least squares regression was used (Ji & Hanna, 2012). This model was similarly unweighted and utilized RII techniques to account for a multiple implicate structure.

Results

Weighted descriptive statistics are depicted in Table 3.1. Roughly 52% of participants owned equities, and the mean equity to financial asset ratio was 23%. Respondents overall showed moderate risk aversion, with an average of a 4.25 on the 10-point willingness to accept risk scale. Participants indicated business ownership 29% of the time, with the average monetary value of collateralized business debt, guaranteed business loans, and money owed to respondents from the business equal to \$12,687. A majority (69%) of participants indicated the use of professional advice when making saving and borrowing decision, as well.

Respondents' demographic data revealed that the sample was predominantly female (53%). Respondents tended to be middle aged ($M = 51.05$), and the majority of participants were White (68%). African American participants comprised 16% of the sample, and Hispanic respondents accounted for 11%. Educational backgrounds were fairly evenly distributed with the exception of those with less than a high school degree (11%). Those with a high school diploma represented 23% of the sample, college graduates comprised 22%, and those with some college experience were 30%. Those with a graduate education formed 14% of the sample. From a financial perspective, the average income of respondents was \$102,252, and their net worth was

a mean of \$689,576. Median values for income and net worth were lower at \$52,657 and \$97,300, respectively, due to the skewed nature of these variables.

Table 3.1 Portfolio Choices of Households Owning Businesses: Descriptive Statistics (N=6,248)

Variable	<i>M</i>	<i>Mdn</i>	<i>Range</i>
Stock Market Participation	0.52	1.00	0 – 1
Equity/Financial Assets	0.23	0.02	0 – 1
Willingness to Accept Risk	4.25	5.00	0 – 10
Business Ownership	0.16	0.00	0 – 1
Financial Vulnerability	12,686.51	0.00	
Age	51.05	51.00	18 – 95
Race			
White	0.68	1.00	0 – 1
Black	0.16	0.00	0 – 1
Hispanic	0.11	0.00	0 – 1
Race Other	0.05	0.00	0 – 1
Level of Education			
Less Than High School	0.11	0.00	0 – 1
High School	0.23	0.00	0 – 1
Some College	0.30	0.00	0 – 1
College	0.22	0.00	0 – 1
Grad	0.14	0.00	0 – 1
Income	102,251.98	52,657.09	
Net Worth	689,575.94	97,300.00	
Professional Advisor Use	0.69	1.00	0 – 1
Female	0.53	1.00	0 – 1

Notes: All data are weighted and drawn from the 2016 Survey of Consumer Finances.

Model 1

The first model depicted in Table 3.2 provides a view into the factors that may be related to decisions to participate in the stock market. An unweighted logistic regression model was fit, and adjustments were made to correct standard errors for the SCF usage of multiple implicates. The model Chi-Squared test was significant, indicating that the inclusion of predictor variables is an improvement over a null model. The *c* statistic was relatively high at 0.88, demonstrating predictive accuracy of the model.

Results yielded several variables that were significant predictors of stock market participation. One of the key variables of interest, business ownership, had a negative relationship with the log odds of stock market participation. Business owners had 0.76 times the odds of owning equities relative to those not owning businesses ($p < .01$). Respondents' willingness to accept risk was also a significant predictor of stock market participation. A one-unit increase on the willingness to accept risk scale was linked to 1.11 times the odds of participating in the stock market ($p < .001$). Curiously, financial vulnerability from business ownership was associated with higher odds of equity ownership ($e^{\beta} = 1.06, p < .05$). A 1% increase in guaranteed business loans, collateralized business loans, or money owed from the business to the individual was associated with 1.06 times the odds of stock market participation. Finally, the use of a paid advisor of any sort yielded 1.75 times the odds of owning equities ($p < .001$).

Respondent demographic information also appeared to be relevant, particularly as it pertains to race and education level. African American and Hispanic respondents had reduced odds of equity ownership relative to Whites ($e^{\beta} = 0.44, p < .001$; $e^{\beta} = 0.42, p < .001$, respectively), while those identifying with other racial backgrounds had elevated odds ($e^{\beta} = 2.10, p < .001$). All educational backgrounds below a college degree were tied to reduced odds of stock ownership. Those with less than a high school education, a high school education, or some college experience had 0.14, 0.29, and 0.45 times the odds of equity ownership, respectively ($p < .001$). Those with some graduate education demonstrated higher odds of equity ownership relative to college graduates ($e^{\beta} = 1.54, p < .001$). Age-related variables were also significant predictors of stock market participation in the model, but of little practical value due to odds ratios clustered near 1.00.

Finally, financial characteristics were also significant in determining likelihood of equity ownership. A 1% increase in annual income translated into 1.58 times the odds of owning stocks in the model ($p < .001$). Similarly, increases in net worth were associated with elevated odds of equity ownership. A 1% increase in net worth correlated to 1.08 times the odds of stock ownership ($p < .001$).

Table 3.2 Summary of Logistic Regression Analysis Predicting Equity Ownership (N=6,248)

Variable	β	SE β	e^β
Willingness to Accept Risk	0.10***	0.01	1.11
Business Ownership	-0.28**	0.10	0.76
Financial Vulnerability (Log)	0.06*	0.02	1.06
Age	0.05***	0.01	1.05
Age Squared	0.00***	0.00	1.00
Race (White)			
Black	-0.82***	0.10	0.44
Hispanic	-0.87***	0.12	0.42
Race Other	0.74***	0.16	2.10
Level of Education			
Less Than High School	-1.97***	0.15	0.14
High School	-1.23***	0.11	0.29
Some College	-0.79***	0.10	0.45
Grad	0.43***	0.13	1.54
Income (Log)	0.46***	0.04	1.58
Net Worth (Inverse Hyperbolic sine)	0.08***	0.01	1.08
Professional Advisor Use	0.56***	0.08	1.75
Female	-0.12	0.08	0.89
Constant	-6.57***	0.53	
c		0.88	
$\chi^2 (df)$		34.12 (11)	

Note: Data from the 2016 Survey of Consumer Finances. * $p < .05$. ** $p < .01$. *** $p < .001$. e^β = exponentiated β .

In summary, the first model provided support for *H1a* and *H2a*. Business ownership reduced the odds of equity ownership, and greater willingness to accept risk increased the odds. Demographic variables pertaining to race, education, professional advisor use, and financial characteristics were significant predictors of equity ownership, as well. However, *H3a* was not

supported as those with higher amounts of financial vulnerability stemming from business ownership actually had higher odds of stock market ownership.

Model 2

A second model was fit in order to analyze relative levels of stock market participation. The dependent variable in this model was the ratio of respondents' equity values to total financial asset values, and the sample focused only on those who owned equities in the first model. Unweighted Ordinary Least Squares regression was employed with standard error adjustments for multiple implicates, and the model produced a significant F value to indicate improvement over a null model. The adjusted R^2 for the model was 0.07. While this may seem like a lower R^2 , the goal of this study is explanation rather than prediction, and low R^2 values are relatively common in social science research (Itaoka, 2012). While some factors may influence financial holdings that are beyond the scope of the constructs of Modern Portfolio Theory, the model in this study does help explain some of the variance in equity holdings while considering business ownership variables.

Fewer independent variables were significant predictors of the outcome in the second model. Most notably, business ownership had no significant relationship with the ratio of equity ownership value to total financial assets when analyzing only those who own at least some equity ($B = -0.02$, $p = 0.101$). Financial vulnerability, a continuous measure of personal asset values enmeshed with the business operation, was significant but yielded little practical value with a beta coefficient of 0.00 ($p = 0.041$). Willingness to accept financial risk remained significant in this model, with a one-unit increase in willingness to accept risk being associated with a 2% increase in the equity to financial asset ratio ($p < .001$). Few of the race and level of education variables were significant predictors of the equity to total financial asset ratio, though

gender and net worth were significant predictors. Being female was tied to equity to financial asset ratios that were 4% lower than males' ($p < .001$), while a 1% increase in income was associated with a 1% increase in the dependent variable ratio ($p = 0.022$). In total, this model provided support for *H1b* while failing to support *H2b* or *H3b*.

Table 3.3 Summary of OLS Regression Analysis Predicting Equity to Total Financial Asset Ratio (N=3,758)

Variable	<i>B</i>	<i>SE β</i>	<i>p</i>
Willingness to Accept Risk	0.02***	0.00	<.001
Business Ownership	-0.02	0.01	0.101
Financial Vulnerability (Log)	0.00*	0.00	0.041
Age	0.00	0.00	0.409
Age Squared	0.00	0.00	0.500
Race (White)			
Black	-0.02	0.02	0.346
Hispanic	-0.04	0.02	0.062
Race Other	-0.02	0.02	0.516
Level of Education			
Less Than High School	0.04	0.04	0.268
High School	-0.01	0.02	0.711
Some College	-0.03*	0.01	0.016
Grad	0.02	0.01	0.185
Income (Log)	0.01*	0.00	0.022
Net Worth (Inverse Hyperbolic sine)	0.00***	0.00	<.001
Professional Advisor Use	-0.01	0.01	0.279
Female	-0.04***	0.01	<.001
Constant	0.20***	0.06	<.001
Adjusted R ²	0.07		
F Value	95.83***		

Notes: Data from the 2016 Survey of Consumer Finances and restricted to those owning at least some stocks. *B* = unstandardized coefficient. *SE B* = standard error of coefficient. * $p < .05$. ** $p < .01$. *** $p < .001$.

Conclusion and Implications

Prior to examining results of this study, a few limitations can be noted. First, given that the SCF is not a panel study, entrepreneurship researchers will only have visibility into the

household finances of those who are already active in their businesses. This means that portfolio decisions made prior to a business launch will not be viewed. For example, it could be the case that entrepreneurs participate in the stock market at higher rates during business planning phases before selling equity investments to fund business operations. Future research could build upon this study with the use of a longitudinal data set that includes both household finance and business ownership measures.

It is also worth noting that when utilizing dependent variables that are ratios, as is the case in the second model of this paper, some researchers prefer alternative methods to ordinary least squares regression. Fractional logistic regression has been suggested as an alternative when modeling ratio dependent variables (Papke & Wooldridge, 1996; Liu & Xin, 2014). A fractional logistic regression model was fit to test for robustness in this study, and nearly all variables behaved similarly to their results in ordinary least squares model both in terms of significance and direction. The one exception was the financial vulnerability variable which would have been significant at the $p < .05$ level in the fractional logit; however, the coefficient indicated that it would only be associated with a modest reduction in the equity to total financial asset ratio. The ordinary least squares model was selected for interpretation due to the existence of prior literature utilizing the same method with the SCF data set and a ratio outcome variable (Ji & Hanna, 2012).

It might be inferred from MPT that business owners treat equities as a substitute investment product for the investments that can be made into their own business. Given past research findings that equity returns correlate highly with private business returns, it is reasonable to theorize that business owners seeking to reduce unsystematic risk in their financial portfolios might avoid equities (Heaton & Lucas, 2000). This study provided limited support for

this viewpoint and some surprising results regarding levels of equity investment that could spur future directions for research.

Ownership of a business did show a significant relationship with decisions to enter the stock market, and those with private business interests were less likely to be stock owners. However, when examining levels of equity holdings only among those who do have equities in their portfolios, no significant differences were detected between business owners and those not owning businesses. One interpretation of these findings could be that operating a private business provides a barrier to stock market entry, but that once that barrier is cleared then business owners behave similarly to non-owners in their investment decision making. If this is the case, then future research may investigate the role of availability of tax-advantaged retirement savings vehicles, which could be a component of that initial barrier. Prior literature has noted a decline in household direct stock holdings and an increase in equity assets within tax-advantaged retirement accounts (Rydqvist, Spizman, & Strebulaev, 2014). For the traditionally employed, voluntary participation in such tax-advantaged accounts is commonly available through a streamlined sign-up process provided by the employer and such accounts frequently include equity investment options. Individual business owners, on the other hand, must evaluate retirement account options like the solo 401(k) or self-employed pension (SEP) on their own or with the help of a paid advisor, creating and managing a plan to suit their needs. Those managing businesses with paid employees could also face additional administrative hurdles in designing plans that comply with IRS nondiscrimination rules. Of course, this is but one interpretation of what might cause an initial barrier to stock investment among private business owners, but it is a phenomenon that could warrant additional research.

Another finding from this study is that financial vulnerability, as measured by the use of personal assets to collateralize business loans or fund business operation, served to modestly increase the likelihood of stock market participation. Theoretically under MPT, investment in riskier business propositions should discourage the use of other risky asset classes, particularly when their returns correlate highly. One possible explanation for the surprising results in this study could be that it is those businesses with less volatile returns that encourage loan collateralization or owner investment. In other words, a willingness to enmesh personal assets with the business could be a signal of a less risky business rather than one that carries more risk. As is the case with any research utilizing a secondary data set, the author was limited in the measures available to gauge financial vulnerability stemming from operation of a business. Future research may explore this construct further utilizing other quantitative measures of business risk or personal financial vulnerability to the business.

