

Exploring Trends and Alternative Allocation Strategies for Campus-Based Financial Aid Programs

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Abstract: Two federal campus-based financial aid programs, the Supplemental Educational Opportunity Grant (SEOG) and the Federal Work-Study program (FWS), combine to provide nearly \$2 billion in funding to students with financial need. However, the allocation formulas have changed little since 1965, resulting in community colleges and newer institutions getting much smaller awards than longstanding private colleges with high costs of attendance. I document the trends in campus-level allocations over the past two decades and explore several different methods to reallocate funds based on current financial need while limiting the influence of high-tuition colleges. I show that allocation formulas that count a modest amount of tuition toward financial need reallocate aid away from private nonprofit colleges and toward public colleges and universities.

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The majority of federal financial aid dollars are disbursed through a voucher system (e.g., Goldrick-Rab, Schudde, & Stampen, forthcoming). Pell Grants and student loans, among other types of aid, are given directly to students; they can then take those funds and use them at any of the over 7,000 institutions that participate in the federal government's Title IV student aid program. These programs are large, with the Pell Grant disbursing over \$32 billion and students taking out over \$100 billion in federal loans in the 2012-13 award year (Baum & Payea, 2013).

But there are two important types of federal financial aid that are distributed to colleges and universities instead of directly to students.² Institutions then allocate the funds to students with remaining financial need. The Federal Work-Study Program (FWS) allocates over \$900 million per year to institutions, which then provide 25% of program funds to help fund on-campus or off-campus public service employment (Federal Student Aid, 2013a).³ The Supplemental Educational Opportunity Grant (SEOG) allocates nearly \$700 million per year to institutions, which also provide 25% of total program funds. Institutions must allocate SEOG funds to students with the greatest financial need, as estimated by students' expected family contribution (EFC) and Pell Grant eligibility. While federal allocations for FWS and SEOG are equivalent to 5% of total Pell Grant allocations, they can represent an important additional funding source for needy students attending participating institutions.

Institutions are allocated funding for campus-based aid based on two formulas specified in the Higher Education Act (HEA) of 1965 and slightly altered through its various reauthorizations. This funding is provided using a "base guarantee" that provides institutions with roughly the same funding it got the previous year and a "fair share" allowance that divides

² Although the Perkins Loan program is a campus-based aid program, it is not examined in this paper due to its small size and uncertain future.

³ Colleges have to provide 50% of total work-study funds for students who work in private for-profit businesses, and may be exempt from providing a match under certain circumstances.

any remaining program funds across institutions based on unmet financial need (Higher Education Act of 1965, 2013). This general arrangement is little changed since 1979. The most recent changes tie aid to FY 1999 allocations, which were then tied to FY 1985 allocations (Huff, 2004).

Both the base guarantee and the fair share allowance disproportionately benefit high-cost institutions (Smole, 2005). Although language in HEA authorizations sought to tie allocations based on unmet need rather than historical participation, the base guarantee is still prominent (Huff, 2004). The continuity of the base guarantee means that colleges that initially participated in campus-based programs still get the majority of funds, regardless of whether their students have the greatest amount of need. The fair share allowance provides some funds to institutions not eligible for the base guarantee, but the allocation based on unmet need rewards colleges with high sticker prices and high levels of unmet student need. It also results in students from middle-income families at more expensive institutions receiving more campus-based aid than very low-income students at community colleges (Scott-Clayton, 2011a; Smole, 2005).

Table 1 shows the distribution of campus-based aid programs by institutional type (2-year public, 4-year public, 4-year private, and for-profit) in the 2011-12 award year. Although only 12% of students receiving Pell Grants nationally attended private four-year institutions that year, these institutions received 35% of SEOG funds and 44% of work-study funds. Students at public four-year colleges received SEOG and work-study funds at rates roughly proportional to their Pell awards, but students attending community colleges or proprietary institutions were far less likely to receive campus-based aid than a Pell Grant. Community college students received 37% of all Pell Grants in 2011-12, yet only received about 15% of campus-based funds. The dollar value of SEOG awards also varied by sector; the average SEOG for recipients at private four-

year colleges was \$1011, \$300 more than at public four-year colleges and \$600 more than at community colleges.

[Insert Table 1 here]

The current allocation strategy has led for calls to change the formula to favor colleges with more low-income students (Marcus, 2014; Merisotis, 2011; Scott-Clayton, 2011b). But unless funding for these programs increases significantly, some colleges will have to lose funds for others to gain. Well-resourced public and private institutions that benefit from the current allocation system have already shown their willingness to oppose any changes (e.g, Burd, 2003); in fact, an effort in the early 2000s to alter the allocation formula was unable to gain sufficient support in the U.S. House of Representatives in the face of an intense lobbying campaign. For example, a letter issued by the Association of American Universities noted that low-income students at some colleges would lose aid as a result of any changes, although others would benefit (Hasselmo, 2004).

Only one study has documented the current allocation of campus-based funds to individual institutions and how those allocations compare to student need. Smole (2005) used data from the 2004-05 award year to show that high-cost institutions receive a disproportionately large share of campus-based aid and that basing all allocations on the fair share formula would result in a slightly more equitable distribution of funds relative to student need. However, this work did not examine the implications of restricting the amount of tuition and fees that count toward the need allocation formula—an important consideration in the aid allocation process.

In this study, I use campus-level aid allocations from the 1991-92 to 2013-14 award years from the U.S. Department of Education merged with institutional data from the Integrated Postsecondary Education Data System (IPEDS) to answer the following research questions:

(1) How are campus-based aid funds currently allocated? How do these funds correlate with measures such as prior allocations, institutional resources, the percentage of students receiving Pell Grants, graduation rates, and selectivity?

(2) How much have FWS and SEOG allocations changed by institutional sector over the period of study?

(3) How would campus-based aid awards change if the allocation formula limited the influence of tuition and fees in the unmet need calculation?

Campus-Based Aid Programs: Allocations and Effectiveness

In order to better understand the objections raised to campus-based aid programs as currently constituted, it is important to discuss exactly how the FWS and SEOG formulas work. In this section, I discuss the historical and current allocation processes for these programs as well as examine evidence regarding the effectiveness of these two programs in increasing student success rates.

Historical and Current Allocation Processes

At the inception of campus-based aid programs, allocations were given to individual states; allocations to individual colleges were determined by a panel of college presidents and financial aid administrators. Colleges were asked to provide basic information about the cost of attendance, available financial need, and an estimate of student ability to pay. The panels then

distributed aid to colleges within states (Huff, 2004). SEOG allocations were primarily based on enrollment instead of financial need (Sandler, 1981), while FWS took enrollment and need into account. But as demand for the aid programs grew, concerns were raised about the allocation process as some savvy, well-resourced institutions would routinely inflate their estimated need. This allowed colleges to meet actual need, even if only a percentage of the request was granted (Comptroller General of the United States, 1974).

