SHORT PAPER/NOTE



Strategic Use of FAFSA List Information by Colleges

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Abstract Students filling out the FAFSA list colleges and universities where they wish their data, sent. Until recently, colleges were provided this list, and the practice was suspended, given concerns that colleges were using the list to strategically allocate aid. Using the, 2011–2012 NPSAS, we analyze student financial aid packages to determine if list position, affects aid. We find little evidence that it does.

Keywords FAFSA · Financial aid · Strategic enrollment management

Introduction

Competition within postsecondary education has increased dramatically during the past several decades. Worried about gaining admission to a quality institution, college applicants apply to more colleges with each passing year (Clinedinst 2015; Hoover 2010). Colleges face pressures to perform well in rankings such as *US. News & World Report*, while also grappling with declining revenues from research funding and state support (Ehrenberg 2003; Mortenson 2012; Pew Charitable Trusts 2015). As a result, many colleges now use what is termed strategic enrollment management (SEM), a set of sophisticated techniques used to make admissions decisions (Hossler and Bontrager 2014). One aspect of SEM that sets it apart from more traditional admissions decision-making is the strategic use of information about applicants and applicant behavior during the admissions process.

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One common approach is to target admissions decisions and financial aid strategically, in order to boost yield rates while maximizing the impact of the financial aid budget. For example, an institution might deny admission to a student they deem very unlikely to enroll, in order to increase the proportion of admitted students who enroll, a key admissions metric used to judge college selectivity. Financial aid packages can be based, in part, on the estimated probability of matriculation. The aid package for students with high estimated probabilities of matriculation can be reduced (or shifted from grant aid to loans), without greatly reducing their probability of matriculation. The "saved" aid is then offered to students with a lower probability of matriculation, but who have characteristics desired by the institution (such as high SAT scores), in order to increase their probability of enrolling at the institution.

While some have criticized SEM in terms of its ethical treatment of students and its effect on institutional behavior (e.g., Haycock 2006), SEM is widely accepted within postsecondary education, with 47 % of schools reporting the use of SEM (American Association of Collegiate Registrars and Admissions Officers 2014). However, the National Association for College Admission Counseling, comprised of high school counselors and college admissions officers, is very critical of an alleged SEM practice that uses data from the Free Application for Federal Student Aid (FAFSA). When students and their parents fill out the FAFSA, they can list up to ten colleges are using these lists as a revealed preference ranking for students, allowing them to identify which students view their college as their top choice. Colleges then use this information when making admission and financial aid decisions. The association is so alarmed by the practice that they recently requested the federal government stop providing these FAFSA data elements to colleges, in order to prevent their use during the admissions process (Rivard 2014).

Despite their concerns, however, it is not clear whether this practice is actually occurring. The purpose of this research note is to use the 2011–2012 National Postsecondary Student Aid Study (NPSAS) to investigate whether some colleges are actually engaging in this strategic behavior. To date, whether colleges are using the list information to make admissions and financial aid decisions has been a matter of rumor amongst college admissions professionals, and has not been studied empirically.

We seek to answer two main questions with our analyses. First, do students use the FAFSA college lists to express their college preferences? While commentators assume this is the case, it is still an open question as to whether students are listing colleges in a preferred order; indeed, it is not even clear whether a significant number of students are listing multiple colleges on the FAFSA. Second, do some colleges appear to alter their aid packages to penalize students who list them in the first slot on the FAFSA form?

Data

The data used here are from the 2011–2012 NPSAS, a nationally representative sample of students enrolled in postsecondary education during the 2011–2012 academic year. It is the most recent and comprehensive financial aid survey of college students in the country. The study data come from three main sources: (1) a student survey interview, (2) institutional student records collection, (3) and several national administrative databases, including data from the FAFSA.

The full undergraduate sample consists of 95,100 students who attended a postsecondary institution in the 2011–2012 academic year. We focus on a subpopulation of respondents that meet several criteria:

- 1. Began postsecondary education for the first time in the 2011–2012 academic year.
- 2. Sought a bachelor's degree at a public or private nonprofit institution.
- 3. Enrolled full-time in the 2011–2012 academic year.

