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TAX BENEFITS FOR COLLEGE ATTENDANCE

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ABSTRACT

National efforts to promote college enrollment are increasingly delivered through tax-based assistance, including tax credits and deductions for tuition and fees, tax-advantaged college savings plans, and student loan interest deductions. This paper outlines the main tax-based student aid programs and describes their history and growth over time. We then provide an economic perspective on tax-based student aid, and an assessment of their impact on student behavior. We conclude with a discussion of what the tax system does particularly well and what it does particularly poorly in comparison to traditional Department of Education-based student aid programs, and highlight opportunities for productive reform. At a minimum, a simpler system of education tax benefits would decrease the administrative and time costs of transferring funds to households with postsecondary expenses. At best, simplification would clarify incentives and increase investments in human capital.

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<1> 1. Introduction

There are many ways a society can finance college, and over time the US has tried almost all of them. Starting in the 19th Century, state taxpayers funded college education by establishing public universities, which are now attended by 80 percent of undergraduates. Through the Morrill Act, the federal government provided each state with a large parcel of land, which states then sold to raise money for building their colleges. State tax revenues paid for the bulk of operating expenses of these colleges, allowing them to charge artificially low prices.

In the 1960s, portable grants and loans emerged as a new source of government funding for college (Table 2 provides a brief description of key federal programs for postsecondary education.). With the Higher Education Act of 1965, the federal government established new loans and grants for college students. Unlike the state subsidies, which are delivered to institutions, these funds travel with the students, as vouchers, and can be used at any accredited college – including private colleges. The Pell Grant, introduced in the early 1970s further expanded federal grants for students; still the largest source of grants for college, the Pell targets funds on low-income students.

In recent decades, federal grants and loans have grown even more important, as states have scaled back on their subsidies to public colleges, which have, in turn, raised tuition prices.[1] Political pressure mounted on politicians to relieve the burden of rising costs, especially among middle- and upper-income families who were not eligible for the Pell Grant.

In this context, presidential candidate Bill Clinton proposed major new tax benefits for college attendance during his 1996 campaign. Since then, the role of the federal tax code in subsidizing college has expanded rapidly. In 2015, households received $19.7 billion in tax credits for education (Joint Committee on Taxation [JCT] 2015a). The growth has been sharp

[1] Private colleges have also rapidly increased tuition prices, for reasons debated by economists.

and rapid: in 1998, the figure was $4.9 billion (Bulman and Hoxby 2015a).[2] And the tax credits are just one of more than a dozen different tax subsidies for education. Table 1 shows that these tax subsidies together now provide nearly as much support for postsecondary education as does the Pell Grant program.

[TABLE 1 ABOUT HERE]

[TABLE 2 ABOUT HERE]

In this paper, we describe the federal tax subsidies for higher education, their history, their incidence, and their behavioral effects. The federal tax system also includes benefits for other levels of education, but more than three-quarters of all federal tax expenditures for education are for college. The tax system subsidizes the families of *future* college students through the Coverdell and 529 programs, tax-advantaged savings plans authorized by the federal and state governments, respectively. The federal and state tax systems subsidize *current* college students and their families through tax credits, a deduction for tuition costs and loan interest, an exclusion of scholarships, grants and tuition reductions from taxable income, and a dependent exemption for students aged 19 to 23. Finally, the tax code subsidizes *former* college students with a deduction for interest paid on student loans.

The tax subsidies for education are now extensive, complicated, and expensive. Compelling evidence, using rigorous empirical methods, indicates that the tax credits and tuition tax deduction (which account for the bulk of the tax expenditures for education) have precisely zero effect on human capital accumulation. If their intent is to increase schooling, they are a failure.

An alternative goal of the tax benefits for education is a transfer to middle-income families. If so, they are a very leaky bucket, since they impose extensive administrative burdens

[2] Dollars adjusted to 2015 real values unless otherwise noted.

on households, colleges and government. Reducing the tax rates applied to these families would be a more transparent and less expensive approach to achieving this goal.

Streamlining the tax benefits for education could potentially enhance their efficiency. At a minimum, a simpler system of education tax benefits would decrease the administrative and time costs of transferring funds to households with postsecondary expenses. At best, simplification would clarify incentives and increase investments in human capital.

<1> 2. Overview of Tax Benefits for Higher Education

<2> 2.1 Rationale and History

The economic efficiency argument for subsidizing education rests upon the belief that students, facing market prices for college, will purchase less than the socially optimal level of college. These suboptimal decisions can result from several factors (see Page & Scott-Clayton [forthcoming] for a review). First is the presence of social externalities: a college-educated population may generate benefits to society above and beyond the benefits reaped by individuals, including improved infant health, reduced reliance on social welfare programs, and increased civic participation (Oreopoulos & Petronijevic, 2013; Dee, 2004).[3] Second, education may also involve internalities, or private costs/benefits that are not fully realized at the time of the decision. For example, individuals may make suboptimal investments because they underestimate their own return to attending or overestimate the cost. Third, common foibles of human behavior may result in procrastination, decision avoidance, and default bias in college planning and decision-making (Lavecchia, Liu, & Oreopoulos 2014). Finally, if prospective

[3] Price subsidies may also be justified if families underestimate the value of college, or are unable to make optimal investments due to borrowing constraints. Note that these latter two concerns, however, are more commonly cited as justifications for need-based financial aid than as justifications for the tax benefits, which are not particularly targeted by income.

students face credit constraints, they may not be able to borrow enough to make optimal investments in college. Along with direct institutional subsidies and financial aid, tax benefits are a policy tool that can lower the effective price of college, and thus encourage families to invest more in college than they would have otherwise.

