Smarter Spending

Reforming Federal Financial Aid for Higher Education

Andrew Gillen

Center for College Affordability and Productivity

A Policy Paper from the
Center for College Affordability and Productivity
December 2011

About the Author

Andrew Gillen is the Research Director at the Center for College Affordability and Productivity. He received his PhD in Economics from Florida State University. He may be reached by email at agillen@centerforcollegeaffordability.org.

Center for College Affordability and Productivity

The Center for College Affordability and Productivity (CCAP) is a non-partisan, nonprofit research center based in Washington, DC that is dedicated to researching public policy and economic issues relating to postsecondary education. CCAP aims to facilitate a broader dialogue that challenges conventional thinking about costs, efficiency and innovation in postsecondary education in the United States.

1150 17th Street NW #910 Tel: (202) 375-7831 www.centerforcollegeaffordability.org
Washington, DC 22036 Fax: (202) 375-7821 theccap@centerforcollegeaffordability.org

Table of Contents

Introduction: The Goals of Financial Aid

In higher education, three generally recognized rationales for federal involvement in financial aid exist:

1. **Promoting equality of opportunity**: Those from poor households are less likely to attend college for a variety of reasons.
2. **Credit market imperfections**: Students may not have access to the credit needed to make profitable investments in their human capital.
3. **Social Benefits (Positive Externalities)**: A more educated person tends to make others more productive and/or create other social benefits.

While there are a few other rationales (which are discussed later), these three are routinely emphasized in the establishment and continuation of federal financial aid programs. To various degrees, virtually every federal financial aid program in the country is pushed to advance all three goals, and that is the problem. It is fiendishly difficult to promote any one goal efficiently and effectively, and yet, rhetorically at least, we try to make every financial aid program promote all three simultaneously. This is a recipe for disappointment, confusion, and wasted money. As economist Sandy Baum noted, our current financial aid system is "like the tax system… Each piece gets piled on another piece. And the way they fit together is generally not something people would design by purpose."[1] The resulting "patchwork of programs for covering college tuition makes little sense. The system is maddeningly complex. What's worse, it does a poor job of managing risk and assessing need, and it actually discourages household saving."[2]

This paper proposes to remedy many of these problems by restructuring federal financial aid, establishing separate programs focused exclusively on each goal. The next three sections review in greater detail the backgrounds and current practices to promote each of the three goals of financial aid, and then offer specific recommendations. These recommendations include the continuation of the Pell grant program, a replacement of the student loan programs, and the creation of a new subsidy program that targets subsidies to those areas of higher education that create social benefits.

In the current budgetary environment, a key question is how these proposals will affect the federal government's finances. This paper estimates that relative to realistic projections of spending under the status quo, over a ten year period these proposals would result in unchanged Pell grant spending, the reallocation of $276 billion from inefficient and ineffective tax expenditures to the new subsidy program, and a reduction in the budget deficit of $158 billion.

Promoting Equality of Opportunity

Background

America has traditionally sought to ensure that regardless of their background, individuals have a chance to achieve the American Dream. This is commonly referred to as promoting equality of opportunity, and

[1] Jon Gertner, "Forgive Us Our Student Debts," *New York Times Magazine*, June 11, 2006.
[2] David A. Moss, *College Access for All: Promoting Investment in Education through Income-Contingent Lending*, The Tobin Project, May 6, 2007.

the concept has expanded to include college enrollment as a college degree has become increasingly necessary.

We have traditionally balanced the goal of equality of opportunity with the rights of individuals by striving for approximate equality of opportunity, which entails removing as many obstacles for the disadvantaged as realistically feasible. In the context of higher education, there are two main obstacles to obtaining a college degree for *sufficiently capable and persistent* low income students:

- **The Financial Obstacle**: The fact that college is costly means that without assistance, students from lower income households will be less likely to enroll, persist, and graduate from college. If paying for college is not a realistic possibility, then many low income students will not consider college as a viable option (nor will they do many of the things necessary to succeed in college, such as perform diligently in high school).
- **The Readiness Obstacle**: Even if they posses adequate ability, many low income students attend K-12 schools that do not adequately prepare them for college level academics, and too often drop or fail out of college as a result.

A main goal of public policy in higher education for at least the last generation has been to help low income students overcome these obstacles. As the focus of this report is on financial aid, I will largely ignore the readiness obstacle. This does not imply that readiness is not important, but rather that there is very little that federal postsecondary financial aid can do about readiness.

