

# Educational Opportunity Program (EOP) at a Selective Public University: Initial Findings from a Longitudinal Evaluation Study

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## Author Note

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## Abstract

In this study, we examined academic outcomes among students from low-income and academically disadvantaged backgrounds who participated in the Educational Opportunity Program (EOP) at a selective four-year public comprehensive college in the Northeast. We found that provisionally admitted EOP students earned comparable first-semester grades and had similar first-year retention and continuous enrollment rates to students with far higher admission scores. Disadvantage-associated disparities, however, persisted in two domains: the proportion of credits earned in the first semester and transfer rates to associate- vs. bachelor-degree granting institutions at three-year follow-up. We conclude our paper with policy recommendations for further enhancing academic momentum among EOP students towards timely bachelor-degree attainment.

**Keywords:** provisional admission, Educational Opportunity Program (EOP), college retention, academic momentum

Students in the United States who are African-American or Latino/a, from low-income backgrounds, or who do not have

a parent who completed college have lower enrollment rates in bachelor degree-granting postsecondary institutions—particularly selective bachelor-degree granting institutions (see Bastedo & Jacquette, 2011 and Douglass & Thomson, 2012)—than other students (Ma, Pender, & Welch, 2016; Musu-Gillette et al., 2016). On average, such students are also less likely to earn a bachelor's degree within six years than students from backgrounds that have been historically well-represented on college campuses (Ginder, Kelly-Reid, & Mann, 2016; Ma et al., 2016; Nichols & Clinedinst, 2013). The goal of the current study was to evaluate the effectiveness of a provisional admission program in mitigating these outcomes among students from underrepresented backgrounds during their transition to college and subsequent three years at a selective public comprehensive college in the Northeast.

## Literature Review

### Access to Bachelor-Degree Granting Institutions

National data show that college students who are from low-income backgrounds and students who are the first in their families to attend college are far more likely to begin their postsecondary studies at two-year associate degree-granting institutions (community colleges) than students from high income backgrounds and students from homes in which one or more parents attended college or earned a graduate or professional degree (Bozick & Lauff, 2007; Nichols & Clinedinst, 2013). First-generation college students, who are disproportionally from low-income backgrounds, tend to be less knowledgeable about the process of applying to college and for financial aid and score lower, on average, on standardized college entrance tests than their peers (Chun & Evans, 2015). Because both income and standardized admission test scores are directly related to four-year college enrollment, students who are underprepared academically and from low-income backgrounds have the lowest likelihood of enrolling in four-year colleges (Bozick & Lauff, 2007; Ma et al., 2016). Furthermore, students who attend community colleges have much lower rates of earning a bachelor's degree than students who begin their studies at four-year institutions (see Nichols & Clinedinst, 2013), compounding socio-economic disparities in higher educational enrollment and attainment.

## Need for Support

Students from economically and educationally disadvantaged backgrounds are less likely to have taken college preparatory courses in high school (Chen, 2005; Rivas-Drake & Mooney, 2008). Correspondingly, first-generation students and students from low-income backgrounds have been found to feel less academically prepared and to perceive their study skills, math skills, and reading skills to be inadequate for college-level coursework (Rivas-Drake & Mooney, 2008; Stebleton & Soria, 2012). According to Collier and Morgan (2008), first-generation students report struggling to master the student role and to meet professor expectations. Students from economically and educationally disadvantaged backgrounds may also struggle with issues such as stereotype threat (Cohen & Garcia, 2005; Massey & Fischer, 2005; Steele & Aronson, 1995), race-related stress (Cokley, McClain, Enciso, & Martinez, 2012), family financial responsibilities (Gloria & Rodriguez, 2000; Phinney, Dennis, & Osorio, 2006), sense of belonging on campus (Walton & Carr, 2012), and teacher misperceptions (Fitzpatrick, Henninger, & Taylor, 2014), all of which can threaten their chances of persisting towards their degree. Ongoing academic support and social integration have the potential to ameliorate these issues (Fitzpatrick et al. 2014; Winograd & Rust, 2014).