This subpopulation amounts to six percent (N = 9280) of the undergraduate student population enrolled during the 2011–2012 academic year. This may seem like a drastic drop in sample size, but we are mostly excluding non-bachelor degree-seeking students, as well as the sophomores, juniors and seniors that are also collected as part of the NPSAS. We use only first-time beginning students because we are interested in students who were making their first college enrollment choices prior to the 2011–2012 academic year. We focus on full-time enrollment to ensure financial aid packages are comparable across students. Full-time/full year enrollment status is defined as students who were enrolled full-time for nine or more months during the 2011–2012 school year.

Within our subpopulation, we focus further on respondents who filed a FAFSA and created a list of schools to send their financial information. Subpopulation members who did not file a FAFSA in 2011 were excluded from the sample (N = 1440). When filling out the FAFSA, either on paper or online, students could list up to ten schools using Federal School Codes, which are available through the Federal Student Aid website. To make use of these lists, we created a crosswalk of Federal School Codes and unit identifiers from the Integrated Postsecondary Education Data System (IPEDS). Of the 2460 unique Title IV eligible institutions listed by students in our NPSAS sample, 98 % were matched with IPEDS unit identifiers using a fuzzy string matching program and careful post-matching verification. The few schools without an IPEDS match led to missing FAFSA schools listed for a limited number of sample members. Students whose first school we could not match, or who did not list any schools on their FAFSA were dropped from the analytic sample (N = 10).

We also limit the analytic sample to students who completed their FAFSA on or before May 1, 2011, using the FAFSA completion date in the NPSAS administrative data (N = 510 late filers). Most schools require matriculation decisions by the beginning of May, and using FAFSAs submitted at a later date runs the risk of including students in the sample who were not considered for institutional admissions and financial aid in the same manner as students filing the FAFSA at an earlier date. McKinney and Novak (2015) find that over two-thirds of states with priority application deadlines require FAFSA filing by May.

We drop additional students from the analysis who were enrolled at open admission institutions (N = 570), because differential aid allotments based on preferences are likely to occur only at institutions with selective admissions criteria; and we also drop students who enrolled at multiple institutions or who attended full-time for only part of the 2011–2012 academic year to ensure that institutional aid awards were comparable, and unaffected by varying enrollment patterns (N = 1090). Finally, we drop observations missing data on a number of key covariates including SAT score, high school GPA, and institution admission rates (N = 60).

The final sample for analysis contains 5600 full-time first-time beginning students seeking bachelor's degrees in the 2011–2012 academic year. This amounts to 56 percent of our initial subpopulation and 3.5 percent of the entire universe of undergraduate students in NPSAS. A total of 600 institutions are represented in this sample, for an average of ten

sample members who attended each institution. We estimate our descriptive results and multivariate models using the *svy* and *subpop* commands within Stata to ensure that our results take into account the complex sampling design of the NPSAS and are representative, even though we are only using a subset of the full dataset.

One limitation of using the NPSAS for analyzing FAFSA lists is that the NPSAS sample only contains students who enrolled in college. This issue of selection into the NPSAS via college enrollment might affect our results if FAFSA list behavior is correlated with the probability of enrolling in college. For example, if students with low probabilities of enrollment are more likely to list only one school on the FAFSA, then the proportion of students listing only one school in our sample will be lower than what we would observe if our sample contained all FAFSA filers, regardless of their ultimate enrollment decision.

FAFSA Lists and Student Preferences

The National Association for College Admission Counseling believes that the list of colleges acts as a set of revealed college preferences: when students list colleges to which they wish their financial information sent, they start the list with their most-preferred college and end with their least-preferred college. But is this truly the case? Here, we assemble three pieces of evidence that collectively suggest this is indeed how students, on average, view the college list section of the FAFSA.

