The Effect of Financing Mode on Adverse Selection and Educational Outcomes: An Evaluation of an Income Share Agreement Pilot Pre-Analysis Plan[*]

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Abstract

An emerging alternative to traditional student loans for low-income students are Income Share Agreements (ISAs). These education loans offer a form of education insurance for borrowers who may be unsure of the potential returns to college. With an ISA, instead of paying tuition or carrying a loan balance, a student agrees to pay back the lender a fixed share of their income over a set period of time in months where income exceeds a pre-defined minimum income threshold and up to a maximum cap. Once concern with these program is adverse selection; the market for ISAs could potentially unravel as students with higher risk of employment disruptions or low income sort into ISAs.

Our research partner is a non-profit, online university who piloted an ISA to juniors and seniors in certain majors starting in 2021. Students attending this university are more likely to be lower income and to be working adults. The University offered a survey to 8,000 soon-to-be-eligible students (this sample does not include participants in the pilot described), with an experimental component. This survey asked questions about students' income outlook, risk preferences, and demographics and then randomized framing about the insurance properties of the ISA. This experiment will help ascertain the type of students that would choose a hypothetical ISA and the price elasticity of demand.

Keywords: Income Share Agreement, Postsecondary Education Finance, Student, Student Debt, Adverse Selection, Earnings Expectations

JEL codes: I22, I24, G41

1 Project Description

In the United States, the increasing cost of higher education has curtailed access to high-quality education for some families and caused other families to accumulate debt or forego consumption to afford post-secondary education for their students. From both a taxpayer and individual student perspectives, the burden of student loan debt is substantial and has grown considerably over time. Delinquency rates on student loans are higher than on many other consumer finance products (Mezza and Sommer, 2016), and there is evidence that borrowers may alter many important life milestones, such as buying their first home (Mezza et al, 2020), due to their student loan balances. The popular press often portrays the student loan "crisis" as being composed of borrowers with extremely high balances, often featuring individuals who cannot service current balances in excess of $100,000 or $200,000. These borrowers are not the norm, representing less than 10% of all borrowers (many of whom hold graduate degrees that will lead to significant lifetime earnings). The real crisis exists among the much greater number of borrowers with relatively small balances (less than $10,000) who either failed to graduate or attended a low-quality program which provided no meaningful earnings boost over a high school diploma.

Income Share Agreements (ISAs) are a relatively novel way to finance college. Students pledge a proportion of their future earnings (e.g., 4 percent of earnings over 10 years for each $10,000 in funding) in lieu of paying tuition. ISAs typically include downside protections (a minimum income threshold below which no payments are due, maximum repayment window and/or and maximum number of payments) and upside protections (maximum cap for the amount that can be repaid before the obligation is satisfied) not typically associated with traditional student loans. ISAs have proliferated across universities in the United States ever since Purdue University launched its Back-a-Boiler ISA in 2015 and have taken on many forms. Despite this proliferation, there have been no studies to date in the United States understanding why students may choose an ISA over a student loan, the types of students that may benefit from an ISA, or what effects an ISA might have on students' educational success and financial well-being.

More broadly, our proposed research focuses on two complementary sets of research questions. First, our University partner collected and shared with the researchers new data on the types of students who select a hypothetical ISA. Students' decisions to enroll in an hypothetical ISA are ultimately about earnings expectations (both level and stability), risk tolerance, risk aversion, and repayment structure. They are very similar to the decisions to purchase other types of insurance. Understanding the preferences and characteristics of students likely to take up a hypothetical ISA can go beyond providing a context for how students perceive the inherent riskiness of education. It might shed light on which students can be helped or harmed by ISAs and why. Second, we will measure the impact of ISAs on educational outcomes for college students. We will examine how students' choice of an hypothetical ISA can affect student engagement, progress in their educational program (i.e. credit hours toward a specific degree), and students' persistence and completion.

Our study could also provide useful information for policymakers. For example, given the similarities between ISAs and federal income-driven repayment (IDR) plans, insights on who takes up ISAs could provide insights into expansions or redesign of IDR plans. Additionally, the

current ISA market is largely unregulated, with a large array of model parameters and funding structures, some of which could be described as predatory (Ritter and Webber, 2019). From this perspective, a greater understanding of the type of students who take up ISAs and the distribution of outcomes could provide welcome information to regulators as they decide what boundaries to draw in the market in the coming years.