Dissatisfaction with the existing aid allocation system led Congress to change procedures for SEOG allocation in the 1980 reauthorization of the Higher Education Act (HEA). This act created a conditional guarantee of state funding, defined as a percentage of the fiscal year 1979 allocation, which would be reduced to 20% as program funding increased over time (Huff, 2004). This formula change had little effect in addressing inequities, as funding during the period increased and private colleges gained a disproportionately large share of these new funds (McCormick, 1980). A set of technical amendments passed in 1982 reversed the 1980 amendment by fixing the ratio of state-level appropriations for both SEOG and FWS at 1981 levels.

The modern allocation of campus-based aid funds came through the 1986 HEA reauthorization. This legislation created a base guarantee using institutional allocations in fiscal year 1985, which guaranteed institutions at least 90 percent of that allocation going forward. Any additional funding was split between a “fair share” allowance of institutional need (75%) and that institution’s share of total funds (25%). The 1988 HEA reauthorization changed the baseline to the 1999-2000 award year, and also changed the fair share allowance to be entirely based on institutional need.

The U.S. Department of Education currently maintains two sets of allocation rules for institutions, based on whether they participated in FWS or SEOG during the 1999-2000 award year or joined after that time. The guidelines for the 2011-12 award year specify a base guarantee for institutions participating in 1999-2000 of its base guarantee and fair share increase from that year. Institutions that joined after 1999-2000 have a base guarantee of 90% of the funds received in their second year of participation; awards in the first two years are based on per-student aid at comparable institutions (Federal Student Aid, 2011). However, since the request of new base guarantees is rarely fully funded, institutions that initially participated after 1999 (or even 1985) see a full base guarantee. Federal allocations for work-study reached their high in 2001 and fell after that, while SEOG allocations peaked in 2005 before slowly falling (Miller, 2013).

If any additional funds remain after the base guarantees have been fulfilled, they are awarded through the fair share process. Fair shares are determined by calculating a measure of financial need of the students at the program using a combination of a measure of the cost of attendance, student expected family contributions, and other federal grant awards (Federal Student Aid, 2011).⁴ This measure of financial need is then compared to the total amount of financial need at all participating institutions. Fair share increases are then granted based on the percentage of the nation's total financial need any particular institution has after taking the base guarantee into account.

Effectiveness of Campus-Based Aid Programs

⁴ I will discuss the exact formulas later in the paper.

A relatively small body of literature has examined the effectiveness of federal work-study programs in encouraging student persistence and completion. A review of the literature by Hossler, Ziskin, Gross, Kim, and Cekic (2009) showed a mix of null to positive effects of work-study programs on student persistence. For example, among studies using regression techniques with national datasets, Alon (2005) found a statistically significant positive relationship between work-study aid and graduation, while Dowd and Coury (2006) estimated null effects among community college students. The only quasi-experimental study to examine FWS is by Scott-Clayton (2011a), who used data from West Virginia public colleges and universities to conclude that increased per-student work-study allocations and work-study participation improved academic outcomes for men, but worsened academic outcomes for women.

There do not appear to be any empirical studies examining the effects of the SEOG program. This may be the case for several reasons. First, SEOG and Pell receipt are intertwined as nearly all SEOG recipients are also Pell recipients. Additionally, many studies have combined all types of need-based grant aid into one category because the effects of an additional Pell dollar are likely to be the same as an additional SEOG dollar. However, the causal impact of SEOG could be identified by looking at variation in SEOG funds across institutions among students with the same Pell eligibility. Chen (2008) urged the importance of separating types of aid into their separate components whenever possible, which would advance the body of research on the impacts of financial aid.

Data, Sample, and Methods

To explore trends in campus-based aid allocations and the implications of possible changes, I used over 20 years of data on FWS and SEOG allocations at degree-granting postsecondary institutions. I then modeled some alternative methods of aid allocation.

Data

I used institutional-level data on campus-based financial aid program participation made available by the United States Department of Education. This dataset included the amount of FWS and SEOG funds for each aid year from 1991-92 through 2013-14, with the caveat that SEOG data for the 1992-93 aid year are missing. I then created measures of receipt by year, as well as the first year in which an institution received funds. The award values were adjusted for inflation to 2011 dollars using the Consumer Price Index.

The dataset of federal campus-based aid participation and inflation-adjusted awards was then merged with characteristics from the Integrated Postsecondary Education Data System (IPEDS) through the 2011-12 award year, including institutional level and control, size, race/ethnicity and gender, graduation rates within 150% of normal time (three years for two-year programs and six years for four-year programs) for first-time, full-time students, measures of a typical student's financial aid award and cost of attendance, and whether an institution was active in each year of the panel. For four-year institutions, I also used median ACT/SAT scores, the percentage of students admitted, and an institution's selectivity rating from *Barron's*.⁵

Sample

The starting point for my sample was all institutions in the United States participating in the federal Title IV aid programs in the 2011-12 award year. I then limited the sample to non-specialty, degree-granting institutions serving undergraduate students using Carnegie basic and undergraduate classifications, as their missions may affect how federal work-study funding is

⁵ I used the median score for the ACT composite and SAT math and verbal scores; this was calculated by taking the average of the 25th and 75th percentiles. SAT scores were transformed into their ACT equivalents using the concordance guide from ACT, Inc. (2008).

used.⁶ This results in a sample of 3,798 institutions. Because the campus-based aid data combines awards for certain branch campuses (such as the University of Phoenix or Pennsylvania State University campuses), I assumed that all branch campuses received FWS and/or SEOG funds if the main campus did and that funds are equally allocated on a per-student basis across campuses.⁷ After making that correction, 3,486 of the 3,798 institutions in the sample had access to campus-based aid funds in the 2011-12 award year. Table 2 contains the summary statistics of the sample by campus-based aid program participation.

[Insert Table 2 here]

The average institution that received any campus-based aid funds received approximately \$62 in FWS funds per student (undergraduate and graduate) and \$70 per undergraduate in SEOG funds in the 2011-12 award year, which is a relatively small sum of money. But the average participating institution received nearly \$450,000 in campus-based funds, and this can be more than some public colleges award in institutional grant aid. For example, eight of the 11 non-research universities in the University of Wisconsin System received FWS and SEOG allocations of at least 80% of their institutional grant aid allocations; at four of the universities, the campus-based aid allocation was over 125% of institutional grant aid (University of Wisconsin System, 2013).

Institutions participating in campus-based aid programs were far more likely to be four-year and public or private nonprofit institutions than for-profit colleges. While for-profit institutions made up only 27% of institutions participating in campus-based aid programs, they comprised 64% of nonparticipating institutions. The typical college participating in FWS or

⁶ I eliminated colleges with basic Carnegie classifications of 24 or higher, including theological seminaries, medical schools, and other special-focus institutions.

⁷ For more details on the matching process for branch campuses, see the Technical Appendix.

