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Student loan debt: A problem-based learning activity for introductory economics students

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ABSTRACT

Student loan debt and delinquency is a mounting problem among college graduates. To show students the consequences of debt-financing their education in an economic context, the author describes a collaborative problem-based learning activity designed for small, introductory economics courses. The activity has three parts: an introduction to the current statistics and trends on student loan debt, a postmortem analysis of three fictitious borrowers, and a pre-mortem analysis of the student's education, career plan, and financial goals. The activity applies economic topics including pre- and postmortem analysis, financial literacy, and opportunity cost and tradeoffs. Pre- and post-activity survey results find evidence of students improving their knowledge of their own student loan debt situation, salary outlook, and the repayment plans available to them post-graduation.

KEYWORDS

active learning; financial literacy; problem-based learning; student loan debt

JEL CODES

A22; D31; I26

The majority of college graduates in the United States leave university with not only a college degree, but an increasingly high student loan debt balance to pay off in the following years (TICAS 2019). Many of these graduates are underprepared with the financial literacy skills to pay off their loans and make informed financial decisions that set them up for long-term financial stability. I propose an activity for economics students to explore the consequences of using student loans to finance a college education and learn and apply financial and economic literacy skills, mainly budgeting and cost-benefit analysis. The activity uses a collaborative problem-based pedagogy and has three parts: an introduction to the current statistics and trends on student loan debt, a postmortem analysis of three fictitious borrowers, and a pre-mortem analysis of the student's education, career plan, and financial goals.

Background

Student loan debt in the United States

Student loan debt and delinquency is a mounting problem among American millennials. According to the Federal Reserve Bank of New York, student loan debt totaled \$1.48 trillion in Q2 2019, up from \$1.41 trillion one year ago in Q2 2018.¹ More than one in four adults have student loan debt, most of whom are under the age of 60 (Federal Reserve Bank of New York 2019). In 2016, the average payment for these borrowers was \$393, up from \$227 in 2005 (Federal Reserve Bank of Cleveland n.d.). However, debt levels vary considerably by degree. Among borrowers with bachelor's degrees, the median amount owed is \$25,000, but among

borrowers with a graduate degree, the median amount owed is \$45,000. High debt-level borrowers with at least \$100,000 in outstanding debt make up 7 percent of borrowers, which is about 1 percent of the adult population (Cilluffo 2017).

After a six-month grace period post-graduation, and unless a borrower is eligible for federal loan deferment or forbearance, borrowers choose one of seven repayment plans that differ by term, monthly payment, and the borrower's current income level. And while some borrowers may have planned to apply for the Public Student Loan Forgiveness program, the U.S. Department of Education reports that more than 99 percent of applicants have been denied forgiveness. In a December 2018 report, the department confirms that only 640 borrowers have received loan forgiveness out of 132,000 processed applications.

Many borrowers struggle to keep up with their student loan payments. The student loan delinquency rate, defined as the percent of borrowers with aggregate student loan debt that is 90+ days delinquent or in default, has hovered around 11 percent from 2013 to 2019. Student loan debt not only affects a borrower's credit, but it's also correlated with lower homeownership rates at every level of education, and among college graduates, borrowers with high debt balances have even lower rates than borrowers with no or low debt balances (Federal Reserve Bank of New York 2019). When questioned about the value of their degree, only half (51%) of young adults between 25 and 39 years old with student loan debt say that the lifetime value of their degree outweighs the costs (Cilluffo 2017).

Student loan debt statistics vary widely by the type of school the borrower attends. The trends are most troubling among for-profit universities. In 2016, 66 percent of graduates from public four-year universities had loans with an average debt of \$26,900. Among private nonprofit universities, 68 percent of graduates had loans with an average debt of \$31,450. For-profit universities turn out 83 percent of graduates with loans of a staggering \$39,900 average debt (TICAS 2019). Not only do for-profit universities impose the highest levels of debt, but they also have the lowest graduation rates and highest student debt default rates relative to nonprofit universities (Howarth and Stifler 2019).

