

Financing Higher Education through Equity, not Debt: The Case for Income Share Agreements

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Abstract

Student loan debt in the United States is \$1.6 trillion and rising. The public debate concerning the human capital value vs. the social capital value of higher education has been shifting towards the former and away from the latter standpoint in recent years. I observe how the current system of Federal student loans is proving inadequate for a growing number of students. In an era of rising costs, high college enrollment, slower economic growth, and an ageing population, the government provision of free college tuition would likely result in lower educational quality and lower accessibility for prospective students. Income Share Agreements offer a market-based alternative for higher education financing that might offer solutions to most of the problems with existing avenues for higher education financing—the solution involves shifting from relying on debt to finance higher education to financing education as an equity investment. In order to clarify lawfulness, policymakers should instill legal certainty and alleviate the reluctance of investors and prospective students from entering the marketplace.

Keywords: Higher Education Financing, Higher Education, Income Share Agreements, Student Debt

Introduction

With tuition prices and total outstanding student debt rising unabated, our existing system of higher education financing is increasingly dissuading students from enrolling in higher education and burdening graduates with significant levels of debt. While some countries have adopted income contingent repayment systems for higher education investment to reduce default risks for students, most existing income contingent schemes do little to improve the incentive structure, educational quality or lower tuition costs. At the same time recent proposals for free college tuition overlook the international evidence that suggests that government provision of free college tuition tends to result in lower educational quality and lower accessibility for prospective students.

This paper explores the potential for Income Share Agreements as an alternative or supplemental financing option to support the educational investments of prospective students. The adoption of Income Share Agreements could be particularly beneficial for prospective students from disadvantaged socioeconomic backgrounds. The benefits of Income Share Agreements include: 1) reducing the inherent risks associated with traditional student loans by transferring the risks to the lender and away from the borrower; 2) Supporting equality of opportunity whereby low income or disadvantaged backgrounds have equal access to ISA financing regardless of their families socioeconomic status or the presence of a co-signer; 3) Improvement in price signals and incentives by steering students towards economically valuable programs that reap the largest returns in the form of higher earnings and incentivizing institutions by holding them accountable. Income Share Agreements may not be the cure-all solution to all of the problems with our current system of higher education financing, but they have the potential to significantly increase transparency, reduce risk for students, improve available information, and increase competition between institutions of higher education.

The first section of the paper briefly outlines the economic rationale behind investments in higher education, comparing theories of private and social value derived from investing in tertiary education. The second section observes the history of our current system of Federal student loans and explores how both Federal and private aid is proving inadequate for a growing number of students. The third section addresses recent calls for free college tuition and explores how such systems of higher education financing have not led to more equitable outcomes in countries that have adopted them, and most countries that claim to provide free college actually fund higher education through charging nominal fees and developing dual track systems of financing. The fourth section reviews how other

countries have adopted income contingent repayment systems for higher education investment in an attempt to reduce risk for students, particularly from low-income families. Section five presents the case for Income Share Agreements by exploring evidence of successful schemes at coding academies and early adopting colleges, as well as survey data results that demonstrate the importance of Income Share Agreements in supporting disadvantaged students. The final section reviews existing legal and regulatory barriers to the broad adoption of income share agreements that might ultimately limit the effectiveness of ISAs in addressing our student debt problem and briefly outlines some policy responses that could alleviate some of these concerns.

Private and Social Value of Higher Education

The value of higher education can be analyzed from two unique perspectives defined by who captures or benefits from it. The first perspective is the individual's, the second, society's. When examining the value of higher education to the individual the subject of study is the private value of higher education. While examining the value of higher education for society, the subject of study is the social value of higher education.

The public debate concerning the human capital value vs. the social capital value of higher education has been shifting towards the former and away from the latter standpoint in recent years (Zumeta et al., 2012). As the cost of college tuition rises, the financial burden of investing in higher education is shifting toward the individual students and their families—prospective students are increasingly taking a calculated risk when choosing whether to pursue a college degree. For many students, the calculated risk does pay off in the form of better credentials, a higher skill set and increased lifetime earnings, however, some students may end up no better off, or perhaps even worse off as a result of pursuing a college degree. This is especially the case for the one quarter of students who fail to graduate—the pay-off is often negative and the student incurs a large debt burden with little or no earnings premium (De Rugy and Salmon, 2019).

Theoretical disputes aside, there is broad consensus among economists that higher education largely benefits society by enhancing economic development and supporting a more robust labor force (Toutkoushian and Paulsen, 2016). Indeed, economists have noted that the positive externalities

resulting from higher education include increased tax revenues, greater productivity, increased consumption, reduced crime, improved social cohesion and improved adaptability to and use of technology (Bloom et al., 2006).

The private value of higher education is grounded in human capital theory which recognizes investment in higher education as an instrument of personal financial improvement. Prospective students who invest in higher education benefit from higher wages, better employment and better working conditions than those who did not achieve higher education (Bloom et al., 2006; De Rugy and Salmon, 2019). Private returns account for higher earnings premiums and the increased probability of finding work in relation to costs, including tuition fees, higher income taxes and delayed market entry. Public returns account for higher tax revenues and fewer social transfers in relation to the public cost of funding education. The available data supports the idea that higher education is principally a private good, as its private returns significantly outweigh its public returns on investment (OECD, 2014). While higher education cannot be described as a public good in strictly economic terms, we can instead label it a private good with positive externalities, or as Cato Institute scholar Corey DeAngelis calls it, a merit good (DeAngelis, 2018).

Existing system of Higher Education Financing

The previous section briefly outlined the economic rationale behind investments in higher education, comparing theories of private and social value derived from investing in tertiary education. Students and their families who take the calculated risk of investing in higher education do so predominantly through debt financing. By far the largest source of higher education loan financing comes from Federal student loans, with around 90 percent of outstanding student loan debt owned by the U.S. Department of education (the remaining 10 percent is in the private student loan market). Today, the United States has over \$1.6 trillion in student loan debt (Federal Reserve Bank, 2019) which includes Federal loan debt, private loan debt, and parent loans. In order to understand the state of student loan debt in the U.S., we should briefly assess the current system of Federal student loans and the history behind it.

