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Closing the College Savings Gap

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The Importance of a College Degree

Over the past 25 years, as the U.S. has shifted to a more knowledge-based economy, the economic value of a college education has increased substantially. By 2004, the median worker with a college degree earned 71 percent more than the median worker with a high school degree.

Taking into account both the costs of college—tuition payments and forgone earnings—and the potential benefits, there is a significant positive rate of return of between 5 and 15 percent per year on schooling beyond high school.

Attending college has widespread benefits for society, including improved macroeconomic performance, civic participation, health, and longevity. For example, one survey across several countries found that increases in education levels are positively associated with national economic growth.[2] Related public benefits of increased education include greater tax payments from more high-income earners and reduced spending on public assistance.[3] Another societal benefit is the increased rate of civic participation among those with more education, who are more likely to vote,[4] be politically involved,[5] and perform volunteer work.[6] Higher levels of education are also associated with better health,[7] which is not only obviously good for the individual, but also decreases societal health care costs and slows the spread of disease.

Financial Barriers to College Attendance

The cost of college education has risen rapidly over the past 25 years. Even after adjusting for inflation, average tuition increased roughly 160 percent from the academic years of 1977–1978 to 2004–2005, while real average family income over the same time period rose only 33 percent.

It is estimated that the annual cost of sending a child to a four-year public university in 2020 will roughly triple in nominal, not inflation adjusted, dollars (if the growth rate in tuitions over the past 10 years persists over the next 15 years). As a result, annual tuition and fees at an average four-year public university are expected to reach nearly $15,000 in 2020. In inflation-adjusted terms, tuition and fees at public universities are expected to double by 2020. Including room and board, the total cost at such a school would reach nearly $32,000 in 2020.

Although parents identify education as one of the most important reasons for saving, aggregate personal saving as a share of personal income is at its lowest level in 50 years. The personal saving rate has fallen from an average of 10.4 percent of disposable income in the early 1980s to 1.0 percent in 2004.[8]

Inadequate saving forces families to adopt various strategies for financing college, including financing out of existing income (by reducing consumption or other saving), taking extra jobs, using retirement or other savings funds, or taking out second mortgages or refinancing existing mortgages.

The good news is that financial aid can offset some of the costs of tuition and has become more available. One estimate suggests that all

student aid (including grants, tax benefits and education loans) increased 122 percent from 1994 to 2004, and aid excluding private loans doubled during that time period.[9] In fact, seven out of ten students receive some form of aid to pay for college; six out of ten full-time undergraduates receive grant aid; and grant aid and federal tax benefits averaged more than $3,300 for full-time students at four-year public universities.

College Remains Affordable, Provided Families Plan Early

Among the factors complicating families' planning for college are parents' confusion over how to balance college saving with saving for their own retirement and their uncertainty over how much tuition might rise and how much student aid might be obtainable. Concern about paying for college has skyrocketed among students and is growing not only among poor and minority students, but also among middle class and wealthy students.[10] Yet that concern is often not commensurate with reality. The American Council on Education recently reported that families with high school students overestimate the cost of tuition and fees at 4-year public universities by 50 to 80 percent.[11]

Despite the rising cost of tuition, projections of the money needed by five hypothetical families demonstrate that, with the support of financial aid, families can often afford college education and satisfy their own retirement needs by saving just a few dollars more each day.

The projections combine a model of the family's income and savings behavior with projected college tuitions and retirement needs to compute a "savings gap" for different types of families, and also explore various ways of closing that gap.

For example, one hypothetical family (Family Three) has $60,000 in income—just under the median U.S. income for a family of four—and two young children (ages 2 and 5) who will attend the average four-year public college. In order to afford tuition, room and board, while still meeting their retirement needs, the family faces a $28,022 savings gap today. They can fill this gap by putting aside $4.42 per day beginning today.

The model also reveals significant cross-state variation. For example, whereas a family of four with the state median income that wants to send two children to an in-state four-year public college would need to set aside more than $6.00 per day in Delaware, New Hampshire, or Rhode Island, the same hypothetical family would need to set aside roughly $3.00 per day in South Carolina, Kentucky, or Florida.

Assumptions Used in Model Families

The challenge for many families is to determine what their actual cost for college is likely to be after grant aid and tax credits—and to measure the cost of saving for that expense against their own retirement needs.

The projections combine models of the families' income and savings behavior with projected college tuition and retirement needs to compute a "savings gap" for different types of families.[12] They also explore various options for closing that gap. The income and savings model incorporates numerous variables, such as family income, age of parents and children, number of children, parents' expected retirement date and desired retirement income as a percentage of prior income, rate of return on investments, family's financial wealth and retirement account balance, home equity, and taxes. (For a more detailed explanation of the model, see the Appendix.) Assumptions about college cost inflation are based on projections of historical trends over the past 10 years.