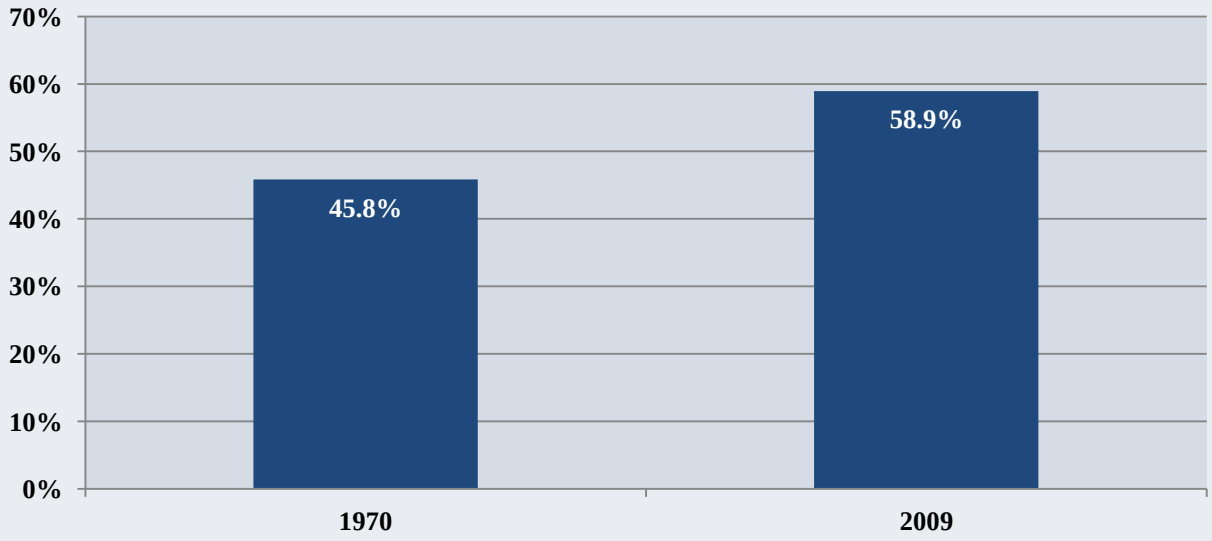
Current Practice

Currently, most federal financial aid programs are tasked with reducing the financial obstacle by being entirely or partially awarded according to need-based criteria. The Pell grant and subsidized Stafford Loan programs are the largest, providing students $35 billion in grants and $40 billion in loans, respectively in 2010-2011.[3] Pell grants provide a student up to $5,550 per year that does not need to be repaid, while the subsidized Stafford loan program provides loans of up to $3,500 to $5,550 per year, depending on the student's class level, and require repayment with interest.[4] Both of these programs are need-based, though income is not the only determinant of need.[5]

These programs have been fairly successful in reducing the financial obstacle to college for low income students, at least as measured by college entrance rates. As figure 1 shows, the percent of high school graduates from the bottom income quartile that start college has increased from 45.8% in 1970 to 58.9% in 2009. While students from families with higher incomes are still much more likely to begin college (the percent enrolling from the highest income quartile increased from 79% to 90.1% over the same period), this should not obscure the substantial improvement in college access for low income students.

[3] Sandy Baum and Kathleen Payea, "Trends in Student Aid 2011," College Board, October 2011.
[4] Mark Kantrowitz, "Student Loans and Pell Grant Historical Figures," FinAid.org.
[5] These programs define need as the cost of attendance (CoA) minus expected family contribution (EFC). CoA varies by institution, and a large number of variables affect EFC, so occasionally relatively rich students qualify for these "need-based" aid programs.

FIGURE 1
College Entrance Rates of High School Graduates from the Bottom Income Quartile



Source: Data provided by Tom Mortenson of Postsecondary Education Opportunity; author's calculations.

Ignoring loans for the moment, how much credit does the Pell grant program deserve for this improvement in enrollment of low income students? The answer is not as clear as we would expect. While the theoretical impact of providing funding for low income students is clearly an increase in enrollment of low income students, empirically, "after the establishment of the Pell Grant program in the mid-seventies, there was no disproportionate growth in enrollment by low-income youth."[6] Needless to say, "researchers have been surprised not to find an effect" and have come up with several explanations:

> Pell might have only had an impact on college choice rather than attendance… enrollment rates would have fallen much more if Pell had not been created… However, the most convincing explanations for the lack of a response among low-income students to the Pell Grant focus on problems with the program itself… the complexity of the application process, and intimidating audit procedures contributed to limiting the aid program's impact.[7]

These explanations are convincing mostly because aid programs without these problems typically find substantial enrollment responses. A number of studies lead to the conclusion that "subsidies to post-

[6] Thomas J. Kane, "Rising Public College Tuition and College Entry: How Well Do Public Subsidies Promote Access to College?" NBER working paper 5164. July, 1995.
[7] Bridget Terry Long, "What Is Known About the Impact of Financial Aid? Implications for Policy," National Center for Postsecondary Research, April 2008.

secondary schooling do appear to affect schooling decisions. The best estimates suggest that eligibility for $1,000 of subsidy increases college attendance rates by roughly 4 percent."[8]

Thus, it seems reasonable to conclude that the Pell grant program has substantially improved college access: while it appears as though the introduction of the Pell grant program was somewhat botched, leading to little enrollment response initially, over time, as knowledge of and experience with the program and its procedures became more widespread, the expected enrollment increase among low income students occurred.

However access *to* college does not guarantee success *in* college. And indeed students from low income families are very underrepresented among college graduates. Tom Mortenson of Postsecondary Education Opportunity estimated that in 2009, just 7.3% of college degrees were awarded to students from families in the bottom quartile of income (students from families in the top income quartile received 55.1% of degrees).[9]

The disappointingly low completion rates of low income students is partially attributable to mismatching (capable low income students often attend colleges with low graduation rates). If these students attended colleges more aligned with their capabilities (and that have higher graduation rates), more of them would likely graduate.[10] Part of the explanation may also be attributable to the financial obstacle—surveys of students who leave college often cite financial reasons as a main obstacle.[11] However, I would argue that this point gets too much emphasis—there is just not much convincing evidence of large numbers of students who see value in their chosen degree and are performing well dropping out for financial reasons.

But I would argue that the lion's share of responsibility for the low completion rates of low income students is the readiness obstacle—too many of them are simply not ready for college level academics. The ACT estimates that "fewer than 1 in 4 graduates [high school graduates who took the ACT] were academically ready for college coursework" and the number is probably even lower for low income students since they generally attend lower quality primary and secondary schools.[12] Note that 2.4 in 4 low income students now enroll in college.

I view enrollment as a key measure of the financial obstacle, and completion is a key measure of the readiness obstacle. Thus, when we observe increases in enrollment of low income students combined with disappointingly low graduation rates, the conclusion I draw is that the readiness obstacle, rather than the financial obstacle, is the binding constraint. In other words, Pell grants and other need-based aid have largely succeeded in their task of opening the door to college for low income students. That many of them

[8] Susan Dynarski, *The Behavioral and Distributional Implications of Aid for College*, The American Economic Review, 92:2, May 2002.
[9] Tom Mortenson, "Give 'em Pell!" *Postsecondary Education Opportunity*, June 2011, and data provided by the author.
[10] William G. Bowen, Matthew M. Chingos, and Michael S. McPherson, *Crossing the Finish Line*, Princeton University Press, 2009.
[11] Jean Johnson and Jon Rochkind with Amber N. Ott and Samantha DuPont, "With Their Whole Lives Ahead of Them," New York: Public Agenda.
[12] ACT, "Affirming the Goal Is College and Career Readiness an Internationally Competitive Standard?" Iowa City, Iowa: ACT, Inc., 2011.

are not able to succeed once in college is primarily due to inadequate readiness, which financial aid can do little to address.