Of course, in practice, tax expenditures may serve other motivations beyond economic efficiency, including a desire to redistribute income. Beyond promoting college attendance, policy discussions around the higher education tax benefits have also reflected a desire to provide assistance to middle-class families (Crandall-Hollick, 2014; Lederman, 1997). While targeted tax expenditures may be an economically inefficient means of transferring income to the middle class (as opposed to altering the underlying tax brackets and tax rates directly), they have proved more popular and easier to implement than fundamental tax reforms. Thus, even if these tax benefits do little to promote college enrollment, they may nonetheless serve a transfer purpose.

Policymakers have a variety of tools at their disposal for subsidizing education: they can directly subsidize educational institutions through expenditures, they can directly subsidize students through student aid or voucher programs, and/or they can implement targeted tax credits and deductions. At the state and local level, subsidies for both K-12 and postsecondary education have predominantly taken the form of direct expenditures to public institutions, while at the federal level, subsidies have predominantly taken the form of direct aid to students.

The proper role of tax breaks for private spending on education has been a contentious topic for decades (Moynihan 1978). Private school associations and parents of children in private schools have long lobbied for tax deductions for private school tuition (see Samwick [2013] for an analysis of one such proposal). Opponents have viewed such a deduction as a back door to

government funding to religious schools. While a number of states eventually implemented tax credits for tuition paid at private elementary and secondary schools, federal tuition deductions and credits for private elementary and secondary schooling were repeatedly proposed and repeatedly defeated over the years.

Nonetheless, these early efforts to push for tax benefits for private schooling may have sown the seeds for the recent expansion of these subsidies in federal postsecondary policy. At least two major expansions of the federal role in postsecondary finance were conceived as political responses to pressure to institute a private school tax break for middle-income constituents: both the Guaranteed Student Loan (introduced in 1965, as part of the Higher Education Act) and the Middle Income Student Assistance Act (1978), which extended federal financial aid to middle and upper-income families, emerged as compromise policies during battles over a tuition tax credit (Hearn 2001).

From the mid-1960s through the mid-1990s, federal subsidies for higher education continued to predominantly take the form of student grants and loans. That began to change with the introduction of the Hope and Lifetime Learning tax credits for postsecondary education in 1997. Since then, the magnitude and scope of federal tax benefits has expanded dramatically, driven largely by tax credits. As shown in Table 3, the federal government annually spends over $30 billion dollars on an array of tax benefits for higher education, about two-thirds the amount provided in federal grants to undergraduates, and more than half the magnitude of all types of federal expenditures on elementary and secondary education.[4] For context, Table 3 also provides

[4] The Joint Committee on Taxation (JCT) estimates $32 billion in tax benefits for postsecondary education in 2015 (see Table 1). The College Board (2015) estimates $45 billion in federal grants for postsecondary education in 2013-14. Note that the JCT estimate includes both undergraduate and graduate benefits. U.S. Department of Education estimates total federal expenditures of $57 billion on elementary and secondary education in 2012-13 (NCES Digest of Education Statistics, Table 235.10. "Revenues for public elementary and secondary schools, by source of funds: Selected years, 1919-20 through 2012-13." https://nces.ed.gov/programs/digest/d15/tables/dt15_235.10.asp?current=yes).

information on federal tax benefits for other levels of education (the largest of these, the deduction for charitable contributions to educational institutions, may apply to any level of education).

[INSERT TABLE 3 HERE]

Below, we discuss each of the major existing federal tax benefits for college enrollment in more detail, along with a brief summary of related benefits that we place outside the scope of this discussion. [Note: the role of tax benefits for education has grown over time at the state level as well, particularly in recent years in the form of tax-advantaged college savings programs. We will not provide a survey of state programs, however, since they are dwarfed in magnitude by the federal subsidies.]

<2> 2.2 Federal Tax Credits and Deductions for Currently Enrolled Students

The most longstanding tax benefit for households with college students is the dependent deduction. While children are generally considered independent for tax purposes after age eighteen, the age limit is extended through twenty-three if the child is enrolled in school. This tax break allows families to save up to several thousand dollars a year for each child enrolled in college because parents can claim a dependent exemption for the student (thus reducing their taxable income), or qualify for the Earned Income Tax Credit (a refundable credit for low-income families). These provisions save households up to several thousand dollars a year for each child enrolled in college and were estimated to cost $4.5 billion in 2015 (Crandall-Hollick 2016).

In 1996 Bill Clinton, then a candidate for the presidency, proposed a tax credit for the first two years of college costs. After Clinton's election, this proposal took shape as the Hope and

Lifetime Learning Credits, introduced in 1997. These allowed families of college students to offset their educational costs with tax credits of up to $1,500 a year.

The new credits remained largely unchanged for 10 years, with minor tweaks to their maximum values and AGI phase-out ranges. But the number of households receiving the credits rose by more than half, from about 4.5 million filers in 1998 to 7.5 million in 2008. The credits totaled $7.6 billion in the 2008 tax year.

Responding to critiques that the existing programs were of limited benefit to low-income families, presidential candidate Barack Obama proposed a tax credit that would cover a broader range of educational expenses than the Hope Credit, and would be partially refundable for families with zero tax liability. This proposal took form in 2009 as the American Opportunity Tax Credit (AOTC), a renamed and modified version of the Hope credit. AOTC was created as part of the American Recovery and Reinvestment Act of 2009 and temporarily replaced the HOPE Credit for 2009 and 2010. AOTC was extended through 2017 by the American Taxpayer Relief Act of 2012, and made permanent in late 2015 by the Protecting Americans from Tax Hikes (PATH) Act of 2015.

