

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

Given Credit Management Behavior, what effect does educational debt  
have on mortgage approval timetables?

The Honors Program  
Senior Capstone Project  
Student's Name: Andrew McLeod  
Faculty Sponsor: Professor Betty Yobaccio  
Faculty Editor: Professor Peter Nigro  
Date of Presentation: April 18<sup>th</sup>, 2012

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

**Table of Contents**

Abstract .....	3
Introduction .....	3
Literature Review .....	6
Methodology.....	17
The Sample: .....	17
The Model: .....	19
Results.....	22
Correlation Matrix.....	27
Conclusions .....	28
Appendix A- Charts and Graphs.....	30
Appendix B- Survey Questions.....	33
Bibliography .....	38-39

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

**ABSTRACT**

Educational debt in the United States is a major concern as many young people enroll in undergraduate institutions beyond their financial means and the gap between the cost of an education and family income widens. Research suggests that an individual's level of educational debt will have an effect on their financial future, but measuring the extent of damage incurred is much more difficult and needs further examination. This paper analyzes the relationship between the level of educational debt at graduation and time between graduation and home mortgage approval. This paper also examines the relationship between credit management behavior and mortgage approval. This study finds that educational debt does not have a significant effect on mortgage approval timetables. This paper also reports that credit management behavior has a significant effect on a person's approval timetable and that bad credit management behavior increases the period between graduation and mortgage approval.

**INTRODUCTION**

Educational debt is becoming a national issue as the cost of education, at both private and public universities, has risen at alarming rates. Figure 1-shows that over the 10 year period since the 1996-97 academic year, educational costs at private institutions have grown at an average annual rate of 9% to \$30,367, while student loans have grown in real terms, at an annual rate of over 15% increasing from \$16.3 billion in 1995 to \$68.6 billion in 2005. This study explores the relationship between educational debt levels at graduation, and the time it takes for that person to be approved for a home mortgage controlling for relevant factors, such as credit management behavior.

Figure 2-A shows that the real earnings of recent college graduates have failed to keep pace with increases in educational costs. Although highly correlated throughout the 1990s, the growth in real earnings stagnated and declined through 2008, while the gap with fast-growing educational costs exploded. With the global recession commencing at the end of 2008, this trend in real income certainly has not changed materially, while educational costs continue to escalate. It is not surprising to find that in 2010, educational debt surpassed credit card debt as

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

the largest liability for Americans (Figure 3-A). With student loan growing at an even faster rate than educational costs, 15% vs. 9%, and wages stagnating or in decline, the ability of college graduates to service this debt becomes increasingly challenging going forward. In fact, educational debt may be the next bubble for our economy; when it bursts, our country will experience similar effects as the 2008 financial crisis and the consequential economic recession (Tourylai, 2012). As entry level positions contract due to economic conditions and students continue to enroll increasingly expensive undergraduate institutions, a newly graduated student's long term financial growth will be increasingly hampered. Despite the precipitous drop in real estate prices since the housing bubble burst, and the exceptionally low mortgage rates fueled by the stimulative policies of the Federal Reserve, young college graduates may still find home ownership out of reach due to the student loan burden. Students are increasingly questioning the value proposition of higher education. The (National Student Loan Survey (NASLS) collected by Nellie Mae (Federal Educational Debt Institution) stated that between 1991 and 2002 the percentages of respondents viewing the problems associated with debt as worth the benefits decreased from 74% to 59%, and 54% of respondents stated they would have borrowed less to attend school; representing an increase from 31% in 1991 (Baum, 2003). This survey shows that students are less likely to consider higher education worth finance cost. More importantly, in the same survey 38% of respondents in 2002 stated that educational debt delayed their purchase of a home (Baum, 2003). The trends from this Nellie Mae survey clearly indicate that student attitude toward the marginal benefits of education is rapidly declining and educational debt is affecting important lifetime timetables.

John Lee of the National Education Association claims that the root cause of increased tuition costs lies with the government's excessive supply of financial aid which promotes inefficient behavior and fosters a lack of innovation which creates artificially high prices at both public and private universities (John Lee, 2003). Figure 6-A shows the increase in tuition prices at private universities between 1992 and 2000. These figures illustrate a 23% tuition increase in inflation-adjusted dollars (18% tuition increase after removing government aid). Private universities, which do not have direct state support, are the worst offenders for tuition increases because it covers the largest costs for the institution. To keep tuition at manageable

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

levels, universities use endowments and alumni gifts to subsidize scholarships and grants to incoming students. According to RAND's Council for Aid to Education's Voluntary Support of Education Survey, the 2002 fiscal year represented a major drop in private gift donations. Donations accounted for 8.1% of higher education cost in 2002, which is down from 8.7% in 2001 and 8.8% in 2000 (John Lee, 2003). Such drops in alumni gifts affect independent institutions the most; these drops in funding power directly affect student tuition levels and it contributes to increased educational debt.

According to free market advocates such as Peter Schiff, increases in financial aid programs drive the soaring tuition costs which have greatly outstrip inflation, are barring many lower income and minority students from higher education. According to Derek Price of the Research in Higher Education Journal, despite the fact that 95% of tuition increases were financed by government financial aid, between 1992 and 2000, the average educational debt levels rose from \$9,000 to \$18,000. It stated that to avoid such problems in the future, 4-year institutions (especially private institutions) must curb spending through efficiency and implement four-year tuition plans that make college costs more affordable.

Although economic and credit conditions vary over time and impact home purchase, the recent increase in college debt will most likely extend this time table for college graduates. This increase may slow home construction, and debt service obligations of student debt will decrease savings rates, both of which will compound the effects of recessionary economic periods (Doctor Housing Bubble Blog, 2011).

Educational debt has an obvious effect on a person's monthly debt to income ratio. Although such measurements are applying for a mortgage loan, long term debt affects many secondary factors in a person's financial attractiveness (Allbusiness.com). An individual's financial attractiveness is a function of the level long term debt, FICO score, and the monthly savings rates (Nefer). In addition, unemployment levels decreases monthly savings rates and will most likely prolong mortgage approval.

This paper uses multiple regression analysis to explore the impact that student loan debt has on the time home mortgage approval. The remainder of the paper is outlined as follows. Section I provides a literature review on educational debt and its impact on the mortgage approval process. The literature review is broken into four sections. The first part

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

examines the current state of the student loan market. Part 2 discusses the role of government in financial aid, current educational policies, and the relationship between increased financial aid and rising tuition costs. The third section discusses the mortgage approval process and how lenders weigh different financial factors when underwriting a mortgage candidate. The final subsection discusses the economic implications of educational borrowing and its potential impact on economic growth. Section 2 will be the project methodology and conclusions drawn from the study's results. Section 3, the final section of the paper, outlines the data collection process, the multiple variable regression analysis, and the findings limitations. Section 4 provides conclusions and policy implications.

## **LITERATURE REVIEW**

The combined cost of a college education is exponentially increasing; both the cost of tuition and the cost of living on campus has steadily grown within the last twenty years (Gorden, 2011). The graph in figure 1-A shows the cost comparison of private versus public universities between 1976 and 2007. It also outlines the steady rise in the amount of debt from both private and Federal sources associated with financing college expenses. Leading up to 2008, a behavioral parallel formed between the growth in the student loan market and the sub-prime mortgage market; the correlation between these two markets gives an indication of the continually leveraged nature of educational borrowing (Touryalai, 2012). This parallel not only foreshadows a future trend in student loans, but it also indicates that this could become a national problem rather than just certain individuals' problems. Many people question why the price of education has been far outstripping inflation and the annual increase in the cost of living. This trend makes many people question such frivolous educational cost increases in the United States higher education system.

Educational borrowing may be the next financial crisis as students are unable to repay educational loans. In 2010, student borrowing topped 100 billion in FY2010 for the first time while total outstanding student debt rose to above 1 trillion dollars (Touryalai, 2012). With unemployment rates still above 8%, job prospects are substantially reduced for recent graduates, greatly impacting their ability to service this mounting student debt. Total US

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

credit card debt, estimated at \$798 billion, is now overshadowed by student loan debt and places student loans as the largest single source of debt in the United States (Tourneyalai, 2012).

According to the Department of Education, the cost of a higher education has nearly tripled within the last twenty years, and that in 2008, the average amount of student loan debt rose to \$23,200 for graduates of four year private institutions; this level represents a 24% increase from 2004. In addition, collegeboard.com reports that twenty-eight percent of students attend universities that charge more than thirty-six thousand dollars annually. The rapid increase in student tuition may be attributed to a range of factors such as: increased competition for applicants which demands better facilities and an increased level of both government and private financing options. Regardless of the reasons, it is clear that the gap between family income and educational cost is rising, and that this ever increasing gap has caused rampant educational borrowing and has created students that are unable to financially advance in life because of their student loans.

Figure 3-A tracks credit card and educational debt. The rapid decline in credit card debt in 2008 can be partially attributed to the deleveraging habits of individuals and families during the global recession following the 2008 financial crisis, as seen in Figure 3-A. Yet, while credit card debt rapidly declined since 2008, educational debt continued to rise. As shown in Figure 1-A, this increase in educational debt is highly correlated with rapidly growing educational expenses. Figure 2-A shows a high correlation of rising tuition with real wages by recent grads through 2000 (Doctor Housing Bubble Blog, 2011). However, while tuition continued to rise after that, real wages stagnated and declined. Although outside the period represented in the graph, with the global recession commencing late in 2008, this situation has probably deteriorated even further, and the gap between tuition and real wages continues to explode. These rising student debt levels, coupled with rising unemployment among the young, and declining real salaries of recent graduates, put many recent graduates into financial trouble. How graduates deal with this debt directly affects their financial progress and may alter their mortgage approval timetable.