While these five hypotheticals are purely illustrative, as altering any of the variables can significantly change the results, they are nonetheless instructive in showing that most families—of different ages, incomes and aspirations—can bridge the college savings gap with modest additional daily savings.

To demonstrate the power of starting early, we note that had Family Three started planning for college five years ago, when their first child was born and each parent was 27, they would have faced a much smaller college savings gap. Assuming similar salaries and little to no equity in their home, this couple would have faced a savings gap of just $12,401. To close this gap, they would have needed to save just $1.87 per day. On the other hand, if Family Three were to wait

another five years to start working on their college savings gap, the task becomes far more difficult. Assuming similar incomes and an additional five years of home equity, they face a college savings gap of $42,413, which would require $7.10 in additional daily savings.

To demonstrate the importance of income and the assets associated with higher incomes, consider two families at opposite ends of the income spectrum. At lower incomes, consider a family (Family One) with $30,000 in income and one 32-year-old parent that wants to send one child (age 5) to an average four-year public college. This hypothetical assumes the parent has very little in savings—only $1,500 in non-retirement financial wealth and $2,000 for retirement—and rents rather than owns a home. This parent faces a college savings gap of $38,633 and must set aside $6.09 per day to close the gap while meeting retirement needs. Her child will almost certainly have to take loans or receive significant grant aid from other sources to cover his or her college costs. The mother could meet a more modest goal of covering half the child's college costs by saving $2.98 each day.

By comparison, consider a family (Family Five) at the higher income level of $80,000 that wants to send two children (ages 5 and 2) to an average four-year public college. They have $10,000 in non-retirement financial wealth and $45,000 for retirement and purchased a home five years ago worth $200,000. With a 5.0% savings rate, they already put aside $10.96 each day for retirement, college and other needs. This family faces a savings gap of $17,590, which they can cover with just $2.77 in additional daily savings.

To demonstrate how savings rates can improve a family's ability to pay for college, consider Family Four, a young couple (each 28) earning $60,000 in annual income, with $10,000 in non-retirement financial wealth and $5,000 for retirement. These future parents may still be paying off their own college loans. If they plan to have two children, starting in two years, and they now manage to save 2.5% of their income ($4.11/day), their college savings gap is $31,982, requiring them to increase their savings by $4.86/day. If, on the other hand, this family were already saving 5% of their income ($8.22/day), their college savings gap could be filled with less than $1 in additional savings.

The results of this modeling to project college savings gaps for different hypothetical families also reveal the impact of residency in different states. For example, whereas a family of four with the state median income that wants to send two children to an in-state four-year public college would need to set aside nearly $6.50 per day in Michigan, Minnesota, Nebraska or Ohio, the same hypothetical family would need to set aside roughly $3 per day in Kentucky, Louisiana, Mississippi, or Tennessee.

Family One:

$30,000 in income with one child wanting to attend the average four-year public college

This profile represents a single-parent household with one child (age 5). The parent earns approximately $30,000 per year and has saved $2,000 for her retirement and $1,500 for other purposes. Each year, she saved approximately 2.5% of her income, which equals about $2.05 of daily savings. She does not own a home, and, therefore, will have no home equity to help her with her college and retirement saving.

She is 32 and wishes to retire at 67 with enough saved to allow her to replace 70% of her pre-retirement income.

Her goal is to send her child to a 4-year public university.

In order to send her child to college while still living comfortably in retirement, she would need to set aside $38,633 immediately. Alternatively, she could put aside $6.09 per day beginning today.

STRATEGIES FAMILY COULD ADOPT TO CLOSE SAVINGS GAP	
Paying for 4 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$38,633**
Amount Required to Save per Day to Close Savings Gap	**$6.09**
Increase in Saving Rate Required to Close Savings Gap	**15%**
Paying for 2 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$18,921**
Amount Required to Save per Day to Close Savings Gap	**$2.98**
Increase in Saving Rate Required to Close Savings Gap	**7%**

Family Two:

$45,000 in income with two young children wanting to attend the average four-year public college

This family earns approximately $45,000 per year. The parents have saved $10,000 for their retirement and $5,000 for other purposes. Each year, they save approximately 4% of their income, which equals about $4.93 of daily savings. They purchased a home three years ago, which is now worth approximately $120,000, so they will be able to use this home equity to help with their college and retirement saving.

The parents (each 32) wish to retire at 67 with enough saved to allow them to replace 70% of their pre-retirement income.

Their goal is to send their two young children (ages 5 and 2) to four-year public universities.

In order to send both children to such colleges while still living comfortably in retirement, the parents would have to set aside $45,986 immediately. Alternatively, they can cover their share of the children's college costs, while still securing their own retirement, by putting aside $7.25 per day beginning today.