First, in order for students (and colleges) to use the list section as an implied preference ranking, most students should be listing multiple colleges when they submit the FAFSA. Figure 1 shows the distribution of the number of colleges listed by first-time, full-time students in fall 2011. Just over one-third of students listed only a single institution, while 58 % listed at least three colleges. The median number of colleges listed on the FAFSA is three. If colleges adopt a simple view of the FAFSA list, and view these data as binary (e.g., "we are the first choice/we are not the first choice"), almost two-thirds of college students are listing enough colleges to imply a meaningful preference ranking. Even the



Fig. 1 Number of colleges listed on the 2011-2012 FAFSA

absence of a preference ranking (i.e., only one school listed) might send a strong signal to admissions personnel, because the student is in essence declaring that they are only applying to that single institution.

Second, and somewhat surprisingly, the FAFSA itself instructs students to use the list as an implicit preference ranking. The instructions for this section tell students that, "For state aid, you may wish to list your preferred college first" (see Fig. 2). At a minimum, the subset of students interested in state aid are likely placing their top choice in the top slot on the FAFSA.

Third, if students list their preferred college in the top slot, then higher proportions of students should be attending colleges near the top of their list compared to colleges at the bottom of their list. Table 1 shows the distribution of where students enrolled by FAFSA list position, separated out by the number of colleges they listed on the FAFSA. For example, the first row of the table shows that of the 1990 students who only listed one college on the FAFSA (which was filed before May 1), 97 % enrolled at the institution the following fall. For the 650 students who listed only two colleges on the FAFSA, 64 % enrolled at the college listed in the first position, and 34 % at the college listed in the second position.

Two trends are apparent in the table. First, the proportion of students enrolling in the first position college is generally double the proportion enrolling in the second position college. Second, the proportion enrolling at a listed institution shows a clear decline from the first position to the bottom position, with the proportions tending to stabilize after the third position. If we assume that students enroll in their most preferred college when extended an offer of admission, these numbers suggest that some students are listing their most preferred school first, followed by their second and third preferred choices.

Another way to approach these data is to assume that students are randomly listing schools, and that schools do not take into account list position when making admission decisions. If that were the case, we would expect the proportions for a given row to be equal. For example, for students who listed three schools on the FAFSA, we would expect to see enrollment proportions of .33, .33 and .33, instead of .57, .24, and .18. Chi square tests for each row indicate that these proportions are statistically significantly different from the hypothetical equal proportions (p < .001 for all rows).

In sum, the FAFSA provides students the ability to send their financial aid information to up to ten colleges. Many students use this to send information to multiple colleges. The FAFSA form itself encourages students to rank order colleges by their preferred choices,



Fig. 2 College list section of the 2011–2012 FAFSA

Number of	List p	osition	of em	olled s	chool,	Fall 20	11				Did not	N
schools listed on FAFSA	1	2	3	4	5	6	7	8	9	10	enroll in any listed schools	students
1	0.97										0.03	1990
2	0.64	0.34									0.02	650
3	0.57	0.24	0.18								0.01	600
4	0.44	0.26	0.14	0.14							0.01	500
5	0.45	0.19	0.14	0.10	0.12						0.00	400
6	0.43	0.17	0.07	0.11	0.11	0.10					0.01	300
7	0.34	0.12	0.12	0.10	0.07	0.09	0.14				0.03	290
8	0.23	0.16	0.13	0.13	0.06	0.08	0.09	0.08			0.02	250
9	0.25	0.15	0.06	0.10	0.08	0.11	0.08	0.06	0.11		0.01	180
10	0.22	0.12	0.10	0.11	0.06	0.07	0.09	0.05	0.06	0.08	0.03	400
All students	0.64	0.14	0.07	0.04	0.03	0.02	0.02	0.01	0.01	0.01	0.02	5590

Table 1 Enrollment choice by FAFSA list position

Proportions may not sum to totals due to rounding. Counts are rounded to nearest ten per NCES requirements

and a comparison of enrollment behavior and list position reveals that students are far more likely to enroll in their first listed college than any other college listed on the FAFSA. Together, these data suggest that many students are indeed using the FAFSA list as a college preference ranking. The next question is whether colleges are using this information in the financial aid process.

