THE IMPACT OF CREDIT AND DEBT ON WEALTH ACCUMULATION

by

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B.A., Principia College, 1979

M.B.A., Southern Methodist University, 1987

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Personal Financial Planning

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Abstract

This study explored whether the use of debt, specifically mortgages and student loans, has a negative relationship with wealth accumulation over a consumer's lifetime. The analysis looked at whether exploration questioned whether consumer debt is incongruent with good personal financial management and consumers should hold a philosophy of avoidance of debt in order to accumulate more wealth. Some financial planners believe in leveraging current assets in hopes of accelerating wealth accumulation. The latter approach is more congruent with a behavioral life-cycle hypothesis perspective (Shefrin & Thaler, 1988), which posits that consumers are the happiest when consumption remains relatively constant over a lifetime through use of debt and savings.

To account for wealth accumulation across the lifespan, a measure of relative net worth was constructed by taking current net worth divided by current annual income divided by age. Relative net worth was used rather than net worth in order to allow comparisons between consumers of different ages and income.

Data were collected from a sample of convenience, recruited from social media, friends and their acquaintances, and the clients of financial advisors who agreed to distribute the survey. Four ordinary least squares (OLS) regression analyses were conducted to determine the influence of current mortgage relative to the value of the home, mortgage obtained at the time of home purchase as a multiple of income, and student loans at graduation as a multiple of income on relative net worth accumulations. Results suggested that current mortgage debt that is 80% or less of home value, lack of a mortgage, and completing higher education without student debt are associated with higher relative net worth.

Using a sample of convenience, the respondent pool was not nationally representative. In comparison to the United States population, the sample population is more highly educated, has a higher percentage of married and individuals in a committed relationship, contains more adults over the age of 50, and does not reflect the ethnic diversity of the United States. This study did not provide deep new insight into the factors contributing to wealth accumulation. It showed that mortgages and student loans alone do not have a large impact on wealth accumulation. This is evidenced by the low R^2 for all regressions (ranging from .00 to .07). Of the independent variables chosen for regression, the impact was not large and statistical significance for those factors was not present in all regressions.

The results of this study do not provide direct support to the ability to use mortgages and student loans as part of wealth accumulation strategies. Future studies may be able to incorporate other elements with debt decisions as well as the impact of financial advice on the use and levels of debt as part of an integrated wealth accumulation strategy. The level of debt to positively impact socioeconomic status is also another area for future study.

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Dedication

This dissertation is lovingly dedicated to my parents, John and Virginia Yows. I feel their love and support every day.

Chapter 1 - Introduction

Consumer debt can be used for convenience and to acquire assets, but excessive debt can be detrimental to personal financial stability (Garman & Forgue, 2012; Greninger, Hampton, Kitt, & Achacoso, 1996). There is no broadly accepted appropriate level of consumer debt. Advice can be found in the popular press that an individual should not have credit cards or borrow, except to buy a home, and should obtain a mortgage from a financial institution that will not require a credit history (Ramsey, 2004). The general acceptance of credit card usage as well as borrowing for large purchases in contradistinction to the viewpoint that debt is inappropriate can leave consumers with a conundrum. Managing personal finances completely without debt would not allow for higher education, vehicle purchases, or home purchases until resources are available to purchase such goods and services. This anti-debt philosophy suggests that consumers have neither the self-control to use debt in moderation nor the ability to learn to do so. The behavioral life-cycle hypothesis (BLC) postulates that individuals have a relatively consistent ability to consume over a lifetime through current income, current wealth, and future income, with the costs, including those of borrowing, impacting consumer decisions around consumption and saving (Shefrin & Thaler, 1988). Self-control, mental accounting which differentiates between income and assets, and framing of the perception of financial resources drive consumption and saving decisions.

Wealth accumulation is a key financial component to all households. The accumulation of wealth allows individuals to consume goods and services at a relatively consistent level throughout their lives, as put forth by BLC. According to BLC, consumers are more likely to spend current wealth, which is wealth accumulated from saving current and past income, than future income. Spending future income, in the form of debt, is also a means to level

consumption. It is especially useful when acquiring assets in the current period that are expected to increase in value over time, such as a home or an education that will increase earning capacity. The propensity to spend less of anticipated bonus or windfall income than of current income, as identified by BLC, also indicates that consumers' desire to grow net worth, which is one way to conceptualize wealth, is evidence of the role that wealth plays in individuals' goals to have access to goods and services without the necessity of earning a living over their entire lifetimes.

The distinctions between having good credit history, negative credit history, and no credit history can be important for consumers. Having an established positive credit history is integral to the ability to borrow for a home purchase through such lending programs as those offered by the Federal Housing Authority, Freddie Mac, and the Veterans Administration (Federal Housing Administration, 2012; 2016; Freddie Mac, 2016; United States Department of Veterans Affairs Web Automated Reference Material Systems, 2016). Since these programs have criteria regarding acceptable credit scores to qualify for loans and the past use of credit is necessary for a credit score (FICO, 2016), a lack of credit history can preempt the ability to participate in these particular programs in a similar way that poor credit history can. If consumers need to be completely without the use of credit, data need to be gathered in order that practitioners can counsel accordingly. Additionally, if this is the case, public policy advocates can work to eliminate credit history requirements for mortgages and other consumer debt that is deemed more appropriate than credit cards.

Logically, financial insolvency and bankruptcy are unlikely if a consumer does not have debt. Concerns about immoderate use of debt are bolstered by evidence that excessive debt can negatively impact repayment of mortgages (Avery, Bostic, Calem, & Canner, 1996). Also, the proportion of debt in the composition of household finances may also be a predictor of

insolvency (DeVaney, 1994). Those studies reflect how debt levels negatively impact the ability to pay a mortgage and how high debt levels can be related to insolvency.

This study explored whether the use of mortgages and student loans during a consumer's financial life accelerate or amplify the accumulation of net worth. Relative net worth, which is a measure of net worth that accounts for income and age, served as a proxy for current wealth referenced in BLC. Current income in this theory was conceptualized through the variable of annual income. Student loans are loans obtained to pursue a degree or certificate program. Mortgages are loans secured by a home, whether or not the loans were used to acquire or improve the home. The relationship between these variables and relative net worth was analyzed.

Relative net worth is net worth divided by income divided by age. This dependent variable takes into account the financial resources of a consumer in the form of current income, current wealth in the form of current net worth, and the current stage of the consumer in a life cycle by way of age. Two consumers of different age, income, and net worth could have the same relative net worth based on historical saving practices and past rates of returns on savings.

For example, a 40 year old making $100,000 per year with a $450,000 net worth has a relative net worth of 0.1125 (450,000/100,000/40). A 60 year old with annual income of $100,000 and a net worth of $675,000 also has a relative net worth of 0.1125 (670,000/100,000/60). That the two individuals have the same relative net worth suggests comparable wealth accumulation, in light of income and age. However, a 40 year old making $100,000 per year with a net worth of $675,000 has a relative net worth of 0.1688 (675,000/100,000/40) and a 60 year old with annual income of $100,000 and a net worth of $450,000 has a relative net worth of 0.0750 (450,000/100,000/60). In this example, the 40 year old has more accumulated wealth relative to age and income than the 60 year old, not because

the 40 year old has a larger net worth, but because the income and age adjustments suggest more accumulation of net worth given the income resources and time in the financial life cycle of each party. As a final example, two consumers, one age 40 and the other age 60, could each have a net worth of $500,000. The 40 year old has annual income of $75,000 and the 60 year old has annual income of $85,000. The 40 year old has relative net worth of 0.1667 (500,000/75,000/40) and the 60 year old has relative net worth of 0.0980 (500,000/85,000/60). This example illustrates the ability to compare people of the same net worth across age and income differences, even though the individuals have the same net worth. The 40 year old, in this instance, has done more at the age of 40 given lower income than the 60 year old given higher income and more years in which to acquire wealth. As these examples illustrate, relative net worth allows the comparison of consumers' net worth accumulation controlling for their age and income. It is acknowledged that this variable does not control for past income, future increases or decreases in income, or inherited wealth.

Moving beyond concerns about the negative impact of excessive debt, this study explored whether net worth accumulation is impacted by mortgages and student loans used in moderation, with the expectation that there is not a negative relationship with the existence of student loans and mortgages and the accumulation of relative net worth. The impact of income and the age of respondents was examined relative to net worth accumulation. While it was not anticipated that the existence of student loans or mortgages negatively impacts the accumulation of wealth, it is anticipated that excessive debt has a negative impact.

Research has indicated that, in households with low and moderate income, there is a positive relationship with building wealth and homeownership (Di, Belsky, & Liu, 2007; Turner & Luea, 2009). Additionally, it does not appear that accumulation of equity in a home in these

economic strata lessens those households' accumulation of other investments (Freeman & Desmarais, 2011). Smith, Finke, and Huston (2012) found that households with higher net worth and financial sophistication used mortgages as part of the risk diversification of their financial management practices.

Lower socioeconomic status may be more greatly impacted by higher education than persons from higher socioeconomic families, and the willingness to take on debt to achieve education, therefore, may be more impactful than for individuals from higher socioeconomic families (Callender & Jackson, 2008). Students who graduated from private schools with bachelor's degrees, which may reasonably may be more likely to be from families of greater wealth, were not found to be influenced by debt in their decisions to pursue graduate degrees (Zhang, 2010). However, graduates from public schools were found to be less likely to pursue graduate degrees based on concerns about student debt (Zhang, 2010).

Hypotheses

Based on behavioral life cycle hypothesis and supporting literature, the following hypotheses were developed.

H1: Consumers with home mortgages of 80% or less of the value of their home have higher relative net worth than consumers with no mortgage.

This hypothesis draws directly from financial planning practitioner Bert Whitehead, who recommends that consumers leverage their homes at 60 to 80% of the fair market value of the value of their home (Whitehead, 2013). Whitehead did not recommend that consumers become mortgage free prior to retirement, citing the illiquidity of real estate as a financial resource. Practitioners are not of one mind in this regard, with an equally common attitude being that a mortgage is reasonable for purchase, but that mortgages should be eliminated prior to retirement

in order to limit regular expenses. This is borne out by Smith et al. (2012) who found that wealthy consumers who utilize risk in their portfolios and seek tax incentives appear more likely to continue to have mortgages into retirement.

H2: Consumers whose home mortgage was in excess of two times their annual income at the time of purchase will have lower relative net worth than consumers with home mortgage debt equal to or less than two times their annual income.

Empirical literature supports the concept that homeownership is positively associated with wealth accumulation (Di et al., 2007). Whitehead recommends that consumers purchase a home that is two to two and half times their annual income and have a mortgage that is 60 to 80% of the fair market value of the home (ibid, p. 119-120). This is equivalent to a maximum loan of 80% of two and a half times annual household income, which is two times annual household income. Whitehead contends that homeownership is an important component of building net worth.

H3: Consumers who complete an education degree or certificate beyond high school or GED with student loans less than or equal to their first year annual salary have greater relative net worth than those who graduate from higher education with student loans in excess of their first year annual salary.

Popular press reports specific cases of excessive student loan debt that is thwarting the ability of college graduates to pursue other life goals such as homeownership and having a family (Williams, 2016). However, there are metrics quoted by practitioners that recommend maximum student loan balances at time of graduation of approximately one year of annual income (Whitehead, 2013; Rosato, 2016).

H4: Consumers who complete an education degree or certificate beyond high school or GED who use student loans have higher relative net worth 10 years after graduation than those who graduate from higher education and did not use student loans.

Student loans in households are not shown to have a positive relationship with net worth when compared to households without student loans (Elliott & Nam, 2013). However, there is some evidence that payoffs for an education are recovered with increased earnings of up to 20% for each level of education and those receiving financial aid have the highest yield on their education (Hout, 2012). This could increase the ability to make payments on student loans and ultimately to benefit from the financial implications of higher education.

H5: Consumers who complete an education degree or certificate beyond high school or GED with student loans less than or equal to their first year annual salary have the same relative net worth 10 years after graduation as consumers who graduate without student loans.

Hout's (2012) research also suggests that "marginal students gained the most from the opportunity to be educated" (ibid, p. 385). The benefits of education beyond knowledge and potential earning capacity include increased tolerance of different lifestyles and values, as well as a sense of social responsibility.

Outcome

Relative net worth is net worth divided by income divided by age. This dependent variable takes into account the financial resources of a consumer in the form of current income, current wealth in the form of current net worth, and the current stage of the consumer in a life cycle by way of age. Two consumers of different age, income, and net worth could have the same relative net worth based on historical saving practices and past rates of returns on savings. Relative net worth is used in this study in order to allow comparison between consumers with

disparate situations in an attempt to analyze the impact of mortgages and student debt on the ability to accumulate wealth. A household with a high income has the ability to accumulate a larger net worth than a household with low income, if measured strictly in dollars. Also, if two individuals make the same income, but one is older than the other, the older individual has had more time to accumulate wealth than the younger individual. Relative net worth adjusts for income and for age, allowing measurement of the propensity and ability of the household to make decisions and utilize resources to accumulate wealth.

