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Higher Education: Social Impact Bonds and Income Share Agreements

Prepared for the

National Commission on Financing 21st Century Higher Education

By: Carlo Salerno, higher education economist/analyst

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Letter from the Commissioners

The University of Virginia Miller Center created the National Commission on Financing 21st Century Higher Education in 2014 to recommend policy and funding changes to help the nation attain the goal of 60 percent of the labor force with a postsecondary degree or certificate by 2025. This means that 62 million Americans must graduate with a postsecondary degree or credential between 2015 and 2025. At current rates, the United States will produce only 39 million such graduates, leaving a gap of 23 million—a shortfall of more than 2 million per year.

To meet the goal, the nation must maintain high school graduation and college entrance rates at or above 75 percent and 70 percent, respectively—reachable goals close to historical norms. The nation must also *increase* college graduation rates from 40 percent to 60 percent. Increasing the college graduation rate is inherently challenging but made even more so because of major demographic changes. Many of the upcoming college-aged individuals will be people of color or from low-income families, populations that traditionally have needed additional counseling, mentoring, academic support, and financial assistance to successfully enter into and complete higher education. How to increase access and graduation rates and thus equality for these two population groups is the major focus of the commission.

The need to address these issues is also urgent given that other nations are catching up to—and even surpassing—the United States in postsecondary degree- and credential-attainment rates. The United States ranked 13th relative to other Organization for Economic Cooperation and Development countries in 2014 in the percentage of 25- to 34-year-olds with higher education degrees or credentials. The cost of failure in attaining this goal—to the nation in terms of international leadership and to citizens in terms of job creation and income—is too high, and so action is required now.

To learn more about these issues, the commission engaged highly qualified experts to create 10 white papers on different dimensions of the higher education problem. The commission asked all the authors to push the limits of their knowledge and engage in "blue sky" thinking on individual topics. Each paper represents the views of the individual authors, not the commission. Nevertheless, the papers provide a foundation for the recommendations in the final report. In addition, the commission hopes the papers stimulate further discussion and debate about higher education policy and funding.

The 10 papers and the final report focus on answering three primary questions related to reaching the 60 percent goal. First, how do we realign incentives and retarget existing public funding to make the entire system more efficient and to increase graduation rates for students generally and students of color and from low-income families in particular? Second, what are the new, innovative models to deliver postsecondary education that can both lower the cost and increase the productivity of the entire system? Third, what options do federal and state governments and the private sector have for increasing funding for higher education? It is important to stress here that the interest is in the " value proposition " that underlies these three primary questions. The" value proposition " focuses on the national imperative of building a more highly skilled and educated work force not merely a more credentialed one.

The U.S. higher education system is still the envy of the world, but it must become more affordable for the next generation. It must also become more innovative and adaptable, especially in its use of technology, and be more productive with regard to graduation rates. Finally, additional funding must be available from federal, state, and private-sector sources to reach the goal.

National Commission on Financing 21st Century Higher Education

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- Bob Graham, former governor of Florida and former U.S. senator (co-chair)
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White Papers written for the National Commission on Financing 21st Century Higher Education

Paper 1. **Crowded Out: The Outlook for State Higher Education Spending**
Authors: Dan White and Sarah Crane, Moody's Analytics

Paper 2. **Transformations Affecting Postsecondary Education**
Author: Jeffrey J. Selingo, Arizona State University and Georgia Institute of Technology

Paper 3. **State Higher Education Finance: Best Practices**
Authors: Martha Snyder, Brian Fox, and Cristen Moore, HCM Strategists

Paper 4. **Financing American Higher Education in the 21st Century: What Can the United States Learn From Other Countries?**
Author: D. Bruce Johnstone, professor, Higher and Comparative Education Emeritus, University at Buffalo

Paper 5. **State Strategies for Leveraging Employer Investments in Postsecondary Education**
Authors: Robert Sheets and Stephen Crawford, George Washington Institute of Public Policy, The George Washington University

Paper 6. **Understanding State and Local Higher Education Resources**
Authors: Sandy Baum and Kim S. Rueben, Urban Institute

Paper 7. **New Directions in Private Financing**
Author: Andrew P. Kelly, American Enterprise Institute

Paper 8. **Higher Education: Social Impact Bonds and Income Share Agreements**
Author: Carlo Salerno, higher education economist/analyst

Paper 9. **State Support for Higher Education: How Changing the Distribution of Funds Could Improve College Completion Rates**
Author: Bridget Terry Long, Harvard Graduate School of Education

Paper 10. **The Federal Role in Financing 21st-Century Higher Education: Effectiveness, Issues, and Alternatives**
Author: Gabriel R. Serna, Virginia Polytechnic Institute and State University

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Executive Summary

In 2009, Lumina Foundation launched Goal 2025 to increase the percentage of the adult U.S. population with postsecondary education to 60 percent. Without higher education policy and funding changes, experts estimate that the United States will fall short by nearly 20 million degrees. Many of the challenges holding students and families back are financial and tied directly to strained state capacity to provide additional education investments. Federal investment has alleviated some pressure on students and families, but the nation is running into a capacity barrier. New solutions beyond additional injections of funding through traditional financing vehicles are warranted, as are new types of public–private arrangements that encourage economic efficiency and promote shared accountability.

Social impact bonds (SIBs) represent one solution. These are essentially a pay-for-performance contract in which the public sector commits to funding demonstrable improvements in social outcomes. As financing vehicles go, the SIB is a new idea that has been widely applied in less than a decade. Primary features of the SIB are its capability to inject private investment that does not come from the bond's recipients—that is, students and families—its ability to shield governments from risk, and its potential for maximizing the return on taxpayer dollars. Areas where SIBs can offer potential solutions for state higher education systems include reducing attrition rates, increasing low-income and minority student access, and lowering student loan default rates.

