



**POLICYMAKER'S GUIDE
TO PAY IT FORWARD:
*TECHNICAL NOTES***



Economic
Opportunity
Institute

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Notes

These technical notes accompany *Policymaker's Guide to Pay It Forward* (available at www.eoionline.org).

Pay It Forward financial modeling was developed as a joint venture between John Gibson and staff at the Economic Opportunity Institute. This brief includes a detailed description of the Interactive Calculator used to create financial forecasts for Pay It Forward modeling. A copy of the Pay It Forward Interactive Calculator (Microsoft Excel workbook) is available upon request.

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Financial Modeling and the Interactive Calculator

Pay It Forward programs are designed to encourage college participation and completion both by reducing the uncertainty regarding future debt obligations and by ensuring the Pay It Forward funding pool can sustain (or even gradually increase) future enrollment. The Pay It Forward Interactive Calculator (Calculator) computes the rate and lengths of contributions necessary for the cohort's contributions to replace the tuition that was paid for them. It also provides accompanying cost and cash flow projections, primarily by calibrating contribution rates and lengths to tuition levels and predicted future income streams of participants.

Contribution rates are designed to replace tuition on a collective cohort level, meaning that if, as a group, the participants earn the average wage over their contribution period, they will contribute enough to fully fund future tuition for a comparable number of participants. This means that while on an individual basis participants with lower incomes will contribute less, and participants with higher incomes will contribute more, on average, the cohort's contributions will replenish the tuition paid from the Pay It Forward Trust Fund for the students of that cohort.

Data Sources

Tuition

Tuition data for Washington public institutions uses estimated 2016-17 tuition rates, based on appropriations in the 2015-17 biennial budget.¹ Based on the latest available FTE enrollment data (2014-15) by institution, the weighted average 2016-17 tuition and fees used for modeling for research universities is \$10,702; \$7,141 for regional universities; and \$3,846 for community and technical colleges.

Income Projections

National average earnings: Contribution forecasts are based on projected average future earnings of the Pay It Forward contributing cohort. The income data used in these projections are 2014 National Mean Total Money Earnings (via the U.S. Census Bureau Current Population Survey, 2015 Annual Social and Economic Supplement).² The Calculator organizes this data by age and level of education to project future cohort income. Note that because the census data excludes some unearned income, such as capital gains, this produces a conservative estimate of future cohort income streams, and in turn a conservative estimate of contributions to the trust fund.

By level of education: Income projections are weighted averages, based on the distribution of the expected level of education attained by Pay It Forward participants. See Completion Rates, below.

By age of participant: Since income data are organized by five-year age ranges, post-educational attainment (measured by most advanced degree obtained), income projections for any given number of years after college are based on an assumed age of graduation. For all projections, the graduation (or cessation-of-education) age is assumed to be 22, and age at the first year of contribution is assumed to be 23.³

The Calculator assigns the mean earnings raw data point for each age range to the midpoint age. For example, for the 25-29 age range, the mean of \$44,161 for a B.A. holder is assigned to age 27, the midpoint of the range. The remaining ages are assigned income data points, using a uniform distribution between the bounding data points. Data points in bold in the table below are the raw data points obtained from the CPS.

BACHELOR DEGREE NATIONAL MEAN EARNINGS, PROGRAM YEARS 1-20

Program Year	Estimated Age of Participant	Total Money Earnings U.S. average, B.A. Degree
1	23	\$ 29,472
2	24	\$ 33,857
3	25	\$ 38,241
4	26	\$ 42,626
5	27	\$ 47,010
6	28	\$ 49,096
7	29	\$ 51,182
8	30	\$ 53,268
9	31	\$ 55,354
10	32	\$ 57,440
11	33	\$ 60,079
12	34	\$ 62,719
13	35	\$ 65,358
14	36	\$ 67,998
15	37	\$ 70,637
16	38	\$ 70,912
17	39	\$ 71,187
18	40	\$ 71,463
19	41	\$ 71,738
20	42	\$ 72,013

Source: United States Census Bureau⁴

Includes under- and unemployment: Because the income data used are drawn from survey respondents with “total work experience” – rather than those who worked full-time all year long – the data account for periods of under- and unemployment. This means that periods of no (or very low) contributions from some participants are expected and accounted for in projected income streams, and by extension, in contribution rates.

Completion Rates

Income projections for all Pay It Forward participants rely on income data organized by highest level of education attained, in the following six categories: 1) some college, no degree; 2) Associate degree; 3) Bachelor’s degree; 4) Master’s degree; 5) Professional degree; and 6) Doctorate degree.