In addition to the level of debt students accrue while attending undergraduate institutions, graduate schools have also increased in cost. According to an article in US News online, pharmacy graduate program costs rose in price by more than 50% between 2002 and

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

2008, the average increasing from \$13,600 to \$20,800 (Clark, 2011). Similarly, the University of California graduate school system has released news of a 31% increase in tuition costs in 2011 due to budget shortfalls (Clark, 2011). Such rapidly rising educational debt can also be attributed to reduced employer support for graduate studies. Between 2007 and 2011 the number of employers who do not offer tuition reimbursement programs rose from 35% to 44%. This, coupled with decreased initial earning power and tough economic times, makes graduate school put additional strains on financial progress. Highly specialized fields that require many years of school, such as law and medical programs, have created many students unable to repay loans despite having elevated income levels. The national average price of law school now exceeds \$41,000 per year which represents an increase from \$30,000 in 2007 (Clark, 2011)

Millett (2003) provides evidence that educational debt directly affects how a person's level of loans can impede their post graduate options and their chances of obtaining a mortgage. Although the article mainly focuses on the transition between undergraduate and graduate education, it clearly gives evidence that financial debt will hinder recent graduates' ability to pursue their aspirations for graduate educational. Many positions now require graduate studies to advance into the executive level. Therefore, students in today's job market now must face the possibility of large educational debt from both undergraduate and graduate school. The stagnating job market then places many students in financially precarious situations that have long-lasting effects on their ability to financially advance.

Brill (2007) reports that the chasm between family income and the cost of education is rapidly growing and the trend will continue into the future. One major reason this article states is low college savings rates of adults due to increased vacation budgets and weekly luxury expenses. Also reported are results of a survey sponsored by AllianceBernstein that indicates that as the trend of college prices continue to rise and families continue a downward trend in savings, educational debt will continue to be an issue in the United States. Deborah Fox, founder of Fox College Funding in San Diego also quoted in the article, states that families are still too focused on monthly and weekly expenses and give little thought to long term savings (Brill, 2007). Although the author states that we may see a decrease in the rate of tuition increases and that future tax benefits that will encourage long term savings, parents



***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

still continue to have a difficulty saving for college and will pass that shortfall onto their children in the form of debt.

The Educational Resources Institute (1997) article addresses how student borrowing may have arisen such as the relationship between government aid and tuition increases. Government encouragement of educational borrowing, through the creation of government loan programs and legislation to ease loan approval, may spur irresponsible borrowing. The author reports that in 1967 students borrowed \$244 million in educational loans; in contrast to 1996 when students borrowed \$29 billion adjusted for inflation (Educational Resources Institute, 1997). This increase in borrowing has outstripped inflation and can be attributed to two factors: first, average tuition is increasing faster than inflation which results in increased demand for loans, and secondly, to the increased supply of loans available through implementation of government legislation such as the 1978 Stafford loan program and the 1992 Higher Education Act. Both these pieces of legislation were meant to increase university enrollment and allow people to gain the necessary funding to attend college. Since the implementation of this legislation, Congress has been continually increasing the availability of loans by raising loan limits, lowering qualification standards, and offering larger financing amounts (The Education Resources Institute, 1997). Many analysts question whether increased availability of government loans contributed to increased tuition, or if tuition motivated increased government aid. This trend in Government's role in encouraging educational borrowing and the steps they've taken to widen government funding is alarming for some. Financial commentator Peter Schiff argues that Government involvement impedes free market pricing and artificially increases tuition costs because a lack of efficiency and innovation. Even after adjusted for inflation, between 1967 and 1996 the national aggregate loan amount has increased by 25 times.

Attridge (2008) states that it is not the exponentially rising cost of tuition that is the main driver behind student borrowing, but it is the availability of government subsidized loans that has caused such an increase in educational debt. Although tuition is the purpose of governmental borrowed funds, students believe they can afford these tuition prices because of the accessibility of the needed funds (Attridge, 2008). By offering these loans, the government is psychologically enabling poor borrowing habits. This type of thinking goes

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

against the commonly accepted causes of educational debt; such psychological aspects should be considered when contemplating the root causes of the student debt issue. Although many move to blame institutions for price increases, increased credit for students who demand more non-academic services requires schools to raise tuition to stay competitive. Many argue that if free market pricing was allowed to be implemented, prices would need to decrease to meet the diminished student purchasing power.

Banchero (2010) talks about the rising cost of tuition at public and private schools and the stance the government has taken to combat the growing problem. More specifically, the article analyses the comparison between government Pell grant dispersion versus the rising rate of tuition. Tuition rates have annually risen at public and private institutions by 7.9% and 4.5% respectively (Banchero,2010). Although tuition rates are rising, within the four past years, under the Obama administration, policy makers have made it a top priority to raise graduation rates at two and four year institutions. Pell grant funding under the Obama administration has risen from 18 billion to 28 billion. This is only part of the total government aid which has risen nearly 50% since Obama has taken office (Banchero, 2010). This article has significant relevance because although tuition rates are rising, government aid is also increasing. Yet, rising government educational aid has an effect on overall government spending and may cause a decrease in: services, the funding offered for alternate programs may be cut, or it may cause a tax increase to provide the additional dispersions.

Case (2009) talks more in depth about the rates and the factors influencing student loan default and how the government measures the effectiveness of governmental loan programs. Although it states that low income and additional long term debt increases a person's likelihood of default, the article also offers such secondary factors as family structure, parental education, curriculum intensity, and age as sources of default. A portion of the article talks about debt with regards to the percentage of monthly income devoted to paying student loans. If this number is above eight percent, the loan is deemed as unmanageable; this group had a twenty percent default rate (Case, 2009). These figures did not include graduate students who although incurred a higher level of debt, they received higher opening salaries and had equivalent, if not lower, monthly income to debt percentages (Case, 2009).

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

Although many may not view recent graduates as large economic contributors, what worries analysts most are parents nearing retirement that cosign educational loans. Parental co-sign and borrowing is up 75% since 2005-2006; this increased level of parental involvement places decreased risk on the lenders but adds risk to the economy as students seek parental assistance to avoid default (Touryalai). A major factor leading to these student and parental hardships is a piece of legislation passed in the 1970s called the Bankruptcy Code Section 523(a)(8) which makes student loans non-dischargeable. The National Association of Consumer Bankruptcy Attorneys (NACBA) has been lobbying congress to make student loans dischargeable. As it currently stands, the NACBA estimates that 95% of student loan recipients are unable to discharge due to undue hardships (Touryalai). In opposition to the NACBA, making student loans dischargeable would cause all student loans to be treated as uncollateralized loans which would increase interest rates on all student debt.

Mortgage-X, a mortgage information service provider, outlines parameters for people to decide how much they can afford to borrow in a mortgage loan (Mortgage-X.com). The article states that the prospective buyers must take three numbers into account: monthly income (before taxes), long-term debts, and the amount of cash that can accumulated for a down payment and closing costs. These three factors entered into a mortgage approval formula will either approve or reject a person's bid for mortgage lending. A major point of interest in this article states the recommended percentage that your housing payment and your other long term debts can account for in your monthly income. This article stated that

*“...housing expenses plus long-term debts should not be more than 33 percent to 36 percent of your gross monthly income. For Federal Housing Administration (FHA) loans, this figure should not to exceed 41 percent of the homebuyer's gross monthly income”.*

The article continues by stating that *“Lenders usually define long-term debt as monthly expenses extending more than 10 months into the future”*(Mortgage-X.com,2011). These percentages of a person's monthly income are guidelines for mortgage approval that creditors use to judge the ability of a person to pay their mortgage obligation.

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

The FICO rating, an acronym for the software used developed by Fair Isaac and Company, allows credit rating agencies to track a person's credit and payment behavior. This report is then passed on to banks and other financial institutions when the person applies for a mortgage. Although this measure is partly used by banks to gauge a person's risk, each bank develops systems that place different emphasis on income and existing debt (MyFico.com). In addition, although banks use this FICO score to calculate risk, just because a person has a bad credit score does not mean they are unable to secure financing. The lower the FICO score, the higher the interest rate they will be charged; a person with below a 600 credit rating is classified as a sub-prime mortgage and will usually attempt to negotiate a variable rate mortgage to secure lending. Such risky behavior with respect to the granting of mortgages, as well as the explosion of derivative markets based on these subprime mortgages, were root causes of the 2008 financial crisis, and have resulted in banks now accept only highly qualified buyers. Such risky applicants will approach government sponsored programs to gain first time home buyer approval and benefits.