There is a much empirical research on the potential negative effects of excessive debt. BLC posits that future income, in the form of debt, can be used to smooth consumption, tempered by considerations regarding cost and assumptions about levels of future income. Student loans and mortgages have the characteristics of facilitating the acquisition of assets with long term appreciation and potential tax advantages mitigating the cost of borrowing. Literature aimed at consumers, as well as the outlook of financial planning practitioners, is somewhat mixed on the wisdom of these types of debt. This study explored the views of the different perspectives, attempting to add to the literature by examining a level at which mortgage debt and student loans may be positively related to building net worth.

Chapter 2 - Literature Review

Individuals consume based on their assumptions about what they believe their resources will be over their lifetimes to maximize utility. Debt can allow for the purchase of goods and services that will be used during a lifetime without the necessity to wait until enough funds have been accumulated to pay for the services. Mortgage loans allow the purchase of a home, which can add tangible and intangible value to life. Owning a home can allow for building equity in an asset and a mortgage can provide some stability to housing costs through a fixed payment toward the principal and interest of the debt payment. Student loans for procuring an education will be assumed to increase lifetime earnings and add quality to life though the intangible benefits of knowledge and social capital.

Relative Net Worth

The dependent variable of this study, relative net worth, is net worth divided by annual income divided by age. Relative net worth is framed within the behavioral life-cycle hypothesis (BLC) as an indicator of how consumers have allocated resources to current income and current wealth and how they have accounted for future income to maximize lifetime utility of consumption. Relative net worth was constructed to measure wealth accumulation across the consumer lifespan as well as to be able to compare wealth accumulation despite differences in income. It was anticipated that age and income would impact net worth. The desire was to incorporate those elements into a variable that included all three of those major elements of wealth accumulation. The concept of relative net worth was inspired by a metric in the popular book *The Millionaire Next Door* (Stanley & Danko, 2010). The authors suggested that if consumers multiply their age by their income and divide that product by 10, the resulting number is what their net worth should be if the household is saving appropriately.

BLC describes lifetime consumption (LC) as the summation of current income (CI), current wealth (CW), and future income (FI) as depicted in Equation 2.1 (Shefrin & Thaler, 1988).

$$LC = CI + CW + FI \hspace{3cm} \textbf{Equation 2.1}$$

Current income is conceptualized through earned income and current wealth consists of savings that have been accumulated through past and current income which was not spent. Access to future income is available through debt, including mortgages and student loans. Consumers use debt when interest costs are deemed to be more efficient than accessing current wealth. This can be because the cost of accessing current wealth, such as tax and penalties on withdrawals from tax-qualified accounts or the perceived growth potential of leaving current wealth undisturbed, is greater than the interest cost of borrowing.

BLC builds on the life-cycle theory (Ando & Modigliani, 1963) and the permanent income hypothesis (Friedman, 1957) by introducing elements which contribute to behavior, including mental accounting, framing, and self-control. Mental accounting addresses the inclination of consumers to view resources as non-fungible where they consume current income before current wealth and are least likely to spend future income. Framing suggests that consumers are likely to spend less of a lump sum bonus than the portion spent of current income, which could impact whether a lump sum is consumed in the current period, paid toward existing debt, or saved to increase current wealth. Self-control can be shaped by external rules, such as tax laws and interest costs, and internal rules of self-discipline. In this context, interest costs may impact a consumer's likelihood of borrowing and shape the internal rules of self-discipline. In addition to interest costs, potential tax benefits may be elements that facilitate accessing future

income through mortgages and student loans, potentially facilitating the accumulation of wealth through homeownership and the earning capacity from higher education.

Mortgages and Wealth Accumulation

Mortgages allow for a long term purchase of a major asset. The use of any debt, including mortgages, is a form of accessing future income to increase utility from current consumption. An individual who purchases a home with a loan at age 30 is attempting to smooth lifetime consumption by borrowing from his or her expected income at age 50.

Despite studies around the negative impact of excessive debt and the impact of poorly managed debt, sound research does not indicate that consumers should be completely without debt. For example, Bert Whitehead, a financial planner for over 30 years and founder of the Alliance of Comprehensive Planners, formerly Cambridge Advisors, espouses the idea that debt in appropriate amounts can enhance the ability to build wealth. Whitehead (2013) suggests that a family buy a home that is two to two and a half times the household gross income and have mortgages of 60 to 80% of fair market value against the home. This approach proposes that a mortgage ranging from 120 to 200% of annual income is sustainable in building net worth. Mortgage loan-to-value of more than half the value of the underlying property for consumers age 55 or older is considered high by Smith et al. (2012).

Mortgage balances of early baby boomers, those born between 1946 and 1957, appear to have grown in real dollars compared to those at the same point in the life cycle of the previous generation, born between 1934 and 1945 with the boomers having greater assets than the previous generation (Finke, Huston, & Sharpe, 2006). Finke et al. showed higher debt payment to income ratios for baby boomers and suggested that the greater value of assets is due to market appreciation related to this large age cohort bidding up the value of houses through demand.

The acquisition of a home can contribute to a consumer's net worth over a lifetime, as well as lower the impact of changing market rents on the household budget. A mortgage also facilitates the home purchase by eliminating the need to pay cash for this large purchase. The ability of the consumer to acquire and pay a mortgage is an indication of how individuals mentally account for their resources in their use of debt and resulting accumulation of wealth.

Student Loans and Wealth Accumulation

Student loans also represent borrowing from future income. Student loans allow the consumer to obtain an education without the need to have all the funds to immediately pay for the education. Based on the fact that loan amounts are not limited to tuition, books, fees, and specific education costs, some consumers also use student loans to pay for or subsidize living expenses while in school. The foundation of this behavior is the belief that the education obtained will impact the consumer's earning capacity to have increased income that will pay for the loans in the future and that will provide increased income, wealth, and lifestyle.

The positive relationship between education levels and income is apparent through annual data released by the Department of Labor (U.S. Bureau of Labor Statistics, 2015). According to Hout (2012), annual earnings rise approximately 20% for each education level attained from individuals age 30 to 54. Hout concluded that a college education can fully pay back the cost of obtaining it and that financial aid reduces, but generally does not eliminate, the cost of education for those who qualify for aid. Other empirical studies directly or indirectly reference one iteration or another of the life-cycle theory (Finke et al., 2006; Hout, 2012; Mann, 2011; Minicozzi, 2005; Smith et al., 2012).

Literature has shown that high levels of debt—or the overreliance on future income— increases the likelihood of default on student loans (Gross, Cekic, Hossler, & Hillman, 2010).

The public's current concern, expressed in the media, that student debt is a growing problem, was explored. Using data from College Boards from 1963 to 2010 which were adjusted for inflation, findings suggest the amount of student debt per student has not changed substantially over time, but that the number of students who borrow has increased (Avery & Turner, 2012). Avery and Turner found a high level of high school graduates who intend to obtain a degree but do not accomplish that within six years of graduation. They posited that the public concern about mounting student debt discourages some from borrowing, which may be counterproductive if students are distracted from their learning objectives with jobs or taking an extended period of time to finish degrees. Increases in student debt have not necessarily led to increased attainments in higher education (Cho, Xu, & Kiss, 2015).

An individual's fear of debt, and an acknowledgement of the usefulness of it can co-exist. Students from higher socioeconomic and more educated families are more likely to see the benefit of borrowing to acquire education than those from lower socioeconomic families or those with lower education levels. (Haultain, Kemp, & Chernyshenko, 2010). Building on their previous research (Callender & Jackson, 2005) indicating that debt aversion deters some students from pursuing higher education, Callender and Jackson (2008) researched 2,000 potential higher education students in Great Britain. In this sample, financial factors such as cost, how close a university was to the student's home, cost of living in the area near a university, debt from education, and the benefits of higher education—specifically job prospects after education— were important considerations for individuals in lower socioeconomic status but not those in moderate or higher socioeconomic status. While education systems in Great Britain and the United States are different, both in the educational structure and in funding, that study may provide indications of how human behavior is impacted in these areas. Individuals with high

student loan balances are less likely to pursue further higher education (Minicozzi, 2005) and student loan debt can also impact career decisions (Zhang, 2010). Baum and O'Malley (2003) found through the National Student Loan Survey, conducted by Nellie Mae, that a majority of respondents felt burdened by their loans and would borrow less if they could do it over; however, a majority also felt the education was worthwhile professionally and personally. Building on that study, Avery and Turner (2012) noted that while the aggregate outstanding balances of student loans have increased over the last three decades, the average outstanding loan per student has not had dramatic increases in real dollars during that period. Their research indicated that more individuals are going to college and that more college students are availing themselves of the opportunity to finance their education. In regard to fears that student loan levels might have reached a crisis point that might lead to financial problems for a major portion of the population, sometimes called the student loan bubble, those researchers posit that anecdotes about the outliers with unusually large amounts of debt and the public concern about excessive student debt may stifle prospective students from going to college out of fear of the financial impact. Avery and Turned concluded that, "even if macroeconomic shocks were to erode the higher education earnings premium to levels not seen in three decades, collegiate attainment would remain a good investment for many potential students" (p. 189).

Even research that posits that student debt has a negative impact on short term net worth supports the idea that college is a worthwhile financial investment (Elliott & Nam, 2013). Several studies indicate that student debt impacts job decisions immediately after graduation. An early study showed that men who graduated between 1976 and 1983 with higher student loan balances tended to take higher paying jobs initially, but realized less wage growth over time than those with lower student loan balances who pursued jobs with lower initial pay and higher long

term potential growth in pay (Minicozzi, 2005). A study at a university where student loans were replaced with grants found that students with grants were more likely to take lower paying jobs in philanthropy or public service and that students who had graduated with debt were more likely to take high paying jobs after graduation (Rothstein & Rouse, 2011).

In 2014, Charles A. Jeszeck, Director of Education, Workforce, and Income Security, testified before the U.S. Senate Special Committee on Aging. Data were gathered from the Federal Reserve Board's Survey of Consumer Finances, Department of the Treasury, Social Security Administration, and the Department of Education. He shared the results of research conducted on the increase of student debt in older Americans and the impact of defaulting on these loans. The percentage of American's aged 65 to 74 with student debt from their own education was small at 4%, however 27% of consumers in this age cohort had defaulted on these debts and more than half of those over 75 had defaulted, compared to 12% of consumers age 25 to 49 who defaulted. Given that student loan default can result in offset of some government payments such as Social Security benefits and income tax refunds, the debt burden combined with the partial loss of government funding could put some of these retirees into poverty. Whitehead (2013) recommends that student loan debt to obtain higher education is acceptable as long as the total outstanding principal balance of loans at graduation is no more than the graduate's annual gross earned income. This level of debt is also recommended by Mark Kantrowitz, an advisor on college costs (Rosato, 2016).

Ratio Analysis and Wealth Accumulation

While debt can be used to access future income and BLC suggests that consumers can make decisions regarding the cost of debt, extensive literature exists on the strain that excessive debt can produce on personal finances. Ratio analysis, the percentage or multiple that one

financial element is of another financial element, allows comparison of the situations of multiple

consumers, even though the actual dollars in their financial situations may be disparate. Personal

finance ratios have been in use approximately 25 to 30 years, with existing literature on the use

of ratios in personal finance focusing more on describing whether households meet certain ratios

than whether ratios are valid and how best to use them effectively (Harness, Chatterjee, & Finke,

2008). Laying a foundation for some of the existing use of personal finance ratios using logistic

regression, DeVaney (1994) explored if ratios could be used to predict insolvency, with

indicators being, in order of likelihood, low liquidity, high debts to income, and low assets to

liabilities, defining insolvency as net worth of less than one month of income. To be meaningful,

ratios must contain the pertinent elements. For instance, federal measures of poverty focus on

income and basic living expenses, but do not include debt payments. If debt payments were

included in poverty measures, the number of low and middle income individuals deemed to be in

poverty would be higher than under current government measurement methods (Pressman &

Scott, 2009).

The use of ratios and benchmarks varies among some older studies, however these

articles lay a foundation for the use of ratio analysis in this and other research. The general

financial wellness of members of the baby boom generation has been explored comparing

objective financial wellness, using ratios, including some that assess debt levels analyzed with

chi-square, *t*-tests, and logistic regression, to their subjective sense of financial well-being (Baek

& DeVaney, 2004). Attempts have been made to establish norms for ratio analysis, such as

appropriate mortgage and student loan debt to assume (Prather, 1990). Prather found that current

ratios were not always relevant or easily measurable. A Delphi study using a panel of financial

planners and educators to explore personal finance ratios also yielded potential ratios for

assessing acceptable levels of various financial aspects of consumers' finances (Greninger et al., 1996). Studies such as these have not found wide acceptance in the ratios used. Additional study is warranted since the recession in the last 10 years may have impacted what ratios provide sustainable personal financial management.

Summary of Literature

The use of debt may impact whether young adults marry, cohabitate, or remain single, with women showing more likelihood to remain single in the presence of debt balances (Addo, 2013) and excessive debt can negatively contribute to mental and physical health (Sweet, Nandi, Adam, & McDade, 2013). Since the great recession, debt levels—including, mortgages and student loans—have been on the decline (Bricker et al., 2014). However, it has been suggested, using a mathematical model, that credit can be used judiciously, even when income is not certain (Fan, Chang, & Hanna, 2004). It is hypothesized in the current study that the use of debt can contribute to greater wealth accumulation than not using leverage. While it is not alleged that all debt can contribute to wealth accumulation, this study hypothesized that mortgage on a home that does not exceed 80% of the value of the home, a purchase mortgage for a home that does not exceed two times annual income at the time of purchase, and student loans of no more than one times annual income at the time of completing higher education can contribute to wealth accumulation.

