

A hand is shown from the top left, holding a silver coin between its thumb and index finger. Below the hand is a white piggy bank. Inside the piggy bank, two graduation caps are visible against a blue sky with white clouds. The background of the entire cover is a gradient from blue at the top to black at the bottom, with a white arc in the upper right corner.

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**When Saving  
Means Losing:**

*Weighing  
the Benefits of  
College-savings  
Plans*

**Roberto M. Ifill and Michael S. McPherson**

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# Acknowledgments

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# Executive summary

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Since the early 1980s, college tuitions have soared, and state and federal governments have sought new ways to help students and families meet the costs of attendance. Annual state and federal appropriations to traditional student aid programs have more than doubled in the past two decades. In addition, the federal government created the Hope Scholarship and Lifetime Learning tax credit programs, and state governments created prepaid tuition plans and college-savings plans. These state savings plans, called "529 plans," are used by many families to help pay for college. However, because of the way funds invested in the different plans are treated by traditional financial aid programs, participation in them can affect eligibility for scholarships, grants and loans. Depending on the details, an increase in savings in a 529 plan may result in a dollar-for-dollar decrease in eligibility for need-based grant aid or it may result in no decrease at all. This paper describes the ways in which this might happen for different groups of students at different types of institutions.

One of the things families should consider in deciding whether to invest in a prepaid tuition plan, a 529 plan, some general financial savings plan (such as a mutual fund), or a savings account in a son's or daughter's name is the interaction between the level of accumulated assets and the

need-based financial aid system. In general, the more assets a family accumulates, the less aid it will be eligible for. The precise relationships vary enormously, however, depending on the savings instrument chosen, the family's level of income and wealth, the cost of attendance at the chosen college, and the details of that institution's financial aid policies.

How need analysis systems assess a family's ability to pay for college is a critical element in the interaction between savings plans and traditional financial aid programs. In general, the greater the family's annual earnings and accumulated wealth and the fewer family members financially dependent upon those resources, the more that family can reasonably be expected to pay toward college costs. This assessed amount is called the Expected Family Contribution (EFC). But the EFC is only one part of the financial need equation. To determine eligibility for need-based aid, the EFC is subtracted

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*An increase in savings in a 529 plan may result in a dollar-for-dollar decrease in eligibility for need-based grant aid.*

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from the student expense budget (the charges for tuition and fees, room and board, books and supplies, and other expenses students incur). The remaining amount is the student's financial need. When the EFC is greater than the student expense budget, the student is determined to have no need (for financial aid purposes) and will be ineligible for aid from need-based programs. When student expense budgets are very high (to attend elite private colleges, for example), families with relatively high EFCs could still demonstrate financial need. Therefore, one must look at both the student budgets and family financial resources to analyze the effects of savings plans on eligibility for aid.

This report analyzes the effects on financial aid of a \$100 increase in assets in each of four family income levels and three costs of attendance. The income levels (low, middle, upper-middle and high) correspond to approximate family incomes of less than \$30,000; \$50,000-\$60,000; \$80,000; and \$125,000 or more. Low-priced colleges are typically community colleges. Medium-priced institutions are "flagship" public universities for students paying in-state tuition and typically living away from home. High-priced institutions are the more expensive privates and some out-of-state publics.

For families expecting to receive need-based aid, prepaid tuition plans are disadvantageous because the need analysis system views this money as a resource readily available for college payment. Just as when a student receives an outside scholarship, the presumption is that prepaid tuition dollars reduce need dollar for dollar.

There are two important conclusions to be drawn from the analyses in this report. First, although high-income families have no financial aid disincentive to save for college, lower-income families do. By saving, especially by choosing a prepaid tuition plan to save, lower-income families may reduce their eligibility for need-based aid. Second, unless they are low-income families who expect their children to attend community colleges, families have little reason to worry that their savings decisions will affect their eligibility for need-based aid. However, their choices of savings vehicles can influence the amounts by which their need-based aid may be reduced.

The specific characteristics of a savings instrument can have a disproportionate impact on its treatment under the need analysis system. There is little relevant difference in the motivation of a parent who puts money into a savings plan, a prepaid tuition plan or a savings account in a son's or daughter's name. Likewise, there is little relevant difference among these programs in terms of the federal interest in encouraging families to save for higher education. Yet families choosing these plans may find their need-based aid reduced modestly, substantially or dramatically, depending on which instrument they choose. There is clearly good reason to better align the outcomes of these college-savings plans with the intentions of those who created and support them. This is a challenge that is likely to be addressed in the next reauthorization of the Higher Education Act.