The Federal government launched its first major student financing program in the form of grants and loans in 1965 with the passing of the Higher Education Act (Baum, 2016). The next significant

change in Federal student aid policy began with the passage of the Middle Income Student Assistance Act (MISAA) in 1978. MISAA expanded eligibility for subsidized loans to all undergraduate students, regardless of financial need, and expanded eligibility for Pell Grants to middle-income students (Smart, 2009). Pell Grants were further expanded in the 1980s, and in the 1990s several new federal loans became available, from the Parent Loan for Undergraduate Students (PLUS) to unsubsidized Stafford Loans. The Federal government sets maximum aggregate borrowing limits for dependent undergraduate students at \$31,000 and for independent undergraduate students at \$57,500 for Stafford subsidized and unsubsidized loans (Baum, 2016). Interest rates on Federal student loans vary, with Stafford loan interest rates of 4.5 percent and PLUS loan interest rates of 7.1 percent in the 2019-2020 school year (U.S. Department of Education, 2019a). Upon graduation, students have a grace period of six months before they are required to start repayments on their Federal student loans. Failure to pay back the required monthly payments for a period of more than 9 months results in students entering default—if this happens, “the government can garnish wages or confiscate tax refunds to collect on the debt” (U.S. Department of Education, 2019a). In recent years, 3-year cohort default rates have averaged between 10 percent and 12 percent, according to the U.S. Department of Education (U.S. Department of Education, 2019b).

For students who cannot cover the full cost of higher education and other living expenses with Federal student loans or who don't have access to Federal student loans, such as students at some Christian colleges, community colleges and computer-coding schools, private loans are often sought out as an alternative source of financing (Cochrane, 2014). Unlike Federal student loans, private loans are not managed by the government and come from private lenders and banks. Private student loans also tend to have higher interest rates than Federal loans, ranging from 3% to 12% for variable loans and 4% to 13% for fixed rate loans depending on the borrowers credit rating. The increasing reliance on private student loans as a source of higher education financing suggests that the current system of Federal student loans is inadequate for a growing number of students (Berman and Paradeise, 2016; Bird et al., 2018; Amir et al., 2019).

Federal grants, loans, and tax credits account for more almost 70 percent of student borrowing for undergraduate and graduate students (Consumer Financial Protection Bureau, 2012). While total outstanding student debt stands at \$1.6 trillion, American taxpayers are liable for students who fail to earn sufficient wages to pay back their student loan debt, while universities continue to collect Federal student aid when large numbers of their graduates do not earn adequate wages to pay off their loans.

The United States Department of Education estimated in 2018 that 26 percent of undergraduate student loans made that year will enter default at some point in the future (U.S. Department of Education, 2018). Perhaps even more worrying, a report by the Brookings Institution found that 28 percent of first-year student borrowers were not even aware that they had Federal student loans and 14 percent said they didn't think they had any student debt at all (Akers and Chingos, 2014).

While Federal loans provide access to financing for students who might not find such financing sources in the private loan market, the Federal loans system doesn't come without several flaws. For many dependent undergraduate students, the loan limits for Federal Stafford loans is relatively low, as a result, some students may struggle to fund their higher education and must instead resort to taking out private loans, or having their parents take out PLUS loans. PLUS loans have high interest rates and no borrowing limit, so with good credit, parents can borrow unlimited amounts of money regardless of the ability to repay. Under this Federal loan system, those who benefit the most from limitless borrowing programs are students from high-income families (Delisle and Holt, 2012). While some proponents of higher education financing reform have argued that the solution to these funding flaws could be resolved by raising Federal funding loan limits, this would not solve the underlying issue as it would only work to worsen the over borrowing problem and inflate tuition prices further. London School of Economics Economist Nicholas Barr describes information problems that exist within the current framework of higher education financing due to the unknown benefits, the illiquidity of the investment, uncertain value of education and the inability to collateralize (Barr, 2001). In the case of lenders of student loans, asymmetric information means that students tend to hold most of the knowledge on their capabilities and potential future earnings, so investors are inclined to charge a premium in the form of higher interest rates to hedge their capital investments. Another information problem that exists is rooted in the complexity of the student loan application process that undermines the ability of prospective students from securing sufficient financing. The Free Application for Federal Student Aid (FAFSA) form is an extensive and complex document which is poorly oriented and deters prospective students from applying to good institutions (The Institute for College Access and Success, 2013).

While combined Federal and private loan markets provide increasing amounts of capital to prospective students and their families, academic research demonstrates that there is a growing aversion of debt which is increasingly affecting rates of enrollment (Baker and Andrews, 2017). As tuition costs continue to increase in real terms over time, risk averse students are less likely to enroll in higher education if the only financing options available are Federal student loans and/or private student

loans (Boatman et al., 2017). These adverse effects mean that prospective students from disadvantaged backgrounds are most likely to be disproportionately effected, leaving many without higher education credentials and a lost chance of securing a higher wage premium. In an attempt to observe the effects of student loan debt on college enrollment rates, studies have found that educational debt rising above \$10,000 reduces the likelihood of college completion compared to lower levels of debt as the burden of repayment looms (Dwyer et al., 2012). In light of increasing literature on student debt burdens, we should assess an important aspect of the student loan arrangement; the 'repayment burden' (RB). RB's represent the share of borrowers income required to pay for student loan repayments upon graduation. Empirical research on the RB's of BA graduates reveals that those in the 10th and 20th centile face serious problems, particularly early in their careers, with RB's of over 100 percent for young men and women in the 10th centile BA earnings at the age of 22 (Chapman and Dearden, 2017). Such repayment burdens can also have adverse effects in distorting future labor market decisions and decisions about family formation that lead to outcomes that are not equitable or efficient.