Although debt levels and income levels are important in determining mortgage approval, all banks require this FICO score report. An article titled "*The Impact of A Long-Term Debt On A Credit Rating*" outlines what consumers can do to avoid having a long term debt affect their FICO score (Nefer, 2010). This author states that many consumers treat credit cards as long term debt by not paying off balances each month. How an individual handles these accounts has a direct effect on their FICO score. In contrast, long term debts that have been paid on time can have a positive impact on an individual's FICO score because it shows an extended credit history. An extensive and reliable payment history allows for a high FICO score and in turn allows the borrower to gain a better interest rate. This author also mentions that a person's credit history only reverts back to the past seven years of their debt payments. This means that any negative practices that occurred beyond the past seven years will no longer have an effect on the person's score.

Recent graduates are an excellent source of financial information regarding educational borrowing. These individuals are in the process of paying back their student loans and must use sound money management in order to avoid delinquencies on existing debt. An important aspect for recent graduation is the obtainment of different types of insurance that

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

many students are now using to avoid a financially disastrous event. Using this type of insurance to prevent an inability to pay for existing student loans is becoming more common as modern students are becoming over leveraged. (USAToday.com, 2011). Such extreme measures for recent graduates to hedge risk associated with student loan default shows how critical the situation is for some borrowers.

The presence of outstanding loans hinders the ability of a person to gain a home mortgage by directly affecting credit worthiness and diminishing a person's monthly income available for home payments (Nefer). Logic states that as students attend high priced universities and over leverage themselves with student loans, the home mortgage approval time span between graduation and approval will increase. Since 2008, borrowing standards have grown continually stringent as banks now require thorough documentation and credit history (Rouse). When seeking mortgage approval, credit history and past behavior play a major role in determining the reliability of a person. By asking and then examining these trends by surveying Bryant faculty, staff, and alumni, a more in depth analysis of these variables can be undertaken

Boyd (2007) looks into the economical decisions made by African Americans regarding educational debt. The article looks into the relationship between default rates on Stafford loan programs and African American mortgage discrimination. Its findings are very difficult to quantify because it deals with racial discrimination on the part of the mortgage lender. This study concluded that African Americans were at the time of the study making the decision to default on their government educational loans even though it would greatly affect their FICO score because they viewed the current mortgage market as discriminatory. Since they viewed the mortgage market as discriminatory, they simply defaulted on their educational loans based on the assumption that they would be denied approval regardless of their ability to pay the loan. This article gives valuable insight into the discriminatory practices in the loan industry and it shows that sometimes ratios and financial figures aren't the only aspects weighed in a approval decision. By adding a racial demographic control questions into the faculty, staff, and alumni survey such factors will be analyzed to see if there is a correlation.

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

Although many student borrowers believe educational debt will disappear over time, delinquency collections will continue to hinder financial progress far into the future. US district judges can use a variety of collection techniques to ensure repayment; these include savings and checking account garnishes and the seizure of tax refunds. As more students over leverage themselves to pay for education, and with the job market as it is, the rate of delinquent educational loans has begun to rise. Nationwide in 1995, 1142 educational default cases were filed in US courts; by 2000 that number had risen to 24,404. During a period between October 1<sup>st</sup>, 2008 and September 30<sup>th</sup>, 2009 there was an 8.8% default rate on student loans (Ferrerias, 2012). This increasing number of defaults shows that our country is in serious trouble regarding nationwide educational debt levels; we must find ways to rein in education costs in order to remain economically and intellectually competitive in the international environment.

Continuing with the overall economic effects of student debt, Willis (2012) attributes sluggish economic recovery to educational debt. Economists state that over burdensome student debt is making record low interest rates ineffective and disqualifying many first time home buyers. According to a federal reserve study, between 2009 and 2011 only 9% of 29 to 34 year olds were granted first time home buyer mortgages; this figure is in comparison to 17% ten years earlier (Willis, 2012). Fed Chairmen Ben Bernanke stated that this decrease in first time home buyers is greatly affecting home prices and construction rates. John Rao of the NACBA (National Association of Consumer Bankruptcy Attorneys) stated that just as the sub-prime housing crisis deprived the economy of consumer spending, growing educational debt levels will drag on the economy for the foreseeable future (Willis, 2012). Rick Palacios, a senior research analyst at John Burns Real Estate Consulting added that first time home buyers are critical to the housing market because they allow existing home owners to move into larger and more expensive homes. If these existing home owners are unable to sell their first property, there will be no demand in the upper level property markets. A key trend to note is that although housing prices have lost almost one third since 2006, multifamily rent property construction has remained strong and is expected to grow as younger people look to rent rather than buy homes (Willis, 2012). This type of renting behavior will greatly affect

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

future economic patterns because less people will own the property that has formed the base of US financial growth since the 1940s.

This paper attempts to identify the factors that impact the number of months between graduation, and being approved for a first-time mortgage. These will include indicators of ability to pay, as well as likelihood of payment. Indicators of ability to pay might include income at time of approval, size of the mortgage, percent down payment, and other types of debt, like educational and credit card debt. Indicators of likelihood of repayment include credit behavior (FICO score, credit card payment practices, late fees, over-limit fees, times denied, etc.), and may be impacted by demographic factors such as gender, race, marital status, and number of children. Each of these anticipated influences are discussed below.

**Income at Approval-** Income level at the time of approval will have a significant effect on the approval timetable because it directly affects a person's monthly income to debt ratio. An increased income lowers a person's risk and allows more money, after living expenses, available for mortgage payments. An increased income should shorten the approval timetable and lower the impact that student debt had on their financial growth.

**First Mortgage Size-** First mortgage size should not have a significant effect on the approval timetable because people looking to buy a first home should have relatively small size which constitutes lower risk than a large second home mortgage. Based on salary levels which are majorly dependent on years since graduation (number of years experience), the first home purchase will be lower priced to not over leverage themselves. Thus because the first mortgage should be smaller, it can be hypothesized this variable will not have significant effect on approval timetables.

**Down Payment % of Mortgage-** A larger down payment as percentage of the mortgage approval should have a significant impact because it decreases the lender's risk and decreases the size of the mortgage that is unpaid. An increased down payment size also indicates a more positive saving behavior and should indicate overall positive financial behavior. This variable should have a significant impact on the mortgage approval timetable.

**Educational Debt-** Based on compiled research, educational debt should have a direct effect on the approval timetable because of many factors. The continual long term debt payments

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

lower monthly savings rates, it lowers income available for mortgage payments, it increases a person's risk when being evaluated for a mortgage. These three factors directly inhibit an individual's financial attractiveness and should prolong their approval timetable.

**Credit Behavior-** Based on research done thus far, credit behavior should have a significant impact on a person's mortgage approval timetable because of its effect on primary and secondary mortgage approval requirements. Primary factors include a person's FICO score, their credit history (including late fees, rate increases, and payment history), and the amount of credit card debt at the time of approval; all of these factors weigh heavily in a bank's decision for approval. Credit behavior also affects secondary requirements such as monthly savings behavior and down payment accrual.

**Fico Score Knowledge-** A person's knowledge of their FICO score although showing increased financial literacy and awareness, should have no effect on a person's credit usage and should not dictate if they use healthy or unhealthy credit control. Although FICO score knowledge does indicate an elevated financial literacy, we believe this variable will be insignificant in relating mortgage approval timetables to educational debt.

**Times Denied-** I do not believe that the amount of times denied will have a significant correlation with the approval timetable because denial only signifies poor credit behavior or the lack of prerequisites and once these requirements have been met, the person will be approved. Past denials should have no effect on the approval timetable beyond the revision and application time period.

**Gender-** Gender will play a minor role in correlating educational debt to mortgage approval timetables and I believe this variable will have a high p-value which represents a low significance. Based on official mortgage approval guidelines, gender cannot legally be a factor when considering candidates. In addition, such gender discrimination would be made null if the candidate was married, engaged, or in a domestic partnership.

**Race-** As with gender, race cannot legally be a basis for mortgage denial based on equal housing lender and various other non-discriminatory government policies. In theory, race should not be significant because of similar income levels across Bryant University graduates. In addition, due to a lack of racial diversity present in the Bryant community, the level of non-



*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

Caucasian respondents is expected to be low and thus race should not be identified as a significant variable.

**Kids-** Kids will play a major role in determining the relationship between mortgage approval and educational debt; children both represent a major expense, which would prolong the timetable, but they can also act as encouragement for home purchase, which will shorten the timetable. By having a decreased amount of funds due to child expenses, in theory, it should slow financial growth and cause a prolonged approval timetable. In contrast, adults that have children will pursue home ownership; the earlier the child's birth, the shorter will be the time between graduation and approval. Kids, although they will have an effect, the correlation this variable will have to the mortgage approval timetable is unknown.

**Marital Status-** Marital status should have a significant impact on an individual's mortgage approval timetable because it decides what level of income is being leveraged to be approved and to maintain the mortgage. Based on research, because married couples can deliver a higher income to mortgage payment ratio, they are better suited for approval and proper maintenance than a single person.

In the following steps we will discuss the methodology used to undertake this research project. The methodology will then proceed into the results and the conclusions drawn. The methodology section will begin by stating the hypotheses which have been drawn from the literature review. The second half of this project will then proceed into the survey creation and distribution, the regression analysis, the data limitations, and then the final conclusions.