The research team has partnered with a non-profit, online university (henceforth, The University) to study student attitudes around college costs and college financing options and reasons why students may take up a financial instrument like an ISA over traditional student loans using a survey instrument that randomized framing of the hypothetical ISA and the price to the student. Most of The University's students are nontraditional, adult learners, and are likely to be employed prior to undertaking their studies. As working adults without a four-year degree, these students tend to be lower-income and are attending the University after many years being outside the traditional higher education system. The University worked with a financial institution which offered an ISA to the University's students as one of several education financing options, and one that includes protection against downside labor market outcomes after graduation without some of the negative side-effects of current IDR plans (e.g. rising student loan balances due to interest capitalization, difficulty accessing payment reduction plans like Public Service Loan Forgiveness, administrative hurdles, etc.). As of this writing, the University is piloting the ISA to juniors and seniors in selected majors and locations and may expand the ISA to additional majors and locations after the pilot phase. This study will help determine whether ISAs could be a useful alternative to traditional student loans in giving lower income students who have exhausted eligibility for federal Stafford loans access to higher education.

The University fielded a large survey to their students with the goals of examining the preferences and characteristics of students likely to take up an ISA and understanding the impact of the availability of a hypothetical ISA on college completion and student financial outcomes. With the University's support in terms of access to this survey's data, we plan to identify which students decide to participate and to understand why they participate, with the goal of pin-pointing likely sub-populations of students for whom the ISA is a particularly advantageous or particularly disadvantageous financing option. Finally, as discussed previously, we hope to identify whether the ISA changes the way in which students participate in their education (major choice, engagement). Because the University is targeting third-year and fourth-year students (those who are within about a year of completing their education), we will be unable to study the impact of ISAs on enrollment in the near term, but may be able to study it should the University expand its pool of prospective students.

The survey will gather information on student demographics, income and employment, career expectations, income and employment expectations, perceptions on graduation, risk preferences, and preferences hypothetical financing options (ISA, traditional student loan, student loan with IDR). The hypothetical financing options will be presented in a randomized option among two treatment arms. The first arm will provide students limited information on the different financing options. The information provided will include a basic description about the repayment terms of standard student loans, student loans with IDR, and ISAs. The second arm will provide additional information and more detailed examples on repayment caps, thresholds, and forgiveness terms for each contract.

2   Research Design

The proposed project is a survey study with an experimental component. In addition to a paper summarizing the findings from the survey collection, the research team will subsequently also examine actual take-up once the financial institution offers its ISA contracts to students beyond those targeted in the pilot phase. Our key research question for the experimental portion is: what types of students take-up ISAs both in a hypothetical context, and as an offered contract, and what perceived risks motivate their decision? This pre-analysis plan focuses on the ISA take-up in a hypothetical context, with the aims to understand the nature of adverse selection and how students' risk preferences affect their decisions to participate in hypothetical ISA programs.

The survey, as described above, targeted a sample of soon-to-be-eligible 8,000 students from the location-major combinations to which the financial institution intends to offer ISAs following full launch (after the current pilot phase). The University offered students an incentive of a $20 Amazon gift card for their participation.

The first stage of the experimental survey randomized different framing to compare the terms of a hypothetical ISA to a traditional student loan with IDR. Students first responded to a rich set of questions meant to ascertain risk preferences and employment outlook. The survey then randomized half of the students into a "risk neutral" framing which compared the hypothetical ISA to the student loan with IDR with respect to monthly payments, repayment term, and downside protections. The other half of students were randomized into a treatment arm that emphasizes the hypothetical ISA as a form of insurance that protects the student against downside employment risk and emphasizes that a hypothetical ISA has a fixed repayment term as opposed to a balance.

The second round of randomization used a similar frame to randomize students into different hypothetical ISA prices (i.e., income share and length of contract). This second experiment randomized the price of the hypothetical ISA to the student by varying either the income share or the length of the contract. The combination of these two experiments will help ISA providers and policymakers understand both the amount of adverse selection in the ISA market (from the framing) and the elasticity of demand for an ISA (from the variation in pricing). We should note that we will not be able to make causal inferences with the second experiment with price variation, as the second randomization was endogenous to the first.

3   Sample Selection and Enrollment

3.1   Eligibility

Students were eligible to participate in the survey if they were a part of the student population to which the financial institution intends to offer the ISA. The eligibility criteria include:

1. Undergraduate students in the following programs were eligible to enroll during the pilot stage: Pre and Post License Nursing, Health Information Management, Cybersecurity, and Business Administration

2. Juniors and seniors (within approximately two years from degree completion)

3. Completed FAFSA (implies must be a US citizen or permanent resident)

4. Other criteria similar to Title-IV eligibility, with the exception of ISA eligibility for those who have hit aggregate borrowing limits under the Federal Direct Loan program

3.2   Recruitment and Enrollment

To recruit students into the study, the University's Student Affairs sent out a research survey on student experience to the 8,000 students that may be eligible to subsequently receive an ISA offer. 50% of the students were offered the "risk neutral" framing of the ISA versus the student loan and the other 50% received a more detailed framing of the ISA versus the student loan.