FAFSA Lists and Aid Allocations

In an ideal world, we would obtain applicant data from schools suspected of using FAFSA lists when allocating financial aid. We could then estimate models predicting financial aid, to test whether aid allocations were significantly lower for students who indicated the school was their preferred choice. Clearly, schools engaging in this behavior will be unwilling to share data for this purpose, and financial aid and applicant data are typically difficult to obtain from most institutions for any research purpose, given the sensitivity of these data. Thus, we turn to the NPSAS, a national dataset of college students, for our analysis.

We face three main issues in determining the appropriate methods for estimating models of financial aid allocation. First, the NPSAS contains data for students from hundreds of different colleges, each of which will be allocating aid in a different fashion. Some schools may place a greater weight on GPA when making aid decisions, while others place a greater weight on need. Some schools have a lot of institutional aid at their disposal to award to prospective students; other schools award very little institutional aid. We use school-level fixed effects to take into account differences between schools.

Second, given that selectivity varies widely across institutions, it seems unlikely that less selective institutions have the ability or motivation to alter financial aid packages based on students' revealed preferences. Less selective schools may not have the resources available to allocate aid strategically, nor would they necessarily have the desire to do so. If only the most selective schools are engaging in this behavior, the effect will only be detected by the interaction between preference and school selectivity. This, in turn, suggests the use of an interaction term between the student-level preference variable and the school-level selectivity variable. Such interactions with group-level variables are possible with fixed effects models, as long as the group-level variable is interacted with an individual-level variable.

Third, the dependent variable, institutional grant aid, is characterized by a distribution with many zeroes (reflecting no institutional grant aid allocated) and some very high values (see Fig. 3). Such distributions should not be analyzed using traditional OLS, and a variety of models have been proposed for these types of data (Buntin and Zaslavsky 2004; Cameron and Trivedi 2005; Min and Agresti 2002). The main distinction between the different methodological approaches is whether the data generating process can be considered a one-step or two-step process. In this study, the question is whether financial aid offices examine applicants and simply allocate aid based on applicant characteristics, or whether applicants are first sorted into aid/no-aid groups, with the aid group then allocated an amount of aid based on their characteristics. One-step models assume that a single set of covariates has the same effect on both the sorting decision and allocation decision; two-step models can allow the covariates and their coefficients to differ across the two processes. We are agnostic as to whether financial aid offices allocate aid in one or two steps; thus, we estimate models that assume both types of data generating processes.

Our single step model is a tobit regression. For two-step models, hurdle models are the most popular choice (Buntin and Zaslavsky 2004; Cameron and Trivedi 2005). These use two separate models to first estimate the probability of a non-zero outcome, and then for units with non-zero outcomes, model the now continuous outcome. Here, we use a linear probability model for the first step and OLS with a logged dependent variable for the second step.

The dependent variable is the amount of grant aid awarded by the college (in dollars). This aid is under the direct control of the institution, and if colleges are reducing aid for students with a strong preference for their institution, we should see it here.



Fig. 3 Distribution of institutional grant aid

The main variable of interest is a dummy variable indicating whether the enrolled school was listed as the student's first choice on the FAFSA form. Covariates included as controls are the student's gender, minority status, SAT score (with ACT scores converted using a concordance table), high school GPA, and the student's unmet need (in dollars). These control for the major characteristics that institutions might use when awarding aid.

Another issue is how to take into account the number of schools listed by each student on the FAFSA. We include in the analysis students who listed only one school on the FAFSA, because these students can be considered to have a top (single) choice school. Schools may also treat students differently based on their list size, thus we include the number of schools listed on the FAFSA as a control variable in our models.

Many colleges in this country are not selective enough to be able to engage in SEM, so it is possible that the negative effects of FAFSA preference may only be occurring at the most selective institutions. To test for this possibility, we use the college's admission rate, and interact this variable with the first choice dummy variable.