Financial literacy

The problem of student loan debt prompts the question: how are we preparing our next generation of college graduates with personal finance skills to manage the mounting student loan debt ahead of them? While the topic is covered in first and secondary education curriculum with varying results (Blue, Grootenboer, and Brimble 2014), continuing financial literacy education in the college curriculum is essential. Steven Bahls, Augustana College President, raises the issue as a top priority among college graduates and proposes some solutions from a liberal arts college perspective (Bahls 2011). One solution is a personal finance course for college students covering economic literacy topics in budgeting, credit, savings and investing, and buying a home.² Another solution is to engage parents in financial aid counseling with the expectation that they will continue the conversation at home with their child. While these strategies may help, they both have shortcomings. For example, a personal finance course is often an optional elective and overlooked by students with credit-heavy majors. And relying on parents to educate their children on economic literacy topics can work, but of course only when parents have a good working knowledge of credit, meet their own financial goals, and are aware of their child's future debt obligations and career opportunities.

To better reach a large number of students, personal finance topics can be added to introductory economics courses, which many students take as part of their core curriculum regardless of their major. In fact, the vast majority of students taking an introductory course have majors outside of the economics major, with an estimated 40 percent of college students taking at least one (principles) economics course (Allgood, Walstad, and Siegfried 2015). When personal finance

topics are added to an introductory economics course, there are various opportunities to teach the topics using alternative pedagogies. The economic education literature has thoroughly applauded the use of active-learning pedagogies that depart from “chalk and talk” lecture-style teaching (Salemi and Walstad 2010; Hoyt and McGoldrick 2012). Active learning engages students in applied economic topics, which may be especially helpful for noneconomics majors in introductory courses. The activity discussed in this article uses the problem-based learning pedagogy described below to expose students to applications of decision-making, tradeoffs, budgeting, and post- and pre-mortem analysis.

Problem-Based learning

Problem-based learning (PBL) is an active-learning and teaching approach that originated in medical and health sciences and has since expanded to other fields, including engineering and business (Ribeiro 2011). Limited research documents the use of PBL in economics instruction.³ The methodology can be applied to an entire course curriculum or parts of the curriculum to complement a lecture-based curriculum. At its core, the method is student-centered, whereby instructors assign a complex and authentic problem to apply course content. Students engage in self-directed research and work in teams to construct solutions to the problem. According to the Center for Teaching and Learning at Stanford University (2001), PBL problems should be open-ended, contain multiple solution paths, and require collaboration.

Both the instructor and students may be unfamiliar with the PBL pedagogy. The problem’s design is adapted as the instructor administers the activity to new groups of students and revises the problem based on student feedback and current events related to the problem. In addition to the problem, the instructor is responsible for fostering a learning environment that encourages agility and experimentation so that mistakes are viewed as learning opportunities and not failures. Instructors regularly check-in with student groups to course-correct their work and provide feedback. Another option is to pair groups up to compare work and provide peer-feedback.

In contrast to teaching students to memorize a fixed body of knowledge, PBL offers an attractive alternative to learning both content and transferrable skills. The method requires students to work in teams, which is correlated with improved student learning objectives, higher engagement, and independent thinking among introductory economics students (Imazeki 2015; Odell 2018). Moreover, the benefits of PBL directly align with the types of post-graduation skills students need to succeed in their careers, e.g., problem-solving, critical thinking, and effective communication and collaboration. Regrettably, universities have largely failed to adapt their “teach to the test” methods to keep up with these skills (Davidson 2017). In her 2017 book, *The New Education*, Davidson argues universities must implement student-centered, active-learning methods that value creativity and soft skills if they aim to prepare students for career success. Numerous studies support the importance of soft skills and critical thinking skills.⁴

To show students the consequences of debt-financing their education in an economic context, the section below describes a problem-based learning activity designed for introductory economics students. It teaches students a relevant, applicable topic that is rooted in economics and particularly relevant to students with limited knowledge of personal finance.