## Provisional Admission Programs

Provisional admission programs open doors to students who would not typically be admitted to more selective four-year institutions. Under the auspices of such programs, students who demonstrate the potential to succeed academically are admitted despite high school grade point averages and scores on standardized admissions tests that fall below conventional cut-offs for admission. Upon acceptance, students are provided with academic and other types of support to assist them in meeting their potential. Nichols and Clinedinst (2013) found that provisional admission programs help students build relationships with peers, staff, and faculty while strengthening academic skills, study and time management skills, and academic self-efficacy. *Access* and *support* are cornerstones of such programs (Nichols & Clinedinst, 2013).

## Rationale and Research Questions

Provisional admission programs are a promising approach to reducing disparities in higher educational achievement and attainment. However, methodologically rigorous longitudinal investigations regarding the effectiveness of such programs at selective bachelor degree-granting colleges and universities in the United States are rare in the published literature. With the goal of contributing to this body of research, we conducted a quantitative evaluation study of the Educational Opportunity Program (EOP), a provisional admission program at a selective public comprehensive college in the Northeast. Using institutional level data, we tracked the 2010 freshman cohort through the fall of 2013, comparing achievement, persistence, and retention between EOP students and non-EOP students. The following research questions were posed:

1. To what extent did the EOP program increase the representation of students from African-American and/or Latino/a, first-generation, and low-income backgrounds?
2. In which domains and to what extent were prototypical (from African-American and/or Latino/a, low-income, and first-generation backgrounds) EOP student outcomes comparable to prototypical (from none of these underrepresented backgrounds) non-EOP student outcomes?
3. In which domains were prototypical EOP student outcomes comparable to nearest non-EOP neighbor (African-American and/or Latino/a non-EOP) student outcomes?
4. In which domains and to what extent were prototypical EOP students' outcomes better than outcomes that would have been predicted based on admission scores alone?

We also traced the educational path followed by students who were not retained to examine the extent to which EOP students differed from other students in terms of: (a) continued pursuit of studies in higher education, and (b) type of institution attended (two-year vs. four-year) post-transfer, if any.

## **EOP Program Description**

The Educational Opportunity Program (EOP) is a provisional admission and educational support program. Its goal is to improve access to postsecondary education and promote retention among students who have been historically underrepresented. Students must be from low-income backgrounds (i.e., federal PELL grant-eligible), qualify as academically disadvantaged (see “Provisional Admissions Programs” section above), and demonstrate the potential to succeed academically to be eligible to participate in the program. Many EOP students are Latino/a and/or African-American and identify as first-generation college students. Students apply to EOP via a separate application, with EOP student admission to the university contingent upon acceptance to the program by EOP staff. Admission to the EOP program is competitive.

A broad range of support services are provided by the EOP program at the institution where the current study took place. Students are required to participate in: an extended summer orientation program prior to students’ first semester; regular meetings (at least three times per semester) with advisors throughout the students’ college years to discuss professional goals, educational experiences, and personal adjustment; a seminar during students’ first semester covering a range of topics including study skills and college student identity; study groups in both English composition and mathematics; and the monitoring of mid-semester academic performance by EOP counselors, who are then equipped to recommend academic support avenues and discuss satisfactory/unsatisfactory grading or withdrawal options for students at risk of failing a course. The program also offers peer mentorship, inducts high-achieving EOP students into an honors society, and hosts a special graduation ceremony. Students can lose their place in the program if they do not abide by a contract stating that they will obtain academic help (e.g., seek tutoring from the Learning Center on campus) when needed. Students must also maintain a grade point average (GPA) that surpasses the level associated with academic probation to maintain their place in the program.

## Method

The current study used quasi-experimental methods, comparable to those used in non-equivalent groups pre-test post-test designs, to examine academic and retention outcomes (“post-tests”) relative to admission score (“pre-test”). Non-equivalent groups pre-test post-test designs are appropriate when comparison groups are drawn from different populations or selected into treatment based on different criteria (Shadish, Cook, & Campbell, 2002). While this type of study does not permit us to draw causal conclusions, such a study design has the potential to provide evidence for program effectiveness, particularly if the students who would not have attended this college without the program performed similarly to students who were admitted to the college unconditionally. Similarly, we may draw conclusions about the effectiveness of the program if EOP students had more positive outcomes than would be predicted by local and national benchmarks. We employed linear and logistic regression analyses to look at the extent to which admission scores and participation in the EOP program predicted the outcomes under investigation. All continuous variable scores were standardized prior to analyses so we could interpret statistically significant findings as effect sizes. Results from regression analyses allowed us to compare prototypical EOP students to: (a) prototypical non-EOP students, and (b) non-EOP students who identified as African-American and/or Latino/a (“near neighbors”).

