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Most metropolitan universities have available certain amounts of discretionary student funds. Readily available institutional data on student matriculation can be analyzed with a personal computer and inexpensive software. Using these resources, university administrators can study the impact of the various strategies for allocating financial aid funds on student attendance and persistence.

Using Student Financial Aid to Influence Enrollment and Persistence in Urban Institutions

Introduction

Can student financial aid be used effectively to promote first-time attendance and persistence? Past research has differed on this important point. While numerous studies have examined either student attendance or persistence, financial aid was not a variable in many of these. Further, many of the studies that explored aid have been done on national databases. How the results apply to individual institutions has been unclear. This article reviews issues related to aid and describes a case study on the impact of student aid on first-time attendance and persistence at an urban public institution.

Overview of Student Financial Aid

With over half of all students receiving some form of federal financial assistance to attend postsecondary institutions, the impact of federal financial aid programs is significant. However, student aid is also awarded by states, private sources, and institutions themselves. The following is a brief description of these types of aid.

Federal financial aid is in the form of grants and loans. Pell Grants, Supplemental Opportunity Grants, and the College Work Study Program are for low-income students. The loan programs (Stafford, Unsubsidized Stafford, PLUS, and SLS) are available to all students, although low- and moderate-income students may qualify for loan subsidies. In addition to supporting students through institutional subsidies, the states have various grant, scholarship, and loan programs. Highly publicized private sources of funds, usually in the form of scholarships, amount to a tiny percentage of the aid awarded. The remaining major source of student aid is the institutions themselves. This aid can be in the form of scholarships, grants, loans, or campus employment. Since the institution controls these funds, they can be used to enhance university objectives such as enrolling low-income students or attracting students with a variety of special talents.

Congressional action in the 1980s attempted to place limits on spiraling federal aid costs. As a result, the amount of federal aid dropped from 83 percent to 75 percent of the total. According to Levitz, at the same time the amount provided by institutions rose from 12 percent to 19 percent. States contributed the remaining 5 percent. Moreover, the federal government shifted the primary focus of its aid programs from outright grants to loans. This change from grants to loans as the primary source of federal financial aid has had an impact on recruiting and retention, particularly for urban institutions. First, low-income students view loans as negative, perhaps because of negative experiences with consumer credit. Second, there seems to have been a subtle shift to shorter degree programs. Third, although campus employment is more likely to increase persistence, work study funds have been cut over the last decade. Fourth, the default rate, especially for dropouts, has increased. Finally, the system of calculating the need for aid was designed for the traditional college-age student dependent financially on his or her parents. For other students, particularly older students who do not live with their parents, the calculation of financial need tends to be arbitrary and inflexible. These are precisely the types of students that urban institutions attract.

Does Aid Make a Difference?

Over the past decade, researchers have disagreed about the effect of student financial aid on attendance and persistence in institutions of higher education. In two articles published in *Research in Higher Education* in 1990, St. John has suggested that aid has a small yet consistent impact. At the institutional level, however, there is still some controversy over whether student aid has an effect on matriculation because of contradictory results from studies. This may have been due to problems with inadequate logical models, research methods, or interpretation of the results. Research on student persistence has largely been silent on the impact of aid, primarily because the predominant paradigm in these studies has been sociological rather than economic. Moreover, most persistence research at the institutional level requires supplementary data gathering, which, due to the expense involved, severely restricts its use. Persistence research using national databases, however, does show that aid is effective, but the

studies have been of persistence within postsecondary education as a whole rather than at a particular institution. Thus, this research may be difficult to apply at the institutional level.

In the late 1980s, there was a renewed interest at the national level in gaining a better understanding of how prospective students respond to the price of education. In part, this stemmed from changes in federal financial aid policy instituted after 1980, for which data had just become available. From the resulting body of research on price response, two conclusions emerge. First, student decisions to attend college respond positively to price cuts or increases in financial aid. Second, student choices regarding attendance also are influenced by changes in the relative prices of the alternatives. Thus, price response studies have implications for financial aid and pricing policies, and for institutional planning. They show great promise in helping institutions refine their enrollment management strategies to achieve institutional goals.