# Introduction

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In 2001, Congress passed the largest package of tax cuts since 1981. Most of the publicity centered on the slashing of marginal rates, but there were numerous specialized tax cuts and enhanced deductions as well. Of particular interest to this study are the enhancements to the tax benefits affecting Qualified State Tuition Plans originally introduced in 1997. These plans, also known as 529 plans (in reference to the underlying section of the Internal Revenue Code that applies to them), offer families the opportunity to pay all or a substantial part of the costs of college, either by “prepaying” tuition or by accumulating wealth over time that can be applied to college expenses. In recent years, these funds have become increasingly popular among families seeking to shelter themselves from the risk of rising tuitions and tax liability. State-sponsored institutions and, more recently, some selective private institutions have promoted prepaid tuition plans, and all 50 states have established college-savings schemes or have plans to do so in the near future.

The most straightforward of the new tax provisions is directed at college-savings funds. Prior to the 2001 tax changes, a parent or other benefactor could invest in such funds and not pay taxes on its accumulated proceeds until applying them to tuition for one or more beneficiaries. At

that time, income drawn from the fund for educational purposes would be treated as earned by the student and taxed accordingly. Under the new provision, this income is not subject to federal tax if it is devoted to payment of college tuition and fees. Many states also provide tax benefits related to these plans, either by making contributions deductible or by waiving taxation of earnings, or both. These incentives are likely to induce people to shift existing assets into these savings plans, to direct new savings into such plans, and perhaps to increase the total amount they save for college. The encouragement to greater saving induced by the higher return may be offset in part by the fact that people can achieve their savings targets with fewer dollars because of the higher return.

However, neither the original creation nor the recent expanded benefits for 529 plans has occurred in a vacuum. Both have been accompa-

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*These funds have become increasingly popular among families seeking to shelter themselves from the risk of rising tuitions and tax liability.*

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nied by other changes in tax law or financial aid policies that might also affect saving. The market for college-savings or "tuition futures" is a relatively new one, and the array of financing options for families has grown rapidly, often causing confusion. Changes in governmental and institutional financial aid strategies and options have also contributed to this trend. Federal policies originally marketed as a means to provide "universal access" to college via programs such as the Hope Scholarship and Lifetime Learning Tax Credits (although aimed principally at providing tax relief to middle-income parents), add more features to a tangled landscape.

Of particular importance is the complex interaction between programs that provide savings incentives and need-based student aid programs. There has long been concern that need-based aid discourages families from saving, since the greater wealth resulting from saving increases family ability to pay and therefore reduces the size of need-based aid awards (other things equal). The actual impact of this negative incentive on family saving behavior remains controversial (Case and

McPherson, 1986; Feldstein, 1995; Edlin, 1997), yet the growth and proliferation of the new savings vehicles have sharpened these concerns. Depending on the details, an increase in savings in a tax-preferred vehicle may result in a dollar-for-dollar decrease in the size of a need-based grant, or it may result in no decrease at all. The results depend on the particular savings vehicle chosen, the level of a family's income and wealth, and the price of the college in question.

In this paper, we aim to sort out the interactions between need-based financial aid and family investments in 529 plans by working through a number of cases covering alternative family circumstances and college alternatives. We hope such a guide will assist three important groups:

1. Families, as they consider their savings options.
2. Colleges, as they consider how to treat these accumulated savings in their own financial aid policies.
3. Policy-makers, as they consider both federal student aid policy and federal tax policy.<sup>1</sup>





# A brief history of 529 plans

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**R**ising college costs have been a source of family anxiety and political and policy concern since the 1980s. With tuition increases exceeding inflation at public and private colleges and universities, and with an increasing number of Americans aspiring to college attendance, rising prices have spurred concern about access and affordability.

Responding to this concern, state governments have provided novel ways for families to prepare in advance to pay for college. In the late 1980s, Wyoming, Michigan and Florida began an experiment in college financing. They offered parents the opportunity to purchase up to four years of college credits at current prices to be redeemed when a designated recipient enrolled at an eligible institution; these instruments were called prepaid tuition plans. These plans were at first restricted to in-state residents and only applicable to a small number of state-supported institutions. In essence, the states offered to share financial risk with tuition payers — gaining predictable enrollments by offering stable prices. (See Government Accounting Office [1995] for a historical overview on which we have drawn here.)

Initially, relatively few households chose this option, perhaps because the upfront expense was prohibitively high or because the restrictions on where the credits would be applied were too

inflexible. Of course, there was the risk that students would not wish to attend the designated institutions, or that they would not gain admission or persist to graduation.

Nevertheless, over the next three years, the original three states were joined by six others, all offering prepaid tuition plans.

Starting with Kentucky in 1990, a number of states also offered a more flexible means for financing college. Under what were called “college-savings plans,” households could contribute to an investment portfolio, much like an IRA, up to specified annual limits. Their investments would be managed by a state agency or a financial firm contracted to the state for a modest fee, and the gross proceeds could then be applied to college-related expenses when the beneficiary enrolled at an eligible institution. Unlike the prepaid plans, which were akin to “defined benefit” pension instruments, college-

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*With an increasing number of Americans aspiring to college attendance, rising prices have spurred concern about access and affordability.*

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savings plans operated as “defined contribution” instruments.

