

Are Concerns about Repaying Student Loan Debt Related to Health Status Rankings?

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Abstract

Student loan repayment concerns are influenced by marital status, income levels, race, and levels of financial literacy but not by age, area of residence, household size, work status, or gender. Students who are single, live in higher-income households, are non-African Americans, or are more financially literate are less likely to have repayment concerns. The negative and statistically significant coefficient for payoff suggests that borrowers who worry about repaying their student loan debts are less likely to rank their health as very good or excellent. Consequently, loan repayment concerns adversely affect how students rank their overall health status.

Keywords: binomial and ordered logit models, financial stress, health status, loan repayment, student loan debt

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Introduction

Data from the Federal Reserve Bank of New York (2018) indicate that, as of September 30, 2018, student loan debt stood at \$1.44 trillion, the long-term delinquency (90+ days late) rate at 11.53%, and the new delinquency (30+ days late) rate at 9.21%. These delinquency rates imply that some borrowers experience difficulties repaying their student loan debt, and this could impact their overall health status. This inference is drawn from a 2017 survey of student loan borrowers in which more than 61% of these borrowers expressed some repayment concerns and more than 70% indicated that they were suffering from headaches, insomnia, anxiety, and social isolation due to the stress associated with the repayment of their student loan debt (Insler, 2017).

A consensus is now emerging among researchers that debt contributes to financial stress and that rampant stress affects the health and well-being of adults and young adults alike. In general, stress affects the nervous system, sleep, heart, and memory; elevates blood pressure levels; causes hair loss and changes in skin health; and worsens self-reported general health status (Sweet et al., 2013; Dilmaghani, 2017). When financial stress is added to the mix, self-rated health status falls. Choi (2009) agrees that financial stress adversely affects health and well-being; increases incidences of headaches, backaches, and ulcers; and elevates blood pressure and anxiety, among others. Chronic financial stress can also cause workplace absenteeism, affect workplace performance, or lead to depression. Choi (2009) also suggests that debt stress affects children and young adults, especially those from low-income families, who can become trapped in a perpetual cycle of poor health.

Financial illiteracy is very high in the general population, but it is more rampant among young adults. Thus, it is no surprise that many college students borrow more money than they need and, in some instances, underestimate how much they owe (Andruska et al., 2014). Consequently, more college students are reporting that they are under financial stress because of their student loan debt and the challenges in meeting their debt obligations (Walsemann, Gee, and Gentile, 2015). Research also suggests that students with high levels of financial stress are more likely to drop out of college before completing their academic programs (Britt et al., 2017). Other researchers have documented the long-term negative effects of student loan debt on career, marriage, and wealth accumulation, among others (Sieg and Wang, 2018). Zhang, Xiang, and Elliott (2016) indicate that educational loans negatively affect post-college net worth, financial and nonfinancial assets, and the value of primary housing. These effects are seen most strongly in young black adults.

For several decades, college costs have outpaced income growth. Many students and their families have had to use student loans to finance college. The situation worsened with the 2008 Financial Crisis and recession because many state governments were forced to make drastic cuts to higher education funding so that they could balance their budgets. As a result, colleges and universities were forced to shift more of their operating costs to students and their families by raising tuition and fees. During the recession, many displaced workers enrolled in college to improve their skill sets and career prospects, which led to additional increases in tuition and fees. Today, educational loans have become the primary way to pay for college, and an estimated 45 million Americans have student loan debt (Federal Reserve Bank of New York, 2018).

Because of the rapid increases in educational costs, student loan delinquency and default rates, and self-reported financial stress levels among college students, we designed our research project

around financial literacy. Our main goal is to provide baseline data on undergraduate students' levels of financial literacy and related issues so that we can provide them with a few key tools and resources to expand their literacy levels and improve their money management skills and health status.

Objectives

The study's primary objectives are to (i) describe the relationship between concerns about repaying student loan debt and self-reported rankings of health status; (ii) examine the role that sociodemographic characteristics and financial literacy play on student loan repayment concerns; and (iii) determine whether selected sociodemographic characteristics and repayment concerns affect health status rankings.

Methods and Procedures

The study's data were derived from a 2015 survey of 499 undergraduate students. For this paper, we analyzed the presence of student loan debt, student loan repayment concerns, self-assessments of health status and levels of financial literacy, sociodemographic characteristics, financial behavior, and performance on a financial literacy quiz. We used Pearson correlation and the χ^2 test for independence to analyze the strength of the relationship between repayment concerns and health status rankings and discrete choice modeling techniques to estimate the multivariate models.

