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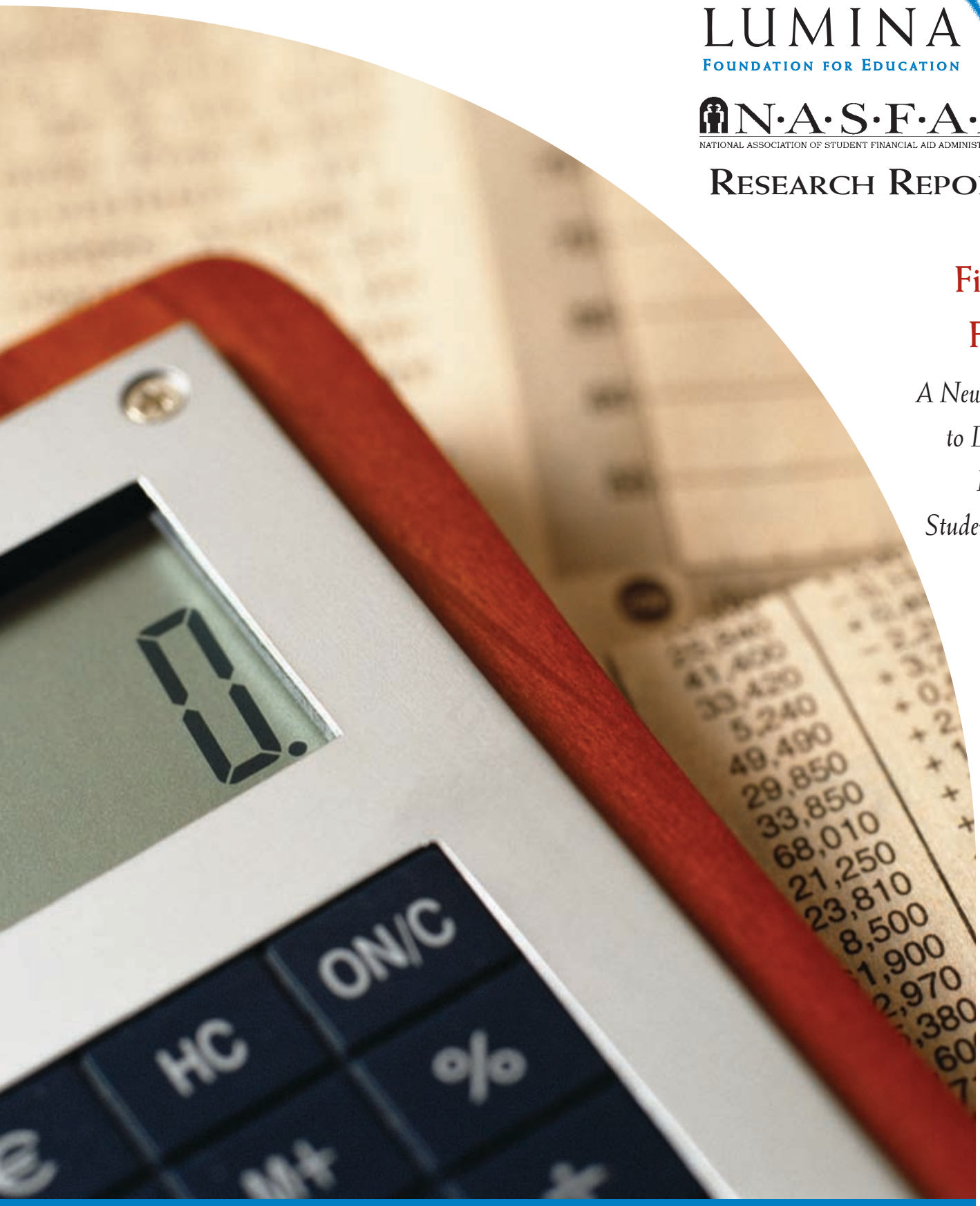
NATIONAL ASSOCIATION OF STUDENT FINANCIAL AID ADMINISTRATORS

RESEARCH REPORT

Fixing the Formula:

A New Approach to Determining Independent Students' Ability to Pay for College



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Acknowledgments

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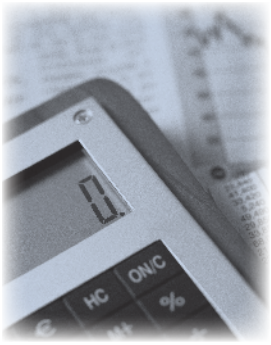
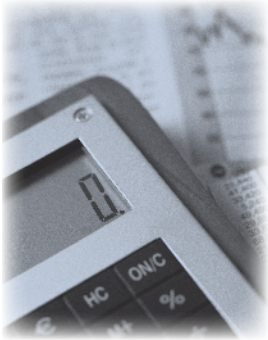


Table of contents



Introduction

A fair and efficient student aid system requires a reliable formula for determining student and family ability to pay for college. No matter how generous the aid, access to higher education for those with limited financial resources is vulnerable without an effective method of assessing need among students and families and estimating the subsidies they require. Public policy debate is often limited to discussions about the amount of aid or its form — grants, loans, work aid or tax benefits. Typically, only a small number of specialized, knowledgeable practitioners analyze the dynamics of need. The system cannot, however, achieve its goals without broader attention to the fundamentals of need analysis.

Despite its complexity, the current Federal Methodology for need analysis provides a crude index for determining eligibility; however, better measures exist, particularly for measuring the financial capacity of parents of dependent students. For instance, the College Board's Institutional Methodology and the formulas that many institutions use to allocate their own grant funds are usually quite reliable.

Still, assessing the financial position of independent students is inherently less precise than doing so for students who depend on their parents. Indeed, some experts consider the endeavor virtually hopeless. As a result, development of accurate assessment methods has been neglected.

