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Financial Need and Aid Volatility among Students with Zero Expected Family Contribution

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Cover Page Footnote

Student Financial Need and Aid Volatility among Students with Zero Expected Family Contribution

By Robert Kelchen

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Students with a zero expected family contribution (EFC), as calculated using the Free Application for Federal Student Aid (FAFSA), are those with the greatest financial need and least ability to pay for college, and they now make up more than one in three U.S. undergraduate students. Yet little is known about the year-to-year financial aid volatility of these students, or whether it varies by how the zero EFC was determined. This paper uses nationally representative data to examine trends in zero-EFC receipt over time and then use student-level data from nine colleges and universities to examine zero-EFC stability over multiple years by zero-EFC status. The results indicate overall stability in zero-EFC receipt across multiple years; about eight in ten students with a zero EFC keeps that status one year later. However, this masks a great deal of heterogeneity among zero-EFC recipients by dependency and FAFSA filing statuses. These differences have significant policy implications for allocating scarce financial aid dollars.

Key Words: *Zero EFC, financial aid, income volatility, Pell Grant*

One of the greatest challenges facing policymakers in higher education is the low college enrollment and completion rates among students from low-income families. Despite decades of public and private investment in financial aid, just 30 percent of children born to families in the bottom income quartile can expect to enroll in college, compared to 80 percent from the top income quartile (Bailey & Dynarski, 2011). Even among high school graduates, the college enrollment gap by family income is 30 percentage points (Aud et al., 2012). The college completion gap is more substantial; students from high-income families are six times more likely than those from low-income families to complete a bachelor's degree by age 25 (Bailey & Dynarski, 2011).

The federal need analysis formula of the Free Application for Federal Student Aid (FAFSA) is used to estimate college students' needs for financial aid. After taking into account the income and assets of the student and parent (if the student is dependent) or spouse (if the student is married), the formula generates an expected family contribution (EFC), which is the minimum amount of funds that the student's family are

expected to contribute toward the cost of college. The EFC is then used to determine eligibility and ration funds for a range of federal, state, and institutional financial aid programs.

Students whose EFC is below 90% of the maximum Federal Pell Grant (for the 2014-15 award year, 90% is $5,157) can qualify for a Federal Pell Grant (Federal Student Aid, 2014), which is the typical proxy used for low-income status. Students with the greatest financial need receive an EFC of zero, qualifying them for the maximum Pell Grant award of $5,730. In the 2011-12 academic year, 6.4 million students received a zero EFC (U.S. Department of Education, 2013). However, the Pell Grant has lost approximately two-thirds of its purchasing power with respect to in-state tuition and fees since 1980 (Alsalam, 2013), and the average in-state student attending a public four-year university faced a sticker price of roughly $23,000 in the 2013-14 academic year (Baum & Ma, 2013).

A student can receive a zero EFC in three ways: by completing the entire FAFSA; by completing a simplified version of the FAFSA that excludes assets; or through an automatic zero EFC assigned to students who meet certain means-tested program participation and income requirements, depending on individual circumstances. There is likely a great deal of heterogeneity among students with a zero EFC, because of the different ways that the EFC is determined and because the EFC distribution is artificially truncated at zero, combining students with different abilities to pay into one category. However, there has been no empirical research examining the characteristics of students with a zero EFC or investigating whether these students can expect to have an EFC of zero in the following year. This study provides insights on these important questions.

Research Questions

In this study, I used data from the National Postsecondary Student Aid Study (NPSAS) and student-level FAFSA data over five academic years from nine colleges and universities to consider the following research questions:

(1) What are the characteristics of zero-EFC students? How do they vary by the way the EFC was assigned (automatic zero EFC, simplified FAFSA, or full FAFSA)?

(2) How often do zero-EFC students have an EFC of zero again in the following years, and how often do they continue to be eligible to receive Pell Grants? Does this vary by how the EFC was assigned?

Conceptual Approach and Related Research

Students and their families must fill out the FAFSA to receive consideration for federal financial aid, as well as many types of state and institutional aid. They must repeat this process each year if they wish to receive financial aid, which means that a substantial amount of income volatility can result in changes to their financial aid awards. This section details how EFCs are calculated, describes the different types of EFCs, and concludes with a discussion of the research on income volatility and financial aid eligibility.

Calculating Expected Family Contributions

Students can receive an EFC of zero in three different ways. Dependent students, who file with their own and their parent(s)' income information, and independent students with dependents other than a spouse (hereafter referred to as independent students with dependents) can receive an automatic zero EFC if two conditions hold. First, the household's income (i.e., if dependent, the income of the parent(s); if independent, the income of the student and, if applicable, spouse) must be $24,000 or less in the 2014-15 academic year. Second, someone in the student's household must have received means-tested benefits (such as food stamps or free or reduced-price lunch); been eligible to file a simplified tax form (1040A or 1040EZ); been exempt from filing federal taxes; or been classified as a dislocated worker (Federal Student Aid, 2013). Students who meet both of these conditions do not have to provide any additional information on the FAFSA to be eligible for a zero EFC and receive the maximum Federal Pell Grant. This greatly simplifies the FAFSA completion process and the EFC calculation. Independent students who have no dependents other than a spouse (hereafter referred to as independent students without dependents) are not eligible to receive an automatic zero EFC.