As tuition prices and total outstanding student debt continue to inflate, it is becoming increasingly indisputable that our current system of higher education financing is increasingly dissuading risk averse students from enrolling in higher education.

Higher Education and Free College Tuition

The concept of free college tuition is not a new one—economists and political theorists have been making the case for tuition free higher education for decades. Arguments in favor of tuition free college have ranged from higher education as a welfare right (Michelman, 1979), to higher education as a form of social justice (Center for American Progress, 2018). However, in an era of rising costs, high college enrollment, slower economic growth, and an ageing population, public resources for higher education are limited and the unintended consequences of tuition free college might be socially undesirable.

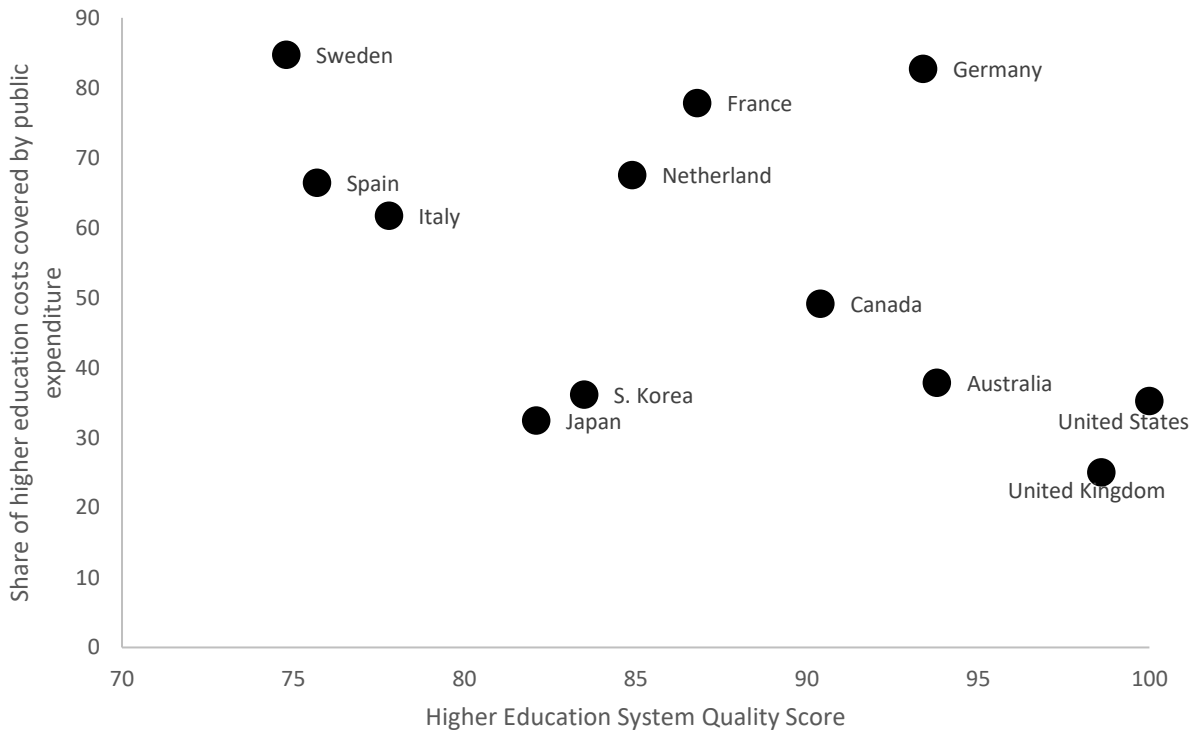
Federal funding of higher education competes with other forms of government expenditure that often takes prevalence over higher education funding, such as social security, public debt service, and defense spending (Marcucci and Usher, 2012). Thus under a system of free college tuition it is highly unlikely that higher education will receive the necessary funds to meet market demand for additional

training—the most likely result would be budget constraints and a serious under-investment in higher education. In fact, academic research has demonstrated that (fully) government funded higher education is neither equitable nor fiscally sustainable. International evidence suggests that the effects of free college are 1) regressive, with high-income students benefiting most from government subsidies and 2) unsustainable due to fiscal pressures that government often face (Psacharopoulos et al., 1986).

In light of the fiscal pressures of government funded higher education, countries around the world have been experiencing an expansion in the private education system resulting from the growth of higher education from only educating the elites to educating the masses. The trend towards private college education is largely driven by governments' inability to fully fund college costs, thereby restricting the number of students enrolled in subsidized colleges, and encouraging the establishment of private colleges (Altbach et al., 2010). As well as moves towards privately funded higher education in recent years, other countries which claim to provide some form of 'free college' actually charge nominal fees or have a dual track tuition system. Faced with financing challenges, countries such as Ireland started charging nominal fees to cover non-instructional college expenses—this enables the government to maintain the pretense of free college tuition, while raising revenues for higher education funding (Marucci and Usher, 2012). Other countries such as Russia maintain the pretense of free college tuition while operating under a dual track system. In countries with dual track tuition, high achieving students can enroll in college tuition free, while others are required to pay tuition fees for the same education (Johnstone and Marucci, 2010). Under such a system, the lower achieving students effectively subsidize the cost of higher education for the high achievers. What's more, a significant majority of Russian students pay tuition fees for their college education, even though the Russian constitution states that free higher education is guaranteed (Tight et al., 2009). There are only a small handful of countries that truly provide free higher education, such as Cuba, Argentina and the Nordic countries. However, in recent years Sweden and Denmark have introduced tuition fees for international students, therefore creating the beginnings of a dual track system of college financing (Vabø and Wiers-Jenssen, 2017). International evidence suggests that higher education models of free tuition face serious funding crisis and have been moving toward private financing through privatization, charging nominal fees and developing dual track systems of financing.