Another solution is the income share agreement (ISA), which allows funders to receive some fractional share of a fundraiser's (i.e., a student's) future earning potential in return for providing capital upfront. Although interest in the ISA as a concept has ebbed and flowed since Milton Friedman first proposed it in the 1950s, today it is experiencing a renaissance of sorts as new private-sector partners and institutions look to make the ISA a feasible option for students. ISAs offer a novel way to inject private capital into higher education systems while striking a balance between consumer preferences and state needs for economic skill sets. The different ways ISAs can be structured make them highly suitable as potential solutions for many states' education system financing problems.

Funding models like SIBs and ISAs are still poorly understood by both the public and policymakers, but they have the potential to alleviate the heavy strain on public financing capacity. As "new" solutions, the greatest challenges they face are the absence of historical patterns of demonstrable success and underdeveloped legal and regulatory frameworks that create economic uncertainty. Nevertheless, from a state government perspective, ISAs and SIBs may very well be the 21st-century tools needed to solve 21st-century funding problems.

Introduction

In 2009, Lumina Foundation launched its Goal 2025[1] to raise the percentage of the U.S. adult population with postsecondary education to 60 percent. Seven years on, that number sits at a frustrating 40 percent. Although the numbers suggest progress in the growth of associate degrees granted, the country will not only fall short but will probably do so by approximately 20 million degrees.[2]

Students and families face many challenges to successfully completing higher education, but most agree the biggest hurdles are financial. As of 2014, 31 states had cut per-student education funding by 20 percent over 2008 levels, 6 states had cut per-student funding by one-third, and 2 states had cut funding by a full 40 percent.[3] In response, the number of students taking on loan debt to pay for higher education grew from 23.3 million to 38.8 million between 2005 and 2013.

State higher education financing must compete with an array of other public service needs, including kindergarten through grade 12 education, human services, corrections, and state-based entitlement costs. It is an unfortunate fact that higher education is often the budget balancer in times of fiscal strain, especially as the increasing cost of Medicaid and legacy pension programs strain states' efforts to maintain balanced budgets. Indeed, state policymakers have been reluctant to force institutions to keep tuition prices in check. As a result, tuition and fees in many states are now, on average, a greater revenue contribution than state appropriations.[4]

The dynamics shaping college affordability and the nation's new completion agenda are complex. State disinvestment is partly to blame, but so too is the "high tuition/high aid" strategy that elite private higher education employs and competition between public and private institutions for the same students. Throw in the fact that education output is not produced the way commodities are but instead depends on the capabilities and ambitions of students who enroll, and it quickly becomes apparent that any solution must strike a balance among a diverse array of stakeholder needs, competitive market forces, and public and private investment priorities.

When a high percentage of state higher education systems reach financial capacity, pricing pressures will inevitably be passed to consumers. We know that these pressures drive away segments of the population who economically benefit the most from a college degree yet the levels of strain have become so high that it is nearly impossible for states to make the financial commitments needed to bring public higher education back to the levels of affordability. Federal investment, through grants and loan programs, has done much to help students and families manage the widespread cost shift, but one needs to look no further than Pell grant financing to see that public financing capacity is approaching its limits.[5]

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1 Lumina Foundation, "Goal 2025," https://www.luminafoundation.org/goal_2025 (accessed May 20, 2016).

2 Allie Bidwell, "College Attainment Progress Won't Meet 2025 Goal," *U.S. News and World Report,* April 9, 2015, http://www.usnews.com/news/blogs/data-mine/2015/04/09/lumina-college-attainment-progress-wont-meet-2025-goal (accessed May 20, 2016).

3 Michael Mitchell and Michael Leachman, *Years of Cuts Threaten to Put College Out of Reach for More Students* (Washington, DC: Center on Budget and Policy Priorities, 2015), http://www.cbpp.org/research/state-budget-and-tax/years-of-cuts-threaten-to-put-college-out-of-reach-for-more-students (accessed May 20, 2016).

4 According to a November 2014 study conducted by the U.S. Government Accountability Office, tuition revenues now make up a larger percentage of public college resources than all combined state revenue sources. Government Accountability Office, *Higher Education: State Funding Trends and Policies on Affordability* (Washington, DC: Government Accountability Office, 2014), http://www.gao.gov/assets/670/667557.pdf (accessed May 20, 2016).

5 David Reich and Brandon Debot, *House Budget Committee Plan Cuts Pell Grants Deeply, Reducing Access to Higher Education* (Washington, DC: Center on Budget and Policy Priorities, 2015), http://www.cbpp.org/research/house-budget-committee-plan-cuts-pell-grants-deeply-reducing-access-to-higher-education (accessed May 20, 2016).

The current state of affairs is unfortunately a system in which public-sector investment is tapped and marketing mechanisms continue to shift a greater percentage of higher education costs onto students and families.[6] New solutions beyond additional funding through traditional financing vehicles are not just necessary but warranted. A new type of public–private relationship is needed, but such a relationship must do more than simply share accountability: It must also alleviate fiscal pressures on students and their families and create mechanisms that prevent more "arms race" tuition increases.

Fortunately, policymakers do not have to work from a blank slate. Recent years have seen a flurry of academic analyses, policy debates, and even private-sector business applications that offer novel solutions to these very problems. This paper takes a narrow slice of those efforts—the concepts of Social Impact Bonds (SIBs) and Income Share Agreements (ISAs)—and considers the extent to which they may be 21st-century solutions to help make Lumina's Goal 2025 a reality.