Chapter 3 - Methodology

The current study builds on existing research regarding the negative impact of debt by exploring productive use of debt and the appropriate levels for that debt, specifically, the role of mortgage debt for homeownership and student loan debt to obtain education leading to greater potential lifetime income. These particular types of debt are in accord with behavioral life-cycle hypothesis (BLC), in which Shefrin and Thaler (1988) aver that individuals have a relatively consistent ability to consume over a lifetime through current income, current wealth, and future income, with the costs, including those of borrowing, impacting consumer decisions around consumption and saving. BLC augments the permanent income hypothesis (Friedman, 1957) and life-cycle theory (Ando & Modigliani, 1963) by including the elements of self-control, mental accounting differentiating income and assets, and framing of financial resources in consumption and saving decisions. Analyses will explore five hypotheses and related issues.

H1: Consumers with home mortgages of 80% or less of the value of their home have higher relative net worth than consumers with no mortgage.

H2: Consumers whose home mortgage was in excess of two times their annual income at the time of purchase will have lower relative net worth than consumers with home mortgage debt equal to or less than two times their annual income.

H3: Consumers who complete an education degree or certificate beyond high school or GED with student loans less than or equal to their first year annual salary have greater relative net worth than those who graduate from higher education with student loans in excess of their first year annual salary.

H4: Consumers who complete an education degree or certificate beyond high school or GED who use student loans have higher relative net worth 10 years after graduation than those who graduate from higher education and who did not use student loans.

H5: Consumers who complete an education degree or certificate beyond high school or GED with student loans less than or equal to their first year annual salary have the same relative net worth 10 years after graduation as consumers who graduate without student loans.

Sample Description

An anonymous sample of convenience was used for data analysis. Due to the anonymous feature, after review by the University's Institutional Review Board (IRB) determined this project to be exempt from further review on July 22, 2016. A Qualtrics survey was used to collect anonymous data from participants. The contact information for the primary investigator was contained within the survey for any questions respondents had.

Instrumentation

Prior to distribution of the final survey, two pilot surveys of co-workers and immediate family members were conducted. The pilot participants did not use their own personal information, instead creating fictitious profiles to test the functionality of the survey. These pilot participants took the survey multiple times with different fact patterns to identify flaws in the flow of the survey as well as questions which would be confusing or inappropriate for different potential participants. Based on the pilot, changes were made in the flow of the questionnaire, primarily to have questions asked only of the respondents to which they applied.

Respondents for the current study were solicited through financial planning colleagues, their clients, personal acquaintance, social media, and word of mouth over the three-week period ranging from August 9 to August 26, 2016. On August 12, 2016 and August 15, 2016 initial e-

mails were sent. Follow-up reminder e-mails were sent on August 17 and August 22. On August 15, 19, and 29, a link to the survey was posted on Facebook, Twitter, and LinkedIn. Six hundred seventy-seven responses were received by September 11, 2016. Respondents heard about the survey through their financial advisor (23%), social media (19%), friends (34%) or other sources (25%). Some of the responses indicating "other" would fit into the friend or financial advisor category, with another answer being that the respondent heard about it from a professor. It is impossible to know how many individuals were informed of the survey through social media or referrals. The personal association of the author with some of the respondents could induce biased responses from colleagues. Many recipients of the survey are, as the author, members of the Alliance of Comprehensive Planners (ACP). This organization was founded by Bert Whitehead and the levels of debt reflected in the hypotheses as independent variables are based on his teaching and inherent in the philosophy of ACP. This may have provided more individuals who used debt as part of an integrated wealth accumulation strategy, which would support the hypotheses.

Of the 679 respondents who started the survey, 566 completed it. The average time to completion was 28 minutes. Since the survey was anonymous, it is unknown if any respondents failed to complete the survey, left the survey, then returned and started over at a different time. So some of the completed responses may include individuals who did not initially complete survey, but who subsequently reentered the survey and completed it.

Rather than use imputation methods, extreme outliers were removed from further analyses. For instance, one respondent indicated assets of $5,800,000 and debts of $5,800,000. This is extremely atypical—it is either a skewed data point or an inaccurate input by the respondent. Additionally, respondents with a net worth in excess of $20,000,000 were excluded

from the final sample as their net worth was deemed to be so large as to be anomalous, even for a sample with many respondents who receive professional financial advice. Respondents where the income was $0 or missing as well as respondents who did not report their age were excluded from the sample, since the dependent variable of relative net worth requires income and age to calculate. The final useable sample consisted of 539 respondents.

Empirical Model with Variable List and Measurement

Behavioral life-cycle hypothesis (BLC) posits that individuals consume with some consistency over a lifetime through current income, current wealth, and future income, and that costs, including those of borrowing, influence decisions regarding consumption and saving (Shefrin & Thaler, 1988). Self-control, mental accounting which differentiates between income and assets, and framing of the perception of financial resources drive consumption and saving decisions. The ability to save money for future consumption as well as to borrow money from future income using debt may both impact net worth. Net worth, which is similar to the BLC concept of current wealth, is the value of all assets minus the balance of all liabilities (Garman & Forgue, 2012). Based on BLC, consumers make consumption decisions based on available resources and, as previously discussed, existing literature points to financial elements that impact the accumulation of wealth. This study explored the impact of debt on net worth accumulation, adjusted for income and age. Net worth is an unadjusted measure of wealth accumulation, while age and income are potential control factors for assessing impact. Relative net worth was constructed as a measure to incorporate all of these factors in order to compare the wealth accumulation of respondents of differing age and income.

Operationalization of Variables

Dependent Variable

The dependent variable of relative net worth was measured by net worth divided by annual income divided by age, resulting in a continuous variable for analysis purposes. Net worth was calculated through a series of questions about assets and debts, assessed at the household level. These questions, all of which requested a response that was filled into a blank, were as follows:

- Approximately how much do you have in liquid assets such as checking accounts, savings accounts, money market accounts, and Certificates of Deposit?

- If you have investment accounts such as mutual funds and/or brokerage accounts, approximately how much are those accounts worth in total?

- Excluding your home, your retirement accounts, your liquid assets, and your investments, what is the approximate value of your other assets?

- What would you estimate is the current value of your home if it were sold?

- Approximately how much do you currently owe on mortgages?

- What was your initial mortgage amount?

- Approximately how much do you owe on credit cards now?

- Approximately what is the current balance of your student loans?

- What is the total amount outstanding on your spouse's/partner's student loans now?

- Other than credit cards, mortgage debt, and student loans, approximately how much do you owe in other debt?

Current annual income was determined by the answer to a survey question that asked the question, approximately how much is your annual household income, with the respondent filling

in their numeric answer. Instructions for the survey did not specify how to define annual income, other than to say income was for adults living in the household. Respondents could interpret income as wages, interest, dividends, annuity payments or any other form of income. Respondents who were homeowners were also asked their household income at the time their current home was purchased. Respondents who used student loans to complete higher education were asked their annual income the year after completing higher education. Respondents were asked the year in which the respondent was born, with choices being 1925 through 1998 and before 1925. Age of the respondent was calculated by subtracting the year the respondent was born from the year the survey was taken.

Independent Variables

Mortgages. Respondents were asked to indicate the purchase price of their existing home. The amount financed at time of purchase was also ascertained with the respondent providing an amount in answer to the question, approximately how much did you borrow to purchase your current home at the time you purchased it? Their income at that time was provided in response to the question, approximately how much was your annual household income the year that you bought your current home? Loan-to-value for mortgages is measured as the outstanding balance on a mortgage as a percentage of the market value of the underlying real estate collateral. For example, a mortgage loan with a principal balance of $160,000 collateralized by a home worth $200,000 has a loan-to-value of 80% ($160,000/$200,000).

Student Loans. The balance of student loans at the time formal education ended was compared to the approximate annual income at the time education was complete and career began. In order to determine whether respondents used student loans, respondents who indicated they had education beyond high school or a GED were asked: Did you use student loans to pay

for education beyond high school or GED with potential responses of yes (coded 1) or no (coded 0). If these respondents answered in the affirmative, they were asked to indicate their level of student debt upon graduating by filling in a blank in answer to a question asking how much they borrowed in student loans. The answers were coded as a continuous variable. These respondents were also asked the current balance on their student loans. They answered by filling a blank and this variable is also continuous. Respondents could have had student loans at the time they completed higher education, but have no current student loan balances.

Respondents were then asked to indicate approximately how much their annual household and individual income was the first year they stopped going to school. Both questions were answered by the respondent filling in a blank, with the responses being coded as continuous variables. Respondents whose household includes a spouse or partner were also asked if their spouse/partner used student loans to pay for education beyond high school or GED. The response was yes (coded 1) or no (coded 0). Those with a positive response were asked how much the spouse/partner borrowed in total for education beyond high school or GED with the response being in a fill in the blank format, which was a continuous variable.

Whether or not a respondent with student loans has been out of school for 10 years was asked as, in what year did you achieve this [your highest] level of education? Responses was chosen from a list that includes years from 1960 through 2016 in addition to a response for before 1960. That year was subtracted from the year in which the survey was taken to determine how many years ago the respondent's education was completed. Those responses were coded 1 for all those of 10 years or more and 0 for responses of less than 10 years.

Demographic Characteristics. In addition to responses to calculate age as part of the dependent variable, participants were asked questions regarding other personal characteristics.

Gender was captured as male or female with female serving as the reference category in regression analyses. Race was captured by non-Hispanic Caucasian (coded 1), Black or African American (coded 2), Hispanic/Latino (coded 3), Asian (coded 4), and all others (coded 5). Due to small proportions of respondents who were not Caucasian, race/ethnicity was ultimately not included in the analyses.

Relationship status was measured by single, never married (coded 1); married (coded 2); living together in a committed relationship, civil union, or domestic partnership (coded 3); divorced (coded 4); or widowed (coded 5). Relationship status was recoded to married/cohabitating or not married (reference category) due to small cell sizes. Educational status was categorized as bachelor's degree or less (reference category) or greater than bachelor's degree.

Data Analyses

Data were analyzed using Stata software and ordinary least squares regression (OLS) to test both the direction and strength of the relationship of the independent variables to the dependent variable. Four regression analyses were conducted, two looking at the impact of mortgages on relative net worth and two exploring the impact of student loans on relative net worth. The first model explored the impact of the current mortgage balance on relative net worth, the second model explored the impact of the level of purchase mortgage on relative net worth, a third model analyzed the impact of student loan levels at the time of graduation on relative net worth, and the fourth model looked at the impact of student loan balances at graduation on relative net worth for respondents who graduated from school more than 10 years prior.

One of the goals of a regression model is to analyze the ability of an independent variable to predict the dependent variable and an assumption of OLS is that of a normal distribution as

well as a linear relationship with the independent and dependent variable (Acock, 2014). The coefficient of determination (R^2) gives an indication of the proportion of the variability in the dependent variable relative to the independent variable being tested. The analyses in this study did not indicate heteroscedasticity, but also did not indicate that substantial factors impacting wealth accumulation, as measured through relative net worth, were accounted for in the model. While this study does not produce significant results, it does give structure for future studies involving additional elements of wealth accumulation, the individual impacts of those elements, and the combined impact of multiple elements.

Chapter 4 - Results

This study explored the ability to accumulate wealth in the presence of mortgage and/or student debt. A concept of relative net worth (net worth divided by income divided age) was used to compare respondents' wealth accumulation controlling for income and age. Behavioral lifecycle hypothesis (BLC) states that consumers use current income, accumulated wealth, and future income to smooth consumption over their lifetime (Shefrin & Thaler, 1988). Future income is accessed through debt, which allows for purchases that can be consumed in the current time period and paid for over time. Mortgages and student loans are both examples of long term debt that can be used to acquire assets that are assumed to enhance life experiences in the current period and the future. The purchase of a home allows the consumer to fix a major component of housing costs and build equity in a large asset that generally appreciates in value. Education has been correlated with earnings, as well as augmenting qualitative aspects of life. This study looked at how the level of debt used to acquire these assets can impact the accumulation of wealth.

Demographic Characteristics of the Sample

Gender, race/ethnicity, and age

General descriptive statistics of the sample are shown Table 4.1. Of the respondents who completed the pertinent questions regarding income, age, and net worth, 44% were male and 56% were female. The vast majority of respondents, 509 (94%) were Caucasian, 1% (7 respondents) were Black, 2% (9 respondents) Asian, and 3% (14 respondents) of races other than Caucasian, Black, or Asian. Given this lack of racial variety, ethnicity is not reflected as a variable in the analyses, which is a limitation of the study. Several age categories were well represented with more than half of the respondents with usable data being between the ages of 50

and 69. Those over 17 and under 30 were 14% of the sample (75 respondents), those between 30 and 39 were 15% of the sample (82 respondents), 16% (86 respondents) were between 40 and 49, 26% (139 respondents) between 50 and 59, 22% (118 respondents) between age 60 and 69, and 7% (39 respondents) were 70 or older. Mean age is 49 with a standard deviation of 15 and a median age of 52.