## Sample

The sample (see Appendix A, Table 1) consisted of 1085 students who entered the college in the fall of 2010 and completed their first semester. The sample included 121 EOP students (11.1% of the total sample) and 964 non-EOP students (88.9% of the total sample). Among EOP students, 100% received PELL United States federal financial aid, an eligibility requirement for participating in the program, along with not qualifying for admission under typical standards. Also among EOP students, 90.1% identified as first-generation college students and 81% identified as African-American and/or Latino/a. The remaining 19% of EOP students identified primarily as Asian and/or Caucasian. A 74% majority of EOP students in this study were first-generation college students who identified as African-American and/or Latino/a. These students are

referred to as the “EOP reference group” or “prototypical EOP students” in the results of relevant analyses reported below. About a third (33.9%) of EOP students began their first semester with prior college-level course credits.

Non-EOP students were much less likely than EOP students to be from low-income backgrounds, to be first generation college students, and/or to identify as African-American and/or Latino/a. Among non-EOP students, 18.5% received PELL financial assistance, 7% identified as first-generation college students, 12% endorsed African-American and/or Latino/a as a cultural identity, and 6.5% endorsed Asian as a cultural identity. A 71% majority ( $n = 681$ ) of the 964 non-EOP students were neither first-generation college students nor African-American and/or Latino/a, nor did they qualify for PELL financial assistance. These students are referred to as the “non-EOP reference group” or “prototypical non-EOP students” in the results of relevant analyses reported below. Only ten non-EOP students, 1.04% of the total non-EOP sample, identified as first-generation, low-income, and African-American and/or Latino/a. Sixty-seven percent of non-EOP students began their first semester with prior college-level course credits.

### **Variables**

All variable information was accessed from Institutional Research data at the college where the study took place. Background variables included gender, cultural background, socio-economic status, and whether students were first-generation college students. Because we were particularly interested in students from underrepresented backgrounds whose retention and graduation rates tend to be lower and to maximize power to detect smaller effects, we created a combined group of students who self-identified as African-American and/or Latino/a. Students were categorized as “other” if they endorsed neither African-American nor Latino/a. Students were categorized as “low-income” if they received a federal PELL grant. PELL grants are need-based and provided primarily to undergraduate students to increase access to postsecondary education. Finally, students were categorized as first-generation college students if they completed a Free Application for Federal Student Aid (FAFSA) form and reported that the highest level of schooling completed by each

parent/guardian was high school or below.

Admission scores for each student were re-derived by the investigators from total SAT score and high school GPA via the same formula the admissions department at the university used to convert scores and select applicants for admission. This formula weighted overall SAT score and high school GPA equally. A variable that reported if students had earned college credits (yes/no) prior to enrollment was also employed as a predictor of academic outcomes and retention.

Outcome variables in the current study included: first-semester GPA; first-semester number of credits earned; whether students earned all credits attempted in the first semester; continuous enrollment during the first year of college; and first-year retention. Students who were not retained were further categorized into four different groups: returned to college later, transferred to an associate's degree-granting institution, transferred to a bachelor's degree-granting institution, or did not return to a post-secondary degree-granting institution during the time frame of the study (e.g., "stop-out").

### **Missing Data**

Three variables had missing values: sex (two non-EOP values, .18% missing), high school GPA (four non-EOP values, .37% missing), and SAT (72 values, 6.64% missing across the entire sample; EOP  $n = 1$  or .8% missing within EOP; non-EOP  $n = 71$  or 7.37% missing within non-EOP). Most students who did not take the SAT provided scores from the ACT ( $n = 71$ ), an alternate admission test. The students who provided only ACT scores had, on average, high school GPAs that were 1.26 points higher on a 100-point scale and first-semester college GPAs that were .027 points higher on a 4-point scale than those who provided SAT scores alone. Missing data for SAT scores were therefore, to some degree, directly related to academic achievement at the secondary and postsecondary level.