The survey was emailed to the students with a $20 Amazon gift card offered as compensation for their time. The survey was launched in June 2022, and was open for student participation until August 1, 2022. The University received a total of 2,785 survey responses, with 1,394 receiving the random assignment of a "risk neutral" framing and 1,391 receiving the more detailed framing with downside protection components.

4   Econometric Specifications

4.1   Estimating Equations

The main equation to assess preference between hypothetical student contact arms (that vary on the framing of the contracts) is:

$$y_i = \beta_0 + \beta_1 T_i + \beta_2 C_i + \gamma' X_i + \varepsilon_i \tag{1}$$

where y_i indicates a hypothetical ISA take-up, C_i indicates the key student characteristics that we hypothesize to be associated with a hypothetical ISA take-up, X_i is a vector of control variables, including baseline demographics. The error term is ε_i.

As the sample is restricted to particular location-major combinations to which the financial institution intends to offer ISAs during full launch of the financing option, we will add fixed effects for each location and major.

The key student characteristics (C_i) that we will examine are:

1. Current income

2. Current employment status

3. Career expectations

4. Income and employment expectations after graduation

5. Perceived barriers to graduation

6. Risk preferences

We explain the construction of these key outcomes in Section 5.

The University will gather all the data in online settings that it maintains. After combining the survey data with select fields from the University's administrative records and de-identifying the combined data, it will provide it to the research team for analysis.

4.2 Enrollment Balance

To assess whether the random assignment was correctly conducted, we will we run regression (2) for the following covariates: age, gender, race/ethnicity, marital status (from the University's administrative records), household size, and current educational status (from the administered survey)

$$y_i = \beta_0 + \beta_1 T_i + \varepsilon_i \tag{2}$$

Here, i is the individual and T_i is a treatment dummy.

Finally, we test for joint significance across all outcomes of interest using seemingly unrelated regression (SUR).

4.3 Attrition

This is a single survey study. In case the University runs follow-up surveys with the same sample, we will use three approaches to assess the severity of attrition. First, we test whether attrition is correlated with treatment by regressing an indicator variable for whether a participant attrited on the treatment indicators. Second, we test whether attriters differ from non-attriters by asking whether attrition status can be predicted from baseline outcomes and stratification variables. Finally, we test whether baseline characteristics of attriters in the treatment group are different from those of attriters in the control group by restricting the sample to attriters and regressing on baseline outcomes on treatment assignment. If we find worrying levels of attrition, we will conduct robustness checks in which we use matching and bounding techniques to obtain corrected or bounded estimates.

4.4 Heterogenous Treatment Effects

We will test for heterogeneous treatment effects along multiple dimensions:

1. Race/ethnicity (Black, Hispanic, White)

2. Gender (indicator for female respondent/recipient)

3. Household Size

4. Age (median split)

5. Marital status

6. Risk Aversion (estimate of CRRA 1-5)

The econometric specification for heterogeneous treatment effects is as follows:

$$y_i = \beta_0 + \beta_1 T_i + \beta_2 T_i \times H_i + \beta_3 H_i + \gamma' X_i + \varepsilon_i \tag{3}$$

4.5 Multiple Comparisons

To adjust for multiple comparisons during analysis, we define an index or focal variable for each of several outcome families. We then apply the false discovery rate across these summary variables (Anderson, 2008). The correction will be applied across outcomes.

5 Primary Outcome Variables

5.1 Current Income

Focal variable: Personal income received from all sources, before taxes and deductions (categorical variable, 12 categories ranging from less than $20,000 to $120,000 or more)

Focal variable: Household income received from all sources, before taxes and deductions (categorical variable, 12 categories ranging from less than $20,000 to $120,000 or more)

5.2 Financial Stability

Focal variable: Financial stability, measuring how the respondent would handle an unexpected $400 expense (categorical variable, 8 categories)

5.3 Employment Status

Focal variable: Employment status measured at first enrollment at the University (categorical variable, dummy)

5.4 Career Expectations

Focal variable: Career expectations (categorical variable, 4 categories: remain in current position, transition to more senior position in same industry/occupation, transition to new industry/occupation, pursue higher level of education)

5.5 Income and Employment

Focal Variable: Likelihood of Employment (categorical variable/Likert Scale; How likely is it that a student will be employed full/part time, student full/part time, unemployed but searching, primary caregiver, out of labor force?)

Focal Variable: Income Expectations (categorical variable/Likert Scale; How likely is it that a student's annual income is within the following categories ($35,000 or less, $35,001 to $55,000, $55,001 to $75,000, more than $75,000)?)

5.6   Perceived Barriers to Graduation

Focal Variable: Student barriers in reaching their full education experience
(categorical variable; responses include housing insecurity, employment, academic preparation, internet connectivity, finances, family responsibility, academic support)

5.7   Risk preferences

Focal variable: Coefficient of Relative Risk Aversion (calculation based on prior literature and survey responses)

References

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