Method

Introduction

The following sections describe how to set up and implement the activity. See appendix A for a student handout on the activity description. The activity requires about one week of in-class time and, in total, spans about two weeks, depending on the instructor’s time to grade and return the

students' work. The method described below is designed for a small class of up to 25 students. While the activity could certainly be scaled up to meet the needs of a larger class, the instructor may need to adapt the activity's method or assessment as needed. Modifications to scale the activity are suggested in the "Assessment" section below.

The activity has three parts. The first two parts are designed for students to complete in groups of two to four students; however, they also can be completed individually. Ideally, the instructor uses one long class period or two short or partial class periods for group work. The third part is strictly an individual assignment. Once graded and returned, part of an in-class period should be used to debrief the activity. I suggest assigning the activity in the middle part of the semester (perhaps after a midterm exam), but it also can be assigned near the end of the semester. At this point, students can draw from topics covered in the first part of the semester, including opportunity costs/tradeoffs in decision-making, the correlation between human capital and productivity, and labor economics.⁵ I find that implementing PBL and other types of active learning helps reengage the class, particularly students who struggle with the traditional textbook material.

Part one: Introduction to post- and Pre-mortem methods and status of student loan debt in the United States

Begin by explaining the expectations of a problem-based learning activity. Students should expect to engage in a complex problem that requires self-directed research and multiple iterations to their solutions. They should not expect to find quick, one-size-fits-all solutions with little inquiry or experimentation.

Next, define post- and pre-mortem analysis. Postmortem is Latin for "after death." In medicine, the term refers to the examination or process that takes place after death. In business, a postmortem refers to the analysis that takes place after a finished event, such as a completed project or release of a new feature. The analysis answers the question, "What went wrong and why?" A pre-mortem is the hypothetical opposite of a postmortem, where the discussion of what *could* go wrong happens at the beginning of a project. It assumes the project failed, and the discussion generates plausible reasons for its failure (Klein 2007). The analysis answers the question, "What could go wrong and how do we prevent it?"

Next, motivate the problem of student loan debt, particularly among millennial college graduates. Current trends and statistics are available from numerous sources, e.g., the Federal Reserve, Pew Research Center, and consumer Web sites such as Student Loan Hero, Nerd Wallet, and Learn Vest. Sort students into small groups of two to four students and review the part one discussion questions in the student handout. Groups embark on self-directed research to investigate current trends and statistics in student loan debt among millennials, as well as the effect of student loan debt on economic well-being, e.g., household debt, homeownership, and consumer credit. They also research federal loan repayment plans to compare eligibility requirements and tradeoffs between the plan's total interest paid, payment terms, and monthly payment caps. The majority of this work will likely be completed outside of class time.

Part two: Postmortem

Now that students have a base knowledge of the problem, some of its consequences, and the repayment options available to borrowers, they construct a postmortem analysis for three fictitious borrowers. The student handout describes scenarios for these borrowers—Jessica, Sam, and Zach—three college graduates who debt-financed their education and now work in their chosen fields. Note that the financial information for each borrower is intentionally incomplete.

For each borrower, groups work through a process to examine the borrower's decisions and consequences. First, they design a monthly budget for the borrower and estimate a reasonable student loan payment.⁶ Doing this helps the group select the borrower's optimal repayment plan, which they use to calculate their monthly payment and total repayment amount. Next, they answer the critical question in a postmortem analysis, "What went wrong and why?" Finally, groups consider tradeoffs the borrower faces and recommend changes in the borrower's budget and long-term financial plan. Ideally, groups have class time to work on part two, particularly the monthly budgets. Given the nature of a problem-based learning activity, groups greatly benefit from checking in with the instructor and sharing their solutions with other peer groups.

Part three: Pre-mortem

Students complete the final part of the activity individually. Building on ideas and solutions learned in the postmortem analyses, each student constructs a pre-mortem analysis for their own education and career plan. This part asks students to disclose some personal financial information. The instructor should assure students that information will be kept confidential. If a student prefers to withhold information, the student can choose to analyze a hypothetical pre-mortem, making assumptions for a "typical" student's debt balance and future income in their intended field.