Assumed graduation rates of Pay It Forward participants are informed by the following system-wide graduation rates of Washington students, which are based on weighted average FTE enrollment:

- The three-year combined completion and transfer rate for Washington community and technical colleges is 48%;⁵
- The weighted average six-year graduation rate for Washington regional universities is 58%;⁶
- The weighted average six-year graduation rate for Washington research universities is 78%.⁷

Based on the graduation and completion rates above, estimated average cohort income projections are made by combining the individual educational attainment groups' Census-documented income-earning futures with the following weights. *Note: Users may substitute other weights they deem reasonable.*

For community and technical college participants:

- 50% of a given cohort will obtain some college, but no degree;
- 35% will obtain an Associate degree;
- 15% will obtain a Bachelor's degree; and
- 0% will obtain a Master's degree, Professional degree, or Doctorate degree.

For regional university participants:

- 25% of a given cohort will obtain some college, but no degree;
- 15% will obtain an Associate degree;
- 55% will obtain a Bachelor's degree;
- 3% will obtain a Master's degree;
- 1% will obtain a Professional degree; and
- 1% will obtain a Doctorate degree.

For research university participants:

- 15% of a given cohort will obtain some college, but no degree;
- 10% will obtain an Associate degree;
- 70% will obtain a Bachelor's degree;
- 3% will obtain a Master's degree;
- 1% will obtain a Professional degree; and
- 1% will obtain a Doctorate degree.

Interactive Calculator: User-Defined Variables

Contribution Rate and Years

Pay It Forward contribution rates can be set by credit hour, term, or number of years of participation.⁸ This allows student participants to choose how many, and which, credits or terms are financed by the Pay It Forward program. The goal is to provide maximum flexibility for student participants, which reflects the reality that many students pay for college using a changing mix of sources each term.

The contribution rate is defined by the agency selected to act as program administrator, and is informed by tuition levels and projected incomes, in addition to other factors. Once all other user-defined variables are set, contribution rates and years can be set to accommodate a particular program's unique parameters.

Class Size

Pay It Forward programs can be scoped to any size. The size of the cohort will, in large part, determine the necessary transition costs. To account for part-time and full-time enrollment, the calculator assumes full-time equivalent (FTE) enrollment, rather than headcount enrollment.

Real Rate of Change: Tuition

The Calculator includes a user input for constant annual tuition change. Because the Calculator is based on inflation-adjusted dollars, an input of '0%' means future tuition changes are assumed to

be equal to the general rate of inflation. The Calculator does not ask the user to project non-permanent future tuition changes.

If the user defines a real rate of change of ‘1%,’ the Calculator assumes a one percent increase over and above inflation each year for the entirety of the program. In reality, tuition may increase one year, freeze in another, and decrease in a third – all in unequal amounts. For program design and financial evaluation, however, it is sufficient to project an average long-run rate.

Real Rate of Change: Income

The Calculator’s input for real income change produces a permanent rate of income change for each future year. As with the real rate of change for tuition (above), an input of ‘0%’ (the default input) means future income changes are assumed to be equal to the general rate of inflation. The input can be adjusted based on relevant trends and projections, either assuming a continuation of past income growth that outpaces inflation or selecting a different rate.

Deferred Years

Just as federal student loans feature a six-month grace period for student borrowers to defer repaying loans after graduation, a Pay It Forward program may include a grace period before contributions begin. Selecting a value of ‘1’ in the Calculator means there will be one deferral year after graduation before contributions are assumed to begin.

Up to certain limits, the longer contributions are deferred, the higher return the state can expect from graduates (as their contributions will begin in higher-income years). However, administrative agencies familiar with similar programs, such as conditional loan repayment programs, warn against too long a deferment period (even as short as two years), because it increases the risk of losing track of some participants before contributions begin.

Administrative Costs

Administrative costs are factored into annual program costs. To account for administrative costs, the best practice is to ask the administering agency to provide a fiscal note which itemizes projected administrative costs each year. Until that is available, the Calculator provides inputs for estimated administrative costs, with a user input for first-year startup costs, as well as inflation-adjusted permanent costs each year thereafter.⁹

Mortality and Non-contribution

The Calculator allows separately for losses in contributing cohorts due to mortality and default on obligations. For each program year, the mortality attrition rate reflects nationwide death rates for the given age. In addition, the Calculator provides for a user assumption of the average non-contribution rate over the assigned contribution period of each cohort.

For current loan programs, there is a percentage of students who simply do not pay and an additional percentage who discontinue payments before they are complete. The Calculator uses a simple percentage reduction. Thus, if it is assumed that some portion (*e.g.*, 2%) of the cohort will never make contributions, and some others (*e.g.*, another 2%) will make some contributions, then stop making contributions, the Calculator input would be ‘3%,’ which is the default input.