Recommendation

We know that access for low income students has improved, and it is highly probable that the Pell grant and subsidized Stafford loan programs deserve much of the credit. I therefore recommend the continuation of the Pell grant program (in the next section, I propose reforming the student loan programs, which entails replacing the subsidized Stafford loan program with an improved loan system).

While I favor the continuation of the Pell grant program, funding levels could vary as future research reveals more details on the relevance of the financial obstacle. To the extent that students' finances are still or become a significant obstacle, Pell funding should be expanded. To the extent that the financial obstacle has been or becomes more than overcome, I recommend cutbacks in the Pell grant program (this possibility should not be discounted—the graduation rate of Pell grant recipients appears to be quite low, and the proportion of students currently receiving Pell, around half of undergraduates, seems rather high for a program tailored to low income students).

There are three modifications to the Pell grant that are worth exploring as well. The first possible modification would be for states to convert some of their state appropriations into supplemental Pell grant funding. Most states currently give large block grants to institutions. In addition to having undesirable dynamic effects (such as limiting competitive pressure), this essentially gives the same discount to rich students and poor students. Converting state appropriations into supplements to Pell grants would have many desirable effects,[13] one of which is that they could be made progressive.

The second change to consider would be to add academic requirements in order for students to be eligible to continue receiving Pell grants. These could take the form of minimum class rank or modified "satisfactory academic progress" requirements.[14] Essentially all students would qualify for their full Pell for the first semester or year, but would need to meet certain academic requirements to renew in the following semesters/years. This would move Pell grant money away from marginal students who are unlikely to graduate and towards students whose performance indicates a higher likelihood of graduation. The goal is not to make Pell grants merit based, but rather to ensure that the limited funds available for the program are being used as effectively as possible by prioritizing awards for those students that demonstrate academic potential.

A third set of changes to consider would all save considerable money without altering the underlying structure of the program. These involve:

[13] See "Subsidize Students, not Schools," chapter 24 in *25 Ways to Reduce the Cost of College*, Washington, DC: Center for College Affordability, 2010. Available at: theccap.org/25-ways.

[14] GPA requirements are another possibility, but such an approach raises concerns about the effect on grade inflation. For instance, the Georgia HOPE scholarship program was based in part on GPA and there was some evidence that this contributed to grade inflation within the state. See Wayne Camara, et. al. "Whose Grades Are Inflated?" New York: College Entrance Examination Board, 2004.

- Reducing the number of years of eligibility (currently 9 years).
- Forbidding Pell grant awards for students from the top one or two income quintiles.
- Using the Median Cost of College (MCoC) rather than the Cost of Attendance (CoA) in determining eligibility.
    - When using CoA, a student may qualify for a Pell if they attend an expensive college, but not if they attend a more affordable college, which tends to reduce price consciousness for students and lessens the incentives for colleges to keep tuition low.

Imperfect Capital Markets

Background

To the extent that obtaining a college degree boosts earnings potential, it can be viewed as an investment in human capital.[15] Moreover, it is often a quite profitable investment—as Anthony P. Carnevale, *et al*. find:

> 84 percent. On average, that is how much more money a full-time, full-year worker with a Bachelor's degree can expect to earn over a lifetime than a colleague who has no better than a high school diploma.[16]

For the sake of simplicity, in this section, it is helpful to assume for the moment that education only has private benefits, meaning the student is the only one who benefits (we will examine social benefits in the next section). With this simplifying assumption in mind, students should be willing to pay to go to college so long as the benefits exceed the costs, or equivalently, as long as the net present value (NPV) is positive.[17] However, just because NPV is positive does not mean that the student has the cash on hand to make the investment, and if the student is unable to borrow the money, we could see underinvestment in education. Such underinvestment "presumably reflects an imperfection in the capital market: investment in human beings cannot be financed on the same terms or with the same ease as investment in physical capital."[18]

With education, unlike other debt financed investments, there is no collateral (at least under current practices) to encourage lenders to lend. For instance, if someone wants to build a factory, they could put the factory itself up as collateral, which will lower the interest rate lenders charge (since if the borrower defaults on the loan, the lenders can seize the factory). But if a student defaults on a loan, the lender cannot seize the education (or the student). Thus the interest rates charged to students can be prohibitively

[15] For our purposes in this section, it does not matter that part of the increase is due to a signaling/sorting mechanism.
[16] Anthony P. Carnevale, Jeff Strohl, and Michelle Melton, "What's It Worth? The Economic Value of College Majors," Washington, DC: Georgetown University Center on Education and the Workforce, 2011.
[17] Net present value discounts future payments or costs into what they are worth or cost today.
[18] Milton Friedman, "The Role of Government in Education," in *Economics and the Public Interest*, ed. Robert A. Solo, Rutgers University Press, 1955.

high. And indeed, compared to the federal student loan programs, it is costly to borrow money to go to college, with private loans having an average interest rate of around 11 percent.[19]

Current Practice

The current system somewhat recognizes that "investment in human capital is risky, nondiversifiable, and not easily collateralized" and that as a result, the private market "will fail to provide sufficient capital for student loans."[20] The current system relies on federal loans and private loans. Federal loans are made to students (primarily Stafford loans), and parents (PLUS loans). For both of these, the funds are lent by, and later repaid to, the federal government. The government sets the interest rate for these loans, sometimes at below market rates. Private loans are made primarily by banks, and these typically have higher interest rates than federal loans.