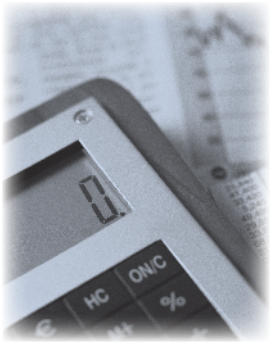
The current Federal Methodology for need analysis provides a crude index for determining eligibility.

As the number of older undergraduate students rises and graduate study becomes more common, equitable distribution of funds to independent students becomes increasingly important. These funds must grant access to the maximum number of students who have truly limited resources rather than merely subsidizing those who could more easily finance their own education.

Approximately two-thirds of part-time undergraduates and a quarter of full-time undergraduates

are independent, and a disproportionate number of independent students come from low-income backgrounds. More than half are first-generation college students, whereas only 27 percent of dependent undergraduates are first-generation.[1] Erroneous calculations of independent students' financial capacity jeopardize educational opportunities for those with true need. An improved methodology for calculating the financial need of independent students could greatly increase the equity and efficiency of student aid allocation.

The following discussion takes an innovative approach to determining independent students' ability to pay for education. It challenges many of the fundamental tenets of traditional need analysis and proposes new ways of thinking about the resources available to independent students in varying circumstances.



Basic premises of the comprehensive approach

Existing methods of determining need for independent students have several fundamental flaws. Most problematic is the heavy reliance on past earnings as an indicator of students' financial capacity. In practice, students who have been working before they enroll can rarely maintain their earnings after enrollment without compromising academic success. Moreover, many of those who have had minimal earnings have relied on family resources, while those from the poorest families often have been most committed to the labor force.

Another problem is confiscatory assessment rates on student income. The logic supposes that independent students can contribute 50 percent to 70 percent of additional dollars of after-tax income to educational costs because these expenditures should be their first priority. However, this approach creates a significant disincentive to work for many students. Also, this approach unfairly discriminates against those who are forced to work long hours because they have no other financial resources. Students risk losing significant amounts of financial aid if their earnings are higher than average. On the other hand, some students whose family resources have allowed them to live on minimal earnings are probably enjoying overly generous subsidies.

The independent student methodology proposed here attempts to correct these and other shortcomings of existing approaches and is based on the following premises:

1. Independent undergraduates differ fundamentally from graduate and professional students. Accordingly, the need-analysis methodologies for the two groups cannot be identical.

2. Education is an investment for which students should pay over time. They should rely on savings when circumstances permit, as well as on current income and repayment of debt from future income.

3. Income from the previous year is not a good measure of the resources available to independent students while they are in school.

4. Although paying for education should be a priority for students' resources while they are in school, confiscatory marginal assess-

ment rates on student income are inefficient because they create a disincentive to work. These high tax rates on earnings are also inequitable because subsidies are larger for those who have chosen not to work than for those who work more.

5. Need is the difference between cost and expected contribution (EC), and the EC defined here explicitly includes an estimate of manageable debt repayment. In other words, need is a measure of the gift aid that students require. Loans and work-study should be considered parts of the student contribution, not packaged as a component of the student aid that meets need.

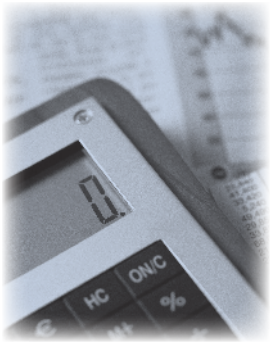
6. Although parents are not responsible for financing the education of independent students, parental financial strength is an important consideration because students from families with significant resources can more easily contribute to their own educational expenses, even without direct contributions from their parents. These students are more likely to get help with buying a house and educating their children; they are more likely to have a safety net in case of emergency; they are more likely to receive periodic gifts, and they are less likely to be responsible for financially assisting their families of origin.

7. The methodology described here is designed for full-time students; however, part-time students' circumstances are quite different. For them, the past year's income better predicts income during school. Nonetheless, the same principles apply. Many students study part-time because financial constraints prevent them from leaving the labor market. In fact, this is probably the case for most part-time undergraduate students. To enhance college access and completion, the need-analysis system should diminish these financial constraints.

Characteristics that differentiate independent students

Under the proposed formula, an independent student's ability to pay for college is determined by the following:

1) Income during the two years preceding enrollment.
2) Assets.
3) Expected earnings for a student while enrolled in a particular program of study.
4) Other sources of income during the period of enrollment, including unearned income and spouse's earnings.
5) Financial responsibility for dependents.
6) Expected earnings after completion of the student's course of study.
7) Financial resources of the student's parents.



The formula

Contributions from past, current and future income

Because financial capacity comprises past, current and future income, the proposed formula has four separate income components. The first component, based on past income, also includes a contribution from assets. The second component is based on in-school income and obligations, and the third depends on anticipated earnings. Parental income and assets also are relevant — but less so for independent students than for dependent students.

> The proposed formula has four separate income incomponents.

1. **Savings and assets.** A contribution from savings is the first component of the Expected Contribution (EC). This contribution, based on both past income and current assets, is calculated for students who were not enrolled during the preceding academic year. Past income indicates potential savings but does not predict in-school income. Assets, including home equity, increase expected contributions to the extent that those assets exceed the expected savings calculation. The contribution from past income and assets is prorated over the number of years required for the student to complete his or her program.

2. **Current income.** The second component of the expected contribution is based on student work and other available resources during the years in school. Excluding those in unusual circumstances, all students can be expected to contribute to their educational costs with some contribution from current earnings. In some cases, only summer earnings will be relevant. In other cases, academic year earnings are included. Unearned income, spouse's income and financial responsibility for dependents also affect contributions from current income.