Education, relationship status, and homeownership

Sixty-three percent of the respondents (341 of 539 respondents) were married with an additional 6% (31 respondents) in a committed cohabitation relationship. These two categories of respondents were combined for analytical purposes and accounted for 69% of the sample, compared to 48% of the population who are married nationally. The respondents who were not currently married were also aggregated for analysis purposes, comprising 31% of the sample, compared to 52% nationally. The 87 single respondents were 16% who never married, 12% divorced (65 respondents), and 3% widowed (15 respondents). The 428 respondents who owned a home comprised 79% of the sample, with the remaining 111 respondents (21%) not being homeowners.

The majority of respondents to the survey were educated beyond high school, with only 5% having a high school education, GED (26 respondents), or less (2 respondents had no GED or high diploma). Those 35 respondents with a vocational certificate or associate's degree collectively composed 7% of the sample, with 31% (171 respondents) having a bachelor's degree. The 172 participants with master's degrees comprise 32% of the sample, while those with professional degrees (64 respondents) and doctorates (28 respondents) accounted for 17% of the respondents (12 and 5% respectively). Full time students (41 participants) were 8% of the sample. For analysis purposes, full time students, those without a high school diploma or

equivalent, and those with a high school diploma or equivalent were grouped together (13%) with individuals with a vocational certificate, an associate's degree, and a bachelor's degree (38%). Respondents with a master's, doctorate, or professional degree were combined (49%).

Table 4.1 *Sample Characteristics (N = 539)*

Variables	n	%	National %
Gender			
Male	238	44	49
Female	301	56	51
Race/Ethnicity			
Caucasian	509	94	72
Black/African American	7	1	13
Asian	9	2	5
Other	14	3	10
Age			
18 to 29	75	14	20
30 to 39	82	15	13
40 to 49	86	16	14
50 to 59	139	26	14
60 to 69	118	22	9
70 or over	39	7	9
Relationship status			
Single, never married	87	16	33
Married	341	63	48
Committed relationship	31	6	
Divorced (National Includes Separated	65	12	13
Widowed	15	3	6
Education *			
No high school or GED	2	0	14
High school or GED	26	5	49
Vocational certificate	20	4	
Associates degree	15	3	8
Bachelor's degree	171	31	18
Master's degree or above	264	49	11
Currently full time student	41	8	
Home ownership			
Yes	428	79	63
No	111	21	
Student Loans			
Used student loans	288	53	
Did not use student loans	251		

Note: U.S. Census bureau reports education levels for individuals age 25 and over. Full time students are included in the national tranch of High school or GED. The Census Bureau does not distinguish between master's, doctorate, and professional degrees and does not report vocational certificates.

Relative Net Worth

The outcome of relative net worth was conceptualized to allow comparison of consumer progress in accumulating wealth across age and income differences. Individual scores do not have specific positive or negative meaning, but allow the comparison to other respondents. For instance, a net worth of $750,000 that has been accumulated by a 30 year with income of $50,000 is different from a net worth of $750,000 that has been accumulated by a 65 year old whose annual income is $200,000 per year. Relative net worth was calculated by net worth divided by income divided by age. Respondents must have indicated a response for all three variables to be included in further analysis. Furthermore, respondents who reported $0 in income were eliminated from the analysis. Respondents were allowed to interpret income as wages, interest or dividends, annuity payments, or other forms of income.

Descriptive statistics for the components of relative net worth are shown in Table 4.2. Respondents reported an average net worth of $1,482,996 ($SD$ = 2,384,352) with a range of -$218,300 to $18,270,000. Median net worth was $751,000 indicating a positive skewness in the data. Income ranged from $300 to $2,100,000 with a mean of $160,206 ($SD$ = 176,772) and a median of $120,000, again indicating slight positive skewness in the data. Mean age was 49 (SD = 15; median = 52) with a range of 18 to 84. As a combined variable, respondents had a mean relative net worth of .17 (SD = .72). Relative net worth ranged from -10 to 7.79, meaning that respondents had, on average, a low relative net worth even though the average net worth was high. For perspective, a -10 relative net worth means that the respondent had debt amounting to 10 times the respondent's income divided by the respondent's age. The highest relative net worth of 7.79 reflects a net worth that is 7.79 times the respondent's income divided by the

respondent's age. Relative net worth is intended to allow comparison of wealth accumulation for individuals of various ages and incomes.

Table 4.2 *Composition of Dependent Variable—Relative Net Worth*

Variables	M	SD	Range
Net worth	$1,482,996	$2,384,352	-$218,300 - 18,720,000
Income	$160,206	$176,772	$300 - 2,100,000
Age	49	15	18-84

The descriptive statistics of variables constructed for the regression analyses are shown in Table 4.3. Mortgage debt and student loans were chosen as key independent variables since they are each used to acquire assets that provide long term benefit. Homeownership has been shown to be a positive element in wealth accumulation (Di et al., 2007) and education is correlated with income (U.S. Bureau of Labor Statistics, 2015). Responses were divided into categories that are at or below recommended levels and those that are above those levels. So rather than have continuous independent variables in the regressions, prediction of the dependent variable was analyzed using those respondents within guidelines and those who were not as described below.

Mortgages

Standard advice is to have a mortgage of no more than 80% of the value of the home to avoid having private mortgage insurance on conventional loans (Garman & Forgue, 2012; Whitehead, 2012). The first regression analyzed the association between holding a mortgage of greater than 80% of the value of the home or having no mortgage as compared to holding a mortgage of 80% or less of the value of the home with relative net worth. While analysis could have been done with a continuous dependent variable for the mortgage loan-to-value, this dichotomous approach is taken in an attempt to test the supportability of using an 80% loan-to-value as a rule of thumb for financial professionals. Sixty-two percent of respondents who are

homeowners have a mortgage that is 80% or less of the value of their home, 15% of homeowner respondents have a mortgage of greater than 80% of the value of the home, and 23% of respondents with a home have no mortgage.

The second analysis explored the impact of the recommendation not to take out a mortgage of more than two times one's annual income (Whitehead, 2012). This recommendation is somewhat reinforced with banking guidelines not to issue mortgage payments that, in combination with other monthly debt obligations, exceed 36% of borrower's annual income (Garman & Forgue, 2012). The regression analysis used respondents with mortgages less than two times their annual income as the predictor group (53% of the homeowners in the sample) versus all others (47% of homeowners in the sample) in predicting relative net worth. All of the homeowners in the sample reported using a mortgage to purchase their current home.

Student Loans

The third analysis looked at the impact of student loans of no more than one year of income at the time of graduation from the highest level of education beyond high school or GED on relative net worth compared to loans at higher levels. Of the respondents with education degrees beyond college, 32% used student loans totaling no more than one year of their post degree annual income, 22% used student loans above that level, and 47% of these respondents had no student loans. The fourth regression analyzed these same student loan levels, but only for respondents who had finished their degrees at least 10 years ago. Of these respondents who had finished their degrees at least 10 years prior to this study, 35% had student loans of no more than one year of salary at the time of their graduation, 15% of the had student loans in excess of one year of salary, and 50% had no student loans at graduation.

Table 4.3 *Descriptive Statistics of the Regression Sample*

Variables	*M*	*SD*	Range
Relative net worth	0.17	0.72	-10 - 7.79
Mortgage > 80% of home value	0.49	0.5	0 - 1
Mortgage ≤ 80% of home value	0.32	0.47	0 - 1
No Mortgage	0.18	0.39	0 - 1
Mortgage at time of home purchase ≤ 2x annual income	0.43	0.5	0 - 1
Mortgage at time of home purchase > 2x annual income	0.57	0.5	0 - 1
Student loans when education completed ≤ first year annual income	0.32	0.47	0 - 1
Student loans when education completed > first year annual income	0.22	0.41	0 - 1
No student loans	0.47	0.50	0 - 1
Male	0.44	0.5	0 - 1
Married/cohabitating	0.69	0.46	0 - 1
Greater than bachelor's degree education	0.49	0.5	0 - 1

Representativeness of the Sample

This is a national sample, but is not nationally representative. Gender representation is similar to national data with men being approximately 44% of the population and women 56%. National averages shown in Table 4.1 were from the United States Census Bureau (2016). According to the U.S. Census Bureau 2010-2014 estimates (U.S. Census Bureau, 2016), 29% of individuals 18 and older have a bachelor's degree or higher, while 80% of this sample has that level of education. Nationally, 72% of the population identifies themselves as White, compared to 94% of this sample. The national population age 50 and over is estimated at 32% with 55% of the respondents to this survey being over age 50. Homeowners are 79% of the sample, compared to 63% nationally. Respondents who have used student loans comprise 28% of the sample. Relative to national demographics (U.S. Census Bureau, 2016), this sample is older, has greater educational attainment, has more married respondents, contains more homeowners, and has fewer individuals who are not Caucasian.

Regression Results

Model 1 – Mortgage Relative to Home Value

The results of the first regression analysis exploring the influence of mortgage use by homeowners on relative net worth (RNW) accumulation is shown in Table 4.4. The hypothesis was that consumers with mortgages of 80% or less of the value of their home have higher relative net worth (RNW) than consumers with no mortgage. This can be expressed as

RNW = f(loan-to-value ratio, gender, marital status, education)   **Equation 4.1**

Homeowners with mortgage balances of 80% or less of the home value reflected a .18 (p < .01) greater relative net worth than the control group of homeowners with mortgage balances in excess of 80% of the value of their homes. Homeowners with no mortgages were associated

with a .31 ($p < .001$) or about a half a standard deviation increase in relative net worth compared to respondents with mortgages in excess of 80% of their home value. Lack of a mortgage was the most significant factor in this regression as measured by the standardized beta, with substantially more impact on relative net worth than having a mortgage of 80% or less of home value ($B = .27$ and $B = .18$, respectively). Given that the mean relative net worth is .17, both of these variables may seem notable. However, relative net worth has a standard deviation of .72, which makes the impact of either of these variables questionable. None of the other independent variables had a statistically significant association with relative net worth. The R^2 of .03 indicates that the variables included in this regression have not captured the majority of factors impacting relative net worth.

Table 4.4 *Regression Analysis Predicting Relative Net Worth Based on Mortgage Usage of Homeowners (N = 428)*

Independent Variable	B	SE B	β
Mortgage ≤ 80% of home value (reference = mortgage > 80% of home value)	.18**	.07	.18
No mortgage (reference = mortgage > 80% of home value)	.31***	.08	.27
Male (reference = female)	-.05	.05	-.05
Married/cohabitating (reference = single)	-.02	.06	-.02
Greater than bachelor's degree education (reference = bachelor's degree or less)	-.06	.05	-.06
Constant	.12	.08	
R^2	.03		
F	3.38**		

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

Model 2 – Mortgage at Time of Home Purchase Compared to Income

The potential impact on wealth accumulation for homeowners of debt involved in the initial purchase of a home was also explored with results in Table 4.5. The hypothesis was that consumers whose home mortgage was in excess of two times their annual income at the time of purchase will have lower relative net worth than consumers with home mortgage debt equal to or less than two times the annual income. Stating this formulaically,

RNW = f(Purchase mortgage/annual income, gender, marital status, education) **Equation 4.2**

Relationship with the primary independent variable, the mortgage balance relative to income at time of the home purchase, the model was not statistically significant in predicting relative net worth. Regression was performed with relative net worth as the dependent variable, original purchase mortgage of no more than two times income, male, relationship status, and education as independent variables.

Table 4.5 *Regression Analysis Predicting Relative Net Worth Based on Purchase Mortgage Relative to Income (N = 428)*

Independent Variable	B	SE B	β
Purchase mortgage ≤ 2x annual income (reference = purchase price of home > 2x annual income)	.06	.05	.06
Male (reference = female)	-.03	.05	-.03
Married/cohabitating (reference = single)	-.03	.06	-.02
Greater than bachelor's degree education (reference = bachelor's degree or less)	-.04	.05	-.04
Constant	.26***	.06	
R^2	-.00		
F	.74		

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

Model 3 – Comparing Levels of Student Loans

The third hypothesis was that consumers who complete an education degree or certificate beyond high school with student loans less than or equal to their first year annual salary have great relative net worth than those who finish higher education with student loans in excess of their first year annual salary. This regression looked at the potential impact of student debt on the accumulation of wealth, testing the recommendation of some practitioners that student loan balances exceed no more than approximately annual income the first year after graduation, expressed as

RNW = *f*(Student debt/annual income, gender, marital status, education)   **Equation 4.3**

Data in Table 4.6 show that those with student loans of less than or equal to their annual income at time of completing higher education had a .09 higher relative net worth than those who completed higher education with student debt in excess of their first year of income after education. The low R^2 of .07 indicates that this model does not capture most of the variables impacting relative net worth.