STRATEGIES FAMILY COULD ADOPT TO CLOSE SAVINGS GAP	
Paying for 4 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$45,986**
Amount Required to Save per Day to Close Savings Gap	**$7.25**
Increase in Saving Rate Required to Close Savings Gap	**13%**
Paying for 2 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$7,107**
Amount Required to Save per Day to Close Savings Gap	**$1.12**
Increase in Saving Rate Required to Close Savings Gap	**2%**

Family Three:

$60,000 in income with two young children wanting to attend the average four-year public college

This family earns approximately $60,000 per year—just under the median U.S. income for a family of four. The parents have accumulated $20,000 to help pay for college and other necessities, as well as $10,000 for retirement. These figures are roughly in line with median financial assets for a family of four. Each year, they save approximately 5% of their income, which equals about $8.22 of daily savings. They also own a home (purchased 5 years ago) worth $150,000. The parents (each 32) wish to retire at 67 with enough saved to allow them to replace 70% of their pre-retirement income.

Their goal is to send their two young children (ages 5 and 2) to four-year public universities.

In order to send both children to such colleges while still living comfortably in retirement, the family would have to set aside $28,022 immediately. Alternatively, the parents would have to delay retirement by two years. Although these numbers appear daunting, the parents can cover their share of the children's college costs, while still securing their own retirement, by putting aside only $4.42 per day beginning today.

STRATEGIES FAMILY COULD ADOPT TO CLOSE SAVINGS GAP	
Paying for 4 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$28,022**
Amount Required to Save per Day to Close Savings Gap	**$4.42**
Increase in Saving Rate Required to Close Savings Gap	**6%**
Paying for 2 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**No gap**
Amount Required to Save per Day to Close Savings Gap	
Increase in Saving Rate Required to Close Savings Gap	

Family Four:

$60,000 in income with two planned children to attend the average four-year public college

This family is younger than our other model families and has no children at this time.

Each parent is 28, and they plan to have two children, starting in about two years. Together, they earn approximately $60,000 per year. The parents have accumulated $10,000 to help pay for college and other necessities, as well as $5,000 for retirement. As recent college graduates, they may still be paying off their own college loans. For this reason, and because of their age, we assume this family is saving only 2.5% of its income, which equals a daily savings rate of $4.11. They have just purchased a home worth $150,000.

The parents wish to retire at 67 with enough saved to allow them to replace 70% of their pre-retirement income.

Their goal is to send their two yet-to-be-born children to four-year public universities.

In order to send both children to such colleges while still living comfortably in retirement, the parents would have to set aside $31,982 immediately. Alternatively, the parents can cover their share of the children's college costs, while still securing their own retirement, by putting aside $4.86 per day beginning today.

If this couple is already saving 5% of their income for retirement and other expenses, like college, their college savings gap can be filled with less than $1 in additional savings.

STRATEGIES FAMILY COULD ADOPT TO CLOSE SAVINGS GAP	
Paying for 4 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$31,982**
Amount Required to Save per Day to Close Savings Gap	**$4.86**
Increase in Saving Rate Required to Close Savings Gap	**6%**
Paying for 2 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$13,134**
Amount Required to Save per Day to Close Savings Gap	**$2.00**
Increase in Saving Rate Required to Close Savings Gap	**2%**

Family Five:

$80,000 in income with two children wanting to attend the average four-year public college

This family earns approximately $80,000 per year—well over the median U.S. income for a family of four (roughly $60,000). The parents have accumulated $10,000 to help pay for college and other necessities, as well as $45,000 for retirement. Each year, they save approximately 5% of their income, which equals about $10.96 of daily savings. They also own a home (purchased 5 years ago) worth $200,000.

The parents (each 32) wish to retire at 67 with enough saved to allow them to replace 70% of their pre-retirement income.

Their goal is to send their two young children (ages 5 and 2) to four-year public universities.

In order to send both children to such colleges while still living comfortably in retirement, the family would have to set aside $17,590 immediately. Alternatively, the parents can cover their college costs, while still securing their own retirement, by putting aside only $2.77 per day beginning today.

STRATEGIES FAMILY COULD ADOPT TO CLOSE SAVINGS GAP	
Paying for 4 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**$17,590**
Amount Required to Save per Day to Close Savings Gap	**$2.77**
Increase in Saving Rate Required to Close Savings Gap	**3%**
Paying for 2 years:	
Additional Amount Family Needs To Set Aside Today to Close Savings Gap While Meeting Retirement Needs	**No gap**
Amount Required to Save per Day to Close Savings Gap	
Increase in Saving Rate Required to Close Savings Gap	

APPENDIX

Assumptions

Most of the parameters have been chosen to reflect approximations to observed values, in many cases based on the family's state of residence. For each family, the model calculates the immediate amount of additional wealth that would be required to finance a college education for the children—taking into account Pell Grant awards and, in our state-specific analysis, that state's average merit award—while still meeting the parents' retirement needs. This immediate amount is called the "savings gap." We then explore various options for closing the gap, including how much that family must increase its daily savings rate.

