

ASSUMPTIONS FOR APPENDIX D SPREADSHEET

The spreadsheet is designed so that different assumptions can be tested by substituting them for the ones that I have made. Exceptions to this statement are that some changes in assumptions regarding the speed at which costs decline would have to be manually inserted into the Benefits section and in the ramp up of the costs over the first 5 years of the program.

College Costs

I assume two categories of college students: those that do not take the stipend (25% of the population) and those that do (75% of the population). Of the 25%, I assume that all will go to college but that only 90% of them will get degrees. Of the 75%, I assume that 90% will go to college but that only 77% of those that go to college will get degrees. Those that do not get degrees (23% of the 90%) are assumed to attend a post-secondary school and receive the stipend for two years. This results in a 75% graduation rate overall.

Annual Costs of \$10,000 Stipend (\$\$ millions)

1. Total of 4 cohorts of students (4 million/yr)--90% graduate from high school and are college-ready	14.4
2. % of graduates that begin post-secondary school	90
3. % of students that begin that take \$10,000 stipend	90
4. % of students that complete college (4 yrs)	77
5. % of students that complete 2 years	23
6. Cost of students that complete college (1*2*3*4*\$10,000)	\$89,813
7. Cost of students that complete 2 years (1*2*3*5*\$10,000*.5)	\$13,414
8. Savings on Pell and Tax Breaks	\$50,000
9. Total net cost	\$62,986

College Costs are reduced beginning in year 6 by 2.5% of the assumed income of graduates. There are 2 million assumed graduates who received federal assistance for college. They are assumed to make an average of \$45,000 for the first three years of the program and gradually increases to \$60,000 thereafter. On average, it is assumed that it will take a graduate 27 years to repay \$40,000 of stipend. The additional 1.5% of income is assumed to begin for a small percentage of former students in year 16. It grows gradually into significant amounts of income to the government, about \$25 billion a year at the end of the 30-year period.

Early Education Costs

It is assumed that one quarter of children (1 million out of 4 million children in a cohort) will need early education and related assistance from birth until age 5—that is, for 5 years, at an average annual cost of \$14,000 per student, less \$9 billion that previously went to Head Start.

A. Increase in Federal Income Tax Paid

The number of cohorts per year that are earning more is based on an assumed growth rate of the program. The number of people in each cohort who earn more is an estimate of the number per cohort who will be in the workforce and earn more income as a result of having a college degree. There are approximately 4 million people in a cohort. The number of people in a cohort that are estimated to earn more due to the program varies from 1.2 million (about 30% of the cohort) at the beginning of the program to 1.7 million (about 42% of the cohort) at the end of the 30-year period. These assumptions mean that at least 25% of people are not expected to get college degrees even with the program. Different assumptions as to graduation rates can be tested in the spreadsheet.

By reason of the program, there always will be 4 cohorts that are earning less than they would have earned—that is, those that are in college. Within each cohort the number earning less is assumed to be 3 million in each year. This is a bit of an overstatement, since more than 25% of each cohort already is in college.

The tax rates are estimates based on current rates. The amounts that people earn, both more and less, are based on current differences between college graduates and high school graduates, on the upside, and between college graduates working part time and fulltime employees, on the downside. It is admitted that if the program is successful, the premium earned by education may decline, in which case the differentials used may be high. On the other hand, if work for those without college degrees becomes scarce, then the actual differential could increase. Neither of these possibilities—that go in opposite directions—is covered. The consequences of different assumptions are readily tested in the spreadsheet.

The \$15,000 per year assumed extra income due to a college degree would be justified by the data regarding about 1000 out of 1300 colleges in the PayScale College ROI [Report](#) for 2014. That study included only graduates who were employed and did not include graduates who obtained higher degrees after graduation. It does not state what percentage of graduates are employed. There is a tradeoff between counting only employed graduates and not including graduates with higher degrees. The net effect of that tradeoff is not known.