Students who are from households making less than $50,000 per year and who meet one of the additional requirements necessary to qualify for the automatic zero EFC can also qualify for a zero EFC through a simplified EFC calculation using the Simplified Needs Test, which bypasses the student and parent (for dependent students) asset components of the FAFSA. The formula calculates the EFC using household income and demographic information, which can result in an EFC of zero. Finally, a student may receive an EFC of zero by completing the full FAFSA, including asset information.

Some students who qualify for the simplified EFC calculation or complete the entire FAFSA have financial circumstances that would result in a negative EFC; however, they receive a zero EFC instead. A zero EFC thus reflects a range of abilities to pay, which may mean that students could keep an EFC of zero from year to year, even if their financial situation changes over time.

In the 2011-12 academic year, nearly 6.4 million undergraduate students had a zero EFC (U.S. Department of Education, 2013). More than two-thirds of these students' zero EFCs were automatic zero EFCs, and the remaining students had a calculated zero EFC. Among students in the categories eligible to receive an automatic zero EFC (dependent students and independent students with dependents), more than four in five zero-EFC students received an automatic zero EFC. Figure 1 shows the maximum household income for a student to be eligible for an automatic zero EFC since 1991, with both unadjusted and inflation-adjusted values reported. The income level for an automatic zero EFC, which is legislatively determined, stayed between $15,000 and $20,000 (in 2013 dollars) during the 1990s and early 2000s before increasing to $30,000 in 2009. The maximum income allowed for an automatic zero EFC remained at or above $30,000 through 2011 before falling to $23,000 in 2012.

Research on Income and Financial Aid Volatility

Students may be adversely affected by large drops in their financial aid awards from year to year, which can result from changes in the household's financial circumstances. However, most research on the impact of financial aid on persistence rates has focused on variation in initial financial aid awards (e.g., Alon, 2011; Dynarski, 2003; Long & Castleman, 2013; Singell, 2004) and has not examined the implications of year-to-year changes in aid. Part of this is due to data limitations; financial aid offers are rarely observed in administrative datasets and thus are rarely available for students who did not persist. Nevertheless, it is important to consider how income volatility, and the financial aid volatility that may result, has changed over time.

A large and growing body of research suggests that income volatility (both upward and downward) has been increasing in recent years, especially toward the bottom of the income distribution. According to Jacobs (2007), nearly one in ten working-age households saw their income fall by more than half within a two-year period in the early 2000s, regardless of education level. This would likely have a substantial impact on a student's
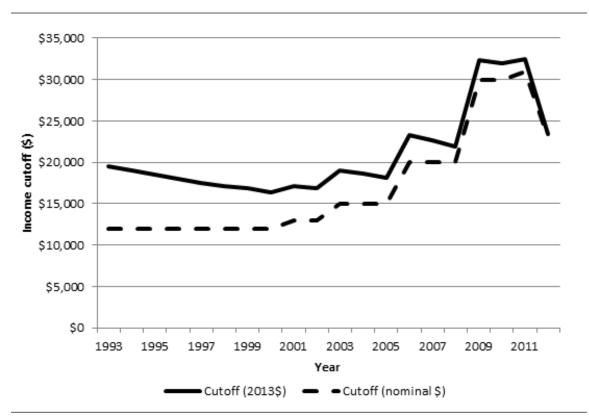
Figure 1. Income Cutoff for Automatic Zero EFC

Sources: Annual Federal Pell Grant end-of-year reports, U.S. Department of Education; EFC Formula Guide, U.S. Department of Education

financial aid eligibility. Kalil and Wightman (2011) used data from the Panel Study of Income Dynamics (PSID) to show that parental job loss, and the accompanying income drop, was associated with a 10 percentage-point decline in the probability of attending college, something that the federal financial aid system is designed to alleviate.

Dynan, Elmendorf, and Sichel (2007) used PSID data and found that the standard deviation of the percentage change in household income increased 25% since the 1970s, with larger changes toward the bottom of the income distribution. Gottschalk and Moffitt (2009) used PSID data to show growing volatility in household incomes since the 1980s, while Wagmiller and Smith (2012) demonstrated increased volatility among lower-income households with small children. The research examining the changes in men's wages only has generated some findings showing consistent volatility over time (e.g., Kopczuk, Saez, & Song, 2010) and others showing increased volatility, particularly during recessions (e.g., Shin & Solon, 2011).

A small portion of the financial aid literature has focused on how income volatility affects students' financial aid eligibility over a period of one or several years. Much of this research has been on the potential use of prior-prior year (PPY) income data for awarding financial aid, which would use data one year earlier than the prior year (PY) data used under current federal rules. The U.S. Department of Education's Advisory Committee on Student Financial Assistance (1997) compared 1996 income data (PY) to 1995 income data (PPY), and estimated that using PPY would significantly overstate or understate PY income for at least 45% of all FAFSA filers, with the average change in annual income for these students being at least $10,000 (Advisory Committee on Student Financial Assistance, 1997). An additional analysis of Department of Education data by Madzelan (1998) found that PPY income predicted current income with 82% accuracy, while PY income was only slightly more accurate in predicting current income (87%). However, large changes in income may not result in large changes in financial aid awards.