## **METHODOLOGY**

### **The Sample**

An invitation to participate in my survey was distributed electronically to Bryant faculty, staff, and alumni. The alumni list was provided by Robin Warde from the Alumni Office. All survey participants will need to agree to the survey terms, which although cleared through IRB, ask the participant for sensitive financial information. To reduce non-answer responses, all survey questions will be ranged and specific numbers will be avoided to reduce

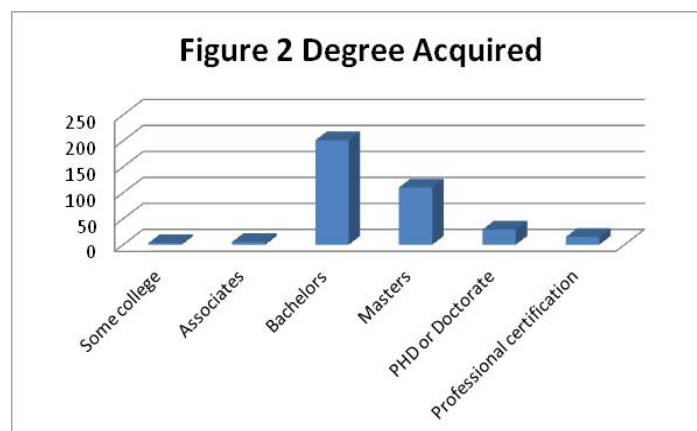
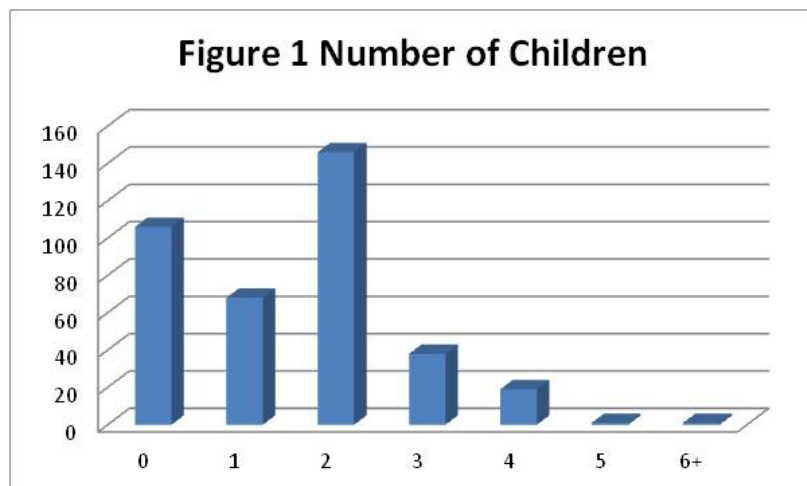
***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

survey hesitance. All survey responses are anonymous and will remain encrypted for the IRB specified period of time.

In total, invitations to participate in the survey were sent to X faculty, Y staff, and Z alumni. Of these, 539 people viewed the survey, 388 started the survey, and 350 completed the survey. After exclusion of 155 respondents due to incompleteness and participants misunderstanding questions, 195 were included in the study. Of those responding, 50.4 percent were female, 95.26 percent indicated that they were Caucasian, almost 60 percent indicated that they were married, and the mean number of children of respondents was 2.48. Figure 1 shows the distribution of number of children. Ninety Nine percent of respondents indicated that they had acquired a minimum of an Associates degree. Figure 2 shows the distribution of degrees of respondents with almost 58 percent attaining at least a Bachelors degree.



*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

The Model

Candidates for variables in my model include: current family income, month and year of graduation, month and year of mortgage approval, level of educational debt upon graduation, size of mortgage, size of down payment (as percentage of mortgage size), type of mortgage (FHA, VA, or conventional), variable or fixed rate, conventional or online broker, and the number of times rejected before approval. The credit behavior questions include monthly credit card carrying balance behavior, number of credit cards, incidence of rate increases, FICO score knowledge, typical interest rate charged, and a credit attractiveness self survey.

Demographic variables included are: the person's gender, race, marital status upon graduation, number of children, the level of highest education degree achieved, and their field of higher education. The control questions, which would eliminate a subject from the survey if not answered appropriately include: the acceptance of the survey terms, the completion of higher education (survey terminated if answered no), if the subject currently holds or has ever held a mortgage (survey terminated if answered no), and if the person was approved for mortgage during the obtainment of their highest education degree (survey terminated if yes).

Although this study's findings can be used to draw larger conclusions about the Bryant community, these conclusions cannot be generalized to other geographic locations. Locations in the US are affected by differently by socio-economic variables, making it impossible to extrapolate results of this study to national conclusions. For instance, the states of Utah and Hawaii have the lowest average recorded debt, while the District of Columbia and Iowa have the highest level of debt (Pilon). These varying levels of debt support the incongruent nature of borrowing patterns. These states are varied in average income and region and have no distinct educational debt patterns. The causes of these differing levels of debt must be rooted in factors such as: regional levels of income, availability of affordable state higher education, differing costs of living, and the openness of the regional educational credit market. This regional variability of debt means that this study must focus on a select group of individuals that have similar educational cost and family income, and are geographically concentrated. To overcome this variability, this study will focus on the Bryant University community.

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

Bryant faculty and alumni will be the subject of this study because they represent a complete picture of financial growth. Bryant faculty and alumni have already been through the process of borrowing for university and can provide the information that will gauge if it has had an effect on their progress toward home ownership. One major drawback to using faculty and alumni is that this set of survey participants will not be representative of modern trends because of the only recent exponential rise in the cost of education.

The regression procedure began by analyzing the respondents' raw data from ProQuest and separating the incomplete data. In many instances survey respondents skipped or misunderstood questions; due to incompleteness, these survey responses were removed from the regression state. After filtering the data of non-usable data, we needed to translate the ProQuest coded answers into usable respondent data. For example, if the respondent answered the highest category of debt, when asked for educational debt, the ProQuest raw data marked a "6". By using IF statements in Excel, this "6" was translated into the answer range's midpoint of 31,500. This type of raw data midpoint translation for ranged response questions was needed for multiple questions. The next step in the data translation was to convert general demographic questions into code to be used in the regression. This 0,1 translation code was used to test responses that we believed would have an effect; this process was used for Gender, Race, Marital Status, FICO Score Knowledge, Credit Card payment behavior, late fee incidence, interest rate increases, and overall credit self evaluation. The questions answers for Credit Card Late Fee Behavior, Rate Increase Coincidence, and Credit Card Payment Behavior were compiled to give a single credit behavior rating. If the respondent indicated presence of two of the three previous variables, they were regarded as having negative credit behavior.

Working in close relation with the alumni office, the survey was distributed to 8811 alumni with graduation dates between 1977 and 2002. The amount of alumni that opened the survey email was 1636, which represents an 18.56% email open percentage. In addition, 664 Bryant and Faculty emails were distributed, of which 75 were returned as undeliverable. In total 9400 surveys were sent to the Bryant community (Survey questions can be found in Appendix B). Of these 9400 survey emails sent, 539 viewed the survey and 350 people completed the survey. Of these 350 people that completed the survey, 155 people's responses

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

were deemed as unusable and were discarded from the regression process. The final useable data sets accumulated to 195 data records. These records were then used in SAS Stepwise software to determine significant variables. After placing the significant variables back into excel, the table below was produced:

The goal of a regression analysis is to determine the values of parameters for a function that cause the function to best fit a set of provided data observations. (NLREG.com). A nonlinear regression analysis determines the best values of the various independent parameters and finds the best fit of the provided dependent variables. Once the coefficients are determined by the nonlinear regression analysis, the model will be able to gauge the effect specific variables will have on the dependent variable. The level of this effect will be evaluated as significant or insignificant to the dependent variables. Although the model will produce a “best fit” equation, the effectiveness of this line at representing the data is measured by the R squared value. By using software such as SPS stepwise, insignificant variables can be removed and this R squared value can be maximized. Using this type of , the regression analysis can more accurately predict the effect that credit and educational borrowing behavior will have on mortgage approval times.

This regression procedure and the SPS Step Wise software will identify the most significant variables and will maximize R squared. The maximization of R squared signifies that the regression analysis results closely match the data set; a low R squared value signifies that the regression results are not representative of the data set. The regression analysis was undertaken with assistance from Professor Ketcham and it identified Credit Behavior, Income at Approval, Kids, Marital Status, and Down Payment Percentage as significant variables. We then put these variables into an Excel regression analysis to gain the final p-value and t-stat for the significant variables. The table of the final significant variables is located in the results section.

I next created the correlation table. For this correlation matrix, all the variables were placed in the data analysis correlation tool in excel. This correlation table is used to illustrate the relationship between each of the independent variables and used to define those variables’ relationship with the Approval Timetable dependent variable. This graph’s results are displayed in the next section.

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

The final step was to graph the survey response data to make conclusions regarding the overall profile of the respondent pool. These graphs, which are displayed below, include Level of Educational Debt, Size of First Mortgage, Family Gross Income Upon Approval, and Down Payment Percentage.

In the following steps we will discuss the methodology used to undertake this research project. The methodology will then proceed into the results and the conclusions drawn. The methodology section will begin by stating the hypotheses which have been drawn from the literature review. The second half of this project will then proceed into the survey creation and distribution, the regression analysis, the data limitations, and then the final conclusions.