B. Increase in Social Security Taxes paid

The methodology is the same as for federal income tax except that the tax rate is different. Both the employer and the employee shares of the taxes are included.

C. Increase in Medicare Tax Paid

The methodology is the same as for federal income tax and Social Security tax except that the tax rate is different.

D. Increase in State and Local Income Taxes Paid

Because the numbers are small, the methodology has been truncated from the Federal Income Tax computations. The tax rate of 2% is a blend of states that have no income tax and states that do.

E. Increase in State Sales Taxes

Additional income assumed is the same as for Federal Income Tax. Percent of income spent on taxable items is an estimate. Tax rate is an estimated blended rate of states with higher and lower tax rates.

F. Decrease in Justice System Costs

Total costs are based on Department of Justice estimate referenced in the computation. Reductions in costs are assumed to begin in year 5 of the program and to increase at 3% per year until a total reduction of 25% of 2010 costs—costs are held constant for the remainder of the 30-year period.

G. Decreases in SNAP Payments

Total SNAP costs are based on the referenced USDA document. Costs are assumed to decline at 3% per year beginning in the fifth year, until an aggregate reduction of 40%. Costs then are held constant (at 60% of the original benchmark amount) for the remainder of the 30-year period. SNAP is an income-based program. Therefore increases in individuals' incomes feed automatically into cost savings.

H. Decrease in TANF Payments

Total TANF costs are based on the referenced government publication. Costs are assumed to decline at 3% per year beginning in the fifth year, until an aggregate reduction of 60%. Costs then are held constant (at 40% of the original benchmark amount) for the remainder of the 30-year period. TANF is an income-based program. Therefore increases in individuals' incomes feed automatically into cost savings.

I. Decrease in Low Income Housing Subsidy Costs

Total housing supports incurred by all levels of government are difficult to find. The estimate of \$44 billion used here is based on HUD data and is believed to be conservative. It appears that the total could be three times that amount. Based on increases in income, the amount is decreased by 3% per year beginning in the sixth year until 40% of the total has been saved. The number then is kept level (at 60% of the original benchmark amount) through the remainder of the 30-year period. Housing subsidy programs are income based. Therefore increases in individuals' incomes feed automatically into cost savings.

J. Decrease in Medicaid Costs

The baseline costs are based on an estimate by the Kaiser Foundation. The costs decline at 3% per year beginning in year 6 to 40% of the original total, then remain fixed (at 40% of the original total) for the remainder of the 30-year period. The declines are roughly in line with projected earnings increases. Medicaid is an income-based program. Therefore increases in individuals' incomes automatically feed through as governmental savings.

The Affordable Care Act will increase the cost of Medicaid. The actual impact on Medicaid costs is not likely to be known for some time. What can be known is that increasing incomes will reduce Medicaid costs more than these projections suggest, but it may be that other subsidies in the Affordable Care Act will counteract some of those additional savings.

K. Decrease in EITC Costs

The cost of EITC is based on the reported number of recipients and the average amount that each receives. The EITC savings are computed the same way as Medicaid cost savings. EITC is an income based program. Therefore increases in come automatically flow through as savings to government.

L. Decrease in Special Education Costs

Special education costs are estimated based on a review of several educational websites. They are projected to decline at 3% per year beginning in year 5 until 40% of the total has been saved. The total (60% of the baseline) then remains the same through the 30-year period.

The spreadsheet does not use present value computations because the projection shows the program turning positive in the 10th year and earning back all expenditures in the 15th year. This is a short enough period that present value does not have a huge impact when interest rates are low. Moreover, if one did present value computations, one would have also to take account of inflation. The costs that are saved naturally would grow, as would the additional earnings attributable to higher education. The results of inflation might well cancel out the present value detriments. In addition, if one used present value accounting, then might also estimate how safety net costs would grow in the absence of the proposed programs. There is sufficient uncertainty in all of these areas that the projections likely would not benefit from the added complexity.