Both federal and private loans are generally exempt from bankruptcy – meaning that even if a student declares bankruptcy, they will still have to repay their loans. The justification for this is as a workaround to the fact that there is no collateral for student loans.

Though some argue that there are still segments of the population that are credit constrained,[21] a loose consensus has taken hold that the existing loan programs have, for the most part, solved the problem of imperfect credit markets, with a leading economist concluding that "the phenomenon of bright students being denied access to college because of credit constraints is an empirically unimportant phenomenon."[22] It should be emphasized that the interpretation here is that existing programs have been successful in mitigating credit constraints, not that there would be no credit constraints without existing programs. However, as I argue below, an alternative program would be just as effective in solving the problem and would yield many other benefits as well.

Recommendation

The main problem with relying upon traditional private lending for human capital investments is the lack of collateral, leading to high interest rates. Existing loan programs try to circumvent this problem by making students' loans difficult to discharge in bankruptcy, providing protection to lenders. The underlying idea is to treat the student's future earnings (which attending college hopefully increases) as collateral. This is a good idea, but unfortunately, this feature was essentially tacked on to traditional loan concepts rather than used as the basis for an entirely new type of loan. As the Carnegie Commission wrote in 1973, "traditional loan concepts, borrowed from the world of commerce and industry where physical plant suffers from depreciation and obsolescence, are not equally appropriate to investment in

[19] Gretchen Morgenson, "Students' First Lesson: Beware Loans' Fine Print," *New York Times*, May 2, 2009, p. BU1.
[20] Alan B. Krueger and William G. Bowen, "Policy Watch: Income-Contingent College Loans," *The Journal of Economic Perspectives*, 7(3), Summer 1993.
[21] Thomas J. Kane and Cecilia Elena Rouse, "The community college: Educating students at the margin between college and work," *Journal of Economic Perspectives*, 13(1), Winter 1999.
[22] James J. Heckman, "Policies to Foster Human Capital," NBER working paper 7288, August 1999.

human capital."[23] There is nothing stopping us from adopting a lending system more conducive to investments in human capital, which is what I propose.

Loans designed with human capital investments in mind would differ from traditional loans in that they explicitly collateralize human capital, and I suggest the creation of a new loan program that accomplishes this collateralization. In this proposed system, loans would function in the traditional manner under most circumstances, but automatically convert into an income contingent loan when the initial repayment schedule is not met. A few safeguards are also needed to deal with potential problems under the new system. These changes are probably best explained by highlighting the key differences between my proposed lending program and the current student loan program. The key differences are:

- Automatic conversion into an income contingent loan in the event of "default."
- Lending done by the private sector, with no restrictions on interest rates but restrictions forbidding prepayment penalties
- Eligibility and loan limits set by the Federal government.

Automatic Conversion into an Income Contingent Loan in the Event of "Default"

In most cases, these new loans would function just like traditional loans, with borrowers agreeing to make a set payment amount until the loan is paid off. The difference is what happens when the borrower does not make those payments. With a traditional loan, the borrower is then in default, which for student loans typically involves hefty penalty fees, a tarnished credit history, and continuous hounding by collection agencies. None of that happens with the new loans, since "compared to bank loans, a major advantage of [income contingent loans] is that they diminish the prospect of borrowers defaulting."[24] Indeed, there is no reason to keep this antiquated concept of default when the whole point is to let students borrow today from their future (education enhanced) earnings. With automatic conversion into an income contingent loan, default is all but impossible, [25] since the borrowers repayment amount is based on their income and is automatically deducted from their paycheck.

The main advantage of income contingent loans is that there is an explicit tie between human capital (proxied by income) and the investment in human capital (proxied by formal education), which encourages profitable investments that are unlikely to be realized with other types of loans. Income contingent loans are used in Britain, Australia and New Zealand,[26] as well as the Income Based Repayment system here in the U.S. (though I recommend much tougher forgiveness provisions).[27]

---

[23] The Carnegie Commission on Higher Education, *Higher Education: Who Pays? Who Benefits? Who Should Pay?* New York: McGraw-Hill, June 1973.
[24] Bruce Chapman, "Income Contingent Loans for Higher Education: International Reform," Canberra, Australia: Centre for Economic Policy Research, June 2005.
[25] Minor inconveniencies such as death excepted.
[26] See Bruce Chapman's *Income Contingent Loans for Higher Education: International Reform* for more details on income-contingent loans, and Erin Dillon's "Affordable at Last A New Student Loan System" (Washington, DC: Education Sector, October 2011) for a recent proposal here in the US.
[27] The forgiveness provisions of the IBR program imply that it is more accurately classified as a risk-dumping scheme than a risk-sharing one.

Lending Done by the Private Sector, with no Restrictions on Interest Rates but Restrictions Forbidding Prepayment Penalties.

The next key difference is that all lending would be done by the private sector rather than the government. While income contingent lending by the government does have advantages, such as allowing easier and administratively cheaper repayment through the tax system, there are several advantages of having the private sector do the lending that outweigh these benefits of public lending.

The first advantage of private lending is that it frees interest rate determinations from political interference. The government has shown little interest in setting interest rates based on traditional criteria such as the loan's risk level (nor is this phenomenon confined to the US—other countries charge very low or no interest). At the same time, politicians have shown a willingness to tinker with rates for political purposes, the latest example being the College Cost Reduction and Access Act of 2007 which cut interest rates for some loans to "6.0% (2008-09), 5.6% (2009-10), 4.5% (2010-11) and 3.4% (2011-12), with a return to 6.8% in 2012-13."[28]

The second advantage of private lending is that it frees up public money for other uses. The federal government lent students and their parents $104 billion dollars in 2010-2011.[29] While much of that will be repaid in future years (see the *A detour into the complex world of government accounting regarding student loans* subsection later in this report), that doesn't change the fact that this means we have $104 billion less to spend on other priorities at the present time.