3. **Future income.** Because higher education increases future earning potential, a third component of a student's EC comes from future income. The amount that students should borrow is a function of their expected future earnings; the debt must be manageable. Unlike grant aid, loan aid is understood as part of the student's contribution; it is simply a postponed obligation.

4. **Parental income.** The final component of the expected contribution is based on parental income and assets. ECs are higher for students whose parents have significant financial resources. A very high percentage of graduate students come from relatively wealthy families.[2] A relatively small proportion of independent undergraduates have affluent parents; students who automatically become independent because they reach age 24 before completing their undergraduate studies should not become eligible for increased financial aid without regard to their parents' resources. Students from affluent families may receive assistance from their parents to pay for education and are likely to receive other aid from their parents throughout their lifetimes. However, students from less privileged families often wind up supplementing their parents' income rather than benefiting from it. Contributions based on parental resources are not expected from students who have previously received Pell grants or whose parents receive federal or state means-tested subsidies.

There is a crucial difference between how student loans are treated under current need-analysis procedures and how they are treated under the methodology proposed in this report. The proposed formula considers loans not as need-based aid awards but as student contribution. Thus, the formula determines a student's access to funds from all sources, including loans and work. To truly ensure access to education, the gap between educational costs and a student's ability to pay (as determined by this formula) must be met by grants, tax benefits or other forms of aid that the student need not repay.

The proposed formula considers loans not as need-based aid awards but as student contribution.

The following discussion explains the formula. Details of the proposed calculations are contained in the appendices. In the discussion, options are listed in several places. These refer to aspects of the formula that can easily be modified to raise or lower expected contributions without violating the principles underlying the formula.

Calculation of the expected contribution

Highlights:

- The comprehensive formula relies on two years of past income rather than the standard one year.
- Calculations of contributions from student and spouse income from previous years are similar to the standard approach for calculating contributions of parents of dependent students.
- Elements of the formula not found in standard approaches to need analysis include the following:
    - A portion of untaxed income that is used to make contributions to pension funds by individuals whose

employers do not provide this benefit is excluded from the calculation of income available to pay for education. (Section 1a)

- A dependent care allowance is provided for students with responsibilities for children or other dependents. (Section 1h)

- Outstanding debt reduces the assessment of an expected contribution from assets. (Section 2b)

- A homestead allowance protects some assets for both homeowners and renters. (Section 2d)

- Contributions from student earnings during the years of enrollment are standardized and include no marginal assessment of additional earnings.

- A spouse's income during the years of enrollment is treated separately from student income and, with a formula based on the standard approach for assessing parents of dependent students, is assessed like past income for students and spouses.

- A reasonable level of student debt is incorporated into the expected contribution so that any packaging of student debt effectively constitutes a failure to meet full need. Defining reasonable debt levels for students in different programs is a component of the need-analysis methodology.

- Parental resources are considered in calculating the expected contribution.

A reasonable level of student debt is incorporated into the expected contribution.

Contribution from past income

Contributions from past income and assets are calculated only for students who were not enrolled in the same program of study during the preceding academic year. This contribution from actual and expected assets is divided by the number of years in the program; equal contributions are expected each year.

1. **Income component:** Calculate a contribution from income for the student and spouse for the two most recent years by using the formula applicable to parents of dependent students. Use the sum of the calculated ECs from these two years (Option 1: Modify the formula to use a different fraction of the preceding year's EC; for example, use only half the previous year's EC.)

The parental contribution (PC) for parents of dependent students assumes that the family has other obligations and priorities beyond paying for education, as is true for independent students before enrollment. Students who have had more than one year of earnings should be able to contribute more than those who have been in the labor force for a shorter period of time.

Calculation: The College Board's Institutional Methodology (IM) provides a sound formula for calculating the expected contribution from parents of dependent students. The same formula can figure independent students' contributions from past income. The following calculation is based on IM but incorporates several modifications that could improve measures of ability to pay.

a. Total income = AGI + losses from business or farm, capital losses + untaxed income – child support paid.

For people whose employers contribute to pension plans, other pretax contributions to pension plans are added back to income. For people whose employers do not contribute to pension plans, only contributions above the pension allowance are added back to income. This allowance is 5 percent of average earnings of year-round, full-time workers. Median earnings for full-time, full-year workers are approximately $40,000. For individuals whose employers do not contribute to pension plans, only contributions exceeding about $2,000 would be added back to income. *See Appendix One-A.*

b. Subtract allowances against income: actual federal income taxes paid + state and local taxes from IM tables + FICA + income protection allowance adjusted for geographical differences + extraordinary medical and dental expenses + allowance for elementary/secondary education expenses + employment expense allowance + dependent care allowance.

c. State and local taxes: Use IM tables, which are based on the most recent data from the Institute on Taxation and Economic Policy. *See Appendix One-B.*

d. Income Protection Allowance (IPA): The IPA for independent students is based on the IM IPA for parents of dependent students. *See Appendix One-C.*

e. Geographical adjustment: Use IM tables, which are based on the Consumer Expenditure Survey. The housing component of the IPA is adjusted for residents of urban areas where the cost of living is higher than the national average. Because adequate data are not available, no adjustment is made for people who live in less expensive areas. *See Appendix One-D.*

f. Medical/dental: Subtract medical expenses exceeding the national average (now 3.6 percent of income), based on Consumer Expenditure Survey data. *See Appendix One-E.*

g. Elementary/secondary tuition: Allow actual expenditures up to weighted average national tuition level. Students at elite, expensive preparatory schools constitute a small percentage of the private school population. Many low- and moderate-income urban students would not be academically prepared for college if they did not attend private schools. *See Appendix One-F.*

