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Does Financial Aid Really Have An Effect On Student Retention?

by
Tullisse A. Murdock

This article reviews the existing research that investigates the relationship between financial aid and student persistence.

The purpose of this study is to perform a meta-analysis of existing empirical studies that have investigated the relationship between student persistence and financial aid. Meta-analysis differs from a typical descriptive review in that it is a statistical analysis of the summary findings of many studies (Glass, McGaw, and Smith 1981). Meta-analysis provides a systematic approach to analyzing the differences in study results and identifying potential mediating variables. Systematic integration would allow for more generalizable conclusions, thus providing more reliable guidelines for national, state, and institutional aid policy.

The need to accumulate and review evidence on whether financial aid programs were actually achieving one of their major purposes — which has been variously labeled as increased retention, successful academic program completion or student persistence — was identified in 1979 by the Aspen Institute Conference on Student Aid Policy. The Institute implied that a strong evaluation of the effectiveness of financial aid programs could not occur without further research and that a general public confidence crisis may transpire since it “appeared” that a relationship exists between “free rides” and non-performance by aided students. Both Herndon (1982) and Jensen (1983) reiterated the Aspen Institute’s concern for evaluating the effects of financial aid on student outcomes. Stampen (1984) concluded that there was only a small number of impact studies focusing on student financial aid and that the results of those studies were mixed. Typical descriptive reviews of the literature are limited in their analysis of the relationship between financial aid and persistence. Too often, the reviewers rely on a small number of studies from which to draw their conclusions. Some of the studies are not representative. Furthermore, descriptive reviews seldom investigate study characteristics, which may account for the differences in study results. This reviewer located over sixty research studies that concentrated particularly on the relationship between student aid and persistence. Therefore, the problem does not appear to be the lack of research on the relationship between persistence and financial aid; rather, the problem seems to be the lack of systematic integration of the existing studies so that true relationships can be discerned. This study is the first meta-analysis or integrative review conducted which examines the relationship between student financial aid and persistence.

The meta-analysis addresses the primary research question: Does financial aid promote student persistence in higher education? In addition, the study addresses numerous secondary questions:

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students, minority students, or private institution students.

Statistical Procedures

To aggregate studies statistically, the findings of each study are transformed into the common metric of effect size. The effect size, as defined by Glass (1977), is equal to the treatment group mean minus the control group mean, divided by the control group standard deviation. In relation to this meta-analysis, the treatment group consists primarily of financial aid recipients and the control group consists of financial aid non-recipients. However, in some instances where the behavior of male and females, whites and non-whites, and the effects of different forms of financial aid are compared, all individuals are aid recipients. For interpretative purposes, effect sizes showing a positive value are associated with results favoring the experimental (i.e., financial aid, male, white) group, while negative values are associated with results favoring the control (i.e., nonfinancial aid, female, nonwhite) group.

In this meta-analysis a less than small, or near-zero, financial aid effect size cannot be interpreted in the traditional sense of "no effect." The purpose of financial aid is to remove economic barriers so economically disadvantaged students can enter and remain in the higher education institutions of their choice. A near-zero financial aid effect size indicates that the "treatment" does have an impact — lower socioeconomic status (SES) students are persisting at the same level as middle and upper SES students.

Once the effect size was obtained for each study, the average unweighted and weighted effect size was calculated for each meta-analysis (Wolf 1986). There is some controversy whether all studies in a meta-analysis should be given equal weight. Some studies may be based on a small number of subjects or an unrepresentative sample, while others may contain a large number of subjects under a control group design. When studies are unweighted, it is possible for small sample studies that obtain results inconsistent with most other studies to exert a strong influence on the results. Therefore, one of the better made meta-analysis procedures is to calculate and report both the weighted and unweighted effect sizes.

The weighting emphasis is on the size of the treatment group and not on the size of the total sample. The average effect sizes were tested for significance using Hedges's (1981) procedures. The level of significance (alpha level) was set at .05 ($z = 1.96$).

Analyses

In order to address the primary and secondary research questions, the results are organized into two categories: (A) meta-analyses dealing with the comparison of financial aid recipients to nonrecipients, and (B) meta-analyses involving the persistence differences among financial aid recipients. Category A includes four meta-analyses examining the effect of financial aid on persistence in relation to (1) the total sample, (2) the degree of study control (3) different measurements of persistence, and (4) two- and four-year institutions. Thirty-three studies compose the sample for the meta-analyses in Category A. Category B includes four meta-analyses investigating the difference in persistence rates among financial aid recipients in relation to (1) gender, (2) ethnic group membership, (3) amount of financial aid received, and (4) form of financial aid received. The category includes fifteen studies previously utilized in Category A and seventeen additional studies.