**RESULTS**

Variable	Parameter Estimate	Standard Error	t-value	Pr >  t
Intercept	59.15429	15.94228	3.71	0.0003
Gender	5.04123	7.30598	0.69	0.4911
Kids	-8.73501	3.45488	-2.53	0.0123
Race	-36.90828	37.4747	-0.98	0.326
CurrentFamilyIncome	-0.00009612	0.00006733	-1.43	0.1551
MaritalStatus	-16.58831	8.13521	-2.04	0.0429
TimesDenied	22.39553	21.63035	1.04	0.3019
KnowFicoScore	6.0519	7.8759	0.77	0.4432
SizeofFirstMortgage	0.00002381	0.00004922	0.48	0.6291
IncomeatApproval	0.00017626	0.00013879	1.27	0.2057
DownPaymentpct	0.93536	0.47924	1.95	0.0525
CreditBehavior	25.73293	7.34848	3.5	0.0006
EducationalDebt	-0.00029723	0.0002798	-1.06	0.2895

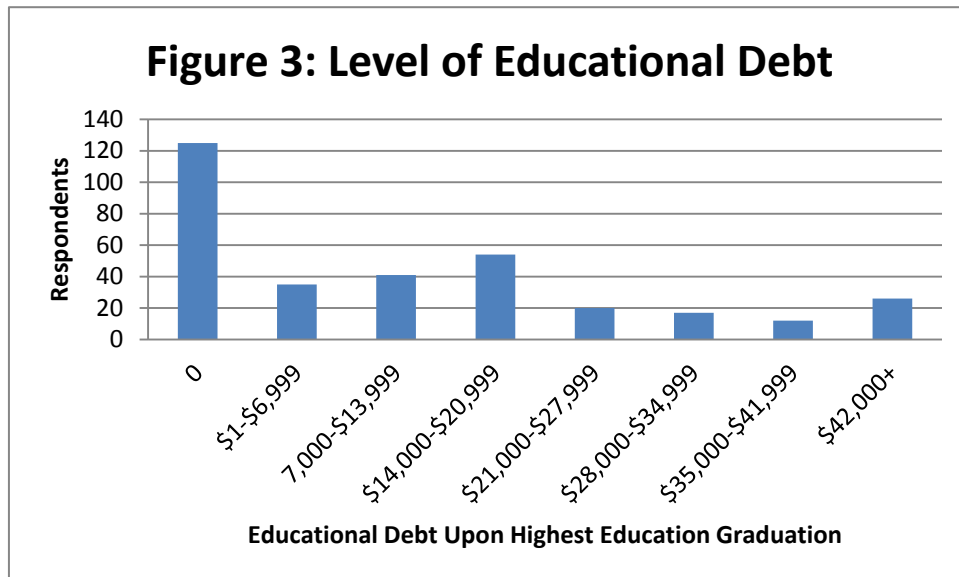
With a correlation of 2.527, Credit Behavior is the most significant variable in the regression analysis with regards to the approval timetable. These findings indicate that the worse credit behavior an individual has, the longer their Mortgage approval timetable will be. This is in concurrence with the findings of the literature review and the hypothesis from the previous

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

section. Kids also have a significant effect on an approval timetable as hypothesized, but surprisingly, having kids negatively correlates to the dependent variable and shortens the approval timetable. This can most likely be explained by the parents wanting a permanent location for their children and thus purchase a home sooner than if they did not have kids. Marital status also had a significant effect on the approval timetable. This variable was negatively correlated to the timetable which suggests that single people are more likely to purchase a home sooner than married people. This finding was surprising considering a married couple typically has double the income of a single person.

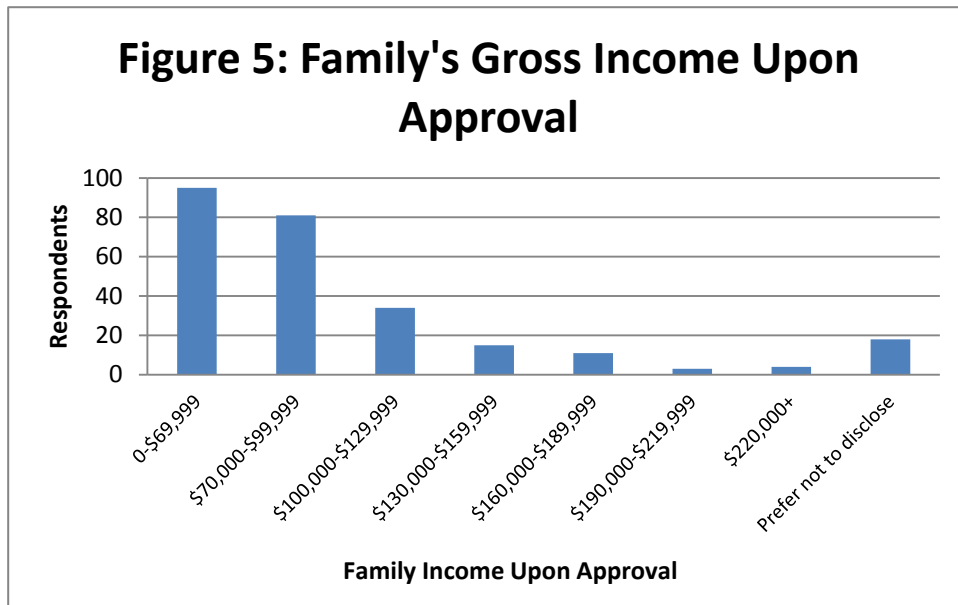
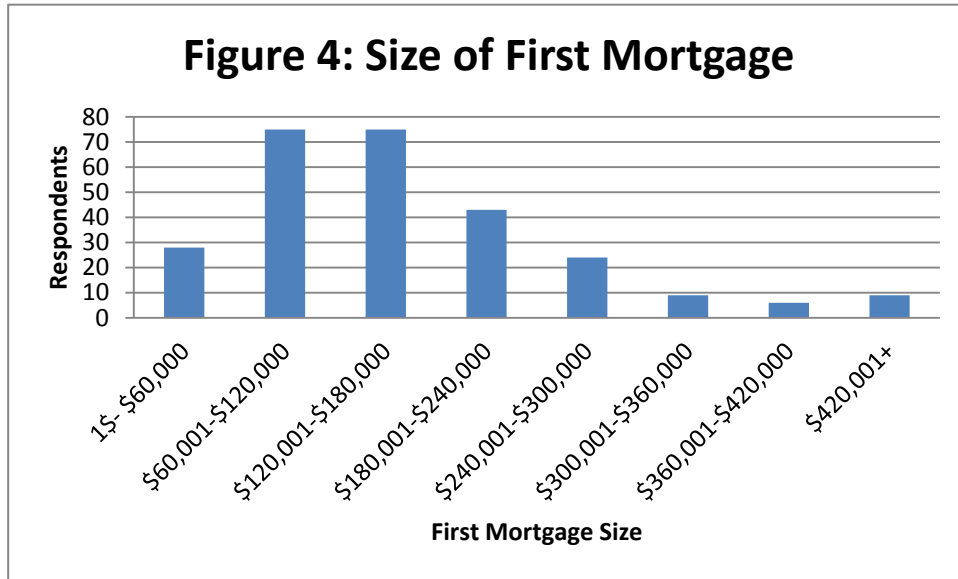


The above graph shows the level of Educational Debt Upon Highest Education Graduation for the survey respondents. Of the 358 respondents that answered this question, 135 of these answered that they graduated with 0 debt. Based on past educational costs, this level is to be expected for the majority of the respondents and this diminishes the relevance of this study for predicting the modern effects that educational debt will have on mortgage approval timetables. Although Educational Debt was hypothesized as having significant effect on the mortgage approval timetable, based on the regression analysis Educational Debt is insignificant with a p-value of .3023 and an inverse relationship with a correlation of -.4742.

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---



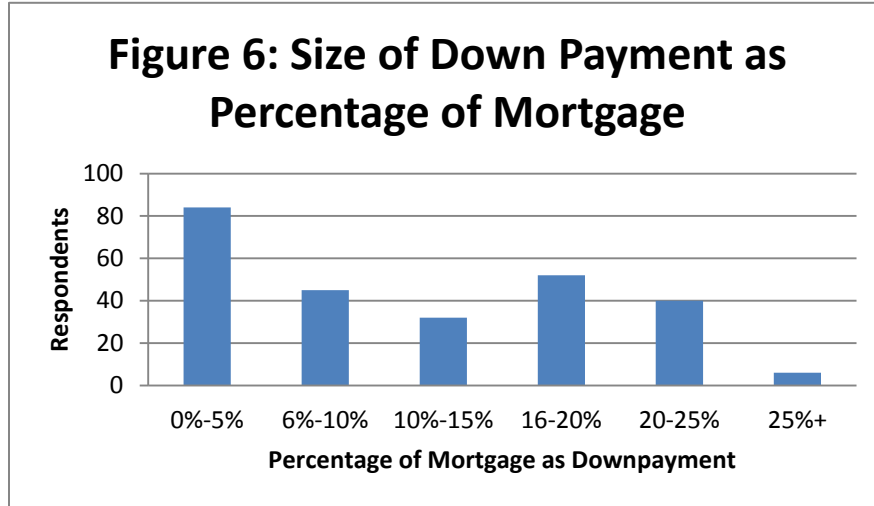
We expected that a Family's Gross Income upon Approval would be significant because it directly relates to a person's debt to monthly income ratio. The higher a person's monthly income, the more funds available for making mortgage payments after essential items and living expenses. Consistent with our hypothesis, Gross Income upon Approval proved to be a significant in determining mortgage approval timetables with a p-value of .0549 and a



*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

correlation of 2.312. It can be concluded that the higher the combined household income at approval, the shorter the approval timetable.