Fiscal pressures of higher education funding aside, it is also important to observe the outcomes of free tuition or ‘almost free’ tuition on students who enroll in college under these systems of government financing. Former President of the Commonwealth of Learning, Sir John Daniel described the higher education system as iron triangle highlighting the three key components of higher education—cost, quality, and access. Early established colleges such as Oxford and Cambridge Universities defined institutional quality by their level of exclusivity and their level of spending per student. However, as Daniel notes, these definitions of quality are outdated and educational institutions have instead moved towards a perception of quality that emphasizes outcomes and standards. Daniel also acknowledged that these three components were intrinsically linked and that attempts to improve one of these components usually meant damaging another or both other components (Daniel et al., 2009). By this logic, Daniel acknowledged that attempts to improve the cost component of the iron triangle would likely result in worsening access and quality. Therefore, free tuition may lead to reduced access to

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higher education and could be especially detrimental to those from low socioeconomic backgrounds. The same negative relationship may also hold for quality of higher education—chart 1 below displays data from 12 developed countries with strong higher education system rankings (X axis) and compares the share of public expenditure each country invests in higher education (Y axis) (OECD, 2020). The

standard of quality used in this sample is based on Quacquarelli Symonds (QS) Systems Strength Ranking which takes into account multiple factors of institutional quality (Quacquarelli Symonds, 2018). While the data does show a negative correlation between higher public funding shares and tertiary education quality, it doesn't necessitate causation, however, the data is certainly suggestive of Daniel's iron triangle theory.

In light of the iron triangle theory, it is also important that we consider the effects of tuition fees, or lack thereof, on changes in access to higher education. Several studies on international higher education systems provide ample evidence of the access and enrollment effects of changes in tuition fees over time. Analysis in the Netherlands finds that the elasticity of enrolment with respect to tuition fees is very low, to the point of concluding that the demand for higher education is completely inelastic (Oosterbeek and Webbink, 1995). Since the 1990's, both Australia and England have established cost sharing systems of higher education, leading to increases in tuition prices. In both of these countries rates of enrollment have continued on an upward trajectory, in spite of tuition price inflation (Teixeira et al., 2007). England has, in just two decades, moved from a free college tuition system to one in which tuition prices are among the highest in the world. Contrary to what proponents of free college tuition would expect, England has seen increased college enrollment and greater equity in higher education. In fact, a study by Richard Murphy, Judith Scott-Clayton, and Gil Wyness assessed the implications of moving from a system of free college tuition to a tuition-based market for quality, enrollment, and equity (Murphy et al., 2019). The authors find that England's shift has resulted in increased funding per head, rising enrollments, and a narrowing of the participation gap between advantaged and disadvantaged students.

Other studies have examined the relationship between tuition policies and measures of success and accessibility in higher education. A case study between higher education outcomes in Brazil, Chile and Argentina provides an analysis of the impact of differing tuition policies, with Brazil and Argentina providing free tuition public systems and Chile with some of the highest tuition fees in the world. The author finds that despite having no tuition in the public system, Brazil has the lowest enrollment probabilities and highest gap in participation between poor and rich backgrounds (De Gayardon and Fenoyl, 2017). This case study also reveals that Chile with its expensive tuition rates achieves similar participation rates to Argentina which has free higher education for all, and that there is little difference in attrition rates between the countries signaling that policy differences in higher education funding are not linked to student decisions to drop out. Such findings highlight a key point, that tuition fees alone,

are not a hindrance to participation in higher education. Although Chile has maintained a broadly market-oriented system of higher education, in recent years this has started to change. In 2014, the newly elected socialist government pledged to phase in free university tuition, first extending this benefit gradually based on family income, with the goal of covering students of all economic backgrounds by 2020. This makes Chile a real-time gauge of whether such policies have the desired effect of increasing affordability and accessibility. In a recent study on these changes in higher education in Chile, Alonso Bucarey finds that 20 percent of low-income students enrolled at the baseline would be denied admission under fixed college capacities, and with complementary policies that include investing in additional capacity, the enrollment rate of low-income students would drop by 10 percent (Bucarey, 2018). These findings demonstrate that, far from achieving increased affordability and accessibility, free college tuition actually pushes college further out of reach for the poorest students, owing to the increased competition for placement.

Two European countries that have experienced significant policy changes in higher education funding are Germany and Ireland. Before 2005 higher education at public universities in Germany was free of charge, but after a constitutional ruling in 2005, seven out of sixteen German states started charging tuition fees at public universities. A study on the effects of tuition fees on college enrollment in Germany adopted a difference-in-difference approach to estimate the enrollment effects of these changes in tuition (Bruckmeier and Wigger, 2014). The authors do not find a significant effect on aggregate enrollment in the German states that introduced tuition fees. These results do not support a deterrence effect of tuition fees and instead suggest that the case for abolishing fees has no solid empirical basis. These findings are corroborated by other studies that do not find empirical evidence that tuition fees lowered the intentions to enroll in higher education in Germany among high school graduates (Helbig et al., 2012). In contrast to the introduction of fees in Germany, Ireland abolished tuition fees in 1996. One study examines the effect of this reform in the socio-economic gradient to determine whether the reform was successful in achieving its objective of promoting educational equality for students of low socio-economic status (Denny, 2014). The author of the study finds that the policy of abolishing tuition fees did nothing with regard to improving access to university amongst the low SES students which was a stated objective of the policy. Instead, changes in student attendance by different socio-economic status can be explained by differential performance at secondary school level. These results are similar to studies of tuition fee changes in the United Kingdom which find that secondary level educational attainment largely explains changes the SES gradient with respect to college level education (Chowdry et al., 2012).