To a degree, the non-contribution rate can be informed by a state’s relevant student loan default rate; however, the non-contribution rate may reasonably be set somewhat lower than the loan default rate. Two factors help limit the probable size of the non-contribution adjustment. First, a portion of current loan defaults are due to inability to pay. Pay It Forward significantly mitigates

this problem because contributions are dependent on income. Second, given each state’s experience with various grant and forgivable loan programs, administration of a Pay It Forward program should be within a state government’s current administrative capabilities. In Washington, the administering agency would be the Washington Student Achievement Council, which has extensive experience administering financial aid programs.

Adverse Selection

The Calculator takes adverse selection into account by reducing the average income series values used to calculate future program contributions. For instance, setting a value of ‘-3%’ reduces the average income series values by 3%.

Generating the appropriate level of adverse selection requires converting the anticipated pattern of adverse selection into its average income equivalent. We have tested various patterns of adverse selection to support a range of values from -5% to -2%. A pilot program can also help reveal a realistic long-term assumption value, by tracking and analyzing actual contribution data from the pilot. Depending on the level of adverse selection observed in the first stages of a Pay It Forward program or pilot, the Pay It Forward contribution rate for future cohorts can be increased or decreased as appropriate, so the program remains financially on target.

Sensitivity analysis: adverse selection

The following sensitivity analysis assumes \$10,702 tuition at a four-year institution, equivalent to the weighted average tuition at Washington’s two research universities. With an initial input of 0% for adverse selection, the contribution rate can be set at 4.12% for 20 years, and the program would become financially self-sustaining in year 24.¹⁰

A negative adverse selection value would require an offsetting increase in the contribution rate. In this example, the same financial performance could be achieved with a contribution rate of 4.34% if there were -5% adverse selection. The table below presents additional adverse selection impact examples.

ADVERSE SELECTION SENSITIVITY ANALYSIS, WASHINGTON RESEARCH UNIVERSITY, 1,000 FTE

Adverse selection input	Resulting break-even contribution rate
0%	4.12%
-1%	4.16%
-2%	4.20%
-3% (default)	4.25%
-4%	4.29%
-5%	4.34%
-10%	4.58%

If actual values of adverse selection turned out to be greater than anticipated in program design, financial impacts could be averted by adjusting the contribution rate going forward. Unless otherwise noted, all examples and illustrations in this report include an assumed negative adverse selection effect of 3%. Note that while adverse selection represents a source of uncertainty, a change in its assumed rate translates to a relatively small necessary adjustment in the program contribution rate. For example, increasing the rate by a third, from 3% to 4%, only requires an adjustment of 0.04% in the contribution rate.

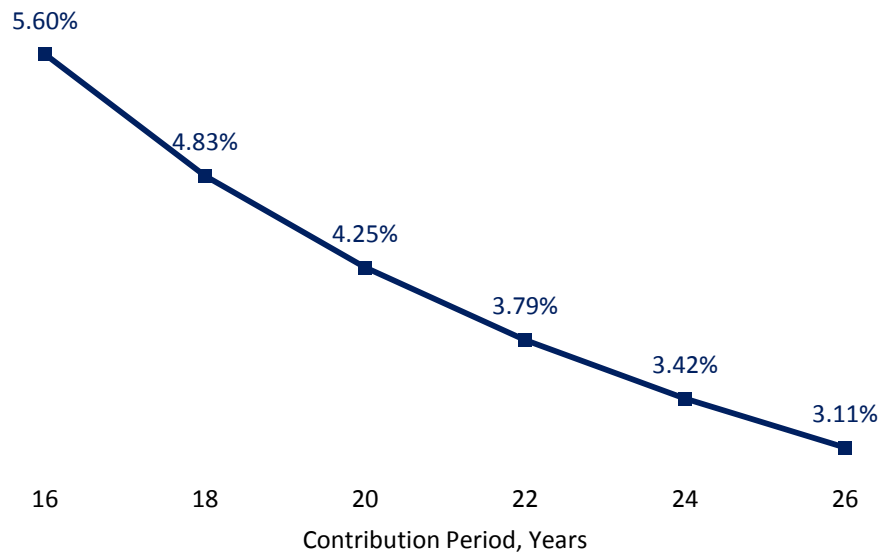
Illustrations of Contribution Rates and Lengths

The following three illustrations show various contribution rates and lengths that could be supported at the three types of public higher education institutions in Washington state, based on Pay It Forward financial forecasting. For any given contribution length, the rate necessary to ensure long-term financial cash flow sustainability of the Pay It Forward program is referred to as the “break-even rate”. For each type of institution, break-even rates are provided for a selected range of contribution periods. As the charts below illustrate, the longer the contribution period, the lower the break-even contribution rate. *Note: users may choose shorter or longer contribution periods than those illustrated here.*

Research Universities: 20-Year Contribution Period, Contributions on All Income

Based on 2016-17 estimated weighted average tuition of Washington research universities (University of Washington and Washington State University) of \$10,702, the break-even contribution rate for a 20-year contribution period is **4.25% of income**, assuming that transition costs would be paid for via a separate revenue source. The graph below shows the range of break-even rates given various contribution lengths from 16 to 26 years.