The response category for loan repayment concerns was binary; therefore, we used a binomial logit regression model to analyze the relationships between the dependent variable, PAYOFF, and the selected independent variables: AGE, LIVE, HSIZE, STATUS, INCOME, WORK, RACE, GENDER, and SCORE. The health ranking variable, HEALTH, initially had five response categories—poor, fair, good, very good, and excellent—but these were collapsed into three categories: poor/fair, good, and very good/excellent. We used an ordered logit regression model to analyze the relationships between the dependent variable, HEALTH, and selected independent variables: LIVE, HSIZE, WORK, RACE, GENDER, KNOW, BUDGET, and PPAYOFF. Because of our hypothesis that payoff concerns affect health, we used the predicted values from the payoff model (PPAYOFF) as an instrumental variable in the HEALTH model. The variables, their definitions, and summary statistics are presented in Table 1.

Empirical Results and Discussion

Of the 499 students sampled, 360 (72%) reported having student loans and 184 (51%) reported having student loan debt repayment concerns. The estimated Pearson correlation coefficient is -0.123 and is statistically significant at the 1% level of probability (Table 2). Thus, a negative linear relationship exists between payoff concerns and students' rankings of their overall health status. This finding is reinforced by the χ^2 test for independence between the two variables in Table 3. The statistically significant χ^2 coefficient (7.585) implies that the two variables are dependent and that students who express payoff concerns are less likely to rank their health status as good, very good, or excellent.

Table 1. Variables, Definitions, and Summary Statistics

| Variables | Definitions | Summary Statistics |
|-------------|--|--------------------|
| Independent | | |
| AGE | Average age of participants in years | 20 |
| LIVE | Lives on campus = 1; lives off campus = 0 | 51% |
| HSIZE | Median number of persons living at participants' permanent address | 3 |
| STATUS | Single, never married = 1; otherwise = 0 | 97% |
| INCOME | Family's total household income: <\$15,000 = 1; | 22% |
| | \$15,000–\$34,999 = 2; | 30% |
| | \$35,000–\$49,999 = 3; | 22% |
| | ≥\$50,000 = 4 (reference variable) | 26% |
| WORK | Working = 1; otherwise = 0 | 47% |
| RACE | African American = 1; otherwise = 0 | 93% |
| GENDER | Male = 1; female = 0 | 39% |
| SCORE | Percentage earned on financial quiz | 38% |
| KNOW | Level of financial knowledge: Poor = 1 | 6% |
| | Fair = 2 | 37% |
| | Good = 3 | 41% |
| | Very good = 4 | 12% |
| | Excellent = 5 | 4% |
| BUDGET | Uses a monthly budget: yes = 1; no = 0 | 36% |
| PPAYOFF | Predicted probabilities from the payoff model | |
| Dependent | | |
| HEALTH | Poor/fair = 0; | 16% |
| | Good = 1; | 33% |
| | Very good/excellent = 2 | 51% |
| PAYOFF | Student loan repayment concerns: yes = 1; no = 0 | 37% |

Table 4 presents results from the binomial logit model. Six of the selected variables have statistically significant coefficients, suggesting that they are likely to affect students' concerns about repaying their student loans. Participants who are single are 25 percentage points less likely to indicate repayment concerns compared to students who are not single. Students whose household incomes range from less than \$15,000 to \$49,999 have greater levels of repayment concerns than those from households with income levels of at least \$50,000. African American students are 2.637 times more likely to indicate repayment concerns compared to non-African American students. The greater the level of financial literacy (SCORE), the lower the likelihood of having payback concerns. The model predicts 65% of observations correctly and is statistically significant at the 1% level of probability. Based on the statistically significant χ^2 coefficient ($\chi^2 = 44.567$), the model fits the data well.

Table 2. Correlation between Student Loan Repayment Concerns and Health Status Rankings

| Variables | PAYOFF | HEALTH | p-Value |
|-----------|-----------|-----------|---------|
| PAYOFF | 1 | -0.123*** | 0.006 |
| HEALTH | -0.123*** | 1 | |

Note: Triple asterisks (***) indicate statistical significance at the 1% level.

Table 3. Cross-Tabulations between Loan Repayment Concerns and Health Status Rankings

| Variables | PAYOFF | | χ^2 | p-Value |
|---------------------|--------|----|----------|---------|
| | Yes | No | | |
| PERCENTAGES | | | | |
| TOTAL | 37 | 63 | | |
| HEALTH | | | | |
| Poor/fair | 49 | 52 | | |
| Good | 39 | 61 | | |
| Very good/excellent | 32 | 68 | 7.585** | 0.023 |

Note: Double asterisks (**) indicate statistical significance at the 5% level.