As expected, the Size of Down Payment as Percentage of Mortgage is significant in determining mortgage approval timetables because a larger down payment suggests a lower outstanding mortgage size, a more positive savings behavior for the applicant, and an overall lower risk to the bank. As seen from the above graph, a major portion of the participants in the survey had 0%-5% of the mortgage as down payment. It can be expected that since 2008, outside of the VA or other government loan programs, banks now require a higher down payment percentage. Down Payment Percentage was analyzed as significant with a p-value of .0631 and a correlation to approval timetables of 1.704.

Variable	Parameter Estimate	Standard Error	Type II SS	F Value	Pr > F
Intercept	71.84858	9.48822	137414	57.34	<.0001
Kids	-10.20824	3.14986	25170	10.5	0.0014
MaritalStatus	-20.72521	7.56197	18001	7.51	0.0067
DownPaymtpct	1.00923	0.45873	11599	4.84	0.029
CreditBehavior	24.00954	7.18284	26776	11.17	0.001

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?  
Senior Capstone Project for Andrew McLeod***

---

Table 3 Correlation Matrix

	<i>Months Between Grad and Mortgage</i>	<i>Gender</i>	<i>Kids</i>	<i>Race</i>	<i>Current Family Income</i>	<i>Marital Status</i>	<i>Times Denied</i>	<i>Know Fico Score</i>	<i>Size of First Mortgage</i>	<i>Income at Approval</i>	<i>Down Payment %</i>	<i>Credit Behavior</i>
Gender	0.0308 (.4279)	1										
Kids	-0.1404 (-1.97)	0.0452 (.6285)	1									
Race	-0.0020 (-.0273)	0.1146 (1.6027)	-0.0387 (-.5385)	1								
Current Family Income	-0.0527 (-.7338)	0.0885 (1.2346)	0.1313 (1.8395)	-0.0272 (- .3781)	1							
Marital Status	-0.1302 (- 1.8242)	0.0244 (.3389)	-0.3228 (- 4.7385)	-0.084 (- 1.1712)	-0.0741 (- 1.0330)	1						
Times Denied	0.0739 (1.0288)	0.0212 (.2941)	-0.0928 (- 1.2953)	0.2766 (3.9986)	-0.1274 (- 1.7839)	0.0344 (.4786)	1					
Know Fico Score	0.0483 (.6718)	0.071 (.9882)	0.0173 (.2408)	-0.1456 (- 2.0451)	0.1446 (2.0307)	-0.0238 (-.3313)	0.0613 (.8532)	1				
Size of First Mortgage	0.1587 (2.2337)	0.1323 (1.8544)	-0.2509 (- 3.6004)	0.037 (.5150)	0.2371 (3.3908)	-0.1108 (- 1.5491)	-0.0768 (- 1.0705)	0.1624 (2.2872)	1			
Income at Approval	0.1642 (2.3122)	-0.0034 (- .0467)	-0.0725 (- 1.0093)	0.0224 (.3118)	0.4128 (6.2964)	-0.2923 (- 4.2461)	-0.08 (- 1.1153)	0.1267 (1.7747)	0.6434 (11.6751)	1		
Down Payment %	0.1217 (1.7039)	-0.0252 (- .3497)	0.0189 (.2631)	-0.0105 (- .1460)	0.0916 (1.2782)	-0.06 (- .8346)	-0.0203 (- .2822)	-0.0088 (- .1216)	-0.0325 (- .4513)	0.0654 (.9110)	1	
Credit Behavior	0.179 (2.5276)	0.0386 (.5373)	0.1208 (1.6901)	0.1088 (1.5209)	-0.0059 (- .0815)	0.0028 (.0388)	0.0119 (.1654)	-0.1343 (.3010)	0.0217 (.3010)	-0.0127 (- .1759)	-0.1625 (2.2876)	1
Educational Debt	-0.0341 (- .4742)	0.0517 (.7185)	-0.1715 (- 2.4187)	0.0304 (.4231)	0.0856 (1.1941)	0.0437 (.6081)	-0.0075 (- .1039)	-0.0163 (- .2263)	0.2462 (3.5296)	0.1743 (2.4596)	-0.2706 (- 3.9052)	0.1299 (1.8196)

\*t-stats are in parentheses

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

The above correlation matrix in Table 3 shows the relationships between the different independent variables and how they relate to the approval timetable dependent variable. The table shows the strong positive correlation that Credit Behavior, Income at Approval, and Size of Mortgage has to the dependent variable. These strong correlations, based on the coding used in the regression analysis, mean that the worse the credit behavior, the longer the approval timetable; it means that the lower the income at approval, the longer the approval timetable; and it means the larger your first mortgage size, the longer the approval timetable will be. The other variables which negatively correlate give more unanticipated conclusions. The -1.97 correlation of children to the mortgage approval timetables means that if the person has children, the shorter their mortgage approval timetable will be. This relationship is different than hypothesized and must be attributed to parent's need for stable home lives and are thus motivated to purchase homes at earlier times. The next surprisingly negative relationship is marital status. The correlation table states that single people are more likely to purchase homes sooner than married couples. This is surprising because married couples have larger combined incomes.

## **CONCLUSION**

Research from this study indicates that educational debt prolongs the time a person must wait after graduation to be approved for a mortgage. The findings of this study shows that to be incorrect. This study also analyzed a person's credit behavior and the effect this would have on their mortgage approval timetable; this survey groups' data strongly suggests that credit behavior has a significant impact on the time a person must wait to be approved for a mortgage. Based on the correlation matrix above, Educational Debt has an insignificant negative correlation to the months between graduation and approval. Evidence from the literature review states that educational debt affects a person's financial attractiveness; this should in turn cause a lengthened mortgage approval timetable. This study disproves that theory by concluding, from this generation of survey respondents, that educational debt does not have an effect on a person's mortgage approval timetable.

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

Credit Behavior has proven to have a significantly positive correlation to a person's mortgage approval timetable; this means the worse the person's Credit Behavior, the longer that person will need to wait between graduation and approval. This conclusion is significant because it shows that credit card behavior does have an effect on a person's mortgage approval timetable.

Although disproving this theory, Bryant Alumni and Faculty's responses are not representative of the current state of educational debt and it is still unknown the effect educational debt will have on current students as they become home buyers. Therefore, the findings of this study do not deny the negative effects that educational debt will have on the financial growth of future generations, but merely rule educational debt out as a source of difficulty for our parent's generation.

*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

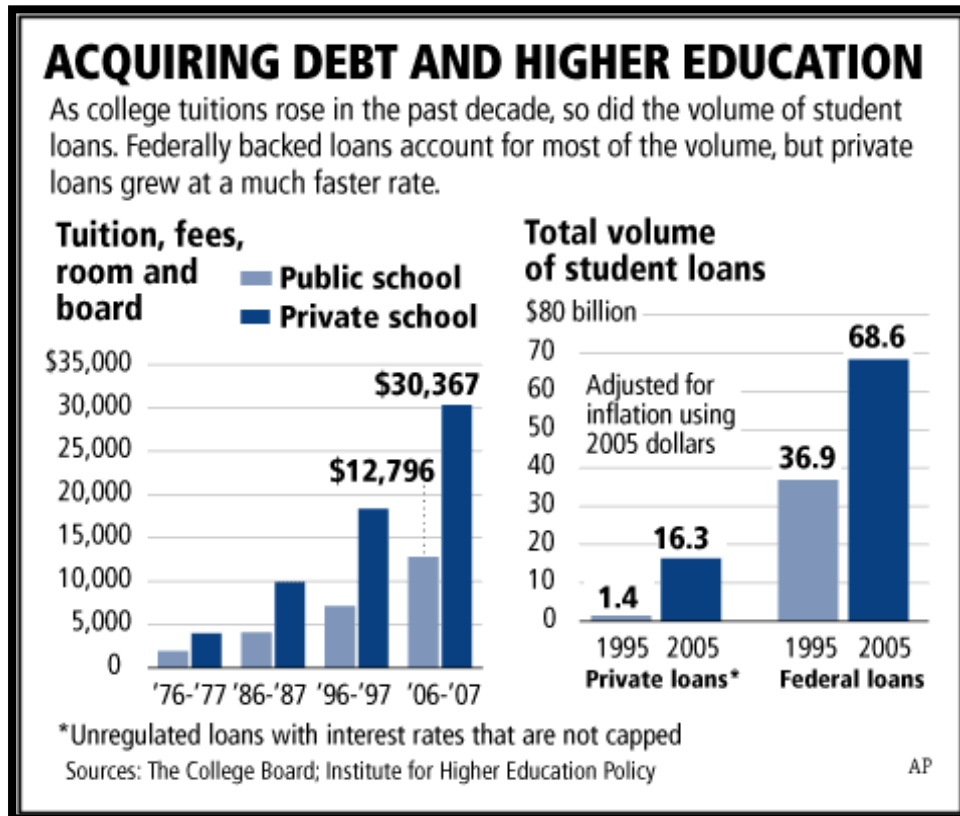
*Senior Capstone Project for Andrew McLeod*

---

**APPENDICES**

Appendix A – Charts and Graphs

Figure 1-A.