A new type of public–private relationship is needed, but such a relationship must do more than simply share accountability: It must also alleviate fiscal pressures on students and their families and create mechanisms that prevent more "arms race" tuition increases.

[6] It is a curious observation that, despite more than 20 years of policymakers and higher education experts expressing concern about spiraling college costs, not one institution among the more than 5,000 that operate in the United States has been able to sustain a program that has stabilized or reduced tuition and fee expenses for students.

Rethinking Private-Sector Finance Part 1: Social Impact Bonds

SIBs are essentially pay-for-performance contracts in which the public sector funds demonstrable improvements in social outcomes. Public agencies get to mitigate their financial exposure and exact savings by structuring arrangements that allow third-party backers to frontload the required resources and contract with partners to provide the necessary services (Figure 1). Independent evaluators assess the extent to which objectives are being achieved. When outcomes are met, the public agency then pays for these gains, which go back to the original investors or backers. Like bonds, SIBs have a fixed term; unlike bonds, SIBs do not have a fixed rate of return because the ultimate return depends on performance.

As financing vehicles go, the SIB is a new idea. In fact, it was not until September 2010 that the first SIB was launched in the United Kingdom. Since that time however, SIBs have appeared in many countries, particularly in transitional and developing economies. The scale and scope of financed projects vary but typically address social issues like child health or recidivism rates, where the cost of keeping someone from falling into a hole is far less than having to pull them out.[7]

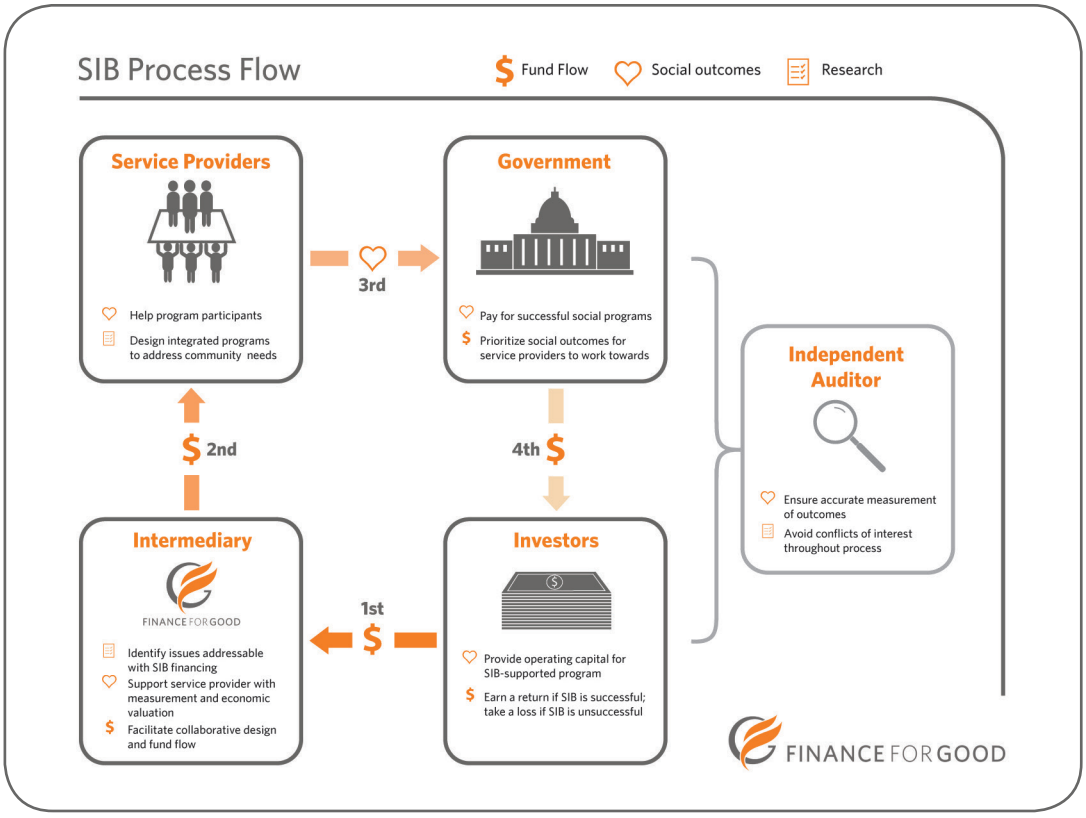

Figure 1: Social Impact Bonds Process[8]

[7] A comprehensive list of SIB-supported projects is at the Social Finance website, http://socialfinance.org/what-we-do.
[8] This graphic was adapted from the Finance for Good website, http://financeforgood.ca/about-social-impact-bonds.

In the United States, interest in pay-for-performance investment strategies has continued to expand at both the federal and state levels. In 2011, President Obama proposed up to $100 million in SIB pilot money and specifically highlighted education as a priority funding area.[9] In 2012, Massachusetts used a competitive procurement process to secure up to $50 million in social innovation financing for social services. In 2015, Sens. Orrin Hatch, RUtah, and Michael Bennet, DColo., reintroduced legislation to create a $300 million fund run by the U.S. Department of the Treasury that would, in addition to financing states' and local governments' pay-for-performance outcomes, finance SIB feasibility studies and SIB evaluation components.[10]

Applications

The scale and scope of SIBs is expanding but still limited. The president has pushed to free resources for states to establish SIBs, but the few high-profile operational examples are still financed by large investment firms and foundations. The marquee example is Goldman Sachs' SIB to reduce recidivism among youth detained at Riker's Correctional Facility, which is regarded as the first SIB in the United States.[11]

Where education is concerned, most SIBs focus on early childhood issues. Here again, Goldman Sachs has largely led the way by, for example, working with United Way and J.B. Pritzker in Salt Lake City to support early childhood education and in Chicago by supporting pre-kindergarten programs for low-income families. In the case of adult education, the Jewish Vocational Service in Boston teamed up with Social Finance in 2014 to provide a bevy of basic education services, job training, and English-language courses.[12]

The lone higher education–specific example to date has been in Israel, which in late 2015 launched an eight-year SIB to curb dropout rates for computer science students.[13] Given the high job opportunity potential but difficulty recruiting and retaining students, research showed a correlation between dropouts and mid-term exam results. The solution was to provide a wide array of student support services, primarily in the first year of the program, with lower support in year two and "emergency" support in year three.