As of 2015, the maximum benefit for the AOTC is $2,500, with $1,000 refundable. All of the first $2,000 in qualifying expenses is eligible for the credit, and 25% of an additional $2,000. Eligible expenses include course-related books and supplies. This allows students attending low-tuition public institutions to access more of the credit. Students are allowed to claim the credit for four years of undergraduate education (unlike Hope, which was limited to 2 years). Like the former Hope Credit, the AOTC is available for all eligible students in the household; by contrast, only one Lifetime Learning Credit may be claimed per household (Department of the Treasury, Internal Revenue Service 2011).

With the introduction of the AOTC, the cost of the tax credits rose sharply. In 2010, spending on the AOTC was nearly $19 billion, comparable to annual spending on the Pell Grant program just a few years earlier (Crandall-Hollick 2014b; College Board 2011). Combined spending on the AOTC and the much smaller LLC was estimated at approximately $20 billion in 2015, compared with $30 billion for the Pell program (Crandall-Hollick 2016; College Board 2015).Since 2002, families not claiming one of the education tax credits have been able to deduct up to $4,000 in tuition fees from income (even if they do not itemize).The benefit has been repeatedly extended, most recently by the PATH Act of 2015, which extended the deduction through 2016.[5] Additionally, up to $2,500 in interest on student loans is deductible from taxable income, for households with incomes up to $80,000 (single) or $160,000 (married) (Crandall-Hollick 2014a).

<2> 2.3 Federal Savings Incentives for Prospective College Students

In parallel with the tax credits, a set of tax benefits intended to increase education saving has emerged. In 1997, the same legislation that established the tax credits created the Education IRA, now called the Coverdell Education Savings Account (ESA). The Coverdell is structured much like the Roth IRA, with after-tax dollars growing tax-free. Earnings are never taxed if Coverdell withdrawals are used for education expenses. The Coverdell can be used for elementary or secondary education, as well as for higher education. The Coverdell currently allows for annual, after-tax deposits of up to $2,000. The far more generous contribution limits for the 529 vary by state: cumulative contribution limits for a beneficiary range from $250,000 to $400,000 (Crandall-Hollick, 2015).

[5]The benefit was originally set to expire in 2005, but in 2006 it was extended to cover 2006 and 2007; in 2008, it was extended to cover 2008 and 2009; and in 2010, it was extended to cover 2010 and 2011. For 2011, the income limit for this benefit was $80,000 for single filers or $160,000 for joint returns.

While the Coverdell is a product of federal legislation, 529 savings plans are an invention of the states. The 529 savings plans have their roots in prepaid tuition plans, the first of which was introduced by Michigan in 1986. Those who purchased shares in Michigan's plan were guaranteed that their investment would cover the cost of a certain number of semesters at Michigan schools. Michigan exempted investment returns in its prepaid plan from state taxes, and argued to the Internal Revenue Service that returns should also be exempted from federal taxes. The IRS disagreed, but Michigan went forward with the plan and sued the IRS for a refund of taxes paid, winning its case in 1994.

In 1997, Congress codified the federal tax treatment of the tuition plans in Internal Revenue Code Section 529. IRC 529 also contains language that recognized a variant on the prepaid plans that had been introduced by a handful of states: the tax-advantaged college savings plan. Like the Coverdell, these new savings plans allowed after-tax investments to grow free of federal and state taxes; however, withdrawals used for postsecondary costs were not exempt from federal taxation. With the passage of tax reform in 2001, the federal tax on withdrawals from 529 savings plans was eliminated.[3] States that did not already have a savings plan quickly established one. The growth of the 529 savings plans has far outstripped that of the prepaid plans, likely because of their greater fungibility and potentially higher returns.

While these benefits may appear small from the lens of federal tax expenditures, this lens may understate the role of these programs, which are ultimately intended to use the tax benefit to leverage much larger private investments in education. Whether or not they actually do so is not straightforward to determine, as we will discuss below. What is clear is that the volume of assets held in these accounts has grown substantially over time: 529 accounts include over $250 billion in assets under management nationally, up from about $10 billion in 2000 and $80 billion in

2005 (College Savings Plans Network 2015). In addition, Coverdell accounts held about $7 billion dollars in mutual funds in 2014 (Investment Company Institute 2016). As these accounts are drawn down in the coming decades, their revenue consequences will increase.

<2> 2.4 Other Tax Benefits for Postsecondary Education

Of the higher education tax benefits outlined in Table 1, it is clear that the tax credits are by far the largest, representing more than two-thirds of the total. But additional benefits accrue to students after graduation, in the form of student loan interest deductions and student loan forgiveness. Up to $2,500 in interest on student loans is deductible from taxable income for households with incomes up to $80,000 (single) or $160,000 (married). This deduction is for interest on any student loans, not just federal loans. This deduction was estimated to cost $1.4 billion in tax revenue in 2014 (Crandall-Hollick 2014a). With rapid increases in the share of middle- income families carrying student loan debt (Simon and Barry 2012), this amount is projected to grow to $2.4 billion in 2019 (JCT 2015a).

The exclusion of some discharged student loans, in contrast, is estimated to cost only about $200 million each year and has remained flat over time. For those aware of the increasing generosity of income-based student loan repayment programs, which forgive remaining debt after 20 or 25 years depending on the program, this may come as a surprise. The reason for the limited tax expenditure on these exclusions is that only loans forgiven for working for a certain period of time in “certain professions” or “a broad class of employers” are excluded (IRS 2015). Thus, while balances discharged under the Public Service Loan Forgiveness or Teacher Loan Forgiveness programs are tax-exempt, those discharged under any of the income-driven repayment plans are taxable as income. Moreover, the primary cost of any type of loan

forgiveness program is the loan balance itself, not the potential income tax foregone, but only the latter is a tax expenditure.