Other research has examined the impact of income volatility on Pell Grant awards. Heller (2006) estimated that 77% of seventh-graders eligible to receive free or reduced-price lunch (FRL) in 1987 were still eligible for FRL as eleventh-graders. He also examined a cohort of entering college students in 2003, finding that 80% of families who were FRL-eligible as eleventh-graders received the Pell Grant. Dynarski and Wiederspan (2012) compared PY tax data from 2007 to PPY data from 2006 from the National Postsecondary Student Aid Study, and found that 77% of continuing students would see a Pell Grant of within $500 of their current award under PPY. Finally, Kelchen and Jones (forthcoming) used the same dataset used in this study to compare Pell Grant awards resulting from PY and PPY. They found that about 75% of students would receive a Pell Grant of within $500 of their current award under PPY, with independent students without dependents facing more volatility than either dependent students or independent students with dependents.

While prior research on income volatility and year-to-year changes in financial aid awards has examined a larger group of students, this paper focuses on students with a zero EFC. Students whose incomes are sufficiently below the income threshold to receive a zero EFC may not be as susceptible to large changes in their financial aid packages due to income volatility. For example, a family's income may double from $10,000 to $20,000 per year, but the student would still qualify for a zero EFC because the income remains below the $24,000 cutoff for the automatic zero EFC.

Data and Methods

This study used both nationally representative data on U.S. college students from the National Postsecondary Student Aid Study (NPSAS) and the Beginning Postsecondary Students Longitudinal Study (BPS), and detailed student-level data on FAFSA elements from nine colleges and universities provided by individual institutions to the National Association of Student Financial Aid Administrators (NASFAA). Details about the datasets and analytic methods follow in this section.

Data and Sample

To explore national trends in the percentage of students with a zero EFC and the characteristics of these students, I used the five most recent waves of data from the National Postsecondary Student Aid Study (NPSAS). These surveys, conducted during the spring semesters of 1996, 2000, 2004, 2008, and 2012, were nationally representative of undergraduate students across different sectors of higher education. The NPSAS included measures of a student's EFC, dependency status, institutional sector and type, and basic demographic characteristics such as race, gender, age, and parental education. Sample sizes ranged from approximately 41,500 in 1996 to 113,500 in 2008.

First-time, first-year students in the NPSAS sample are automatically included in the Beginning Postsecondary Students Longitudinal Study (BPS), which tracks students over a six-year period. I used data from the 2004 BPS, which follows students who enrolled for the first time in the 2003-04 academic year through the spring of 2009. It is the most recent nationally representative data source that tracks students' Pell Grant awards, and thus their estimated EFCs, over a period of multiple years. The BPS sample includes approximately 16,500 students.

I conducted the primary analyses using student-level financial aid data from the 2007-08 through 2011-12 academic years provided to NASFAA by nine NASFAA-member institutions. These institutions included two public community colleges, five public doctoral-level universities, and two private four-year colleges. The demographic characteristics and graduation rates of these institutions appear in Table 1, along with a comparison to other institutions in those sectors using Integrated Postsecondary Education System (IPEDS) data. Although I selected the participating institutions due to data availability, they appear to be reasonably representative of their broader sectors.

Table 1. Summary Statistics: Percentage of Students in the Student-level Dataset, by Type of Institution and Student Characteristics

Institutions	Graduation Rate	Male	Full-Time	African American	Hispanic	Caucasian	Pell
Two-year public institutions							
College A	41	52	23	11	8	71	30
College B	14	39	36	15	3	61	18
Summary	19	41	33	14	4	63	20
Sector Total	22	43	41	14	15	54	25
Four-year public institutions							
College C	48	44	61	12	64	14	35
College D	74	48	92	8	3	75	19
College E	61	53	84	2	5	71	22
College F	76	57	98	4	3	74	10
College G	33	42	64	32	3	48	47
Summary	60	48	80	11	18	55	26
Sector Total	54	46	78	12	11	62	26
Four-year private institutions							
College H	72	37	84	4	4	80	26
College I	66	38	95	3	3	69	19
Summary	69	38	90	3	4	74	22
Sector Total	64	43	83	12	7	62	24

Source: Integrated Postsecondary Education Data System (IPEDS).
Notes:
(1) The "summary" and "sector total" rows are weighted by the number of students attending each college.
(2) The percent Pell figure is for 2008-09; all others are for 2009-10.
(3) Individual colleges' names are not presented in this paper.

Institutions provided up to five years of data for their students, with the data spanning the 2007-08 through 2011-12 academic years (tax years 2006-2010). This time frame bridged the peak of the Great Recession, allowing for comparisons before the economic downturn, during the height of the financial crisis, and after the worst of the recession had passed.

In order to be included in the student-level sample, students must have been enrolled and have filed the FAFSA at least once between the 2007-08 and 2011-12 academic years. They also must have had enough FAFSA elements present in order to calculate an EFC in each of the five years. Further, the student must not have received a professional judgment, which alters the student's original calculated EFC to reflect changes in family circumstances that would not be observed on the initial FAFSA application. These restrictions eliminated about 5% of the sample and resulted in a sample size of 152,874 students, of whom 68% were classified as dependent on their parent(s) for financial aid purposes, 18% were classified as independent without dependents, and 13% were classified as independent students with dependents.