To start, students estimate their post-graduation student loan debt balance, adding additional debt from any graduate education they are considering. As with the postmortem, they design a post-graduation monthly budget using their expected salary and assumptions for expenses. If they have a student loan debt balance, the student selects a repayment plan and calculates their monthly payment and total repayment amount.

With this plan in place, students apply the concept of prospective hindsight to answer the critical question, "What could go wrong and how do I prevent it?" By identifying specific complications or changes that could impact their budget, financial goals, and quality of life, the students can address a plan to reduce the probability of these events occurring and minimize the effect they might have on their long-term goals.

Assessment

In-Class verbal feedback

The prompts for each borrower's financial information are intentionally incomplete, requiring students to fill in the gaps and find tools and information to construct the borrower's budget and postmortem. To answer questions and sort out common mistakes that potentially derail the proposed budgets, groups benefit from verbal feedback from peer groups and/or the instructor. Peer group sharing may be especially effective in large class sizes to cut down on instructor feedback to individual groups. The following list describes typical mistakes and suggested instructor hints to course-correct the group.

- Illogical approach to budgeting.
Hint: Organize the budget in a spreadsheet or table, or find a simple template online.
- A budgeted monthly income that divides salary by twelve months with no income tax deduction.
Hint: Look up federal income tax brackets.
- Uncertainty in budgeting Zach's variable self-employed income.
Hint: Budget conservatively and put additional income from high-profit months toward extra principal payments on his student loan or into a vacation fund.

- No retirement savings for Sam and Zach, who do not have employer-provided retirement plans.

Hint: Research retirement savings account options and suggested monthly contributions.

- Difficulty in calculating Jessica's credit card payment, term, and total payoff amount.

Hint: Use an online credit card payoff calculator.

- No emergency savings fund for borrowers.

Hint: Review the budget and ask how the borrower would handle an unexpected expense.

- Prioritizing of debt repayment and savings (retirement, mortgage, emergency fund).

Hint: Research best practices for prioritizing debt and saving. Experiment by calculating different budget scenarios and choose the best long-term solution.

- Alternative student loan repayment plans and/or pre-paying student loans not considered.

Hint: Question high monthly payments, total payoff amounts, and eligibility requirements.

While it's not possible to catch every mistake or omission at this stage, some intervention is helpful and encourages students to be agile and experiment with different ideas. The process also stops them from turning in a one-and-done assignment without fully considering the missing pieces in the prompts.

Assignment

The written assignment is the student's final product of all three parts of the problem-based activity. See appendix B for a rubric to assess the assignment. This rubric is not provided to students while working on the activity, but rather provides the instructor with a checklist of items to efficiently and objectively grade each team's assignment. It is up to the instructor how much they want to use the rubric in addition to qualitative feedback. The first part of the assignment provides evidence that the students understand the underlying problem and consequences of student loan debt. It also demonstrates their grasp of the different repayment plans available to borrowers. Scores vary by the group's quality of self-directed research and ability to concisely summarize their findings in less than two pages.

The second part of the assignment assesses the group's ability to construct a thoughtful budget and postmortem analysis for each borrower. The rubric in appendix B provides a checklist for each borrower to aid the instructor's assessment of the group's work; however, it's important to note that in assessing a PBL activity, the instructor should not expect a one-size-fits-all budget and analysis. Essentially, the instructor is assessing the group's effort to fill in the missing pieces, experiment with different ideas, and think critically about the borrower's decisions.

Average-achieving groups submit budgets that meet about half of the items on the rubric checklist and postmortem analyses that hastily question the borrower's actions and make some basic recommendations for change. These groups tend not to question the actions of the borrowers and demonstrate a limited understanding of opportunity cost. For example, they tend to recommend that Sam should find a part-time job without weighing the costs, such as time away from her children and childcare costs or overreliance on her parents. They're also quick to let Zach take his annual vacation, no matter how much variable income he earns.

High-achieving groups submit budgets that meet nearly all of the items on the rubric checklist and postmortem analyses that demonstrate a deeper examination of the discussion questions. These groups question the high amounts of student loan debt, such as Sam's decision to attend a for-profit school or Zach's decision to attend law school full-time versus part-time. They examine

the borrower's choices and identify the tradeoffs each one faces. For example, they might recommend that Jessica should give up saving for a down payment on a house until she can pay off her high-interest credit card.