But the third and most important benefit from having lending done by the private sector is that the characteristics of the borrower (including major and academic performance), the college, and market conditions would all be incorporated into interest rates, rather than being set by fiat as they are under the current system. Allowing interest rates to vary, while a seemingly trivial difference, is actually a means to a revolutionary end – providing guidance to students on what to study and where to attend. Consider, for example, a student's choice of major. With no restrictions on interest rates, majors in high demand fields, which would tend to have higher earnings potential, would be able to obtain loans at lower interest rates than those majoring in oversubscribed fields. This would have the private benefit to the student of helping them select fields of study with more promising career prospects, and the social benefit of encouraging students to enter high need fields. This would be a radical departure from the status quo, where loan amounts and interest rates are uniform regardless of choice of major, and therefore provide no information to students about the career consequences of choosing different majors.

One potential problem with income contingent loans is the possibility of borrowers agreeing to ruinous terms. With a traditional loan, the borrower is somewhat protected from ruinous loans by having the option to default on the loan. Since they would no longer have that option under income contingent loans, it is necessary to add alternative protection from overly burdensome loan agreements. The safeguard against this is a government restriction that prepayment penalties would be forbidden on all of these loans. This will allow students to refinance and consolidate at will whenever they find a more attractive

[28] Mark Kantrowitz, "Education Loan Interest Rates," FinAid.org.
[29] Sandy Baum and Kathleen Payea, "Trends in Student Aid 2011."

offer. In addition to providing protection to students from being locked into unfavorable deals, this would also encourage competition among lenders, helping ensure that students get the best terms possible. This is also the main reason for backing this type of lending over alternative financing systems such as human capital contracts.[30]

Eligibility and Loan Limits set by the Federal Government

The move to private rather than government lending raises another key potential problem, which is that there is reason to believe that indiscriminant student lending leads to higher tuition, as schools exploit the increased ability of students to pay by raising tuition.[31] Law schools (where limits on borrowing are quite lax) serve as a demonstration of this, with massive lending enabling massive tuition increases. The way to avoid this problem is to provide aid only to students not able to pay current costs—basically to provide only need-based aid or by setting low loan limits. This means that a very good case can be made that the government needs to determine eligibility and set loan limits for participation in the new loan program.[32]

It should be noted that the aim of this new lending program is to provide funding for liquidity (cash) constrained individuals to make profitable human capital investments. While low income people are more likely to be cash constrained, theoretically, the critical determinant for eligibility is not income but liquidity. Nevertheless, I would advocate making eligibility based upon income rather than liquidity, since liquidity is much harder for the government to determine than income, and can be gamed quite easily. Essentially, the government would be stating that when it comes to determining financial aid eligibility, individuals are responsible for maintaining a certain amount of liquidity for each income level. In practice, this means that a student's eligibility for the new type of loans would be based on their expected family contribution (EFC), as is currently the case.[33]

Social Benefits (Positive Externalities)

Background

Many scholars argue that a college education provides social benefits—benefits beyond those obtained by the individual getting the education (also referred to as positive externalities). For instance, it is commonly argued that those who attend college commit fewer crimes, have healthier lifestyles, are more engaged citizens, boost the productivity of their colleagues, and lead to higher economic growth.

If there are social benefits, market outcomes will be inefficient since individuals will typically not take into account the benefits that accrue to others when deciding whether or not to seek an education. As a

[30] Under human capital contacts, lenders essentially buy equity in students, entitling them to a set percentage of the student's future earnings for a certain number of years. Because the payoff to the lender under human capital contracts is variable, students can't refinance such contracts to obtain better terms, whereas income contingent loans have a fixed balance, allowing students to refinance whenever they can find another lender willing to offer better terms.

[31] Andrew Gillen, *Financial Aid in Theory and Practice: Why It Is Ineffective and What Can Be Done About It*, Washington, DC: Center for College Affordability and Productivity, April 2009.

[32] The danger of a *laissez faire* approach is that all of higher education would start to resemble law schools, with massive borrowing and massive tuition charges.

[33] It should be emphasized that the EFC calculation is in need of significant revision.

simple illustration, suppose there are only productivity/earnings benefits, and imagine that it costs a student $1,000 to take a course that it will result in a onetime payoff for the student of $600, but will also result in positive externalities of $600 (suppose their 10 co-workers each enjoy a onetime payoff of $60 from their externality boosted productivity/earnings). From society's point of view, the individual should attend the course, since the total benefits exceed the cost ($1,200 > $1,000). But the individual will not take the course because their private costs exceed their private benefit ($1,000 > $600). Thus, when there are social benefits, the market will under-produce education.

The solution to this problem is quite simple: provide a subsidy large enough so that the externality is "internalized," which means giving enough of a subsidy so that the individual's private benefit exceeds their private cost. In our example, any subsidy greater than $400 would induce the individual to take the course.

Does Higher Education Have Positive Externalities?

If the solution to the existence of social benefits/positive externalities is subsidization, a natural question is: are there social benefits/positive externalities in higher education? While most people assume the answer is yes, the more accurate answer is maybe.

The academic literature occasionally finds "evidence of externalities of education in such areas as reduced crime (Lochner and Moretti (2004)), improved health of children (Currie and Moretti (2003)), and improved civic participation (Dee (2004); Milligan, Moretti, and Oreopoulos (2004))."[34] While in some cases, these benefits are sizeable, most of these externalities are realized at lower levels of education so "there is good reason to believe that increases in college-going are not likely to yield dramatic benefits from crime reduction… [and] studies that measure the impacts of higher education on health or citizenship are the exception."[35]

Meanwhile, for externalities that are more economic in nature, the evidence is even more ambiguous:

> The evidence on direct production spillovers of education among workers is more mixed, with Moretti (2004) and the studies cited therein finding favorable evidence and Acemoglu and Angrist (2000) and Ciccone and Peri (2006) finding no evidence for this kind of spillovers.[36]

The lack of convincing evidence of economic externalities led Noble Laureate James Heckman to conclude that "We are told that education produces substantial externalities… Yet a careful reading of the