*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

---

Figure 2-A

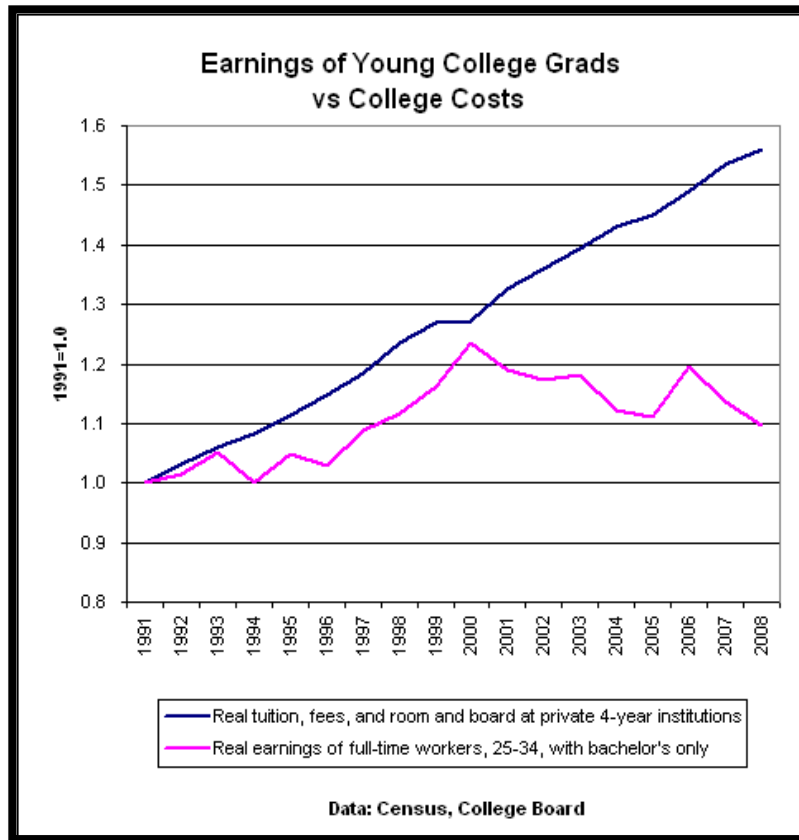
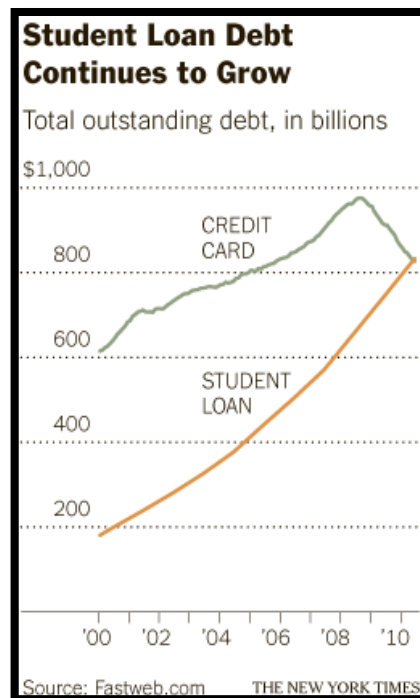


Figure 3-A



*Given credit management behavior, what effect does educational debt have on mortgage approval timetables?*

*Senior Capstone Project for Andrew McLeod*

Figure 4-A

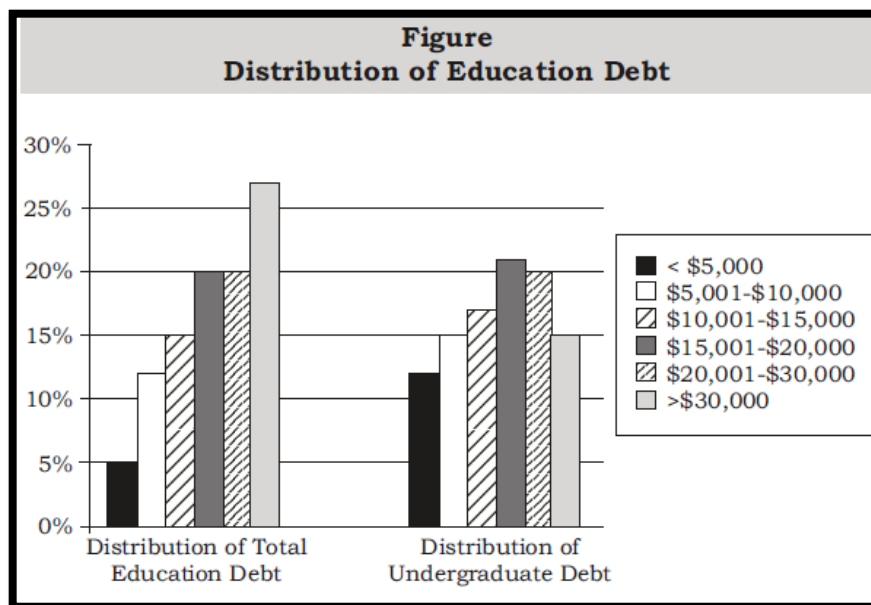


Figure 5-A

**TABLE 1**

**Mean Tuition (Constant Dollars) for Students in Independent 4-Year Institutions, 1992–2000**

	1992–93	1993–94	1994–95	1995–96	1996–97	1997–98	1998–99	1999–00	2000–01
FTE Tuition and Fees	\$13,058	\$13,307	\$13,708	\$12,580	\$13,671	\$14,771	\$15,270	\$15,770	\$16,065
FTE Tuition and Fees (adjusted for institutional aid)	\$10,287	\$10,378	\$10,593	\$9,665	\$10,537	\$11,412	\$11,520	\$11,922	\$12,146
FTE Tuition and Fees (adjusted for all aid)	\$ 9,213	\$ 9,382	\$ 9,618	\$ 8,876	\$ 9,612	\$10,356	\$10,236	\$10,668	\$10,889

Source: IPEDS: 1992–2000.

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

**Appendix B- Survey Questions and Data Charts**

Welcome to the Faculty, Staff, and Alumni Credit Behavior Quiz

Please Read the displayed "Survey Consent Form" and check the box below if you accept the terms of this survey.

Survey Consent Form

1. Statement of purpose

You are invited to participate in the study "Under certain credit behavior patterns, what effect does educational debt have on mortgage approval timetables?". We hope to learn the long term effects of educational debt on the time between higher education graduation and mortgage approval. You were selected as a possible participant in this study because you are a Bryant alumni, Bryant faculty member, or Bryant staff member. This survey asks post-grad members of our community and about their educational debt experience.

2. Description, Including Risks and Benefits

If you decide to participate, we will conduct an experiment involving the following procedures: This survey will ask you information regarding level of educational debt, your mortgage approval experience, and your credit card behavior. This survey should take less than fifteen minutes (if required to research appropriate data). Your participation will greatly expand our community's knowledge of educational borrowing and will help prevent poor future financial decisions for upcoming higher-education students.

3. Confidentiality

Any information obtained in connection with this study will remain confidential and will not be disclosed to the general public in a way that can be traced to you. In any written reports or publications, no participant other than the researchers will be identified, and only anonymous data will be presented

This consent form, with your signature, will be stored separately and independently from the data collected. The online survey data will be coded and the identifying information associated with this survey will be stored in a locked cabinet, separate from the survey results, to avoid loss of anonymity.

4. Statement that Participation Is Voluntary

Your participation is totally voluntary, and your decision whether or not to participate will not affect your future relations with Bryant University or its employees in any way. If you decide to participate, you are also free to discontinue participation at any time without affecting such relationships. However, it is requested that you notify the investigator of this.

5. Persons to Contact

If you have any questions, please contact:



***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

Andrew McLeod, 978-302-6527, Amcleod1@bryant.edu

Professor Elizabeth Yobaccio, byobacci@bryant.edu, (401) 232-6460.

Professor Tony Houston, thouston@bryant.edu, (401) 232 6816

If you have any additional questions later, we will be happy to answer them. You can have a copy of this form to keep.

**6. Signature Indicating Informed Consent**

Please sign below if you have decided to participate. Your signature indicates only that you are at least 18 years of age and have read the information provided above. Your signature does not obligate you to participate, and you may withdraw from the study at any time without consequences.

1. What is your gender
  - a. Male
  - b. Female
2. Mark the number of children you have.
  - a. 1
  - b. 2
  - c. 3
  - d. 4
  - e. 5
  - f. 6+
3. What is your Race?
  - a. White
  - b. African American
  - c. Hispanic
  - d. Asian
  - e. Native-American
  - f. Prefer Not to Disclose
4. What is your family's gross family income?