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9 Office of Management and Budget, "Paying for Success," https://www.whitehouse.gov/omb/factsheet/paying-for-success (accessed May 20, 2016).

10 Although the Hatch–Bennet bill focuses less on education activities, the companion House bill, introduced by Reps. Todd Young, RInd., and John Delaney, D-Md. Address both education-related outcomes for disadvantage populations and improving socioeconomic challenges that researchers believe shape college completion rates. focused on outcomes and return on investment. See the table in John Griffith's blog post, "Inside the Hatch-Bennet Bill to Expand Social Impact Bonds," http://blog.enterprisecommunity.com/2015/04/inside-expand-impact for a comparison of the two bills.

11 In August 2015, the evaluator of the program determined that the SIB had not reduced recidivism, and the program ended. For more information, see Donald Cohen and Jennifer Zelnick, "What We Learned from the Failure of the Rikers Island Social Impact Bond," *NPQ,* August 7, 2015, https://nonprofitquarterly.org/2015/08/07/what-we-learned-from-the-failure-of-the-rikers-island-social-impact-bond (accessed May 20, 2016).

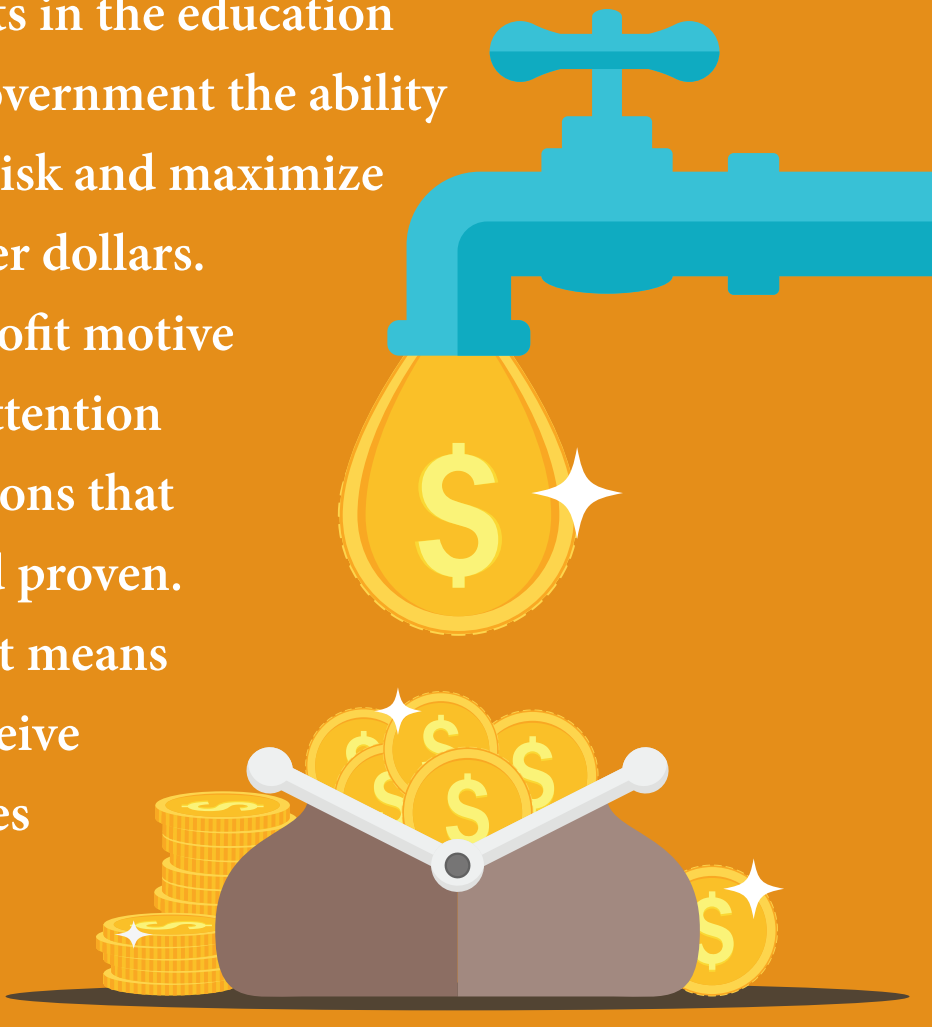
12 A recent Brookings Institution paper lays out a succinct rationale for why SIBs are particularly attractive at the intersection of early childhood intervention programs and developing economies. See Emily Gustafsson-Wright and Tamar Manuelyan Atinc, "Social Impact Bonds for Early Childhood Development: Making 'Dollars and Sense' in Developing Countries" (Washington, DC: The Brookings Institution, 2014), http://www.brookings.edu/blogs/education-plus-development/posts/2014/04/02-early-childhood-development-social-impact-bonds-gustafsson-wright-atinc (accessed May 20, 2016). For the Goldman Sachs programs, including the Riker's Island example discussed here, see "Social Impact Bonds" at http://www.goldmansachs.com/what-we-do/investing-and-lending/impact-investing/social-impact-bonds. For the Social Finance/Jewish Vocational Service program, see Claire McNeill, "Adult education initiative gets boost," *The Boston Globe,* August 13, 2014, http://www.bostonglobe.com/metro/2014/08/12/mass-aims-ramp-adult-education-initiative/k9gdSd8XY2AINxcmvzDbeN/story.html (accessed May 20, 2016).