A number of developments in the late 1990s quickly led most states to adopt both types of savings plans. First, the prolonged bull market of this period encouraged growing numbers of households to invest in mutual funds, IRAs, 401ks and similar plans; the increasing acceptance of this form of saving removed a conceptual barrier from states contemplating the creation of such plans. Not coincidentally, the improving fiscal strength of the states and higher education as a whole reduced the financial risk for savings plan sponsors and encouraged financial firms to compete for the business. Second, a surge in personal income increased the fiscal capacity of families with college-age children. On the one hand, this made more disposable income available for saving; on the other hand, it decreased eligibility for need-based aid.

In addition to these developments, a number of public policy changes at the state and federal levels helped spread these plans to nearly all states by

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*By now, all but a few states have some form of QSTP (also known as “529 plans”).*

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the beginning of 2001. As college-savings plans became more popular, states removed residency restrictions on eligibility. Now citizens of any state could invest in most of these plans, and their proceeds could be applied to out-of-state institutions, both public and private. Some states allowed for “rebalancing” investments, permitting holders to adjust the proportion invested in equities, bonds or other assets.

In 1996 and 1997, federal tax policy took note of these plans, designating them as Qualified State Tuition Plans (QSTPs) under Section 529 of the Internal Revenue Code and providing favorable tax treatment for the income deriving from these

plans. In other words, although QSTPs were considered parental assets, accrued income would be treated as deriving from the recipient; usually, this meant a substantial reduction in the marginal tax rate (from as high as 39.5 percent to 15 percent or less). Further, investors could avoid the \$10,000 annual cap on untaxed gifts by contributing up to \$50,000 to the fund, providing that no further contributions to the particular beneficiary would be made for five years. Fund owners could switch intended beneficiaries without penalty, as long as these were also family members (excluding cousins).

By now, all but a few states have some form of QSTP (also known as “529 plans”). Purchasers can choose from among hundreds of different plans across the nation and use them to pay costs at almost any accredited institution. A number of private institutions developed a proposal to create a Tuition Plan Consortium to offer prepaid plans for its members. In the Economic Growth and Tax Relief Reconciliation Act of 2001, Congress provided even more favorable treatment for 529 plans. Income from savings plans was now to be exempt from federal income tax, households could transfer assets from one QSTP to another without changing beneficiaries or incurring penalties, and cousins were now allowed to be designated beneficiaries. Investments in 529 plans have grown substantially, with total invested assets increasing from \$8.6 billion in 2000 to \$34.6 billion by June 2003 (Schmidt, 2003).

In recent years, the relative popularity of savings plans and prepaid tuition plans has reversed abruptly. In 2000, 71 percent of assets were in prepaid plans, while in 2003 75 percent of the assets were in savings plans (Schmidt, 2003). The principal reasons for this shift were the steep drop in the stock market and unusually rapid increases in public tuition, a combination that threatened the viability of the prepaid plans. State officials who were optimistic during the stock market boom that returns on the funds would be adequate to finance rising tuitions lost confidence when fortunes reversed. Several states with prepaid

plans have suspended their programs or closed them to new participants, and states that lack such plans are no longer introducing them. A secondary reason for the movement away from prepaid plans may be their treatment in needs analysis systems, as discussed below.

There were other significant developments in federal policy. In the same tax reform package that loosened restrictions on 529 plans, Congress introduced a new tax deduction option for college expenses, an alternative to 1997's Hope Credit; now households could choose either to take the Hope tax credit of up to \$1,500 or to deduct up to \$3,000 from taxable income. The legislation also endeavored to make Coverdell Education Savings Accounts more attractive by increasing the maximum annual contribution to \$2,000. Contributions to these accounts are not tax-deductible, but earnings are exempt from income tax if withdrawals are used to pay for qualified education expenses. From 2002 on, qualifying expenses have been extended to include elementary and secondary school expenses. The Coverdell tax benefits are phased out for joint filers with incomes above \$190,000 and single filers with incomes above \$95,000 (Ma and Fore, 2002). In January 2004, Congress further increased the attractiveness of Coverdell plans by permitting them to be treated as parental, rather than student, assets in the federal needs analysis methodology. This change substantially reduced the financial aid "taxing rate" on these plans.

Policies and practices governing financial aid also have undergone momentous change in recent years. Loans have grown steadily as a proportion of financial aid. The purchasing power of Pell grants has fluctuated, but despite rapid growth between 1997 and 2002, it remains substantially lower than in the early years of the program. Colleges continued to adjust the ways they calculated expected family contributions, changes reflected in the financial aid methodologies developed by the College Board and the federal government. Colleges have become more strategic in using financial aid to meet institutional goals,

through greater use of merit aid and through adjusting the loan-grant mix in financial aid packages as tools to attract the students they want.