While the concept of free college tuition is still being advocated for today, most international examples of free higher education, are in fact not free at all. In an era of rising costs, high college enrollment, slower economic growth, and an ageing population, the government provision of free college tuition would be fiscally and politically difficult. Most countries that claim to provide free college education, either have a large and growing share of private institutions, a dual track financing system where the low achieving students subsidize the high achievers, or institutions charge nominal fees that often impose costs equal to tuition fees. Moreover, international evidence suggests that the stated objectives of free college are rarely, if ever, met. Free college could, in fact, lower educational quality for prospective students and as the empirical evidence suggests, lead to lower accessibility, which is particularly burdensome for those of low SES and non-traditional backgrounds.

Income Contingent Loans

The current U.S. system of higher education financing is broken and the impact on borrowers is increasingly calamitous. The current financing system is based on mortgage-style student loans that place large repayment burdens on low earning college graduates. In an attempt to reduce risk for students, particularly from low-income families, other countries have adopted income contingent repayment systems for higher education investment. At least nine countries around the world currently use an income contingent loan (ICL) scheme for higher education tuition financing (Chapman, 2016). Countries that have adopted ICLs include: Australia, New Zealand, South Africa, England and Wales, Hungary, Thailand, South Korea, the Netherlands, and Malaysia.

Income contingent loans are student loan repayment plans whereby the borrower pays back regular (often monthly) repayments at a rate that is proportional to his/her income level. To compare the basic characteristics of income contingent loans with income share agreements, the table below summarizes the key differences between these two educational financing options.

| | Income Share Agreement | Income Contingent Loan |
|--|---|---|
| Financing Source | Private | Public |
| Payment Method | Fixed share of monthly income after graduation once annual income exceeds minimum threshold | Fixed share of monthly income after graduation |
| Length of Pay Period | Fixed - Typically 7 - 10 years or when total payment exceeds 1.5 to 2.5 times initial amount borrowed | Variable - Typically 25 years or when the loan is paid off (any discharged debt is taxable) |
| Maximum Total Payment | Payment cap typically restricts repayment at 1.5 to 2.5 times initial amount borrowed | Loan value with accrued interest over time |
| Outcomes for Low-Income Graduates | Liability disappears when standard payment period ends (typically 7 – 10 years) | Continued payment until loan is paid in full or until 25 years payment period is reached |
| Variation in Payment | Higher earning college majors and higher quality institutions have lower repayment rates and shorter periods of payment | Generally none |

With the current market for variable nonfederal loans, fluctuations in the rate of interest can significantly change monthly nominal repayments for graduates. Such a model removes income flexibility as borrowers are required to continue paying the determined monthly amount (absent interest rate changes) regardless of whether the borrower experiences a fall in income (Barr, 2012). With ICLs, changes in the rate of interest have no impact on the borrowers’ monthly repayments and repayment rates are fixed to a set share of the borrowers’ income. Since implementing ICL systems in Australia and the U.K., the vast majority of students enrolled in college choose to defer their debt and repay through the ICL repayment system once they are employed (Barr et al., 2017). Employers of graduates withhold repayments from the borrowers’ income in the same way that employers withhold Social Security payments for the IRS. Unlike the high repayment burdens inherent in the current U.S. system observed by Chapman and Dearden, ICLs don’t have adverse impacts on students’ credit

reputation and ICLs actually minimize labor market distortions and family formation problems faced by low earners (Chapman and Dearden, 2016). What's more, due to the accuracy of ICLs to adjust repayments to individual financial situations, repayments tend to reflect a borrowers' ability to pay—a student's payment is adjusted dynamically to reflect changes in the borrowers' earnings. For this reason, ICLs act as a hedge against low or no income individuals.

Studies on the outcomes of ICL systems have noted that such schemes for higher education tuition financing have more equitable outcomes and can actually improve the teaching quality of higher education institutions. Australian economists Bruce Chapman and Chris Ryan studied the ICL system adopted in Australia in 1989 known as the Higher Education Contribution Scheme (HECS). The authors found that the social composition of participants was more equal after the adoption of HECS reflecting strong relative growth in participation in the middle of the wealth distribution (Chapman and Ryan, 2005). The authors conclude that HECS did not discourage university participation in general or among individuals from low wealth groups from enrolling in higher education. Other studies on possible ICL models have explored the possibility of loan terms being freely agreed with the institutions of higher education and payments being made directly to the college itself (Ainsworth, 2015). Such an approach might ensure that universities are invested in guaranteeing suitable employability for their graduates, while competition between institutions of higher education could promote a 'race to the top' as colleges have a direct economic interest in the success of their graduates. Income contingent graduate taxes of this sort have also been shown to incentivize universities to improve the quality of teaching, although perhaps at the expense of disincentivizing graduates from generating income (McKenzie and Sliwka, 2011).

While ICL schemes reduce default risks for students, most existing ICL schemes rely on government/taxpayer subsidies and offer little space for market signals. This is problematic for a variety of reasons. ICLs do little to improve the incentive structure for institutions to improve educational quality or lower tuition costs—colleges will continue to receive government subsidies regardless of the success or failure of graduates in the workplace. ICLs do little to incentivize students to choose high quality or high paying degrees that will ensure higher returns on their college investment. A lack of public information regarding the quality of institutions and contrasting values of different careers results in a lack of market pressure to improve quality and reduce tuition costs. What's more, without real interest rates above the government cost of borrowing, lower income thresholds, higher repayment

rates, longer loans terms, and a healthy labor market with good earnings growth, the costs of higher education will ultimately fall on the government/taxpayer (Barr et al., 2017).

The Case for Income-Share Agreements

As tuition prices and total outstanding student debt continue to inflate, it is becoming increasingly indisputable that our current system of higher education financing is failing to provide adequate financing for a growing number of prospective students. At the same time, proposals of free college tuition are largely hollow as free college tuition would likely result in lower educational quality and reduced accessibility for prospective students. While income-contingent loan schemes have been shown to lead to more equitable outcomes and improved educational quality, most existing ICL schemes rely on government subsidies and lack market signals that could lead to improved quality and reduced tuition costs. However, there is a market-based alternative for higher education financing that might offer solutions to most of the problems with existing avenues for higher education financing—the solution involves shifting from relying on debt to finance higher education to financing education as an equity investment.