The implications of this research for practitioners is clear. Since most institutions have some discretionary money available for financial aid, these funds can be used to affect both first-time enrollment and persistence. Further, since urban institutions have unique missions and student populations, it is particularly important for them to investigate the impact of financial aid policies at their particular institution, rather than to rely on national research that might be misleading. To investigate the impact of financial aid on student matriculation decisions, a straightforward analytical model was developed that utilizes existing institutional data to measure the effects of aid. This model was rigorously tested in a case study using a metropolitan university. The institution was chosen in part because of its policy decision to award large scholarships to a relatively small group of students, providing an opportunity to study the effects of institutionally awarded aid.

The Case Study: Urban University

To test whether institutions could use existing data (admission application, financial aid application, student records, etc.) to measure the impact of aid, a logical model was developed to study matriculation. As used here, this term refers both to first-time enrollment and persistence once enrolled. The model uses the factors of background, achievement, student financial aid, and college experiences. It is generic, allowing for examination of three matriculation decisions: first-time attendance, within-year persistence, and year-to-year persistence. The case study involves a doctoral-granting urban public institution of about 15,000 students, here referred to as Urban University. It follows entering first-year students for one year to measure the impact of aid on their matriculation decisions.

Most of the student financial aid at this institution was federal, with the notable exception of full scholarships for National Merit Finalists. Urban University made a policy decision several years ago that committed much of the institutional aid money for large scholarships for National Merit Finalists rather than a larger number of partial scholarships or grants for low-income students. The policy was seen as a strategy to attract

high-ability, high-visibility students to Urban University. The institution also has a special persistence program to enhance the retention of high-risk students.

The subjects for the first-time attendance study were the admitted applicants to the first-year class for the fall semester 1990. For the first-to-second semester persistence study, the subjects were the students who entered this same institution as first-year students in the fall of 1989 who enrolled for the spring of 1990. For the year-to-year persistence study, the sample consisted of the group that entered in the fall of 1989 and enrolled again in the fall of 1990. All data came from existing university sources.

Results

Six major findings emerged from this case study.

- First, students who participated in the persistence program were as likely to persist as other students when all other variables were controlled. These were all high-risk students who had low test scores, inadequate preparation in high school, learning disabilities, or were otherwise disadvantaged, and who also received financial aid. That they persisted in numbers equal to other students indicated that the program works and is providing a "level playing field" for these students. This is an important consideration in light of Urban University's mission of serving the metropolitan area in which it is located.
- Second, student financial aid seems to be a significant factor in encouraging low-income applicants to attend Urban University. However, the findings for persistence are almost the reverse. Low-income applicants receiving financial aid are less likely to persist from the first to the second semester. These findings suggest that many low-income aid applicants assume that the aid award is sufficient to pay their expenses. However, after the first semester, some find out that such is not the case, and leave for financial reasons. This indicates the existence of a "gap" between the aid award and the true cost of attendance. Unfortunately, since Urban University relies mainly on federal funds for financial aid for this group of students, it has little flexibility in the amount of the award. Because of Urban University's mission, this gap is an issue that might be addressed by institutional aid in the form of grants for low-income students. These grants could be important in promoting persistence for this group.
- Third, the institution has difficulty in attracting students who score on the upper third of the ACT who are not National Merit Finalists. These students represent the solid academic performer that Urban University needs to attract. However, the competition for these students is intense. Because they can offer these students subsidized scholarships, second- and third-tier private colleges may be inducing these applicants in larger numbers. Urban University, however, might be able to attract more of these students through partial scholarships.

- Fourth, the policy of awarding a relatively limited number of "high stakes" scholarships to National Merit Scholars has mixed results. Initially, the large award entices Merit Scholars to attend Urban University and the money encourages students to persist at Urban University for one year. However, they leave in large numbers between the first and second years. Thus, once the initial "aura" of a full scholarship wanes, the hard realities of providing a good academic match for these students emerge. This suggests that Urban University needs to carefully consider the importance of this program and the true cost of the resources needed to make it work.
- Fifth, the results of this study show that aid does influence first-time attendance and persistence, although for some groups the effect may be negative. This has implications for Urban University in crafting a financial aid policy that would maximize certain objectives such as persistence. For example, the results suggest that federal financial aid is not sufficient to affect persistence of low-income students. While the institution relies primarily on federal financial aid, funds for campus-based programs and the National Merit Scholarships are within the control of the institution and could be allocated differently.
- Sixth, the study indicates the importance of undertaking a careful examination of the needs of women students. From the data, it is clear that they persist in lower numbers than men. As with low-income students, a gap between the aid available and the true cost of attendance may exist for women. Of course, there are also likely to be factors outside of this model (i.e., child care, class schedules, etc.) that should be addressed.

