Exploring Ways to Enhance FAFSA Efficiency: Examining the Distribution of Negative Expected Family Contributions

Robert Kelchen, Associate Professor, Department of Education Leadership, Management and Policy, Seton Hall University

Contents

NASFAA

NATIONAL ASSOCIATION OF STUDENT FINANCIAL AID ADMINISTRATORS

The National Association of Student Financial Aid Administrators (NASFAA) is a nonprofit membership organization representing more than 20,000 financial aid professionals at nearly 3,000 colleges, universities, and career schools across the country. NASFAA member institutions serve nine out of every 10 undergraduates in the United States. Based in Washington, D.C., NASFAA is the only national association with a primary focus on student aid legislation, regulatory analysis, and training for financial aid administrators. For more information, visit https://www.nasfaa.org.

Acknowledgements:

Overview

Outstanding student loan debt now exceeds $1.5 trillion,[1] and college prices continue to increase faster than household income growth.[2] This has led to growing concerns about whether college is affordable for students and their families. This lack of affordability has contributed to rising skepticism about the value of higher education[3], even though research is clear that the typical student sees a large return on their investment.[4]

To help make college more affordable for students, the federal government provides $30 billion in grants, $91 billion in loans, and $1 billion in work-study funds each year. In order to be eligible to receive federal financial aid, 18 million students complete the Free Application for Federal Student Aid (FAFSA) each year to have their financial need assessed.[5] After providing information on personal circumstances, household income, and potentially assets, the result of the FAFSA is the expected family contribution (EFC).

The EFC has been used as a proxy for a family's financial strength since 1972, with the current formula mechanisms being largely unchanged since 1992.[6] It is used by the federal government to determine eligibility for Federal Pell Grants and subsidized student loans. A student's unmet need is determined by subtracting both the EFC and any other grant aid received from the cost of attendance, and both the EFC and the resulting unmet need measure are frequently used by colleges and state financial aid agencies to determine eligibility for additional need-based grant aid dollars.

Many researchers and analysts have raised concerns about whether the EFC is an accurate measure of a student's ability to pay for college.[7] But another concern with the current federal needs analysis formula is that a growing share of students has an EFC of zero, meaning they are estimated to have no ability of their own to pay for college. As Table 1 shows, nearly 40% of students now have a zero EFC, which is double the rate in the late 1990s. The rates of zero EFC receipt are especially high among independent students with their own dependents (67%), students attending for-profit colleges (62%), African American students (58%), and students whose parents did not complete high school (55%).

---

[1] Federal Reserve Bank of New York, *Quarterly Report on Household Debt and Credit:* 2019:Q4, New York, 2020, https://www.newyorkfed.org/medialibrary/interactives/householdcredit/data/pdf/HHDC_2019Q4.pdf.

[2] Jennifer Ma, Sandy Baum, Matea Pender and CJ Libassi, *Trends in College Pricing 2019.* (New York: The College Board, 2019): https://research.collegeboard.org/pdf/trends-college-pricing-2019-full-report.pdf.

[3] Carroll Doherty and Jocelyn Kiley, "Americans Have Become Less Positive About Tech Companies' Impact on The U.S." (Pew Research Center, July 29, 2019): https://www.pewresearch.org/fact-tank/2019/07/29/americans-have-become-much-less-positive-about-tech-companies-impact-on-the-u-s/; Frank Newport and Brandon Busteed "Why Are Republicans Down on Higher Ed?" *Gallup,* (August 16, 2017): https://news.gallup.com/poll/216278/why-republicans-down-higher.aspx.

[4] Michael Hout, "Social and Economic Returns to College Education in the United States." *Annual Review of Sociology,* 38, (2012): 379-400, https://www.annualreviews.org/doi/pdf/10.1146/annurev.soc.012809.102503; Douglas A. Webber, "Are College Costs Worth It? How Ability, Major, and Debt Affect the Returns to Schooling." *Economics of Education Review,* 53, (2015): 296-310.

[5] Most federal loans do not require an assessment of financial need, with the exception of subsidized loans for undergraduate students; Office of Federal Student Aid, *Annual Report FY 2019,* Washington, DC, November 15, 2019, https://www2.ed.gov/about/reports/annual/2019report/fsa-report.pdf.

[6] Benjamin Collins, "Federal Student Aid: Need Analysis Formulas and Expected Family Contribution," Washington, DC: Congressional Research Service, May 18, 2016, https://fas.org/sgp/crs/misc/R44503.pdf.

[7] Sara Goldrick-Rab, *Paying the Price: College Costs, Financial Aid, and the Betrayal of the American Dream.* Chicago: University of Chicago Press, 2016; Katy Mathuews, "Miscalculating need: How the Free Application for Federal Student Aid Misses the Mark," *College and University,* 93, no. 4, (2018), 29-32; Lauren Walizer, *When Financial Aid Falls Short,* (Center for Law and Social Policy, 2018): https://www.clasp.org/sites/default/files/publications/2018/12/2018whenfinancialaidfallsshort.pdf.