13 Lidar Gravé-Lazi, "Israel Launches First Ever Social Impact Bond in Field of Higher Education," *The Jerusalem Post,* November 4, 2015, http://www.jpost.com/printarticle.aspx?id=432043 (accessed May 20, 2016).

The project is structured over an eight-year period and will work with three cohorts of 200 students each. Aided by three major investors, a large nongovernmental organization that has worked in higher education for more than 30 years provides services. Social Finance Israel is the intermediary organization, and the public entities are the academic institutions, which provide assessment data to an independent auditing firm that will assess the initiative's success.

Benefits and costs

As a financing option, SIBs are well positioned to address the challenges now faced by higher education. They facilitate private investment without the money coming from education's recipients— students and their families. They also provide a way for the private sector to make profitable investments in the education space while giving government the ability to shield itself from risk and maximize the return on taxpayer dollars. The private-sector profit motive encourages greater attention to services and solutions that are both low cost and proven. Public-sector support means that social causes receive the financial resources they need.



SIBs must also contend with difficult structural and implementation challenges.[14] Like social science research in general, SIB evaluations tend to lack clearly defined and widely agreed-on, measurable outcomes. Even where those outcomes exist, it can be difficult to find ways to monetize them. The timeline for enacting social change can be much longer than what investors are prepared to spend locking up financial resources. Program assessment is contracted out to independent third parties that may have different expectations for success than the private-sector backers looking for financial returns and government agencies paying for results.

There are also cost concerns. The large number of participants in a SIB and a weakly defined regulatory environment make deal development an onerous process. One can explore the Social Impact Bond Technical Assistance Lab at Harvard University to appreciate how challenging it can be for states to establish SIBs.[15] The Israeli deal discussed earlier, for example, took more than 18 months to negotiate. Although the growth and expansion of SIBs in places like the United Kingdom have reduced contract development time, closing deals can still take several years. Given the large number of participants and the amount of transactional friction, some argue that SIBs have higher-than-average program costs.[16]

Surveys of existing SIB participants also identify what's called the *wrong pocket* problem—the idea that the government entity paying for the improved outcome ends up being different than the recipient. In some cases, the failure can be vertical (think of the federal government saving on student loan defaults when states are the ones paying to improve completion rates). In other cases, it can be horizontal, such as when a state education board finances remedial education, but the state's department of labor becomes the primary beneficiary through lower unemployment services costs.

These issues are not insurmountable, but they do having cascading effects. The timing and appropriateness of measurement standards create difficulties securing financing and return-on-investment terms from the private sector. Federal, state, and local governments can readily understand how SIBs are capable of generating both savings and socially desirable outcomes, but long and complex contract negotiations coupled with limited state budgets and wrong pocket pitfalls can make it difficult to secure public-sector partnerships.

14 The Brookings Institution has arguably done most of the survey and meta-research on SIBs to date. For a deeper discussion of the implementation difficulties faced by individual parties to SIBs, see Emily Gustafsson-Wright, Sophie Gardiner, and Vidya Putcha, *The Potential and Limitations of Impact Bonds: Lessons From the First Five Years of Experience Worldwide* (Washington, DC: The Brookings Institution, 2015), http://www.brookings.edu/~/media/research/files/reports/2015/07/social-impact-bonds-potential-limitations/impact-bondsweb.pdf (accessed May 20, 2016).

15 Doug Gavel, "State and Local Governments Receive Assistance to Launch Pay for Success Projects Across the Country," Press Release, March 12, 2015, http://www.hks.harvard.edu/news-events/news/press-releases/sib-lab-winners-2015 (accessed May 20, 2016).

16 Hanna Azemati et al., "Social Impact Bonds: Lessons Learned So Far," *Community Development Investment Review,* http://www.frbsf.org/community-development/files/social-impact-bonds-lessons-learned.pdf (accessed May 20, 2016).

Improving higher education by using SIBs

In the absence of direct, practical examples, one can only speculate about the situations in which SIBs could be leveraged effectively to improve higher education outcomes. If, however, one considers that SIBs seem designed to function well for preventative programs, several areas seem promising.

One area is improving attrition rates. Too many students still begin but never complete higher education, often taking on debt without earning a credential that would bring higher wages.[17] States could structure SIBs so that backers finance partnerships among third-party support services (e.g., tutoring, counseling, child-care services) that could be provided to a state's at-risk college student population. Any number of academic research institutions or accounting firms could be contracted as independent auditors, and then the state could pay for completions. States would have a seat at the table when determining which services were needed most but also be able to help define the metrics under which they would pay for performance.

Another area ripe for exploration is improving low-income and minority student access. Although such an effort would probably best be structured as a high school initiative that focuses on college preparation, states could structure SIBs so that backers again finance a bevy of third-party support services—standardized test preparation services, scholarship selection services, and family support services—to help give secondary education students the resources they need. Such an approach would raise the numbers of students from socioeconomically poor areas by not only increasing their academic capabilities but also ensuring that they have the expertise to successfully navigate the college admissions process.