SEOG was more likely to have a higher percentage of white and male students than those not participating. Although the average net price of attendance for low-income students was over \$3,000 higher at non-participating colleges, these institutions served a higher percentage of students receiving Pell Grants, more of their students took out loans, and they had much smaller endowments per student than participating colleges. Graduation rates at nonparticipating institutions were on average higher than the rates at participating institutions, but this is likely a function of nonparticipating colleges offering short-term certificate programs that are completed at higher rates than associate's degrees (e.g., Calcagno, Bailey, Jenkins, Kienzl, & Leinbach, 2006).

The bottom of Table 2 includes a measure for whether an institution was active (open) in 2001, 1991, and 1986, as both FWS and SEOG allocations are based in part on the previous year's allocation.⁸ Nearly 80% of colleges participating in campus-based aid programs in the 2011-12 award year were active in fall 1986, compared to just 44% of colleges that were not participating in 2011-12. Nearly four in ten colleges not receiving campus-based aid in 2011-12 were not even open ten years prior.

Methods

I began by examining trends in campus-based aid receipt by sector and year. I began with a series of simple correlations between each of the institution-level measures (as listed in Table 2) and the amount of SEOG and work-study funding per student. I then predicted work-study funds per student (undergraduate and graduate) and SEOG funds per undergraduate by using a series of blocked ordinary least squares regressions. Model (1) included controls for or inflation-

⁸ IPEDS data go back as far as fall 1980, but 1,355 colleges (mostly for-profit institutions and community colleges) first appeared in 1986. As a result, I consider 1986 the first year with reliable data on an institution's active status.

adjusted per-student funds received in these years as well as whether the college was active in 1986. Model (2) added measures for institutional sector, size, and student characteristics. Finally, Model (3) added measures for net price, the percentage of students who received Pell Grants or student loans, and per-student endowment.

The next step was to explore different ways to allocate the campus-based aid programs in comparison to the current system of base guarantees and fair share allocations. Both SEOG and FWS use award data from two years prior, so I used data from the 2011-12 award year to estimate awards from 2013-14. My sample included 3,477 institutions with data on three key measures: the number of students enrolled, the number and value of Pell Grant awards, and tuition and fees. This excluded 321 colleges that were active in 2011 but did not have data on these three measures; the majority of these are small proprietary institutions. Colleges that did not participate in campus-based aid programs in 2011-12 were included in the analytic sample, although excluding them does not substantially affect the result. Institutions in this sample received \$622 million of the \$696 million in federal SEOG allocations in the 2013-14 award year, and \$829 million of the \$920 million in FWS allocations. I estimated aid allocations within the pool awarded by these colleges. I started by allocating all SEOG and FWS funds by the number of undergraduate students receiving Pell Grants, as well as the dollar value of awards received, before considering allocation strategies based in part on the current fair share formulas.

Estimating alternative SEOG allocations. I began by estimating SEOG allocations for the 2011-12 award year using a system of fair share allocations. For the SEOG, these are calculated using a combination of cost of attendance, expected family contribution, and receipt of other federal need-based grants. Institutions with typical (9-month) allocation calendars have

the following formula to determine total student need within each income category of students by dependency status j using data from two award years prior (Federal Student Aid, 2013b):⁹

$$Need_j = .75COA_j - Pell_j - EFC_j, \quad (1)$$

where COA represents the cost of attendance (calculated as tuition and fees plus \$10,575 in living allowances), $Pell$ includes the value of Pell grants received by students, and EFC is a measure of a student's ability to pay. Notably, EFCs do not directly come from a student's FAFSA; rather, they are estimated by income brackets (Federal Student Aid, 2012). If the estimated need is negative, it is truncated to zero. A college's allocation is then determined by its share of need compared to all other colleges in the sample. For example, if a college has \$10 million in student need out of a total of \$1 billion in total need, it would get one percent of all available funds.

Because IPEDS data does not have all of these measures exactly as specified in the need calculation formula, I made some simplifying assumptions. First, I used tuition and fees for in-state students, which could understate the formula's estimated need when out-of-state students are taken into account. Finally, to estimate EFCs, I assign all Pell recipients an EFC corresponding to zero income (\$202) and all non-Pell recipients the listed EFC of dependent students with household incomes of \$60,000 or more (\$22,839). While independent students with higher incomes have a maximum EFC of \$5,077, dependency statuses are not available in IPEDS data. This assumption is less problematic, however, because independent students are more likely to receive Pell Grants than dependent students.

⁹ For another explanation of the fair share allocation formulas, see Smole (2005).

I next considered alternative fair share allocation techniques that change the extent to which the cost of attendance factored into aid allocations. Under current rules, colleges with higher tuition and fees are eligible for larger SEOG fair share allocations. I considered three different cutoffs for tuition and fees, using the 25th, 50th, and 75th percentile separately considered for two-year and four-year institutions. At two-year institutions, the cutoffs were \$2,744, \$4,527, and \$13,430 for the 25th, 50th, and 75th percentile of tuition and fees, while the corresponding four-year cutoffs were \$8,698, \$16,633, and \$26,704.¹⁰ Other than changing the allowed cost of attendance, formula (1) was unchanged for these analyses.

Estimating alternative FWS allocations. The first alternative FWS allocation explored the distributional impacts of a change to fair share allocations. Because FWS is available for both undergraduate and graduate students, two formulas are necessary to determine fair share allocations for college j . Both of these use the cost of attendance (as calculated before) and estimated EFCs:

$$UGNeed_j = \min(.25COA_j, COA_j - EFC_j) \quad (2a)$$

$$GradNeed_j = COA_j - EFC_j \quad (2b)$$

The two estimated need amounts are then added together to determine a college's need; an institution then receives a percentage of available funds based on its need compared to all other colleges. EFCs for undergraduate students are estimated in the same way as in the SEOG allocation, but little guidance exists about the proper EFC estimates for graduate students due to a lack of available data. As a rough estimate, I assigned half of all graduate students an EFC corresponding to zero income (\$145) and the other half the largest possible EFC for graduate

¹⁰ An argument could be made to not make a distinction by institutional level in tuition and fee allowances, but such a distinction would likely be considered in public policy reforms. Hence, I consider it here as well.

students (\$11,068) (Federal Student Aid, 2012).¹¹ Like the SEOG fair share formula, the FWS formula also awards more money to colleges with higher tuition and fees. Therefore, I estimated alternative models that capped tuition and fees at the 25th, 50th, and 75th percentile by sector (two-year and four-year) for undergraduate students and separately for graduate students.

The next set of allocation scenarios considered limiting work-study aid to the fair share need of undergraduate students only instead of combining undergraduate and graduate students. Graduate students currently receive about ten percent of all FWS funds (Miller, 2013), but their full cost of attendance is included in an institution's fair share formula. Eliminating the influence of high-cost graduate programs would result in more funds being allocated to undergraduate-only institutions, and my scenarios will consider the effects of limiting undergraduate tuition and fees at the 25th, 50th, and 75th percentiles.