Aside from being of interest to researchers, the implications from this study may also inform college curriculum designers, financial planners, or governmental agencies like the Small Business Administration (SBA). Members of each group interact with both current and future entrepreneurs. University course offerings and programming supplied by the SBA frequently focus on the practical considerations of operating a business, such as financing, marketing, structuring, and managing a business. Less attention seems to be paid to the personal financial elements of business ownership, though, despite business owners demonstrating unique investment behavior. University and governmental personnel could increase educational opportunities regarding the potential ramifications of business ownership on personal finances, and financial planners can aid new business owners in evaluating retirement plan options and forming a comprehensive investment strategy.

References

- Ahn, T. (2010). Attitudes toward risk and self-employment of young workers. *Labour Economics*, 17(2), 434–442. <https://doi.org/10.1016/j.labeco.2009.06.005>
- Brown, S., Dietrich, M., Nuñez, A., & Taylor, K. (2013). Business ownership and attitudes towards risk. *Applied Economics*, 45(13), 1731–1740. <https://doi.org/10.1080/00036846.2011.636026>
- Bureau of Labor Statistics. (2016). Entrepreneurship and the U.S. economy. Retrieved May 5, 2017, from https://www.bls.gov/bdm/entrepreneurship/bdm_chart3.htm
- Cassar, G. (2010). Are individuals entering self-employment overly optimistic? an empirical test of plans and projections on nascent entrepreneur expectations. *Strategic Management Journal*, 31(8), 822–840. <https://doi.org/10.1002/smj.833>
- Cooper, R., & Zhu, G. (2016). Household finance over the life-cycle: What does education contribute? *Review of Economic Dynamics*, 20, 63–89. <https://doi.org/10.1016/j.red.2015.12.001>
- De Nardi, M., Doctor, P., & Krane, S. (2007). Evidence on entrepreneurs in the United States: Data from the 1989-2004 Survey of Consumer Finances. *Economic Perspectives*, 18–36.
- Demirer, R., & Jategaonkar, S. P. (2013). The conditional relation between dispersion and return. *Review of Financial Economics*, 22(3), 125–134. <https://doi.org/10.1016/j.rfe.2013.04.004>
- Faig, M., & Shum, P. (2002). Portfolio choice in the presence of personal illiquid projects. *The Journal of Finance*, 57(1), 303–328. <https://doi.org/10.1111/1540-6261.00423>
- Forster-Holt, N. (2016). The retirement preparedness of the business owner. *The Journal of Retirement*, 3(4), 87–100. <http://dx.doi.org.er.lib.k-state.edu/10.3905/jor.2016.3.4.087>

- Francis, J. C., Kim, D., & Kim, D. (2013). *Modern Portfolio Theory: Foundation, Analysis, and New Developments*. New York, NY: John Wiley & Sons, Incorporated. Retrieved from <http://ebookcentral.proquest.com/lib/ksu/detail.action?docID=1113504>
- Friedline, T., Masa, R. D., & Chowa, G. A. N. (2015). Transforming wealth: Using the inverse hyperbolic sine (IHS) and splines to predict youth's math achievement. *Social Science Research, 49*(Supplement C), 264–287. <https://doi.org/10.1016/j.ssresearch.2014.08.018>
- Hall, R., & Woodward, S. (2010). The burden of the nondiversifiable risk of entrepreneurship. *The American Economic Review, 100*(3), 1163–1194. <http://dx.doi.org.er.lib.k-state.edu/10.1257/aer.100.3.1163>
- Hanna, S. D., & Lindamood, S. (2008). The decrease in stock ownership by minority households. *Journal of Financial Counseling and Planning; Columbus, 19*(2), 46-58,94-95.
- Heaton, J., & Lucas, D. (2000). Portfolio choice and asset prices: The importance of entrepreneurial risk. *The Journal of Finance, 55*(3), 1163–1198. <https://doi.org/10.1111/0022-1082.00244>
- Hvide, H., & Panos, G. (2014). Risk tolerance and entrepreneurship. *Journal of Financial Economics, 111*(1), 200–223. <https://doi.org/10.1016/j.jfineco.2013.06.001>
- Itaoka, K. (2012). Regression and interpretation low R-squared. *Proceedings of the presentation at Social Research Network 3rd Meeting, Noosa. Mizuho Information and Research Institute, Inc.*
- Ji, H., & Hanna, S. (2012). Factors related to the financial vulnerability of small business owner-manager households. *Journal of Personal Finance, 11*(1), 49–77.

- Jiang, X. (2010). Return dispersion and expected returns. *Financial Markets and Portfolio Management; New York*, 24(2), 107–135. <http://dx.doi.org.er.lib.k-state.edu/10.1007/s11408-009-0122-1>
- Kess, S., & Mendlowitz, E. (2015). Personal financial planning for business owners. *The CPA Journal*, 85(9), 60–61.
- Koellinger, P., Minniti, M., & Schade, C. (2007). “I think I can, I think I can”: Overconfidence and entrepreneurial behavior. *Journal of Economic Psychology*, 28(4), 502–527. <https://doi.org/10.1016/j.joep.2006.11.002>
- Lichtenstein, J. (2010). *Saving for retirement: A look at small business owners*. Retrieved from <https://permanent.access.gpo.gov/gpo16972/rs362tot.pdf>
- Lindamood, S., Hanna, S., & Bi, L. (2007). Using the survey of consumer finances: Some methodological considerations and issues. *Journal of Consumer Affairs*, 41(2), 195–222.
- Liu, W., & Xin, J. (2014). Modeling fractional outcomes with SAS. *SAS Support Resource*. Retrieved from <http://support.sas.com/resources/papers/proceedings14/1304-2014.pdf>
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77–91.
- Papke, L. E., & Wooldridge, J. M. (1996). Econometric methods for fractional response variables with an application to 401(k) plan participation rates. *Journal of Applied Econometrics*, 11(6), 619–632.
- Park, E., & Yao, R. (2016). Financial risk attitude and behavior: Do planners help increase consistency? *Journal of Family and Economic Issues*, 37(4), 624–638. <https://doi.org/10.1007/s10834-015-9469-9>
- Potter, D., & Heckman, S. (2018). Business entity selection: A human capital approach. *Journal of Financial Planning*, 31(4), 46–55.

- Puri, M., & Robinson, D. T. (2013). The economic psychology of entrepreneurship and family business. *Journal of Economics & Management Strategy*, 22(2), 423–444.
<https://doi.org/10.1111/jems.12013>
- Quadrini, V. (1999). The importance of entrepreneurship for wealth concentration and mobility. *Review of Income and Wealth*, 45(1), 1–19. <https://doi.org/10.1111/j.1475-4991.1999.tb00309.x>
- Rubin, D. (2004). *Multiple Imputation for Nonresponse in Surveys*. New York, NY: John Wiley & Sons, Incorporated.
- Rydqvist, K., Spizman, J., & Strebulaev, I. (2014). Government policy and ownership of equity securities. *Journal of Financial Economics*, 111(1), 70-85.
- Shahidi, A. (2015). *Balanced Asset Allocation: How to Profit in Any Economic Climate*. Hoboken, New Jersey: John Wiley & Sons, Incorporated. Retrieved from <https://ebookcentral-proquest-com.er.lib.k-state.edu/lib/ksu/reader.action?docID=1873099>
- Shin, S. H., & Hanna, S. D. (2017). Accounting for complex sample designs in analyses of the Survey of Consumer Finances. *Journal of Consumer Affairs*, 51(2), 433-447.
- Shum, P., & Faig, M. (2006). What explains household stock holdings? *Journal of Banking & Finance*, 30(9), 2579–2597. <https://doi.org/10.1016/j.jbankfin.2005.11.006>
- Van Vliet, P., & Blitz, D. (2011). Dynamic strategic asset allocation: Risk and return across the business cycle. *Journal of Asset Management; London*, 12(5), 360–375.
<http://dx.doi.org.er.lib.k-state.edu/10.1057/jam.2011.12>
- Wang, C., & Hanna, S. (2007). The risk tolerance and stock ownership of business owning households. *Journal of Financial Counseling & Planning*, 18(2), 3–18.

Xiao, J. J., Alhabeeb, M. J., Hong, G.-S., & Haynes, G. W. (2001). Attitude toward risk and risk-taking behavior of business-owning families. *Journal of Consumer Affairs*, 35(2), 307–326.

Chapter 4 - A Longitudinal Analysis of Self-Employment and Satisfaction with Life Domains

Self-employed individuals and small businesses form an important sector of the U.S. economy. The Small Business Administration estimates that over 99% of employing firms are small businesses and that these organizations generate nearly two-thirds of newly-created jobs (Small Business Administration, 2016). In recent years, more than 400,000 people per year launched new small business ventures, the majority of whom began as self-employed sole proprietors (Small Business Administration, 2016).

These high rates of entrepreneurship have been puzzling to some economists, given the myriad challenges faced by new business owners. Business founders face high risks of failure, lower earnings growth, and undiversified assets tied to the operation of the business (Bureau of Labor Statistics, 2016; Hamilton, 2000). Given the obstacles to the pursuit of self-employment and lower monetary returns to the practice in aggregate, some have suggested that nonpecuniary benefits must contribute to business founders' career satisfaction. The self-employed experience higher levels of autonomy and control over organizational decisions, perhaps providing a non-monetary incentive to form a business (Engle et al., 2010). These benefits may play an important role in satisfaction with career choice and persistence in self-employment (Hamilton, 2000).

Levels of career satisfaction have important implications for entrepreneurs and the traditionally employed alike. A thorough meta-analytic review of studies that gauged employee performance via supervisor ratings, objective performance records, and peer and subordinate ratings found a positive correlation between job satisfaction and performance on the job (Judge, Thoresen, Bono, & Patton, 2001). Those who are more satisfied, it appears, are more productive. Job satisfaction is also linked to reduced absenteeism and turnover (Bonsang & van Soest, 2012).

In the case of business owners, who are both employees and employers, job performance levels may influence income levels or longevity of the venture.

Job satisfaction also plays a role in overall health. A longitudinal analysis using the 1979 National Longitudinal Survey of Youth found that job satisfaction during the ages of 25-39 had an impact on later-life health outcomes (Dirlam & Zheng, 2017). Those with lower levels of satisfaction had increased incidences of depression, psychiatric problems, insomnia, and anxiety (Dirlam & Zheng, 2017). Physical health also waned among the less satisfied, who exhibited lower self-reported physical health statuses (Dirlam & Zheng, 2017). Finally, career-related work stress may impact relationship health, as well. Poor mood in the work environment has been found to spill over into negative affect in home and family life (Judge & Ilies, 2004).

Moreover, career satisfaction has demonstrated important relationships with other domains of subjective well-being. Given that most derive their income from their careers, linkages have been found between job satisfaction and financial satisfaction. A meta-analysis of papers examining this linkage revealed a positive association between satisfaction with pay and overall job satisfaction (Judge, Piccolo, Podsakoff, Shaw, & Rich, 2010). Job satisfaction also appears to impact life satisfaction, and a review of existing literature revealed correlations of up to 0.40 between these constructs (Erdogan, Bauer, Truxillo, & Mansfield, 2012). Job satisfaction may contribute to life satisfaction by satiating needs for income, needs for interpersonal relationships, needs for power or status, and desires for growth and challenge (Erdogan et al., 2012). A recent longitudinal study confirmed the ties between job satisfaction and life satisfaction, theorizing that these constructs have reciprocal positive influences on one another (Hagmaier, Abele, & Goebel, 2018).

The primary purpose of this study is to analyze the relationship between self-employment and satisfaction within domains including career, life, and finances. While past research has examined the relationship between self-employment and job satisfaction, this study will contribute to the literature in multiple ways. First, it uses longitudinal analyses that include participants entering self-employment in order to model multiple facets of satisfaction, including financial and life satisfaction. Additionally, these models incorporate psychographic characteristics of optimism and risk aversion that have previously been associated with self-employment in order to measure their relationships with satisfaction domains (Ahn, 2010; Åstebro, Mata, & Santos-Pinto, 2015; Bengtsson & Ekeblom, 2014; Puri & Robinson, 2013). The factors included in analyses were selected with guidance from the Job-Demand-Control model (JDC), which proposes that strain from one's occupation is a function of the overall demands of the role one occupies and the latitude to make individual decisions in order to meet those demands (Karasek, 1979). Thus, the research questions of interest are:

What relationship does self-employment have with levels of job, life, and financial satisfaction?

Which job demand and job control factors influence levels of job, life, and financial satisfaction?