Table 4.6 *Regression Analysis Predicting Relative Net Worth Based on Student Loan Usage (N = 255)*

Independent Variable	B	SE B	β
Student loans when education completed ≤ first year annual salary (reference = student loans when education completed > first year annual salary)	.09***	.02	.22
Male (reference = female)	.02	.02	.06
Married/cohabitating (reference = other)	.03	.03	.08
Greater than bachelor's degree education (reference = bachelor's degree or less)	.05*	.02	.13
Constant	.02	.03	
R^2	.07		
F	5.90***		

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

Model 4 – Comparing Those With and Without Student Loans

The fourth and fifth hypotheses are that consumers who complete an education degree or certificate beyond high school or GED who use student loans have higher relative net worth 10 years after graduation than those who complete higher education without the use of student loans, and conversely, that consumers who complete an education degree or certificate beyond high school or GED who use student loans have the same relative net worth 10 years after graduation than those who graduate from college who do not use student loans. Results are in Table 4.7. The regression can be expressed as

RNW = *f*(Student loans/income, gender, marital status, education)   **Equation 4.4**

This regression also used relative net worth as the dependent variable, with independent variables of student loan balance of no more than annual income, student loans in excess of one year of income, male, and married. Only respondents who were 10 years or more beyond their graduation were included in this regression. Relative net worth appeared to be negatively impacted by student loan debt, at levels above and below annual income at graduation, for respondents who had been out of school 10 or more years, with this higher level of debt predicting a .16 decline in relative net worth ($p < .05$) and student debt of one year of annual income or less predicting negative .07 impact on relative net worth. This model, with an R^2 of .02, does not account for the factors impacting relative net worth.

Table 4.7 *Regression Analysis Predicting Relative Net Worth Based on Student Loan Usage 10 Years or More After Completing Education (N = 370)*

Independent Variable	B	SE B	β
Student loans when education completed ≤ first year annual salary (reference = no student loans)	-.07*	.04	-.11
Student loans when education completed > first year annual salary (reference = no student loans)	-.16**	.05	-.17
Male (reference = female)	-.01	.04	-.02
Married/cohabitating (reference = single)	-.03	.04	-.04
Greater than bachelor's degree education (reference = bachelor's degree or less)	.03	.03	.05
Constant	.29***	.04	
R^2	.02		
F	2.25*		

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

Report of Research Questions

The overarching research question of this study was whether debt to acquire a home and education can be used at levels that will increase wealth as measured by relative net worth. The study has not given substantial support to the hypotheses examined. There is some support for the hypothesis that a mortgage balance of 80% or less of a home value has a positive impact on relative net worth in comparison to mortgages in excess of that, but not compared to homeowner relative net worth without mortgages. Additionally, there is some support to the hypothesis that completing an education with student loans in excess of one year of income has a more negative impact on relative net worth compared to having loans of one year of annual income or less, but similar to the analyses of mortgage debt levels, having no student loans has a greater positive impact on relative net worth than either level of student loans. No analysis was able to substantially predict relative net worth.

Summary of Findings

All analyses in this study reflect low explained variance, indicating factors impacting the dependent variable of relative net worth were not captured in the models. There may be many reasons for this.

One issue impacting all models is that relative net worth is a construct designed to measure net worth accumulation while controlling for income and age. However, income that is in excess of meeting basic needs can have an impact on net worth accumulation that is not captured in relative net worth. A household with more income beyond that used to meet basic needs can allocate more to wealth accumulation. Additionally, age, as incorporated formulaically into relative net worth, may be too broad as a controlling variable. Future studies might devise a construct such as relative net worth, but compare households within specific income and/or age

tranches. For instance, comparing an individual who finished a graduate degree a year ago with student loans with an individual who finished a graduate degree 10 years ago with student loans might not have much instructive information.

In regard to mortgage debt, this study has current mortgage debt and purchase mortgage debt as independent variables, without addressing additional debt such as credit cards, vehicle loans, and student loans. Since the study was intended to address mortgages and student loans, it indicates that additional debts might need to be included to account for wealth accumulation.

Finally, the impact of financial advice on net worth accumulation is not addressed in this analysis. The reasons for the loan level in which this analysis addresses relative net worth may go beyond these listed. They also give rise to opportunities for future research.

Those who currently do not have a mortgage appeared to have accumulated greater wealth, as measured by relative net worth. Respondents who used a mortgage of no more than two times their income at the time they purchased their current home appeared to have accumulated a higher relative net worth than those with purchase mortgage debt in excess of that, however the model was not shown to be statistically significant. Student loans at all levels appeared to be a detriment to accumulation of wealth. Given the low explained variance for all regressions in the study as well as the lack of statistical significance, there is no support for the stated hypotheses, only possibilities for future study to explore the use of debt integrated with other elements of financial planning in wealth accumulation.

Chapter 5 - Discussion

Research Findings

The purpose of this study was to determine if there is support for the ability to accumulate wealth, conceptualized as relative net worth (net worth divided by income divided by age), in the presence of debt for home acquisition and education if those debts were at limited levels. The results did not support this position. The current presence of a mortgage did not show a positive impact on wealth accumulation compared to having a home without a mortgage. There was not support generated for the presence of student loans at any level. Student loans that did not exceed one year of income after graduation were less of a detriment to net worth than loans at a higher level. However, graduating with a degree and without student loans was indicated to be a positive factor in wealth accumulation. Possible explanations for the findings are presented in the sections that follow.

Mortgages

The first hypothesis, that consumers with home mortgages of 80% of less of the value of their home have higher relative net worth than consumers with no mortgage was not supported, either in the structure of the model or statistical significance of the impact of the independent variables. There was modest support that a mortgage of no more 80% of home value has a more positive impact than a mortgage in excess of that level, but a lack of mortgage had a greater positive impact on relative net worth. The theoretical foundation for this study was behavioral lifecycle hypothesis (BLC), which states that individuals smooth consumption over their lifetimes by utilizing current income, current assets, and future income, while making decisions using self-control, among other elements. That consumers without a mortgage have greater relative net worth could be seen to support BLC, suggesting that mortgages, which utilize future

income, are paid as agreed in order to maximize utility. The majority of this sample was over age 50, which might suggest a higher number of respondents have paid their mortgages.

The second hypothesis was that consumers whose home mortgage was in excess of two times their annual income at the time of purchase will have lower relative net worth than consumers with home mortgage debt equal to or less than two times their annual income. The impact of a purchase mortgage of no more than two times income was negligible and not statistically significant, therefore not supporting this hypothesis, both in the structure of the model and lack of statistical significance of the impact of the independent variables. Existing literature addresses manageable mortgage debt levels from the standpoint of analyzing payments to cash flow. For instance, it is suggested that debt ratios and analyses are based on debt service payments compared to income or debt balances compared to total assets (Harness et al., 2008; Garman & Forgue, 2012). The approach comparing outstanding debt balances to total income is espoused as part of one financial planning approach, is part of integrated financial planning, not in isolation of other financial planning elements (Whitehead, 2013). This analysis did not take into account other elements. This is also true of the student debt in the other regressions.

The analysis on both of these hypotheses indicated that the models did not capture a substantial portion of elements impacting relative net worth. While mortgages are a variable that might impact wealth accumulation, seeing the role of mortgages in relation to a larger contingent of variables is an area for future study. Studies in related areas do not all agree on outcomes. Smith et al. (2012) suggested that debt, especially on a home, can be part of a wealth accumulation strategy for financially sophisticated households. Mann (2011) found that debt later in life could be related to delayed retirement. In conjunction, these could suggest that debt as part of an integrated and intentional financial strategy could have a positive impact on wealth,

while debt as a last resort might bring more problems than solutions. Elements to include in future studies are whether consumers receive financial advice, the scope of financial advice (specifically whether it is integrated or addresses only limited aspects of financial management), credentials of the financial advisor, use of proceeds for debt in the case of mortgage refinancing, and what specific advice was obtained on debt decisions. These are some of the immediate salient issues, but many others might come from qualitative studies on debt and debt management.

Student Loans

Student loan impact on relative net worth was explored with three hypotheses. The first of these was that consumers who take on student loans of less than or equal to their first year annual salary have greater relative net worth than those with student loans in excess of their first year annual salary. This hypothesis had only modest support from the data. The positive impact on relative net worth of the lower level of student loans had only a slight positive impact on relative net worth. The model did not capture many elements impacting relative net worth.

The final two hypotheses dealt with consumers who used student loans in their education and those who did not. The first of those hypotheses is that those using student loans of less than or equal to their annual salary at time of graduation would have a greater relative net worth 10 years after graduation than student who did not use student loans. The final hypothesis was that the consumers who used student loans had the same relative net worth 10 years after graduation as graduates who had not used debt to acquire education. Neither hypothesis is supported by the data. There is a small negative impact on relative net worth 10 years after graduation for those who graduated with one year or less in salary in student loan balances compared to those without debt. Those with student loans at graduation in excess of their annual salary did reflect a

statistically significant negative impact 10 years after graduation compared to those who did not have student loans, but the impact was not of great magnitude.

The results from the models indicate that factors included did not account for much of the effect on relative net worth. As with the mortgage analyses, this gives opportunities for more studies that explore additional aspects of wealth accumulation, how to measure effective wealth accumulation across various age groups and socioeconomic strata. It is possible that the sample was key in the outcome and that samples, either broader in nature or more nationally representative, might produce different outcomes to the models used. Empirical literature has suggested that debt can help students launch their earning career sooner, thus increasing their lifetime earnings and financially justifying the debt (Avery & Tuner, 2012), but the fear of, and stress about, student debt might stifle continued education (Callender & Jackson, 2005; 2008). Research has also suggested that lack of understanding of student financial aid options can result in lost opportunities to utilize available financial aid and debt (Booij, Leuven, Oosterbeek, 2012). All of these point to the benefit of finding potentially efficient student loan levels and educating pertinent parties on them.

Findings Relative to Theoretical Framework

Behavioral lifecycle hypothesis (BLC) is the framework on which this study was built. This theory postulates that consumers use current income, current wealth, and future income, to smooth consumption over their lifetimes (Shefrin & Thaler, 1988). BLC includes the notion that self-control one element in the consumption smoothing process. The use of debt, which is accessing future income, is one element of the theory that draws on self-control, and this study was intended to measure that ability and impact to some degree. The dependent variable of relative net worth (net worth divided by income divided by age) was an attempt to compare

various consumers' wealth accumulation while controlling for age and socioeconomic status. While the results are not conclusive on the impact of mortgage and student debt on wealth accumulation, it gives impetus to include and parse additional elements to address and how they might interact regarding wealth accumulation.

Implications of Findings

These findings do not support the use of debt as a singular approach to wealth accumulation. There is minimal support regarding the negative impact of debt above the levels established in the hypotheses. However, the models do not address elements of wealth accumulation with enough depth to give researchers or practitioners specific guidance for how debt factors into a broad approach to building wealth over a lifetime. Additional elements to consider could include financial advice obtained, use of loan proceeds, household liquidity, and additional debt of the household.

Limitations

Any study with a sample of convenience will have limitations, and any study using primary data will have concerns after data are collected about questions that were not asked, how items were worded, and whether instructions to participants were clear and were followed. Despite the limitations, collecting primary data allowed inclusion of current and purchase mortgage information, student loan debt at the time of higher education completion, and income at the time of home purchase and higher education completion. The study was not nationally representative. A glaring limitation of this study is the lack of racial diversity. This is regrettable and gives impetus to support future studies addressing populations that are not Caucasian. Racial diversity is particularly important to provide information to the higher education system, which needs data that reflects the student population and that population's challenges and propensities.

This lack of diversity in the sample indicates that racial minorities may not be served by the information in this study. This type of study would also benefit from longitudinal data. The impact on households of debt used to build wealth or debt that negatively impacts wealth accumulation could be more informative.

The high education level of the respondents will reflect bias. Approximately as many respondents had a master's degree as a bachelor's degree (32% and 31% respectively) and only 13% of the respondents had not completed education beyond high school, with the majority of that group currently being full time students (8% of the sample). The high level of education might have impacted the level of student loans if participants with higher education also had high student loans at the time their educations were completed.

A nationally represented data set with secondary data could have in excess of 1,000 respondents that meet desired criteria. As with many nationally representative data sets, the specific questions, specific information on student loans and mortgages at specific points in the respondents' lives, and income data at those points in time were not available in the same detail as in this sample. This study produced a total of 679 respondents by the termination date of the survey with missing data, outliers, and anomolies in responses lowering the number of usable responses to 539. All responses were self-reported, which can give rise to questions about accuracy (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). A decision was made for this study to have a relatively simple questionnaire with self-reported data that could give enough information for analysis without having potential respondents fail to complete it due to the length of the survey. In addition to self-reporting bias, this may have resulted in limitations on information to fully evaluate the debt positions and consequences. Whether a study such as this should be conducted as a qualitative study or with more in depth questions about why loans were

obtained, whether professional advice was used in deciding on debt strategies, the socioeconomic background of the respondents, and a host of other potentially related issues are both limitations and opportunities for future study.

While attempts were made to eliminate outliers and anomalies, there remains large standard deviation compared to the mean in the dependent variable of relative net worth ($M =$ .17; $SD =$ .72). This is evident in the components of net worth ($M =$ \$1,482,997; $SD =$ \$2,384,352) and income ($M =$ \$160,206; $SD =$ \$176,772). The intention in constructing relative net worth was to allow comparison of the impact on wealth accumulation controlling for income and age. The appendix contains regression results using net worth as the outcome variable with income and age as predictor variables. Support is not strong for the hypotheses, the findings do show the same trends as the original regressions.