Limitations

The most substantial limitation of this work is that not all Title IV institutions may want to participate in campus-based aid programs. Both FWS and SEOG generally require institutional matching funds, which may cause some colleges to decline participation. Other colleges may choose not to participate because the small amount of available fair share funds may not be worth the perceived costs of applying with federal regulations. For this reason, I allocate FWS and SEOG funds to all institutions in my alternative specifications, regardless of whether the college currently participates. This likely has the effect of awarding FWS funds to some institutions that primarily offer online programs and thus would be less likely to participate in the program. The potential result is a slight overestimation of FWS funds going to the for-profit sector.

¹¹ Any suggestions for a different allocation of graduate EFCs would be greatly appreciated.

Data on campus-based aid allocations only go back through 1991 and reliable data on an institution's active status are available starting in 1986. Both of these dates are after the change from a strict state-based formula, and hence I cannot compare allocations before and after the changes in the early 1980s. These allocations also may not necessarily reflect the actual awards received by students, as some colleges do not use all funds in a given year and nearly all colleges are required to provide matching funds to students. As a result, actual awards to students are likely larger than the federal allocations. Finally, campus-level aid allocations are estimated for colleges that are a part of a larger system where data are reported at the system level, which includes 1,076 colleges in the analytic sample. I assume that per-student allocations are the same across each branch campus, which likely underestimates the actual amount of variation across branch campuses. This could affect the regressions predicting per-student aid, but does not substantially affect allocations by institutional sector.

Results

I first show the trends in campus-based aid funds by year and sector before exploring factors associated with per-student SEOG and FWS funding. Finally, I consider a series of alternative allocation strategies and their implications for funding.

Descriptive results

The two panels of Figure 1 shows the trends in the percentage of FWS and SEOG funding received by sector (two-year public, four-year public, four-year private, and for-profit) from 1991 to 2013 for degree-granting institutions active in 2011. FWS allocations by sector have been relatively consistent over time, with community colleges and for-profits seeing small

increases (17% to 20% and 1% to 5%, respectively) private four-year colleges staying steady around 37%, and public four-year colleges slowly falling from 44% to 37%.

[Insert Figure 1 here]

SEOG allocations by sector changed more between 1991 and 2013 as enrollment grew at community colleges and for-profit institutions relative to the traditional four-year sector. The percent of SEOG funds rose for community colleges from 16% to 26% in this period, while SEOG funding to for-profits increased from 3% to 11%. At the same time, four-year public colleges' share of SEOG funds fell from 38% to 31% and private four-year colleges saw their share decline from 42% to 31%. It is worth noting that while the allocations changed by sector over time, community colleges still receive smaller shares and four-year private colleges receive larger shares of both FWS and SEOG funds than their share of total enrollment.

The two panels of Figure 2 shows the inflation-adjusted amount of per-student work-study and SEOG allocations from 1991 to 2011 for selected percentiles (10th, 25th, 50th, 75th, and 90th). The median institution active in 1991 received \$48 per student (in 2011 dollars) in work-study funds and \$45 per undergraduate in SEOG funds; those values fell to \$38 and \$42, respectively, by 2011. The per-student funds fell by nearly half at the 90th percentile, going from \$211 per student in work-study and \$238 per undergraduate in SEOG funds in 1991 to just \$119 and \$133, respectively, in 2011.

[Insert Figure 2 here]

Regression results

The simple correlations between institutional characteristics and both SEOG funds per undergraduate student and FWS funds per student in the 2011-12 academic year are in Table 3.

Most of the correlations ranged between approximately -0.2 and 0.2, including graduation rates, race/ethnicity, gender, and percent Pell recipients. However, a small number of characteristics were more strongly correlated with FWS or SEOG funds. Private nonprofit and four-year institutions had a correlation with work-study funds of around -0.3, while public institutions had a correlation with SEOG funds of nearly -0.35. Colleges with higher net prices of attendance and had a higher percentage of students taking out loans also received more funds per student. The strongest correlate of per-student funds in 2011 was per-student funds in 2001 and 1991. The correlations are around 0.7 for previous FWS funds and 0.65 for previous SEOG funds.

[Insert Table 3 here]

Table 4 contains the results of blocked regressions predicting per-student FWS and SEOG awards. Given aid allocation rules, it is not surprising that the strongest predictors of funds received in 2011 were previous funds received. The adjusted R-squared values for Model (1), which only contained per-student allocations in 2001 and 1991 as well as active status in 1986, were over 0.6 for FWS allocations and 0.45 for SEOG allocations. The additional variables in Model (2) and Model (3) did not substantially increase the adjusted R-squared values even though some measures were statistically significant, emphasizing the importance of historical participation under the current allocation formula.

[Insert Table 4 here]

Alternative aid allocation scenarios

Potential reallocations of campus-based aid are explored in Table 5. Under current allocation rules, community colleges received 25% of the \$622 million in SEOG funds and 19% of the \$829 million in FWS funds allocated to colleges in the analytic sample in the 2013-14

award year. This is in spite of community colleges enrolling about 40% of the students in the sample. Public 4-year colleges got 32% of SEOG and 34% of FWS and for-profit institutions received 10% of SEOG and 5% of FWS funds; both sectors received funds roughly in proportion to their total enrollment. However, private four-year colleges got 32% of SEOG and 38% of FWS while enrolling about 15% of students in the analytic sample.

[Insert Table 5 here]

If FWS and SEOG funds were allocated solely based on the number of students in each sector receiving Pell Grants, community colleges would receive 45% of total aid dollars in the 2013-14 award year, public 4-year colleges would receive 31%, private 4-year colleges would receive 11%, and proprietary institutions would get 12%. These allocations would result in a distribution that more closely reflects enrollment by sector than the current SEOG or FWS allocations. If funds were allocated based on the total Pell dollars, the results are similar to using the number of Pell recipients.

The next reallocation strategy was to award all SEOG and FWS funds through the existing “fair share” formulas. Because of the heavy reliance on cost of attendance in the fair share formula, a complete switch to fair share would result in even more funds going toward private nonprofit and for-profit institutions. The share of SEOG funds awarded to public institutions would fall from 57% to 48%, while their share of FWS funds would fall from 53% to 40%. This would result in a shift of about \$158 million of the \$1.45 billion in campus-based aid funds away from public colleges and universities and toward private nonprofit and for-profit institutions.

Limiting the cost of attendance measure to certain percentiles of the tuition and fee distribution swings aid allocations toward public institutions using the fair share formula. Restricting tuition and fees to the 75th percentile (\$13,430 for two-year institutions and \$26,704 for undergraduate programs at four-year institutions) capped the impact of tuition at nearly half of all private nonprofit four-year institutions and over 90% of for-profit two-year institutions. The cap had an additional impact on colleges with graduate programs, as the impact of tuition is capped (at \$15,704) and the full cost of attendance is included in the fair share formula for work-study. This resulted in a drop in private colleges' share of SEOG from 36% to 30% and their FWS share from 49% to 38%.