Table 1: Percentage of Students with a Zero EFC by Year, 1995-96 to 2015-16

Characteristic	1995-96	1999-00	2003-04	2007-08	2011-12	2015-16
Total	18.6	17.7	20.7	25.4	37.9	39.1
Dependency status						
Dependent	11.8	10.3	13.5	15.8	23.8	24.2
Independent, no dependents	13.6	11.7	19.8	30.0	40.0	42.2
Independent, with dependents	37.7	36.6	35.0	39.9	61.0	67.3
Institutional sector and type						
Public 2-year	17.1	17.9	22.3	26.7	41.2	43.4
Public 4-year	15.1	15.3	16.0	20.0	29.9	31.4
Private 4-year	16.3	14.5	16.2	17.8	25.7	30.5
For-profit	41.2	39.2	39.1	45.6	56.8	62.2
Gender						
Male	15.2	14.4	17.4	21.5	33.5	34.6
Female	21.2	20.2	23.1	28.3	41.3	42.5
Race/ethnicity[a]						
White	13.2	12.1	14.2	18.7	29.0	29.8
Black or African American	35.7	33.6	37.7	41.6	60.0	58.2
Hispanic or Latino	31.8	30.3	31.9	35.0	46.8	47.6
Asian	22.3	21.2	23.9	28.4	37.1	39.2
American Indian or Alaska Native	32.6	21.8	26.9	34.7	53.7	51.2
Parent(s)' highest education level[b]						
Did not complete high school	31.8	32.0	34.8	39.2	54.0	55.0
High school diploma or GED	26.5	23.5	26.3	31.0	48.3	51.3
Some college/associate degree	N/A	16.8	20.2	25.5	37.9	42.6
Bachelor's degree	N/A	11.5	14.9	17.8	27.0	30.9
Graduate or professional degree	N/A	9.7	12.2	15.0	23.2	27.5
Age						
Under 24	17.7	16.8	18.7	22.7	32.2	33.4
25-34	23.1	22.1	27.5	34.7	48.9	52.3
35 and up	16.2	15.6	20.1	23.7	43.6	43.9

[a] Race/ethnicity classifications varied slightly over the period.
[b] Parental education above high school in 1995-96 is classified in one "college and beyond" category (16.7%). From National Postsecondary Student Aid Study (NPSAS).

This growing group of students all has the same EFC because the current EFC formula truncates negative financial values to zero in a number of locations. To both target additional federal financial aid dollars to students with the greatest financial need and help states and colleges best allocate their scarce resources, there have been numerous proposals to allow the EFC to become negative by reducing or eliminating these truncations. As early as 1979, a commenter on changes to the EFC formula submitted the idea of a negative EFC to the U.S. Office of Education. The response was that "a negative EFC is an artificial mathematical expression of uncertain meaning" and "the Commissioner does not accept the proposition that a student's need can exceed his or her total costs."[8]

One of the earliest calls for a negative EFC by a researcher came from Thomas Mortenson (1991),[9] who was later followed by many others.[10] Most of these proposals have focused on allowing for a negative EFC of -$750, which would increase the maximum Pell Grant from $6,195 in the 2019-20 award year to $6,945. The Student Aid for All Act[11] would have created a -$750 negative EFC, while the FAFSA Simplification Act of 2019[12] would effectively create a -$1,500 negative EFC.[13]

Yet there has been little scholarly research examining the implications of creating a negative EFC. In my previous research,[14] I used data from 153,000 students attending nine colleges between the 2007-08 and 2011-12 award years to model the potential implications of allowing a negative EFC of up to -$750. In that research, I found that the vast majority (87%) of students who had a zero EFC under the current formula would have a negative EFC of -$750. Additionally, only a small percentage of students who were not previously Pell-eligible gained Pell eligibility as a result of negative EFCs. This suggests that negative EFCs could be reasonably well-targeted toward students with substantial financial need.

It is time to update that research using a newer cohort of students for three reasons. First, the FAFSA moved to using a family's financial data from one year prior to two years prior—a change often referred to as prior-prior year or early FAFSA.[15] Second, eligibility criteria have changed significantly for an automatic-zero EFC as well as values for income and asset allowances, which could affect the negative EFC distribution. Finally, I am also able to model the implications of a -$1,500 negative EFC, which matches up with a recent bipartisan policy proposal in the Senate.[16]

I use the following research questions in this analysis:

1. What percentage of students would be affected by a negative EFC across different eligibility thresholds?
2. How does the distribution of negative EFCs vary across student characteristics and FAFSA filing statuses?

[8] U.S. Government Printing Office. "National Direct Student Loan Program; College Work-Study Program; and Supplemental Educational Opportunity Grant Program." *Federal Register 44,* no. 157, (August 13, 1979): 47447.

[9] Tom Mortenson, "Financial Aid Problems for Dependent Students From Low Income Families." *Journal of Student Financial Aid,* 21, no. 3, (1991): 27-38, https://ir.library.louisville.edu/jsfa/vol21/iss3/3/

[10] For example, see Courtney McSwain, *Window of Opportunity: Targeting Federal Grant Aid to Students with the Lowest Incomes.* (Washington, DC: Institute for Higher Education Policy, 2018); Sara Goldrick-Rab, "Conditional Pell Dollars Miss Students Who Need Them Most." *Education Next,* 14, no. 2, (2014), 59-64; Greg Hirschfeld, "Changing the Expected Family Contribution Formula to Serve Today's Students," *YI Blog,* Young Invincibles, March 12, 2019, https://younginvincibles.org/changing-the-expected-family-contribution-formula-todays-students/; Lauren Walizer, When Financial Aid Falls Short.

[11] *Strengthening Student Aid for All Act,* S. 2815, 110th Congress, 2d sess., introduced in the Senate April 3, 2008, https://www.congress.gov/bill/110th-congress/senate-bill/2815/text.

[12] *FAFSA Simplification Act of 2019,* S. 2667, 116th Congress, 1st sess., introduced in Senate October 22, 2019, https://www.congress.gov/bill/116th-congress/senate-bill/2667/text.

[13] The FAFSA Simplification Act would replace the term "expected family contribution" with "student aid index," but both measures would still serve as ways to rank students' financial need.

[14] Robert Kelchen, The Distributional and Cost Implications of Negative Expected Family Contributions. *Journal of Student Financial Aid,* 47, no. 1, (2017): 4-24, https://ir.library.louisville.edu/cgi/viewcontent.cgi?article=1597&context=jsfa

[15] Robert Kelchen and Gigi Jones. "A Simulation of Pell Grant Awards Using Prior-Prior Year Financial Data." *Journal of Education Finance,* 40, no. 3, (2015): 253-272, https://muse.jhu.edu/article/577216/pdf; The White House, FACT SHEET: The President's Plan for Early Financial Aid: Improving College Choice and Helping More Americans Pay for College, September 15, 2015, https://obamawhitehouse.archives.gov/the-press-office/2015/09/14/fact-sheet-president%E2%80%99s-plan-early-financial-aid-improving-college-choice.