Summary statistics of the student-level sample by dependency status, FAFSA filing status among zero-EFC students (automatic zero EFC, simplified FAFSA, or full FAFSA), and financial aid award during the first year observed appear in Table 2. The table divides students based on whether they had an EFC of zero, a nonzero EFC that qualified them for a Pell Grant ("Other Pell"), or an EFC that was too high to qualify them for a Pell Grant ("Non-Pell"). Among dependent students in the sample (Panel A), 18% had a zero EFC, 20% were receiving a Pell Grant without a zero EFC, and 62% were not receiving a Pell Grant. Eight in ten dependent students who did not receive a Pell Grant were Caucasian, compared to 42% of zero-EFC students and 63% of other Pell recipients. Only 45% of zero-EFC students had at least one parent who attended college, compared to 79% of non-Pell students. The income differentials by EFC status were striking, with an average parent household income of $16,327 for zero-EFC students compared to $118,547 for non-Pell students.

Among independent students without dependents (Panel B), 46% of students had a zero EFC, 28% qualified for a Pell Grant without a zero EFC, and 27% did not receive a Pell Grant. The racial/ethnic backgrounds and parental education level of students were roughly similar across the three EFC categories, although non-Pell students were more likely to be women. Student and spouse (where applicable) income averaged $3,589 for zero-EFC students compared to just over $40,000 for non-Pell students. Over two-thirds of independent students with dependents (Panel C) had a zero EFC, compared to 21% who were Pell-eligible with a positive EFC and only 11% who were not Pell recipients. About three in four independent students with dependents were females, and there was more racial/ethnic diversity among this group of students than the other dependency statuses. Fewer than half of the students had a parent who attended college, and the average household income among zero-EFC students was under $15,000.

Some important differences also appeared in demographic characteristics by FAFSA filing type among students who received a zero EFC (Table 2). Students who received a zero EFC through an automatic zero EFC (available only to dependent students and independent students with dependents) had the lowest household incomes among all zero-EFC students. Students who received a simplified EFC when the automatic zero EFC was not an option had household incomes more similar to nonzero EFC Pell recipients, suggesting that their EFCs might have been positive if assets had been taken into account. For example, the average parent income for dependent students with a zero EFC through the simplified calculation was $32,390, compared to $14,976 for automatic zero EFC recipients and $40,605 for nonzero EFC Pell recipients. Students who filed the full FAFSA and received a zero EFC were more similar to automatic zero-EFC students, which reflects the lack of household assets among these full FAFSA filers. Students who qualified for a simplified EFC may have some assets that would have resulted in a positive EFC if the formula considered those assets, but this cannot be verified because students who qualify for a simplified EFC calculation do not have to provide asset information.

Methods

I began by exploring the percentage of students who received a zero EFC across the five most recent cohorts in the NPSAS data, as well as the percentage of students with a zero EFC across a variety of institutional and demographic characteristics such as sector, race/ethnicity, gender, age, and parental education. I then used the most recent BPS cohort (first-year students in the 2003-04 academic year) to examine continued zero-EFC receipt and Pell eligibility among enrolled students through the 2008-09 academic year. Because EFCs are not included in the public-use BPS files, I considered any student who had a Pell award consistent with a zero EFC across different enrollment intensities to have a zero EFC based on enrollment intensity measures in the student-level dataset. For example, I considered any student in the BPS who had exactly half of the maximum Pell Grant to have had a zero EFC, as nearly all students who received half of the maximum Pell Grant in the student-level dataset were zero-EFC students enrolled half time.

I then described zero EFC students in the student-level dataset in a similar manner, starting with the percentage of students with each zero-EFC status (automatic zero, simplified calculation, or full calculation) by year and dependency status. The next step was to consider zero EFC and Pell receipt one and two years following the initial zero EFC by calculation status. Given sample size concerns within dependency status and zero-EFC calculation status cells, I did not explore trends in EFCs more than two years beyond the initial enrollment. For example, I followed students with a zero EFC in 2007-08 through 2009-10, but not 2010-11.

Table 2. Summary Statistics of the Student-level Sample

Panel A: Dependent students

Characteristic	Zero EFC	Auto Zero	Simplified	Full FAFSA	Other Pell	Non-Pell
Gender (% female)	58.8	59.4	57.9	53.9	53.8	50.8
Race/ethnicity (%)						
White	42.0	42.4	36.6	41.8	63.4	80.9
Black	36.7	37.3	32.0	33.3	15.8	6.7
Hispanic	7.2	6.6	14.0	8.3	6.1	3.5
Asian	11.0	10.5	14.0	13.8	11.6	6.4
Parent attended college (%)	45.4	45.1	42.4	50.1	58.2	79.0
Parent income ($)	16,327	14,976	32,390	17,870	40,605	118,547
Sample size	18,358	15,537	1,048	1,773	21,271	64,481

Panel B: Independent students without dependents

Characteristic	Zero EFC	Simplified	Full FAFSA	Other Pell	Non-Pell
Gender (% female)	46.6	46.6	46.9	52.7	59.3
Race/ethnicity (%)					
White	59.0	57.7	67.7	69.9	66.8
Black	26.6	28.0	17.2	19.3	23.6
Hispanic	4.4	4.3	5.0	4.1	3.9
Asian	7.0	7.0	7.1	4.2	3.4
Parent attended college (%)	54.7	54.1	58.3	56.7	52.8
Student/spouse income ($)	3,589	3,394	4,872	14,532	40,064
Sample size	12,931	11,225	1,706	7,769	7,471