If used in future studies, the dependent variable of relative net worth could be dichotomized. This study was the first to use that conceptualization of wealth accumulation, so what level would be a desirable target for comparison was unknown. Relative net worth, net worth, income, and age were reviewed through histograms, which showed normal, albeit skewed, distributions.

Recommendations for Future Study

The opportunities for future academic study and the implications for practitioners appear infinite and could be revolutionary to these related professions. Some immediate areas of future implications are: further academic study on constructive uses of debt; research on the effective use of debt to raise socioeconomic standing; counseling and policy changes in colleges and universities on effective use of debt as related to career opportunities and the chosen field of study; continued progress in public policy regarding debt, especially in regard to student loans;

how debt and other consumer financial components interact to build wealth; and potential changes in how financial planners advise on the use of debt. These areas will have overlapping implications to mortgage use and student loans. However, these two types of loans are for different purposes and can therefore have entirely separate fields of exploration and results.

The Role of Financial Advice

This study did not include hypotheses involving the role of financial advice in obtaining and managing debt. There is huge opportunity for further study in this arena, with potential developments for both academics and practitioners. Part of the impetus for this study was the financial planning philosophies of Bert Whitehead, who advises clients to have a mortgage of 60 to 80% of the value of their home throughout their lives—including retirement—and that student loans of no more than one times annual income at graduation are reasonable. The metrics on which this study based hypotheses – a mortgage of 80% of less of market value, purchase mortgage of no more than two times annual income, and student loans of no more than annual income immediately after higher education is completed – come from the practitioner community and are not generally documented or tested in empirical literature. The strength of academic study in this arena and of credibly growing the financial planning profession can be supported by communication and sharing between the educational and practitioner communities in personal financial planning.

This study addressed the level of debt, but did not address why the level of debt was chosen by the respondent, whether financial advice was obtained from a professional other than the lender, and specific information on how financial resources such as income and assets were otherwise deployed. Practitioners who follow Whitehead's teachings generally find that their clients feel comfortable with the role of debt and have managed overall finances in a positive

way. It is basic mathematics that to borrow at a fixed mortgage rate of below 4% for 30 years and invest in balanced portfolio that can yield even 1 or 2% above would build wealth. However, this approach has not been vetted from an empirical research perspective. Professional advice on the integration and management of these elements and others is a key area for future studies. Research indicates that tax professionals' advice is impacted by their perception of the clients' situations (Bobek, Hageman, & Hatfield, 2010). This indicates that the behavioral issues of both consumers and advisors can impact the financial outcomes, therefore warranting further study. Greater understanding of mortgage utilization in light of client demographics could have an effect on financial planning advice.

Relative Net Worth

With hindsight, it might be tempting to question the wisdom of using a new variable, relative net worth, as the dependent variable. Tables A.1, A.2, A.3, and A.4 in the Appendix repeat all regressions that were conducted using net worth as the dependent variable with income and age being added to the independent variables. These analyses show the large impact that both of these variables have on net worth. They also show that general trends are sometimes replicated, but with some modification, when compared to the analyses of relative net worth. The net worth and relative net worth analyses give support to the need to explore multiple aspects of different financial strategies. Debt alone does not tell the entire story of a consumer's finances. What role debt plays over a financial lifetime as part of a larger planning strategy is an area for future study. A variable that allows for incorporation of net worth, age, and income could, through further research, provide insight into practices, behaviors, holistic strategies, and the impact of systemic economic occurrences encompassing consumers of different ages and economic circumstances that unadjusted net worth does not address as robustly.

Relative net worth might be worthwhile in comparing important wealth building determinants with more narrow groups of consumers. For instance, comparing relative net worth with a household near the poverty level and a household with a multi-million dollar net worth might not be instructive. But relative net worth might add context to studies where the population is narrowed to households within certain ages, income, net worth, and educational parameters. This is illustrated somewhat by the regressions in Tables A.5, A.6, A.7, and A.8 in the Appendix. The sample for the study was narrowed to individuals of age 40 to age 70, income of $50,000 to $250,000, and net worth of $100,000 to $5,000,000. The results were similar in trend to those from the larger sample, however, in the analysis of homeowners with mortgages of 80% or less of the current value of the home compared to homeowners without a mortgage, the F value increased from 3.38 to 9.68 with the narrower sample and the R^2 increased from .03 to .16, indicating that by narrowing the sample to more similar respondents, more information about the impact of independent variables on wealth accumulation was found in the model. Adding additional variables to the analysis could lead to better information for that smaller sample.

Mortgages

Another opportunity in this field is exploring the positive or negative aspects of mortgage debt within separate socioeconomic groups. For instance, perhaps a household with low income and net worth might benefit from entering retirement debt free, owning a home without a mortgage, and living on Social Security and meager accumulated savings. This might differ from a household with net worth of multiple millions, which might not benefit from the tax benefits of a mortgage and have more than enough net worth to live comfortably in retirement. Perhaps in this situation, even though their unencumbered home is of notable value, if it is not a large proportion of their net worth, the lack of liquidity in that asset might not impede their lifestyle.

As a third hypothetical situation, a middle class household, however, might gain benefit from the tax benefits of having a mortgage as well as the benefit of having access to liquid and retirement investments rather than having their net worth consist in large part of home equity. Studies around these socioeconomic differences could focus on the share home equity represents of net worth, the proportion of income devoted to mortgages in retirement, the amount of retirement and/or liquid investments compared to home equity, and the value of a home relative to income. The research from these areas could be funneled directly into the practitioner community and used to help consumers make decisions about mortgages.

In the Appendix are regressions that were the same as those in this study with respondents to this survey, however, the sample was limited to respondents to the survey who were between the ages of 40 and 70, had a net worth between $100,000 and $5,000,000, and had income of $50,000 to $250,000. The intention with this limitation was to explore whether some time out of school to establish a household financially, but prior to retirement would show different results. These regressions also limited the participants to those who had more mainstream household income and net worth. While results, reflected in Tables A.5, A.6, A.7, and A.8 in the Appendix, are still not statistically significant for all models, the differences from the larger sample suggest that analyzing different economic and chronological strata of consumers might produce some metrics that could be helpful for consumers and practitioners. Future study that allows practitioners to effectively meet the needs of specific client niches can be a force to continue to unite the academic and practitioner financial planning communities. This may indicate that mortgages and/or homeownership in general may have a different impact on some socioeconomic households than on others.

Multi-generational Household Studies

Past research has given support to homeownership as a part of financial management that builds wealth (Di et al., 2007). Education reflects links to income and is recognized as having a positive impact in non-financial aspects of life (Smith et al., 2012). This indicates that mortgages and student loans that allow for first generation homeownership and higher education might assist in lifting households out of poverty and working poor existence. Research about the levels of debt that are positive in building wealth beyond the socioeconomic status of a consumer's family of origin would be of great value. While more difficult, longitudinal studies on multi-generations in families that have increased in socioeconomic standing could also add to the literature in terms of what factors were positive and negative in that change for the family over more than one generation.

There currently exist programs for first time home buyers, such as the Federal Housing Authority and programs in individual communities. If research can provide insight into levels of housing debt that are feasible, public and private lending programs can be developed to better match prospective home buyers with homes. Such programs could also target revitalization in geographically challenged parts of communities.

A shortcoming of this study was the bias of having more individuals who were educated beyond high school without knowing their economic background. For individuals whose family funded their education, their ability to build wealth without debt may be inherent. Even if they do not avail themselves of that advantage, students of higher education whose families cannot (or will not) pay for that education are at a disadvantage to match the wealth accumulation of their peers without student debt. Studies in the future could follow students from similar backgrounds who acquire education through debt and those who do not pursue higher education. Such studies may provide motivation and structure for prospective first generation college students. They may

also help enhance counseling and mentoring for these students at their chosen schools. Public policy could also be influenced by the economic impact of a better educated workforce and the possibility of helping generations of families to be less financially vulnerable.

Potential Social Engineering with Student Loans

The cost of education in public and many private educational institutions is adjusted based on financial need, as are federal student loans. There are also programs such as Peace Corps, AmeriCorps, and other federal non-profits (Federal Student Aid, 2016) that reduce student loans after public service through these non-profits. Social engineering can direct those with student debt into areas where their education can benefit those in need while reducing their education loan burden. Pairing these programs with the counseling in colleges and universities around student debt could benefit society while allowing students to pursue an education that will ultimately increase their lifetime earning potential and quality of life. Research that can unite societal needs with those desiring education might ultimately lower government deficit and increase the overall financial efficiency and productivity of the nation and possibly of the world. There is already progress in lowering the cost of textbooks through online resources (https://www.k-state.edu/today/announcement.php?id=18372). Further study in area of education costs and potential savings could help students at all levels of the economy. Attempts to direct public actions regarding education through public policy should ideally be balanced. Society benefits from a financially sound population. It also benefits from the arts and literature, which have not traditionally been financially lucrative to most who professionally pursue those endeavors. This is another area where multi-generational family studies might hold a wealth of information to help the public and policy makers. If studies could ascertain what types of loans best support first generation college students who later have children who go to college, that

would help counsel first generation college students as well as assist public policy makers in structure programs to help educate the public.

Research could also support how to identify and implement more national programs that mitigate or reduce student debt for those who serve in careers where workers are needed. For instance, teachers are not highly paid professionals and perhaps more individuals would follow that career if student debt could be reduced based on years of service. Qualitative studies could explore whether this approach would entice more students into needed careers and assist public policymakers in formulating programs that would unburden graduates from student debt while meeting needs of the greater society.

Headlines such as the one in a recent Consumer Reports (2016) magazine—*I kind of ruined my life by going to college*—do not properly reflect on the value of education, but rather on the disconnection between debt for education and the commensurate career earning capacity. The desire to have college debt tied to the student's field of study may seem logical, but it is not yet supported by extensive research on how such debt-to-career counseling and/or enforcement would be structured. If incorporated into colleges and universities in financial aid counseling, ongoing research on what levels of student debt are manageable and whether that differs within economic strata would allow student loans to become part of a solution for the lower economic levels of society rather than a crippling factor for those who seek education without understanding the costs of borrowing to do so. This type of social engineering, however, could harm the arts and social support fields since those careers, despite their enrichment of society, are not financially lucrative career fields. However, future counseling, or even required limitations, by universities as to student loans relative to the historical income from careers in a planned field of study might be beneficial to students. It seems a disservice to an artist, musician,

or writer to graduate with student loans that are far in excess of the graduate's ability to pay those loans given the anticipated income from the career implicated by the student's major.

Exploring Other Forms of Debt

This study was intentionally limited to mortgages and student loans since these types of debt are used to acquire assets – a home and education, respectively, that have the potential for long term appreciation. However, consumer debt overall is an area with many opportunities for study. Much research has been done on the negative impact financially and emotionally of excessive debt. There is ample room in empirical research for those studies, but also exploration of how to use and manage consumer debt effectively would be beneficial. These studies could also impact public policy as well as financial advice from financial planners and financial counselors.

The popularity of Dave Ramsey and an approach to debt of complete abstinence might be workable for some people. While there has been some study on the effectiveness of that particular approach, additional empirical studies on that and other public figures who espouse specific financial teachings could potentially lead to better informed consumers. With growing understanding in society of addictive behavior, more research on effective ways to help consumers with financial addictions and other dysfunctional money behaviors would be helpful. While Ramsey's approach might not be widely accepted by financial planning practitioners, his popularity indicates the need for individuals who struggle with money dysfunctions and recognized for those it has helped. While many people might benefit from advisors and regulators who have a balanced approach of whether debt can be used in a financially healthy way and, if so, the range of those ways. Objective research into the long term impact of programs

such as Ramsey's could better identify who, if anyone, is appropriate for complete debt avoidance.

Conclusion

There are not indications that our society is becoming debt free. The ability to borrow—from buying dinner with a credit card to purchasing a car without a down payment to student debt that pays the cost of education as well as living expenses—permeates our current way of life. The intention with this study was to add to the discussion about how to use debt effectively, not simply how to avoid pitfalls of debt. The results of this study are specific to the sample of convenience gathered for the study. The high level of education, the mean net worth, and the fact that many of the respondents took the survey because of a financial advisor or friend who knew a financial advisor may have impacted the results. This study, future studies, and information for practitioners that augments their anecdotal experience with clients' debts, will benefit educators, practitioners, and consumers. Much has been done and there is room for more.