[16] *FAFSA Simplification Act of 2019,* (S. 2667), 116th Congress, 1st sess., introduced in Senate October 22, 2019, https://www.congress.gov/bill/116th-congress/senate-bill/2667/text.

About the EFC Formula and Negative EFCs

There are eight different EFC formulas based on a student's dependency status and financial circumstances.[17] Undergraduate students who have not yet reached age 24 by January 1 of the award year are classified as dependent students unless they have children or other dependents, are in the military, are married, are homeless, or meet another one of the stated eligibility criteria. The parent(s) or guardian(s) of dependent students must provide financial information for the FAFSA in order for them to receive an EFC and to be eligible for anything other than an unsubsidized loan.[18] All other students are classified as independent students, with separate formulas for students who do and do not have any dependents of their own.

Once the dependency status is determined, students are then assigned to an EFC formula type based on their financial circumstances. Across each dependency status, students who have household incomes above $50,000 (using parent income for dependents and student [and spouse, if applicable][19] income for independents) must complete the full FAFSA, which includes both asset and income information.[20] Students who have household incomes at or below $50,000 across all three dependency statuses can qualify for a simplified FAFSA that does not require asset information if they or someone in their household received means-tested benefits, filed a simplified tax return, or was a dislocated worker. Finally, dependent students and independent students with dependents of their own can receive an automatic-zero EFC that does not require any additional financial information if their household income is below $26,000 per year and any of the eligibility criteria for the simplified FAFSA are met. Independent students without dependents of their own are not eligible for an automatic-zero EFC.

The current EFC formula trims negative values back to zero for between three and 11 data elements, depending on dependency status and household type. In Table 2, I outline each of these potential negative EFC elements for each dependency status, with a distinction made for elements only used in the full FAFSA formula. Notably, dependent students have the most opportunities to turn their EFC negative since the formula requires both student and parent financial information. For example, the income protection allowance for a family of four with one dependent student in college is $29,340. Under a negative EFC, that allowance is assessed at a 22% contribution rate at the lowest levels of family resources, or a $6,455 reduction in the EFC. If a family's income is sufficiently low, this can result in a large negative EFC. Another key driver of negative EFCs is the education savings and asset protection allowance, although the value of that allowance is about one-tenth of its former value a decade ago.

---

[17] Office of Federal Student Aid, *The EFC Formula,* 2020-2021, Washington, DC, 2019.

[18] Office of Federal Student Aid, *Reporting Parent Information.* Retrieved March 2, 2020, from https://studentaid.gov/apply-for-aid/fafsa/filling-out/parent-info#unwilling-parents.

[19] Throughout this paper, independent students' financial information includes the student's income and, if married, the spouse's income.

[20] Many students and their families can use the IRS Data Retrieval Tool to transfer income information from their taxes to the FAFSA form; Office of Federal Student Aid, *What Is the IRS Data Retrieval Tool (IRS DRT)?* Accessed March 2, 2020, from https://studentaid.gov/help-center/answers/article/what-is-irs-drt.

Table 2: Potential Negative EFC Elements Currently Trimmed Back to Zero

Element and line from 2020-21 EFC Formula Guide	Full FAFSA only?	Notes
Dependent students (Form A)		
Line 1: Parent adjusted gross income		
Line 17: Parent net worth of investments	Yes	Automatically trimmed to zero in FAFSA data
Line 18: Parent net worth of business and/or investment farm	Yes	Automatically trimmed to zero in FAFSA data
Line 24: Parent contribution from assets	Yes	Education savings and asset protection allowance drives negative values
Line 26: Parent contribution from adjusted available income		
Line 28: Parent total contribution		
Line 29: Student adjusted gross income		
Line 44: Student contribution from available income		
Line 46: Student net worth of investments	Yes	Automatically trimmed to zero in FAFSA data
Line 47: Student net worth of business and/or investment farm	Yes	Automatically trimmed to zero in FAFSA data
Line 51: Expected family contribution		
Independent students without dependents (Form B)		
Line 1: Student/spouse adjusted gross income		
Line 19: Student/spouse net worth of investments	Yes	Automatically trimmed to zero in FAFSA data
Line 20: Student/spouse net worth of business and/or investment farm	Yes	Automatically trimmed to zero in FAFSA data
Line 26: Student/spouse contribution from assets	Yes	Asset protection allowance drives negative values
Line 29: Expected family contribution		
Independent students with dependents (Form C)		
Line 1: Student/spouse adjusted gross income		
Line 17: Student/spouse net worth of investments	Yes	Automatically trimmed to zero in FAFSA data
Line 18: Student/spouse net worth of business and/or investment farm	Yes	Automatically trimmed to zero in FAFSA data
Line 24: Student/spouse contribution from assets	Yes	Asset protection allowance drives negative values
Line 26: Student/spouse contribution from adjusted available income		
Line 28: Expected family contribution		

Note. The potential for negative values exists for income taxes paid and state/local tax allowances, but allowing those values to be negative would penalize families receiving tax benefits. They are excluded from this analysis as a result. From Federal Student Aid, 2020-2021 EFC Formula Guide.

Data and Sample

I based this analysis on individual-level FAFSA data from the 2018-19 award year provided by 10 partner institutions. These 10 institutions consisted of five 4-year public universities, two 4-year private nonprofit universities, and three public community colleges. The National Association of Student Financial Aid Administrators solicited volunteers to participate in the study. While the participating institutions are a convenience sample, the sample had diversity in geographic locations, institutional sizes, and student characteristics.