A third option is for the federal government to structure a SIB to help lower student loan default rates. Even with income-driven repayment options, the number of student borrowers who are delinquent on their loans is astonishingly high.[18] The U.S. Department of Education could participate in a solution where backers fund financial literacy training for students from college application through loan repayment. The Department would play a role in prioritizing the types of students helped and identifying program metrics that constitute programmatic success. Doing so could save the government billions in loan servicing and default collection costs.

17 See Susan M. Dynarski, "The Trouble With Student Loans? Low Earnings, Not High Debt," http://www.brookings.edu/research/papers/2016/01/07-student-loans-low-earnings-dynarski (accessed May 20, 2016).

18 According to data provided by the U.S. Department of Education, at the end of the first quarter of 2016, there were 3.1 million delinquent borrowers holding $66 billion in federal direct loans (see https://studentaid.ed.gov/sa/sites/default/files/fsawg/datacenter/library/DLPortfoliobyDelinquencyStatus.xls).

Rethinking Private-Sector Finance Part 2: Income Share Agreements

ISAs are not new. Milton Friedman first introduced them into mainstream policy thought as far back as 1955 in the very context of how the government could efficiently fund education.[19] As a financing tool, the basic mechanics of an ISA are simple. Fundraisers seek funders who, in return for providing upfront capital, agree to receive some fractional share of the fundraiser's future earning potential. Term lengths can vary, and their structure is highly flexible in terms of the conditions under which sharing occurs, pauses, and finishes. Rates can be set uniquely between individual fundraisers and backers; third-party intermediaries can set rates, as well. ISAs are contracts, not loans, which means that the amount raised and the amount shared with funders are not connected.[20]

A useful way to think about ISAs in the context of college financing is to consider how an ISA may look relative to taking out a federal student loan. For simplicity, consider a college graduate who assumes $25,000 in unsubsidized federal student loan debt at 6.8 percent interest[21] and pays it off over the standard 10year term. Assuming a straight repayment schedule, she will end up paying $34,524 in total at a fixed $287.70 per month regardless of her available income.

Now assume that that graduate instead successfully raises $25,000 through an ISA and agrees to share 6.8 percent of her income for the next 10 years. As a matter of simplicity, let the graduate's annual salary in year one be $45,000 and grow by 3 percent per year. Over the course of 10 years, she would end up sharing $35,079 with the ISA's backers.

At first glance, the programs seem fairly equal, but now consider what would happen to that fictitious graduate if she loses her job in year 5 and is unemployed for 7 months of that year before finding a new job that again puts her back at $45,000 per year. In this case, she would still have to make the full $34,524 payment on her loan (at $287.70 per month), but in the ISA, she now only ends up sharing $30,483. Because she continued to share 6.8 percent of her income throughout the term of her agreement, her contract ended successfully, and her backer absorbed the $5,000 loss.

Applications

Although interest in ISAs continues to grow, examples of practically implemented solutions are few. In 2012, two private companies—Pave.com and Upstart—piloted private ISA marketplaces.[22] Both projects ended up reverting to more traditional loan vehicles, albeit with forward- as opposed to backward-looking risk metrics. In 2014, Oregon was the first state to consider building a statewide solution with its "Pay It Forward" model, but the state backed off during the feasibility study phase.[23]

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19 Milton Friedman, "The Role of Government in Education," in *Economics and the Public Interest,* ed. Robert A. Solo (New Brunswick, NJ: Rutgers University Press, 1955), 123–144.

20 Miguel Palacios is a prolific academic writer on ISAs. His 2002 article in the *Journal Policy Analysis,* titled "Human Capital Contracts: 'Equity-Like' Instruments for Financing Higher Education," is one of the most cited pieces of academic literature on the topic. For more information, see http://www.lumni.net/about/palacios.pdf.

21 I use the unsubsidized Stafford loan rate because even poorer borrowers typically end up with a blend of subsidized and unsubsidized federal student loans. To appreciate the disparity in student loan interest rates, the Department of Education provides a table at https://studentaid.ed.gov/sa/types/loans/interest-rates (accessed June 1, 2016).

22 See Alistair Barr, "Ex-Googler Builds New Way to Back Entrepreneurs," *USA Today,* November 11, 2013, http://www.usatoday.com/story/tech/2013/11/11/upstart-investing-entrepreneurs/3286705 (accessed May 20, 2016).

23 Jason Delisle, "A Fiscal Reckoning for Oregon's 'Pay It Forward,'" *Forbes,* August 20, 2014, http://www.forbes.com/sites/jasondelisle/2014/08/20/a-fiscal-reckoning-for-oregons-pay-it-forward (accessed May 20, 2016).

Today, there is again renewed interest in ISAs by Purdue University and its president, former Gov. Mitch Daniels. Working through Purdue's research foundation, the university announced in November 2015 that it had signed a letter of intent with Vemo Education to further explore how Purdue could become the first university in the United States to offer its students ISAs as a viable financing option.[24]

Benefits and costs

As a financing structure, ISAs have the potential to alleviate a number of the concerns addressed earlier. Like SIBs, they inject private capital outside of student and family resources into higher education. They align incentives between fundraisers and backers, which has the potential to encourage backers to provide additional forms of nonfinancial support. To consumers, ISA terms capture the best of federal student loan program characteristics because they ensure that payment amounts are always affordable. From the government's standpoint, defaults disappear because there is no loan, and potential returns can be reinvested in other educational objectives.

ISAs seem like straightforward concepts, yet they also raise simple-to-ask but complicated-to-answer operational questions. How long should terms run? If someone is using the money to pay for a college education but is or is not employed, when should the income share component begin? Should ISA contract lengths "pause" if an undergraduate decides two years after completing his or her education to enroll full time in a graduate program? On a deeper level, there are any number of challenging issues to be resolved. I address three of the more salient ones here.