The third part of the assignment is completed individually.⁷ Ideally, the instructor grades and returns parts one and two to the groups before students individually submit their final budget in part three. This gives students the opportunity to learn and correct mistakes they may have made with the three borrower budgets in part two. Students' pre-mortem analyses demonstrate their ability to use prospective hindsight. Many students identify a variety of roadblocks or challenges that would impact their budget and financial goals. Average-achieving students identify mostly involuntary, external factors that could hold them back, such as an illness or family member needing their help. High-achieving students identify both external factors and internal factors, such as losing their scholarship, going into credit card debt, or having an unplanned baby. Ideally, students observe specific tradeoffs in their lives and articulate the costs of these tradeoffs. For instance, students describe the cost of not saving for retirement, not having an emergency fund, attending an expensive graduate school, or choosing to live on their own.

The proposed assignment was designed for a small, introductory economics course, but can be modified to meet the needs of a larger course. To scale the course, the instructor could provide students a structured handout or template for submitting the three parts, as well as use peer-reviewing to flush out small errors or considerations before the instructor's final grading. Another modification to ease the instructor's grading time could be to simply present the information in part one, omitting this part from the students' assignment, and leaving parts two and three largely the same as described.

Pre- and Post-activity survey

Students are surveyed before and after the activity to assess the activity's effect on students' understanding of their own student loan situation, anticipated post-graduation income and expenses, and student loan repayment options. The paper surveys were completed in-class to ensure a 100 percent response rate.⁸ The survey asks the following five questions. If students have not taken out student loans to finance their college education, they skip to question 4. [Table 1](#) summarizes the responses to the survey questions.⁹

According to 44 students who completed the pre- and post-activity surveys, 86 percent of respondents reported they have a student loan debt balance. Of these students, 68 percent know their current balance, but only 42 percent of them have a pretty good idea of what their monthly payment will be after graduation. Of all the respondents, exactly half of the students have a pretty good idea of what their monthly income and expenses will be after graduation, and 43 percent of students are familiar with the federal student loan debt repayment plans.

Student responses to the open-ended question, "How do you feel about your student loans?" were discouraging.¹⁰ Eighty-nine percent of them responded with negative comments, most often describing themselves as overwhelmed, stressed, anxious, worried, and annoyed. Sample negative comments include "*like I made a mistake going to college*", "*overwhelmed and somewhat lost*," and "*anxious and unprepared to handle it after I graduate*." Only 7 percent of comments were neutral or blank, such as "*I feel stress but grateful that I am able to get an education*" and "*scared but I have hope*," and 5 percent of comments were positive, such as "*relieved that I'm able to make some payments on it my junior and senior year*."

Pre- and post-activity surveys are compared to assess changes in students' knowledge of their own student loan debt balance and estimated monthly payment, future salary and expenses, and the repayment plan options. Eighty-nine percent of students responded with measurable improvement in understanding their own student loan debt balance and estimated monthly payment. Eighty-two percent of students responded with measurable improvement in knowing their future

Table 1. Survey questions and pre-activity responses.

Question	Agree	Somewhat Agree	Disagree
1. How do you feel about your student loans?	<i>(open-ended question)</i>		
2. Do you know your current student loan balance?	15.8%	52.6%	31.6%
3. Do you have a pretty good idea of what your monthly payment will be after graduation?	13.2%	28.9%	57.9%
4. Do you have a pretty good idea of what your monthly income and expenses will be after graduation?	9.1%	40.9%	50.0%
5. Are you familiar with the Federal student loan debt repayment plans?	6.8%	36.4%	56.8%

Note: Sample comprises 44 undergraduate students in introductory economics courses.

salary and expenses once they graduate. While not all students indicated an improvement in their feelings about their student loan debt, many of them commented on the activity's effect of educating and preparing them for the debt ahead.