Institutional financial aid offices provided me with 281,864 unique student records, of which 280,137 had enough information to calculate both standard and negative expected family contributions by FAFSA filing status and did not have a professional judgment applied to their EFC. Of this sample, 189,896 students (67.8%) were classified as dependents, 59,473 (21.2%) were classified as independent students with no dependents of their own, and 30,768 (11.0%) were classified as independent students with dependents. Table 3 provides information about the analytic sample by dependency and FAFSA filing statuses.

Table 3: Summary Statistics of the Sample by Dependency and FAFSA Filing Statuses (2018-19 Award Year)

| Characteristic | Dependent | | | Independent, no dependents | | Independent, with dependents | | |
	Full FAFSA	Simplified FAFSA	Auto-zero EFC	Full FAFSA	Simplified FAFSA	Full FAFSA	Simplified FAFSA	Auto-zero EFC
Age	19.4	19.6	19.6	29.3	26.9	36.5	33.6	30.5
Gender (% male)	41.7	35.7	35.0	39.7	41.4	30.7	24.9	18.2
Grade level (%)								
First-year	54.1	54.5	54.6	8.8	15.0	16.2	25.7	36.4
Other undergraduate	45.6	44.7	44.2	38.1	42.6	46.1	54.5	50.1
Graduate student	0.3	0.8	1.2	53.0	42.5	37.7	19.8	13.5
First-generation student (%)	18.0	46.3	53.7	35.6	38.4	52.1	56.4	56.7
Institution type (%)								
Four-year public	93.5	88.7	84.8	90.0	85.1	79.8	69.0	57.6
Four-year private	1.9	1.4	1.5	0.3	0.4	0.2	0.1	0.1
Two-year public	4.6	9.8	13.8	9.7	14.5	20.0	31.0	42.3
Student taxable income ($)	3,463	2,924	1,494	37,216	12,346	74,848	35,723	10,905
Parent taxable income ($)	144,024	39,803	11,843	--	--	--	--	--
Student means-tested benefits (%)	0.0	0.2	0.2	0.0	4.7	0.3	32.3	32.0
Parent means-tested benefits (%)	0.3	39.5	43.8	0.6	2.0	0.2	0.2	1.2
Calculated EFC ($)	36,528	2,564	0.0	11,189	1,792	7,113	264	7
Zero EFC (%)	4.1	29.9	100.0	29.6	60.6	23.2	79.1	99.9
Pell-eligible EFC (% of undergraduates)	20.8	95.0	100.0	50.5	86.1	74.5	99.9	100.0
Verification flag (%)	21.3	83.0	52.4	7.7	12.6	26.7	32.1	19.8
Number of observations	142,522	22,769	24,605	18,042	41,431	11,717	6,446	12,605

Note. FAFSA data provided by the 10 partner institutions.

Dependent students filing the full FAFSA comprised just over half of all students, which highlights the relatively advantaged nature of several large universities in the dataset. This group had a mean parental taxable income of $144,024 and a mean calculated EFC of 36,528; only 20.8% of these students had a Pell-eligible EFC.[21] This compares to 95% of dependent students in the simplified FAFSA group and all students in the full FAFSA group who had an EFC that qualified for a Pell Grant, with parental incomes of $39,803 and $11,843, respectively. Students with an automatic-zero EFC were more likely to be female and attending community colleges than other dependent students. Additionally, majorities of simplified FAFSA filers (83%) and automatic-zero EFC students (52%) had to undergo the financial verification process compared to 21% of full FAFSA filers. Nationally, approximately half of all Pell recipients each year go through verification,[22] so the share in this sample is somewhat higher.

Among independent students with no dependents, a majority (53%) of students filing the full FAFSA were graduate students compared to 43% of students filing the simplified FAFSA. Among undergraduates, 51% of full FAFSA filers had a Pell-eligible EFC versus 86% of simplified FAFSA filers. Student taxable incomes were modest, averaging $37,216 for full FAFSA filers and $12,346 for simplified FAFSA filers. Only about one in 10 students in this category was selected for verification.

Finally, those in the independent students with dependents group were significantly older, more likely to be female, and more likely to be attending a community college than the other groups. Just 18% of the zero EFC students were male, 42% attended a community college, and the average age was 31. Student taxable incomes for the zero EFC group averaged just $10,905, compared to $35,723 for simplified FAFSA filers and $74,848 for full FAFSA filers. About one-third of simplified FAFSA filers and zero EFC students received means-tested benefits, and virtually all of the undergraduate students in this category had Pell-eligible EFCs.

Methods

I began by calculating EFCs for all students by dependency and FAFSA filing status using the *EFC Formula Guide* from ED's Office of Federal Student Aid[23] for the 2018-19 award year. I had to calculate EFCs because, although the data files I received from colleges had every data element needed to calculate EFCs, they did not have the actual EFC. However, in prior research[24] I was able to calculate EFCs within $50 of the actual EFC for approximately 94% of all cases.

I calculated negative EFCs by allowing each of the elements in the EFC Formula Guide that was truncated to zero to become negative (as specified in Table 2). For students with an automatic-zero EFC or a simplified version of the FAFSA, I assumed zero assets and the most typical value of other variables (a household size of three with one student in college for parents of dependent students and for all independent students, and the oldest parent being age 45 for the parent asset allowance) in a small number of cases in which data were missing. Since my previous research[25] found only small differences between negative EFC models that allowed both assets and income to become negative relative to those that only allowed assets to be negative, I allowed both assets and income to become negative in this analysis.

---

[21] I used "Pell-eligible EFC" instead of relying on the institution-provide Pell-eligible flag because some students may not be eligible for the Pell Grant due to running out of lifetime eligibility or failing to make satisfactory academic progress. Since I do not know which students with an EFC that would have qualified for a Pell Grant met the grant's other eligibility requirements, I used the Pell-eligible EFC category to allow for comparisons under a negative EFC policy.

[22] Bill DeBaun, "Verification Melt Rate Ticks Up to 25 Percent," National College Attainment Network, November 12, 2018, https://www.ncan.org/news/news.asp?id=456084.