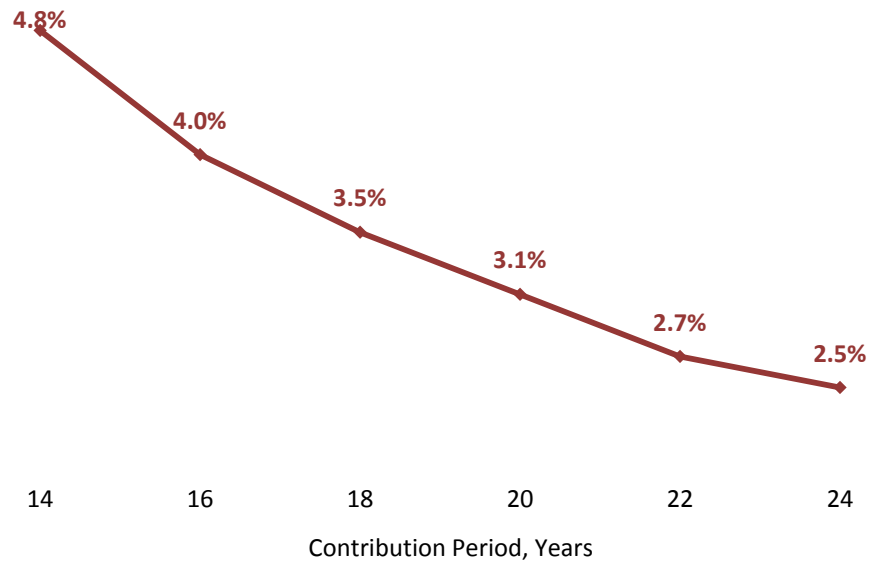
WASHINGTON RESEARCH UNIVERSITIES CONTRIBUTION BREAK-EVEN RATES FOR ALTERNATIVE CONTRIBUTION PERIODS



Regional Universities: 20-Year Contribution Period, Contributions on All Income

Based on 2016-17 estimated weighted average tuition of Washington regional universities (Central Washington University, Eastern Washington University, Evergreen State College, and Western Washington University) of \$7,141, the break-even contribution rate for a 20-year contribution period is **3.1% of income**, assuming again that transition costs would be paid for via a separate revenue source. The graph below shows the range of break-even rates given various contribution lengths from 14 to 24 years.

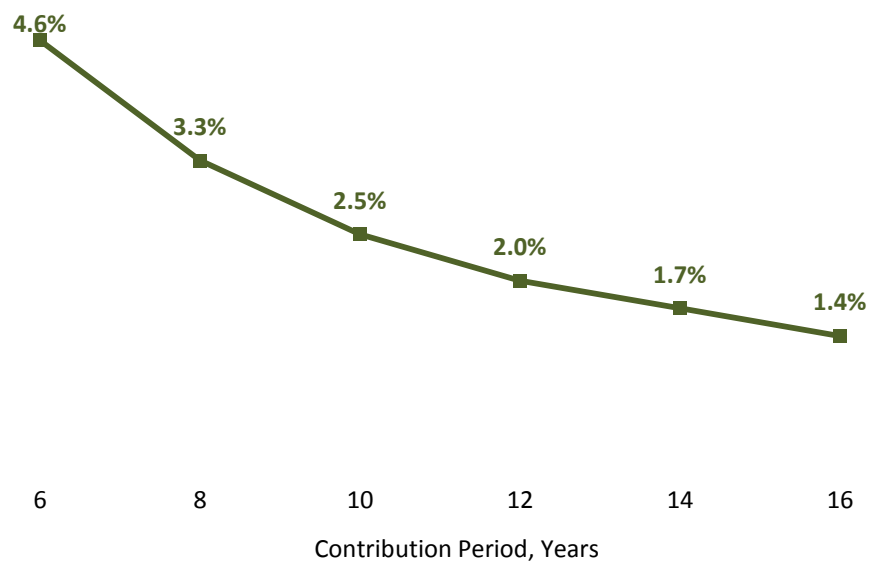
WASHINGTON REGIONAL UNIVERSITIES CONTRIBUTION BREAK-EVEN RATES FOR ALTERNATIVE CONTRIBUTION PERIODS



Community and Technical Colleges: 10-Year Contribution Period, Contributions on All Income

Based on 2016-17 estimated tuition of Washington community and technical colleges of \$3,846, the break-even contribution rate for a 10-year contribution period is **2.5% of income**, assuming again that transition costs would be paid for via a separate revenue source. Although a longer contribution period is certainly possible, this analysis includes ranges of contribution rates for shorter contribution periods than for four-year institutions, based on the significantly lower tuition rates at CTCs. The graph below shows the range of break-even rates given various contribution lengths from 6 to 16 years.