Rate setting

Establishing fair rates is difficult because fundraisers typically overestimate their future value while backers tend to underestimate it. Reconciliation is challenging in the face of prevailing statistics, which often work against fundraisers. With more than half of all students not completing an academic program six years after starting and most students changing their majors sometimes two or three times, it is difficult for backers simply to take a fundraiser's word that he or she plans to be a biologist.

For backers, there is also no easy way to value a prospective human capital investment, and so the easiest solution often involves looking at the career the fundraiser plans to pursue. This framework draws on existing, available data to construct occupational income curves that the backer can use to gauge future income. In principle, providing backers and fundraisers with the same quantitative information should lead to efficient rate setting. Unfortunately, however, that is rarely the case.

Prospective fundraisers' primary worry is giving up more than they should (to the point that they could have taken loan terms and paid less money). Even in the presence of information about how to price themselves, fundraisers still want income shares that resemble traditional student loan terms. Because the discussion is based on forward-looking events, fundraisers have enormous incentive to believe that they will perform above average. The inability to ensure this expectation pushes backers to move beyond simple income curves and take into account additional, less structured data points that capture more ethereal concepts like "ambition" or "persistence."

[24] "Purdue Research Foundation signs letter of intent to explore college funding alternative," Press Release, November 23, 2015, http://www.purdue.edu/newsroom/releases/2015/Q4/purdue-research-foundation-signs-letter-of-intent-to-explore-college-funding-alternative.html (accessed May 20, 2016).

Servicing the agreements

Determining what constitutes *income* is critical as is handling the fact that people earn raises and lose jobs over the course of a calendar year. Sure, income-driven repayment plans typically rely on income taxes to calculate shares, but large swaths of the population are entrepreneurs or self-employed.

From a technical standpoint, handling what happens when people fail to make payments is even more challenging. Should the entire fundraised amount be converted to a debt note and called in when fundraisers stop making income shares? What if people become delinquent? Standard enforcement mechanisms associated with loans, such as capitalized interest, make little sense in this context. At the same time, converting those delinquencies into debt defeats the very purpose of an ISA.

Managing selection bias

One of the most challenging aspects is the disconnect that selection bias causes. The students backers would most like to fund—those pursuing master's in business administration (MBA) degrees, medical students, computer scientists, mathematicians—are those who should be least likely to want ISAs over traditional loan products. Their earning potential and job market prospects are stable, strong and highly predictable, which means that they face greater risk of paying a success premium versus simply taking a loan.

In contrast, those who go into "creative" fields like performance and visual arts have more incentive to reach out to ISA markets because the divergence between what the typical and exceptional individual in such fields makes is highly diverse and employment prospects are volatile. Unfortunately, although the upside potential for the best in these fields is high, the likelihood of reaching that pinnacle is quite low, which makes backers more reluctant to fund such individuals.

Improving higher education by using ISAs

ISAs can be structured in different ways to serve students, institutions, and private-sector backers efficiently. First, make it possible for students to divide and aggregate a series of smaller, annual ISA agreements. Given the high level of attrition and career change that student consumers experience, the use of smaller annual funding agreements allows students to demonstrate commitment to their education investment without backers having to provide as much upfront money. Progress in a degree program would incentivize backers to provide larger amounts in future years and potentially at better terms based on the level of success a student demonstrates.

Second, encourage ISAs as refinancing tools near the completion of an academic program. Students at this stage have largely signaled that they will complete a credential and not change their academic major. As such, students could approach an ISA marketplace and secure a contract that they can use to cancel their student loan debt.

Third, capping the amount of income that students are allowed to propose sharing is an important protection, not only to ensure that students do not overcommit resources but also to ensure that backers do not create incentives to drive up income shares to levels that may force students into financially unattractive deals.

Finally, nobody expects arrangements like these to replace existing financing systems; rather, ISAs supplement them. In those cases where individuals find themselves unable to secure ISA-style funding because labor market wages and opportunities simply will not support income shares within policy bounds, students would still remain eligible for traditional federal financing support, with all the hardship and benefits that come with it.

What could a state-based ISA structure look like? The most straightforward way to protect the taxpayer investment is to treat it as a refinancing mechanism offered to third- and fourth-year undergraduate students. This would minimize the risk of newer students changing academic majors mid-education but also maximize the likelihood that those with an ISA end up receiving a credential that will generate labor market returns.

A state could cap the total ISA at four years of in-state tuition at the most expensive school in the system. Granularity is important to pricing, but practical implementation suggests that rates could be based on approximately six or eight fields of study that reflect the average of each group's income curves. Regardless, rates could be capped at say no more than 10 percent or 12 percent of income to ensure that shares are affordable and limited to 10-year terms to ensure that graduates are not paying in perpetuity on their obligation or that successful students do not end up sharing exorbitant amounts of income in aggregate.

Logistically, the state could contract with a traditional loan servicer to verify income and collect shares. Students could be given a six-month grace period following graduation to find employment and begin their income share. Their income share "clock" could pause should the graduate choose to go back to college for continued study.

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Discussion: 21st-Century Tools for 21st-Century Problems

Funding models like SIBs and ISAs are still poorly understood by both the public and policymakers,[25] but their values are fast becoming apparent. Most obvious is that they alleviate the heavy strain on public financing. Again, declining state investment has probably been the greatest contributor to cost shifting toward students and families, which has in turn placed enormous financial pressures on the federal government to maintain college affordability. Even at current levels, the federal Pell Grant program remains notoriously underfunded. Most new income-driven loan repayment programs and Pell increases in recent years have been financed in part by removing existing subsidies from the federal student loan system. Indeed, the reason there are five income-driven repayment plans for federal student loans today is that each had to be limited in scope because of that particular program's cost at the time it was proposed and implemented.