Debriefing

Once the graded assignment is returned to students, the activity is revisited in the classroom to debrief learning outcomes and suggestions for improvement. In general, students express an overall appreciation for learning an important and relevant topic in the course. Many students admit that they were previously ignorant about the cost of their post-graduation student loan payment, their options for repayment, and/or the size of the payment relative to their post-graduation income and other expenses. Some students comment on rethinking their post-graduation plans, such as moving out of their parent's home or immediately starting a graduate degree.

Several changes have been to the activity based on student feedback and instructor observations. Mainly, the student instructions were rewritten to include less information, which prompts students to do more research. Interestingly, when the instructions were more detailed, students relied on the given information and conducted less self-directed research. Another update to the activity requires students to check-in with another peer group, in addition to the instructor check-in so that groups can share information and learning without demanding more time from the instructor. Additionally, the instructor added the rubric checklist to assess the activity methodically.

Conclusion

Student loan debt and delinquency is a growing problem among college graduates in the United States. I describe an activity for introductory economics students to better understand the costs and benefits of debt-financing a college education. Students first create budgets for fictitious student loan borrowers, then apply what they have learned to create their own post-graduation budget and analyze financial goals and future decisions, such as where to live, whether to go to graduate school or not, and the next steps in their career paths.

Students apply economic topics, including decision-making, tradeoffs, budgeting, and post- and pre-mortem analysis. By using the problem-based learning method, students are challenged to use problem-solving, critical thinking, and communication skills. Pre- and post-activity survey results find evidence of students improving their knowledge of their own student loan debt situation, salary outlook, and the repayment plans available to them post-graduation.

I describe an activity designed to engage students in doing economics, and not just studying economics. However, I acknowledge the time and content limitations facing many introductory

economics instructors, particularly those teaching in universities with large class sizes and/or required curricula for consistency across multiple instructors of the same course. Furthermore, students bring a wide range of personal finance knowledge into the course, and the activity is particularly challenging for students who have little to no experience with personal budgets. This activity could be improved by providing a comprehensive list of resources and/or pre-work for these students, as well as assessing additional sections of students using the pre- and post-activity survey.

Notes

1. I define student loans as both Federal and private student loans in accordance with the Federal Reserve Bank of New York Consumer Credit Panel, which uses a longitudinal quarterly panel of Equifax credit report data from 1999 to 2019.
2. Economic literacy is the ability to use basic economic concepts to make decisions about earning income, saving, investing, building credit, and spending money. Cost-benefit analysis and the concept of tradeoffs are central to economic literacy. While economic literacy is often addressed at the middle and high school level, it is not commonly included in university curricula. See the St. Louis Fed's 2016 Annual Report on *Economic Literacy for Life* for an overview of economic education and financial literacy in the United States. <https://www.stlouisfed.org/annual-report/2016>
3. The Economics Network at the University Bristol provides a comprehensive overview of PBL in its handbook (<https://www.economicsnetwork.ac.uk/handbook/pbl/>) for economics instructors (Forsythe 2010). The method has also been used at the high school level (Maxwell, Mergendoller, and Bellisimo 2004, 2005; Sharp 2003).
4. For example, Google's "Project Oxygen" finds the seven most important qualities of top employees include "being a good coach; communicating and listening well; possessing insights into others (including others' different values and points of view); having empathy toward and being supportive of one's colleagues; being a good critical thinker and problem solver; and being able to make connections across complex ideas" (Strauss 2017).
5. I design my course syllabus so that students learn the first few chapters of the text, then switch to an applied topic, such as budgeting and investing in macroeconomics. This pattern repeats itself two more times in the semester.
6. I acknowledge that the individual budget can be a significant hurdle for many students who have little to no experience with personal budgets. The instructor can use class time to review the basics of personal budgets before the activity starts, provide optional resources before the activity starts, or follow the PBL model by letting student groups attempt the budgets on their own before providing feedback during the in-class work time.
7. The student handout acknowledges that some students may not want to disclose personal financial information and gives them an alternative to completing part three if this is indeed the case. In my experience with 44 students, every one of my students submitted their own personal budget, and 6 of 44 students had not yet borrowed, nor planned to borrow financial aid loans.
8. All 44 students completed the activity, even if they were absent during one of the in-class work periods. The response rate is 100 percent because I conducted the survey in-class and followed up with any absent students to ensure the maximum response rate.
9. The survey uses the response scale "agree, somewhat agree, and disagree"; however, I acknowledge that this scale is not aligned with the survey questions. In hindsight, the response scale of "yes, somewhat, and no" would have been more appropriate in responding to the survey questions, and this oversight could impact the validity of the student responses.
10. Responses to the open-ended survey question are sorted into three categories: negative, neutral, and positive. I acknowledge these classifications are subjective.