The biggest tax benefit for education outside of the higher education tax credits is the deduction for charitable contributions to educational institutions, estimated to cost $6.2 billion in 2015, rising to $7.1 billion in 2019. While it is not possible with the JCT data to separate how much of this tax expenditure is due to postsecondary giving, experts estimate that 60-70 percent of all charitable giving in education is for higher education (Tyson 2014). The Council for Aid to Education, which conducts an annual institutional survey, estimates that postsecondary institutions received $40.3 billion in charitable contributions in 2015, the highest level since the survey began in 1957 (Council for Aid to Education, 2016).

Allowing households to deduct their charitable donations provides an incentive for them to give more than they would have otherwise. The policy rationale for such an incentive is that it encourages support of institutions that provide broader social value (Randolph, 2015). Critics have questioned, however, whether postsecondary charitable giving is always in the public interest given the unequal distribution of contributions across institutions. Of the $40 billion donated to postsecondary education, 17 elite institutions accounted for more than $10 billion in donations received (Lederman, 2016). Many of these same institutions also receive disproportionate benefits from the tax-exempt treatment of their endowment gains and land holdings (Woodhouse, 2015).

<1> 3. The Incidence and Impact of Tax Benefits for Higher Education

<2> 3.1 Empirical Challenges

Understanding the economic incidence of these tax benefits is critical, whether the goal is to change behavior, redistribute resources, or both. Assessing incidence can be tricky, however, for at least three reasons. First, any individual tax benefit may interact with other provisions in the tax code (or federal financial aid system) in complex ways. Most obviously, who benefits most from a tax deduction depends not just on the parameters of the deduction itself, but also on marginal tax rates. Claiming one tax credit also may affect eligibility for claiming another.

Second, take-up is never perfect: not all who qualify for a tax benefit will claim it. In some cases the decision not to claim may be a reasoned one; for example, a family may decide that the value of current consumption is greater than the value of saving for college. In other cases, confusion and bureaucratic hurdles may serve as barriers to take-up.

Finally, the incidence of a tax benefit may be affected by the responses of other people or firms. For example, schools could capture some of the benefits of the tax subsidies by increasing tuition or reducing aid.

A full assessment of incidence thus requires far more than a description of eligibility criteria, phase-in and phase-out regions, and benefit calculations. At a minimum it requires detailed data on actual tax records for taxpayers of varying characteristics; it may also require information on possible institutional responses and an identification strategy for identify causal effects.

For those who do receive a benefit from these subsidies, is it a pure transfer, or do the tax benefits increase college enrollment, or increase the quality/intensity of college enrollment? A naïve comparison of college enrollments among those that received the tax benefit versus those that did not would be contaminated by reverse causality, because those that do not enroll in college cannot claim the associated tax benefits. In other words, college enrollment may

determine whether or not a person is "treated" by the tax benefit rather than the other way around.

To estimate the causal impact of the tax benefits requires comparing similar groups, one that is potentially eligible for the benefit and one that is not, for reasons that are unrelated to potential college enrollment. Since income largely determines eligibility for the tax benefits, and income has its own effects on college enrollment, it is difficult to isolate the effect of the tax benefits themselves. The most credible estimates of the impact of the education tax credits utilize quasi-experimental approaches. Several studies take advantage of changes over time in the availability or generosity of benefits for observably similar tax filers, while two studies utilize rich administrative data to compare families just above and just below discontinuities or kinks in the eligibility formula. These quasi-experimental analyses are described in more detail below.

Estimating the impact of the education savings incentives and student loan interest deductions is yet more challenging, because decades can separate college enrollment and the receipt of benefits. For example, families may benefit from education savings incentives for nearly two decades before children reach the age of college enrollment. A difference-in-difference analysis comparing families of, say, 10-year-olds, just before and after the introduction or expansion of savings benefits is unlikely to yield clear findings, since the "treated" group of families is eligible for the benefit for eight years prior to college-age while the "control" group is eligible for only one year less. Attempting to identify a completely unaffected group would require examining families at different points in time, during which other factors may intervene to contaminate the comparison. These challenges may explain why there is far more research on the impact of the tuition tax credits and deductions rather than on the college savings and student loan benefits.

<2> 3.2. Economic Incidence: Who Benefits?

<3> 3.2.1 Incidence of the Tax Credits

From their inception, the LLC and former HOPE credit have primarily benefited middle- and upper-income families. At very low AGIs (below $10,000), families did not qualify for the credits because they had insufficient tax liability (and the credits were not refundable). Even for those with higher AGIs, the value of the credits could be limited by the definition of allowable expenses, which consisted only of tuition and fees. A typical, low-income student attending a community college with average tuition and fees of $3,322 in 2012-13 (National Center for Education Statistics, 2013) and receiving the average Pell Grant of $3,678 (College Board, 2014) would have had no expenses eligible for Hope or LLC. For a middle-income student attending a more expensive private college and not receiving any grant aid, allowable expenses would generate the maximum tax credit.

The AOTC reaches higher-income families than did the Hope credit. The AGI cap on the AOTC is considerably higher than that on the Hope Credit: $180,000 for a joint return. Before AOTC, 18% of the dollars devoted to the education tax credits and deductions went to families with incomes over $100,000; the figure for 2012 was 24% (College Board, 2014). The AGI cap on the AOTC is higher than that on any of the other credits or deductions. High-income households that were once only eligible for the tuition tax deduction are now eligible for the more-generous AOTC. As a result, the share of households claiming the deduction has dropped while the share claiming the credits has risen. There is no guarantee that households always choose the benefit of greatest value, however. Turner (2011a) finds that families often fail to optimize, likely due to the complexity of understanding the different eligibility rules and benefit calculations and how they interact with other elements in the tax calculation.