0-\$69,999

  - a. \$70,000-\$99,999
  - b. \$100,000-\$129,999
  - c. \$130,000-\$159,999
  - d. \$160,000-\$189,999
  - e. \$190,000-\$219,999
  - f. \$220,000+
  - g. Prefer not to disclose

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

5. Did you complete higher education? (Associates, some college, or professional certification accepted)
  - a. Yes
  - b. No
6. What was the highest level of education you achieved?
  - a. Some college
  - b. Associates
  - c. Bachelors
  - d. Masters
  - e. PHD or Doctorate
  - f. Professional Certification
7. Year of Highest Education Graduation (YYYY): Fill in Box  
Month of Highest Education Graduation (MM): Fill in Box
8. What was your marital status upon your highest education graduation?
  - a. Single
  - b. Married
  - c. Divorced
  - d. Civil Partnership
  - e. Other (Please specify)
9. What was your level of educational debt upon graduation from your highest level of education?
  - a. \$1-\$6,999
  - b. 7,000-\$13,999
  - c. \$14,000-\$20,999
  - d. \$21,000-\$27,999
  - e. \$28,000-\$34,999
  - f. \$35,000-\$41,999
  - g. \$42,000+
10. In what field did your highest education focus in?
  - a. Technical
  - b. Liberal Arts
  - c. Business
  - d. Internet technology
  - e. General studies
  - f. Other (Please specify)
11. Do you currently hold or have ever held a mortgage?
  - a. Yes
  - b. No
12. Did you purchase this mortgage while you were completing your highest level of education?
  - a. Yes
  - b. No
13. What was the size of your first mortgage?
  - a. 1\$- \$60,000
  - b. \$60,001-\$120,000
  - c. \$120,001-\$180,000

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

- d. \$180,001-\$240,000
  - e. \$240,001-\$300,000
  - f. \$300,001-\$360,000
  - g. \$360,001-\$420,000
  - h. \$420,001+
14. What was the year of your first mortgage? (YYYY): Fill in Box  
What was the month of your first mortgage? (MM): Fill in Box
15. What was your marital status upon your first mortgage approval?
- a. Single
  - b. Married
  - c. Divorced
  - d. Civil partnership
  - e. Other (Please specify)
16. What was your family's gross family income upon mortgage approval?
- a. 0-\$69,999
  - b. \$70,000-\$99,999
  - c. \$100,000-\$129,999
  - d. \$130,000-\$159,999
  - e. \$160,000-\$189,999
  - f. \$190,000-\$219,999
  - g. \$220,000+
  - h. Prefer not to disclose
17. What was the institutional source of your first mortgage?
- a. Federal Housing Administration (Government Sponsored Mortgage)
  - b. Veteran's Administration
  - c. Conventional (Traditional Bank Source)
  - d. Personal Loan
  - e. Other (Please specify)
18. How many times were you denied before receiving your first mortgage approval?
- a. 0
  - b. 1
  - c. 2
  - d. 3
  - e. 4
  - f. 5+
19. What were the terms of your first mortgage?
- a. Variable Rate
  - b. Fixed Rate
20. What type of broker issued your first mortgage?
- a. Conventional
  - b. Online
  - c. Personal lender
  - d. Other (Please specify)
21. What was the size of your down-payment? (As percentage of the mortgage amount)

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

- a. 0%-5%
  - b. 6%-10%
  - c. 10%-15%
  - d. 16-20%
  - e. 20-25%
  - f. 25%+
  - g. Other (Please specify a percentage)
22. How many credit cards do you currently own?
- a. 0
  - b. 1
  - c. 2
  - d. 3
  - e. 4
  - f. 5
  - g. 6+
23. Do you know your current FICO score? (Within a 20 point range)
- a. Yes
  - b. No
24. What statement typically describes your credit card payment behavior?
- a. I always make full payment each
  - b. I sometimes make full payment
  - c. I never make full payment
  - d. I usually pay the monthly minimum
25. What typically describes your exposure to late/ over limit fees on your credit cards?
- a. I have never been charged a late/ over limit fee
  - b. I am rarely charged a late/ over limit fee
  - c. I am charged less than two late/ over limit fees per year
  - d. I am charged between two and four late/ over limit fees per year
  - e. I am charged monthly late/ over limit fees per year
  - f. I am routinely charged late/ over limit fees by my credit card company
26. What typically describes the rate credit card companies charge you? (Not including introductory rates)
- a. 0%-3%
  - b. 4%-6%
  - c. 7%-9%
  - d. 10%-12%
  - e. 13%-15%
  - f. 16%-18%
  - g. 20%+
27. Have you ever had an interest rate increase? (Excluding introductory rates)
- a. Yes
  - b. No
  - c. Not Sure

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

**REFERENCES**

Allbusiness.com. (n.d.). *Ten Key Factors When Applying for a Mortgage Loan*. Retrieved from Small Business Resources: <http://www.allbusiness.com/personal-finance/real-estate-mortgage-loans/3409>

Attridge, E. (2008). What Determines the Amount Students Borrow? Revisiting the Crisis-Convenience Debate. *The Journal of Student Financial Aid* (38), 1.

Banchero, S. (2010, October 28). Tuition, Pell Grants Rise in Tandem. *Wall Street Journal* .

Baum, S. &. (2003). College on Credit: How Borrowers Perceive Their Education Debt. *NASFAA Journal of Student Financial Aid* , 33 (3).

Boyd, L. A. (1997). The Impact on Minority Defaults in the Stafford Loan Program. *Review of Economics and Finance* .

Brill, M. (2007, January). *The College Savings Chasm*. Retrieved from The Investment News Magazine: <Http://www.fa-mag.com/component/content/article/1-features/1569.html>

Case, J. (2009). What Matters in Student Loan Default: A Review of the Research Literature. *The Journal of Student Financial Aid* , 39 (1), 30-39.

Clark, K. (2011, March 15). *US News Online*. Retrieved from 6 Hopeful and 4 Scary Trends for Grad School Grants: <http://www.usnews.com/education/best-graduate-schools/top-graduate-schools/paying/articles/2011/>

Doctor Housing Bubble Blog. (2011, October). *DoctorHousingBubble.com*. Retrieved from The Twin Bubbles of Housing and Higher Education.

Ferreras, A. (2012). *Student Loans Always Are Due, No Matter How Long Overdue*. Retrieved from LoanSafe- Home Loans, Personal Loans and Mortgage Rates: <Http://www.loansafe.org/>

Freddie Mac. (n.d.). *Primary Mortgage Market Survey PMMS*. Retrieved from [www.Freddiemac.com/pmms/](http://www.Freddiemac.com/pmms/)

Gorden, M. (2011). *US College Students Buried Under Debt*. Retrieved January 20, 2011, from [SeattlePi.com: http://www.seattlepi.com/national](http://www.seattlepi.com/national)

John Lee. (2003). Why are College Prices Increasing and What should we do about it? *National Education Association* , 9 (5).

Millett, C. M. (2033). How Undergraduate Loan Debt Affects Application and Enrollment in Graduate or First Professional School. *The Journal of Higher Education* , 74 (4), 386.

***Given credit management behavior, what effect does educational debt have on mortgage approval timetables?***

***Senior Capstone Project for Andrew McLeod***

---

*Mortgage-X- Everything There Is To Know About Mortgage Loans.* (n.d.). Retrieved from How Much Can You Afford to Borrow?: <http://mortgage-x.com/library/h-much-a.htm>

My Fico. (n.d.). *About Credit Scores.* Retrieved from MyFico.com:  
<http://www.myfico.com/crediteducation/creditscores.aspx>

Nefer, B. (2010). *The Impact Of A Long-term Debt On A Credit Rating.* Retrieved January 2, 2010, from LiveStrong.com.

*NLREG.com.* (n.d.). Retrieved from Introduction to Regression Analysis:  
<http://www.nlreg.com/intro.htm>

Pilon, M. (n.d.). *College Graduates Facing Mounting Debt, Rising Unemployment- Real Time Economics.* Retrieved January 15, 2011, from Wall Street Journal Blogs.

Price, D. V. (2004). Educational Debt Burdens Among Student Borrowers. *Research in Higher Education* , 45 (7), 701.

Rosenthal, M. (n.d.). *How to Calculate Mortgage Payments.* Retrieved January 25, 2011, from Foner Books- Publishing Books and Ebooks For Do-It-Yourself:  
<http://www.fonerbooks.com/interest.htm/>

Rouse, D. (n.d.). *Documents Need for Mortgage Preapproval.* Retrieved February 13, 2012, from Home Guides, SF Gate. Demand.Media: <http://homeguides.sfgate.com/documents-needed-mortgage-preapproval-7708.html>

The Education Resources Institute. (1997, September 10). Institute for Higher Education Policy Symposium. *Student Loan Debt: Problems and Prospects* .

The Project on Student Debt. (2006). *Quick Facts about Student Debt.* Retrieved from US Department of Education:  
[http://projectonstudentdebt.org/files/file/debt\\_facts\\_and\\_Sources.pdf](http://projectonstudentdebt.org/files/file/debt_facts_and_Sources.pdf)

Touryalai, H. (2012). *Student Debt: The Next Financial Crisis?* Retrieved from Forbes Magazine: <http://www.forbes.com/sites/halahtouryalai>

USA Today. (n.d.). *Tips For The New College Graduate.* Retrieved January 18, 2011, from Society for the Advancement of Education: <http://findarticles.com/p/articles/>

Willis, B. (2012, February 23). *Student Debt is Stifling Home Sales.* Retrieved from Bloomberg Businessweek: <http://www.businessweek.com/magazine/student-debt-is-stifling-home-sales-02232012.html>