h. Employment expense allowance: The idea behind this allowance is that households without a "stay-at-home" adult have expenditures exceeding those of other households. This allowance does not apply to independent students with no dependents. Able-bodied spouses do not count as dependents for this purpose. *See Appendix One-G.*

i. Dependent care allowance: This expenditure category is separate from the IPA because an average for all households is inappropriate; households either have no dependent care expenses or expenses that are significantly higher than the average for all households. Independent students with no dependents do not receive this allowance, and able-bodied spouses do not count as dependents for this purpose. The allowed amount, which is subtracted from available income, is the dependent care expenditure claimed in connection with the federal dependent care tax credit. *See Appendix One-H.*

j. Allowance for student loan and college tuition payments: No part of the income that has been used to make payments for past or current higher education expenditures has been available for savings. These payment amounts are

subtracted from income before calculating the expected contribution.

Note: Independent students' educational savings allowances included in the IM are not incorporated into this calculation of EC from past income. For these students, accomplishing their own educational goals is the best way to ensure their children's college funds; their education will allow significantly increased savings out of future income. These allowances are, however, calculated in the contribution based on parental resources described below.

Note: A pension savings protection allowance is another element of the formula that is calculated in the EC based on parental resources but is not included in the formula for expected contribution from past income for independent students. Few independent students have amassed significant retirement savings, and the allowance would actually protect wealth from other sources. This method differentiates independent students who can make significant contributions to their own educational expenditures from those with real financial need.

Total income – allowances against income = net income.

Apply the same assessment rates as for parents of dependent students.

Add EC based on the most recent year's income to EC based on the previous year's income.

2. **Asset component:** All assets are combined and taxed at the same rate to avoid horizontal inequities attributable to differences in types of savings.

Assets = cash, savings, checking + home equity + other real estate + other investments + farm value + business value + pension assets + college savings plan assets.

Allowances against assets = contribution from past income + outstanding debt + emergency reserve allowance + homestead allowance.

a. *Contribution from past income:* Because the contribution from prior income corresponds to expected savings out of that income, assessing all existing assets would amount to double taxation of the savings from the past two years of income. The expected savings are essentially taxed at 100 percent through the calculation of EC from past income. They must be subtracted in the calculation of EC from assets.

b. Outstanding debt: Net assets should be assessed. Otherwise, if people deplete home equity or liquid assets for consumption expenditures or for education, their assets diminish; EC then falls. However, if people use credit cards or education loans instead of home equity, or if they choose a zero-interest credit card rather than selling stocks to finance a vacation, the diminution in their wealth has no impact on EC. It is impossible to differentiate "good" debt and "bad" debt because funds are fungible.

c. Emergency reserve allowance: Protect assets equal to six months of average expenditures, depending on family size and geographical location as determined from Consumer Expenditure Survey data. Average expenditures in 2003 for single individuals were approximately $24,200, yielding an emergency reserve allowance of about $12,100. *See Appendix One-I.*

d. Homestead allowance: This allowance replaces the concept of capping home

equity. Assets for all filers are protected, regardless of whether or not the filer is a homeowner. Protection equals 20 percent of the average home price. This figure represents the amount conservatively expected for a down payment. It protects those who are saving to buy a house in the same way it protects those who have already made the purchase or who are saving for other purposes. The National Association of Realtors reports that the 2004 national aveage home price was $184,100. This figure yields a homestead allowance of about $37,000. *See Appendix One-J.*

e. Farm and business as sets: Because these assets generate earned income, use the IM approach, which protects a portion of their value.

f. Assessment rates applied against student assets: The formula's level of asset protection will preclude contributions from assets for most independent students. Only older returning students and those who have benefited from gifts or inheritances are likely to face positive ECs from assets. A graduated rate is appropriate. *See example above.*

3. **Multiple family members in college:** Independent students with dependents may be responsible for their children's educational costs in addition to their own. The approach incorporated herein diverges from both the Federal Methodology and the Institutional Methodology.

The appropriate EC for multiple students in college assumes that one EC is paid at the time of study and that the remaining amount is borrowed at a 9 percent interest rate and repaid four years later, when schooling is complete.

According to this logic, for families with two students in college at the same time, the EC for each student is 85 percent of what the EC would be for one student.

For families with three students in college, the EC for each student is 70 percent of the EC for one student. *See Appendix One-K.*

Discretionary assets	Expected contribution
Under $10,000:	5 percent
$10,001 to $20,000:	$ 500 + 10 percent of amount over $10,000
$20,001 to $30,000:	$1,500 + 15 percent of amount over $20,000
More than $30,000:	$3,000 + 20 percent of amount over $30,000

(Note: Different assessment rates may be applied to discretionary assets.)

Contribution from earnings during period of study

For undergraduates only:
A standard student contribution from earnings is expected. The calculation is based on minimum wage earnings for 35 hours per week for a 12-week summer, and 10 hours a week for a 30-week academic year. With a minimum wage of $5.15 and a 50 percent assessment rate, the minimum student contribution is $1,850. Additional earnings are not assessed. Students who work more than expected are not penalized.

For graduate and professional students only:
A standard contribution from earnings is calculated for students based on the specific institution and program of study. Some programs do not realistically permit academic-year work; others permit significant part-time employment. In many professional degree programs, no work will be expected from students during the academic year.

Contributions from household income for married students and students with dependents:
The income of the spouse is assessed at the same level as the income of parents in the case of a dependent student. The student is not counted in the household because the student's expenses are already factored into the cost of attendance. Marital status does not affect the treatment of student income.

Students who have dependents but no spouse will have a negative household contribution, which will diminish the standard student contribution from earnings.