The AOTC also benefits low-income families more than the old HOPE credit, for two reasons. First, because the AOTC is partially refundable, families can benefit from the credit even if their income is too low to owe any income taxes. Second, unlike the original HOPE credit, the AOTC covers not just tuition and fees but also course-related books, supplies, and equipment. This allows low-income students to benefit even if their tuition and fees are already fully covered by financial aid. As a result, expenditures for low-AGI families have increased: pre-AOTC 5% of the credit and tuition deduction dollars went to filers with incomes under $25,000; in 2012 the share was 24%.

Another factor that affects incidence is how financial aid changes in response to the receipt of these tax credits. In the federal financial aid formula, taxes paid are deducted from income; thus in general anything that reduces taxes paid will increase ability to pay in the eyes of the aid formula. To avoid having the education tax credits unintentionally reduce financial aid eligibility, the FAFSA currently requires information on the amount of AOTC and LLC received. In practice, however, these and other tweaks to the basic aid formula—which depends most heavily on family income, family size, and number in college—have little effect on Pell Grant or student loan eligibility (Dynarski, Scott-Clayton & Wiederspan 2013). Institutional aid may be more sensitive: Nicholas Turner (2012) finds evidence that some colleges may reduce grant assistance nearly dollar-for-dollar for students eligible for tax-based aid.

<3> 3.2.2 Incidence of Savings Incentives

The benefits of education savings accounts rise sharply with income, since those with the highest marginal tax rates benefit the most from sheltering capital income from taxation. These additional deductions have little to no value for low-income families, who often take the standard deduction rather than itemize and who face relatively low marginal tax rates. Further, the

accounts are risky for families for whom the college attendance of children is uncertain, since account holders are penalized if the accounts are not used for schooling (Dynarski 2004). Finally, the financial aid system reduces aid disproportionately for those families that hold their assets in the 529 or ESA rather than conventional saving vehicles. Since the highest-income families are unaffected by the aid tax, this further intensifies the positive correlation between income and the advantages of the tax-advantaged college savings accounts.

3.3 Behavioral Impacts of the Tuition Tax Credits and Deduction

Long (2004) is the first to provide a quasi-experimental analysis of the impact of education tax credits on college enrollment. Using annual data from the October Current Population Survey (CPS) from 1990-2000, she identifies families potentially eligible for a education tax credit based on income and tax filing status (single or joint return). She uses a difference-in-difference approach to compare college enrollment rates for potentially eligible versus ineligible households, before and after the introduction of the Hope and Lifetime Learning Credits in 1998.

Long finds no evidence that college enrollments increased faster among eligible groups, and hypothesizes that this could be due to lack of awareness among families on the margin of college enrollment. She notes, however, that the CPS data are not ideally suited to the analysis: income is measured in ranges, making it difficult to precisely determine eligibility and potentially attenuating the effect estimates; moreover, for young adults, the availability of family income depends upon whether they are still part of their parents' household, which is itself potentially determined by college enrollment status.

Two later studies using smaller samples with more accurate information on family income and later years of data found some positive enrollment effects of the introduction of the

tax credits. LaLumia (2010) uses an individual fixed-effects approach, comparing eligible individuals' enrollment status before and after the introduction of the tax credits and tuition deduction in 1998, with data from the National Longitudinal Survey of Youth 1979 (NLSY-79). The advantage of this analysis is more detailed data on family income and a window of data extending to 2006, giving the tax benefits more time to have an effect. The disadvantage is that, due to the age of the sample, effects can only be estimated for older individuals (33 to 50), a group for whom college enrollment is relatively rare. LaLumia finds no effect of the benefits on enrollment for the sample overall, though positive effects are found for adults whose educational attainment in 1998 fell below their expectations in 1979.

Turner (2011b) applies a difference-in-difference using data from the Survey of Income and Program Participation (SIPP) from 1996-2003. But unlike the prior papers, Turner (2011b) focuses not on comparing eligible versus ineligible groups around the introduction of the tax credits, but in changes in the generosity of tax-based aid (including the tuition deduction) for eligible groups over time. In particular, changes to the tuition deduction in 2002 and increases in the generosity of the LLC in 2003 created differential increases in potential aid among eligible groups. Turner (2011) focuses on 18-19 year olds and finds that an extra $100 of tax-based aid increases college enrollment by 0.4 percentage points – an estimate in line with the magnitudes of enrollment effects found for grant aid (see Dynarski and Scott-Clayton, 2013 for a review of the impacts of financial aid).

The positive findings in Turner (2011b) are surprising in light of other work by the same author (Turner 2011a, Turner 2012) finding that families often fail to optimize their choice of tax benefit and that colleges reduce grant assistance nearly dollar-for-dollar for students eligible for tax-based aid. Turner (2011b) notes that these seemingly contradictory findings may be due to

differences in the sample examined (Turner 2012 focuses on four-year institutions, which have the most grant aid to crowd out, while the enrollment effects in Turner 2011b may be driven by two-year enrollees, although the SIPP do not allow him to differentiate). An alternative concern, however, is that institutional aid may be increasing differentially for the same income groups affected by the increasing generosity of tax benefits over this time period, generating possibly spurious estimates of the impact of tax-based aid.

Two recent papers by Bulman and Hoxby (2015) and Hoxby and Bulman (forthcoming) provide the most definitive evidence on the enrollment effects of tax-based aid. Both papers utilize rich, individual-level administrative data from the Internal Revenue Service (IRS) on the population of potential tax return filers. These data include income and tax data from income tax forms as well as W-2 data from non-filers; enrollment information is derived from Form 1098t data, which institutions use to directly report to the IRS information on individuals' enrollment intensity and tuition and fee payments. The precise data on income and extremely large number of observations enables them to utilize regression discontinuity and regression kink analyses around eligibility cutoffs and phase-out regions, in addition to using a difference-in-difference to examine the effect of the introduction of the AOTC in 2009.