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Appendix A - Additional Regressions

Table A.1 *Regression Analysis Predicting Net Worth Based on Mortgage Usage of Homeowners (N = 428)*

Independent Variable	*B*	*SE B*	*β*
Mortgage ≤ 80% of home value (reference = mortgage > 80% of home value)	563,274*	277,122	.11
No mortgage	1,139,779***	336,214	.19
Male (reference = female)	-269,062	191,246	-.05
Married/cohabitating (reference = single)	210,900	243,063	.03
Greater than bachelor's degree education (reference = bachelor's degree or less)	211,574	186,501	.04
Age	56,194***	8,095	.27
Income	8.25***	.50	.61
Constant	-3,487,514***	493,073	
R^2	.46		
F	53.06***		

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

Table A.2 *Regression Analysis Predicting Net Worth Based on Mortgage Usage at Time of Purchase Relative to Income (N = 428)*

Independent Variable	B	SE B	β
Mortgage at time of home purchase ≤ 2x annual income (reference = mortgage at time of home purchase > 2x annual income)	388,907*	189,713	.08
Male (reference = female)	-230,124	191,714	-.04
Married/cohabitating (reference = single)	252,469	245,048	.04
Greater than bachelor's degree education (reference = bachelor's degree or less)	268,695	186,503	.05
Age	63,987***	7,665	.31
Income	7.94***	.51	.58
Constant	-3,523,640***	476,930	
R^2	.45		
F	59.68***		

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

Table A.3 *Regression Analysis Predicting Net Worth Based on Student Loan Usage (N =255)*

Independent Variable	B	SE B	B
Student loans when education completed ≤ first year annual salary (reference = student loans when education completed >first year annual salary	259,499	241,369	.05
Male (reference = female)	216,993	233,086	.05
Married/cohabitating (reference = single)	-293,957	270,295	-.06
Greater than bachelor's degree education (reference = bachelor's degree or less)	226,313	234,501	.05
Age	63,752***	8,894	.36
Income	8.26***	.95	.46
Constant	-3,272,974***	453,838	
R^2	.44		
F	31.92***		

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

Table A.4 *Regression Analysis Predicting Net Worth Based on Student Loan Usage 10 Years or More After Completing Education (N = 370)*

Independent Variable	*B*	*SE B*	*β*
Student loans when education completed ≤ first year annual salary (reference = no student loans)	65,580	236,705	.01
Student loans when education completed > first year annual salary (reference = no student loans)	-438,475	325,040	-.06
Male (reference = female)	-276,366	220,729	-.05
Married/cohabitating (reference = single)	271,455	266,928	.04
Greater than bachelor's degree education (reference = bachelor's degree or less)	409,263	221,117	.08
Age	68,593***	10,724	.29
Income	8.40***	.64	.57
Constant	-3,726,975***	683,531	
R^2	.39		
F	34.54***		

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

Table A.5 *Regression Analysis Predicting Relative Net Worth Based on Mortgage Usage of Homeowners (N = 226)*

Independent Variable	B	SE B	B
Mortgage ≤ 80% of home value (reference = mortgage > 80% of home value)	.08*	.04	.22
No mortgage	.21***	.04	.57
Male (reference = female)	.02	.02	.08
Married/cohabitating (reference = single)	-.02	.03	-.05
Greater than bachelor's degree education (reference = bachelor's degree or less)	.01	.02	.03
Constant	.09*	.04	
R^2	.16		
F	9.68***		

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

Table A.6 *Regression Analysis Predicting Relative Net Worth Based on Mortgage Usage at Time of Purchase Relative to Income (N = 226)*

Independent Variable	B	$SE\ B$	β
Mortgage at time of home purchase $\leq$ 2x annual income (reference = mortgage at time of home purchase > 2x annual income)	.04	.02	.12
Male (reference = female)	.03	.02	.11
Married/cohabitating (reference = single)	-.01	.03	-.03
Greater than bachelor's degree education (reference = bachelor's degree or less)	.01	.02	.05
Constant	.16***	.03	
R^2	.01		
F	1.62		

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

Table A.7 *Regression Analysis Predicting Relative Net Worth Based on Student Loan Usage (N =158)*

Independent Variable	B	SE B	β
Student loans when education completed ≤ first year annual salary (reference = student loans when education completed >first year annual salary	.01	.03	.02
Male (reference = female)	.03	.03	.08
Married/cohabitating (reference = single)	-.04	.03	-.12
Greater than bachelor's degree education (reference = bachelor's degree or less)	.03	.03	.07
Constant	.18***	.03	
R^2	-.01		
F	.66		

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

Table A.8 *Regression Analysis Predicting Relative Net Worth Based on Student Loan Usage 10 Years or More After Completing Education (N = 212)*

Independent Variable	*B*	*SE B*	*β*
Student loans when education completed ≤ first year annual salary (reference = no student loans)	-.02	.02	-.06
Student loans when education completed > first year annual salary	-.06	.03	-.13
Male (reference = female)	.02	.02	.07
Married/cohabitating (reference = single)	-.01	.03	-.02
Greater than bachelor's degree education (reference = bachelor's degree or less)	.04	.02	.11
Constant	.18***	.03	
R^2	.01		
F	1.27		

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

Appendix B - Survey

Survey on the Use of Credit

Directions:

Thank you for taking the time to complete this important survey, as we know your time is valuable. The time needed to complete the survey is approximately 30 minutes, but the amount of time may vary, depending on individual circumstances. All amounts entered are without decimals and without commas. Please, only have one person in your household complete the survey. This survey is about the use of credit in personal finance. Here are some terms that will be used and the definition as applies in this survey.

Credit: Borrowing or the established ability to borrow money. This includes revolving lines of credit such as credit cards, a personal line of credit, loans to purchase a vehicle or real estate that has the asset purchased as collateral, loans for education, and other personal loans through a financial institution. There will be terms in regard to borrowing money that include how much can be borrowed, repayment requirements, and interest charged. Credit may also be extended between individuals, such as a loan between friends or family members. For purposes of this survey, loans between individuals will only be considered credit if they have terms regarding repayment and have or are being repaid.

Student loan: A loan or loans borrowed for the purpose of obtaining a degree or certification. This debt is considered a student loan whether or not the program for which the money was borrowed was completed. Student loans can be in conjunction with a federal student loan program, a financial institution without using a federal loan program, or an individual.

Mortgage: A loan secured by your home. The loan may have been originally to buy the home or may have been to refinance the original mortgage, with or without additional money being given to you. Mortgages might be amortizing (paying some toward principal and some toward interest with each payment) or have payments go entirely to interest. You might have more than one mortgage on your home. For purposes of this survey, we'll look only at your primary residence.

Questions won't apply to vacation homes or to rental properties. These loans may be through financial institutions or may be given by individuals.

Credit Cards: A line of credit with the ability to borrow money up to an aggregate amount determined by the financial institution issuing the credit card, pay it back, and borrow again. Credit cards may be issued for general purchases or might be for a specific store such as a clothing store, furniture store, electronics and hardware outlet, or other specific issuer. For purposes of this survey, a credit card is not issued by an individual.

Household Income: The annual income for adults living in your home, not including adult children living with you. This includes your annual income as well as your spouse or partner's annual income.

Asset values and debt balances: When questions on this survey ask balances and values for your accounts and assets, if you and your spouse or partner combine your finances, please include the combined balances. If you and your spouse or partner do not combine your finances, or if you are single, please answer the questions with your individual information. If you have exact values and balances available, please use those. If you know approximate values and balances, you may use those rather than taking the time to get exact information.

Confidentiality: Your identity will not be attached to your responses and all responses to the questions will be kept confidential. Please respond to the following questions based on your opinions, experiences, and attitudes.

Consent for Participation: This project is research and that my participation is completely voluntary. If you decide to participate in this study, you may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits, or standing to which you may otherwise be entitled. If you have questions about the rights of subjects, please contact Rick Scheidt, Chair, Committee on Research Involving Human Subjects, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, (785) 532-3224.or comply@ksu.edu. By

starting the survey, you indicate that you have read and understand this consent statement and willingly agree to participate in this study under the terms described.

Where did you find out about this survey?
- ○ My financial advisor
- ○ Facebook
- ○ Twitter
- ○ LinkedIn
- ○ Friend
- ○ Other

If Other Is Not Selected, Then Skip To What is your relationship status?

Please specify where you found out about this survey.

What is your relationship status?
- ○ Single, never married
- ○ Married
- ○ Living together in a committed relationship, civil union, or domestic partnership
- ○ Divorced
- ○ Widowed

What is hour highest level of education?
- ○ No high school diploma or GED
- ○ High school graduate or GED
- ○ High school graduate or GED plus a vocational certificate (for example, vet tech, dental hygienist, welder, etc)
- ○ Associates degree
- ○ Bachelors degree
- ○ Masters degree
- ○ Professional degree (such as MD, JD, etc.)
- ○ Doctorate
- ○ Currently a full time student

In what year did you achieve this level of education?

❍ 2016
❍ 2015
❍ 2014
❍ 2013
❍ 2012
❍ 2011
❍ 2010
❍ 2009
❍ 2008
❍ 2007
❍ 2006
❍ 2005
❍ 2004
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❍ 1971
❍ 1970
❍ 1969
❍ 1968
❍ 1967
❍ 1966
❍ 1965
❍ 1964
❍ 1963
❍ 1962
❍ 1961
❍ 1960
❍ Before 1960

Did you begin an education program for a degree or certificate in which you are no longer a

student and which you did not complete?

❍ Yes
❍ No

Do you receive professional financial advice?

❍ Yes
❍ No

If No Is Selected, Then Skip To What is your gender?

On which of these topics do you obtain professional advice? Check all that apply.

- ❑ Investments
- ❑ Taxes
- ❑ Insurance
- ❑ Retirement Planning
- ❑ Debt management
- ❑ Budgeting and/or cash flow
- ❑ Estate planning
- ❑ Buying a home
- ❑ General financial management

What is your gender?

- ❍ Male
- ❍ Female

What year were you born?

❍ 1998
❍ 1997
❍ 1996
❍ 1995
❍ 1994
❍ 1993
❍ 1992
❍ 1991
❍ 1990
❍ 1989
❍ 1988
❍ 1987
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- 1942
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- 1938
- 1937
- 1936
- 1935
- 1934
- 1933
- 1932
- 1931
- 1930
- 1929
- 1928
- 1927
- 1926
- 1925
- Before 1925

What is your race/ethnicity?

- ○ Caucasian (non-Hispanic)
- ○ Black/African American
- ○ Hispanic/Latino
- ○ Asian
- ○ Other

How many children do you have?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4
- ○ 5
- ○ More than 6

In which state do you currently reside?

- ○ Alabama
- ○ Alaska
- ○ Arizona
- ○ Arkansas
- ○ California
- ○ Colorado
- ○ Connecticut
- ○ Delaware
- ○ District of Columbia
- ○ Florida
- ○ Georgia
- ○ Hawaii
- ○ Idaho
- ○ Illinois
- ○ Indiana
- ○ Iowa
- ○ Kansas
- ○ Kentucky
- ○ Louisiana
- ○ Maine
- ○ Maryland
- ○ Massachusetts
- ○ Michigan
- ○ Minnesota
- ○ Mississippi
- ○ Missouri
- ○ Montana
- ○ Nebraska
- ○ Nevada
- ○ New Hampshire
- ○ New Jersey
- ○ New Mexico
- ○ New York
- ○ North Carolina
- ○ North Dakota
- ○ Ohio
- ○ Oklahoma
- ○ Oregon
- ○ Pennsylvania

❍ Puerto Rico
❍ Rhode Island
❍ South Carolina
❍ South Dakota
❍ Tennessee
❍ Texas
❍ Utah
❍ Vermont
❍ Virginia
❍ Washington
❍ West Virginia
❍ Wisconsin
❍ Wyoming
❍ I do not reside in the United States

Do you own a home?

❍ Yes
❍ No

If No Is Selected, Then Skip To Approximately how much are your retirement accounts worth?

What would you estimate is the current value of your home if it were sold? (As a reminder, all amounts are entered without commas or decimals.)

Approximately what did you pay for your current home?

In what year did you buy your home?

- ❍ 2016
- ❍ 2015
- ❍ 2014
- ❍ 2013
- ❍ 2012
- ❍ 2011
- ❍ 2010
- ❍ 2009
- ❍ 2008
- ❍ 2007
- ❍ 2006
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○ 1969
○ 1968
○ 1967
○ 1966
○ 1965
○ 1964
○ 1963
○ 1962
○ 1961
○ 1960
○ Before 1960

Approximately how much are your retirement accounts worth? This includes retirement balances through your employer, IRAs, Roth IRAs, and fixed or variable annuities.

Approximately how much do you have in liquid assets such as checking accounts, savings accounts, money market accounts, and Certificates of Deposit?

If you have investment accounts such as mutual funds and/or brokerage accounts, approximately how much are those accounts worth in total?

Excluding your home, your retirement accounts, your liquid assets, and your investments, what is the approximate value of your other assets?

Approximately how much is your annual household income?

Approximately how much was your annual household income the year that you bought your current home?

Approximately what was your annual income individually the first year after you stopped going to school?

Approximately how much did you borrow to purchase your current home at the time you purchased it?

Approximately how much do you currently owe on mortgages? (This is the outstanding principal balance, not the monthly payment.) Include all mortgages on your home.

Have you ever refinanced your current home?

❍ Yes
❍ No

How many times have you refinanced it?

❍ 1
❍ 2
❍ 3
❍ 4
❍ 5
❍ 6
❍ 7 or more

At any time that you refinanced your home, did you take additional money from the new loan or did you only refinance the outstanding balance and any refinancing costs?

❍ Took additional money in addition to fees to refinance
❍ Only refinanced the existing balance and fees to refinance

Did you use student loans to pay for education beyond high school or GED?

○ Yes
○ No

How much did you borrow in student loans? (This is total amount borrowed, not the monthly payments.)

Approximately what is the current balance of your student loans? (This is the total amount left to pay, not the monthly payment.)

Did you obtain any student loans for the education in which you are no longer a student and did not obtain a certificate or degree?