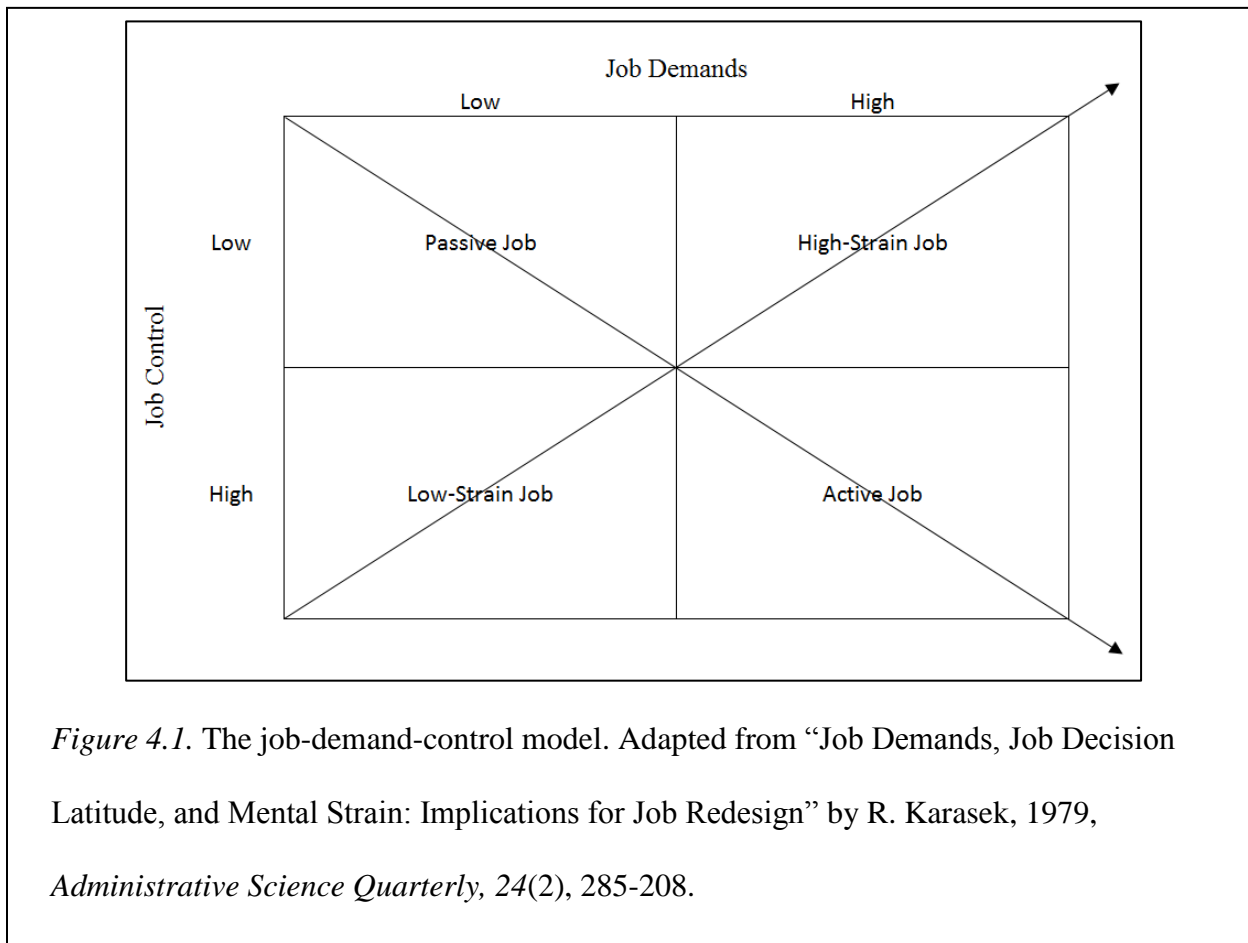
Theoretical Framework and Related Literature

The JDC model interprets mental strain and job dissatisfaction as a function of two constructs. First, excessive job demands generally facilitate stress and dissatisfaction. These job demands include such things as heavy volume of work, time constraints or aggressive deadlines, and conflicting job responsibilities (Karasek, 1979). However, job demands alone do not account for satisfaction levels, as many individuals in high-responsibility roles report feelings of

contentment with their careers. Thus, the JDC hypothesizes that decision latitude, or autonomy, plays an important function in shaping career satisfaction, as well (Karasek, 1979). Jobs high in decision latitude enable employees to learn new skills, participate in decision making, exercise creative license, and operate with freedom (Karasek, 1979). High decision latitude reduces mental strain by transforming stress into energy or action (Karasek, 1979).

Using these two dimensions, the JDC model classifies careers as active, passive, high strain, or low strain. Active jobs entail high demands, but also offer high levels of decision latitude. In these environments, workers are able to develop new competencies and may feel able to manage heavy demands (Karasek, 1979). Conversely, high-strain jobs entail extensive demands and low decision latitude. These types of careers are most damaging to job satisfaction levels (Karasek, 1979). Interestingly, passive jobs that are low in demands and decision latitude also lead to lower levels of satisfaction; however, the negative effects are not as extensive as those associated with high-strain jobs (Karasek, 1979). Finally, low-strain jobs are those high in decision latitude and low in demands. The resulting model is depicted in Figure 3.1.

Figure 4.1. The Job-Demand-Control Model



Job Demands

Work Hours. Some research has suggested that increases in work hours detract from the time available for family and nonwork obligations, which can reduce job satisfaction (Ronda, Ollo-López, & Goñi-Legaz, 2016). Having time available to attend to non-work responsibilities is also tied to improved life satisfaction (Erdogan et al., 2012). However, the relationship between work hours and job or life satisfaction may not be perfectly linear. It may be the case that satisfaction levels decline when there is a mismatch between desired hours and actual hours worked (Başlevent & Kirmanoğlu, 2014). In some cases, increases in work hours can improve job satisfaction if individuals desire more work responsibility, although excessive workload that

exceeds expected work hours reduces job satisfaction (Başlevent & Kirmanoğlu, 2014; Lee, Wang, & Weststar, 2015). Therefore, it is hypothesized that:

H1: Hours worked per week will have a curvilinear relationship with satisfaction variables. Excessive hours will be negatively associated with satisfaction.

Work-Life Interference. Low levels of conflict between work and non-work activities have been associated with greater job satisfaction and life satisfaction (Qu & Zhao, 2012). Those with better work-life balance have more positive attitudes towards work and show signs of increased productivity (Qu & Zhao, 2012). Not only is increased work-life balance associated with job satisfaction, but low levels of work-life balance have been linked to anxiety and depression (Haar, Russo, Suñe, & Ollier-Malaterre, 2014). Finally, research into the antecedents of work-life balance has shown that employee autonomy and managerial support for balance are important factors in reducing interference between work and life in order to improve job satisfaction (Mas-Machuca, Berbegal-Mirabent, & Alegre, 2016). This leads to the following hypothesis:

H2: Work interference with personal life will be negatively associated with satisfaction variables.

Job Control

Self-Employment. Self-employment, one of the key variables of interest in this study, has previously been positively associated with job satisfaction (Block & Koellinger, 2009; Millán, Hessels, Thurik, & Aguado, 2013). Researchers interested in the potential sources of this increase in satisfaction have determined that entrepreneurs who achieve financial success in their endeavors tend to be more satisfied (Block & Koellinger, 2009). Interestingly, though, 73% of respondents in one sample claimed their ventures were successes despite only 23% feeling as

though they have achieved a high level of income (Block & Koellinger, 2009). Other predictors of job satisfaction in that study included entrepreneurs' achievement of independence and perceptions of creativity in their daily work (Block & Koellinger, 2009). Similar studies, too, have noted positive associations between job satisfaction and self-employment even when controlling for financial variables, leading the researchers to conclude that the self-employed experience "procedural utility", or an enjoyment of the process of entrepreneurship rather than just the financial outcome (Benz & Frey, 2008). The present paper further explored this procedural utility by examining changes in levels of autonomy and including measures of optimism and risk tolerance that may impact perceptions of being self-employed. It is hypothesized that:

H3: Self-employment will be positively associated with satisfaction variables.

Autonomy. Self-employment has been linked to increased autonomy and control over decision making (Engle et al., 2010). Furthermore, desire for autonomy is one of the key motives in decisions to pursue entrepreneurship, and those that prefer higher degrees of control in their work life tend to be more interested in starting their own businesses (Cooper & Saral, 2013; Kautonen, van Gelderen, & Fink, 2015). Research into the established linkage between self-employment and job satisfaction posits that increases in autonomy are partially responsible for the observed higher levels of job satisfaction (Hytti, Kautonen, & Akola, 2013; Schneck, 2014). Therefore, this leads to the following hypothesis:

H4: Perceived autonomy will be positively associated with satisfaction variables.

Ability to Meet Work Demands. Individuals' perceptions of their abilities to meet the demands of their careers may also influence job satisfaction levels. Work demands or stressors can stem from the physical requirements of a job, psychosocial aspects of work, or the cognitive

requirements of the work itself (Ilmarinen & Rantanen, 1999). High levels of dissonance originating from any of these sources can lead to burnout and fatigue (Hakanen, Seppälä, & Peeters, 2017; Meyer & Hünefeld, 2018). However, having the resources to meet such demands should have positive impacts on job satisfaction, such that:

H5: Perceived ability to meet job demands will be positively associated with satisfaction variables.

Psychographic Characteristics

Several psychographic characteristics might also influence levels of job satisfaction. Evidence exists that those who are more optimistic and those with higher risk tolerance are more likely to favor entrepreneurial careers (Ahn, 2010; Åstebro, Mata, & Santos-Pinto, 2015; Bengtsson & Ekeblom, 2014; Puri & Robinson, 2013). Research into the relationship between optimism and job satisfaction has produced mixed results, though. A study utilizing a large sample from the European Social Survey indicated a significant positive relationship between optimism and job satisfaction, and smaller studies internationally have also supported this result (Bibi, Karim, & Rehman, 2017; Mishra, Patnaik, & Mishra, 2016). However, a Finnish study exploring the buffering effects of optimism on job satisfaction among those with insecure employment prospects found no significant relationship between optimism and satisfaction levels (Cheng, Mauno, & Lee, 2013). Another study found that optimists, through inflated expectations of labor market outcomes, are more prone to disappointment with results, whereas pessimists are more likely to exceed their expectations (Dawson, 2017). Given that the present study will be examining participants who may have just recently entered entrepreneurship, it is unlikely that respondents will have spent enough time in business ownership to compare to their expectations. Thus, for this study it is hypothesized that:

H6: Optimism will be positively associated with satisfaction variables.

Within the context of entrepreneurship, risk tolerance levels may also exert an influence on job satisfaction. In a study of workers employed using a performance-based pay compensation structure, risk aversion was found to have a negative relationship with job satisfaction (Cornelissen, Heywood, & Jirjahn, 2011). This relationship was not significant, however, in a population that did not earn an income through a performance-based pay structure (Cornelissen et al., 2011). Therefore, it is hypothesized that risk aversion will have a relationship with satisfaction in the present study, though the directionality is not yet known:

H7: Risk aversion will exhibit some association with satisfaction variables.

Methods

Data

Data for the study were drawn from the HRS. The HRS is a nationally representative dataset that includes results from participants' interviews occurring every two years. The panel study has sampled over 20,000 Americans dating back to 1992. Supported by the National Institute on Aging and the Social Security Administration, it focuses on adults aged 50 and over and includes data pertaining to work, personal finance, health status, health care, and retirement. This data set is particularly interesting to studies of self-employment. Contrary to generally accepted perceptions, self-employment rates tend to increase with age (Cahill, Giandrea, & Quinn, 2013). Self-employment roles may act as bridge jobs to retirement, and those who are self-employed can remain in the workforce for longer than those in traditional employment roles (Cahill et al., 2013).

Data for the present study focused on the 2008-2014 panels of the HRS. Select measures were drawn from the Psychosocial and Lifestyle Questionnaire, which is delivered to half of the

HRS participants per wave. This resulted in a two-period longitudinal analysis spanning two groups based on the timing of their receipt of the Psychosocial and Lifestyle Questionnaire. The sample was limited in two ways. First, respondents must have been actively participating in the panel study as of 2014, the final year of analysis. Second, the sample was limited to those who were actively working during all periods because several of the career-related measures were only available in the data set if participants indicated active employment. This produced a final sample size of 1,182.

Empirical Model

Dependent Variables. Three dependent variables were produced in this study. The first is a measure of job satisfaction. Working participants were asked how much they agree or disagree with the statement, “I am satisfied with my job.” Four response categories ranging from strongly disagree to strongly agree” were included. Questions regarding life satisfaction and financial satisfaction were delivered to participants with five response categories ranging from 1=completely satisfied to 5=not at all satisfied. The life satisfaction variable measured responses to the statement, “How satisfied are you with your life as a whole?” Financial satisfaction was recorded via responses to the statement, “How satisfied are you with your present financial situation?” Both the life satisfaction and financial satisfaction variables were reverse coded such that higher values were indicative of higher levels of satisfaction.