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Appendix A: Student handout

Student loan debt: A pre- and postmortem problem-based learning activity

Description

Student loan debt and delinquency are widely reported problems among American millennials. According to Q1 2019 data from the Federal Reserve Bank of New York, student loan debt totals \$1.49 trillion, and the average student graduating in 2017 had over \$39,000 in student loan debt. Not surprisingly, the student loan delinquency rate has peaked at 11 percent.

This activity uses the problem-based learning method to analyze the costs and benefits of debt-financing a college education. Groups of two to three students will actively engage in a complex problem that requires self-directed research and multiple iterations to their solutions. Groups should not expect to find quick, one-size-fits-all solutions with little inquiry or experimentation. I will check in with students to provide feedback and direction.

Students will apply economic topics, including decision analysis, tradeoffs, the economics of labor markets, and financial literacy. The activity has three parts, described below. Groups work on the majority of the activity together, and individual students complete the third part. The second and third parts use the postmortem and pre-mortem techniques, respectively.

Postmortem is Latin for “after death.” In medicine, the term refers to the examination or process that takes place after death. In business, postmortem refers to the analysis that takes place after a finished event, such as a completed project or release of a new feature. The analysis answers the question, “What went wrong and why?” A pre-mortem is the hypothetical opposite of a postmortem, where the discussion of what could go wrong happens at the beginning of a project. It assumes the project failed, and the discussion generates plausible reasons for its failure.¹

Part one: Research summary

Research the problem of student loan debt among millennials. In no more than two single-spaced pages, answer the following questions. A thorough response will include at least five resources. Cite all sources on a third page.

1. Briefly describe the current trends in student loan debt among millennials.
2. Describe the effect student loan debt has on millennial’s homeownership rates, credit score, and overall standard of living.
3. Research federal student loan repayment plans, briefly commenting on eligibility requirements, pros, and cons.

Part two: Postmortem

Read the following scenarios for three student loan borrowers. Construct a postmortem analysis for each borrower.

1. Create a monthly budget for each individual, leaving room for a reasonable student loan payment.
2. Select the optimal repayment plan for the borrower and calculate their monthly payment and total repayment amount using the student loan debt calculator at studentloanhero.com. Update the borrower’s budget with this monthly payment.
3. What went wrong and why? Examine the tradeoff(s) the borrower faces. What could they have done differently in the past? What can they do differently in the future?

Jessica

After college, Jessica struggles to find a job in her field that pays a reasonable salary. She takes an administrative assistant job at an accounting firm, discovers she is well-suited for accounting and pursues her MBA. Three years later, she accepts an accounting position with a \$70,000 salary. She contributes 6 percent of her pretax salary to her 401 K retirement plan. Jessica’s student loan debt totals \$48,000, with a 5.7 percent interest rate. She has also accumulated \$12,000 in credit card debt with a 15 percent interest rate. Her monthly expenses (rent, car payment, insurance, food, entertainment, etc.) are \$2,400. Jessica would like to save toward a down payment on a home, which she estimates to be around \$25,000.