Restricting tuition and fees to the 50th and 25th percentiles charged within sectors further shifted funds toward lower-cost public institutions. Using the 50th percentile, private colleges' SEOG allocations fell to 20% of total awards and FWS allocations fell to 34% of awards. With a cap of the 25th percentile (tuition and fees of \$2,744 for two-year colleges and \$8,698 for undergraduates at four-year colleges), more public colleges and universities hit the tuition cap, and thus the shift of funds toward the public sector slowed down. Private colleges' SEOG allocations fell to 15% of all awards and FWS allocations fell to 30% of all awards, while the allocations of for-profit colleges are largely unchanged.

The use of a cap on tuition and fees had substantial effect on the allocations by sector compared to the fair share allocations without a cap. Compared to the fair share formula without tuition and fee caps, a cap at the 25th percentile would shift \$132 million in SEOG and \$161 million in FWS funds away from private nonprofit colleges and toward public institutions. Public four-year and two-year colleges would split the reallocated SEOG funds nearly equally, but public four-year colleges would get about 80% of the reallocated FWS funds.

Limiting work-study allocations to undergraduate students' need (excluding graduate students) would result in a drastic shift in funds across sectors. Compared to a cap of the 25th percentile in tuition and fees including graduate students, the same cap for undergraduate students only would nearly triple (from 14% to 38%) the allocation to community colleges while cutting the allocation to private four-year institutions from 30% to 14%. The allocation for public four-year institutions would fall from 45% to 35%, while for-profit institutions would see a slight increase.

The potential impacts of changes to the campus-based allocation formulas are detailed in Table 6. Seven of the ten institutions for the top ten in SEOG funds would remain in the top 20 under any of the alternative aid allocation scenarios, although allocations would decline in some cases. The University of Phoenix would by far be the biggest beneficiary of a change, gaining between \$8.7 million and \$14.1 million across each of the allocations considered. But allocations for the Ivy Tech Community College System would also increase, while Arizona State would see roughly similar allocations. The three biggest losers in the top ten are Northeastern University, the University of Wisconsin-Madison, and the University of Pennsylvania. These colleges ranked 856th, 347th, and 1102nd, respectively, in the number of Pell recipients and would see 90% cuts in SEOG funds under a fair share model with a tuition cap at the 25th percentile across the two-year and four-year sectors.

[Insert Table 6 here]

Each of the top nine colleges for FWS funds in 2013-14 is a four-year private university, which is in stark comparison to the more diverse list of top SEOG colleges. (Northeastern University and the University of Pennsylvania were the only two colleges to make both top ten lists.) A shift to fair-share allocations without tuition caps would result in eight of the nine

private colleges getting even larger FWS awards. Adding tuition caps at the 25th percentile of undergraduate and graduate tuition would result in fair share allocations being halved at all but Nova Southeastern University. The fair share allocation at the University of California-Los Angeles, the lone public university in the top ten, would increase by about \$700,000 with the imposition of a tuition cap. Every college in the top ten would stay in the top 50 in FWS allocations with a tuition cap except for Northeastern and Cornell, which is a function of the size of the graduate programs at many of these institutions.

FWS allocations to the institutions currently in the top ten would drop sharply if funds were based on undergraduate need only instead of combined undergraduate and graduate need. Each of the private institutions in the top ten would see their FWS allocation drop by at least 80% when excluding graduate students from the fair share formula and using a 25% tuition cap. For example, Harvard's FWS funds would fall from \$3.53 million to \$168,000. Basing FWS awards on the number of undergraduates receiving Pell Grants would yield similar results.

Discussion

The two primary campus-based financial aid programs, the Federal Work-Study program and the Supplemental Educational Opportunity Grant, are often overlooked by policymakers due to their relatively small size. Although they combine to offer only about five percent of the funds available in the federal Pell Grant program, the \$1.7 billion in annual spending could be better allocated to reward colleges and universities that are successfully serving larger numbers of students from low-income families. Given that many of the colleges in the top ten for both FWS and SEOG receipt are have large endowments and enroll relatively small numbers of Pell Grant recipients, it is clear that the campus-based aid programs currently do little to encourage college opportunity.

Moving away from the historical allocation formulas for FWS and SEOG and toward a fair share formula, in which funds are based on a calculation of institutional unmet need, will do little to direct funds to students with the greatest financial need unless colleges are not allowed to count their entire tuition and fee charges in the need calculation formula. If colleges are limited to counting the tuition and fees of a college in the 25th percentile of their sector (roughly similar to the average tuition and fees at public colleges and universities), the allocation of campus-based financial aid better reflects the distribution of both student enrollment and Pell recipients across sectors of higher education.

The political road to changing campus-based allocation formulas is likely to be a difficult one if past efforts are any indication. But another push should be made to update the formulas to better reflect actual student need rather than posted tuition and fees in the next reauthorization of the Higher Education Act, which is set to expire at the end of 2014. Colleges that currently receive large per-student campus-based aid allocations are more likely to have larger endowments than colleges with smaller allocations, and are therefore better able to replace the FWS and SEOG funds with institutional dollars.

Another potential strategy for better utilizing the campus-based aid funds is to tie funds to institutional performance measures, such as the President's proposed Postsecondary Institutions Ratings System (PIRS). Providing these funds as an incentive for encouraging access, affordability, and improved student outcomes may also be a better use of funds than the current allocation. It also has the potential to reduce concerns about changing the formula in a way that will clearly reduce the allocations of colleges with higher tuition.

Technical Appendix: Matching Branch Campuses to Aid Allocations

A complication of matching IPEDS data with campus-based financial aid data (which is collected by the U.S. Department of Education's Federal Student Aid (FSA) office instead of its National Center for Education Statistics) is that branch campuses are treated differently in the two data sources. Campus-based financial aid data are always aggregated to the system level in FSA data, while colleges typically report IPEDS data at the institutional level although they have the option to report at the system level (Jaquette & Parra, forthcoming).¹² This created analytical challenges in examining per-student funding by institution in this paper, although the estimates of aid allocation by sector and control are unaffected.

Every college eligible to receive federal Title IV financial aid receives two unique identifying codes from the Department of Education. The IPEDS UnitID variable is typically used to identify institutions, but the Office of Postsecondary Education ID (OPEID) is a better gauge of whether an institution is a part of a system for financial aid purposes. Colleges with an OPEID ending in 00 are either independent entities or are the primarily reporting institution for Title IV purposes. Any institution with an OPEID that does not end in 00 is a branch campus, and will share the first five or six digits of the OPEID with a reporting institution. None of these institutions identified as branch campuses were directly awarded campus-based aid in FSA's datasets. It is worth emphasizing that some systems of higher education have one primary reporting institution for the entire system, while others have unique OPEIDs for each institution within the system. For example, Pennsylvania State University has one reporting institution for its entire system, while each institution within the University of Wisconsin System reports separately.

¹² Another example of data reported at the system level is student loan default rate data.