Job Demand Variables. Two job demand variables were derived from the data. First, work interference with personal life was a scale composed of three items developed in prior literature (MacDermid et al., 2000). It served as a measure of the potential negative impact of work activity on the fulfillment of personal responsibilities, interactions with family and friends,

and work-related distraction during personal time. The scale ranged from 1-4 with higher values signifying higher levels of work-life interference. This measure was treated as time variant.

Table 4.1 Work-Life Interference Scale

Variable	Item
Work-Life Interference	My work schedule makes it difficult to fulfill personal responsibilities.
Work-Life Interference	Because of my job, I don't have the energy to do things with my family or other important people in my life.
Work-Life Interference	Job worries or problems distract me when I am not at work.

Next, hours worked per week was a continuous, time-variant measure asking participants about their work hours in an average week. Both the original work hours response as well as an hours squared variable were included in the model. The latter was included to test for a curvilinear relationship, whereby work hours serve to increase job satisfaction up until an inflection point beyond which satisfaction deteriorates.

Job Control Variables. Three job control variables were also drawn from the data set. First, a self-employment variable was recorded using responses to the question, “do you work for someone else, are you self-employed, or what?” Those working for themselves were coded 1, and all others as 0. Self-employment was treated as a time-variant measure.

Next, a measure of participants’ sense of autonomy was included. Although the HRS included a direct question about perceived autonomy in the workplace at one point, this question was dropped in latter waves of the survey. Autonomy was instead proxied through a perceived mastery scale that was constructed from five items indicating levels of agreement with statements regarding personal agency over life events (Pearlin & Schooler, 1978). The items ranged from 1-6 with higher values indicating greater perceptions of control. Items were averaged to produce the scale, and respondents with more than three missing values were

listwise deleted. Mastery was treated as a time-variant measure given prior research indicating that it is not a fixed personality trait (Pearlin, Nguyen, Schieman, & Milkie, 2007).

Finally, perceived ability to meet work demands was a continuous, time-variant measure gauging respondents' self-reported capacity to satisfy the physical, mental, and interpersonal demands of their jobs. An index with a potential range of 0-40 was created by summing four ten-point items. Higher values indicated greater perceived ability to meet job demands.

Table 4.2 Ability to Meet Work Demands Scale

Variable	Item
Ability to Meet Work Demands	How many points would you give your current ability to work?
Ability to Meet Work Demands	Thinking about the physical demands of your job, how do you rate your current ability to meet those demands?
Ability to Meet Work Demands	Thinking about the mental demands of your job, how do you rate your current ability to meet those demands?
Ability to Meet Work Demands	Thinking about the interpersonal demands of your job, how do you rate your current ability to meet those demands?

Psychographic Variables. Measures for optimism and risk aversion were also included in the model. An optimism index was formed from three items as depicted below (Carver, Scheier, & Segerstrom, 2010):

Table 4.3 Optimism Scale

Variable	Item
Optimism	I'm always optimistic about my future.
Optimism	In uncertain times, I usually expect the best.
Optimism	Overall, I expect more good things to happen to me than bad.

Response categories ranged from 1 = strongly disagree to 6 = strongly agree, and the average of the three scores formed the time-invariant optimism variable. Participants with more than one item from the index missing were listwise deleted.

Waves of the HRS prior to 2008 included a series of income gamble questions that have been used to construct measures of risk aversion (Sahm, 2012). Participants are initially prompted to choose between a pair of jobs where one offers guaranteed income and the other offers a 50-50 chance of either doubling income or reducing it by one third. Based on responses to this question, the severity of the possible reduction of income is increased or decreased in subsequent questions so that each respondent can be placed into one of six ordinal levels of risk aversion. Those coded as 6 are the most risk averse, while those coded as 1 are the least. Although this series of income gamble questions is only asked prior to 2008, analyses of these questions have shown that within-person risk aversion in the HRS shows little change over time (Sahm, 2012). Thus, risk aversion in this study is derived from the most recent measurement of income gamble questions preceding 2008.

Control Variables. Several control variables were included in the model. Controls for personal financial factors accounted for income and net worth as continuous measures. Income, a time-variant characteristic, employed a natural log transformation. One cent was added to 0 values in order to enable the log transformation. Additionally, since participants were divided into two groups based on survey response years, later respondents' income was adjusted for two years of inflation using the Bureau of Labor Statistics' consumer price index. Net worth was similarly adjusted for inflation and treated as time-variant. Additionally, to account for negative net worth values, the inverse hyperbolic sine was used to transform the net worth variable (Friedline, Masa, & Chowa, 2015).

Controls were also considered for demographic factors including marital status, gender, race, educational attainment, age, and health status. Marital status was a time-variant, categorical variable with values corresponding to married, partnered, divorced, widowed, or never married.

Gender served as a time-invariant characteristic with males coded 1 and females coded 0. Race was a time-invariant, categorical variable. Categories included White, Black, and other. Finally, education was a time-invariant, categorical variable, as well. Education categories included those with less than a high school education, a completed high school education, some college education, and graduation from a college program. Age was a continuous variable reported by the respondent during each wave of interviewing. Finally, a self-reported health status measure was derived from a question asking respondents to rate their current health on a scale from 1=excellent to 5=poor. This variable was reverse coded such that higher values were indicative of greater perceived health.

Analysis

Data formed a two-wave longitudinal data set. Given the inclusion of adequate control variables and an interest in the main effects of the predictor variables, random effects regression was utilized to model job satisfaction, financial satisfaction, and life satisfaction. Dependent variables were each ordinal on a scale ranging from 1-5, and a cumulative logit model was fit. Multivariate analyses were unweighted given the focus on a subpopulation of the HRS.

Results

The sample consisted of 1,181 respondents, and sample descriptive statistics for the terminal wave of data are included in Table 4.4. Dependent variables showed that the majority of respondents reported being satisfied with life domains utilizing five-point scales. Respondents reported a mean job satisfaction of 3.47 ($SD = 0.73$), a mean financial satisfaction of 3.35 ($SD = 1.05$), and a mean life satisfaction of 3.96 ($SD = 0.72$). From a demographic standpoint, respondents tended to be married ($M = 0.69$, $SD = 0.46$), White ($M = 0.85$, $SD = 0.35$), and less frequently male ($M = 0.37$, $SD = 0.48$). Annual income was relatively high at \$113,111; however

considerable variation existed among respondents ($SD = 177,268$). Net worth followed a pattern similar to income with high mean values and a large degree of variation ($M = 383,826$, $SD = 817,311$). Finally, education levels were fairly well distributed among those with less than a high school diploma ($M = 0.06$, $SD = 0.23$), those with high school education ($M = 0.28$, $SD = 0.45$), those with some college experience ($M = 0.29$, $SD = 0.45$), and those with at least a college degree ($M = 0.38$, $SD = 0.48$).

Work-related variables revealed that roughly 19% of respondents were self-employed ($SD = 0.39$). Respondents averaged 35.97 work hours per week across all employment types ($SD = 13.20$). Employees in the sample also produced a mean score of 34.72 on a 40-point scale assessing their abilities to meet work-related demands ($SD = 5.16$). Respondents generally reported lower levels of work-life interference on a 4-point scale ($M = 1.57$, $SD = 0.58$). Finally, participants reported higher levels of mastery on average ($M = 4.96$, $SD = 0.99$). From a psychographic standpoint, respondents' mean scores were above the midpoints on both the optimism and risk aversion scales. The mean optimism score was 4.58 ($SD = 1.10$), and the mean risk aversion score was 4.65 ($SD = 1.45$) on a 6-point response scale.

Table 4.4 Self-Employment and Satisfaction with Life Domains: Descriptive Statistics (n=1,181)

Variables	M	SD	Range
Satisfaction Variables			
Job Satisfaction	3.47	0.73	1-5
Financial Satisfaction	3.35	1.04	1-5
Life Satisfaction	3.96	0.72	1-5
Job Demands			
Weekly Work Hours	35.97	13.20	0-100
Work-Life Interference	1.57	0.58	1-4
Job Control			
Self-Employment Status	0.19	0.39	0-1
Mastery	4.96	0.99	1-6
Ability to Meet Work Demands	34.72	5.16	0-40
Psychographic			
Optimism	4.58	1.10	1-6
Risk Aversion	4.65	1.45	1-6
Controls			
Marital Status			
Married	0.69	0.46	0-1
Partnered	0.05	0.22	0-1
Divorced	0.15	0.35	0-1
Widowed	0.08	0.27	0-1
Never Married	0.03	0.17	0-1
Race			
White	0.85	0.35	0-1
Black	0.09	0.29	0-1
Other	0.06	0.23	0-1
Education			
Less Than High School	0.06	0.23	0-1
High School	0.28	0.45	0-1
Some College	0.29	0.45	0-1
College	0.38	0.48	0-1
Male	0.37	0.48	0-1
Income	113,111	177,268	0-4,374,031
Net Worth	383,826	817,311	-396,800-12,480,000
Age	62.77	4.31	52-74
Self-Reported Health Status	3.60	0.90	1-5

Notes: Data represent the terminal period of longitudinal analysis from the Health and

Retirement Study (2012-2014).

A random effects cumulative logit shown in Table 4.5 produced a significant Wald Chi-Squared statistic of 303.54, indicating that the full model is an improvement over the null model. Several job demand and job control variables were significant in a model of job satisfaction levels. One of the key variables of interest, self-employment status, revealed that those who were self-employed demonstrated 1.67 times the odds of higher job satisfaction ($p < .001$). Mastery, serving as a proxy for autonomy, also showed a positive relationship with job satisfaction, as did perceived ability to meet work demands. Respondents with higher levels of mastery and ability to meet work demands demonstrated 1.12 times the odds of indicating a unit increase on the job satisfaction scale ($p < .05$; $p < .001$, respectively). Finally, those with higher levels of optimism also demonstrated greater odds of elevated levels on the job satisfaction scale ($e^{\beta} = 1.33$, $p < .001$). Conversely, several factors reduced the odds of job satisfaction. Those with higher levels of work-life interference exhibited 0.36 times the odds of being in a higher response category for job satisfaction, indicating a substantial negative relationship. Also, African American respondents had 0.47 times the odds of being in a higher-level job satisfaction response ($p < .001$), and divorced participants demonstrated 0.66 times the odds ($p < .05$). Gender, financial, and educational characteristics were not significant in the model.

Table 4.5 Summary of Random Effects Cumulative Logit Analysis of Job Satisfaction (n=1,181)

Predictor	β	SE β	e^β
Job Demands			
Weekly Work Hours	-0.01	0.01	0.99
Weekly Work Hours Squared	0.00*	0.00	1.00
Work-Life Interference	-1.03***	0.12	0.36
Job Control			
Self-Employment Status	0.51***	0.14	1.67
Mastery	0.11*	0.06	1.12
Ability to Meet Work Demands	0.11***	0.01	1.12
Optimism	0.28***	0.05	1.33
Risk Aversion	0.06	0.04	1.07
Controls			
Marital Status (Married)			
Partnered	-0.23	0.26	0.79
Divorced	-0.42*	0.17	0.66
Widowed	0.07	0.25	0.93
Never Married	0.56	0.33	1.75
Race (White)			
Black	-0.75***	0.21	0.47
Other	-0.09	0.21	0.91
Education (College)			
Less Than High School	0.12	0.25	1.13
High School	0.10	0.16	1.11
Some College	-0.08	0.15	0.92
Male	-0.09	0.13	0.91
Income (Log)	0.06	0.05	1.07
Net Worth (Inverse Hyperbolic Sine)	0.01	0.01	1.01
Age	0.04***	0.01	1.05
Self-Reported Health Status	0.12	0.07	1.13
Cut 1	3.63	0.85	
Cut 2	5.02	0.85	
Cut 3	8.32	0.88	
Cut 4	15.07	1.04	
Wave 2	0.28**	0.09	1.55
Wald χ^2 (df)		303.54 (23)	
Sigma2_U		1.08	
Observations		2,314	

*Note: Regression analysis is unweighted. The sample is limited to respondents who were working during both waves of the Health and Retirement Study spanning 2008-2014. Robust standard error option employed in statistical software. * $p < .05$. ** $p < .01$. *** $p < .001$.*

The model predicting financial satisfaction, depicted in Table 4.6, yielded a significant Wald Chi-Squared statistic of 389.60 and was similar in many regards to that of the job satisfaction model. Mastery and optimism had positive relationships with financial satisfaction just as they did in job satisfaction model ($e^{\beta} = 1.37, p < .001$; $e^{\beta} = 1.50, p < .001$, respectively). Work-life interference, divorced marital status, and African American racial identification held negative relationships with financial satisfaction, consistent with what was seen in the model of job satisfaction ($e^{\beta} = 0.56, p < .001$; $e^{\beta} = 0.49, p < .01$; $e^{\beta} = 0.48, p < .01$, respectively). Unlike the first model, educational attainment was significant in the model of financial satisfaction. Those with a high school education had 0.57 times the odds of being in a higher order of financial satisfaction relative to those with a college degree ($p < .01$), while those with only some college education had 0.47 times the odds ($p < .01$). Predictably, net worth also became a significant variable in the model of financial satisfaction with those of higher net worth having higher odds of improved satisfaction levels ($p < .001$). Perhaps most interesting, however, is the change in directionality when modeling financial satisfaction rather than job satisfaction. Those who were self-employed had 0.57 times the odds of indicating a higher level of financial satisfaction ($p < .01$).