Bulman and Hoxby (2015) use a regression kink design to examine the effect of the HTC and LLC for filers at the boundaries of the phase-out regions of each credit. The intuition behind the design is that in the absence of the "kink" in tax credit eligibility, we should expect the relationship between income and college enrollment to change smoothly. In many applications, however, data limitations make it quite challenging to distinguish a true "kink" from an abrupt but nonetheless smooth change in the outcome distribution. Given the vast data at their disposal, this is not a concern in their analysis. They show clear kinks in actual usage of the tax credits in

the expected directions over these phase-out regions, but no corresponding kink in enrollment behavior.

In a second analysis, Bulman and Hoxby examine the introduction of the AOTC in 2009, using a difference-in-difference approach that makes use of the fact that the AOTC increased tax-based aid differentially for filers at various points in the income distribution. They find very precisely estimated zero effects on enrollment.

Finally, Hoxby and Bulman (forthcoming) use a regression-discontinuity design to estimate the effects of the tuition tax deduction for families around the maximum income cutoff for eligibility. They find evidence that families manage income to fall just below the cutoff, but using an "optimal doughnut-hole" design that determines which observations are in the manipulable range around the cutoff and then discards these, they find no evidence that the deduction impacts college enrollment decisions (or other margins such as enrollment intensity, enrollment in a four-year college, tuition paid, or student loans taken).[6]

<2> 3.4 Behavioral Effects of the Savings Incentives

Descriptive research has found that family assets and savings are correlated with children's college enrollment and progress (see review by Elliott & Beverly, 2011). But estimating the causal impact of the college savings plans on college enrollments is extremely challenging for the reasons discussed above. Still, research on other related programs may be at least somewhat informative regarding the likely effects of the program at least on more proximal outcomes such as college savings behavior.

[6] It is worth noting that because families may be eligible for both the AOTC and the deduction for tuition and fees, but can only take one or the other, the families who are most affected by the cutoff for the tuition and fees deduction are those who are not eligible for AOTC (e.g., beyond four years of undergraduate education or enrolled less than half time).

For example, a recent randomized experiment examines the effect of additional incentives for educational savings. Part of a broader national initiative to promote Savings for Education, Entrepreneurship, and Downpayment (SEED) accounts, the SEED for Oklahoma Kids (SEED OK) program in 2008 automatically opened a 529 account for infants in the treatment group with an initial $1,000 deposit. The program additionally encouraged parents to open a second "participant-owned" 529 account by offering a $100 account-opening incentive and a savings match for low-income families.[7] Approximately a year and a half after treatment assignment, 16 percent of families in the treatment group had an individually-owned 529 account, compared with only about 2 percent of families in the control group, though the treated families did not save significantly more overall (Nam, Kim, Clancy, Zager, & Sherraden, 2012).[8] Though the children in the study families are very young, and impacts may grow over time, in some ways these results highlight how difficult it is to promote these accounts.

<1> 4. Policy Discussion

<2> 4.1 Increasing Complexity

With dozens of tax and aid programs available, two-thirds of students are now eligible for some sort of discount on their college costs. The increasing scope and diversity of subsidies for education implies increased complexity—both for students trying to estimate their college costs and for policy makers trying to ensure coherence across programs. The proliferation of programs, each well-intentioned, has created a system that makes it difficult for families—especially "first-generation" families in which neither parent has attended college—to know just how affordable college can be. Calculating the net price of college for a given family requires

[7] The match was 1:1 for families with AGI below $29K and 0.5:1 for families with AGI between $29K and $43K.
[8] Unsurprisingly, nearly 100 percent of the treatment group accepted the automatic account.

understanding their finances as well as the rules of the Pell Grant, student loans, the tuition tax credits, state grant programs, and aid offered by individual colleges. Evidence suggests that students are quite poor at estimating net prices.

A symptom of the general confusion is that some aid goes unclaimed: the Government Accountability Office recently calculated that 14 percent of families eligible for an education tax benefit failed to claim it. Forty percent of filers who used the tuition tax deduction would have been better off claiming one of the tax credits instead.

The Government Accountability Office has found that many families do not choose the tax advantage that would most benefit them. Families can choose among the AOTC, LLC, tuition tax deduction, or disbursement from a 529 or Coverdell to cover current expenses. Different types of expenditures (tuition, books, living expenses) qualify for some of these but not others. GAO found that about 15% percent of filers made a suboptimal choice, suggesting substantial confusion among filers and tax preparers (U.S. Government Accountability Office, 2012).

<2> *4.2 Suitability of Tax System for Delivering Subsidies to Schooling Costs*

In 2011, the Treasury Inspector General for Tax Administration (TIGTA) released a report highly critical of the administration of the AOTC (Treasury Inspector General for Tax Administration, 2011). TIGTA inspected the income tax returns that claimed in AOTC in 2009, the first year of the credit, and found ambiguities in two million returns qualifying for $3 billion in credits. Most of these flagged returns lacked a Form 1098-T by the IRS that support students' attendance at an eligible college. The same colleges that qualify for federal financial aid qualify for the tax credits, so this reflects a failure of coordination between the U.S. Department of Education (hereafter, ED), which has a constantly-updated list of eligible institutions, and the

IRS which failed to obtain it. The report pointedly referred IRS to a publicly-available dataset of institutions in the Integrated Postsecondary Education Data System.

The report also noted that institutions inconsistently fill out the 1098-T, the information return that is used to report eligible postsecondary expenses to IRS. The intent of this form is to gather information about a student's costs net of any scholarship aid. The TIGTA concluded that some colleges fail to net out scholarships. TIGTA also identified 350,000 cases in which a household received a credit even though the information on the 1098-T indicated they did not fulfill at least one of the eligibility criteria (at least half-time, undergraduate). The report emphasized that reducing fraud and error in the education credits will require better gathering of information from taxpayers and postsecondary institutions.