[23] Office of Federal Student Aid, *The EFC Formula, 2018-2019*. Washington, DC, 2017.

[24] Kelchen, "The Distributional and Cost Implications of Negative Expected Family Contributions."

[25] Ibid.

I then examined the distribution of negative EFCs in several different ways. First, I showed the distribution of regular versus negative EFCs using graphs for each of the three dependency statuses. I next showed the percentage of students with negative EFCs by dependency and FAFSA filing status below -$1,500, below -$750, below zero, and (for undergraduate students only) a Pell-eligible negative EFC. The -$1,500 cutoff matches the index value used in the bipartisan FAFSA Simplification Act of 2019.[26] The value of -$750 reflects the final truncation in the EFC formula calculation, in which adjusted available income is trimmed to -$750 before the EFC is trimmed to zero. This value has also been used in prior legislative efforts to create a negative EFC.[27]

Finally, I examined the distribution of negative EFCs by dependency status for three different groups of students that may be of particular interest to policymakers. The first group is students who had someone in their family receive means-tested benefits, such as free and reduced-price lunches, Temporary Assistance for Needy Families, or the Special Supplemental Nutrition Program for Women, Infants, and Children. This is a key criterion of eligibility for simplified FAFSAs and also identifies a group of students who have already proven they have significant financial need.

The next two groups are broken down by taxable family income using student income for independent students and parent income for dependent students.[28] The $50,000 cutoff aligns with current eligibility to file the simplified FAFSA, while the $25,000 cutoff was the income limit to be eligible for an automatic-zero EFC in the 2018-19 *EFC Formula Guide*.[29] This cutoff increased to $26,000 in 2020-21,[30] which is still well below the $31,000 limit that existed in the 2011-12 award year.[31]

Limitations

A key limitation of my study is that I only have data from 10 colleges and universities that volunteered to provide student-level FAFSA information. The two private nonprofit universities in my sample were relatively small, and no for-profit colleges volunteered to participate in my study. However, there is a substantial group of students who were independent students or did not file the full FAFSA, allowing me to model the potential implications of negative EFCs for these especially vulnerable groups.

Another limitation, as noted above, is that I did not have students' actual EFCs and instead had to rely on calculated EFCs. The importance of this limitation is mitigated somewhat because any error in calculating standard EFCs would carry over to negative EFCs, meaning that the implication of changing to negative EFCs would be largely unaffected by any concerns with FAFSA data elements. Finally, it should be noted that negative EFCs would not fix two fundamental issues: The EFC is an imperfect measure of a family's ability to pay for college in a given year, and a substantial share of students from low-income families do not successfully file the FAFSA.[32]

---

[26] *FAFSA Simplification Act of 2019.*

[27] *Strengthening Student Aid for All Act.*

[28] I used adjusted gross income for tax filers and income earned from work for non-tax filers.

[29] Office of Federal Student Aid, *The EFC Formula,* 2018-2019.

[30] Office of Federal Student Aid, *The EFC Formula,* 2020-2021. Washington, DC, 2019

[31] Robert Kelchen, "Student Financial Need and Aid Volatility Among Students with Zero Expected Family Contribution." *Journal of Student Financial Aid,* 44, no. 3, (2015): 179-201, https://ir.library.louisville.edu/cgi/viewcontent.cgi?article=1545&context=jsfa.

[32] Kelli Bird and Benjamin L. Castleman, "Here Today, Gone Tomorrow? Investigating Rates and Patterns of Financial Aid Renewal Among College Freshmen." *Research in Higher Education,* 57, (2016): 395-422; Goldrick-Rab, *Paying the Price: College Costs, Financial Aid, and the Betrayal of the American Dream;* Michael Kofoed, "To Apply or Not to Apply: FAFSA Completion and Financial Aid Gaps." *Research in Higher Education,* 58, (2017): 1-39.

Results

I begin by showing the distribution of EFCs under both the current formula and allowing for negative EFCs; the results by dependency status are shown in Figures 1-3. Across each dependency status, a large clustering of the current EFC distribution appears right at zero, reflecting the large share of students with zero EFCs. The negative EFC distribution for dependent students (Figure 1) also peaks at zero, but at a much lower level than the current EFC distribution. Most negative EFCs are at values higher than -$25,000, with increases in density closer to zero. Above zero, the negative EFC distribution quickly converges to the current EFC distribution, with only small differences in the densities noticeable above $10,000.
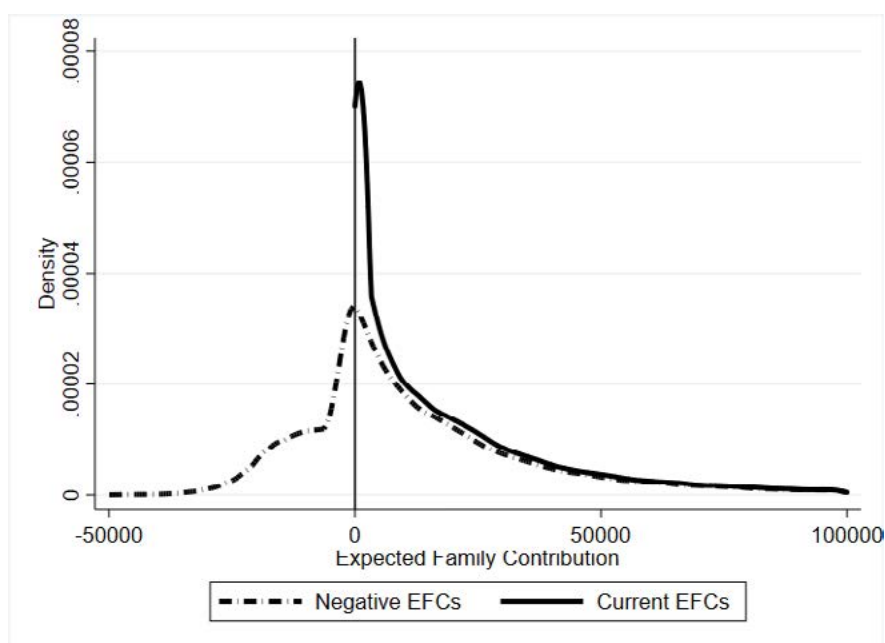