Table 4.6 Summary of Random Effects Cumulative Logit Analysis of Financial Satisfaction (n=1,181)

Predictor	β	SE β	e^β
Job Demands			
Weekly Work Hours	-0.02	0.02	0.98
Weekly Work Hours Squared	0.00	0.00	1.00
Work-Life Interference	-0.58***	0.13	0.56
Job Control			
Self-Employment Status	-0.56**	0.18	0.57
Mastery	0.31***	0.07	1.37
Ability to Meet Work Demands	0.02	0.02	1.02
Optimism	0.40***	0.07	1.50
Risk Aversion	0.09	0.05	1.09
Controls			
Marital Status (Married)			
Partnered	-0.26	0.29	0.77
Divorced	-0.72**	0.24	0.49
Widowed	-0.37	0.34	0.69
Never Married	0.26	0.42	1.29
Race (White)			
Black	-0.74**	0.26	0.48
Other	0.67*	0.30	1.96
Education (College)			
Less Than High School	0.18	0.35	1.19
High School	-0.56**	0.21	0.57
Some College	-0.75**	0.20	0.47
Male	0.09	0.16	1.09
Income (Log)	0.29	0.16	1.34
Net Worth (Inverse Hyperbolic Sine)	0.08***	0.01	1.08
Age	0.04*	0.02	1.04
Self-Reported Health Status	0.51***	0.08	1.66
Cut 1	6.29	2.17	
Cut 2	8.82	2.17	
Cut 3	12.01	2.17	
Cut 4	14.82	2.18	
Wave 2	0.48***	0.16	1.62
Wald χ^2 (df)		389.60 (23)	
Sigma2_U		4.15	
Observations		2,314	

Note: Regression analysis is unweighted. The sample is limited to respondents who were working during both waves during both waves of the Health and Retirement Study spanning 2008-2014.

*Robust standard error option employed in statistical software. * $p < .05$. ** $p < .01$. *** $p < .001$.*

The third model in the analyses focused on life satisfaction as depicted in Table 4.7 and produced a significant Wald Chi-Squared statistic of 284.13. Many of the variables in this model possessed similar relationships with life satisfaction to the ones held with financial satisfaction. Mastery and optimism served to improve the odds of indicating higher levels of life satisfaction ($e^{\beta} = 1.21, p < .01$; $e^{\beta} = 1.52, p < .001$, respectively). Work-life interference reduced the odds of improved life satisfaction ($e^{\beta} = 0.53, p < .001$). Here, too, self-employment served to reduce the odds of demonstrating higher values on the satisfaction scale ($e^{\beta} = 0.65, p < .01$). Education variables were not significant in this model; however, more of the marital status categories became significant. Those who were divorced or widowed each held lower odds of appearing in higher life satisfaction categories relative to those who were married ($e^{\beta} = 0.46, p < .001$; $e^{\beta} = 0.42, p < .01$, respectively). Higher levels of income and net worth were linked to improved odds of indicating greater life satisfaction ($e^{\beta} = 1.17, p < .05$; $e^{\beta} = 1.02, p < .05$, respectively). Finally, self-reported health status was also associated with improved odds of higher levels of life satisfaction ($e^{\beta} = 1.71, p < .001$).

Table 4.7 Summary of Random Effects Cumulative Logit Analysis of Life Satisfaction (n=1,181)

Predictor	β	SE β	e^β
Job Demands			
Weekly Work Hours	0.00	0.01	1.00
Weekly Work Hours Squared	0.00	0.00	1.00
Work-Life Interference	-0.64***	0.12	0.53
Job Control			
Self-Employment Status	-0.43**	0.15	0.65
Mastery	0.19**	0.06	1.21
Ability to Meet Work Demands	0.01	0.01	1.01
Optimism	0.42***	0.06	1.52
Risk Aversion	0.04	0.04	1.04
Controls			
Marital Status (Married)			
Partnered	-0.53	0.28	0.59
Divorced	-0.77***	0.18	0.46
Widowed	-0.86**	0.28	0.42
Never Married	-0.11	0.34	0.89
Race (White)			
Black	-0.68**	0.24	0.51
Other	0.11	0.28	1.12
Education (College)			
Less Than High School	0.50	0.28	1.65
High School	0.28	0.16	1.33
Some College	0.05	0.15	1.05
Male	0.03	0.14	1.03
Income (Log)	0.16*	0.06	1.17
Net Worth (Inverse Hyperbolic Sine)	0.02*	0.01	1.02
Age	0.02	0.01	1.02
Self-Reported Health Status	0.54***	0.08	1.71
Cut 1	-0.29	1.43	
Cut 2	2.39	1.37	
Cut 3	5.96	1.38	
Cut 4	9.68	1.39	
Wave 2	0.14	0.10	1.15
Wald χ^2 (df)		284.13 (23)	
Sigma2_U		1.89	
Observations		2,314	

Note: Regression analysis is unweighted. The sample is limited to respondents who were working during both waves during both waves of the Health and Retirement Study spanning 2008-2014.

*Robust standard error option employed in statistical software. * $p < .05$. ** $p < .01$. *** $p < .001$.*

Conclusion and Implications

One limitation of this study might be that it focuses on a subsample of HRS respondents who were working during all waves under analysis, which could perhaps limit the generalizability of results. Nevertheless, results from this study can offer important insights regarding work-related factors and how they influence several different domains of satisfaction with aspects of one's life. Many elements pertaining to work were relevant not only to job satisfaction, but also to financial and life satisfaction, as well. When work interferes with personal life, either by producing undue stress or draining employees of energy, it can affect multiple facets of satisfaction. More positive characteristics on the other hand, like a sense of mastery were linked to improvements in satisfaction with career, finance, and life. Perceived ability to meet work demands was also tied to higher levels of job satisfaction. In general, variables measuring job demand and job control constructs appeared to be influential in shaping well-being even outside of the workplace. As individuals are confronted with the stressors of work life, their sense of control and belief in abilities to manage work demands may be effective in improving satisfaction in multiple areas of life. Similarly, psychographic characteristics like optimism greatly improved the odds of being satisfied in all three measures of satisfaction.

One of the most interesting variables in this study was that of self-employment status. While self-employment increased the odds of job satisfaction, it served to reduce the odds of both financial and life satisfaction. Economists have long believed that the financial returns from self-employment lag those of traditional employment (Hamilton, 2000). In that sense, results from this study may be consistent with expectations. Less, however, was known about the impact of self-employment on overall life satisfaction. In the sample analyzed, findings from this study seem to indicate that any benefits from self-employment in terms of improved job satisfaction

are not enough to improve overall life satisfaction. Certainly though, work-related constructs as measured in this study are but one factor in overall life satisfaction. Healthy social relationships, spirituality, demographic background, personality characteristics, and several other circumstances may influence life satisfaction (Torres, 2016; Sancho, Tomas, Oliver, Galiana, & Gutierrez, 2019). Future research might investigate such constructs while also granting consideration to self-employment status when modeling life satisfaction.

Findings from this study could also have implications for the training and development of future entrepreneurs. Ample opportunity for development exists for those interested in entrepreneurship through government organizations, online resources, and universities. The Small Business Administration (SBA), for example, offers several free informational guides, sponsored education programs, and an online learning center. Content areas within these resources, however, tend to focus on the functional aspects of business, such as forming a business plan, seeking funding, marketing a business, and securing necessary licenses. A review of available resources on the SBA website shows less attention dedicated to preparing future entrepreneurs for the impact that launching a business may have on well-being. Given the financial risks that are often involved with business formation, future entrepreneurs may be interested in how owning a business may impact other life domains. Similarly, the author's review of course requirements for entrepreneurship majors at colleges and universities shows an emphasis on the functional aspects business, including accounting, economics, marketing, management, finance, etc. Universities might also consider coursework or experiential learning opportunities that expose students the lifestyles of business owners and their anticipated effects on career, financial, and life satisfaction.

References

- Ahn, T. (2010). Attitudes toward risk and self-employment of young workers. *Labour Economics*, 17(2), 434–442. <https://doi.org/10.1016/j.labeco.2009.06.005>
- Åstebro, T., Mata, J., & Santos-Pinto, L. (2015). Skewness seeking: Risk loving, optimism or overweighting of small probabilities? *Theory and Decision*, 78(2), 189–208. <https://doi.org/10.1007/s11238-014-9417-4>
- Başlevent, C., & Kirmanoğlu, H. (2014). The impact of deviations from desired hours of work on the life satisfaction of employees. *Social Indicators Research*, 118(1), 33–43. <https://doi.org/10.1007/s11205-013-0421-9>
- Bengtsson, O., & Ekeblom, D. (2014). *The Bright but Right View? A New Type of Evidence on Entrepreneurial Optimism*. Retrieved from Federal Reserve Bank of St Louis website: http://search.proquest.com.er.lib.k-state.edu/docview/1698469801?rfr_id=info%3Axri%2Fsid%3Aprimo
- Benz, M., & Frey, B. S. (2008). Being independent is a great thing: Subjective evaluations of self-employment and hierarchy. *Economica*, 75(298), 362–383. <https://doi.org/10.1111/j.1468-0335.2007.00594.x>
- Bibi, Z., Karim, J., & Rehman, S. (2017). Self-esteem, resilience, and social trust as mediators in the relationship between optimism and job satisfaction: A preliminary analysis of data from European Social Survey. *Pakistan Journal of Psychological Research*, 32(1), 155–173.
- Block, J., & Koellinger, P. (2009). I can't get no satisfaction—Necessity entrepreneurship and procedural utility. *Kyklos*, 62(2), 191–209. <https://doi.org/10.1111/j.1467-6435.2009.00431.x>

- Bonsang, E., & van Soest, A. (2012). Satisfaction with job and income among older individuals across European countries. *Social Indicators Research*, *105*(2), 227–254.
- Bureau of Labor Statistics. (2016). Entrepreneurship and the U.S. economy. Retrieved May 5, 2017, from https://www.bls.gov/bdm/entrepreneurship/bdm_chart3.htm
- Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2013). *New Evidence on Self-Employment Transitions Among Older Americans with Career Jobs* (No. 463). Retrieved from U.S. Bureau of Labor Statistics website: <https://ideas.repec.org/p/bls/wpaper/ec130030.html>
- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review*, *30*(7), 879–889. <https://doi.org/10.1016/j.cpr.2010.01.006>
- Cheng, T., Mauno, S., & Lee, C. (2013). Do job control, support, and optimism help job insecure employees? A three-wave study of buffering effects on job satisfaction, vigor and work-family enrichment. *Social Indicators Research*, *118*(3), 1269-1291.
- Cooper, D., & Saral, K. (2013). Entrepreneurship and team participation: An experimental study. *European Economic Review*, *59*, 126–140.
<https://doi.org/10.1016/j.euroecorev.2013.01.003>
- Cornelissen, T., Heywood, J. S., & Jirjahn, U. (2011). Performance pay, risk attitudes and job satisfaction. *Labour Economics*, *18*(2), 229–239.
<https://doi.org/10.1016/j.labeco.2010.09.005>
- Dawson, C. (2017). The upside of pessimism – Biased beliefs and the paradox of the contented female worker. *Journal of Economic Behavior & Organization*, *135*, 215–228.
<https://doi.org/10.1016/j.jebo.2017.02.004>
- Di Marco, D., Lopez-Cabrera, R., Arenas, A., Giorgi, G., Arcangeli, G., & Mucci, N. (2016). Approaching the discriminatory work environment as stressor: The protective role of job

- satisfaction on health. *Frontiers in Psychology*. Retrieved from <http://dx.doi.org/10.1016/j.socscimed.2017.01.040>
- Dirlam, J., & Zheng, H. (2017). Job satisfaction developmental trajectories and health: A life course perspective. *Social Science & Medicine*, 178(Supplement C), 95–103. <https://doi.org/10.1016/j.socscimed.2017.01.040>
- Drydakis, N. (2012). Men's sexual orientation and job satisfaction. *International Journal of Manpower; Bradford*, 33(8), 901–917. <http://dx.doi.org/10.1108/01437721211280371>
- Engle, R., Dimitriadi, N., Gavidia, J., Schlaegel, C., Delanoe, S., Alvarado, I., He, X., Buame, S., Wolff, B. (2010). Entrepreneurial intent: A twelve-country evaluation of Ajzen's model of planned behavior. *International Journal of Entrepreneurial Behavior & Research*, 16(1), 35–57. <https://doi.org/10.1108/13552551011020063>
- Erdogan, B., Bauer, T. N., Truxillo, D. M., & Mansfield, L. R. (2012). Whistle while you work: A review of the life satisfaction literature. *Journal of Management*, 38(4), 1038–1083. <https://doi.org/10.1177/0149206311429379>
- Friedline, T., Masa, R. D., & Chowa, G. A. N. (2015). Transforming wealth: Using the inverse hyperbolic sine (IHS) and splines to predict youth's math achievement. *Social Science Research*, 49(Supplement C), 264–287. <https://doi.org/10.1016/j.ssresearch.2014.08.018>
- Haar, J. M., Russo, M., Suñe, A., & Ollier-Malaterre, A. (2014). Outcomes of work–life balance on job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior*, 85(3), 361–373. <https://doi.org/10.1016/j.jvb.2014.08.010>