Multiple imputation procedures (MI) were employed using SPSS 23 (IBM SPSS Statistics for Mac, version 23, IBM Corp., Armonk, N.Y., USA) to estimate probable values for the missing data described above. Before the data to be analyzed were imputed, an exploratory analysis was run to examine Markov Chain Monte Carlo (MCMC) fully conditional specification (FCS) algorithm convergence.

Two imputations with 1000 iterations each were run, and trace plots of means and *SDs* for high school GPA, SAT Math, and SAT Verbal were generated. After this exploratory imputation, we used Enders' (2017) diagnostic macro program to assess convergence. All three continuous variables with missing values (high school GPA, SAT Verbal, SAT Math) converged between 0 and 100 iterations with potential scale reduction (PSR) factors < 1.05. Sample autocorrelation function (ACF) plots for these variables also appeared normal.

After convergence was established and based on Graham (2012) and Enders' (2010) recommended procedures, we ran the MCMC FCS algorithm again to generate 40 data sets with 200 iterations. After imputation, SAT scores were totaled, scores were standardized, and interactions of interest between program participation and continuous variables were created across the new master data set. All subsequent analyses were then carried out via SPSS 23 across each imputed data set. Pooled results across all 40 imputed data sets are presented below.

## Results

### Representation on Campus

In the freshman cohort under investigation, the EOP program increased the representation of low-income students in the student body from 178 (18.5%) to 299 (27.6%), a 68% increase. The EOP program also increased the representation of students who were raised by parent/guardians without a college degree from 67 (7%) to 176 (16.2%), more than doubling the number of students who were first-generation college students who would have otherwise enrolled. Finally, the EOP program increased the representation of African-American and/or Latino/a students on campus from 116 (12%) to 214 (19.7%), an increase of 84.5%.

Among the 116 African-American and/or Latino/a non-EOP students, 40 (34.4%) received PELL financial aid, and 23 (19.8%) identified as first-generation college students. While less socioeconomically disadvantaged on average than EOP students, these students were about twice as likely to be from low-income backgrounds than the other 848 non-EOP students, among whom only 44 (5.2%) identified as first-generation college students and 138 (16.3%) received PELL financial aid.

## Admission Scores and Prior College Credits

EOP students entered college with high school GPAs that were much lower (a difference of 1.569 *SDs*), on average, than those of non-EOP students: the difference between the mid-80s (EOP  $M = 83.829$ ,  $SD = 4.95$ ) and low 90s (non-EOP  $M = 91.002$ ,  $SD = 3.84$ ). EOP students also had total SAT scores that were lower (2.12 *SDs*), on average, than the SAT scores of non-EOP students, a difference of approximately 250 points. Non-EOP students who identified as first-generation ( $n = 67$ ) had total SAT scores that were .378 *SD* lower than non-EOP students who did not identify as first-generation ( $n = 897$ ), a difference of about 40 points. Non-EOP students who identified as African-American and/or Latino ( $n = 116$ ) had SAT scores that were .354 *SD* lower than non-EOP students who did not identify as African-American and/or Latino/a ( $n = 848$ ), also a difference of about 40 points. On average, EOP students had a combined high school GPA/SAT admission score that was 2.25 *SDs* lower than that of non-EOP students. All the differences reported above were statistically significant at a  $p = .000$  level.

While 646 (67%) of non-EOP students had earned credits from college-level courses taken prior to starting college (see Appendix B, Figure 1), a much smaller proportion of EOP students had earned such credits,  $n = 41$  (33.9%). The odds of an EOP student entering the university with a successful experience in a college-level course were a quarter that of non-EOP students,  $OR = .252$  ( $.169 = .376$ ),  $p = .000$ . More specifically, the odds of an EOP student entering the university with college credits were approximately 1:2, whereas the odds of a non-EOP student entering the university with college credits were approximately 2:1. The proportion of non-EOP students who identified as African-American and/or Latino/a and entered the university with college credits was 57.8%, 10% lower than other non-EOP students and nearly 25% higher than EOP students.