Panel C: Independent students with dependents

Characteristic	Zero EFC	Auto Zero	Simplified	Full FAFSA	Other Pell	Non-Pell
Gender (% female)	78.1	78.9	74.5	74.6	73.1	72.6
Race/ethnicity (%)						
White	46.6	45.9	49.9	49.5	53.1	62.1
Black	42.9	43.9	38.1	38.8	35.6	27.6
Hispanic	5.0	4.9	6.2	5.1	5.9	5.3
Asian	3.0	2.8	3.2	4.1	2.4	3.1
Parent attended college (%)	46.4	46.8	44.7	45.1	45.3	45.5
Student/spouse income ($)	14,762	12,393	31,176	18,699	43,542	87,571
Sample size	13,912	11,157	1,173	1,582	4,395	2,286

Notes:
(1) All data are from the first year a student has an EFC (between 2007-08 and 2011-12).
(2) "Other Pell" refers to students who were eligible to receive a Pell Grant when first observed in the dataset, but had a nonzero EFC.

Limitations

The student-level dataset used in many of these analyses contains several limitations. My sample included nine institutions that generously provided EFC elements and a small set of demographic characteristics for their students who filed the FAFSA. While these institutions appeared to be broadly representative of their institutional sectors, it is unclear whether FAFSA filers at these institutions are similar to FAFSA filers throughout nonprofit higher education. The lack of any proprietary institutions in the dataset is a substantial limitation, particularly as it reduces the sample of independent students. Eliminating the small percentage of students who received professional judgments is necessary to achieve a sample in which FAFSA elements match the EFC, but doing so omits a group of students whose economic situations may be more complicated than they are for the typical student. Finally, I only observed students when they completed the FAFSA at the same institution within the 2007-08 through 2011-12 period, and data on any academic outcomes were not included in the dataset. This means that I cannot tell whether a student left the dataset due to graduation, transfer, dropout, or because he or she did not refile the FAFSA.

A substantial number of students would have qualified for a zero EFC if they had only completed the FAFSA; thus, the number of zero-EFC students is underestimated. Kantrowitz (2009) used the 2007-08 wave of the NPSAS to estimate that approximately 1.1 million students nationwide would have received a zero EFC if they had filed a FAFSA. Feeney and Heroff (2013) used data from Illinois to show that lower-EFC students were less likely than needy students with higher EFCs to file the FAFSA in time to meet financial aid deadlines. Bird and Castleman (2014) found that about 10% of first-year students receiving Pell Grants did not refile the FAFSA in the following year, but still re-enrolled in college. However, if efforts to simplify the FAFSA are successful, the percentage of low-income students not filing the FAFSA could decrease. An example is the IRS's Data Retrieval Tool, which allows students to transfer income tax information to the FAFSA and could increase the number of low-income students who file the FAFSA.

Results   The percentage of students who received a zero EFC has grown from approximately 18% in the late 1990s to nearly 38% in the 2011-12 academic year (Table 3). The percentage of dependent students with a zero EFC increased by nearly one-half between the 2007-08 and 2011-12 NPSAS waves (16% to 24%), while substantial increases in the percentages of independent students without dependents receiving a zero EFC occurred in both the 2007-08 and 2011-12 waves. The percentage of students with a zero EFC among independent students with dependents consistently ranged between 35% and 40% from 1995-96 through 2007-08 before spiking to 61% in 2011-12. Much of this change was likely due to the Great Recession, particularly because households receiving any federal means-tested benefits (such as food stamps) can qualify for the automatic zero EFC conditional on meeting the income threshold.

Table 3. Summary Statistics: Percentage of Students with a Zero EFC by Year, 1995-96 to 2011-12

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

Source: National Postsecondary Student Aid Study (NPSAS).
Notes:
(1) Parental education above high school in 1995-96 is classified in one "college and beyond" category (16.7 percent).
(2) Race/ethnicity classifications varied slightly over the period.

In the 1995-96 academic year, between 15% and 17% of students at community colleges and public and private 4-year colleges, received a zero EFC, but the percentage of zero-EFC students at community colleges began to diverge during the 2000s. By 2011-12, 41% of community college students had a zero EFC, compared to between 25% and 30% of four-year students. For-profit colleges have historically enrolled more zero-EFC students than their nonprofit peers, with that figure rising from 41% in 1995-1996 to 57% by 2011-12.

Substantial differences existed in zero-EFC receipt rates by student demographic characteristics. Women were between six and eight percentage points more likely than men to have a zero EFC, and Caucasian students were far less likely than any other racial/ethnic group to have a zero EFC. By 2011-12, 60% of African American students, 54% of Native American students, and 47% of Hispanic students had a zero EFC compared to 29% of Caucasian students. Students whose parents never attended college were at least two times more likely to have a zero EFC than students with at least one parent who had earned a bachelor's degree. However, even 23% of students who had at least one parent with a graduate degree still qualified for a zero EFC in 2011-12. Older students (age 25 or above) were more likely to have a zero EFC than younger students, particularly in more recent cohorts.