Table 1 displays the total number of effect sizes, the total number in the control group, the total number in the experimental group, the average unweighted effect size and the average weighted effect size for each meta-analysis, and the level of statistical significance. Studies investigating and measuring the persistence of more than one population may be represented more than once in a meta-analysis; however, no more than one effect size per population is included in any meta-

tain mediating variables most likely are influencing the direction and magnitude of the overall effect size.

The first four analyses on Table 1 deal with subgroupings of studies comparing financial aid recipients to nonrecipients. Meta-analysis II shows the results of studies that control for academic ability through matched sampling. The negative effect size of .006 indicates that financial aid recipients did not persist quite as well as nonrecipients, but the difference is not statistically significant and the effect size is near zero. It is important to keep this finding in the forefront when interpreting other meta-analyses results since only 14 of the 49 studies in the total sample controlled for academic ability.

Meta-analyses III and IV investigate whether the length of persistence measured or the type of institution examined mediates effect size. Although all effect sizes in Meta-analysis III could be classified as having a less than "small effect," studies measuring persistence by graduation show a slightly larger average effect size than studies using a shorter persistence specification of one and one-half years or less. Note the increase in average unweighted effect size from +.1099 for "less than graduation" studies to +.1469 for graduation studies and the increase in percentile from 54.4 percent to 56.0 percent. Thus, the length of persistence measured seems to have a mediating effect on the magnitude of the effect size; the longer the persistence period measured, the larger the effect of financial aid on persistence, particularly persistence toward a degree. Financial aid appears to exert a stronger effect on a student's decision to remain in college during the latter years of education than during the freshman year.

Meta-analysis IV looks at the effect of financial aid at four-year institutions as compared to two-year institutions. Financial aid appears to have a greater impact on the persistence of two-year college students than four-year college students, although the effect would be classified as a small effect. The average four-year student receiving financial aid would have a persistence likelihood greater than 53.6 percent of the four-year group that did not receive financial aid, while the average two-year student receiving financial aid would have a persistence likelihood greater than 58.7 percent of the two-year group that did not. The difference in percentage of effect is slightly smaller for studies examining graduation.

Private institutions also are examined. The five studies that examine student persistence in private colleges show an average unweighted effect size of +.2106 and an average weighted effect size of +.2744. Both average effect sizes are larger than the total average effect sizes of +.1316 and +.0634 (Meta-analysis I). It appears that financial aid shows a stronger effect on student persistence at private institutions than public institutions.

In addition to the first category of meta-analyses that compare financial aid recipients to nonrecipients, three other areas of study design are examined: (1) treatment of transfer and stopouts, (2) enrollment status of the student population, and (3) the year that the persistence was measured. Studies that treated either transfers or stopouts as persisters show a larger effect size than studies that treat both as dropouts; the average effect size of studies examining full-time student persistence is almost twice as great as the average effect size of studies that included part-time students in the population; and, studies conducted after 1975 show a slightly higher average unweighted effect size (+.197) than studies performed prior to 1975 (+.103). These three findings, combined with the Meta-analyses II, III, and IV, identify study characteristics that are potential mediators of effect size or influence study results.

Meta-analyses V through VIII deal with studies that investigate behavior differences among financial aid recipients. Previous persistence literature suggests that women, more so than men, are likely to drop out of college during their freshman year, but fewer men than women are likely to persist toward a degree and graduate "on time" (Summerskill, 1962; Spady, 1970; Astin, 1972; Stampen and Cabrera, 1986). Meta-analysis V reveals that male and female recipients do not behave differently than the total student population. Studies that measure persistence in less than graduation rates show a small positive effect size toward the male population. When graduation rates are examined, the negative value of both average effect sizes indicates a graduation rate favoring the female population.

The findings of Meta-analysis VI are somewhat disconcerting. The negative value indicates a lower persistence for minority recipients than nonminority recipients. The effect is considered small but among the largest observed. The effect size of $-.2206$ means that the average minority financial aid recipient would have a persistence rate less than 41.3 percent of the nonminority financial aid group. Therefore, while past research indicates that financial aid promotes persistence among minorities, it does not appear to compensate fully for other variables that operate against minority retention.

The results in Meta-analysis VII indicate that the dollar amount received has a significantly positive effect on persistence. The combined effect sizes merely reflect an average effect and cannot be interpreted in actual dollar amounts. However, the effect size is one of the largest found and designates amount of financial aid as a mediating effect. The importance of this finding becomes clearer when studies investigating the effect of different forms of financial aid on persistence are examined.