Married students' unearned student income is added to the spouse's income. For single students, this income is assessed at the same rates applied to past income; no allowances against that income are included except that for dependents.

Contribution from future income

For undergraduates only:
Estimate the amount of debt the typical college graduate can carry, based on average earnings for college graduates and the percentage of income that can be used for education debt repayment.[3] Ten percent and 12 percent of earnings are possible benchmarks. At an interest rate of 6.8 percent, this allows total education debt to equal approximately 72 percent or 87 percent of expected annual income.

For a four-year education, a student could borrow from 18 percent to a maximum of 22 percent of average expected earnings each year. This is not to suggest that every student should have this much loan aid before receiving grants; rather, this is a sugggested maximum amount that students should be *expected to borrow* in order to avoid excessive loan debt after graduation. Mean annual earnings for people ages 25 to 34 with a bachelor's degree are about $43,000. Seventy-two percent of this amount is $31,000, and 87 percent is $37,400. Dividing the sums by four years results in figures of $7,740 (18 percent) and $9,350 (22 percent) per year. Option 2: Different allowable debt amounts might be incororated. *See Appendix One-L.*

Because the EC includes a loan expectation, additional loans should not be considered a reasonable part of the financial aid package. In other words, meeting need requires filling the gap between EC and total costs with gift aid. If resource constraints dictate packaging loans in excess of the amount prescribed by the formula, a gap effectively remains.

For graduate and professional students only:
Estimated future earnings should be specific to the program/field of study. Because allowable debt is based on monthly payments as a percentage of income, the allowable annual debt depends on the length of the program. The annual debt expectation for a student in a one-year program would be twice the annual debt expectation of a student in a two-year program leading to the same degree. Outstanding undergraduate debt is subtracted from the total manageable amount of debt before a student's borrowing capacity is calculated.

Mean annual **earnings** for people ages 25 to 34 with a **bachelor's** degree are about **$43,000.**

Contribution from parental resources

Calculate a Parental Contribution (PC) from parental information in the same way it would be calculated for parents of dependent students. Students who have previously received Pell grants have an automatic zero. Students whose parents' incomes are below the poverty level or who participate in federal or state means-tested subsidy programs (such as SSI, food stamps or TANF) also have an automatic zero.

The basis for the calculation of the parental contribution is the formula for contributions from past student income, which is a modified version of the College Board's Institutional Methodology (IM). Modifications to the IM treatment of income, described above, include a pension contribution allowance for workers whose employers do not contribute to pension funds, a dependent care allowance and a smaller adjustment for multiple children in college. The contribution from assets is based on all assets, including pension assets. However, outstanding debt is subtracted from assets, and a homestead allowance replaces the cap on home equity.

Some provisions excluded from the formula for past student income apply to the assessment of parental resources. They are the following:

- *Educational savings allowances:* Allowances against both income and assets consider parental savings for children's education. *See Appendix One-M.*

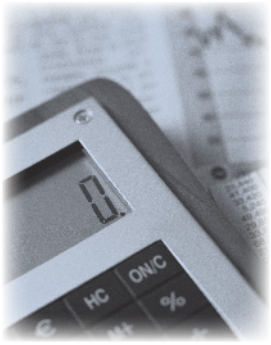
- *Pension asset protection allowance:* Pension assets are combined with other assets for both students and parents. However, because of age and responsibility differences, a significant portion of these assets is protected for parents but not for students. *See Appendix One-N.*

- *Divorced and separated parents:* The IM calculates separate contributions for each biological or adoptive parent in cases of divorce and separation; custodial status does not make a significant difference in the EC. Step-parent income is not assessed. The same approach is used here for parents of independent students. *See Appendix One-O.*

Expected contribution from parental resources

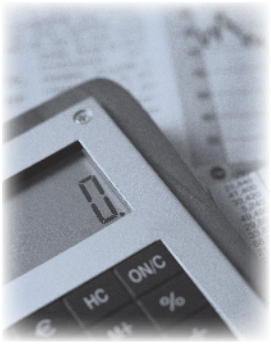
Fifty percent of the calculated parental contribution is added to the independent student's EC. The contribution from parents is capped at 50 percent of the total cost of attendance. (Option 3: A higher or lower percentage of the calculated parental contribution can be included in the EC.)

The extent to which affluent parents should be expected to support their grown children remains unclear. However, an equitable need-analysis system must differentiate students who have family resources from those who do not, regardless of the student's age. Although parents are not responsible for the educational costs incurred by their adult children, affluent parents typically do make transfers and bequests to their children. The formula is designed to incorporate this concept without allowing parental resources to drive the total EC level. For this reason, the proportion of total costs covered by the parent contribution is capped.



Endnotes

1. National Center for Education Statistics (2005). *Independent Undergraduates*, 1999-2000. NCES 2005-151.
2. Among 1992 high school seniors, only 2.3 percent of those from the lowest socioeconomic quintile and 5 percent of those from the second quintile had completed an advanced degree by the year 2000. (Clifford Adelman, *Principal Indicators of Student Academic Histories in Postsecondary Education, 1972-2000*, U.S. Department of Education, Institute of Education Sciences, 2004.)
3. For students enrolled in community colleges or other non-baccalaureate programs, a lower anticipated earnings level would be appropriate. Annual borrowing amounts would be total allowable debt (based on the lower expected earnings) divided by two for two-year programs of study.



Appendices

Appendix One (A-0)
Components of the proposed need-analysis formula for independent students

A: Pension contribution allowance

Pension contributions are generally added back to income. The proposed independent student methodology includes a pension contribution allowance for individuals whose employers do not provide pension contributions.