[34] Eric A. Hanushek and Ludger Wößmann, "The Role of Cognitive Skills in Economic Development," earlier version of an article published in the *Journal of Economic Literature*, 46(3), March 2008.
[35] Lance Lochner, "Non-Production Benefits of Education: Crime, Health, and Good Citizenship," NBER working paper 16722, January 2011.
[36] Eric A. Hanushek and Ludger Wößmann, "The Role of Cognitive Skills in Economic Development," earlier version of an article published in the *Journal of Economic Literature*, 46(3), March 2008.

evidence finds little evidence of such externalities in Western economies."[37] A more recent study by Fabian Lange and Robert Topel lays out a reasonable consensus view:

> There is no plausible evidence that the social returns to education are smaller than the private returns… Yet the macroeconomic evidence for positive educational externalities is at best weak.[38]

While further research should inform future decisions, based on our current understanding of the externalities of higher education, federal policy should presume small positive externalities. However, there are two extremely important caveats. First, to the extent that higher education serves as a signaling device[39], investments in higher education are largely wasteful rent-seeking and should not be subsidized. Second, lumping all graduates together under one banner may be inappropriate if there are systematic differences in social benefits between groups of graduates (more on this below).

Current Practice

At the federal level, much aid is need-based (Pell, subsidized Stafford loans) and is more accurately thought of as promoting equality of opportunity. But there are some aid programs (unsubsidized Stafford loans, PLUS loans) that are not primarily need-based and that can be characterized as providing blanket subsidies for higher education amounting to $63.2 billion in lending in 2010-2011.[40]

At the state and local levels, current practice assumes large positive externalities and heavily subsidizes college attendance. State grants to colleges, more commonly called state appropriations, are the primary state support for higher education, and averaged $6,454 per student in 2010.[41]

Thus, both federal and state policy is premised on the assumption of rather large positive externalities, an assumption at odds with the evidence.

Recommendation

The standard solution to positive externalities is to subsidize the activity producing them. In the higher education context, positive externalities imply an underproduction of college graduates, and the solution would be to provide a subsidy. Keep in mind that evidence for the existence of positive externalities is tenuous, and the signaling function of higher education further undermines the rationale for this program. On the other hand, note that the existing literature generally lumps all college graduates together. This

[37] James J. Heckman, "Policies to Foster Human Capital."
[38] Fabian Lange and Robert Topel, "The Social Value of Education and Human Capital," *Handbook of the Economics of Education*, 2006.
[39] The signaling hypothesis is the idea college screens for existing capabilities (intelligence, discipline, etc.) rather than building those capabilities.
[40] Sandy Baum and Kathleen Payea, "Trends in Student Aid 2011."
[41] State Higher Education Executive Officers, "State Higher Education Finance FY 2010," Boulder, Colorado: State Higher Education Executive Officers, 2011.

probably leads to uninformative generalizations and inappropriate policy because it is likely that the graduates in some disciplines do generate positive externalities while graduates in other disciplines don't.

My recommendation is to find those aspects of higher education that generate positive externalities and to subsidize them. Sadly, this straight from the textbook solution is a significant departure from the current system, which relies primarily on state appropriations and federal aid, neither of which prioritize subsidies to the areas generating positive externalities. Directly linking subsidies to positive externalities would result in three revolutionary departures from current practice: awards would no longer be uniform across disciplines, would not be need-based, and should be merit-based.

The first dramatic difference between my proposal and the status quo is that rather than being uniform, grants would be major dependent for the simple reason that it is highly unlikely that externalities are uniform (and positive) across disciplines. Fields in which there are shortages, such as nursing and STEM, will probably have much higher marginal social benefits compared to fields in which there are a surplus of graduates.[42] The current system provides larger subsidies to the surplus disciplines than to the shortage disciplines (due to the forgiveness provision of the Income Based Repayment program), whereas the new system would reverse this and provide more aid to students in the shortage disciplines and less or none at all to those in the surplus disciplines. In the words of Alex Tabarrok, "an argument can be made for subsidizing students in fields with potentially large spillovers, such as microbiology, chemical engineering, nuclear physics and computer science. There is little justification for subsidizing majors in the visual arts, psychology and journalism."[43] In fact, if a field has negative externalities (lawyers may be an example[44]), students should be taxed to discourage study in the field.

The second big departure when targeting subsidies to positive externalities is that this type of aid would not be need-based. The goal of this type of aid is to encourage students to pursue studies in fields with large beneficial spillovers, and it is counterproductive to restrict funding to certain segments of the population. For instance, if we determine that we are under-producing Chemistry majors, the goal is to subsidize the study of Chemistry to correct that. Other societal goals, such as helping low income students afford college, are irrelevant to this problem, not to mention that other aid programs are already in place (both currently and under the set of proposals here) to address the needs of low income students.

The third major difference is that awards can, and arguably should be, merit based. The entire purpose of this category of financial aid programs is to subsidize investments that have social benefits beyond the private benefits received by the student. Meritorious students are more likely to generate these benefits for society. To take but one example, the fact that some students will not graduate implies that different levels of subsidization could be implemented based on likelihood of graduation.[45] Since a dominant factor in determining the likelihood of graduation is the academic quality of the student, it would be more efficient to target subsidies to students that have demonstrated academic success. In other words,

[42] A surplus of graduates in a discipline means that even if there are positive externalities, subsidies are not required since society is receiving those benefits without the subsidy.
[43] Alex Tabarrok, "College Has Been Oversold," *Investor's Business Daily*, October 19, 2011.
[44] Kevin Murphy, Andrei Shleifer, and Robert W. Vishny, "The Allocation of Talent: Implications for Growth," Working paper 65, October 1990.
[45] Alternatively, rather than being given during college, subsidies could be given upon graduation. This would help ensure that the funds go to students generating positive externalities.

subsidies should be based upon merit, with any number of academic achievements used to determine merit (the more the better). For example, merit based funds could be awarded for:

- Graduating from high school with a certain class rank percentage
- Maintaining a certain class or major rank in college
- Scoring high on tests such as the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT), the SAT and/or ACT, the AP exams, the GRE, the GMAT, the CLA, the LSAT, etc.[46]

Future research will shed light on what aspects of higher education generate positive externalities and their magnitudes. Regardless of the specifics, the key point is that we should be subsidizing college attendance when it is generating positive externalities, and not subsidizing college attendance when it is not generating positive externalities.