## First-Semester Academic Outcomes

The magnitude of first-semester GPA (post-test) differences between EOP students and non-EOP students was much smaller than the magnitude of admission score (pre-test) differences. Reference group EOP students (first-generation, African-American

and/or Latino/a, low-income) earned a standardized first-semester GPA of  $-.278$ , on average, while reference group non-EOP students (not described by any of the characteristics listed above) earned a standardized first-semester GPA, on average, of  $.100$ , about the difference between a letter grade and one “step” up from that letter grade (e.g., the difference between a B+ and an A-). As with admission score, typical non-EOP students performed better academically than typical EOP students. However, the difference between average post-test scores,  $-.378$ , was much smaller ( $< 20\%$  of) than the difference between pre-test scores,  $-1.381$ . EOP students who identified as African-American and/or Latino/a had an average first-semester GPA that was only  $.13$  *SD* lower than that of non-EOP students who identified as African-American and/or Latino/a ( $-.244$ ), a difference of  $.05$  on a 4-point scale. This difference was not statistically significant,  $t(212) = .510$ ,  $p = .611$ . Furthermore, the small magnitude of this difference suggests that EOP students with far lower admissions scores ( $-2.217$  *SDs*) and greater social disadvantages than non-EOP students from African-American and/or Latino/a backgrounds had almost identical average first semester GPAs.

When the average admission score for EOP students who identified as African-American and/or Latino/a was used to calculate the predicted first-semester GPA for non-EOP students who identified as African-American and/or Latino/a, according to the results from a multiple regression analysis (see Appendix A, Table 2), the resulting predicted GPA was between  $-.637$  (female non-EOP students who identified as African-American and/or Latino/a) and  $-.997$  *SD* (male non-EOP students who identified as African-American and/or Latino/a) below the average performance of reference group EOP students ( $-.278$ ). This is equivalent to the difference between a B and the C to C+ range. These results suggest that prototypical EOP students performed better than we would have expected “nearest-neighbor” non-EOP students to perform, had they been admitted with similar admission scores but not given EOP program services (a counterfactual scenario).

In their first semester of college, non-EOP students were represented in greater numbers (45%) on the Dean’s list than EOP students (21.5%), OR =  $.334$  ( $.213 - .525$ ),  $p = .000$  (see Appendix A,

Table 3). The odds of non-EOP students earning Dean's list status were greater than 2:3, whereas the odds of EOP students earning such status were approximately 1:4. Among non-EOP students, with each standard deviation increase in admission score, the likelihood of achieving Dean's list status doubled:  $OR = 2.114 (1.708 - 2.615)$ ,  $p = .000$ . Among EOP students, with each standard deviation increase in admission score, the likelihood of achieving Dean's list status increased by approximately 60%:  $OR = 1.570 (.958 - 2.573)$ ,  $p = .073$  (see Appendix B, Figure 2). EOP students from African-American and/or Latino/a backgrounds had about half of the odds of non-EOP students from African-American and/or Latino/a backgrounds (37.1%,  $n = 43$ ) of earning a spot on the Dean's list (23.5%,  $n = 23$ ),  $OR = .521 (.286 - .949)$ ,  $p = .033$ . When the average EOP admission score was entered into the non-EOP model, we found that EOP students, on average, had about the same probability of earning Dean's list status during their first semester as non-EOP students whose admissions scores were essentially at the admissions cut off (+.03 *SD*).