Financing structures like ISAs also create risk-sharing efficiencies. The current federal student loan system subsidizes all students—whether they are in computer science or elementary education—at the same rate, despite the fact that the employment markets and wages that graduates typically see are vastly different. An ISA structure still allows both types of students to reap the benefit of an ISA while acknowledging that students, not institutions, choose to earn credentials in fields that may have poor wage and employment potential relative to a program's cost.

From a state government perspective, an ISA can be a particularly valuable tool for fostering economic development. Under the current loan financing regimes, the federal government typically forgives the loan debt of people who pursue employment in "economically necessary" fields (think inner-city education). This approach is inefficient to the extent that programs are defined and adjusted by policymakers through law and thus may not reflect rapidly changing market needs. This information lag can potentially work against students, as well. If part of their education financing plan is based on the expectation of future loan forgiveness, it offers them no flexibility to change majors if labor market opportunities decline or if they find that their first program choice was not aligned to their talents and interests. Under ISAs, rates would continuously and dynamically reflect labor market demand and price the attractiveness of human capital investments accordingly.

Concepts like ISAs benefit students and families not just because they mimic all the characteristics of income-driven repayment options but because they compensate for the financial concerns researchers believe prevent students from completing a program. Monthly shares are capped at previously agreed-on rates and dynamically fluctuate in case of adverse events like job loss. They have floors below which zero dollars get shared. They also have finite terms, which ensures that consumers are not paying in perpetuity.

Yet benefits extend beyond just payment ease. Some students and families are just historically averse to taking on debt, which in itself makes ISAs appealing in the sense that there is never an outstanding obligation. There is an additional, not-often-addressed benefit, however: Backers who take a financial

[25] The American Institutes for Research, for example, has conducted studies on consumer perceptions about ISAs. American Institutes for Research, *Searching for the Best Deal: How Students and Their Parents View Income Share Agreements* (Washington, DC: American Institutes for Research, 2016), http://www.air.org/sites/default/files/downloads/report/Income-Share-Agreements-ISAs-Searching-for-the-Best-Deal-Jan-2016.pdf (accessed May 20, 2016).

position in someone have an economic interest in seeing that person succeed (because their financial return is tied to that individual's success). The deployment of nonfinancial assistance, like networking or even assistance securing employment, works in both parties' interests.

In terms of SIBs, higher education frequently suffers from an "ounce of prevention" problem. Reactive problem-solving like student loan default reduction or enrollment management tends to be more expensive but is just easier for university administrators to budget for or to link processes directly with outcomes. In contrast, the factors that affect long-term and large-scale public investments are difficult to estimate, and it is challenging for evaluators to determine the extent to which the policy itself was the change driver. The costs associated with attrition, improving access for minority and nontraditional students, or even just preventing student loan delinquencies are all representative examples.

When one throws into the mix the fact that states must budget for an ever-expanding array of public priorities, it is readily apparent that public services whose outputs are more easily defined and measured often gain funding priority.[26] It is also easy to see why difficult-to-define services like mental health, homelessness, and higher education become cyclically tied to budget surpluses and shortfalls. In surplus years, there is little danger to implementing across-the-board funding increases but in deficit periods proponents find it extremely challenging to provide concrete evidence to support existing funding levels, much less increases. Over successive cycles, stagnant or reduced funding drives institutions to adopt efficiency measures that often come at the expense of service quality. Paradoxically, these measures exacerbate the funding problem because lawmakers see efficiencies as evidence that the initial budget cut was warranted.

In light of such constraints and problems, SIBs have the potential to do three things well. First, they make it possible to finance preventative solutions by creating an infrastructure whereby taxpayers do not absorb the risk of failure, thereby ensuring a prudent allocation of scarce dollars. Provided that there is an interested and capable service provider willing to undertake the activity—and a funding entity willing to take on the investment risk—deploying a service that is paid for only if it yields tangible results is attractive to policymakers engaged in public budgeting. Second, they allow governments to effectively leverage private dollars to provide quality levels at reduced funding amounts. Third, they incentivize cost savings that are indirectly passed to states because private-sector partners look to leverage low-cost, high-impact solutions to optimize the return on their financial investment.

[26] A good example is the difference in funding between the National Institutes of Health and the National Science Foundation. Medical research produces results that lead to tangible outcomes like longer lifespans or healthier lives. In contrast, basic science research in areas like geology or chemistry also produces large-impact results, but because it takes longer for the basic science discoveries to move into practical applications, legislators have more difficulty justifying funding increases. See, for example, American Association for the Advancement of Science, "Trends in Nondefense R&D by Function," http://www.aaas.org/sites/default/files/FunctionNON_1.jpg (accessed May 20, 2016).

Conclusion

Most agree that we cannot expect continued growth of public investment in higher education or the funneling of more dollars into existing investment vehicles. A substantial increase in tax rates looks all but unattainable, and there are just too many other public priorities that require lawmakers' attention—in particular, health care and pensions. From an economics standpoint, as more and more students complete higher education, the marginal social benefit from additional public dollars is decreasing.

SIBs and ISAs represent novel solutions to strapped government budgets. They promote accountability and long-term investment in educational infrastructure. They align risk and reward. They are both flexible and responsive to changing labor market dynamics. If the days of highly generous state investment in higher education have indeed passed, new tools like SIBs and ISAs can help and will be needed. But making them work will require new ways of thinking about not just public priorities but also private-sector investment risk and reward.