Other Rationales for Federal Financial Aid

A number of other rationales for student aid have been proposed. These generally start from the observation of high and positive private returns to college and seek to explain the apparent irrational decision not to attend college by many young people. These primarily fall into informational and behavioral explanations:

Informational

- *Lack of Information*: Students may simply be unaware that of the costs of and returns to attending college.

Behavioral

- *Cultural or Socioeconomic Peculiarities*: "Financial aid administrators report anecdotally that students from traditionally disadvantaged backgrounds often are unwilling to incur substantial debt to attend college."[47]
- *Loss aversion*: "a growing body of economic research has shown that individual decisions depart systematically from rationality, particularly in settings in which present sacrifice is required in order to access future gains… For some, college will not pay off, and this possibility may weigh heavily in schooling decisions due to loss aversion."[48]

[46] While the purpose of such a program is to reward merit to the extent that merit increases the likelihood of society benefiting from a student's education, there are significant indirect benefits. For example, a common objection to NAEP, CLA, etc. is that they are low stakes tests in the sense that there is no incentive for students to do their best. However, an unintended consequence of awarding aid based on performance on such tests is the nullification of this objection. This would significantly improve the reliability of such tests, which would dramatically improve the reliability of our longitudinal data.

[47] Bridget Terry Long, "What Is Known About the Impact of Financial Aid? Implications for Policy."

[48] Susan Dynarski and Judith E. Scott-Clayton, "Complexity and Targeting in Federal Student Aid: A Quantitative Analysis," NBER working paper 13801, February 2008.

While each of these may be true to some extent, at this time, none of these theories have established themselves enough to warrant restructuring of federal financial aid programs (though experimental programs designed to increase our understanding are certainly worthwhile). Programs can be implemented to address these problems if and when they become more widely accepted.

Getting From Here to There

New Expenditures (And How to Pay for Them)

My recommendations involve the continuation of the Pell grant program, the establishment of a new student loan system, and the creation of a new externality subsidy program. But before examining the new expenditures and their funding sources, we first need take a short detour into student loan accounting.

A Detour into the Complex World of Government Accounting Regarding Student Loans

Starting in the 2010-2011 academic year, all lending in the federal loan programs has been made by the government itself through the Direct Loan program. Due to a quirk in government accounting, my call for the termination of the Direct Loan program will show up as an expense for the federal government because under the Federal Credit Reform Act of 1990 (FCRA), loans made by the government are "scored" by the Congressional Budget Office (CBO) as earning the government profits. While the government faces a current expense equal to the amount lent out, the student pays the loan back with interest over the next few years. FCRA directs the CBO to convert these future payments into a present value, and because the discount rate used by the CBO to convert this future government income into present value terms is less than the interest rate charged on student loans, the CBO scores student loans as earning the government profits. For a typical borrower, the FCRA present value of a $100 loan is currently thought to be a profit of about $9. However, the CBO goes on to note that:

> FCRA subsidy estimates are not comprehensive measures of the costs of the federal student loan programs, for two main reasons: They do not take into account the cost of some of the risks that student loans impose on taxpayers, and they omit most administrative costs (which are recorded elsewhere in the budget).[49]

As Douglas Holtz-Eakin, former head of the CBO said, "when the budgeted cost of a federal program fails to reflect its actual economic cost, policy decisions regarding that program are likely to be skewed."[50] This is exactly what is happening with student loans. Once these other costs are taken into account (leading to what the CBO calls the Fair Value subsidy rate), the CBO estimates that it costs the government about $5 for every $100 dollars it lends. Thus, while in reality the government loses money on student lending, for budgetary purposes, it pretends to make a profit. If these imaginary profits must be offset, then getting rid of government lending will cost the government money (in reality of course,

[49] Congressional Budget Office, "Costs and Policy Options for Federal Student Loan Programs," Washington, DC: The Congress of the United States, Congressional Budget Office, March 2010.
[50] Douglas Holtz-Eakin, "Budget-Scoring Barriers to Efficient Student Loan Policy," December 2006.

getting rid of government lending will save the government money).[51] I will presume that logic and common sense will prevail,[52] meaning that eliminating government lending saves the government money, rather than forcing us to offset the loss of imaginary profits. However, in the spirit of compromise between FCRA and Fair Value, rather than spend these savings, I propose using them to reduce the deficit, which should assuage some of the concerns of FCRA fans.

Back to the Main Show

My proposals involve the continuation of the Pell grant program, the establishment of a new student loan system, and the creation of a new externality subsidy program. Given current budget conditions, I am operating under the assumption that no new educational funding will be available, and will explore how to reallocate existing educational funding to achieve these proposals. There will be nominal costs (by government standards) associated with setting up and maintaining the infrastructure of the new systems. I suggest that these costs be covered by scaling back or eliminating education related tax breaks for corporations (various exclusions and credits for corporations are estimated to cost the government $1.9 billion in lost tax revenue in FY 2012[53]). This means that there is really only one new expenditure for the federal government—the new externality subsidy program. Since we don't yet know the size or distribution of the externalities the subsidies are designed to address, I suggest that funding for this program will be whatever money is left over after rationalizing other aid programs. Over time, as further research reveals more about size of externalities, we will need to revisit the funding issue, though whether this will lead to more or less spending is unknown at this time.