The idea of financing higher education by committing a share of one's future income is not a new one. The concept was first mentioned by Milton Friedman in the 1940's as a footnote in *Income from Independent Professional Practice* (Friedman et al., 1946). The theory was further developed in 1955 with the publishing of *The Role of Government in Education*, where Friedman suggested that college students could fund their education through lenders who bear the cost of a student's tuition (Friedman, 1955). Upon graduation these students would then commit to pay a percentage of their earnings for a fixed period of time—Friedman suggested that such a system of education financing would be beneficial for both students and lenders. According to Friedman, higher education “is a form of investment in human capital precisely analogous to investment in machinery, buildings, or other forms of non-human capital” (Friedman, 1962). Friedman's early work on the potential for private financing of higher education as an equity investment forms the basis of what we refer to today as Income-Share Agreements (ISA's). With an ISA, investors fund students' higher education in exchange for a fixed share of their future income for a defined period of time after the student graduates. Both the period of

payment and share of income are dependent on the perceived value of college course choice in relation to potential future income, while both of these metrics will be visible to both investors and students.

Income Share Agreements are increasingly being adopted as a private mechanism to fund higher education, with a small number of ISA providers already operating in Latin America and the United States. The first ISA provider to enter the higher education marketplace was Lumni, founded in Chile in 2002—Lumni designs and manages social-investment funds that invest in the education of diversified pools of students (Lumni, n.d.). Lumni provides private equity financing to students in exchange for a fixed percentage of their income for ten years after graduation (Bornstein, 2011). After the ten year period of payment, student obligations are terminated, notwithstanding the total sum paid. Since the founding of Lumni in 2002, a handful of small providers of higher education financing investments have entered the marketplace, including: 13th Avenue in 2009, Cumulus Funding in 2011, Upstart and Pave in 2012, and Vemo Education and Better Future Forward in 2016 (Soler, 2019).

While institutions of higher education have been slow to adopt Income Share Agreements as an alternative avenue of financing, vocational training schools and coding academies have found the ISA model of education financing useful in building trust among their students. The coding academy market expanded more than ten-fold in size between 2013 and 2019 and the number of coding institutions continues to grow (Eggleston, 2019). As a large share of coding schools are not accredited, these institutions are ineligible for federal student loans and grants, so many coding academies have come to rely on an ISA model of financing. With ISA payments being proportionate to a students' income after graduation, the school is incentivized to ensure that coding graduates find well-paying jobs upon graduation. This model aligns the incentives of the student and the school, and signals to prospective students that the school has a stake in their future success (Bair and Cooper, 2019). Unlike ISAs provided for college students by Lumni, ISAs at coding academies have much shorter obligated pay periods and much higher income share rates. According to a 2019 report by the Manhattan Institute detailing the ISAs available at seven U.S. coding academies, obligated pay periods vary from 2 years to 4 years, while income share rates vary from 10 percent to 17.5 percent (Bair and Cooper, 2019). Coding academy graduates must also earn above a minimum income threshold before their obligated pay period begins—for coding academy ISAs, these income minimums tend to range from \$40,000 to \$60,000. This model is consistent with the high earnings potential of coding graduates. One additional feature of coding academy ISAs are total payment caps—most coding academies using an ISA model will place a

ceiling on the total amount that a graduate will pay back, usually set at around 1.5 times the tuition amount (Bair and Cooper, 2019).

In recent years, traditional four-year higher education institutions have started adopting ISA programs as an alternative or supplement to Federal aid and private student loans. Since 2016, at least six colleges have adopted ISA programs in the United States, including Purdue University, University of Utah, Colorado Mountain College, Clarkson University, Messiah College, and Lackawanna College (Soler, 2019). One of the most noteworthy college ISA programs is Purdue University's "Back a Boiler" program. The Back a Boiler ISA program offers students an alternative to high interest rate Parent PLUS and private loans and offers students greater flexibility in paying for college tuition. The program is available to Sophomore, Junior, and Senior year students enrolled at Purdue with a standard payment period of 10 years (Purdue Research Foundation, n.d.). Upon graduation, all students receive a six-month grace period before payments begin and once payments have been made for the duration of the contract, no further payments are required regardless of the amount of funding received (Purdue Research Foundation). Terms of payment and length of obligation under Purdue's ISA program depend on income expectations post-graduation, with more lucrative college majors having lower income share rates and shorter periods of payment. An English major student enrolled in the Back a Boiler program will pay 0.46% of their income for every \$1,000 received, for a period of 9 years and 8 months. A computer engineering student with higher expected income will pay just 0.3% of their income for every \$1,000 received, for a period of 7 years and 4 months (Purdue Research Foundation). Other common features of ISA programs at traditional college institutions are minimum-income thresholds for repayment and caps on total payments to lessen adverse selection. For four year college degrees, most ISA programs have minimum income thresholds ranging from \$20,000 to \$30,000 and caps on total payments usually vary between 1.5 and 2.5 times the amount initially borrowed (Bair and Cooper, 2019). Graduates are only required to start payments once their earnings exceed the minimum income threshold and may defer payments when income falls below this threshold—this is particularly valuable to students during times of temporary financial distress or unemployment. If a graduates' successive payments reach the cap of total payments, then the student stops making ISA payments. If the graduates' payments do not meet the total payment cap, then the graduate will continue payments until the term of the ISA expires.