Results

Table 2 presents the results of the fixed effects models estimating the effect of preference on institutional grant aid. Interaction terms can be difficult to interpret, because the significance level of the interaction term is misleading (Brambor et al. 2006). It is possible for the interactive effect to be statistically significant for only part of the covariate space, which requires that the effect be estimated for each value of the interacted covariate. We use the results from Table 2 and present estimates for the effect of first choice FAFSA listing for several different admission rates in Table 3. These show the effect of listing a

	OLS		Tobit
	Grant aid (Y/N)	Logged grant aid amount	Grant aid amount
First choice	0.013 (0.043)	-0.000 (0.116)	759.353*** (67.482)
First choice * admission rate	-0.000 (0.001)	-0.001 (0.002)	-14.901*** (0.965)
Female	-0.008 (0.012)	0.029 (0.027)	11.935 (57.977)
Non-white	0.035* (0.014)	-0.009 (0.041)	389.630*** (65.451)
SAT score ^a	0.029*** (0.004)	0.066*** (0.010)	842.866*** (6.682)
High school GPA	0.103*** (0.017)	0.168** (0.054)	2452.249*** (19.661)
Financial need ^b	0.006*** (0.000)	0.013*** (0.001)	239.920*** (2.039)
N schools on FAFSA	0.002 (0.003)	0.006 (0.006)	99.720*** (11.200)
Intercept	-0.711*** (0.070)	6.850*** (0.218)	-62,461.814*** (74.024)
Sigma			6542.486*** (10.727)
N schools	600	520	600
N students	5600	3530	5600

 Table 2
 Effect of FAFSA preference on institutional grant aid

Standard errors in parentheses; * p < .05, ** p < .01, *** p < .001

^a Measured in hundreds of points

^b Measured in thousands of dollars

	0	-			
Admission rate (%)	OLS		Tobit		
	Amount of grant aid		Pr (grant aid)	Amount of grant aid (all obs.)	Amount of grant aid
	Pr (Grant aid)	(logged)			(grant and > 0 obs.)
20	0.007 (0.031)	-0.029 (0.084)	0.014^{***} (0.003)	268.925*** (56.229)	232.086*** (48.179)
30	0.004 (0.025)	-0.044 (0.068)	0.010^{**} (0.003)	181.087** (59.688)	156.364^{**} (51.287)
40	0.000 (0.019)	-0.058 (0.054)	0.005 (0.003)	94.176 (63.075)	81.364 (54.355)
50	-0.003 (0.016)	-0.073 (0.042)	0.000 (0.004)	8.195 (66.383)	7.084 (57.373)
60	-0.006(0.014)	-0.087*(0.035)	-0.004 (0.004)	-76.855 (69.605)	-66.479 (60.338)
70	-0.009 (0.016)	-0.102^{**} (0.035)	-0.009*(0.004)	-160.971* (72.737)	-139.329* (63.244)
80	-0.012 (0.020)	-0.116^{**} (0.042)	-0.013^{**} (0.005)	-244.154** (75.774)	-211.468^{**} (66.088)
Standard errors in paren	theses; $* p < .05$, $** p <$.01, *** <i>p</i> < .001. Based o	n results in Table 2		

 Table 3 Effects of first choice FAFSA listing on grant aid receipt

school as a first choice on the probability of aid receipt and aid amount for students at colleges with different admission rates.

Looking at the two-step OLS estimates, first choice listing has a statistically significant effect only at the least selective colleges. While we do not observe an effect on the probability of receiving aid, students who list a college as the first choice at colleges that admit 60 % or more of their applicants receive approximately 10 % less aid.

The Tobit results present a slightly different picture of aid allocation. In terms of probability of receiving aid, students at the most selective colleges have higher probabilities of receiving aid, and students at the least selective colleges have lower probabilities, but only around 1 percentage point, an effect that is not substantively significant. The results for amount of aid received, estimated for the entire sample and only for students who actually received aid, show a similar pattern. First-choice students at the most selective colleges receive around \$250 more aid, while students at the least selective colleges received around \$230 less aid; both amounts are quite small in terms of practical significance.

We note that these models may underestimate the effect of the FAFSA lists due to the use of a dataset consisting solely of students who enrolled in college. For example, there could exist a group of FAFSA filers who listed schools then chose not to enroll in college due to the level of aid they were awarded. This cannot be observed in our analytical dataset.