Of the 3,798 institutions in the analytic sample, 1,023 were a part of a system based on OPEID codes. However, relying on OPEID codes to generate a list of colleges reporting under systems generates an incomplete list of such institutions. A closer look at the institutions not receiving any campus-based aid in 2013-14 showed colleges in several other systems that were not caught in the OPEID flag. In three situations (the City Colleges of Chicago System Office, the City University of New York System, and the University of South Carolina's regional campuses), all campus-based funds are reported at the system level although each individual campus has its own OPEID for reporting purposes. CUNY is the most complex of the three systems, as institutions in the system grant degrees ranging from associate's to doctoral degrees.

Four other groups of institutions appear to function as systems although they are not marked as such. All of the campus-based aid funds awarded to community and technical colleges in Kentucky are listed as going to Bluegrass Community and Technical College, a part of the Kentucky Community and Technical College System. This appears to be a result of mergers that created the system in the late 1990s, and a check of institutional websites shows that other colleges in the system offer campus-based aid. Additionally, the University of Michigan's Dearborn and Flint campuses were assigned to the main campus of Ann Arbor. DeVry's Keller Graduate School of Management funds were all listed with one of their many campuses. Illinois Eastern Community College has four branches, but all were assigned to the main campus in Olney. After these campuses were classified, a total of 1,076 institutions were a part of systems.

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Table 1: Student enrollment and campus-based aid receipt by sector, 2011-12.

Characteristic	Public 2-yr	Public 4-yr	Private 4-yr	For-profit
Pell recipients (pct)	36.5	29.4	12.2	22.0
SEOG recipients (pct)	24.0	25.7	20.4	29.9
SEOG funds (pct)	16.7	30.8	34.9	17.5
SEOG/awarded student (\$)	411.68	708.76	1010.69	346.51
SEOG funds by income (dependents, pct)				
\$0-\$29,999	11.1	37.0	42.8	9.1
\$30,000-\$59,999	6.1	30.0	58.0	5.9
\$60,000 and up	3.1	31.9	62.5	2.5
FWS recipients (undergraduate, pct)	12.2	32.7	50.8	4.2
FWS funds (pct)	14.6	35.0	44.4	6.0
FWS/awarded student (\$)	1920.19	1720.30	1406.91	2303.15
FWS funds by income (dependents, pct)				
\$0-\$29,999	13.6	43.6	38.7	4.0
\$30,000-\$59,999	9.0	40.0	48.3	2.7
\$60,000 and up	2.8	25.9	69.8	1.5

Sources: U.S. Department of Education (2013), Miller (2013).

Notes:

- (1) Columns with percentages represent that sector's share of total aid receipt.
- (2) Private 2-year colleges are excluded due to their small number.

Table 2: Summary statistics of the sample by campus-based aid receipt, Fall 2011.

Characteristic	Received campus-based aid			Did not receive aid			Diff. p-value
	Mean	St. Dev	N	Mean	St. Dev.	N	
<u>Campus aid per student(\$)</u>							
Federal work-study (all students)	62	81	3486	--	--	--	--
SEOG (undergraduates only)	70	88	3486	--	--	--	--
<u>Institutional characteristics</u>							
Four-year (pct)	47.1	49.9	3486	14.7	35.5	312	<0.001
Public (pct)	43.4	49.6	3486	14.1	34.9	312	<0.001
Private nonprofit (pct)	29.7	45.7	3486	22.4	41.8	312	<0.001
For-profit (pct)	26.9	44.4	3486	63.5	48.2	312	<0.001
Graduation rate (pct)	43.4	22.4	3213	52.0	26.2	235	<0.001
Undergraduate enrollment	4831	8090	3486	2212	5699	311	<0.001
Graduate enrollment	738	2299	3486	258	1909	311	<0.001
Full-time students (pct)	70.7	25.0	3455	73.3	30.4	300	0.096
Female (pct)	59.9	15.8	3457	64.9	23.8	301	<0.001
<u>Race/ethnicity (pct)</u>							
White	56.2	25.2	3457	49.2	28.8	301	<0.001
Black	17.8	21.0	3457	20.7	22.2	301	0.022
Hispanic	11.3	15.3	3457	14.7	19.9	301	<0.001
Asian	3.3	5.6	3457	3.6	8.3	301	0.295
<u>Financial characteristics</u>							
<u>Net price (\$)</u>							
All students	15,586	7577	3392	16,829	7693	263	0.011
Family income 0-30k	13,532	6937	3379	16,619	8061	256	<0.001
Pell recipients (pct)	48.4	20.6	3455	56.6	24.3	301	<0.001
Took loans (pct)	54.4	26.6	3455	60.5	31.4	301	<0.001
Endowment per FTE (\$)	23,547	137,829	3486	2370	21,320	312	0.001
<u>Active institution by year (pct)</u>							
2001	87.7	32.9	3486	61.2	48.8	312	<0.001
1991	81.2	39.1	3486	49.4	50.1	312	<0.001
1986	78.3	41.2	3486	44.2	49.7	312	<0.001
<u>Maximum sample size</u>		3486			312		

Sources: U.S. Department of Education (FWS and SEOG receipt), Barron's (selectivity), Integrated Postsecondary Education Data System (IPEDS) (all others).

Notes:

- (1) Missing endowment values were classified as zero.
- (2) "Active institutions" are those which are open during the listed year.
- (3) The p-values compare colleges with campus-based aid in 2011-12 to those without it.