Our brief historical review shows that, even as tuition and fee increases continue to outpace inflation, families have a larger array of options for financing college. However, that array has become more complex; it's no surprise that, in the past few years, college financial advisers have established a robust cottage industry for those families that can afford them.

One of the things families must consider in deciding whether to invest resources in a particular savings instrument is the interaction between the level of accumulated assets and the need-based financial aid system. In general, the more assets a family accumulates, the less aid it will be eligible for. The precise relationships vary enormously, however, depending on the savings instrument chosen, the family's level of income and wealth, the cost of attendance at the chosen college, and the details of that institution's financial aid policies. A further complication, of course, is that policies regarding financial aid may change between the time a family begins accumulating assets and the time their children are ready for college.

No simple analysis can capture the full range of variation in these possibilities. In the remaining sections of this paper, we focus on a simplified analysis, but one which we believe captures some of the central dimensions of variation. We feel it allows us to draw some conclusions about who is most likely to benefit from the various savings options recently made available through federal legislation.

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*In general, the more assets a family accumulates, the less aid it will be eligible for.*

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# Mechanics of the need-based aid system

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**A**s a prelude to our analysis of interactions between the aid system and savings plans, it is necessary to review the basic operation of a need-based financial aid system. At the core of such a system lies a method for

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*The formula for calculating the EFC assumes that a family's ability to pay increases more than proportionally with the parents' income.*

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assessing a family's ability to pay for college. At this time, the calculations used in this assessment at most institutions are built on one of two approaches — the Federal Methodology, legislated by Congress, and the Institutional Methodology, established by the College Board and subject to various federal guidelines. While the two methods differ in a number of details, they are broadly similar in approach, with the largest difference being

that the Federal Methodology ignores the equity in a family's home as a resource that might be drawn on in paying for college.<sup>2</sup>

For simplicity, our discussion here and the analysis below will focus on the Federal Methodol-

ogy, but nothing essential would change if we studied the Institutional Methodology. Either methodology draws on information about a family's income, assets, debts, expenses and future obligations to come up with a number called the "Expected Family Contribution" (EFC) — an estimate of what the family can be expected to pay toward college expenses. The formula for calculating this number assumes that a family's ability to pay increases more than proportionally with the parents' income. It also assumes that, for any given level of income, a family with more accumulated assets has more ability to pay. Assets and income of the student also are assessed for expected college contributions, and at a substantially higher rate than parental income and assets, presumably because the student is the direct beneficiary of the education.

The difference between the cost of attendance at a particular college and the EFC is the family's "demonstrated need" (which is of course set to zero if the EFC is greater than the cost of attendance at a particular institution). How (and if) that need is met is a complicated matter. In general the college admitting the student serves as the "packager" of aid resources. These resources include grants (which don't need to be repaid), loans (which do need to be repaid, though often with some subsidy from the federal government), and work to be

done by the student during school terms. Depending on the wealth of the family and the state of residence, need-based grants may come from the federal and/or state governments, to a smaller extent from outside philanthropies, and from the college itself. (Grants from the institution are in effect “discounts” against the cost of attendance.) Loans for the most part are backed by the federal government, although some institutions also provide loans directly. For the most part, work is paid for by the school, often with substantial help from federal funds.

One key element of the financial aid package for most lower-income students is set by formula. That element is the Pell grant, where award eligibility and size are calculated according to a formula that, like the calculation of the EFC, is sensitive to family income and assets. Some states add a formula-driven need-based grant on top of the Pell grant for students with need. Most other aid is “packaged” by the institution, with the aim (in a pure need-based system) of filling the gap between the EFC and the cost of attendance. Typically a student will be presented with such a package of federal, state and institutional grants along with recommended levels of loans and earnings from work (at jobs supplied by the school) to meet need.

Schools have considerable discretion in adjusting the elements of the aid package other than those dictated by federal and state formulas. They may choose not to meet full need; they may offer differing mixes of loan, grant and work to different students with the same need (presumably based on how much they want to “land” that student); and they may offer grants unrelated to need to students they want to attract. The main constraint colleges face in packaging aid is that the total amount of aid they provide to a student who receives federal aid may not exceed that student’s need (as calculated in the Federal Methodology).

This discretion on the part of schools greatly complicates efforts to assess the impact of families’ college-savings decisions on a student’s aid award. While more saving will clearly raise the EFC (by

differing amounts depending on how savings are held, as we will see below), the bottom-line impact on the cost of college to the family will depend on the school’s packaging philosophy. Thus, at one extreme lies Princeton, which meets all need with grants. At Princeton, every dollar of added EFC means a dollar less of grants. If you are sure (1) that your daughter will be admitted to Princeton, (2) that she will choose to attend, and (3) that you will be eligible for need-based aid at Princeton at the time your daughter attends, you can be sure that added saving will result in a smaller grant for your daughter to attend Princeton. Note, though, that virtually no one is sure of these three things; also, even if you are sure, it may still pay to save because, as we will see, your EFC and therefore your grant is generally reduced by far less than a dollar for every additional dollar you save.