- Hagmaier, T., Abele, A. E., & Goebel, K. (2018). How do career satisfaction and life satisfaction associate? *Journal of Managerial Psychology; Bradford*, 33(2), 142–160.
<http://dx.doi.org.er.lib.k-state.edu/10.1108/JMP-09-2017-0326>
- Hakanen, J. J., Seppälä, P., & Peeters, M. (2017). High job demands, still engaged and not burned out? The role of job crafting. *International Journal of Behavioral Medicine; New York*, 24(4), 619–627. <http://dx.doi.org.er.lib.k-state.edu/10.1007/s12529-017-9638-3>
- Hamilton, B. (2000). Does entrepreneurship pay? An empirical analysis of the returns to self-employment. *Journal of Political Economy*, 108(3), 604.
- Harrell, S. P. (2000). A multidimensional conceptualization of racism-related stress: Implications for the well-being of people of color. *American Journal of Orthopsychiatry*, 70(1), 42–57.
- Hytti, U., Kautonen, T., & Akola, E. (2013). Determinants of job satisfaction for salaried and self-employed professionals in Finland. *The International Journal of Human Resource Management*, 24(10), 2034–2053. <https://doi.org/10.1080/09585192.2012.723023>
- Ilmarinen, J., & Rantanen, J. (1999). Promotion of work ability during ageing. *American Journal of Industrial Medicine*, 36(S1), 21–23. [https://doi.org/10.1002/\(SICI\)1097-0274\(199909\)36:1+<21::AID-AJIM8>3.0.CO;2-S](https://doi.org/10.1002/(SICI)1097-0274(199909)36:1+<21::AID-AJIM8>3.0.CO;2-S)
- Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C., & Rich, B. L. (2010). The relationship between pay and job satisfaction: A meta-analysis of the literature. *Journal of Vocational Behavior*, 77(2), 157–167. <https://doi.org/10.1016/j.jvb.2010.04.002>
- Judge, T., & Ilies, R. (2004). Affect and job satisfaction: A study of their relationship at work and at home. *Journal of Applied Psychology*, 89(4), 661–673.

- Judge, T., Thoresen, C., Bono, J., & Patton, G. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, *127*(3), 376–407. <https://doi.org/10.1037//0033-2909.127.3.376>
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, *24*(2), 285–308. <https://doi.org/10.2307/2392498>
- Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, *39*(3), 655–674. <https://doi.org/10.1111/etap.12056>
- Lee, B. Y., Wang, J., & Weststar, J. (2015). Work hour congruence: the effect on job satisfaction and absenteeism. *The International Journal of Human Resource Management*, *26*(5), 657–675. <https://doi.org/10.1080/09585192.2014.922601>
- Macdonald, J. L., & Levy, S. R. (2016). Ageism in the workplace: The role of psychosocial factors in predicting job satisfaction, commitment, and engagement. *Journal of Social Issues*, *72*(1), 169–190. <https://doi.org/10.1111/josi.12161>
- Madera, J. M., King, E. B., & Hebl, M. R. (2012). Bringing social identity to work: The influence of manifestation and suppression on perceived discrimination, job satisfaction, and turnover intentions. *Cultural Diversity and Ethnic Minority Psychology*, *18*(2), 165–170. <http://dx.doi.org.er.lib.k-state.edu/10.1037/a0027724>
- Magee, W., & Umamaheswar, J. (2011). Immigrant group differences in job satisfaction. *Race and Social Problems; New York*, *3*(4), 252–265. <http://dx.doi.org.er.lib.k-state.edu/10.1007/s12552-011-9057-z>

- Mas-Machuca, M., Berbegal-Mirabent, J., & Alegre, I. (2016). Work-life balance and its relationship with organizational pride and job satisfaction. *Journal of Managerial Psychology; Bradford*, 31(2), 586–602. <http://dx.doi.org.er.lib.k-state.edu/10.1108/JMP-09-2014-0272>
- Meyer, S.-C., & Hünefeld, L. (2018). Challenging cognitive demands at work, related working conditions, and employee well-being. *International Journal of Environmental Research and Public Health*, 15(12), 2911.
- Millán, J. M., Hessels, J., Thurik, R., & Aguado, R. (2013). Determinants of job satisfaction: a European comparison of self-employed and paid employees. *Small Business Economics*, 40(3), 651–670. Retrieved from JSTOR.
- Mishra, U., Patnaik, S., & Mishra, B. (2016). Role of optimism on employee performance and job satisfaction. *Indian Journal of Management*, 9(6), 35-46.
- Pearlin, L. I., Nguyen, K. B., Schieman, S., & Milkie, M. A. (2007). The life-course origins of mastery among older people. *Journal of Health and Social Behavior*, 48(2), 164–179.
- Puri, M., & Robinson, D. T. (2013). The economic psychology of entrepreneurship and family business. *Journal of Economics & Management Strategy*, 22(2), 423–444.
<https://doi.org/10.1111/jems.12013>
- Qu, H., & Zhao, X. (Roy). (2012). Employees' work–family conflict moderating life and job satisfaction. *Journal of Business Research*, 65(1), 22–28.
<https://doi.org/10.1016/j.jbusres.2011.07.010>
- Ronda, L., Ollo-López, A., & Goñi-Legaz, S. (2016). Family-friendly practices, high-performance work practices and work-family balance: How do job satisfaction and working hours affect this relationship? *Management Research: The Journal of the*

- Iberoamerican Academy of Management; Armonk*, 14(1), 2–23. <http://dx.doi.org.er.lib.k-state.edu/10.1108/MRJIAM-02-2016-0633>
- Sahm, C. (2012). How much does risk tolerance change? *The Quarterly Journal of Finance*, 2(4), 1-38.
- Sancho, P., Tomas, J., Oliver, A., Galiana, L., & Gutierrez, M. (2019). Predicting life satisfaction in Spanish adults of advancing age attending university educational programs. *Journal of Happiness Studies*, 1-17.
- Schneck, S. (2014). Why the self-employed are happier: Evidence from 25 European countries. *Journal of Business Research*, 67(6), 1043–1048.
<https://doi.org/10.1016/j.jbusres.2013.06.008>
- Small Business Administration. (2016). *Frequently asked questions*. Retrieved from https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf
- Taylor, P., Mcloughlin, C., Meyer, D., & Brooke, E. (2013). Everyday discrimination in the workplace, job satisfaction and psychological wellbeing: age differences and moderating variables. *Ageing & Society*, 33(7), 1105–1138.
<https://doi.org/10.1017/S0144686X12000438>
- Torres, G. (2016). *Life Satisfaction: Determinants, Psychological Implications, and Impact on Quality-of-Life*. New York, NY: Nova Publishers.
- Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2008). Racial/Ethnic discrimination and health: Findings from community studies. *American Journal of Public Health; Washington*, 98, S29–S37.

Chapter 5 - Conclusion

The preceding three essays offer a view into the financial and nonfinancial considerations of entrepreneurs before, during, and after the launch of a business. The first essay examined a sample that contained nascent entrepreneurs, or those actively taking steps in order to start a business, as well as a comparison group of respondents without intent to form a business through the Panel Study of Entrepreneurial Dynamics. This data set offered a unique perspective into the entrepreneurial process because it contained information on prospective business owners prior to the formation of their businesses. The essay explored some of the common explanations as to why one may pursue a practice that on average provides lower lifetime earnings (Hamilton, 2000; Moskowitz & Vissing-Jørgensen, 2002). Specifically, the model in the first essay accounted for preferences for autonomy, levels of optimism, and levels of risk aversion while also including measures of key constructs from the Theory of Planned Behavior. Contrary to findings from past literature which examined already-practicing entrepreneurs, variables measuring preference for autonomy, optimism, and risk aversion failed to be significant in the model for this dataset. Instead, findings revealed that favorable general attitudes towards entrepreneurship were associated with improved odds of intending to found a business, while desire for financial gain was linked to reduced odds. This could be an indication that prospective entrepreneurs are not overly optimistic about their prospects for financial gain nor discounting the impact of financial risk, but rather entering the profession for nonfinancial reasons altogether. Such a notion is in alignment with a more limited body of research suggesting that entrepreneurs are motivated by things like self-realization, independence, and status, particularly among females (Manolova, Brush, & Edelman, 2008).

If it is valid that financial motives are of less importance to people when considering an entrepreneurial career path, then one would hope that those individuals not experience any adverse financial impacts after pursuing that path. The second essay in this document examined the asset allocation decisions of a large sample of both business owners and non-owners in the Survey of Consumer Finances with specific regard to stock investment behavior. Guided by Modern Portfolio Theory, it was hypothesized that those who own businesses would be less likely to participate in equity markets or participate at lower levels than those who do not. Additionally, it was theorized that those business owners whose personal finances were more enmeshed with their businesses would be less likely to own stocks. Results were surprising in two regards. First, using personal assets to collateralize business loans or fund business operations did not appear to deter stock market participation. Next, business ownership itself was tied to reduced odds of participating in the equity market in general, but among those who do own equities there did not appear to be any differences in the ratio of equity value to total financial asset value when compared to the traditionally employed. This might be indicative of some mechanism that limits initial entry into the equity markets but does not subsequently inhibit equity investment levels once the market is entered. Such a mechanism is worthy of future research given the high historic financial returns from equities, and one plausible explanation could be that administrative burdens exist for business owners when setting up tax-advantaged retirement accounts that often accumulate stock investments.

While the first two essays focused on motivations to pursue entrepreneurship and the financial implications of doing so, the final essay provides a view into satisfaction with decisions to start a business. Utilizing longitudinal data from the Health and Retirement Study, models of satisfaction with life domains were fit with the inclusion of predictors pertaining to perceived job

demands and perceived job control. Multiple variables proved significant in models of job satisfaction, financial satisfaction, and life satisfaction, including a self-employment variable. Interestingly, self-employment was tied to improved odds of appearing in higher job satisfaction categories, but it corresponded to lower odds of both financial and life satisfaction. This result is particularly important in light of findings from the preceding two essays. Financial motives appeared to be less important to those considering entrepreneurship during the business formation phase in essay one, but entry into self-employment was tied to reduced financial and life satisfaction in essay three. This suggests that more education for prospective entrepreneurs on the likely financial and well-being outcomes from pursuit of new business launches could be warranted in order to help individuals maximize their satisfaction levels.

These three essays, with their focus on the personal financial considerations of business ownership, suggest that financial behavior during the operation of a business and financial satisfaction following the launch of a business might deviate from that of the traditionally employed. Despite this information being pertinent to those who are considering entrepreneurship, organizations focused on assisting entrepreneurs tend to prioritize technical business skills over education on personal financial outcomes. For example, the Small Business Administration offers business guides, business funding programs, and a free online learning center. Review of these resources reveals an emphasis on business planning tools, corporate financial support in the business launch process, management tools, and information for later-stage businesses seeking a next phase of growth. Fewer resources are dedicated to aiding would-be entrepreneurs in assessing the impact that business ownership might have on their personal finances.

Likewise, review of higher education curricula pertaining to entrepreneurship reveals a gap in content focused on personal finance. A recent journal article published results focused on the output from a workshop comprised of higher education entrepreneurship educators tasked with developing proposed curricula for undergraduate entrepreneurship majors. Workshop participants were asked to review education standards set forth by the U.S.-based Consortium for Entrepreneurship Education and the European Commission's Education and Training in Entrepreneurship initiative (Katz, Hanke, Maidment, Weaver, & Alpi, 2014). The proposed curricula developed in the workshop suggested introductory courses on creativity and organizational start-up, followed by in-depth courses on marketing, corporate finance, organizational management, business planning, and capstone materials (Katz et al., 2014). Such a proposal mirrors the content offered in many active entrepreneurship programs' offerings, yet it omits the Consortium for Entrepreneurship Education's call for content focused on financial literacy, money basics, financial services, and personal money management ("National Standards for Entrepreneurship Education," n.d.). Other analyses, too, of existing entrepreneurship curricula have revealed a lack of preparation for the possibility of business failure and resulting personal financial consequences, with course content instead focused on the acquisition of business skills (Widiawan, 2017). While accumulation of business skills may be critical to sustainable business ventures, those entering entrepreneurship must also be able to manage their personal finances and build a career that is satisfying on multiple fronts. Entrepreneurship education at present may provide students with the skills necessary so that they can launch a business, but it would be remiss if such education did not equip students with the personal financial information needed in order to determine if they should launch businesses. Decisions to pursue business ownership will have implications for personal income taxation, necessary levels

of personal liability coverage, investment behavior, retirement planning, and several other aspects of personal finance.