Table 4 details the zero-EFC status and Pell eligibility in subsequent years for first-year students from the BPS who had a zero EFC in the 2003-04 academic year. One year later, 34% received the maximum Pell Grant for their enrollment intensity (corresponding to a zero EFC), 33% earned a partial Pell Grant, and 33% did not qualify for a Pell Grant. The percentage of students who had a zero EFC in later years slowly declined, reaching 27% by the fourth year of college and 25% by the sixth year. Fewer than half of all students with a zero EFC in 2003-04 who were still enrolled in the 2008-09 academic year had an EFC corresponding with a Pell Grant in their sixth year of college.

Turning to the student-level dataset from the nine participating colleges and universities, Table 5 displays the percentage of students who received zero EFCs through the automatic zero determination, by completing a simplified FAFSA, or by completing the full FAFSA. The table also shows whether students who had a positive EFC but did not qualify for the maximum Pell Grant had completed the simplified or standard FAFSA. Dependent students with a zero EFC tended to receive automatic zero EFCs more often, with the rate rising from 72% in 2007-08 to 88% in 2011-12.

The rate of automatic zero EFC receipt among independent students with dependents remained consistently at around 80% in each year, except in 2009-10, when the rate dropped to 70%. About 85% of independent students without dependents (a group that cannot qualify for the automatic zero EFC) received a zero EFC through the simplified formula each year. The trend among other Pell-eligible students was to have a larger percent complete the full FAFSA over the five years, with rates in 2011-12 ranging from 23% for independent students without dependents to 79% for

Table 4. Percentage of 2003-04 Zero-EFC Students Who Received Pell Grants in Their Subsequent Years, by Year and Proportion of Pell Received

Pell amount (%)	2004-05	2005-06	2006-07	2007-08	2008-09
None	33.0	38.3	46.6	45.8	51.8
Partial	32.6	30.2	26.0	26.5	23.5
Full (zero EFC)	34.4	31.5	27.4	27.7	24.5

Source: Beginning Postsecondary Students (BPS) Longitudinal Study, 2003-04 cohort.
Notes:
(1) Pell amounts are conditional on enrollment in the listed year.
(2) EFC data are based on Pell award amounts. Students were assumed to have zero EFC if their Pell award was exactly 100% (full time), 75% (3/4 time), 50% (1/2 time) or 25% (less-than 1/2 time) of the maximum annual Pell award for the year. Because Pell awards are distributed in $100 increments, these values would not otherwise occur.
(3) Percentages may not add up to 100 due to rounding.

dependent students. The increase over time was likely due to increases in the maximum EFC that qualified for a Pell Grant, which went from $4,110 in 2007-08 to $5,273 in 2011-12. This resulted in 7.7% of all Pell Grant recipients nationally having a household income of over $50,000 in 2011-12, compared to just 3.7% in 2007-08 (U.S. Department of Education, 2013).

Table 6 shows the rates of continued zero EFC and/or Pell Grant receipt in the year after having received a zero EFC by dependency status and type of zero EFC received in the prior year. About 85% of dependent students with an automatic zero EFC received a zero EFC again in the following year (conditional on having refiled the FAFSA and remaining enrolled at the same institution), compared to about 55% of students with a zero EFC from a simplified FAFSA, and 65% from the full FAFSA. This compares to nearly 80% of dependent students with an automatic zero EFC who received an automatic zero EFC again in the following year, and smaller percentages of students who received a simplified EFC or filed the full FAFSA keeping the same status in the following year. There was a jump in continued zero-EFC receipt rates between 2008-09 and 2009-10 for students with a simplified zero EFC in the first year (58% to 77%), which is likely attributable to a change to the maximum income threshold for automatic zero-EFC receipt from $20,000 to $30,000 between these years.

Regardless of how the zero-EFC status was calculated, more than 95% of dependent students who initially received a zero EFC qualified for a Pell Grant the following year. This suggests a high level of stability in students' financial aid awards, even though household income could have substantially changed. These results differ substantially from those found using the nationally representative BPS sample, where only two-thirds of zero-EFC students in 2003-04 received a Pell Grant again the following year (Table 4).

Table 5. EFC Calculation Type by Dependency Status and Year

Calculation type (%)	2007-08	2008-09	2009-10	2010-11	2011-12
Dependent students					
Zero EFC					
Automatic zero	71.8	76.5	88.6	85.9	87.7
Simplified calculation	12.8	12.0	3.6	4.3	3.9
Standard calculation	15.4	11.5	7.8	9.9	8.5
Sample size	5,746	5,754	8,007	8,056	7,881
Other Pell-eligible					
Simplified calculation	30.7	33.0	27.6	20.6	20.8
Standard calculation	69.2	66.8	72.3	79.3	79.1
Sample size	8,428	7,574	7,447	9,411	8,605
Independent students without dependents					
Zero EFC					
Simplified calculation	85.6	87.2	88.3	86.8	86.6
Standard calculation	14.4	12.8	11.7	13.2	13.4
Sample size	3,134	2,969	3,814	4,974	5,562
Other Pell-eligible					
Simplified calculation	81.3	80.7	82.0	75.7	76.8
Standard calculation	18.7	19.3	18.0	24.3	23.2
Sample size	2,488	2,334	2,378	2,532	2,434
Independent students with dependents					
Zero EFC					
Automatic zero	81.1	81.5	69.7	80.9	83.6
Simplified calculation	5.8	7.6	19.8	6.3	6.4
Standard calculation	13.1	10.9	10.6	12.8	9.9
Sample size	3,171	3,102	4,691	5,596	6,225
Other Pell-eligible					
Simplified calculation	65.1	59.5	49.2	43.4	35.9
Standard calculation	34.8	40.4	50.6	56.4	64.0
Sample size	1,664	1,724	1,495	1,413	1,319

Note: Independent students without dependents (other than a spouse) are not eligible for an automatic zero EFC under federal program rules.