Discussion

The evidence presented here suggests that at least some students are following the instructions on the FAFSA and are listing schools in order of their preference. Students are much more likely to be enrolled at the school they listed in the first position on the FAFSA form than schools at any other position. Yet our models as whole provide limited evidence that students are paying a price by providing an implicit preference ranking to schools when they fill out the FAFSA, as some critics have suggested. Given the intense pressures on admissions at many schools, and limited financial aid budgets, such null results may seem surprising.

The most likely explanation lies in how we view the school listing on the FAFSA. Critics have implicitly assumed that these rankings are absolutely correct for every student who fills out the FAFSA: colleges can easily find out a student's preference by looking at their FAFSA list. Yet the instructions on the FAFSA instructing students to list their preferred college first are written in tiny print; given the voluminous instructions for filling out the FAFSA, it is possible that many students and their families overlook them. The instruction about state aid is somewhat ambiguous; students in states with few aid programs may assume this instruction does not apply to them. The implication is that these rankings are somewhat noisy, and that colleges cannot assume that they are correct for any particular student.

Instead, colleges that allocate financial aid strategically are likely combining FAFSA list data with other information about students that reveals their preferences. For example, colleges can track student attendance at college fairs, email and telephone contacts with the admissions office, whether the student visits campus, as well as other information, such as application for early admission. These data can collectively demonstrate that a particular student is very interested in the college. For predictive models that forecast matriculation probabilities based on different types of financial aid packages, inclusion of these variables along with the FAFSA preference ranking can only increase the predictive ability of the model.

If the FAFSA preference ranking is only one piece of information that colleges use to reduce aid for "committed" students, then comparing aid packages for students who rank a college first to those that ranked it below first may not yield significant differences. Some of the students who rank a college as below first place because they did not read the FAFSA instructions carefully may visit a campus more than once, while some of those ranking a college in first place may not engage in any other behaviors that signal interest in the college, besides the application itself.

If true, then this raises the question of why it is so important to prevent colleges from seeing the school lists from the FAFSA, as the Department of Education recently decided to do (Stratford 2015). As of January 1, 2016, the Department will not share the list with colleges when passing on FAFSA data. Yet colleges and universities that wish to discriminate amongst students based on the probability of matriculation already have rich datasets to use for this practice; the FAFSA list data may not add much information to voluminous data they already collect about applicants. More importantly, changing aid allocations based on campus visits and other signals that occur during the application process is relatively uncontroversial within higher education. If this practice is widely accepted, it is not entirely clear why using FAFSA list information in a similar manner is such an undesirable practice.

More importantly, some schools do use the list information, not to make awards, but to cut down on financial aid fraud. Some community colleges, for example, use a variety of information about students in an effort to monitor fraud. Suspicious behavior, such as numerous Pell grants at other institutions with little credit accrual, can prompt them to check the FAFSA list and call other schools to determine if the student is enrolled in multiple institutions (K. McCarthy, personal communication, June 6, 2015). This is why the National Association of Student Financial Aid Administrators has asked the Department of Education to continue sending FAFSA list information to schools, either in alphabetical or randomized order. The results presented here suggest that changing the list order should have little practical effect on student aid packages, even if it does make the sending of FAFSA list information to schools more politically acceptable.

In addition, the Department has announced that it will change how it shares FAFSA list data with state agencies that award financial aid (Stratford 2016). State agencies will receive the list, but in randomized order. However, state agencies must forecast their spending, and using the assumption that students will attend the first school on their list, are able use the list information to plan how much financial aid will be needed for state schools. Other agencies use the information to calculate financial aid packages for eligible students before they enroll. With the announced change, these agencies will have to wait for students to contact them, greatly complicating the process of getting aid to students in need.

Thus, the Department has enacted a change to how FAFSA data are shared with colleges and state agencies, on the basis of anecdotal reports of strategic behavior by colleges reported in the media. As the analyses presented here demonstrate, there is limited evidence that colleges are using the FAFSA in such a fashion that students pay a penalty for where they list a college. Yet the changes have far-reaching consequences for how colleges and agencies deal with financial aid issues, and it is far from clear whether the benefits from these changes are worth the costs.

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