According to the Economic Policy Institute, the average employer pension contribution is $.74/hour. At 1,750 hours per year, this amounts to a contribution of $1,295. (See http://www.cpfiuoe.org/pages/articles/17empcutcontrib.htm)

A 5 percent contribution on average earnings is another option. Year-round, full-time workers earn an average of approximately $40,000. This figure yields an allowance of about $2,000.

B: State and local taxes

The state and local tax allowance in the proposed methodology is borrowed from the IM and differs significantly from that of the Federal Methodology. The tax rates are based on the most recent data from the Institute for Taxation and Economic Policy. Tax rates differ by income categories and by household type.

C: Income protection allowance (IPA)

The IPA is the major allowance against income. It represents the portion of income out of which no discretionary expenditures are possible. Based on data from the Consumer Expenditure Survey, it is updated annually. The source is the IM IPA for parents of dependent students.

In the proposed methodology, the IPA is the same for independent students and for parents.

For independent students, the IPA is used to calculate the contribution from past income. For single independent students without dependents, it is based on a family size of one.

The IPA is used for the contribution from the spouse's current income. The student is not included in the family size.

The IPA is also used to calculate the negative contribution from household income for single students with dependents. The student is not included in the family size.

D: Geographical adjustment

The IPA should be adjusted to account for varying costs of living. The IM includes a geographical adjustment table for metropolitan areas. The data are based on the Consumer Expenditure Survey findings. The housing component of the IPA is adjusted to increase the IPA in areas where housing is particularly expensive.

E: Medical and dental expenses

Average expenditures are accounted for in the IPA, but families with unusually high expenses receive a special allowance. The allowance is borrowed from the IM.

Data from the current Consumer Expenditure Survey indicate that expenses exceeding 3.6 percent of income should be allowed.

F: Elementary/secondary allowance

The allowance for elementary or secondary tuition is designed to facilitate the educational choices of families without access to quality public schools for younger children. Only a small percentage of private school children are enrolled in elite, high-tuition preparatory schools.

The weighted average tuition at private elementary and secondary schools in 1999-2000 was $4,689. This figure includes elementary, secondary and combined schools that may be Catholic, other religious or secular. This figure should be updated for inflation until more recent data are available.

G: Employment expense allowance

This allowance is borrowed from the IM. It is designed to make the incomes of two-earner and single-adult households more comparable to the incomes of households with a nonworking adult. The allowance is based on the difference between median expenditures for two-earner and one-earner families for food away from home, clothing, transportation, and personal household services. Currently the employment expense allowance cannot exceed 40 percent of earned income of the adult with the lowest income.

This calculation is imprecise because households with two earners have higher incomes; therefore, they spend more on these items not only because they have work-related expenses, but also because they enjoy a higher standard of living.

This allowance also counterbalances the IPA change that results from the addition or subtraction of a nonworking adult in the household. If, for example, a nonworking spouse dies, the decline in the IPA would lead to an increase in the expected contribution. However, the addition of the employment allowance under these circumstances would work in the opposite direction.

H: Dependent care allowance

Dependent care is included as a separate allowance because the expenses of parents of young children and of others caring for dependents are not adequately captured by overall average expenditures.

The dependent care expenditure amount reported for the federal dependent care tax credit is subtracted from income.

The dependent care credit applies to individuals paying for care for children under the age of 13 or for other dependents. Individuals who claim the credit must be working or seeking work and have earned income. If married, both spouses must have earnings unless one is a full-time student or is incapable of self-care.

Reported expenses are up to $3,000 for one dependent or $6,000 for two or more dependents.

The credit equals 20 percent to 35 percent of expenses, depending on income: 35 percent if income is less than $15,000; 20 percent if income is greater than $43,000.

I: Emergency reserve allowance

This allowance protects assets equal to six months worth of expenses, based on median expenditures in the Consumer Expenditure Survey. It is borrowed from the Institutional Methodology.

J: Homestead allowance:

This allowance replaces the concept of capping home equity. Assets for all filers are protected, regardless of whether the filer is a

Private elementary and secondary enrollment by amount of tuition, level and type of school, 1999-2000

Type of school	Enrollment	Average tutition and fees	Percent of total enrollment
Catholic	2,548,710	$ 3,236	48%
Other religious	1,871,851	$ 4,063	36%
Non-sectarian	842,288	$10,992	16%
TOTAL	**5,262,849**	**$ 4,689**	**100%**

Source: U.S. Department of Education, *Digest of Education Statistics*, 2002 Table 61

Higher-than-average housing prices, 2004
National Association of Realtors

Metropolitan area Single family	2004 (in thousands)
U.S.	$184.1
Northeast	220.1
Midwest	149.0
South	169.0
West	265.8
Allentown-Bethlehem-Easton, PA-NJ	$207.3
Anaheim-Santa Ana-Irvine, CA	627.3
Atlantic City, NJ	197.9
Baltimore-Towson, MD	217.0
Barnstable Town, MA	377.2
Boston-Cambridge-Quincy, MA-NH	389.7
Boulder, CO	325.3
Bridgeport-Stamford-Norwalk, CT	441.3
Cape Coral-Fort Myers, FL	187.2
Chicago-Naperville-Joliet, IL	240.1
Colorado Springs, CO	187.6
Denver-Aurora, CO	239.1
Hartford-West Hartford-East Hartford, CT	231.6
Honolulu, HI	460.0
Kingston, NY	216.8
Las Vegas-Paradise,NV	266.4
Los Angeles-Long Beach-Santa Ana, CA	446.4
Madison, WI	200.8
Miami-Fort Lauderdale-Miami Beach, FL	286.4
Milwaukee-Waukesha-West Allis, WI	197.1
Minneapolis-St. Paul-Bloomington, MN-WI	217.4
New Haven-Milford, CT	$249.2
New York-Northern New Jersey-Long Island, NY-NJ-PA	385.9
New York-Wayne-White Plains, NY-NJ	436.6
NY: Edison, NJ	328.1
NY: Nassau-Suffolk, NY	413.5
NY: Newark-Union, NJ-PA	375.8
Norwich-New London, CT	231.5
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	185.1
Pittsfield, MA	192.8
Portland-South Portland-Biddleford, ME	224.8
Portland-Vancouver-Beaverton, OR-WA	206.5
Providence-New Bedford-Fall River, RI-MA	276.9
Reno-Sparks, NV	284.3
Riverside-San Bernadino-Ontario, CA	296.4
Sacramento-Arden-Arcade-Roseville, CA	317.0
San Diego-Carlsbad-San Marcos, CA	551.6
San Francisco-Oakland-Fremont, CA	641.7
San Jose-Sunnyvale-Santa Clara, CA	698.5
Sarasota-Bradenton-Venice, FL	255.7
Seattle-Tacoma-Bellevue, WA	284.6
Trenton-Ewing, NJ	234.2
Washington-Arlington-Alexandria, DC-VA-MD-WV	339.8
Worcester, MA	275.9