WASHINGTON COMMUNITY AND TECHNICAL COLLEGE CONTRIBUTION BREAK-EVEN RATES FOR ALTERNATIVE CONTRIBUTION PERIODS



A Comparison of Pay It Forward to Loan Financing

Comparison of Pay It Forward to Fixed Repayment Loan Financing Programs

Traditional student loans are relatively simple. A student incurs a fixed obligation for future payments based on 1) the amount borrowed, 2) the interest rate charged on the loan and 3) the number of years over which repayments must be made. These loans and their repayment structures are similar to fixed-rate mortgages.

Pay It Forward is also simple: graduates contribute a fixed percentage of income for a set number of years after leaving college.

The difference arises in the size of students' future obligations in varying financial circumstances. With loans, students are obligated to repay a set amount, irrespective of their future earnings and consequent ability to pay. The result is highly variable effective financial burdens: students with higher post-graduate incomes can repay student loans relatively easily; students with lower post-graduate incomes often face great difficulty in meeting their loan obligations. The recognition of this uncertain potential burden and the associated financial risk is a disincentive to attend college.

With Pay It Forward, the burden is shared differently. Students with higher post-graduate incomes contribute more; students with lower post-graduate incomes contribute less. For students, knowing this at the outset of college largely eliminates the risk of facing a fixed obligation with an uncertain (and possibly low) income. At the same time, it means that if their incomes are above average, students assume an obligation that may be greater than average, but one that is also financially more feasible for them to assume.

Comparison of Pay It Forward to Loan Financing with “Best Case” Income-Based Repayment Programs

Traditional fixed repayment loans are structured simply. More complicated loan options have emerged for federal loan programs, which like Pay It Forward, aim to reduce disincentives associated with future ability-to-pay. These options are similar to Pay It Forward in some ways, but involve different impacts for students in various future circumstances.

The terms of income-based loan repayment (IBR) plans like Pay As You Earn (PAYE), as offered by the federal government, vary greatly based on a number of factors (including income, marital status, tax filing status, family size, loan type, amount of debt, type of debt, and federal poverty level, among others).¹¹ Income-based federal loan repayment plans have the added complication of being susceptible to cancellation or amendment, even for current borrowers (although any program changes are most likely to apply only to new borrowers).

In addition, federal loans are limited to \$27,000 for the first four years of college¹² – an average of just \$6,750 per year – an amount insufficient to cover four years of tuition at all but one public four-year institution in Washington, as well as at four-year institutions in most states. This forces many students and their families to take out high-interest Parent PLUS or private loans to bridge the tuition gap, as well as to cover the costs of room and board.

The following is a comparison of the cost to students of financing college through Pay It Forward and through loans (including PAYE for the federal component of a loan package).

Assumptions for Comparative Illustrations

Payment/contribution period: In this analysis, Pay It Forward contributions continue for 20 years in all cases. Pursuant to federal regulations, PAYE payments end when the principal and interest are repaid, or are forgiven after 20 years, whichever comes first. In the event of loan forgiveness, the amount forgiven is taxed as income. An estimate of tax paid on the forgiven amount is included in the net present value of lifetime PAYE loan payments.

Income: The analysis below compares IBR PAYE payments and PIF contributions based on a participant's income as a percent of median income of the cohort. Median income in each case is based on the income projected for Pay It Forward participants, and therefore assumes the same graduation rates, income change over time, etc. These comparisons do not show individual fluctuations in income over time; rather, the model provides results based on the pattern of average participant incomes, relative to median cohort income, over the course of the 20-year repayment/contribution period.

Household size: The Pay It Forward program sets contribution rates based on individual participation, and they do not vary based on future household size considerations. The PAYE program sets repayment levels based in part on the individual loan recipient's household size during the repayment period. In the following comparisons, lifetime cost is shown for household sizes of one and two.

Net present value: The payments and contributions are reflected as net present value, based on an inflation rate of 2.5% and a discount rate (from the student's perspective) of 6%.