IRS defended its performance in its response in the TIGTA report, indicating that fraud was not nearly as rampant as the report implied (Treasury Inspector General for Tax Administration, 2011). In particular, IRS noted that while TIGTA report correctly noted that millions of AOTC recipients had not had their postsecondary institutions confirmed, this was due not to fraudulent filings but to weaknesses in the IRS's databases of eligible institutions, which they pledged to improve.

In response to the TIGTA report, legislation was introduced to the House to tighten administration of the AOTC. The proposed legislation would require that taxpayers list the employer identification number of a student's postsecondary institution. In theory, this should be present on the 1098-T, but apparently some institutions listed incorrectly.

None of these administrative challenges are insurmountable. The TIGTA is holding IRS to a degree of oversight that ED has maintained over colleges for decades. However, while ED has all of the necessary lists and procedures and lines of communication in place, IRS is

relatively new to the student aid game. Until the agency gets its procedures into place, the opportunities for error and fraud are widened. The TIGTA report warns, however, that improving these procedures may create additional paperwork burdens for families and colleges.

With the rapid growth of the tax credits, an increasing number of students now complete paperwork for both the IRS and the US Department of Education in order to obtain college funding. And there is more paperwork on the horizon for families and colleges, with the Treasury Inspector General putting pressure on the IRS to obtain more documentation from applicants and colleges regarding their eligibility for the tax credits. If carried through, these steps will largely duplicate the work that ED already does in administering the traditional aid programs and multiply paperwork burdens on households and colleges.

ED and IRS bring complementary strengths to the administration of aid for college. ED has long experience in delivering aid to students and communicating with colleges. IRS has a well-developed capacity for gathering and verifying income data from households. Conversely, IRS has little experience with verifying student enrollment and delivering aid when it is needed. And while ED has long experience in gathering income data from applicants, it does so by imposing substantial paperwork burdens upon households and colleges. Just one example: colleges are statutorily required to "verify" a minimum of 30% of their aid applications each year, an auditing process that requires applicants to submit extra supporting documentation, including copies of tax returns. Some colleges audit 100% of their aid applications. Were tax data alone used to calculate aid eligibility, the data underlying all applications would automatically be verified, since it would come from the IRS rather than the applicant.

<2> 4.3 Prospects for Reform

When choosing a path forward, it is critical to keep this in mind: the tax credits and tuition tax deduction apparently have no effect on human capital accumulation. Until this year, economists strongly suspected that this was the case, but recent evidence based on the universe of household tax records (Bulman and Hoxby 2015, Hoxby and Bulman forthcoming) is dispositive. The tax credits and tax deduction, which account for most of the tax expenditures for postsecondary education, do not affect schooling decisions. While part of the explanation may be that institutions capture some of these tax benefits via reductions in financial aid (Turner 2012), Hoxby and Bulman (forthcoming) argue that the main explanation relates to how and when these benefits are received. In particular, tax benefits may not be realized until nearly a year after an enrollment decision is first made, and because the benefits are delivered as part of the income tax filing process, the authors argue that they are more likely to be perceived simply as a windfall rather than as an incentive for educational investment.

To achieve the goal of increasing human capital investments, the tax incentives would have to be restructured so that they are targeted at households whose investments are plausibly sensitive to price, and delivered when schooling expenses are being paid. One proposal suggested by Hoxby and Bulman (forthcoming) would be to compute eligibility for the credits automatically using income tax information in the year an individual turns 17, rather than the year of enrollment, and proactively notify prospective students of their eligibility. In addition, they propose that institutions could file to receive the benefits directly from the IRS, so that a student would only need to present evidence of eligibility in order to have the institution credit their account immediately upon enrollment.

An even more comprehensive approach would be to consolidate the credits with the Pell Grant program, creating a single grant program that subsidizes, at the time that tuition is due, the

postsecondary expenses of low- and middle-income families. Eligibility for this program could automatically be determined using tax data, with funds delivered by the Department of Education. As described in Dynarski and Scott-Clayton (2007), families could apply for a consolidated grant by simply checking off a box on their income tax forms. While IRS has all the data needed to determine grant eligibility, the Department of Education has the infrastructure in place to deliver funds to schools. We therefore suggest that the role of the IRS be limited to forwarding applicants' adjusted gross income, dependency status, and number of dependents to the Department of Education, which will calculate aid eligibility and send vouchers directly to the institutions at which students are enrolled. This consolidation would eliminate the duplicative administrative burdens now placed upon colleges and households by Treasury and ED. Treasury has a comparative advantage in calculating ability to pay, given it already serves this function for the income tax system. ED has a comparative advantage in delivering funds to schools and colleges, given it already serves this function with the Pell and Stafford loan programs. Dynarski and Scott-Clayton (2007) show that the existing combined distribution of Pell awards and tax credits could be replicated using only information available from income tax records. While a natural concern is that lots of wealthy families may suddenly qualify for aid if assets are not considered (as they are in the current federal student aid application), Dynarski and Scott-Clayton (2007) show that vanishingly few families with incomes low enough to qualify for Pell Grants have assets that would disqualify them for an award.[9]

The goal of the education tax incentives could instead be redefined as explicitly redistributive: the transfer of income to households with postsecondary expenses. In this case, the transfer should be achieved at the lowest cost possible to households, government and

[9] This is due both to low levels of assets in general, as well as the fact that most assets are in the form of primary housing or retirement accounts, both of which are excluded in the federal financial aid formula.

colleges. A relatively straightforward subsidy to postsecondary education is already embedded in the dependent deduction, which applies to children up to age 24 if they are enrolled in college. This provision also extends eligibility for the EITC. A single, refundable credit could be created to make the subsidy more generous. Currently, the AOTC is calculated as 100 percent of the first $2,000 in expenses and 25 percent of the next $2,000, but just 40 percent of this total is refundable. A simplified credit could be equal to 100 percent of eligible expenses (up to a limit) and fully refundable.