Among the specific assumptions used are:

–The family's initial income level and its projected income growth rate, taking into account the typical age-earnings profile, as estimated by Engen, Gale, and Uccelo;[13]

–The number of children in the family and their ages;

–The marital status and age of the parent(s);

–Current college tuition and room and board, along with projected growth rates;[14]

–A calculator for the family's Expected Family Contribution under the Federal college aid rules, as well as the student's Pell Grant amount;

–Non-income-related (merit) aid for college;

–The family's saving rate;

–The expected retirement date for the parent(s), the rate offered to obtain retirement annuities;[15] and a 70 percent replacement rate in retirement (i.e., the percentage of previous income desired during retirement);

–Social Security benefits, which depend on each parent's lifetime earnings and retirement age;

–The rate of return on investments, based on the average real return on assets during the post-World War II era, assuming the accounts are continuously rebalanced so that the portfolio comprises 60 percent in stocks and 40 percent in bonds, and without making any adjustment for risk;[16]

–The family's initial non-retirement and retirement account balances;

–The family's home equity, including factors to reflect the initial house price, housing inflation rates, the initial loan-to-value ratio, and the mortgage rate;

–The share of the family's ultimate home equity available that can be tapped for spending needs during retirement;[17]

–A detailed tax calculator that reflects the family's income level, the number of people in the family, typical levels of deductions, the Earned Income Tax Credit, the Hope and Lifelong Learning Credits for higher education, and the state of residence (for state-level taxes).

More details are available upon request to the authors.

1. Jonathan M. Orszag (jorszag@competitionpolicy.com) is Managing Director of Competition Policy Associates, Inc. He previously served as Director of the Office of Policy and Strategic Planning at the Department of Commerce, and was an Economic Policy Advisor on the National Economic Council at the White House. Peter Orszag (porszag@brookings.edu) is a Director at Competition Policy Associates and the Joseph A. Pechman Senior Fellow in Economic Studies at The Brookings Institution. Dr. Orszag previously served as Special Assistant to the President for Economic Policy at the White House. Jason E. Bordoff (jbordoff@brookings.edu) is a Consultant to Competition Policy Associates. He is also the Policy Director of the Policy Innovation Initiative at The Brookings Institution. He previously served as Special Assistant to Deputy Treasury Secretary Stuart E. Eizenstat and worked as a consultant at McKinsey & Co.

2. Alan B. Krueger and Mikael Lindahl, "Education for Growth: Why and For Whom?" Princeton University Industrial Relations Section Working Paper No. 429, January 2000.

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4. See, for example, Raymond E. Wolfinger and Steven J. Rosenstone, Who Votes? (Yale University Press: New Haven, 1980).

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8. Economic Report for the President, 2005, pages 13–30.

9. College Board, Trends in College Pricing, 2004

10. Educational Testing Service, "Toward Inequality: Disturbing Trends in Higher Education," available at www.ets.org/research./pic.

11. American Council on Education, "What Students and Their Parents Know About the Cost of College," September 2003.

12. The model is an updated and revised version of the model used in Joseph Stiglitz, Laura Tyson, Jonathan Orszag and Peter Orszag, "The Impact of Paying for College on Family Finances," 2001.

13. Eric Engen, William Gale, and Cori Uccello, "The Adequacy of Household Saving," Brookings Papers on Economic Activity, 1999:2, pages 65-165.

14. Current tuition and room and board are based on data from the College Board. The project growth rates for college tuition are based on the average annual growth rate over the past 10 years.

15. The annuity rate assumes that inflation-indexed annuities are available at actuarially fair rates. The values for a 65-year-old are taken from National Academy of Social Insurance, "Uncharted Waters: Paying Benefits from Individual Accounts in Federal Retirement Policy," 2005, Figure 3-5. Annuity prices for other retirement ages are calibrated to the pricing for a 65-year-old.

16. For many purposes, examining the risk-adjusted rate of return would be more illuminating; those results are available upon request to the authors. For a discussion of risk adjustment, see Peter Diamond and Peter Orszag, Saving Social Security (Brookings Institution: Washington, DC, 2004). The real rate of return before administrative costs is assumed to be 5.9 percent per year. Administrative costs are assumed to average 90 basis points per year, somewhat lower than the average expense ratio on a mutual fund. The net real rate of return is therefore assumed to be 5.0 percent per year.

17. Some families may be willing to move out of their home, or reduce their equity in their home, in order to finance consumption during retirement. Nonetheless, the evidence generally suggests that "housing wealth is typically not used to support non-housing consumption during retirement," which is consistent with our assumption. See Steven F. Venti and David A. Wise, "Aging and Housing Equity," National Bureau of Economic Research Working Paper No. 7882, September 2000.