References

- Hamilton, B. (2000). Does entrepreneurship pay? An empirical analysis of the returns to self-employment. *Journal of Political Economy*, 108(3), 604.
- Katz, J., Hanke, R., Maidment, F., Weaver, K., & Alpi, S. (2016). Proposal for two model undergraduate curricula in entrepreneurship. *International Entrepreneurship and Management Journal*, 12(2), 487-506.
- Manolova, T. S., Brush, C. G., & Edelman, L. F. (2008). What do women entrepreneurs want? *Strategic Change*, 17(3-4), 69-82. <https://doi.org/10.1002/jsc.817>
- Moskowitz, T., & Vissing-Jørgensen, A. (2002). The returns to entrepreneurial investment: A private equity premium puzzle? *The American Economic Review*, 92(4), 745-778.
- National Standards for Entrepreneurship Education. (n.d.). Retrieved from <https://www.entre-ed.org/national-eship-standards>
- Widiawan, K. (2017). A missing link on entrepreneurship education curricula. *International Journal of Industrial Research and Applied Engineering*, 2(1), 20-24.

References

- Acock, A. (2005). Working with missing values. *Journal of Marriage and Family*, 67(4), 1012–1028.
- Ahn, T. (2010). Attitudes toward risk and self-employment of young workers. *Labour Economics*, 17(2), 434–442. <https://doi.org/10.1016/j.labeco.2009.06.005>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Åstebro, T., Herz, H., Nanda, R., & Weber, R. (2014). Seeking the roots of entrepreneurship: Insights from behavioral economics. *The Journal of Economic Perspectives*, 28(3), 49–69.
- Åstebro, T., Mata, J., & Santos-Pinto, L. (2015). Skewness seeking: Risk loving, optimism or overweighting of small probabilities? *Theory and Decision*, 78(2), 189–208. <https://doi.org/10.1007/s11238-014-9417-4>
- Başlevent, C., & Kirmanoğlu, H. (2014). The impact of deviations from desired hours of work on the life satisfaction of employees. *Social Indicators Research*, 118(1), 33–43. <https://doi.org/10.1007/s11205-013-0421-9>
- Bengtsson, O., & Ekeblom, D. (2014). *The Bright but Right View? A New Type of Evidence on Entrepreneurial Optimism*. Retrieved from Federal Reserve Bank of St Louis website: http://search.proquest.com.er.lib.k-state.edu/docview/1698469801?rfr_id=info%3Axri%2Fsid%3Aprimo
- Benz, M., & Frey, B. S. (2008). Being independent is a great thing: Subjective evaluations of self-employment and hierarchy. *Economica*, 75(298), 362–383. <https://doi.org/10.1111/j.1468-0335.2007.00594.x>

- Bibi, Z., Karim, J., & Rehman, S. (2017). Self-esteem, resilience, and social trust as mediators in the relationship between optimism and job satisfaction: A preliminary analysis of data from European Social Survey. *Pakistan Journal of Psychological Research*, 32(1), 155-173.
- Block, J., & Koellinger, P. (2009). I can't get no satisfaction—Necessity entrepreneurship and procedural utility. *Kyklos*, 62(2), 191–209. <https://doi.org/10.1111/j.1467-6435.2009.00431.x>
- Bonsang, E., & van Soest, A. (2012). Satisfaction with job and income among older individuals across European countries. *Social Indicators Research*, 105(2), 227–254.
- Brown, S., Dietrich, M., Nuñez, A., & Taylor, K. (2013). Business ownership and attitudes towards risk. *Applied Economics*, 45(13), 1731–1740. <https://doi.org/10.1080/00036846.2011.636026>
- Bureau of Labor Statistics. (2016). Entrepreneurship and the U.S. economy. Retrieved May 5, 2017, from https://www.bls.gov/bdm/entrepreneurship/bdm_chart3.htm
- Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2013). *New Evidence on Self-Employment Transitions Among Older Americans with Career Jobs* (No. 463). Retrieved from U.S. Bureau of Labor Statistics website: <https://ideas.repec.org/p/bls/wpaper/ec130030.html>
- Carr, J., & Sequeira, J. (2007). Prior family business exposure as intergenerational influence and entrepreneurial intent: A theory of planned behavior approach. *Journal of Business Research*, 60(10), 1090–1098. <https://doi.org/10.1016/j.jbusres.2006.12.016>
- Carter, N., Gartner, W., Shaver, K., & Gatewood, E. (2003). The career reasons of nascent entrepreneurs. *Journal of Business Venturing*, 18(1), 13-39.

- Carver, C. S., Scheier, M. F., & Segerstrom, S. C. (2010). Optimism. *Clinical Psychology Review, 30*(7), 879–889. <https://doi.org/10.1016/j.cpr.2010.01.006>
- Cassar, G. (2007). Money, money, money? A longitudinal investigation of entrepreneur career reasons, growth preferences, and achieved growth. *Entrepreneurship and Regional Development, 19*(1), 89–107.
- Cassar, G. (2010). Are individuals entering self-employment overly optimistic? an empirical test of plans and projections on nascent entrepreneur expectations. *Strategic Management Journal, 31*(8), 822–840. <https://doi.org/10.1002/smj.833>
- Cheng, T., Mauno, S., & Lee, C. (2013). Do job control, support, and optimism help job insecure employees? A three-wave study of buffering effects on job satisfaction, vigor and work-family enrichment. *Social Indicators Research, 118*(3), 1269-1291.
- Cooper, D., & Saral, K. (2013). Entrepreneurship and team participation: An experimental study. *European Economic Review, 59*, 126–140.
<https://doi.org/10.1016/j.euroecorev.2013.01.003>
- Cooper, R., & Zhu, G. (2016). Household finance over the life-cycle: What does education contribute? *Review of Economic Dynamics, 20*, 63–89.
<https://doi.org/10.1016/j.red.2015.12.001>
- Cornelissen, T., Heywood, J. S., & Jirjahn, U. (2011). Performance pay, risk attitudes and job satisfaction. *Labour Economics, 18*(2), 229–239.
<https://doi.org/10.1016/j.labeco.2010.09.005>
- Dawson, C. (2017). The upside of pessimism – Biased beliefs and the paradox of the contented female worker. *Journal of Economic Behavior & Organization, 135*, 215–228.
<https://doi.org/10.1016/j.jebo.2017.02.004>

- De Nardi, M., Doctor, P., & Krane, S. (2007). Evidence on entrepreneurs in the United States: Data from the 1989-2004 Survey of Consumer Finances. *Economic Perspectives*, 18–36.
- Demirer, R., & Jategaonkar, S. P. (2013). The conditional relation between dispersion and return. *Review of Financial Economics*, 22(3), 125–134.
<https://doi.org/10.1016/j.rfe.2013.04.004>
- Di Marco, D., Lopez-Cabrera, R., Arenas, A., Giorgi, G., Arcangeli, G., & Mucci, N. (2016). Approaching the discriminatory work environment as stressor: The protective role of job satisfaction on health. *Frontiers in Psychology*. Retrieved from
[http%3A%2F%2Flink.galegroup.com%2Fapps%2Fdoc%2FA461992517%2FAONE%3Fu%3Dksu%26sid%3DAONE%26xid%3Dfcac74ee](http://3A%2F%2Flink.galegroup.com%2Fapps%2Fdoc%2FA461992517%2FAONE%3Fu%3Dksu%26sid%3DAONE%26xid%3Dfcac74ee)
- Dirlam, J., & Zheng, H. (2017). Job satisfaction developmental trajectories and health: A life course perspective. *Social Science & Medicine*, 178(Supplement C), 95–103.
<https://doi.org/10.1016/j.socscimed.2017.01.040>
- Drydakis, N. (2012). Men's sexual orientation and job satisfaction. *International Journal of Manpower; Bradford*, 33(8), 901–917. <http://dx.doi.org.er.lib.k-state.edu/10.1108/01437721211280371>
- Dwivedi, A., & Weerawardena, J. (2018). Conceptualizing and operationalizing the social entrepreneurship construct. *Journal of Business Research*, 86, 32-40.
- Engle, R., Dimitriadi, N., Gavidia, J., Schlaegel, C., Delanoe, S., Alvarado, I., He, X., Buame, S., Wolff, B. (2010). Entrepreneurial intent: A twelve-country evaluation of Ajzen's model of planned behavior. *International Journal of Entrepreneurial Behavior & Research*, 16(1), 35–57. <https://doi.org/10.1108/13552551011020063>

- Erdogan, B., Bauer, T. N., Truxillo, D. M., & Mansfield, L. R. (2012). Whistle while you work: A review of the life satisfaction literature. *Journal of Management*, 38(4), 1038–1083.
<https://doi.org/10.1177/0149206311429379>
- Faig, M., & Shum, P. (2002). Portfolio choice in the presence of personal illiquid projects. *The Journal of Finance*, 57(1), 303–328. <https://doi.org/10.1111/1540-6261.00423>
- Forster-Holt, N. (2016). The retirement preparedness of the business owner. *The Journal of Retirement*, 3(4), 87–100. <http://dx.doi.org.er.lib.k-state.edu/10.3905/jor.2016.3.4.087>
- Francis, J. C., Kim, D., & Kim, D. (2013). *Modern Portfolio Theory: Foundation, Analysis, and New Developments*. New York, NY: John Wiley & Sons, Incorporated. Retrieved from <http://ebookcentral.proquest.com/lib/ksu/detail.action?docID=1113504>
- Friedline, T., Masa, R. D., & Chowa, G. A. N. (2015). Transforming wealth: Using the inverse hyperbolic sine (IHS) and splines to predict youth's math achievement. *Social Science Research*, 49(Supplement C), 264–287. <https://doi.org/10.1016/j.ssresearch.2014.08.018>
- Gartner, W., Shaver, K., Carter, N., & Reynolds, D. (2004). *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*. Thousand Oaks, CA: Sage Publications, Inc.
- Haar, J. M., Russo, M., Suñe, A., & Ollier-Malaterre, A. (2014). Outcomes of work–life balance on job satisfaction, life satisfaction and mental health: A study across seven cultures. *Journal of Vocational Behavior*, 85(3), 361–373.
<https://doi.org/10.1016/j.jvb.2014.08.010>
- Hagmaier, T., Abele, A. E., & Goebel, K. (2018). How do career satisfaction and life satisfaction associate? *Journal of Managerial Psychology; Bradford*, 33(2), 142–160.
<http://dx.doi.org.er.lib.k-state.edu/10.1108/JMP-09-2017-0326>

- Hakanen, J. J., Seppälä, P., & Peeters, M. (2017). High job demands, still engaged and not burned out? The role of job crafting. *International Journal of Behavioral Medicine; New York*, 24(4), 619–627. <http://dx.doi.org.er.lib.k-state.edu/10.1007/s12529-017-9638-3>
- Hall, R., & Woodward, S. (2010). The burden of the nondiversifiable risk of entrepreneurship. *The American Economic Review*, 100(3), 1163–1194. <http://dx.doi.org.er.lib.k-state.edu/10.1257/aer.100.3.1163>
- Hamilton, B. (2000). Does entrepreneurship pay? An empirical analysis of the returns to self-employment. *Journal of Political Economy*, 108(3), 604.
- Hanna, S. D., & Lindamood, S. (2008). The decrease in stock ownership by minority households. *Journal of Financial Counseling and Planning; Columbus*, 19(2), 46-58,94-95.
- Harrell, S. P. (2000). A multidimensional conceptualization of racism-related stress: Implications for the well-being of people of color. *American Journal of Orthopsychiatry*, 70(1), 42–57.
- Heaton, J., & Lucas, D. (2000). Portfolio choice and asset prices: The importance of entrepreneurial risk. *The Journal of Finance*, 55(3), 1163–1198.
<https://doi.org/10.1111/0022-1082.00244>
- Hurst, E., & Pugsley, B. W. (2011). What do small businesses do? *Brookings Papers on Economic Activity*, 73–143.
- Hvide, H., & Panos, G. (2014). Risk tolerance and entrepreneurship. *Journal of Financial Economics*, 111(1), 200–223. <https://doi.org/10.1016/j.jfineco.2013.06.001>
- Hytti, U., Kautonen, T., & Akola, E. (2013). Determinants of job satisfaction for salaried and self-employed professionals in Finland. *The International Journal of Human Resource Management*, 24(10), 2034–2053. <https://doi.org/10.1080/09585192.2012.723023>