Table 4. Binomial Logit Model's Results for Payoff Concerns

| Variables | Estimated Coefficients | Standard Error | Wald | p-Value | Exp(β) |
|-----------------------|------------------------|----------------|--------|---------|----------------|
| CONSTANT | -0.341 | 1.304 | 0.069 | 0.793 | 0.711 |
| AGE | 0.060 | 0.038 | 2.468 | 0.116 | 1.062 |
| LIVE | 0.106 | 0.218 | 0.238 | 0.626 | 1.112 |
| HSIZE | -0.061 | 0.069 | 0.783 | 0.376 | 0.941 |
| STATUS | -1.369* | 0.698 | 3.839 | 0.050 | 0.254 |
| INCOME | | | | | |
| <\$15,000 | 1.219*** | 0.300 | 16.474 | 0.000 | 3.385 |
| \$15,000-\$34,999 | 0.851*** | 0.285 | 8.901 | 0.003 | 2.341 |
| \$35,000-\$49,999 | 0.891*** | 0.306 | 8.493 | 0.004 | 2.437 |
| WORK | 0.245 | 0.212 | 1.333 | 0.248 | 1.277 |
| RACE | 0.970** | 0.462 | 4.400 | 0.036 | 2.637 |
| GENDER | 0.066 | 0.203 | 0.106 | 0.744 | 1.068 |
| SCORE | -0.020** | 0.010 | 4.500 | 0.034 | 0.980 |
| Likelihood ratio test | | | | | |
| χ^2 (11) | 44.567*** | | | 0.000 | |
| Correctly predicted | 65% | | | | |

Note: Single, double, and triple asterisks (*, **, ***) indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Self-rated health status is influenced by area of residence, race, level of financial knowledge, and repayment concerns (Table 5). Students living on campus are less likely to rank their health status as poor or fair compared to students living off campus. Non-African American students are more likely to think of themselves as being in very good or excellent health. Those who ranked their level of financial knowledge as good, very good, or excellent are more likely to rank their health status higher. The negative and statistically significant coefficient for the instrumental variable, PPAYOFF, implies that rankings of overall health status decrease as repayment concerns increase. The statistically significant χ^2 coefficient (24.004) implies that the overall predictive capacity of the model is good. The statistically insignificant χ^2 coefficient suggests that the slope coefficients are the same across response categories.

Table 5: Ordered Logit Model's Results for Health Status Rankings

| Variables | Estimated Coefficients | Standard Error | Wald | p-Value |
|------------------------|------------------------|----------------|-------|---------|
| LIVE | -0.342* | 0.187 | 3.347 | 0.067 |
| HSIZE | -0.058 | 0.063 | 0.859 | 0.354 |
| WORK | -0.185 | 0.190 | 0.949 | 0.330 |
| RACE | -0.865** | 0.363 | 5.686 | 0.017 |
| GENDER | 0.253 | 0.182 | 1.940 | 0.164 |
| KNOW | 0.269*** | 0.100 | 7.316 | 0.007 |
| BUDGET | 0.043 | 0.187 | 0.053 | 0.819 |
| PPAYOFF | -2.116*** | 0.719 | 8.655 | 0.003 |
| Likelihood Ratio Test | | | | |
| $\chi^2(8)$ | 24.004*** | | | 0.002 |
| Test of Parallel Lines | | | | |
| $\chi^2(8)$ | 7.995 | | | 0.434 |

Note: Single, double, and triple asterisks (*, **, ***) indicate statistical significance at the 10%, 5%, and 1% levels of probability.

Conclusions

Because of changes in the job market, many working Americans are now totally responsible for all financial decisions pertaining to their retirement and healthcare. However, very few have the knowledge to navigate the increasingly complex world of finance. Concurrently, increases in college and healthcare costs continue to outpace income growth, forcing more consumers to use debt to finance household obligations, particularly college. However, many students and their families do not fully understand the ramifications of student debt, and a sizable number of borrowers are now stressed by their debt loads. Student loan debt has been trending upwards, but levels of financial literacy have not risen accordingly.

Louisiana residents have never had stellar track records for health status or levels of financial literacy. Our study examined the link between students' loan repayment concerns, their perceptions of their overall health status, and factors associated with both. The results suggested that marital status, income, race, and level of financial literacy influenced loan repayment concerns

and that payback concerns negatively affected health status rankings. These results mirror those from the literature with respect to financial stress, health, and health-related illnesses. Student loan debt and rising healthcare costs will eventually affect U.S. economic growth. These trends must be reversed. Financial illiteracy is at an all-time high, financial products have become more complex, and we are now responsible for more of our healthcare and financial decisions. We in higher education must increase our knowledge of personal financial matters and help our students become more financially savvy, which, in turn, may lower their stress levels about money and lead them to adopt healthier lifestyles.

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