Sam

Sam attends a state university for two years but lacks the readiness and maturity required for college. Given her poor grades and family demands, she withdraws from the university to work full-time and support her family. She ignores her student loan payments. Five years later, she attempts college a second time at a for-profit college, where she benefits from small class sizes and seemingly limitless federal financial aid. Upon graduating, Sam takes a job as a medical assistant with a \$44,000 salary. Her student loan debt totals \$82,000, with a 5.9 percent interest rate. Sam does not have credit card debt. Her parents take care of her two children three days a week, alleviating some child care costs. Her monthly expenses (rent, car payment, insurance, food, entertainment, child care, etc.) are \$2,200. Sam is considering a part-time job to supplement her family’s income.

Zach

Zach is passionate about helping people in his community and determined to go to law school. Upon graduating with his law degree, he starts his own human service agency. Depending on the month, he earns anywhere from \$2,000 to \$5,000 per month. He takes on part-time work as a legal consultant, earning an additional \$1,800 per month. After consolidating his student loans, his debt totals \$152,000, with a 3.8 percent interest rate. Zach does not have credit card debt and is a thrifty consumer. He lives with a roommate, drives an old car with no car payment, and limits his entertainment and food expenses. His monthly expenses (rent, insurance, food, entertainment,

etc.) are \$1,800. Zach would like to save toward a down payment on a home and take a \$2,000 vacation once a year.

Part three: Pre-mortem

Construct a pre-mortem analysis of your financing your own education.² Your analysis should apply what you've learned from parts one and two.

1. Estimate your student loan debt balance upon graduation, adding additional debt from any graduate education you are considering.
2. Create a post-graduation monthly budget for yourself, leaving room for a reasonable student loan payment.
3. Select your optimal repayment plan and calculate your monthly payment and total repayment amount using the student loan debt calculator at studentloanhero.com. Update your budget with this monthly payment.
4. What could go wrong with this plan and how can you prevent it? Identify specific problems or changes that could occur in your future that would impact your budget, financial goals, and overall quality of life. How can you reduce the probability of these complications and minimize the effect they have on your long-term goals?

Appendix B: Rubric

Part one

Mechanics and Organization

- | | |
|--|--------------------------|
| Writing is concise, well-organized, and uses appropriate terminology | <input type="checkbox"/> |
| Writing is free of grammatical and mechanical errors | <input type="checkbox"/> |
| Does not exceed two single-spaced pages | <input type="checkbox"/> |
| Cites sources within the text and on a Works Cited page | <input type="checkbox"/> |

Content

- | | |
|--|--------------------------|
| Describes the current trends in student loan debt among millennials | <input type="checkbox"/> |
| Describes effects on homeownership rates, credit score, and overall standard of living | <input type="checkbox"/> |
| Compares loan repayment plans, comments on eligibility requirements, pros, and cons | <input type="checkbox"/> |

Part two

Budget	Jessica	Sam	Zach
Neatly organized in a table	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deducts taxes, living expenses, and emergency fund savings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deducts retirement savings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Uses an optimal loan repayment plan with accurate monthly payments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Includes total loan payoff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Postmortem analysis			
Analyzes the borrower's decision-making	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applies hindsight to determine what borrower could have done differently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Includes recommendations for what the borrower can change in the future	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual considerations			
Jessica's budget prioritizes paying off high-interest credit card	<input type="checkbox"/>		
Sam's postmortem considers the costs and benefits of working a part-time job		<input type="checkbox"/>	
Zach's budget conservatively accounts for variable self-employed income			<input type="checkbox"/>

Part three

Budget

- Neatly organized in a table
- Deducts taxes, living expenses, emergency fund savings
- Deducts retirement savings
- Includes estimated student loan debt balance upon graduation
- Uses an optimal loan repayment plan with accurate monthly payments
- Includes total loan payoff

Pre-mortem analysis

- Self-analysis of student's education, career, and borrowing decisions
 - Uses prospective hindsight to identify problems that could impact long-term goals
 - Discusses actions and behaviors to minimize or prevent these problems
-

Appendix Notes

1. Paraphrased from the *Harvard Business Review* article, "Performing a Project Premortem," by Klein (2007).
2. I will keep your information confidential. That said, I understand you may want to keep some information private. Share as much as you feel comfortable with. If you prefer to share little information, perhaps you can analyze a hypothetical friend's pre-mortem.