The primary source of funding for the new externality subsidy program should be the education tax credits, the tuition and fees deduction, and the student loan interest deduction. I estimate that in 2008-2009, these three programs cost the government about $14.5 billion in lost tax revenue, with the tax credits accounting for three quarters of the total.[54]

While the goals behind these programs (to increase college enrollment and reduce the net cost of attending college) are commendable, these programs are completely ineffective in achieving those goals. Academics have concluded that there is "no enrollment response"[55] in part because the credits and deductions increase income about a year after tuition bills must be paid, so they do not alleviate liquidity constraints. Moreover, they don't succeed in lowering the cost of college for students as colleges have an incentive to raise their tuition: "there is some evidence to support that public two-year colleges responded to incentives created by the tax credits by raising tuition."[56] There is also the issue of who is participating in these programs. Around one third of tax benefits are received by families with incomes greater than

[51] While the CBO will score the elimination of government lending as costing the government money, it is important to note that the immediate cash position of the government would improve (by $104 billion based on 2010-2011 lending).
[52] Never a safe assumption in Washington, DC.
[53] Joint Committee on Taxation, "Estimates of Federal Tax Expenditures for Fiscal Years 2010-2014," Washington, DC: U.S. Government Printing Office, December 15, 2010.
[54] This assumes that both of the aggregate deduction totals would have been taxed at an average rate of 25%.
[55] Bridget T. Long, "The Impact of Federal Tax Credits for Higher Education Expenses," in *College Choices: The Economics of Where to Go, When to Go, and How to Pay For It*, ed. Caroline M. Hoxby, Cambridge, Massachusetts: National Bureau of Economic Research, September 2004.
[56] Ibid.

$75,000,[57] and a Treasury Inspector General reports that 17.5% of the tax credits claimed in 2010, some $3.2 billion, was awarded erroneously, including to prison inmates.[58]

To sum up, the education tax credits, the tuition and fees deduction, and the student loan interest deduction do not successfully advance any societal goals and are not well targeted. Thus, I propose that these three programs be terminated, with the proceeds being devoted to the new externality subsidy program.

The Impact on the Federal Budget

From the perspective of the federal budget, the salient points of my proposals are:

- Pell grants remain untouched.
- The government's student loan program is discontinued.
    - As noted above, whether this costs or saves money depends on whether the government takes an imaginary or realistic view. I focus on the realistic view.
- Eliminating the higher education tax credits, the tuition and fees deduction, and the student loan interest deduction and using the proceeds for the new externality subsidy program.

Table 1 shows the impact of these proposals on the budget over a ten year period. It shows that relative to realistic projections of spending under the status quo, over ten years, these proposals result in unchanged Pell grant spending, the reallocation of $276 billion from inefficient and ineffective tax expenditures to the new externality subsidy program, and a reduction in the federal budget deficit of $158 billion.

[57] College Board, *Trends in Student Aid 2011*, College Board, October 2011.
[58] Treasury Inspector General for Tax Administration, "Billions of Dollars in Education Credits Appear to Be Erroneous," (Reference Number: 2011-41-083), September 16, 2011.

TABLE 1

Combined Impact of Proposals on the Federal Budget (in millions of dollars)

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Sum 2011-21
(1) Pell Grants	$36,772	$37,002	$37,348	$38,625	$40,061	$41,744	$43,443	$44,102	$44,655	$45,305	$45,856	$454,913
(2) Student Loans (FCRA)	-19,957	-15,894	-14,858	-13,952	-11,913	-8,544	-7,502	-5,159	-5,321	-5,510	-12,839	-121,451
(3) Student Loans (Fair Value)	14,414	14,759	12,572	8,139	10,721	13,427	15,005	16,768	17,295	17,908	17,119	158,126
(4) Tax Expenditures / Externality Subsidy Program	17,974	19,140	20,381	21,703	23,110	24,608	26,204	27,903	29,713	31,639	33,691	276,067
Status Quo Imaginary Spending (1+2+4)	34,789	40,247	42,871	46,375	51,258	57,808	62,145	66,846	69,046	71,434	66,708	609,528
Status Quo Realistic Spending (1+3+4)	69,160	70,901	70,301	68,466	73,892	79,779	84,652	88,774	91,662	94,852	96,666	889,106
Proposed Spending (1+4)	54,746	56,142	57,729	60,328	63,171	66,352	69,647	72,005	74,368	76,944	79,547	730,980
Pell Grant (1)	36,772	37,002	37,348	38,625	40,061	41,744	43,443	44,102	44,655	45,305	45,856	454,913
Externality Subsidy Program (4)	17,974	19,140	20,381	21,703	23,110	24,608	26,204	27,903	29,713	31,639	33,691	276,067
Proposed Deficit Reduction (-3)	-14,414	-14,759	-12,572	-8,139	-10,721	-13,427	-15,005	-16,768	-17,295	-17,908	-17,119	-158,126

Sources: Congressional Budget Office, Internal Revenue Service, author's calculations.

Notes: "Tax Expenditures" refers to the higher education tax credits, the tuition and fees deduction, and the student loan interest deduction. Pell grant and student loan projections are from the CBO, with the student loan figures calculated using the CBO's subsidy rate estimates. Past data from the IRS was used to project aggregate tax expenditures in future years. Specifically, projections assumed growth at the annualized rate from 2003-2009 (roughly 6.5%) starting from the 2009 level.

Conclusion

I have argued that each key goal of financial aid can be accomplished better with more targeted programs focusing exclusively on each goal. The Pell Grant program does a good job of promoting equality of opportunity, and should be continued. A new student loan program relying on private lenders and automatic conversion to income contingent loans would be a better approach to imperfect capital markets than our current loan programs. Similarly, our current approach of blanket subsidization of higher education should be replaced with subsidization targeted only when positive externalities are being generated.

In light of today's tight budgets, new educational spending is unlikely to materialize. I therefore propose the reallocation of existing education spending to pay for these proposals. Over a ten year period, these proposals would leave Pell grant spending unchanged, reallocate $276 billion from tax expenditures to the new externality subsidy program, and reduce the federal budget deficit by $158 billion.