Illustrative cases included: The PAYE program applies only to federal loan debt, not to other higher-interest loan debt that may be assumed by students. The first illustrative case below assumes a case in which a student has only PAYE-eligible federal loan debt, with that amount alternatively covered by the Pay It Forward program. The amount of debt financed in this analysis is the average federal loan debt for WSU graduates.

The second illustrative case below assumes that a student finances his entire tuition with Pay It Forward or loans. It assumes that a student takes out federal loans up to the four-year limit of \$27,000, and turns to private loans to finance the remainder of tuition. Neither analysis includes financing of room, board and other living costs.

Illustration 1: Average Washington State University Debt Load

In this analysis, a student is assumed to finance an amount equivalent to the typical total federal loan debt for undergraduate borrowers at Washington State University, \$20,977.¹³ Because this amount is less than the \$27,000 four-year limit for federal loans, the student is assumed to borrow the entire debt load of \$20,977 with federal Stafford loans at the lowest interest rate of 4.66%.

Under these assumptions, Pay It Forward contributions have a lower lifetime cost than PAYE loan payments for graduates at the median income level. In fact, the lifetime cost of Pay It Forward contributions is less than the lifetime cost of PAYE loan payments for graduates earning between **60% and 120% of median income**. Any single graduate earning less than about \$70,000 on average over the 20 years following graduation (plus a one-year grace period) would pay less under Pay It Forward than under even the most generous federal loan repayment programs. At income levels below 40% of median (or about \$21,000 a year), larger households benefit more under PAYE than Pay It Forward.

PAY IT FORWARD CONTRIBUTIONS VS. LOAN PAYMENTS: AVERAGE WSU DEBT OF \$20,977, HOUSEHOLDS OF 1 AND 2

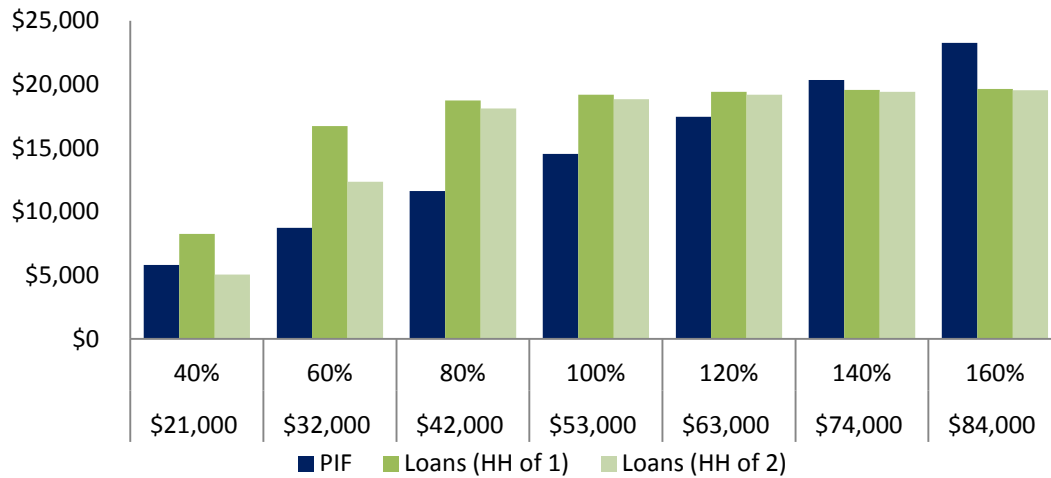
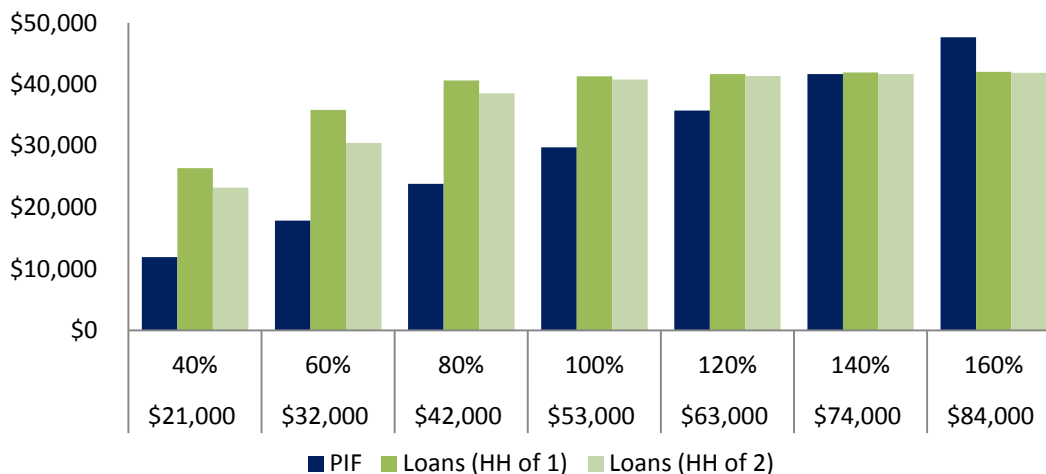