Income Share Agreements as an alternative higher education financing option have a number of key advantages over traditional forms of financing, including:

Reduced risk – Unlike high interest rate private loans, ISAs transfer part of the inherent risk of a students' future income to the investor, acting as a form of insurance against future earnings shocks. This contrasts with traditional student loans whereby the risk lies solely with the student, or subsidized federal loans whereby the risk is transferred to the taxpayer. Students are also aware of their payment amounts and periods of commitment, so the affordability aspect is more transparent than that of private loans. What's more, ISAs have no balance or interest rate, so students are not compelled to pay a certain amount, instead, the ultimate risk lies with the investor who has a stake in the student—the investors return is dependent on the students' performance post-graduation. With the ability to defer payment, students are provided with protections against periods of low or no income (i.e. unemployment) meaning payments are always proportionate to a students' ability to pay and default caused by financial distress is eliminated. As well as acting as a hedge against risks associated with higher education investments, the transfer of risk from students to investors is also welfare enhancing. Nobel Prize Economist Kenneth Arrow noted the problems that arise from the nonexistence of a market that offers the opportunity to transfer risk from one party to another: "The nonexistence of markets for the bearing of some risks in the first instance reduces welfare for those who wish to transfer those risks to others for a certain price, as well as for those who would find it profitable to take on the risk at such prices. But it also reduces the desire to render or consume services which have risky consequences" (Arrow, 1963). While Arrow was referring to the health care market in this instance, the same observations can be applied equally to the market for higher education. ISAs enhance student welfare by reducing risk and enhance investors' welfare by offering investments that offer the possibility of a profitable return.

Improvements in equality of opportunity – While many traditional student loans provide financing based on a families economic status and ability to repay, ISAs provide financing based on the prospective students potential to excel in their college program. For this reason, prospective students from low income or disadvantaged backgrounds have equal access to ISA financing regardless of their families socio-economic status or the presence of a co-signer. This is particularly important for the poorest undergraduate students from families with incomes below \$40,000, who with current models of financing are more than twice as likely to face financial issues relating to debt servicing (The Institute for College Access and Success, 2019). Unlike Federal student aid, ISA financing is needs blind and thus the repayments of low-income earners are effectively subsidized by high income earners under this financing model. In fact, according to social innovation expert David Bornstein, 90 percent of students receiving financing from Lumni are the first in their families to attend college (Bornstein, 2011). The ISA

model of education financing addresses the under-investment problem, while also acting as a philanthropic effort to alleviate poverty by broadening access to higher education for those who may not otherwise qualify for student loans, or might lack access to federal aid. Without intervening with the market economy, but actually enhancing its efficiency, ISAs address two important policy goals; the provision of higher education and the alleviation of inequality.

Improvements in price signals and incentives – Due to the lack of price signals in the current system of higher education financing, many students enroll in poor performing programs and courses without adequate information about career prospects upon graduation. The lack of information and poor choice of programs often results in underemployment and a low return on investment reflected in low graduate earnings (De Rugy and Salmon, 2019). Income Share Agreements would help prospective students determine the value investors expect a particular course or program to provide—in other words, ISAs have the potential to steer students towards economically valuable programs that reap the largest returns in the form of higher earnings. Availability of information reveals differences among the value of career choices and provides information on the quality of educational institutions. In fact, articles on risk-based student financing argue that ISAs incentivize students to make better educational decisions (Bachelder, 2014). The incentives system created by an ISA model not only directs students towards better program choices, but also incentivize institutions by holding them accountable. An ISA financing model would reward low cost, high performance institutions by making price information easily accessible in the form of income share rates and payment periods. This price information could be useful in improving educational efficiency, lowering costs for students, and ensuring that graduates of these programs find suitable jobs with adequate earnings. By aligning the incentives of institutions and students, the college has a direct stake in the students’ future career trajectory as the institutions revenue is largely dependent on graduates’ future earnings. Such a shift in incentives may also have the effect of reducing tuition price inflation. By increasing the transparency of costs and benefits of college attendance, institutions would be under immense pressure to price tuition at level deemed appropriate by market signals in proportion to the future earnings of graduates. On the same basis, institutions could reduce the price of programs that lead students to low paying occupations, or face the possibility of under-enrollment for those programs. In his early work on the subject, Milton Friedman sums up the potential benefits of financing higher education with private capital by stating that it “would make capital more widely available and would thereby do much to make equality of opportunity a reality, to diminish inequalities of income and wealth, and to promote the full use of our human resources. And it would do so not by impeding competition, destroying incentives, and dealing with symptoms, as would

result from the outright redistribution of income, but by strengthening competition, making incentives effective, and eliminating the causes of inequality” (Friedman, 1955).

Another way of assessing the benefits of the ISA model of financing is to observe the available survey data on trends in student and parent perspectives, perceptions and characteristics of ISA recipients and student selection. The available survey data is limited and we should be cautious in drawing conclusive results from the findings, but the observations are certainly suggestive in determining which demographic groups might benefit most from an ISA model of student financing. A study which combines administrative and survey data on students who were offered an ISA found that ISAs made a difference in allowing college persistence and may have increased students flexibility (Soler, 2019). 822 Peruvian and Columbian students were identified to complete the survey and 238 of those completed the survey representing the final sample. In this study 37 percent of students said that they had no funding alternatives available and that ISA contracts were fundamental for persistence and choice, while 25 percent of the students in this group would not have studied without the option of an ISA. The same study revealed that students who use ISAs value the fact that payments are tied to future income, insuring against negative income shocks. Those who use ISA contracts tend to be from lower income backgrounds than those who choose not to use ISAs to finance their education suggesting that ISAs have the potential to benefit underserved and nontraditional students by providing financing regardless of family income or background. A second study surveyed 400 college and high school students and 400 parents of current and future college students about their likely interest in ISAs (Delisle, 2017). The results indicate that more than half of respondents are open to using ISAs to pay for college when they were provided with detailed information about ISAs. The author concludes that these findings suggest ISAs could replace a significant share of the student loan market dominated by the federal government. One final study focused on student selection uses Purdue University administrative and survey data for 431 ISA participants and 319 non-participants who applied, but chose not to participate (Mumford, 2018). The survey data reveals that ISA participants do not achieve lower grades than non-participants and there is no adverse selection by student ability, although they may take a lower paying job (\$2,500 less) after graduation. The author concludes that the lack of adverse selection may be the result of income share percentages differing based on course choice and average earnings of graduates in that field—if a uniform income share percentage was applied to all students in all courses, then there would likely be strong adverse selection by major and year in school.