This could be a function of how the income thresholds for zero-EFC and Pell eligibility have changed over the past decade, or it could be due to differences in student or institutional characteristics, but it cannot be tested directly using these data.

Independent students with dependents became more likely to retain a zero EFC in the following year throughout the panel, with continued zero-EFC rates rising from 77% to 89% for those who qualified for the simplified calculation, and 68% to 83% of students with the full FAFSA determining their zero EFC. The zero-EFC renewal rates also rose across each calculation status among independent students with dependents, reaching 97% for automatic zero-EFC students, 86% for those with the simplified calculation, and 88% among those with the full calculation in 2011-12. At least 90% of independent students, regardless of year or zero-EFC calculation type, received a Pell Grant again the next year. About 90% of independent students without dependents who used simplified FAFSAs, and independent students with dependents with automatic zero EFCs kept those statuses in the following year. Students who filed the full FAFSA showed much more variability in the type of FAFSA filed the following year (results available upon request).

I then explored zero-EFC and Pell stability two years after the student received a zero EFC (Table 7). The zero-EFC renewal rates are generally quite high across dependency statuses and zero-EFC calculation types; for example, 85% of dependent students who received an automatic zero EFC in 2007-08 maintained a zero EFC in 2009-10. However, only 44% of dependent students who qualified for a zero EFC via the simplified calculation in 2009-10 and 54% of dependent students who qualified via the full FAFSA received an automatic zero EFC in 2011-12. This change is likely a result of the income threshold for receiving an automatic zero EFC, falling from $30,000 in 2009-10 to $20,000 in 2011-12. More than 95% of these students still received a Pell Grant in 2011-12, suggesting their EFCs are still relatively low. Among independent students without dependents, about 80% with a simplified zero EFC received a zero EFC two years later, compared to about 75% of students who completed the standard FAFSA. Over 90% of independent students with dependents typically qualified for a zero EFC two years later, and nearly all independent students with a zero EFC qualified for a Pell Grant two years later.

Conclusions

Students with an EFC of zero have the greatest financial need among low-income families, but this is a heterogeneous group that has been rapidly expanding over the past fifteen years to include more than one in three undergraduate students. In this paper, I described the trends in zero-EFC receipt over time and across different student and institutional characteristics. I then used the way the zero EFC was calculated (automatic zero, simplified FAFSA, or full FAFSA) to examine both financial need and Pell Grant volatility by subgroups of students. Automatic zero-EFC students tended to have the lowest family incomes among zero-EFC students, followed by students who received a zero EFC by filing the full FAFSA and then students who received a simplified zero EFC by not having to complete asset portions of the FAFSA. Over 80% of zero-EFC students

Table 6. Percentage of Zero EFCs Received in the Subsequent Year by Students Who Received Zero EFCs in their First Year, by Year and Dependency Status

Zero-EFC type in previous year	2008-09	2009-10	2010-11	2011-12
Dependent students				
Zero-EFC receipt				
Automatic zero EFC	83.3	90.5	82.2	83.9
Simplified calculation	58.3	77.2	57.1	55.1
Standard calculation	64.9	67.2	60.0	60.0
Pell receipt				
Automatic zero EFC	96.4	98.4	98.1	98.5
Simplified calculation	95.5	98.2	97.4	98.0
Standard calculation	92.9	96.8	98.2	97.2
Sample size	3,370	3,571	4,829	3,747
Independent students without dependents				
Zero-EFC receipt				
Simplified calculation	77.1	83.0	87.7	89.2
Standard calculation	67.8	75.0	75.1	82.8
Pell receipt				
Simplified calculation	95.8	96.7	98.7	98.9
Standard calculation	89.6	91.5	97.0	97.8
Sample size	1,348	1,295	1,792	2,270
Independent students with dependents				
Zero-EFC receipt				
Automatic zero EFC	87.4	95.8	97.8	97.3
Simplified calculation	70.1	85.8	92.2	86.3
Standard calculation	82.2	93.2	87.4	88.4
Pell receipt				
Automatic zero EFC	98.8	99.5	99.8	99.9
Simplified calculation	98.9	98.5	99.6	97.8
Standard calculation	96.4	98.8	98.6	100.0
Sample size	1,509	1,520	2,210	2,824

Notes:
(1) Independent students without dependents (other than a spouse) are not eligible for an automatic zero EFC under federal program rules.
(2) All calculations are based on the prior year's zero EFC. For example, when 2008-09 is listed as the year, the base year is a 2007-08 zero EFC.