○ Yes
○ No

How much did you obtain in student loans for the education in which you are no longer a student and did not obtain a certificate or degree?

How much remains to be paid on those student loans now?

How many credit cards do you have?

❍ 0
❍ 1
❍ 2
❍ 3
❍ 4
❍ 5
❍ 6
❍ 7
❍ 8
❍ 9
❍ 10 or more

If 0 Is Selected, Then Skip To Other than credit cards, mortgage deb...

How much do you usually pay toward your credit card balances each month?

❍ The entire balance
❍ The minimum payment
❍ The minimum payment, plus whatever additional amount I feel I can afford to pay
❍ A set amount each month
❍ The amount that was charged to the card that month
❍ The amount that was charged to the card that month, plus some additional amount
❍ No particular amount and sometimes I can't pay the minimum due

If The entire balance Is Selected, Then Skip To Did your spouse/partner use student l...

If you don't always pay your credit card balances in full each month, about how many times in the last twelve months have you paid your credit cards in full?

❍ 0
❍ 1
❍ 2
❍ 3
❍ 4
❍ 5
❍ 6
❍ 7
❍ 8
❍ 9
❍ 10
❍ 11

Approximately how much do you owe on credit cards now?

Other than credit cards, mortgage debt, and student loans, approximately how much do you owe in other loans?

Did your spouse/partner use student loans to pay for education beyond high school or GED?

❍ Yes
❍ No

How much did your spouse/partner borrow in total for education beyond high school or GED? (This is the entire amount borrowed, not the monthly payment.)

What was the annual income of your spouse/partner after finishing his/her current level of education?

What is the total amount outstanding on your spouse's/partner's student loans now? (This is the total amount owing, not the monthly payment.)

Who is responsible for that debt?

❍ I am
❍ My spouse/partner is
❍ We share responsibility for that payment

What is your credit score?

o   Don't know

o   600 or lower

o   601-650

o   651-700

o   701-750

o   751-800

o   801 or higher

How would you assess your overall financial knowledge?

○ Extremely low
○ Low
○ Slightly below average
○ Average
○ Slightly above average
○ High
○ Extremely high

Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

○ More than $102
○ Exactly $102
○ Less $102
○ Don't know

Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?

○ More than today
○ Exactly the same
○ Less than today
○ Don't know

Buying a single company's stock usually provides a safer return than a stock mutual fund.

○ True
○ False
○ Don't know

Appendix C - Coding

rename Q3 HomeVal
rename Q7 RetAcct
rename Q8 Liquid
rename Q9 Invest
rename Q10 OtherAsst
rename Q16 MtgCrt
rename Q22 StuLnCrt
rename Q26 CCCrt
rename Q27 OtherDebt
rename Q49 PtnrStuLn
rename Q40 BirthYr
rename Q11 Income
rename Q5 HomePurch
rename Q12 IncHomePurch
rename Q15 MtgHomePurch
rename Q13 IncEdFin
rename Q21 StuLnFin
rename Q3Home2 HomeNW
rename Q7Ret2 RetNW
rename Q8Liq2 LiqNW
rename Q9Invst2 InvstNW
rename Q10OA2 OANW
rename Q16Mtg2 MtgNW
rename Q22StuLn2 StuLnNW
rename Q26CC2 CCNW
rename Q27OD2 ODNW
rename Q49PSL2 PSLNW
rename Q52 Education
rename Q20 StuLnUse
rename Q37 FinAdvice
rename Q41 Race
rename Q44 PrtStuLnUse
rename Q45 PrtStuLnOrig
rename Q46 PrtIncFin
rename Q34 Relationshiprename
rename Q36 FinEd
rename Q38_1 AdvInvest
rename Q38_2 AdvTax
rename Q38_3 AdvInsure
rename Q38_4 AdvRetire
rename Q38_5 AdvDebt
rename Q38_6 AdvBudget
rename Q38_7 AdvEstate
rename Q38_8 AdvHome

```
rename Q38_9 AdvGen
rename Q36 FinEd


label define StuLnUse 1 "Yes", modify
label define StuLnUse 2 "No", modify

generate Assets = HomeNW + RetNW + LiqNW + InvstNW + OANW
generate Debts = MtgNW + StuLnNW + ODNW + PSLNW
generate NetWorth = Assets - Debts
generate Age = BirthYr + 17
generate RNW = NetWorth / Income / Age
generate Inc2Mtg = MtgCrt / Income
generate Inc2MtgHi = Inc2Mtg > 2
generate Inc2MtgLow = Inc2Mtg <= 2
generate Inc2HomePurch = HomePurch / IncHomePurch
generate Inc2HomePurchHi = Inc2HomePurch > 2
generate Inc2HomePurchLow = Inc2HomePurch <= 2
generate Inc2Ln = StuLnFin /IncEdFin
generate Inc2LnLow = Inc2Ln <= 1 & StuLnUse==1
generate Inc2LnHi = Inc2Ln > 1 & StuLnUse==1
generate PrtStuLn2Inc = PrtStuLnOrig / PrtIncFin
generate HiPrtStuLn = PrtStuLn2Inc>1 & PrtStuLnUse==1
generate LoPrtStuLn = PrtStuLn2Inc<=1 & PrtStuLnUse==1
generate RightStuLn = Inc2LnLow==1 | LoPrtStuLn==1
generate HiStuLn = Inc2LnHi==1 | HiPrtStuLn==1
generate NoStuLn = RightStuLn!=1 & HiStuLn!=1
generate AboveHS = Education!=1 & Education!=2 & Education!=9
generate CollAndBeyond = Education!=1 & Education!=2 & Education!=3 & Education!=4 &
Education!=9
generate Ed2BA = Education==3 | Education==4 | Education==5
generate BAnUp = Education==6 | Education==7 | Education==8
generate NoColDeg = Education==1 | Education==2 | Education==9
generate FinEd10Plus = FinEd>=11
generate FinEd10Less = FinEd<11
generate Age18to29 = 0
replace Age18to29 = 1 if Age <30
generate Age30to39 = 0
replace Age30to39 = Age >29 & Age <40
generate Age40to49 = 0
replace Age40to49 = Age >39 & Age <50
generate Age50to59 = 0
replace Age50to59 = Age >49 & Age<60
generate Age60to69 = 0
replace Age60to69 = Age >59 & Age <70
generate Age70up = 0
```

replace Age70up = Age>69
generate FinEd10Plus = FinEd>=11
generate FinEd10Less = FinEd<11
generate Assets = HomeNW + RetNW + LiqNW + InvstNW + OANW
generate Debts = MtgNW + StuLnNW + ODNW + PSLNW
generate NetWorth = Assets - Debts
generate Age = BirthYr + 17
generate RNW = NetWorth / Income / Age
generate Inc2Mtg = MtgCrt / Income
generate Inc2MtgHi = Inc2Mtg > 2
generate GoodMtg = (Mtg2Home>0 & Mtg2Home<=.8)
generate HiMtg = Mtg2Home > .8
generate NoMtg = HiMtg==0 & GoodMtg==0
generate Inc2MtgLow = Inc2Mtg>0& Inc2Mtg<=2
generate Inc2HomePurch = HomePurch / IncHomePurch
generate Inc2HomePurchHi = Inc2HomePurch > 2
generate Inc2HomePurchLow = Inc2HomePurch <= 2
generate Mtg2IncPurch = MtgHomePurch / IncHomePurch
generate LoMtgPurch = Mtg2IncPurch<=2
generate HiMtgPurch = Mtg2IncPurch>2
generate Inc2Ln = StuLnFin /IncEdFin
generate NoStuLn = StuLnUse==2 & PrtStuLnUse==2
generate Inc2LnLow = Inc2Ln <= 1 & StuLnFin!=0
generate Inc2LnHi = Inc2Ln > 1
generate FinEd10Plus = FinEd>=11
generate FinEd10Less = FinEd<11
generate PrtInc2LnFin = PrtStuLnOrig / PrtIncFin
generate HiPrtStuLn = PrtInc2LnFin >1
generate LoPrtStuLn = PrtInc2LnFin <=1 & PrtStuLnOrig !=0
generate HiStuLn = (Inc2LnHi==1 |HiPrtStuLn==1) & UsedStuLn==1
generate RightStuLn = UsedStuLn==1 & HiStuLn!=1 & (PrtStuLnOrig!=0 & StuLnFin!=0)
generate UsedStuLn = (StuLnUse==1 | PrtStuLnUse==1) & (PrtStuLnOrig!=0 & StuLnFin!=0)
generate Male = Gender==1
generate Female = Gender==2
generate White = Race==1
generate OtherRace = Race!=1
generate Married = Relationship==2 | Relationship==3
generate Single = Relationship==1 | Relationship==4 | Relationship==5
generate YesInvest = AdvInvest==1
generate YesTax = AdvTax==1
generate YesInsure = AdvInsure==1
generate YesRetire = AdvRetire==1
generate YesDebt = AdvDebt==1
generate YesBudget = AdvBudget==1
generate YesEstate = AdvEstate==1
generate YesHome = AdvHome==1

```
generate YesGen = AdvGen==1
generate MuchFinAdv = YesTax + YesInsure + YesRetire + YesDebt + YesBudget + YesEstate
+ YesHome + YesGen
generate SomeFinAd = MuchFinAdv>=4

label define Education 1 "NoHS", modify
label define Education 2 "HS", modify
label define Education 3 "Voc", modify
label define Education 4 "Assoc", modify
label define Education 4 "Assc", modify
label define Education 5 "BA", modify
label define Education 6 "MA", modify
label define Education 7 "Prof", modify
label define Education 8 "PhD", modify
label define Education 9 "FTStu", modify
label define StuLnUse 1 "Yes", modify
label define StuLnUse 2 "No", modify
summarize StuLnUse

replace Assets = HomeNW + RetNW + LiqNW + InvstNW + OANW
replace Debts = MtgNW + StuLnNW + ODNW + PSLNW
replace NetWorth = Assets - Debts
replace Age = BirthYr + 17
replace RNW = NetWorth / Income / Age
drop if Asset==0 & Debt==0
drop if NetWorth==0
drop if Age==0
drop if NetWorth>20000000
drop if Income==.

reg RNW Assets Debts if Age>=30
gen model01=e(sample)
reg RNW Assets Debts if Age<30
gen model02=e(sample)
regress RNW HiMtgPurch if OwnHome==1 & MtgHomePurch !=0
reg RNW GoodMtg NoMtg LoMtgPurch if OwnHome==1, beta
gen model03=e(sample)
reg RNW GoodMtg HiMtg HiMtgPurch if OwnHome==1, beta
regress RNW RightStuLn if StuLnUse==1 | PrtStuLnUse==1, beta
regress RNW UsedStuLn if Q36>10 & Education !=1 & Education !=2 & Education !=9, beta
reg RNW RightStuLn HiStuLn Male White Married if NoStuLn!=1 & AboveHS==1 , beta
reg RNW GoodMtg NoMtg LoMtgPurch if OwnHome==1, beta
estat vif
reg RNW GoodMtg HiMtgPurch Male White Married AboveHS if OwnHome==1, beta
reg RNW LoMtgPurch Male White Married AboveHS if OwnHome==1, beta
regress RNW Male White Married if OwnHome==1, beta
```

regressions proposed
Table 4.4
reg RNW GoodMtg NoMtg Male Married BAnUp if OwnHome==1, beta
Table 4.5
reg RNW LoMtgPurch Male Married BAnUp if OwnHome==1, beta
Table 4.6
reg RNW RightStuLn Male Married BAnUp if NoColDeg!=1 & NoStuLn!=1 , beta
Table 4.7
reg RNW RightStuLn HiStuLn Male Married BAnUp if NoColDeg!=1 & FinEd10Plus==1 , beta

regressions for Appendix
Table A.1
reg NetWorth Income Age GoodMtg NoMtg Male Married BAnUp if OwnHome==1, beta
Table A.2
reg NetWorth Income Age LoMtgPurch Male Married BAnUp if OwnHome==1, beta
Table A.3
reg NetWorth Income Age RightStuLn Male Married BAnUp if NoColDeg!=1 & NoStuLn!=1 , beta
Table A.4
reg NetWorth Income Age RightStuLn HiStuLn Male Married BAnUp if NoColDeg!=1 & FinEd10Plus==1 , beta

running tables
tabstat RNW GoodMtg HiMtg NoMtg HiMtgPurch LoMtgPurch HiStuLn RightStuLn NoStuLn Gender Relationship Education, statistics(mean sd min max)
tabstat Male Female Married Single Ed2BA BAnUp, statistics (mean sd min max)
tabstat NoColDeg, statistics (mean sd min max)

middle age and middle market
drop if Age<40
drop if Age>70
drop if NetWorth<100000
drop if NetWorth>5000000
drop if Income<50000
drop if Income>250000

Table A.5
reg RNW GoodMtg NoMtg Male Married BAnUp if OwnHome==1, beta
Table A.6
reg RNW LoMtgPurch Male Married BAnUp if OwnHome==1, beta
Table A.7
reg RNW RightStuLn Male Married BAnUp if NoColDeg!=1 & NoStuLn!=1 , beta
Table A.8
reg RNW RightStuLn HiStuLn Male Married BAnUp if NoColDeg!=1 & FinEd10Plus==1 , beta