* All areas are metropolitan statistical areas (MSA) as defined by the U.S. Office of Management and Budget as of 2004. They include the named central city and surrounding area.

homeowner. Protection equals 20 percent of the average home price. This represents the amount conservatively expected for a down payment. It protects those who are saving to buy a house in the same way it protects those who have already made the purchase. The National Association of Realtors indicates that the 2004 national average home price was $184,100. This figure yields a homestead allowance of about $37,000. (Source: http://www.realtor.org/research.nsf/pages/MetroPrice?OpenDocument)

The homestead allowance can be adjusted for geographical differences.

Note: These data might also be used for the general geographical adjustment to the IPA.

K: Multiple children in college

Families who have more than one child in

college should receive some allowance to offset the difficulty of funding two students at once. However, based on the calculation in the shaded area at right, the adjustment should be smaller than it is under traditional need-analysis methods. Under the Federal Methodology, the contribution expected for one child is divided equally between two children; the Institutional Methodology shows a slightly higher expectation of 60 percent for each of two children. Assume a family with two children simultaneously enrolled in college pays the contribution for one and borrows the contribution for the other, paying it back after graduation. This postpones the payment of the second EC for as long as four years; thus the calculation assumes four years of compound interest.

L: Contribution from future income: Manageable debt

Future income contributes to financial capacity and is a relevant component of need analysis, particularly in situations in which family origins are not the central issue, and current earnings capacity is limited and/or is not a good indicator of long-term earnings.

Student contributions as defined by the proposed independent student methodology include a reasonable amount of education debt. Any amount of borrowing required beyond the manageable debt level is a form of unmet need and is likely to interfere with educational opportunities.

Individuals with higher incomes can devote a higher percentage of their incomes to debt payment without undue hardship than can individuals with lower incomes. For simplicity, the table below shows estimates of reasonable debt levels based on payments equal to 10 percent or 12 percent of monthly income at all income levels. The calculations assume an interest rate of 6.8 percent and a standard 10-year repayment period. Under these terms, repaying a debt equal to 100 percent of earnings requires about 14 percent of income. Limiting repayment ratios to 10 percent supports debt equal to about 72 percent of annual earnings; a repayment ratio of 12 percent supports debt equal to about 87 percent of annual earnings.

M: Allowances against income and assets for savings for education expenses

a) *Annual education savings allowance:* This allowance is borrowed from the Institutional Methodology. It is based on the idea that families should plan advance savings of one-third of the amount that they will be expected to contribute from income for four years of college; the remain-

- Assume the maximum PLUS interest rate (9 percent).
- Assume two students are enrolled for the same four-year period.
- The EC for the second student is postponed for four years.
- At an interest rate of 9 percent, the EC grows to $EC*(1.09^4) = 1.41*EC$.
- Assume the family pays a full regular EC in year one and finances the excess amount.
- EC = contribution for first student; EC' = contribution for second student.
- $EC + EC'x(1.09^4) = 2EC$. (This makes the sum of the contributions for the two children who are in school at the same time the same as the sum of the contributions for the two children who are in school consecutively.)
- $1.41EC' = EC$. (Solving the equation.)
- $EC' = .71EC$.
- $EC' + EC = 1.71\ EC$.
- The EC for each of the two students is .86* the EC for one student. (1.71/2 = .86.)
- The rounded EC for each of the two students is .85 EC for one student. Similar logic yields an EC of .70 EC for each of three students in college.

ing two-thirds comes from current income and borrowing. The percentage of income allowed for annual savings is based on the amount a family would have had to save every year for 18 years in order to accumulate one-third of the expected contribution based on their current income.

The allowance is based on the average residential cost of a private four-year college or university. Although it might seem more logical to base a general need-analysis system on a weighted average of public and private prices, the allowance is quite low. An argument for using the private college price is that families should save enough to allow their children as many options as possible.

The allowance, currently 1.5 percent of income, is multiplied by the number of children under the age of 18 in the household. The assumption is that the compound interest on the savings will approximately balance out the increase in the cost of attendance; therefore, neither is included in the formula.

b) *Cumulative education savings protection allowance*: This asset protection assumes a family has saved the amount specified in the annual education savings allowance for the student every year for 18 years and has saved the same amount for siblings every year since their births.

Multiply the annual savings goal by 18. Multiply this amount by .625. (This is the average of 1.00 the first year, .75 the second year, .5 the third year and .25 the fourth year as savings are spent down. One allowance is applicable, regardless of the year in school.)

