Work in Progress: A Systematic Review and Meta-Analysis of College Aid Programs

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Although 37% of U.S. adults age 25 and older now hold at least a bachelor's degree (McFarland et al., 2019), substantial gaps in degree attainment persist across demographic groups. In 2017, 62% of dependent family members from the highest socioeconomic status (SES) quartile had attained at least a bachelor's degree by age 24, compared with only 13% of students from the lowest SES quartile (Cahalan et al., 2019). In a 2002 U.S. cohort of grade 10 students, about 60% of students in the highest SES quartile attained at least a bachelor's degree within 8 years of high school graduation, compared with just 15% of those from the lowest SES quartile (Cahalan et al., 2019).

Many forces contribute to the large persisting inequities college access and completion across demographic groups (Cahalan et al., 2019). The dominant approach to reducing the financial barriers to higher education attainment is to provide student financial assistance. In 2017–18, undergraduate students received $184 billion in financial aid from programs sponsored by the federal government, state governments, colleges and universities, philanthropic organizations, and other entities. Although 30% of this aid was in the form of federal loans, undergraduate students also received aid from the Federal Pell Grant program ($28.2 billion), state grants ($11 billion), grants offered by postsecondary institutions ($48 billion), and other sources ($42.3 billion) (College Board, 2018).

Researchers have examined the effects of various individual student aid programs on several college-related outcomes. Little is known, however, about the comparative effects of these different approaches. Even programs of the same general type (e.g., promise program, merit-based, need-based, programs with need and merit eligibility criteria) differ in stated objectives, target population, eligibility requirements, average awards, restrictions on the use of the award, funding structure, and other design features, as well as the state and local contexts in which they operate.

Research Objectives

This project addresses this knowledge gap by conducting a systematic review and meta-analysis of available evidence on the effects of different student aid programs on the following outcomes: college enrollment, college credit accumulation and retention, academic achievement, degree attainment, and subsequent wages. We will do so by using state-of-the-art meta-analytic techniques. Previous systematic reviews have been conducted on this topic, but all of the previous reviews use outdated or less sophisticated techniques. Therefore, the results of this review will improve understanding of the effects of particular programs and ways that various program features contribute to differences in program effects.

Methods

Inclusion Criteria. Studies must include:

1. populations of students who have the opportunity to receive aid, or were assigned to receive aid, compared with similar students who did not have the opportunity to receive aid or were not assigned to receive the college aid program

2. effects of need-based aid, broad-based merit aid, place-based promise programs, or programs with both need and merit eligibility criteria
3. (1) "no-treatment" control group; (2) cohorts of students prior to program promotion or availability; (3) students who did not meet but were near the cutoff of program eligibility criteria; and (4) minimal level of aid that may be considered "treatment as usual"
4. research designs are randomized controlled trials, quasi-experimental designs, and regression discontinuity designs
5. outcome measures in postsecondary enrollment, credit accumulation/persistence, academic achievement, completion, or labor market outcomes
6. all available literature from 2002-2019
7. published or unpublished studies
8. reports in English
9. a U.S.-based program

Searching, Screening, and Data Extraction. We systematically searched for extant research using the following publication repositories and electronic retrieval databases: Google Scholar, Education Resources Information Center, Education Source, JSTOR, Academic Search Complete, PsycINFO, EconLit with full text, Sociology Source Ultimate, and ProQuest Dissertations and Theses.

We organized the collected citations using Zotero, a free, open-source reference manager that allows researchers to organize citations (Roy Rosenzweig Center for History and New Media, 2016). We used this database to eliminate duplicates and provide the final count of abstracts to be screened. After deduplication, we created an abstract-screening tool to guide the reviewing process. We followed best practice guidelines put forth by Polanin, Pigott, Espelage, and Grotpeter (2019).

We obtained full-text PDFs for all abstracts identified for screening and screened them using a full-text screening tool similar to the abstract screening tool. Publications that passed this phase were included in the data extraction phase and are included in the review.

We created a Filemaker Pro database application to house all extracted data. The extraction codebook details information about the study's sample, intervention characteristics, methodology, outcome measurements, and effect sizes.

Analytic Approach. To estimate the meta-analytic models, we plan to use a random-effects model with robust variance estimation (Hedges, Tipton, & Johnson, 2010), which weights each effect size by the inverse of its variance to produce a weighted average of the effect sizes. Using a robust variance estimation model, we can synthesize multiple effect sizes within a single study simultaneously across the totality of studies. Our aim is to use all available information, combining multiple effect sizes both within and across studies.

Assuming sufficient between-study variation, we will work to explain the variation using a series of meta-regression models. The models will use the study characteristics extracted, simultaneously estimating the relation of the characteristics and the effect sizes. Finally, we will conduct sensitivity analyses to assess for publication bias, outliers, or other data transformation approaches.

Results

The search and screening are complete, and the team is currently working on data extraction and study coding. Our search yielded approximately 7,933 citations, of which 1,191 were screened in at the abstract stage. Of the total abstracts, we retrieved 1,137 full-text pdfs; of

those, 174 were deemed eligible for review. We have extracted data from approximately 40 studies to date. We expect to extract data from the remaining studies prior to the conference.

Discussion

The results of this ongoing review will help inform policymakers and practitioners of the impacts of college aid on student success. We believe this meta-analysis will help provide clarity to the field and inform future college aid programming for years to come.

References

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