Table 7. Percentage of Zero EFCs Received by Students Who Qualified for Zero EFCs Two Years Prior, by Year and Dependency Status

Zero-EFC type, two years prior	2009-10	2010-11	2011-12
Dependent students			
Zero-EFC receipt			
Automatic zero EFC	85.2	84.9	78.0
Simplified calculation	68.6	70.7	43.9
Standard calculation	69.4	60.3	54.1
Pell receipt			
Automatic zero EFC	96.9	98.2	97.7
Simplified calculation	95.3	97.9	95.9
Standard calculation	94.3	95.7	95.6
Sample size	2,351	2,212	2,879
Independent students without dependents			
Zero-EFC receipt			
Simplified calculation	78.8	82.8	86.2
Standard calculation	61.2	74.4	80.8
Pell receipt			
Simplified calculation	93.3	95.9	97.3
Standard calculation	86.7	88.4	96.0
Sample size	663	725	952
Independent students with dependents			
Zero-EFC receipt			
Automatic zero EFC	92.1	96.4	97.8
Simplified calculation	93.9	93.8	90.8
Standard calculation	83.1	96.0	85.5
Pell receipt			
Automatic zero EFC	98.7	100.0	100.0
Simplified calculation	100.0	98.8	99.7
Standard calculation	98.3	99.0	98.6
Sample size	874	926	1,305

Notes:
(1) Independent students without dependents (other than a spouse) are not eligible for an automatic zero EFC under federal program rules.
(2) All calculations are based on the zero EFC from two years prior. For example, when 2009-10 is listed as the year, the base year is a 2007-08 zero EFC.

maintained a zero EFC in the following year, and nearly all students who received a zero EFC in their first year continued receiving Pell Grants from year to year, suggesting that although household incomes may change, financial need, as measured by the EFC, does not.

Zero-EFC students should be a group of particular interest for policymakers and institutions alike, as they lack resources to pay for college and are consistently increasing in number (U.S. Department of Education, 2013). But, since differences in household income exist across the three ways that zero EFCs can be assigned, when resources are limited it might be worth considering aid allocation strategies that offer greater assistance to students with automatic zero EFCs over students whose zero EFC resulted from a simplified or full FAFSA. This is particularly relevant for financial aid offices, as the unmet need of the neediest students is often far in excess of institutional financial aid budgets. An example of this would be the Federal Supplemental Educational Opportunity Grant (FSEOG), which is funded by the federal government and allocated to campuses, where it is awarded to individual students with exceptional financial need. If FSEOG funds are insufficient to award to all Pell recipients or zero-EFC students, institutions could prioritize funds for automatic zero-EFC students.

Because the federal formulas artificially truncate the distribution of EFCs at zero, financial aid may not be targeted toward students with the greatest financial need (e.g., McSwaim, 2008). As a result, some researchers and advocates have called for the creation of a negative EFC (Center for Law and Social Policy, 2013; Goldrick-Rab, 2014; Kornfeld & Kantrowitz, 2007; McSwain, 2008) to better target additional financial aid to the neediest students by fully ranking students by financial need. Senator Edward Kennedy introduced the Strengthening Student Aid for All Act (2008) to incorporate a negative EFC of up to $750 into the federal needs analysis, but the bill was never advanced out of committee due to cost concerns.

Although negative EFCs have the potential to better reflect students' financial need, several concerns need to be addressed. The first concern is that negative EFCs can be larger for students who file the full FAFSA than for students with a zero EFC resulting from an automatic zero or the simplified FAFSA, even though students with automatic zero EFCs have the lowest household incomes. This occurs because allowing the EFC calculation formula to become negative allows asset contributions to be negative for students who file the full FAFSA, while other students do not enter any asset information and hence get a zero in this section. In future work, I will explore different specifications to calculate negative EFCs, as well as different caps for the lowest possible EFC. I will also consider the potential costs of allowing negative EFCs to the Federal Pell Grant program, and how reducing the maximum EFC that qualifies to receive a Pell Grant may offset these costs.

The consistency of Pell awards for zero-EFC students suggests that policymakers and lawmakers should strongly consider policies designed to reduce the financial aid filing burden for the neediest students. One

example would be using "prior-prior year" (PPY) financial data to determine Pell eligibility, which would use data from the previous tax year to complete the FAFSA and would allow students and their families to receive Pell notification up to one year earlier than is possible under current rules (Kelchen & Jones, forthcoming). Another possibility would be exempting zero-EFC students from refiling the FAFSA, reducing the burden on students and postsecondary institutions without significantly increasing program costs.

Nexus: Putting Research Into Practice

- Because differences in household income exist in how zero EFCs can be assigned, institutions may wish to consider allocation strategies that offer greater assistance to students with automatic zero EFCs over students with zero EFCs resulting from a simplified or full FAFSA.

- Allowing for negative EFCs may better reflect students' financial needs; however strategies are needed to ensure that those who qualify for an automatic zero EFC are not considered less needy than those who filed the full or simplified FAFSA.

- Students who have a zero EFC in one year are likely to have a zero EFC again the next year, and nearly all zero-EFC students qualify for a Pell Grant the following year. This suggests that using "prior-prior year" or allowing students to file the FAFSA once while in college may be feasible policy options. In particular, exempting zero-EFC students from refiling the FAFSA may reduce burden on students and postsecondary institutions without significantly increasing program costs.

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