At another extreme might lie a school which devotes no resources to need-based grants. Whatever money goes into financial aid is used for merit awards for high-ability students. If your son will attend such a school, and if your income is high enough that he will not be eligible for a need-based Pell grant, your son’s grant award is likely to be unaffected by increases in your EFC.<sup>3</sup> At most, the higher EFC might result in your son’s being asked to take a larger loan or to work more during the term.

It is obviously impossible to capture all of the potential variations among colleges in their aid policies in the illustrative cases developed below. Instead, we focus on one key variable: the responsiveness of the level of need (as assessed by the Federal Methodology) to changes in the level

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of saving. This change in the need level may, as the extreme examples above indicate, result in equal changes in grant, in a mix of changes in grant, loan and work, or in no change in grant at all. It is our sense that in most cases, students who are eligible for need-based grants will receive a lower grant award if their families have a higher EFC, although probably typically not on a dollar-for-dollar basis. Nonetheless, we think the simplest "shorthand" for assessing the effect of an increase in the level of saving is the size of the decrease in the level of need, for those students who are in fact eligible for grant aid.

We note, finally, that there is another level of complexity we ignored entirely in assessing the relationship between federally subsidized savings programs and financial aid. This is the matter of independent students.<sup>4</sup> Adult students who are independent of their parents have their ability to pay assessed according to a methodology that is, so to speak, "tacked on" to the methodology that is used for "dependent" students. This presents a host of additional complexities regarding the relationship between saving and financial aid — complexities that, although interesting in their own right, we put aside for this analysis.



# The impact of saving on needs assessment

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Our aim here is to present a simplified quantitative analysis of the responsiveness of need-based aid awards to variation in accumulated assets held in various forms. We focus on families with dependent students. We consider families in four income groups: low, middle, upper-middle and high; and we consider three price ranges for colleges: low, medium and high.

Calculations based on these categories are reported in Table 1 on Page 16. The focus is on cases in which a family (if eligible) will receive need-based aid from the institution the student attends in addition to any other aid, such as federal or state grants. Because the institutional award is generally the “last dollar in” — that is, the final factor in the financial aid formula — it is this award that is sensitive to changes in the family’s asset position. (It is not uncommon for students from low-income families to attend low-priced institutions that award little or no aid. For such cases, it is variation of the Pell award with changes in the family’s asset position that is relevant to their decisions. Because the Pell grant award formulas are similar to those for other need-based aid, the analysis for those cases is essentially similar to what we report.)

Note that needs analysis methodology protects a certain level of assets from the calculation of

parents’ ability to contribute, recognizing the need to plan for emergencies and for retirement. The calculations here thus only apply to increments in assets above the protected amount. For a two-parent family with the older parent aged 50, the allowance is \$47,900 (Federal Methodology Needs Analysis Tables, 2004). Families in the lowest income class are unlikely to have enough assets to be subject to financial aid “taxation” at the margin.

Table 1 is based on the following scenario: Consider a family with a son or daughter who has just completed high school and is poised to attend college. We ask: How would a \$100 increment in the family’s accumulated financial assets affect the amount of need they would be shown to have under the federal needs analysis methodology? The answer to this question depends on how the marginal \$100 in assets is held, and we consider four cases: (1) a 529 savings

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*Because the institutional award is generally the “last dollar in,” it is this award that is sensitive to changes in the family’s asset position.*

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plan, (2) a 529 prepaid tuition plan, (3) a savings account in the student's name, and (4) a non-education-related savings vehicle (such as mutual fund).<sup>5</sup> In the table, we refer to this last item as "General Financial Assets." We show separately the impact in the first year of college, and the impact over four years. For comparative purposes, we also show how a \$100 increase in after-tax income

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*By saving —  
and especially by  
choosing the  
"wrong" savings  
instrument —  
low-income  
families can  
reduce their  
eligibility for  
need-based aid.*

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would affect the need analysis, but readers should be aware that this is an "apples and oranges" comparison — we are reporting the impact on assessed need from changes in the *flow* of income and in the *stock* of assets. How should we interpret the four income categories? Roughly, "low income" relates to families which are (a) eligible for Pell grants and (b) face the lowest marginal taxing rate in the needs analysis system (22 percent). Depending on family circumstances, this typically corresponds to families earning under about \$30,000 per year. Middle-income families are (a) typically ineligible for Pell and (b) face an intermediate taxing rate in the needs analysis system (34 percent). This might correspond to an annual family income of \$50,000-\$60,000. Upper-middle-income families are being taxed at the highest rate in the needs analysis (47 percent), and might have incomes around \$80,000 per year. High-income families have income high enough to eliminate need at even the high-priced institutions, and therefore are out of the needs analysis system altogether. Depending again on family circumstances as well as the price of the institution attended, this might correspond to incomes of \$125,000 or more.