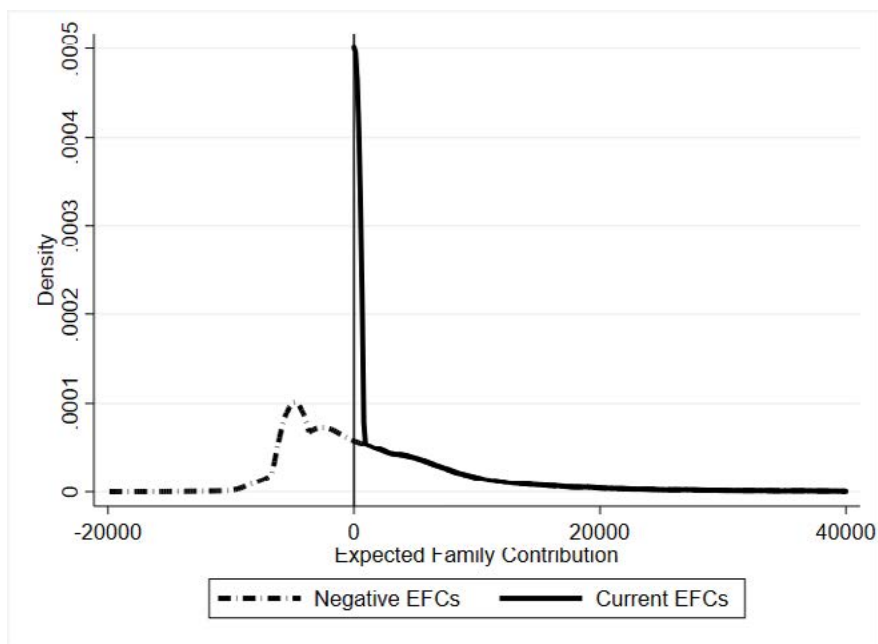*Figure 1.* Current and negative EFCs (dependents).

Figure 2. Current and negative EFCs (independents, no dependents).
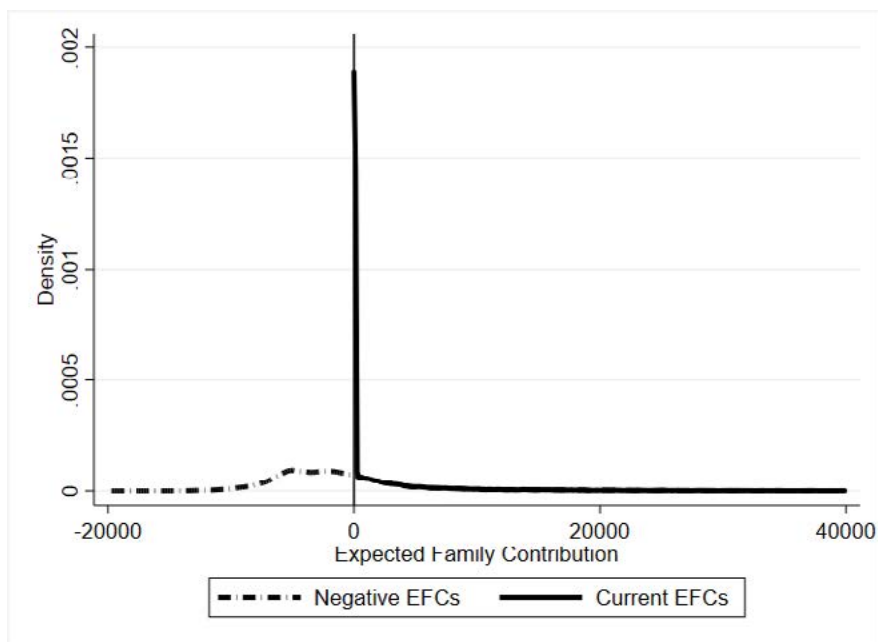

Figure 3. Current and negative EFCS (independent with dependents).

For independent students without dependents (Figure 2) and with dependents (Figure 3), the current and negative EFC distributions are virtually identical above zero. This shows that allowing for negative EFCs among students who currently have a positive EFC has little to no effect on their EFC or their resulting financial aid package. The distribution of negative EFCs below zero is much more compact for independent than dependent students due to independent students having fewer elements in the EFC formula that can become negative. Nearly all of the negative EFCs below zero are between -$7,500 and zero.

Table 4 shows details of the current and negative EFC distributions by dependency and FAFSA filing statuses. Each of the eight columns includes information about the mean EFC and the percentage of undergraduates with a Pell-eligible EFC under current rules and with a negative EFC. The negative EFC section also includes the percentage of EFCs below -$1,500, -$750, $0, and the Pell eligibility threshold. Turning first to dependent students, the largest change in EFCs was among those with an automatic-zero EFC, as the mean negative EFC was -$16,581. The mean decrease in EFCs was about $4,700 for simplified FAFSA filers and $4,200 for full FAFSA filers. Nearly all automatic-zero EFC students (97%) had a negative EFC below -$1,500, compared to 61% of simplified FAFSA filers and just 8% of full FAFSA filers. About 9% of full FAFSA filers became Pell-eligible as a result of the negative EFC formula, while very few dependent students in the other categories saw any changes because they were already Pell-eligible.