A minimum education savings protection is allowed. Low-income families have lower Cumulative Education Saving Allowances (CESA) because they have lower expected contributions from income; however, they are likely to have more difficulty borrowing to pay for college.

Interest rate	Payment month per $1,000	Expected income	Monthly income	10% of monthly income	Debt supported at 10%	12% of monthly income	Debt supported at 12%
6.80%	$11.51	$ 20,000	$1,667	$167	$14,500	$ 200	$17,400
6.80%	$11.51	$ 30,000	$2,500	$250	$21,700	$ 300	$26,100
6.80%	$11.51	$ 40,000	$3,333	$333	$28,900	$ 400	$34,800
6.80%	$11.51	$ 50,000	$4,167	$417	$36,200	$ 500	$43,400
6.80%	$11.51	$ 60,000	$5,000	$500	$43,400	$ 600	$52,100
6.80%	$11.51	$ 70,000	$5,833	$583	$50,700	$ 700	$60,800
6.80%	$11.51	$ 80,000	$6,667	$667	$58,000	$ 800	$69,500
6.80%	$11.51	$ 90,000	$7,500	$750	$65,200	$ 900	$78,200
6.80%	$11.51	$100,000	$8,333	$833	$72,400	$1,000	$86,900

N: Retirement asset protection

Retirement asset protection is applied to calculation of the contribution from parental assets, but independent students receive no retirement protection.

In all cases, different types of assets are combined and taxed in the same way. This method allows equal protection against assets, regardless of the form in which those assets are held.

Median pension wealth for households aged 45 to 54 years was about $89,000 in 2000 (Statistical Abstract of the United States 2006, Table 700). Assuming 7 percent annual growth would yield an average of about $124,000 in 2005.

Retirement asset protection = $125,000.

O: Divorced and separated parents

Each biological parent or adoptive parent fills out the form, and all parents are treated equally in the analysis. The student and siblings are allowed in both households. Earnings of stepparents are not assessed. Earned income is attributed to the earner. Unearned income and assets are divided between the parent and the spouse if the parent has remarried so that only half goes into the computation.

Appendix Two

A Microsoft Excel worksheet that provides examples of individual cases is available upon request from the author. It allows the reader to simulate changes in the formula and to determine the effects that changes in financial circumstances will have on the Expected Contribution.

The calculation in the worksheet approximates the proposed comprehensive formula's expected contributions for independent students, but no information is available on home equity, on pension assets or on parent financial circumstances. Two years of income data are available for only a subset of the cases. In addition, no geographical adjustment is applied on the worksheet.

To obtain a copy of the worksheet, please contact the author via e-mail at sbaum@collegeboard.org.

Appendix Three
Need analysis for dependent students

Many knowledgeable observers believe that the Institutional Methodology reflects a sound approach to need analysis for dependent students.Because the existing formula is strong, the most constructive contribution this project can make to the understanding of need analysis for dependent students is to raise some questions about specific aspects of Institutional Methodology that deserve attention and might later be modified.

Issues for discussion:

- **Dependent student income/family income**
  Should students really be treated so differently because of their differential work effort?

  One option is to tax student income at the parents' marginal assessment rate. Alternatively, student income might be added to parent income. Negative parent available income would then create an allowance against student income.

  Another possibility would be to add a standard student contribution from income to the PC (which could be negative). This eliminates the work disincentive for students without penalizing low-income families.

- **Multiple Siblings**
  Is the difference in expected contributions over time resulting from the spacing of children equitable?

  In the case of twins, calculating the cost of borrowing the entire PC for one student and paying it back over the four years after graduation is one possible approach to developing an appropriate discount for additional children in college. This would result in lower discounts than those currently in IM.

- **Debt**
  Should the assessment of assets be based on net worth? In other words, should existing debt be an allowance against assets?

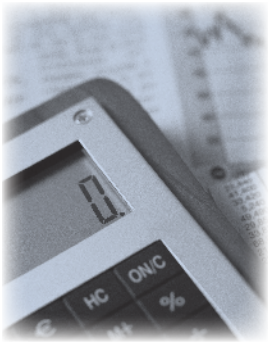
  Note that home equity loans do reduce assets and thus future expected contributions; however, the same is not true for any other form of borrowing. This approach magnifies the problem of ignoring children whose college educations parents have already financed.

- **Pension contributions**
  Should an exemption of a standard amount for people without employer contributions be included before taxing this part of income?

  Employer contributions to pension funds are not assessed, but if people without this benefit contribute on their own, the amounts are assessed as untaxed income.

- **Home equity**
  Could a homestead allowance replace the cap on home equity?

  This option would be an across-the-board allowance granted to both homeowners and renters. One option would be to use the amount required for a down payment on the average house. This approach would offer additional asset protection.



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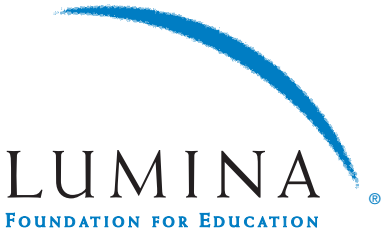
Sandy Baum is a senior policy analyst for the College Board and professor of economics at Skidmore College. She manages *Trends in Student Aid* and *Trends in College Pricing* for the College Board and has served as a consulting economist to the College Board's Financial Aid Standards and Services Advisory Committee since 1988. In addition to numerous articles on student aid and college financing, Baum is co-author of the College Board's *Education Pays: The Benefits of Higher Education for Individuals and Society* and of a recent paper, "How Much Debt is Too Much? Defining Benchmarks for Manageable Student Debt." She has worked with a variety of higher education organizations and with individual colleges and universities on the issues of college affordability and student financial aid. Baum earned her bachelor's degree in sociology at Bryn Mawr College and her doctorate in economics at Columbia University.



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