In their first semester of college, students in EOP were more than twice as likely to be placed on academic probation (8.3%,  $n = 10$ ) as students who did not participate in the program (3.8%,  $n = 37$ ),  $OR = 2.257 (1.092 - 4.664)$ ,  $p = .028$ . Among non-EOP students, with each standard deviation increase in admission score, the likelihood of being placed on academic probation was reduced by approximately half:  $OR = .467 (.265 - .823)$ ,  $p = .008$ . Among EOP students, higher admission scores did not have a discernible effect on first semester academic probation status,  $OR = 1.209 (.594 - 2.461)$ ,  $p = .601$  (see Appendix B, Figure 3). Despite entering college at far greater academic disadvantage, EOP students, on average, had about the same probability of being placed on academic probation as non-EOP students somewhat above (+.21 *SD*) the admission score cut-off. Among non-EOP students, 8.6% ( $n = 10$ ) of those identifying as African-American and/or Latino/a were placed on academic probation during their first semester of college. When we narrowed our analysis to the 214 students identifying as African-American and/or Latino/a, we did not find a statistically significant difference in proportions of students placed on academic probation following the

first semester between EOP students and non-EOP students,  $OR = .691 (.242 - 1.975)$ ,  $p = .491$ .

**First semester credits earned and credits earned/attempted ratio.** Prototypical EOP students earned  $-.578$  standardized credits during their first semester in school, equivalent to a mean of  $12.72 (SD = 2.82)$  credits whereas prototypical non-EOP students, on average, earned  $.072$  standardized credits during the same semester, equivalent to a mean of  $14.364 (SD = 2.254)$  credits. Prototypical EOP students therefore earned  $.67 SD$  fewer credits than non-EOP students, a difference of approximately 1.5 credits,  $t(1083) = 2.009$ ,  $p = .000$ . While EOP students were shy of a full credit semester (15 credits) by more than 2 credits, prototypical non-EOP students were only about half of a credit shy. This difference in first semester credits earned was partly attributable to EOP students attempting fewer credits,  $M = 14.339 (SD = 14.339)$  than non-EOP students,  $M = 15.352 (SD = 1.273)$ ,  $t(1083) = 8.094$ ,  $p = .000$ .

Among non-EOP students who identified as African-American and/or Latino/a, first-semester number of credits earned ( $-.085$ , standardized, on average; equivalent to  $13.97, SD = 2.89$ ) was much closer to the number of credits earned by other non-EOP students (only about half of a credit lower) than to the number of credits earned by EOP students who identify as African-American and/or Latino/a. On average, EOP students from African-American and/or Latino/a backgrounds earned 1.25 credits fewer credits ( $-.49 SD$ ) than non-EOP students from African-American and/or Latino/a backgrounds. According to the results of separate multiple regression analyses for EOP and non-EOP students, admission score was a statistically significant predictor of first-semester credits earned (see Appendix A, Table 4). A comparison of these models demonstrates that EOP students from African-American and/or Latino/a backgrounds earned a similar number of credits, on average, to the number we would expect non-EOP students from African-American and/or Latino/a backgrounds (“nearest neighbors”) to earn if they had been admitted to the college with similar admission scores to EOP students yet not provided with EOP support services (a counterfactual scenario).

A smaller proportion of EOP students, 60.3% ( $n = 73$ ), earned all credits attempted during their first semester than non-EOP students, 77.5% ( $n = 747$ ),  $OR = .442 (.296 - .655)$ ,  $p = .000$  (see Appendix A, Table 5), further contributing the observed difference in credits earned. The odds of an EOP student completing all credits attempted was approximately 3:2, whereas the odds of a non-EOP student completing all credits attempted was 7:2. Therefore, EOP students had less than half the odds of completing all credits attempted as non-EOP students. With each  $SD$  increase in admission score, the odds of EOP students earning all credits attempted in the first semester improved by 60%,  $OR = 1.601 (1.048 - 2.445)$ ,  $p = .034$ . With each  $SD$  increase in admission score, the odds of non-EOP students earning all credits attempted increased by 78%:  $OR = 1.782 (1.381 - 2.300)$ ,  $p = .000$  (see Appendix B, Figure 4). When we entered the mean admission score of EOP students into this non-EOP model, we found that EOP students had about the same probability of completing all credits attempted in their first semester as non-EOP students with an admission score  $.77 SD$  above their own ( $.5 SD$  below the admissions score cut-off).