Illustration 2: Full Tuition at Washington State University

In this analysis, a student is assumed to finance four years of the estimated annual tuition at the University of Washington in 2016-17 of \$10,737, or \$42,948. Federal Stafford loans are capped at \$27,000 for the first four years of college, so the student is assumed to borrow the four-year Stafford limit of \$27,000 at a 4.66% interest rate, and the remaining \$15,948 from a private lender at a 7.21% interest rate, equal to the interest rate for Parent PLUS loans.¹⁴

Under these assumptions, Pay It Forward contributions have a lower lifetime cost than PAYE loan payments for graduates at the median income level, and in fact for graduates earning anywhere from **40% to 140% of median income**, with significant Pay It Forward advantages at the lower income levels. And again, any graduate whose average annual income over the 20 years following graduation is about \$74,000 or lower will pay less under Pay It Forward than they would have with student loans. Even for larger households at lower income levels, Pay It Forward is less costly.

PAY IT FORWARD CONTRIBUTIONS VS. LOAN PAYMENTS: FULL WSU TUITION OF \$42,948, HOUSEHOLDS OF 1 AND 2



For more information about Pay It Forward, please refer to *Policymaker’s Guide to Pay It Forward*, available at www.eoionline.org, or contact the authors at info@eoionline.org.

Appendix A. Enrollment, Tuition and Fees, and Completion Rates at Washington Public Institutions

Washington Research Universities			
Institution	Enrollment (2014-15, FTE)	Tuition & fees (2016-17)†	Graduation Rate (6-year)
University of Washington	45,886	\$10,682	84%
Washington State University	25,954	\$10,737	67%
Total/Weighted Average	71,840	\$10,702	78%
Washington Regional Universities			
Institution	Enrollment (2014-15, FTE)	Tuition & fees (2016-17)†	Graduation Rate (6-year)
Central Washington University	9,097	\$7,448	53%
Eastern Washington University	10,395	\$6,540	46%
The Evergreen State College	4,007	\$6,973	56%
Western Washington University	12,596	\$7,469	72%
Total/Weighted Average	36,095	\$7,141	58%
Washington Community and Technical Colleges			
Institution	Enrollment (2014-15, FTE)	Tuition & fees (2016-17)†	Completion + Transfer Rate (3-year)
Community and Technical Colleges	131,169	\$3,846	48%

Data	Institution	Web Location
Tuition cuts	Washington State 2015-17 Biennial Budget	http://lawfilesexternal.wa.gov/biennium/2015-16/Pdf/Bills/Session%20Laws/Senate/5954-S.SL.pdf
Enrollment	All institutions	http://www.ofm.wa.gov/hied/bd/2014-15_final.pdf
Graduation rate	Research and regional universities	https://nces.ed.gov/collegenavigator
Completion + transfer rate	Community and technical colleges	http://sbctc.edu/general/documents/completions_final_Feb_4_2015.pdf
2014-15 tuition and fees	University of Washington	http://opb.washington.edu/content/quarterly-tuition-and-fees?year=2014-15&qtr=4&campus=0&category=1&res=1&submit=Submit
	Washington State University	http://finaid.wsu.edu/cost-of-attendance/
	Central Washington University	http://www.cwu.edu/business/sites/cts.cwu.edu.business/files/documents/2014-2015%20Tuition%20Rates.pdf
	Western Washington University (tuition)	http://www.wvu.edu/upb/FactsandComparisons/tuitionfees/resugtuit ion.pdf
	Western Washington University (fees)	http://www.wvu.edu/upb/FactsandComparisons/tuitionfees/resugmandfees.pdf
	Eastern Washington University	2014-15 tuition and fees breakdown was not available. Fees estimated based on 2015-16 fees.
	The Evergreen State College (fees estimated)	http://evergreen.edu/business/studentfinancialservices/tuitionoverview.htm
	Community and technical colleges	http://www.sbctc.ctc.edu/college/admin/FY-2016-Community-College-Tuition-and-Fee-Rates-FINAL.pdf
2015-16 tuition and fees	University of Washington	https://admit.washington.edu/Paying/Cost#freshmen-transfer
	Washington State University	http://budget.wsu.edu/documents/2015-16Tuition-Pullman.pdf?0.23133758641779423
	Central Washington University	http://www.cwu.edu/registrar/tuition-and-mandatory-fees
	Western Washington University	https://admissions.wvu.edu/tuition
	Eastern Washington University (fees)	http://access.ewu.edu/student-financial-services/cost-and-fees/mandatory-fees
	Eastern Washington University (tuition)	http://access.ewu.edu/student-financial-services/cost-and-fees/tuition-rates
	The Evergreen State College	http://evergreen.edu/business/studentfinancialservices/tuitionrates
	Community and technical colleges	http://www.sbctc.ctc.edu/college/admin/FY-2016-Community-College-Tuition-and-Fee-Rates-FINAL.pdf
†Tuition and fees for 2016-17 are estimated based on the 2015-17 biennial budget's direction that tuition be cut by 15% from 2014-15 levels at research universities (5% 2015-16, 10% in 2016-17); by 20% from 2014-15 levels at regional universities (5% in 2015-16, 15% in 2016-17); and by 5% from 2014-15 levels at community and technical colleges (all in 2015-16).		