Meta-analysis VIII examines the relationship between various forms of financial aid and student persistence. In each analysis, students receiving the form of financial aid under investigation are the experimental group and students receiving all other forms of financial aid constitute the control group. Although all effect sizes are reasonably small and the differences in effect sizes among forms of aid are minimal, it appears that combination aid forms are more effective than single forms. However, the finding probably reflects more the amount of financial aid than the form of financial aid.

Standing alone, loans show negative average effect sizes. Yet the weighted average effect size approaches zero. Thus, while loans may not increase persistence, they do not appear to influence attrition heavily. Loans in combination with some form of grant have a higher average effect size than either category of single grants or single loans. Work study does not seem to have as large a positive effect on persistence as some researchers have contended (Astin, 1975; Herndon, 1981).

The grant and loan combinations seem to be slightly more effective than single forms of aid. Combination forms of aid usually constitute a larger dollar amount, and the amount of aid has been shown in Meta-analysis VII to be a mediator of effect size. Therefore, whether the effect of the combination financial aid package reflects more the dollar amount than the form of aid is still a problem to be resolved.

Only one study examining scholarship aid controlled for academic ability. Therefore, it is feasible that the higher effect size shown by scholarships may be reflecting the difference in academic ability of recipients rather than the form of financial aid.

The effect of financial aid can be summarized as follows.

(1) Assuming the financial aid is targeted on the lower-income student, financial aid is achieving the objective of equal educational opportunity by enabling the lower-income student to persist at a level almost equal to that of middle- and upper-income students.

(8) When comparing different forms of financial aid, grants, scholarships, and the grant and loan combination have a greater positive effect than do loans. However, the study results on persistence are confounded by the influence of dollar amount and the lack of control for academic ability.

CONCLUSIONS

What implications do the meta-analyses results have for financial policies at the institutional level as well as the national level? Student aid is achieving one of its major objectives — assisting low SES students to persist at a rate almost equal to middle and upper SES students. However, financial aid is not the only variable influencing retention. Minority recipients are not persisting as well as nonminority recipients. Besides financial resources, academic preparation and sociocultural adjustment are identified by researchers as two major factors contributing to minority attrition (Taylor, 1985). Until these two problems are addressed, financial aid constitutes only one side of the trilateral solution to minority attrition.

Since persistence is enhanced by larger amounts of aid, it is imperative that federal and state financial aid funding keep abreast of rising educational costs and the inflation rate. States and institutions appear to be addressing the problem of inflation and higher educational costs by increasing their support of financial aid. Since 1980-81, state and federal institutional aid funding have increased an average of 30.5 percent in constant dollar amount. The increase, however, has not been able to keep pace with the decrease in federal government constant dollar support. If the main concern of financial aid is to remove economic barriers, then funding and award amount policies must keep pace with inflation and higher educational costs in order for students to better meet their financial needs — whether the policies' emphasis is on increased grants or loans.

The financial needs of one major participant in our higher education system are not being met — the part-time student, sometimes referred to as the “nontraditional” student. Part-time students compose 64 percent of two-year college enrollments and 23 percent of four-year institution enrollments. The Carnegie Foundation (1986) has declared part-time students to be one of the fastest growing groups of students in the United States. In the near future, financial aid policy must address the shifting demography in American higher education. In order to do this, federal financial aid must be more accessible to the part-time and nontraditional student. For institutions and states the recommendation implies a more balanced allocation of funds between full-time and part-time students.

The study results also point to the importance of financial aid as a retention variable in the junior and senior years. In apportioning aid funds, institutions must consider the balance between the use of financial aid as a freshman recruiting tool and the institution's commitment to the continuing student. Four-year institutions should reserve enough of their financial aid resources to service continuing students during the latter years of their education. In the same context, four-year institutions too often financially neglect the two-year college transfer student or allocate a minimal amount of their financial aid resources to those students. It is important that these students receive an equitable proportion of financial aid in relation to entering freshmen. Again the recommendation is for a more balanced allocation of funds among freshmen, continuing and transfer students.

The meta-analysis sample shows studies with both positive and negative effect sizes for loans. The findings lead one to question why loans might be associated with attrition in some studies and not in others. An examination of two studies showing loans to have a positive effect on persistence may provide the answer. Voorhees (1984) found one form of loan — NDSL — to have a higher positive effect on student persistence than other forms of aid. NDSL is a campus-based loan and has a

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