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How should we interpret the four income categories? Roughly, "low income" relates to families which are (a) eligible for Pell grants and (b) face the lowest marginal taxing rate in the needs analysis system (22 percent). Depending on

We interpret the three categories of institutions in the following way: Low-priced institutions are typically community colleges, with very low tuition and many students who live at home. Medium-priced institutions are "flagship" public universities for students paying in-state tuition and typically living away from home. Some lower-priced private colleges also fall in this category. High-priced institutions are the more expensive privates and some out-of-state publics.

To see how Table 1 works, consider the case of a middle-income family whose child is to enroll in a medium-priced institution. A \$100 increase in the parents' after-tax income will result in a \$34 decrease in the family's assessed need. A \$100 increase in the amount of money the family holds in a prepaid tuition account will result in a \$100 decrease in measured need (we will return to this dramatic result later). An extra \$100 in a 529 savings plan (or Coverdell plan) will result in a \$4.10 decrease in measured need in the first year, the same impact as a \$100 increase in holdings in a non-education-related savings vehicle. A \$100 increase in holdings in an account in the student's name will result in a \$35 decrease in measured need. For the cases of 529 savings plans, student savings accounts and non-tax preferred vehicles, we also report the cumulative effects over four years. Thus, with general financial assets, 2.66 percent of the \$100 increment is "taxed" by the needs analysis system in the first year, leaving \$93.73, which is again "taxed" at 2.66 percent, and so on. After four years, about \$90 of the original \$100 is left.<sup>6</sup>

Reviewing Table 1 as a whole, there are three broad results to underscore. First, as family incomes rise, families in effect "top out" of the needs analysis system. This happens quickly at low-priced institutions such as community colleges, where even middle-income families are unlikely to be eligible for aid. Obviously, in this situation, increments in income or in assets have no impact on the level of measured need, which is already zero. High-income families are in this situation at all categories of institutions. (Note that



some upper-middle income families may be topped out of the needs analysis system at medium-priced institutions, although here we show that they are still affected.) There are two important conclusions to be drawn here. First, though high-income families have no disincentive to save for college, lower-income families do: By saving — and especially by choosing the “wrong” savings instrument — they can reduce their eligibility for need-based aid. Second, unless they are low-income families who expect their children to attend community colleges, they have little reason to worry that their savings decisions will affect their eligibility for need-based aid.<sup>7</sup>

For families expecting to receive need-based aid, the choice of savings instruments makes a big difference. The dramatic response of needs analysis to a prepaid plan comes about because the needs analysis system views the money made available by the plan as a resource directly available for college payment. Just as when a student receives an outside scholarship, the presumption is that tuition dollars that have been prepaid reduce need dollar for dollar.<sup>8</sup> This implies that all of the money accumulated in a prepaid plan will be taken before any need-based aid is provided. This aid treatment of course implies that families expecting to be eligible for need-based aid should not invest in prepaid plans.<sup>9</sup>

Accounts in the student’s name suffer from a similar but less severe difficulty. The assets accumulated in a student’s name are treated as owned by the student. Thus assets accumulated on behalf of a student are viewed as student assets, and the needs analysis system presumes that a large portion of such assets (35 percent) should be made available for college, a much higher fraction than applies to parental assets. For parents’ assets, the annual percentage ranges from 2.7 percent to 5.6 percent, depending on the family’s income.<sup>10</sup>

Third, we note that the impact of asset accumulation on measured need rises with income until income is so high that the family no longer has need. Thus a low-income family that manages to put funds into a 529 savings plan will find that,

over four years, the needs analysis system expects only about 10 percent of those parental assets to be drawn down for college expenses; that is, the family’s cumulative four-year need is reduced by about \$10 for every added \$100 they have in their 529 funds at the time of entry to college. (Families are of course free to draw down as much as they want, but over four years their need will only be reduced by about 10 percent of the incremental asset value.<sup>11</sup>) An upper-middle-income family will find that, at the margin, its accumulated savings have much more impact on need over four years. Such a family will find its need reduced by more than 20 percent of the incremental asset value.

These impacts are high enough to affect rates of return significantly. As a simple example, consider a family that puts aside a sum of \$20,000 10 years in advance of a child’s entering college. If that sum grows at a continuously compounded after-tax rate of 5 percent annually, it will be worth \$32,974 after 10 years. If that value is reduced by 10 percent (corresponding to a low-income family), the annual rate of return on the investment drops from 5 percent to 3.9 percent. If the value is reduced by 20 percent (corresponding to an upper-middle income family), the return drops to 2.8 percent. Notice, however, that these implications are not specific to saving in 529 plans — they apply to all additions to financial assets for families subject to needs analysis. As noted earlier, there is controversy about the degree to which such differences in returns affect decisions about savings rates, but these are surely substantial differences. It is important to note that high-income families, who are not subject to the needs analysis system, suffer no similar discouragement to saving for college.