Table 4: Current and Potential Negative EFC Distributions by Dependency and FAFSA Filing Status)

Characteristic	Dependent			Independent, no dependents		Independent, with dependents		
	Full FAFSA	Simplified FAFSA	Auto-zero EFC	Full FAFSA	Simplified FAFSA	Full FAFSA	Simplified FAFSA	Auto-zero EFC
Mean EFC	36,528	2,564	0.0	11,189	1,792	7,113	264	7
Zero EFC (%)	4.1	29.9	100.0	29.6	60.6	23.2	79.1	99.9
Pell-eligible EFC (% of undergraduates)	20.8	95.0	100.0	50.5	86.1	74.5	99.9	100.0
EFC using negative EFCs								
Mean EFC	32,287	-2,140	-16,581	10,129	-549	6,462	-1,497	-5,173
EFC below -1,500	8.0	60.8	97.0	22.2	50.7	14.2	45.3	96.6
EFC below -750	9.9	69.4	97.5	26.0	56.0	18.3	62.9	99.1
EFC below zero	11.9	76.0	97.9	29.6	60.6	23.3	79.1	99.9
Pell-eligible EFC (% of undergraduates)	29.9	96.6	100.0	50.5	86.1	74.5	99.9	100.0
Number of observations	142,522	22,769	24,605	18,042	41,431	11,717	6,446	12,605

Note. FAFSA data provided by the 10 partner institutions.

The mean change in EFCs was much smaller for independent students with no dependents, with the decrease for full FAFSA filers being from $11,189 to $10,129 and for simplified FAFSA filers being from $1,792 to -$549. All students with a zero EFC (30% of full FAFSA filers and 61% of simplified FAFSA filers) received a negative EFC, and most of those students (22% and 51%, respectively) had a negative EFC below -$1,500. This suggests that a negative EFC would be highly targeted toward students with the greatest financial need and would not give additional funds to students who are not currently receiving Pell Grants.

The pattern of results for independent students with dependents of their own is similar to the pattern for independent students without dependents. Most of these students (75% of full FAFSA filers and 100% of simplified FAFSA filers and automatic-zero EFC students) currently receive a Pell Grant, and the distribution of the number of Pell recipients would not be affected by a change to negative EFCs. All zero EFC students (23% of full FAFSA filers, 79% of simplified FAFSA filers, and 100% of automatic-zero EFC students) would receive an EFC below zero if negative EFCs were allowed. While nearly all automatic-zero EFC students would have a negative EFC below -$1,500, a significant share of zero EFC students from the other FAFSA filing categories would have a negative EFC above -$1,500. Just 14% of full FAFSA filers and 45% of simplified FAFSA filers—or just over half of all students with a zero EFC in these categories—would have a negative EFC below -$1,500. The changes in mean EFC are much larger for automatic-zero EFC students (-$5,180) than the other two categories (-$650 for full FAFSA filers and -$1,760 for simplified FAFSA filers).

In Table 5, I analyzed the potential negative EFC distributions by dependency status across three student characteristics: means-tested benefit recipients, family incomes below $50,000, and family incomes below $25,000. Panel A of Table 5 focuses on students with a means-tested benefit recipient in the household, which primarily includes Pell-eligible students with a large majority of these students currently having a zero EFC. Among zero EFC students, nearly every student also received a negative EFC below zero. But 20% of dependent students who did not have a zero EFC under the current calculations had an EFC below zero under negative EFCs, while only zero EFC independent students under the current rules received a negative EFC. The changes in mean EFCs were much larger for dependent students than independent students, with independent students with no dependents having the smallest changes in EFCs under a negative EFC.

Table 5: Current and Potential Negative EFC Distributions by Dependency Status and Student Characteristics

Characteristic	Dependent	Independent no dependents	Independent with dependents
Panel A: Means-tested benefit recipients			
EFC under current rules			
Mean EFC	825	1,286	126
Zero EFC (%)	71.5	68.2	94.6
Pell-eligible EFC (% of undergraduates)	97.6	93.3	99.8
EFC under negative EFCs			
Mean EFC	-10,980	-1,323	-4,009
EFC below -1,500	85.5	56.4	82.0
EFC below -750	89.1	62.5	89.4
EFC below zero	91.9	68.2	94.6
Pell-eligible EFC (% of undergraduates)	98.4	93.3	99.8
Number of observations	20,224	2,783	6,306
Panel B: Family income below $50,000			
EFC under current rules			
Mean EFC	1,684	2,273	107
Zero EFC (%)	58.8	56.3	90.9
Pell-eligible EFC (% of undergraduates)	95.0	83.1	99.9
EFC under negative EFCs			
Mean EFC	-9,948	119	-3,711
EFC below -1,500	74.9	46.3	75.8
EFC below -750	80.0	51.5	84.1
EFC below zero	84.1	56.3	90.9
Pell-eligible EFC (% of undergraduates)	96.5	83.1	99.9
Number of observations	63,172	54,247	21,907

---

[16] College Board, "2019-20 CSS Profile Comprehensive Question and Instruction Listing," https://sfs.virginia.edu/sites/sfs.virginia.edu/files/2019-20%20CSS%20Profile%20Comprehensive%20Question%20and%20Instruction%20Listing.pdf.

Characteristic	Dependent	Independent no dependents	Independent with dependents
Panel C: Family income below $25,000			
EFC under current rules			
Mean EFC	795	835	11
Zero EFC (%)	94.6	70.1	99.8
Pell-eligible EFC (% of undergraduates)	98.5	99.0	100.0
EFC under negative EFCs			
Mean EFC	-18,702	-1,847	-5,107
EFC below -1,500	95.0	57.6	96.0
EFC below -750	95.7	64.2	99.0
EFC below zero	96.3	70.1	99.8
Pell-eligible EFC (% of undergraduates)	99.0	99.0	100.0
Number of observations	30,690	43,420	13,736

Note. "Family income" refers to parent income for dependents and student income for independents. FAFSA data provided by the 10 partner institutions.

The results were similar when looking at students with family incomes below $50,000 (Panel B) and $25,000 (Panel C). Virtually every dependent student and independent student with dependents who had a family income below $25,000 had a negative EFC below -$1,500, while about eight in 10 zero EFC independent students without dependents also had a negative EFC below -$1,500. Among students with family incomes below $50,000, between 80% and 90% of zero EFC students had a negative EFC below -$1,500 across dependency statuses. Again, mean EFCs were the most negative for dependent students (-$18,702 in the lowest income bracket) and independent students with dependents (-$5,107) than independent students without dependents of their own (-$1,847).