The results of the study are of interest to other public urban universities, since the applicant population and financial aid policies may be similar. In addition, the findings on "high stakes" scholarships have broad application to many colleges and universities, demonstrating that the match between student and institution is probably more important than the amount of money offered.

Using Price Response

One of the most important questions posed by this research is: how can administrators use the results to develop financial aid policy? This question is answered by computing a statistic called *delta P*, which estimates the effect on the outcome (attendance or persistence) given a change of one unit in a selected variable in the model. The calculation can be done easily with a computer spreadsheet. Delta P statistics are used in two ways in the case study.

First, the delta P provides a measure of the extent to a unit change of a selected variable affects an outcome for a particular group. For example, a delta P of 0.061 for African-Americans within the context of a persistence study shows that a unit increase in financial aid increases the probability of persistence by 6.1 percentage points for this group as compared to all other students. The second use for the delta P statistic in this study is as an

indication of the impact of a unit change of a selected variable on the probability of a given outcome. For example, a delta P statistic of 0.061 per $100 of grant aid indicates that the probability of attendance or persistence increases by 6.1 percentage points per additional $100 in grant aid awarded. Used in this way, the delta P is called a Student Price Response Coefficient (SPRC). For further discussion of price response, readers are referred to Leslie and Brinkman's *The Economic Value of Higher Education*, published in 1980.

SPRC's can be used to estimate how changes in aid awards can influence attendance and persistence. This gives administrators specific information on how to distribute aid dollars more effectively. Also, commonly available financial planning software packages, such as those available from EDUCOM or NCHEMS that many university business offices purchase, or institutionally developed spreadsheets, utilize a price response coefficient. In the present case study, because the impact of aid was examined in three matriculation decisions—first-time attendance, first-to-second semester persistence, and year-to-year persistence—SPRCs could be developed for all three. Moreover, it was also possible to examine the impact of each type of aid in each matriculation decision. The results are indicated in Table 1, which shows that for all three of the choice points studied, the SPRCs were in the range of 0.5 to 0.6 per $100, except for scholarships. The large scholarships for National Merit Finalists accounted for an SPRC of 2.35 for attendance and -2.45 for year-to-year persistence. This reflects the phenomenon discussed earlier of large scholarships being a powerful attraction to Urban University, but a disincentive for long-term persistence. The price response coefficients provide a method of allowing administrators at Urban University to estimate the potential impact of reallocating these large scholarships on each of the three aspects of attendance and persistence. This was done by converting the SPRCs to

Table 1: Student Price Response Coefficients

Decision studied	Type of aid	Percentage point change per $100 in aid
First-time attendance	Total aid	.62
	Scholarship	2.35
Within-year persistence	Total aid	.50
	Grant	.62
	Loan	.52
Year-to-year persistence	Scholarship	-2.45

price elasticities, which measure the sensitivity of student decisions to changes in financial aid.

With regard to first-time enrollment, we found that if the scholarships had been redistributed across the accepted applicant pool, an estimated 134 more students would have enrolled. If the money were given to low-income applicants as grants, 201 more students would have enrolled. The second scenario examined the decision associated with within-year persistence. If all of the scholarship money had been placed in grants, 138 more students would have persisted. If scholarship dollars had been put into loans, 117 more would have persisted. Finally, if the money had been divided into smaller scholarships, an estimated 123 more students would have persisted. The third alternative estimated the impact of reallocating scholarship funds on year-to-year persistence. If the money had been put into grants, 112 more students would have persisted.

These figures provide insights into the possibilities of redirecting aid to better meet institutional goals at each choice point. In the case of Urban University, reallocating the large scholarships could have increased opportunities for low-income students and attracted more solid academic performers, while increasing both student "yield" and persistence rates.

Conclusion

This case study suggests that institutions can use existing data to study the impact of student financial aid, especially the effect of institutional aid on college attendance and persistence. Statistical tests on the logical model used in the case indicate that it is workable and valid. Moreover, the data can be analyzed easily with a personal computer and inexpensive software. The results can be used for both the examination of institutional aid policies and in the commonly used financial planning models. This methodology thus brings sophisticated research and financial planning tools to virtually any institution. The research being described here is currently being extended to a small national sample of institutions. Individuals interested in additional information or participation may contact the author.

Suggested Readings

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