Figure 1a: FWS Allocation by Sector and Year

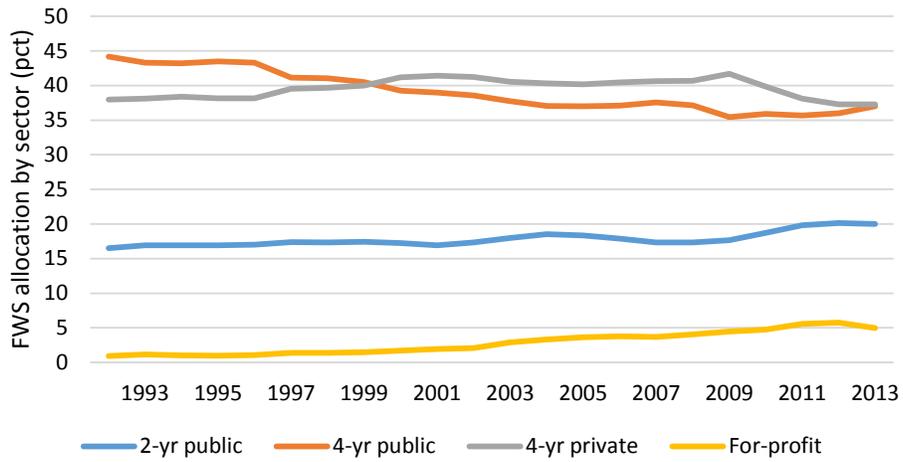


Figure 1b: SEOG Allocation by Sector and Year

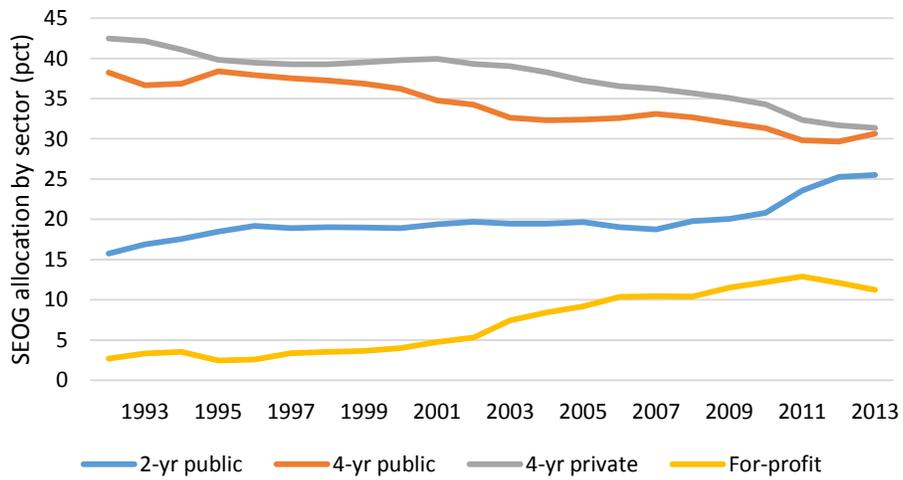


Figure 2a: Work-Study Aid Per Student by Percentile

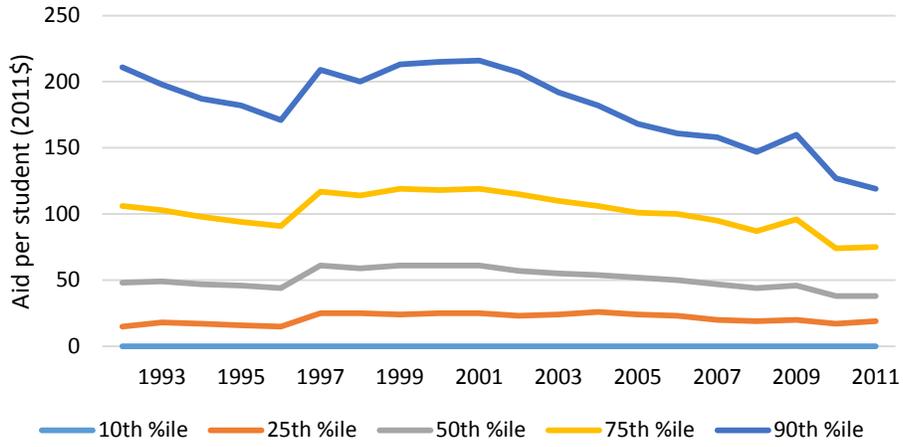


Figure 2b: SEOG Aid Per Undergraduate by Percentile

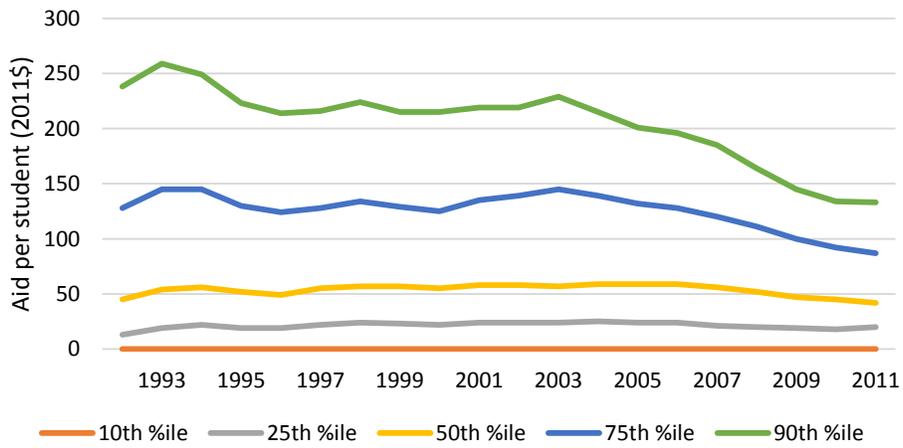


Table 3: Correlations between campus-based aid funds and institutional characteristics.

Characteristic	Work-study per student		SEOG per undergrad		Sample Size
	Correlation	p-value	Correlation	p-value	
<u>Institutional characteristics</u>					
Four-year (pct)	0.290	<0.001	0.149	<0.001	3798
Public (pct)	-0.219	<0.001	-0.349	<0.001	3798
Private nonprofit (pct)	0.353	<0.001	0.273	<0.001	3798
For-profit (pct)	-0.115	<0.001	0.105	<0.001	3798
Graduation rate (pct)	0.157	<0.001	0.214	<0.001	3448
Undergraduate enrollment	-0.121	<0.001	-0.185	<0.001	3797
Graduate enrollment	0.028	0.089	-0.021	0.197	3797
Full-time students (pct)	0.259	<0.001	0.257	<0.001	3755
Female (pct)	-0.023	0.153	0.058	<0.001	3758
<u>Race/ethnicity (pct)</u>					
White	-0.072	<0.001	-0.138	<0.001	3758
Black	0.142	<0.001	0.170	<0.001	3758
Hispanic	-0.061	<0.001	-0.019	0.257	3758
Asian	-0.015	0.367	-0.000	0.999	3758
<u>Net price (\$)</u>					
All students	0.210	<0.001	0.299	<0.001	3655
Family income 0-30k	0.133	<0.001	0.271	<0.001	3635
Pell recipients (pct)	0.015	0.347	0.150	<0.001	3756
Took loans (pct)	0.191	<0.001	0.279	<0.001	3756
Endowment per FTE (\$)	0.142	<0.001	0.101	<0.001	3798
<u>Institutional selectivity (4-yr only)</u>					
Median ACT	0.029	0.304	0.041	0.147	1243
Admit rate (pct)	-0.111	<0.001	-0.092	0.001	1425
Graduation rate (pct)	0.059	0.020	0.027	0.292	1583
<u>Barron's selectivity (2009, pct)</u>					
Less selective	-0.081	0.001	-0.007	0.778	1672
Somewhat selective	-0.018	0.469	-0.034	0.169	1672
More selective	0.107	<0.001	0.045	0.069	1672
<u>Per-student funds by year (\$)</u>					
2001	0.695	<0.001	0.684	<0.001	3247
1991	0.748	<0.001	0.644	<0.001	2985

Sources: U.S. Department of Education (FWS and SEOG receipt), Barron's (selectivity), Integrated Postsecondary Education Data System (IPEDS) (all others).

Notes:

(1) Missing endowment values were classified as zero.

(2) "Less selective" includes colleges not rated, noncompetitive, and less competitive colleges.

"Somewhat selective" includes the categories of competitive and competitive+. All other colleges are "more selective."