Discussion and Recommendations

The idea of negative EFCs has received a lot of attention in recent years as nearly four in 10 undergraduate students currently have an EFC of zero.[33] The EFC formula currently truncates negative EFCs to zero, but it is possible to calculate negative EFCs using data that students and their families already provide on the FAFSA. In this paper, I used FAFSA data from approximately 280,000 students from 10 colleges and universities to calculate negative EFCs by removing forced truncations on income and asset values. I show that a large percentage of students with a zero EFC would see an EFC below zero if the EFC formula allowed for negative values, and that negative EFCs are particularly well-targeted toward identifying the neediest independent students. Some dependent students would become newly Pell-eligible under negative EFCs, but in general the change would only affect students with relatively low levels of family resources.

In general, a majority of students who had a zero EFC under the current formula would have a negative EFC of -$1,500 or below. This rate tends to be lower for students who had a zero EFC after filing the full or simplified FAFSA than for automatic-zero EFC students, which suggests automatic-zero EFC students could continue to be assigned the maximum Pell Grant without asking any additional income or asset questions. One concern, however, is that dependent students and independent students with dependents have more opportunities to reduce their EFCs through the current FAFSA formula than independent students without dependents. As independent students without dependents are also ineligible for an automatic-zero EFC, it is worth considering whether the neediest students without dependents should also be eligible to receive an automatic-zero EFC below a certain income threshold.

These findings generally match my prior research,[34] which I conducted using data from the 2007-08 through 2011-12 award years from nine institutions that were not a part of this analysis. The current findings show more pronounced negative EFCs for automatic-zero EFC recipients and simplified FAFSA findings alongside much larger current and negative EFCs for dependent students filing the full FAFSA. This matches a trend of continued income inequality in American higher education and a slow economic recovery for lower-income families over much of the last decade. As a result, the share of students with a zero EFC has steadily increased nationwide.[35]

As of this writing, the likelihood of a speedy reauthorization of the Higher Education Act—traditionally the most prominent vehicle for making major changes to the federal needs analysis—is uncertain at best. There have been proposals in Congress separate from the Higher Education Act to approve the creation of a negative EFC matched by an increase in a student's Pell Grant eligibility. This would allow institutions and states to use a negative EFC today to help allocate their scarce resources to students with the greatest financial need (subject to the provision that the current EFC would be used to determine unmet financial need).

[33] Kelchen, "Student Financial Need and Aid Volatility Among Students with Zero Expected Family Contribution."

[34] Kelchen, "The Distributional and Cost Implications of Negative Expected Family Contributions."

[35] Kelchen, "Student Financial Need and Aid Volatility Among Students with Zero Expected Family Contribution."

One immediate step ED could take is to calculate negative EFCs alongside the current EFC formula in order to give colleges and states more nuanced information about students' financial needs. This is also important to help colleges best allocate scarce campus-based aid dollars from the Federal Work-Study and Federal Supplemental Educational Opportunity Grant programs, especially since colleges with the greatest share of financially needy students tend to get much smaller campus-based aid allocations from the federal government.[36] To help fulfill recommendations for colleges and states to use negative EFCs,[37] financial aid administrators could develop and produce a template to allow their colleagues to easily calculate negative EFCs for all students.

If there are major changes to the federal needs analysis formula, one likely outcome is that the FAFSA will be further simplified. Only a small number of income questions are needed to accurately determine most students' Pell Grant awards.[38] Most students from lower-income families already do not have to provide information about their assets, and the value of the asset protection allowance has steadily eroded over the last decade. This means that assets have a limited effect in calculating negative EFCs because a smaller allowance lowers the amount by which an EFC can be reduced. However, this effect is somewhat larger for dependent students due to taking parent and student assets into account. Looking only at income could also help reduce the differences in the effects of negative EFCs between dependent and independent students.

Finally, one concern with combining negative EFCs with a drastically simplified FAFSA formula is how student income will be treated. One drawback of a simpler formula is that students and their families will be able to understand how the formula works and potentially alter their behaviors in unintended ways. Under the current FAFSA formula, students can face an effective tax rate of 50% on work income above a modest threshold. While research has found that students do not respond to the current tax on work income by working less, this becomes more salient under a simplified formula with a negative EFC that allows for a clear ranking of student need. Further research is needed to understand some of the potential unintended consequences of FAFSA simplification when combined with a negative EFC.

[36] Robert Kelchen, "Campus-Based Financial Aid Programs: Trends and Alternative Allocation Strategies." *Educational Policy,* 31, no. 4, (2017): 448-480, https://kelchenoneducation.files.wordpress.com/2017/09/campus-based-aid-paper-for-educational-policy-accepted.pdf.

[37] The Institute for College Access & Success, *Charting the Course for Redesigning Financial Aid in California.* (Oakland, CA, 2019); Alexa Wesley, "Hoops and Hurdles of Financial Aid: Where the EFC Falls Short," NASPA: Student Affairs Administrators in Higher Education, January 30, 2020, https://www.naspa.org/blog/hoops-and-hurdles-of-financial-aid-where-the-efc-falls-short.

[38] Susan M. Dynarski and Judith E. Scott-Clayton, "The Cost of Complexity in Federal Student Aid: Lessons from Optimal Tax Theory and Behavioral Economics." *National Tax Journal,* 59, no. 2, (2006): 319-356; Susan M. Dynarski and Judith E. Scott-Clayton, *College Grants on a Postcard: A Proposal for Simple and Predictable Federal Student Aid,* Washington, DC: The Brookings Institution, 2007, https://www.brookings.edu/research/college-grants-on-a-postcard-a-proposal-for-simple-and-predictable-federal-student-aid/.