Given the limited survey data, academic institutions and education research organizations should allocate more research funds into studying the impact of ISAs on student outcomes, institutional innovation, and changes in behavior related to risk aversion for prospective students. Studies which randomize subsets of students at a given college into two groups, one with access to ISAs and one group without, might more carefully control for adverse selection. This would make it easier to assess the impact of ISA participation on GPA scores and post-graduation salaries. Studies could also examine whether faculty at colleges with ISAs are more innovative on curriculum issues compared to those without ISAs. Given the inadequacy of the current system of higher education financing, additional research on alternative and substitute financing options could have a high payoff.

Barriers to ISAs and potential policy responses

In light of the problems highlighted by the current system of higher education financing, proponents of ISAs have suggested moving towards income based repayment obligations. However, if existing laws determine that ISAs should be treated as traditional loans, then several barriers arise that will ultimately limit the effectiveness of ISAs in addressing our student debt problem. From a workability standpoint, concerns about moral hazard, adverse selection, and legal clarity may prevent the formation of ISA marketplaces.

Moral hazard occurs when students choose not to seek high paying jobs as ISA repayments are tied to income, incentivizing students not to maximize their earnings post-graduation. Due to the agency problem stemming from the personal information students have about their capabilities and intentions, students choosing to earn less after graduation could make ISA contracts more expensive for high earning participants. Purdue University administrative data suggests that, although ISA recipients tend to have lower earnings post-graduation, the difference in earnings is minimal and insignificant at just \$2,500 lower than nonrecipients (Mumford, 2018). Improvements in technology and a growing abundance of data on ISA programs could plausibly reduce the potential costs associated with moral hazard. As the example of Purdue has demonstrated, an important characteristic of ISA programs that avoids issues of adverse selection is having different income share percentages based on average earnings of graduates.

While ISAs have the potential to steer students towards economically valuable programs that reap the largest returns in the form of higher earnings and better labor market matches, this alternative system of education financing will face opposition, particularly from industries that typically hire graduates from lower paying majors. Opponents of ISAs should not view this financing option as a threat to liberal arts majors or other majors with lower financial returns. ISAs offer an alternative or supplemental option of education financing that not only aligns incentives, but also increases the opportunity for non-traditional and risk averse students to attend college, who otherwise might not.

One of the greatest barriers to the formation and growth of ISA marketplaces is the legal uncertainty that exists regarding the treatment of ISAs. Investors will be reluctant to enter the marketplace if legal enforcement and protections have not been fully established, and the risk of ISA payments being legally challenged is still possible. Policymakers should design disclosure regulations that inform consumers about the key terms of ISAs. Usury laws should not be applied to ISAs as Income Share Agreements are not loans with interest rates and principal balances—ISAs should be treated as equity in future income and not debt. Placing arbitrary legal caps on ISA payments, as is done with loans, would drive up the income share percentages that investors require to finance students—this would likely result in increased costs for lower achieving graduates. To ensure that ISA providers can effectively track a graduate's income, the Department of Education could provide investors with data from the Internal Revenue Service. President of Purdue University, Mitch Daniels, argues that ISAs should be dischargeable in bankruptcy noting that “If we're really going to shift the burden and shift the risk away from the student, then we should treat it in that fashion all the way along” (IndyStar, 2015) Unemployed or low income graduates should not face bankruptcy as deferment means that graduates in this scenario have no obligation to make payments, face no fees and won't incur negative amortization. For tax purposes, ISA payments received by investors should not be taxed by the IRS as profit until the total payment amount exceeds the original investment. Payments below the original investment amount should be considered recoupment, while payments by graduates above the original investment amount are actual realized profit, so should be taxed as ordinary income. Policymakers could also work to collect data about labor market outcomes of college graduates from different fields of study and different institutions to disseminate this information without undermining student privacy. Miguel Palacios suggests that policymakers should start by repealing the federal ban on the collection of student unit record data and considering policy proposals that call for the collection and dissemination of such data. By clarifying the lawfulness of Income Share Agreements, policymakers can instill legal certainty and alleviate the reluctance of investors and prospective students from entering the marketplace.

Concluding remarks

Today, the United States has over \$1.6 trillion in student loan debt, which includes Federal loan debt, private loan debt, and parent loans. At the same time, our existing system of higher education financing is proving inadequate for a growing number of students. In an attempt to reduce risk for students, particularly from low-income families, other countries have adopted income contingent repayment systems for higher education investment. While income contingent schemes reduce default risks for students, most existing income contingent schemes do little to improve the incentive structure for institutions to improve educational quality or lower tuition costs. Income contingent schemes also do little to incentivize students to choose high quality or high paying degrees that will ensure higher returns on their college investment.

Recent proposals for free college tuition are largely ignorant of the international evidence on free college schemes. In an era of rising costs, high college enrollment, slower economic growth, and an ageing population, public resources for higher education are limited and the unintended consequences of tuition free college might be socially undesirable. What's more, the government provision of free college tuition would likely result in lower educational quality and lower accessibility for prospective students.

Income Share Agreements may not be the cure-all solution to all of the problems with our current system of higher education financing, but they certainly should have a place in the diverse marketplace for higher education. ISAs have the potential to significantly increase transparency in the higher education market and allow students to decide which college courses and institutions to enroll in. ISAs reduce risk for students, improve available information regarding the value of education, and increase competition between institutions of higher education. Policymakers should act to facilitate the growth of ISAs by establishing legal clarity and consumer protections.

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