(3) The p-values are results of tests for whether the correlation is different from zero.

Table 4: Predicting campus-based aid award amounts per student, Fall 2011.

Characteristic	FWS per student, 2011-12 (\$)			SEOG per undergraduate, 2011-12 (\$)		
	Model (1)	Model (2)	Model (3)	Model (1)	Model (2)	Model (3)
Per-student funds in 2001 (\$)	0.24*** (0.01)	0.23*** (0.01)	0.22*** (0.01)	0.27*** (0.01)	0.24*** (0.01)	0.23*** (0.01)
Per-student funds in 1991 (\$)	0.33*** (0.01)	0.31*** (0.01)	0.31*** (0.01)	0.14*** (0.01)	0.13*** (0.01)	0.11*** (0.01)
Active institution in 1986 (pct)	-19.6*** (2.0)	-5.8** (2.5)	-5.9** (2.6)	-30.0*** (2.5)	-6.9** (3.2)	-3.5 (3.1)
Four-year (pct)		2.4 (2.2)	-1.2 (2.5)		5.4** (2.7)	1.4 (2.9)
Public (pct)		-2.8 (2.7)	3.7 (3.3)		-11.2*** (3.4)	-6.4* (3.8)
For-profit (pct)		-1.2 (2.9)	6.8* (3.6)		-2.4 (3.5)	3.4 (4.1)
Undergraduate enrollment (ln)		-4.2*** (0.8)	-5.3*** (0.9)		-8.9*** (1.1)	-8.3*** (1.1)
Full-time students (pct)		12.4*** (3.8)	8.7** (4.4)		7.7 (4.9)	6.9 (5.0)
Female (pct)		-0.4 (5.0)	-0.2 (5.2)		11.8* (6.4)	7.0 (6.0)
Black (pct)		23.4*** (4.1)	28.6*** (4.8)		42.9*** (5.1)	48.1*** (5.4)
Hispanic (pct)		24.4*** (5.4)	30.8*** (5.8)		20.1*** (6.9)	27.0*** (6.6)
Asian (pct)		18.1 (14.2)	5.9 (16.0)		61.7*** (17.9)	12.3 (18.3)
Net price (ln \$, all students)			6.1** (2.6)			8.4*** (3.0)
Pell recipients (pct)			-5.6 (7.2)			2.5 (8.3)
Took student loans (pct)			-5.6 (5.7)			-3.2 (6.5)
Endowment per FTE (ln \$)			1.1*** (0.3)			0.9** (0.4)
Adjusted R-squared	0.610	0.625	0.615	0.457	0.497	0.511
Sample size	3798	3755	3654	3798	3755	3654

Sources: U.S. Department of Education (FWS and SEOG receipt), Integrated Postsecondary Education Data System (IPEDS) (all others).

Notes:

(1) Missing endowment values were classified as zero.

(2) * represents $p < .10$, ** represents $p < .05$, and *** represents $p < .01$.

Table 5: Potential reallocations of campus-based aid awards, 2013-14.

Scenario (pct of total aid dollars)	Public 2-yr	Public 4-yr	Private 4-yr	For-profit
<u>Based on Pell Grant recipients</u>				
Number of recipients	45.4	30.6	11.2	11.6
Total Pell dollars	43.7	32.4	11.5	11.3
<u>SEOG allocations</u>				
Actual awards	25.1	31.5	32.3	10.0
"Fair share" formula only	23.5	24.3	36.3	13.7
"Fair share" with tuition limits				
75th %ile of sector cap	26.7	27.7	30.1	14.2
50th %ile of sector cap	31.6	33.0	19.7	14.8
25th %ile of sector cap	34.4	36.2	15.0	13.4
<u>FWS allocations</u>				
Actual awards	19.1	33.6	38.1	4.5
<u>All students</u>				
"Fair share" formula only	10.4	29.9	49.0	9.9
"Fair share" with tuition limits				
75th %ile of sector cap	11.1	38.6	37.7	11.9
50th %ile of sector cap	12.4	42.0	33.7	11.5
25th %ile of sector cap	13.9	45.2	29.6	10.7
<u>Undergraduates only</u>				
"Fair share" formula only	21.4	20.8	45.2	11.3
"Fair share" with tuition limits				
75th %ile of sector cap	27.5	25.8	30.6	14.8
50th %ile of sector cap	31.5	29.7	23.8	14.0
25th %ile of sector cap	37.7	34.8	13.8	12.7
Number of institutions	1012	538	922	848
Percentage of total enrollment	39.0	36.3	17.1	7.7
Percentage of undergraduate enrollm	44.9	33.9	13.8	7.4

Notes:

- (1) Columns with percentages represent that sector's share of total aid receipt.
- (2) Private 2-year colleges are excluded due to their small number.

Table 6: Top ten SEOG and FWS allocations by alternative award specifications.

SEOG allocations (\$1,000s)	Allocations under alternative plans			
Name	2013-14 award	Fair share allocation	Fair share, 25%ile tuition	
			cap	Pell recipients
University of Phoenix	4880.5	14463.2	19038.0	13608.7
Ashford University	3816.9	3419.2	5017.7	3724.2
Kaplan University	3190.0	2948.2	3153.8	2300.8
Northeastern University	3097.6	2079.1	287.5	209.2
University of Wisconsin-Madison	2587.8	417.3	612.7	443.6
Everest University	2577.9	2573.1	1559.8	2103.3
Ivy Tech Community College	2512.5	3095.3	4534.4	5380.3
University of Pennsylvania	2411.8	1736.3	201.2	152.3
Miami Dade College	2390.5	1662.5	2476.5	3213.7
Arizona State University	2328.5	2001.5	2924.2	2153.5

FWS allocations (\$1,000s)	Allocations under alternative plans				
Name	2013-14 award	Fair share allocation	Fair share, 25%ile tuition		Pell recipients
			cap	25%ile UG tuition	
Columbia University in New York	6195.6	7486.4	3733.2	252.4	202.8
New York University	5271.4	9628.0	4653.7	706.4	567.7
University of Southern California	5038.2	8674.5	4402.0	593.9	477.3
Cornell University	4075.0	3515.7	1548.5	363.7	292.3
University of Pennsylvania	4072.5	4949.3	2747.1	252.8	203.2
Northeastern University	3956.5	4563.7	2236.8	347.2	279.1
Nova Southeastern University	3826.7	3964.2	4644.0	443.9	356.8
Harvard University	3749.4	7073.6	3532.1	167.6	134.7
Northwestern University	3434.6	5483.3	2406.6	196.2	156.7
University of California-Los Angeles	3346.0	2283.8	2998.2	1481.6	1190.7

Notes:

(1) The 25% tuition cap refers to capping tuition and fees at the 25th percentile of tuition and fees separately for two-year, four-year undergraduate, and four-year graduate institutions.

(2) The alternative allocations are based on enrollment, tuition, and Pell receipt data from the 2011-12 award year.