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*Families expecting to be eligible for need-based aid should not invest in prepaid plans.*

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# Summary and conclusions

Our aim here has been to illuminate, through examination of illustrative cases, the interactions between the need-based student aid system and the savings vehicles subsidized by the federal government to encourage saving for college. It is perhaps not surprising that the interactions between these systems are sometimes awkward.

One obvious difficulty is that the specific characteristics of a savings instrument can have a disproportionate impact on its treatment under the

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*There is clearly good reason to better align outcomes with intentions.*

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needs analysis system. There is little relevant difference in the motivation of a parent who puts money into a savings plan, a prepaid tuition plan or a savings account in the student's name. Nor is there much relevant difference among these programs from the

standpoint of the federal interest in subsidizing higher education saving. The tax benefits of these three types of instruments are likewise similar.<sup>12</sup> Yet a family that has pursued one of these plans and later finds a son or daughter enrolled at a school that grants need-based aid may find their aid

reduced modestly, substantially or dramatically, depending on which instrument they chose. There is clearly good reason to better align outcomes with intentions here — and, indeed, there is good reason to question whether there is a sound rationale for providing federal tax subsidy for all of the different instruments.<sup>13</sup> As noted above, this is a challenge that is likely to be addressed in the next reauthorization of the Higher Education Act.

The complexity and proliferation of federally favored savings instruments present additional disadvantages. First, such complexity increases citizens' tax-preparation costs — costs that generally benefit accountants and tax preparers. Second, since affluent citizens are more able to afford such tax-planning services, they stand to benefit disproportionately.

Under current arrangements, it is clear that families should steer clear of prepaid 529 plans and should not provide assets as gifts to students unless they are confident either that the financial aid treatment will change before their children are ready for college or that the family's wealth will disqualify them for need-based aid at the colleges their children will attend. Since, under current law, Coverdell accounts provide their full tax benefits only to joint filers with incomes less than \$190,000 (and single filers with incomes less than \$95,000 [Ma, 2003]), only a subset of high-income people

will be interested in these accounts. All high-income people can take advantage of 529 prepayment plans without risking a financial aid penalty.

The fact that it is the highest-income families who are least likely to face a financial aid penalty for investing in federally subsidized savings programs — simply because they are outside the need-based aid system altogether — raises another issue, as many may view this inequality in benefits as improper in itself. Apart from the equity question, however, the aim of savings subsidies is presumably to encourage more saving for college than would otherwise occur. But it is the highest-income people, those who are outside the need-based financial aid system, who are least likely to have their savings decisions influenced by tax subsidies for college saving. The reason for this is that high-income people are much more likely than others to have substantial accumulations of

assets independent of college-savings incentives. Such individuals can realize the tax benefits of particular savings instruments simply by reallocating existing assets into tax-preferred instruments. If the goal, then, is to use federal tax subsidies to increase the amount of college savings among families, focusing those subsidies on families of relatively limited means is consistent with that goal.<sup>14</sup>

These issues about the implications of college-savings plans for both governmental and institutional policy clearly deserve more attention, and we intend to pursue them further in future work. There is also a need for empirical study of the behavioral effects of college-saving incentives — work that is, unfortunately, very hard to do well.<sup>15</sup> We hope that this contribution has helped to clarify some of the basic relationships between savings incentives and the need-based aid system and, in that way, has helped set the stage for more productive discussion and for further work.

**Table 1. Impact on financial aid of a \$100 increase in asset holding or income, by family income and cost of attendance**

Family income		Cost of attendance					
		Low price		Medium price		High price	
		One year	Four years	One year	Four years	One year	Four years
<b>Low</b>							
\$100 increase in ...	Income	-22	NA	-22	NA	-22	NA
	Prepaid plan	-100	NA	-100	NA	-100	NA
	529 saving	-2.66	-10.1	-2.66	-10.1	-2.66	-10.1
	Student savings	-35	-82.1	-35	-82.1	-35	-82.1
	General financial assets	-2.66	-10.1	-2.66	-10.1	-2.66	-10.1
<b>Middle</b>							
\$100 increase in ...	Income	0	NA	-34	NA	-34	NA
	Prepaid	0	0	-100	NA	-100	NA
	529 saving	0	0	-4.1	-15.3	-4.1	-15.3
	Student savings	0	0	-35	-82.1	-35	-82.1
	General financial assets	0	0	-4.1	-15.3	-4.1	-15.3
<b>Upper-middle</b>							
\$100 increase in ...	Income	0	NA	-47	NA	-47	NA
	Prepaid	0	0	-100	NA	-100	NA
	529 saving	0	0	-5.6	-20.7	-5.6	-20.7
	Student savings	0	0	-35	-82.1	-35	-82.1
	General financial assets	0	0	-5.6	-20.7	-5.6	-20.7
<b>High</b>							
\$100 increase in ...	Income	0	NA	0	NA	0	NA
	Prepaid	0	0	0	0	0	0
	529 saving	0	0	0	0	0	0
	Student savings	0	0	0	0	0	0
	General financial assets	0	0	0	0	0	0

Note: We do not report four-year data for changes in income because the relationship displayed is between income in a given year and need reduction in a given year. For other items, the relationship is between the size of a stock of accumulated saving and the need reduction, first for one year and then accumulated over four years.