- Ilmarinen, J., & Rantanen, J. (1999). Promotion of work ability during ageing. *American Journal of Industrial Medicine*, 36(S1), 21–23. [https://doi.org/10.1002/\(SICI\)1097-0274\(199909\)36:1+<21::AID-AJIM8>3.0.CO;2-S](https://doi.org/10.1002/(SICI)1097-0274(199909)36:1+<21::AID-AJIM8>3.0.CO;2-S)
- Itaoka, K. (2012). Regression and interpretation low R-squared. *Proceedings of the presentation at Social Research Network 3rd Meeting, Noosa. Mizuho Information and Research Institute, Inc.*
- Ji, H., & Hanna, S. (2012). Factors related to the financial vulnerability of small business owner-manager households. *Journal of Personal Finance*, 11(1), 49–77.
- Jiang, X. (2010). Return dispersion and expected returns. *Financial Markets and Portfolio Management; New York*, 24(2), 107–135. <http://dx.doi.org.er.lib.k-state.edu/10.1007/s11408-009-0122-1>
- Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C., & Rich, B. L. (2010). The relationship between pay and job satisfaction: A meta-analysis of the literature. *Journal of Vocational Behavior*, 77(2), 157–167. <https://doi.org/10.1016/j.jvb.2010.04.002>
- Judge, T., & Ilies, R. (2004). affect and job satisfaction: A study of their relationship at work and at home. *Journal of Applied Psychology*, 89(4), 661–673.
- Judge, T., Thoresen, C., Bono, J., & Patton, G. (2001). The job satisfaction–job performance relationship: A qualitative and quantitative review. *Psychological Bulletin*, 127(3), 376–407. <https://doi.org/10.1037//0033-2909.127.3.376>
- Karasek, R. A. (1979). Job demands, job decision latitude, and mental strain: Implications for job redesign. *Administrative Science Quarterly*, 24(2), 285–308. <https://doi.org/10.2307/2392498>

- Katz, J., Hanke, R., Maidment, F., Weaver, K., & Alpi, S. (2016). Proposal for two model undergraduate curricula in entrepreneurship. *International Entrepreneurship and Management Journal*, 12(2), 487-506.
- Kautonen, T., van Gelderen, M., & Fink, M. (2015). Robustness of the theory of planned behavior in predicting entrepreneurial intentions and actions. *Entrepreneurship Theory and Practice*, 39(3), 655–674. <https://doi.org/10.1111/etap.12056>
- Kess, S., & Mendlowitz, E. (2015). Personal financial planning for business owners. *The CPA Journal*, 85(9), 60–61.
- Koellinger, P., Minniti, M., & Schade, C. (2007). “I think I can, I think I can”: Overconfidence and entrepreneurial behavior. *Journal of Economic Psychology*, 28(4), 502–527. <https://doi.org/10.1016/j.joep.2006.11.002>
- Kroeck, K., Bullough, A., & Reynolds, P. (2010). Entrepreneurship and differences in locus of control. *Journal of Applied Management and Entrepreneurship*, 15(1), 21–49.
- Lee, B., Wang, J., & Weststar, J. (2015). Work hour congruence: the effect on job satisfaction and absenteeism. *The International Journal of Human Resource Management*, 26(5), 657–675. <https://doi.org/10.1080/09585192.2014.922601>
- Lichtenstein, J. (2010). *Saving for retirement: A look at small business owners*. Retrieved from <https://permanent.access.gpo.gov/gpo16972/rs362tot.pdf>
- Lindamood, S., Hanna, S., & Bi, L. (2007). Using the survey of consumer finances: Some methodological considerations and issues. *Journal of Consumer Affairs*, 41(2), 195-222.
- Lindquist, M., Sol, J., & Van Praag, M. (2015). Why do entrepreneurial parents have entrepreneurial children? *Journal of Labor Economics*, 33(2), 269–296.

- Liu, W., & Xin, J. (2014). Modeling fractional outcomes with SAS. *SAS Support Resource*. Retrieved from <http://support.sas.com/resources/papers/proceedings14/1304-2014.pdf>
- Macdonald, J. L., & Levy, S. R. (2016). Ageism in the workplace: The role of psychosocial factors in predicting job satisfaction, commitment, and engagement. *Journal of Social Issues*, 72(1), 169–190. <https://doi.org/10.1111/josi.12161>
- Madera, J. M., King, E. B., & Hebl, M. R. (2012). Bringing social identity to work: The influence of manifestation and suppression on perceived discrimination, job satisfaction, and turnover intentions. *Cultural Diversity and Ethnic Minority Psychology*, 18(2), 165–170. <http://dx.doi.org.er.lib.k-state.edu/10.1037/a0027724>
- Magee, W., & Umamaheswar, J. (2011). Immigrant group differences in job satisfaction. *Race and Social Problems; New York*, 3(4), 252–265. <http://dx.doi.org.er.lib.k-state.edu/10.1007/s12552-011-9057-z>
- Mahto, R. V., Davis, P. S., & Khanin, D. (2014). Continuation commitment: Family's commitment to continue the family business. *Journal of Family and Economic Issues*, 35(2), 278-289.
- Manolova, T. S., Brush, C. G., & Edelman, L. F. (2008). What do women entrepreneurs want? *Strategic Change*, 17(3–4), 69–82. <https://doi.org/10.1002/jsc.817>
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance*, 7(1), 77–91.
- Mas-Machuca, M., Berbegal-Mirabent, J., & Alegre, I. (2016). Work-life balance and its relationship with organizational pride and job satisfaction. *Journal of Managerial Psychology; Bradford*, 31(2), 586–602. <http://dx.doi.org.er.lib.k-state.edu/10.1108/JMP-09-2014-0272>

- Meyer, S.-C., & Hünefeld, L. (2018). Challenging cognitive demands at work, related working conditions, and employee well-being. *International Journal of Environmental Research and Public Health*, *15*(12), 2911.
- Millán, J. M., Hessels, J., Thurik, R., & Aguado, R. (2013). Determinants of job satisfaction: a European comparison of self-employed and paid employees. *Small Business Economics*, *40*(3), 651–670. Retrieved from JSTOR.
- Mishra, U., Patnaik, S., & Mishra, B. (2016). Role of optimism on employee performance and job satisfaction. *Indian Journal of Management*, *9*(6), 35-46.
- Moskowitz, T., & Vissing-Jørgensen, A. (2002). The returns to entrepreneurial investment: A private equity premium puzzle? *The American Economic Review*, *92*(4), 745–778.
- Nanda, R., & Sorensen, J. (2010). Workplace peers and entrepreneurship. *Management Science*, *56*(7), 1116–1126.
- National Standards for Entrepreneurship Education. (n.d.). Retrieved from <https://www.entre-ed.org/national-eship-standards>
- O'Rourke, N., & Hatcher, L. (2013). *A Step-by-Step Approach to Using SAS for Factor Analysis and Structural Equation Modeling* (2nd ed.). Cary, NC: SAS Institute, Incorporated.
- Panel Study of Entrepreneurial Dynamics. (n.d.). Retrieved April 8, 2017, from <http://www.psed.isr.umich.edu/psed/home>
- Papke, L. E., & Wooldridge, J. M. (1996). Econometric methods for fractional response variables with an application to 401(k) plan participation rates. *Journal of Applied Econometrics*, *11*(6), 619-632.

- Park, E., & Yao, R. (2016). Financial risk attitude and behavior: Do planners help increase consistency? *Journal of Family and Economic Issues*, 37(4), 624–638.
<https://doi.org/10.1007/s10834-015-9469-9>
- Parrish, B. D. (2010). Sustainability-driven entrepreneurship: Principles of organization design. *Journal of Business Venturing*, 25(5), 510–523.
- Pearlin, L. I., Nguyen, K. B., Schieman, S., & Milkie, M. A. (2007). The life-course origins of mastery among older people. *Journal of Health and Social Behavior*, 48(2), 164–179.
- Potter, D., & Heckman, S. (2018). Business entity selection: A human capital approach. *Journal of Financial Planning*, 31(4), 46–55.
- Puri, M., & Robinson, D. (2013). The economic psychology of entrepreneurship and family business. *Journal of Economics & Management Strategy*, 22(2), 423–444.
- Qu, H., & Zhao, X. (Roy). (2012). Employees' work–family conflict moderating life and job satisfaction. *Journal of Business Research*, 65(1), 22–28.
<https://doi.org/10.1016/j.jbusres.2011.07.010>
- Quadrini, V. (1999). The importance of entrepreneurship for wealth concentration and mobility. *Review of Income and Wealth*, 45(1), 1–19. <https://doi.org/10.1111/j.1475-4991.1999.tb00309.x>
- Reynolds, P., & Curtin, R. (2008). Business creation in the United States: Panel study of entrepreneurial dynamics II initial assessment. *Foundations and Trends in Entrepreneurship*, 4(3), 155–307. <https://doi.org/10.1561/03000000022>
- Ronda, L., Ollo-López, A., & Goñi-Legaz, S. (2016). Family-friendly practices, high-performance work practices and work-family balance: How do job satisfaction and working hours affect this relationship? *Management Research: The Journal of the*

- Iberoamerican Academy of Management; Armonk, 14(1), 2–23.* <http://dx.doi.org.er.lib.k-state.edu/10.1108/MRJIAM-02-2016-0633>
- Rotter, J. B. (1954). *Social learning and clinical psychology*. Englewood Cliffs, NJ: Prentice-Hall.
- Rubin, D. (2004). *Multiple Imputation for Nonresponse in Surveys*. New York, NY: John Wiley & Sons, Incorporated.
- Rydqvist, K., Spizman, J., & Strebulaev, I. (2014). Government policy and ownership of equity securities. *Journal of Financial Economics, 111(1)*, 70-85.
- Sahm, C. (2012). How much does risk tolerance change? *The Quarterly Journal of Finance, 2(4)*, 1-38.
- Sancho, P., Tomas, J., Oliver, A., Galiana, L., & Gutierrez, M. (2019). Predicting life satisfaction in Spanish adults of advancing age attending university educational programs. *Journal of Happiness Studies, 1-17*.
- Schjoedt, L., & Shaver, K. G. (2012). Development and validation of a locus of control scale for the entrepreneurship domain. *Small Business Economics, 39(3)*, 713–726.
<https://doi.org/10.1007/s11187-011-9357-0>
- Schlaegel, C., & Koenig, M. (2014). Determinants of entrepreneurial intent: A meta-analytic test and integration of competing models. *Entrepreneurship Theory and Practice, 38(2)*, 291–332. <https://doi.org/10.1111/etap.12087>
- Schneck, S. (2014). Why the self-employed are happier: Evidence from 25 European countries. *Journal of Business Research, 67(6)*, 1043–1048.
<https://doi.org/10.1016/j.jbusres.2013.06.008>

- Shahidi, A. (2015). *Balanced Asset Allocation : How to Profit in Any Economic Climate*. Retrieved from <https://ebookcentral-proquest-com.er.lib.k-state.edu/lib/ksu/reader.action?docID=1873099>
- Shin, S. H., & Hanna, S. D. (2017). Accounting for complex sample designs in analyses of the Survey of Consumer Finances. *Journal of Consumer Affairs*, 51(2), 433-447.
- Shum, P., & Faig, M. (2006). What explains household stock holdings? *Journal of Banking & Finance*, 30(9), 2579–2597. <https://doi.org/10.1016/j.jbankfin.2005.11.006>
- Small Business Administration. (2016). *Frequently asked questions*. Retrieved from https://www.sba.gov/sites/default/files/advocacy/SB-FAQ-2016_WEB.pdf
- Taylor, P., Mcloughlin, C., Meyer, D., & Brooke, E. (2013). Everyday discrimination in the workplace, job satisfaction and psychological wellbeing: age differences and moderating variables. *Ageing & Society*, 33(7), 1105–1138. <https://doi.org/10.1017/S0144686X12000438>
- Torres, G. (2016). *Life Satisfaction: Determinants, Psychological Implications, and Impact on Quality-of-Life*. New York, NY: Nova Publishers.
- Van Vliet, P., & Blitz, D. (2011). Dynamic strategic asset allocation: Risk and return across the business cycle. *Journal of Asset Management; London*, 12(5), 360–375. <http://dx.doi.org.er.lib.k-state.edu/10.1057/jam.2011.12>
- Wang, C., & Hanna, S. (2007). The risk tolerance and stock ownership of business owning households. *Journal of Financial Counseling & Planning*, 18(2), 3–18.
- Widiawan, K. (2017). A missing link on entrepreneurship education curricula. *International Journal of Industrial Research and Applied Engineering*, 2(1), 20-24.

Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2008). Racial/Ethnic discrimination and health: Findings from community studies. *American Journal of Public Health; Washington, 98*, S29–S37.

Xiao, J. J., Alhabeeb, M. J., Hong, G.-S., & Haynes, G. W. (2001). Attitude toward risk and risk-taking behavior of business-owning families. *Journal of Consumer Affairs, 35*(2), 307–326.