Sources and Notes

- 1 The 2015-17 biennial budget directed that tuition rates be cut by 15% from 2014-15 levels at research universities (5% 2015-16, 10% in 2016-17); by 20% from 2014-15 levels at regional universities (5% in 2015-16, 15% in 2016-17); and by 5% from 2014-15 levels at community and technical colleges (all in 2015-16). To estimate 2016-17 tuition and fees, we calculated the appropriate reduction for tuition at each institution; fees are assumed to remain at 2015-16 levels. See Appendix _ for tuition, fees, enrollment, and completion data.
- 2 U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement. "PINC-04. Educational Attainment—People 18 Years Old and Over, by Total Money Earnings in 2014, Work Experience in 2014, Age, Race, Hispanic Origin, and Sex." Available at http://www.census.gov/hhes/www/cpstables/032015/perinc/pinc04_000.htm. This survey reports "total money earnings," which is "the algebraic sum of money wages and salary and net income from farm and nonfarm self-employment." U.S. Census Bureau, Current Population Survey (CPS) – Definitions, "Income Measurement," Appendix A. Definitions and Explanations, from the Current Population Reports, Consumer Income, P60-200, available at: <http://www.census.gov/cps/about/cpsdef.html> and <http://www.census.gov/cps/files/Appendix%20A%20P60-200%20income%20measurement%20definition.pdf>.
- 3 While the actual average graduation age is difficult to ascertain, it is most likely higher than 22, which assumes a student completes college in the first four years following high school. Because incomes increase with age, setting the first year of contribution at 23 produces conservative income projections.
- 4 U.S. Census Bureau, Current Population Survey, 2015 Annual Social and Economic Supplement. "PINC-04. Educational Attainment—People 18 Years Old and Over, by Total Money Earnings in 2014, Work Experience in 2014, Age, Race, Hispanic Origin, and Sex." Available at http://www.census.gov/hhes/www/cpstables/032015/perinc/pinc04_000.htm.
- 5 Washington State Board for Community and Technical Colleges.(February 2015). "Washington's Community and Technical Colleges: Accelerate and Complete." Available at http://sbctc.edu/general/documents/completions_final_Feb_4_2015.pdf.
- 6 National Center for Education Statistics. College Navigator. Available at <http://nces.ed.gov/collegenavigator/>.
- 7 National Center for Education Statistics. College Navigator. Available at <http://nces.ed.gov/collegenavigator/>.
- 8 For simplicity, the Calculator shows contribution rates in terms of years, e.g., 4% for 4 years of participation, which translates to 1% per year.
- 9 The current inputs are based on an estimate of administrative costs developed by the Oregon Student Assistance Commission during the development of the Oregon Pay It Forward pilot in 2014, which can be found in the Final Report to the Oregon Higher Education Coordinating Commission on House Bill 3472: Pay It Forward, from the Pay It Forward Workgroup, available on the Oregon Higher Education Coordinating Commission website.
- 10 This example (and all other illustrations, unless noted) also includes a non-contribution rate of 3%.
- 11 U.S. Department of Education, Federal Student Aid, "Income-Driven Plans," <https://studentaid.ed.gov/repay-loans/understand/plans/income-driven>.
- 12 U.S. Department of Education, Federal Student Aid, "Subsidized and Unsubsidized Loans," <https://studentaid.ed.gov/types/loans/subsidized-unsubsidized>.
- 13 U.S. Department of Education College Scorecard, available at <https://collegescorecard.ed.gov>.
- 14 The average private student loan interest rate is difficult to ascertain. For that reason, interest rate used here is the current rate for federal Parent PLUS loans. U.S. Department of Education, Federal Student Aid, "PLUS Loans," <https://studentaid.ed.gov/types/loans/plus#how-much-can-i>.



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