See text for full treatment of income groups. In summary, they are:

- Low income — Pell-eligible, lowest marginal rate in needs analysis
- Middle income — Pell-ineligible, intermediate marginal rate in needs analysis
- Upper-middle income — Pell-ineligible, top marginal rate in needs analysis
- High income — No need



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# Endnotes

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<sup>1</sup> A recent paper by Dynarski (2004) addresses related themes, with an emphasis on the interactions between income taxes and the needs analysis system.

<sup>2</sup> Basic information about needs analysis methodologies is available at the College Board Web site, [www.collegeboard.com](http://www.collegeboard.com). A small number of highly selective colleges (referred to as the "568 group," a label that derives from a feature in federal law that allows these schools to cooperate in assessing their students' need for assistance) have recently adopted a third methodology, a modification of the Institutional Methodology. There are some significant differences in this methodology that are relevant to comparison of savings plans — notably, student assets are treated on a par with parents' assets, rather than being assessed much more heavily. Of course, when parents are saving for college, few of them can be confident their son or daughter will be admitted to or choose to attend one of this limited set of institutions.

<sup>3</sup> In some states, your son may receive a smaller state grant as a result of having a higher EFC.

<sup>4</sup> Our analysis also ignores students who attend college less than half time; they generally are ineligible for federal need-based aid.

<sup>5</sup> Note that retirement-savings vehicles such as the 401k are not counted in total assets in the financial aid system and therefore do not reduce the calculated level of need.

<sup>6</sup> This calculation makes most sense if the decrease in need is reflected in a decrease in grant, rather than in loan. However, the four-year cumulation is a reminder that families must plan on a repeated impact of the asset value on the needs analysis over the student's time in college.

<sup>7</sup> This is true, anyway, of the first two years of college. For families expecting community college to be followed by two years of attendance at a four-year institution, the calculation is obviously different.

<sup>8</sup> Individual institutions may use "professional judgment" to modify this result either in the case of outside scholarships or of prepaid tuition. However, institutions are bound by the rule that says that no student who receives any federal aid from the major (Title IV) programs can receive a total aid package that exceeds need as measured by the Federal Methodology. This constrains the ability of aid officers to "discount" the impact of such resources on need.

<sup>9</sup> There is active discussion of modifying this aspect of the federal needs analysis methodology during the next reauthorization of the Higher Education Act.

<sup>10</sup> This treatment of Coverdell accounts may also be addressed in the upcoming reauthorization.

<sup>11</sup> The more rapidly the asset is drawn down, the smaller is the total impact on need, since the "tax" in later years will be applied to a smaller base.

<sup>12</sup> As noted above, there is an income test on the tax benefits of the Coverdell accounts.

<sup>13</sup> A prepaid tuition program can really be factored into two components: a savings program and a tuition insurance program. There is no reason in principle why these two elements could not be separated, with states or groups of schools selling tuition insurance policies. Whether such insurance policies, separated from tax policies, would find a market at a price that covers costs is questionable.

<sup>14</sup> The issues here closely parallel those regarding incentives for retirement saving. For a critical review of the literature on the impact of savings incentives for retirement, see Engen, Gale and Scholz (1996). In their piece, they offer the following observation about behavioral responses to taxation: "... [D]ecisions concerning the timing of economic transactions are the most clearly responsive to tax considerations. The next tier of responses includes financial and accounting choices, such as allocating a given amount of saving to tax-deferred versus other assets. The least responsive category of behavior applies to agents' real decisions, such as the level of saving" (p. 135).

<sup>15</sup> The review by Engen, Gale and Scholz (1996) of attempts to do such empirical work in the related context of retirement savings incentives underscores the severe empirical challenges.

## About the authors

**Roberto M. Ifill** is an independent consultant on higher education in Washington, D.C. Previously, he was a Research Fellow at the American Council on Education and served on the senior staff at Macalester College and at Connecticut College. Before that, Ifill was a program officer at the Andrew Mellon Foundation and was the dean of freshmen and a member of the economics department at Williams College. He holds a doctorate in economics from Yale University.

**Michael S. McPherson** is president of the Spencer Foundation in Chicago. Previously, he was president of Macalester College and before that was the dean of faculty and a member of the economics department at Williams College. He has served as a Senior Fellow at the Brookings Institution and as a member of the Institute for Advanced Study in Princeton, N.J. He has co-authored several books and a number of articles on higher education finance with Morty Schapiro, president of Williams College.





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