The tax benefits for education are a costly way to reduce the tax burden on middle-income families, imposing extensive administrative costs on households, colleges and government. Reducing the tax rates applied to these families would be a more transparent and less expensive approach to achieving this goal. At a minimum, a simpler system of education tax benefits would decrease the administrative and time costs of transferring funds to households with postsecondary expenses. At best, simplification would clarify incentives and increase investments in human capital.

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Table 1
Federal Support for Postsecondary Students by Source, 2013 (in Billions)

Tax Credits/Deductions/Exclusions	**$31.8**
Grants	**$48.9**
Pell	$33.7
Veterans/Military	$13.8
Supplemental Educational Opportunity	$0.7
Other	$0.7
Loans	**$95.9**
Unsubsidized Stafford	$51.9
Subsidized Stafford	$25.4
PLUS	$17.5
Perkins	$1.0
Other	$0.1
Work-Study	**$1.0**
Total Federal Support	**$182.9**

Notes: Grants, loans, and work study information for 2013-14; tax benefits information for 2013. Loan amounts represent total amounts disbursed (rather than net costs to the government). Table adapted from College Board (2014) for grants, loans, and work study, and Crandall-Hollick (2014a) for tax benefits. All values in 2013 constant dollars.

Table 2
Description of Key Federal Programs for Postsecondary Students

Federal Tax Credits and Deductions	
Hope Credit	Provided a maximum credit of $1,800 for qualifying expenses relating to tuition and fees, only for students in their first two years of college, and only for families with tax liability. The American Opportunity Tax Credit replaced the Hope credit in 2009.
Lifetime Learning Credit (LLC)	Eligible tax filers are able to receive a maximum credit of $2,000 for tuition and fees expenses.
American Opportunity Tax Credit (AOTC)	AOTC replaced the Hope the credit in 2009 and allows for a credit up to $2,500 for expenses relating to tuition and fees and course materials. The credit rate is 100 percent for the first $2,000 of expenses and 25 percent on the next $2,000. Up to $1,000 of the credit is refundable for families with limited or no tax liability.
Tuition & Loan Interest Deductions	These deductions offer filers a maximum deduction of $4,000 for expenses relating to tuition and fees. To date, this deduction only extends through 2016.
Saving Incentives	Interest accumulates tax-free when families save for college using Federal Coverdell accounts and state 529 savings plans. Withdrawals from these accounts are not taxed unless the amount withdrawn is greater than the student's education expenses.
Dependent Exemption	A parent or guardian has the ability to claim an exemption for a dependent who is between the ages 19 and 23 and is a full-time student. The filer is allowed an exemption of $3,950 per dependent.
Federal Student Aid Programs	
Pell Grant	The largest funded need-based aid program in the United States. Currently, students can receive a grant amount up to $5,500. The size of the Pell award depends primarily upon family income and enrollment intensity.
Unsubsidized & Subsidized Stafford Loans	Subsidized and unsubsidized loans, also known as Stafford Loans, are administered by the federal government through the Federal Direct Loan Program (FDLP). Unsubsidized loans are available to all students regardless of need. With subsidized loans, eligibility is based on need and the federal government pays the interest on these loans while the student is in college. The maximum amount a dependent student can borrow for an undergraduate degree under the Stafford Loan programs is currently $31,000.

Sources: U.S. Government Accountability Office (2012) and Crandall-Hollick (2014a)

Table 3
Estimated Tax Expenditures on Tax Benefits for Education (in Billions of Dollars)

Tax Benefit	2015	2016	2017	2018	2019
Benefits exclusively for higher education:					
Credits for tuition for post-secondary education	19.7	21.0	21.1	14.8	21.3
Parental personal exemption for students aged 19 to 23	4.5	4.7	4.9	5.2	5.5
Exclusion of scholarship and fellowship income	2.7	2.9	3.0	3.2	3.4
Deduction for interest on student loans	2.0	2.1	2.2	2.3	2.4
Exclusion of employer-provided education assistance	1.2	1.2	1.2	1.3	1.3
Exclusion of tax on earnings of qualified tuition programs:	0.7	0.9	1.2	1.4	1.5
Exclusion of employer-provided tuition reduction benefits	0.3	0.3	0.3	0.3	0.3
Deduction for tuition and fees	0.3	0.4	0.2	0.0	0.0
Exclusion of certain discharged student loans from income	0.2	0.2	0.2	0.2	0.2
Exclusion of earnings of Coverdell education savings accounts	0.1	0.1	0.1	0.1	0.1
Subtotal	31.7	33.8	34.5	28.8	36.0
Other tax benefits for education:					
Deduction for charitable contributions to educ. institutions	6.2	6.4	6.6	6.8	7.1
Exclusion of interest on State/local govt bonds for educational facilities	2.6	2.6	2.8	2.9	3.1
Qualified school construction bonds	1.0	1.1	1.2	1.3	1.4
Exclusion of interest on State/local govt bonds for student loans	0.4	0.4	0.4	0.5	0.5
Deduction for expenses of elem./secondary school teachers	n/a	0.3	0.2	0.2	0.3
Credit for holders of qualified zone academy bonds	0.1	0.1	0.1	0.1	0.1
Grand Total	42.0	44.6	45.8	40.7	48.5

Source: Joint Committee on Taxation (2015a). To adjust reported amounts for recent changes as a result of the Protecting Americans from Tax Hikes (PATH) Act of 2015, budget impact estimates from the Joint Committee on Taxation (2015b) are also incorporated. See Crandall-Hollick (2016) for addition notes on the higher education tax benefits.