Among non-EOP students, a smaller proportion of African-American/Latino/a students, 69.8% ( $n = 81$ ), earned all credits attempted (odds of approximately 7:3) than the proportion of non-EOP students who were neither African-American nor Latino/a, 78.5% ( $n = 666$ ; odds of approximately 2:1),  $OR = .632 (.412 - .971)$ ,  $p = .036$ . The odds non-EOP students from African-American and/or Latino/a backgrounds earning all credits attempted were therefore about 37% lower than those of other non-EOP students. EOP students from African-American and/or Latino/a backgrounds, on average, had a somewhat lower rate, 62.2% ( $n = 61$ ) of completing all credits attempted than their non-EOP counterparts from African-American and/or Latino/a backgrounds, 69.8% ( $n = 81$ ):  $OR = .712 (.403 - 1.259)$ ,  $p = .243$ .

### **First-Year Continuous Enrollment and Retention Outcomes**

Nearly equivalent proportions of EOP (95.9%) and non-EOP (94.7%) students were continuously enrolled for their first and second semesters of their first year in college,  $OR = 1.296 (.507 - 3.313)$ ,  $p = .588$  (see Appendix A, Table 6). EOP students also were

found to have the same continuous enrollment rate as that predicted for non-EOP students who were 1.46 *SDs* above the cut-off for admission, on average. Thus, continuous enrollment rates among EOP students were consistent with continuous enrollment rates among non-EOP students with the highest admission scores. Among non-EOP students, admission score was related to the probability of being continuously enrolled, in that for each *SD* increase in admission score, the likelihood of continuous enrollment increased by 59%: OR = 1.593 (.999 – 2.541),  $p = .050$  (see Appendix B, Figure 5). Among EOP students, the probability of continuous enrollment was not associated in a statistically significant manner with higher admission scores, OR = .763 (.285 – 2.043),  $p = .590$ . Furthermore, no statistically significant differences were found between proportions of students continuously enrolled when non-EOP students from African-American and/or Latino/a backgrounds (94.8%) were compared to: (1) non-EOP students from other backgrounds (94.7%) and (2) EOP students from African-American and/or Latino/a backgrounds (96.9%).

Along the same lines, nearly equivalent proportions of EOP (86%,  $n = 104$ ) and non-EOP (86.8%,  $n = 837$ ) students returned to college in the fall of their second year, OR = .928 (.538 - 1.602),  $p = .789$  (see Table 6 in Appendix A). Furthermore, EOP students had the same retention rate, on average, as that predicted for non-EOP students with admission scores that were .78 *SD* above the cut-off for admission (see Appendix B, Figure 6). As above, no statistically significant differences were found between groups when non-EOP students from African-American and/or Latino/a backgrounds (82.8%) were compared to: (1) non-EOP students from other backgrounds (87.4%) and (2) EOP students from African-American and/or Latino/a backgrounds (86.7%).

### **Stop-out and Transfer Status at Follow-Up**

Among the 17 EOP students (14%) and the 127 non-EOP students (13.2%) who were not retained following their first year, similarly small percentages of EOP students (2.5%,  $n = 3$ ) and non-EOP students (1.9%,  $n = 18$ ) were categorized as “stop-outs,” defined in this study as students who neither returned after the first semester of the second year nor enrolled in another institution

by what would have been their fourth year of school. Logistic regression analyses were carried out to examine differences in transfer status (two-year vs. four-year institution) between program and non-program participants who enrolled in another institution by what would have been their fourth year of school. Transfer status information was gathered via the National Student Clearinghouse Student Tracker program.

Similar proportions of EOP students (9.1%,  $n = 11$ ) and non-EOP students (8.6%,  $n = 83$ ) who did not return to the college where this study took place for the first semester of their second year transferred to another institution by what would have been their fourth year of college, OR = 1.069 (.552 - 2.069),  $p = .843$ . EOP students who transferred had an almost 1.5 *SDs* lower first semester GPA, approximately the difference between a C- and a B-. This group of EOP students also earned about 2 *SDs* fewer credits during their first semester, on average (55% of a full-credit load/8.5 credits), than non-EOP students (91% of a full-credit load/13.65 credits).

Correspondingly, as shown in Table 7 (Appendix A), the proportion of EOP students who transferred to another bachelor-degree granting institution by the fall of what would have been their fourth year of college was far lower (18%,  $n = 2$ ) than that of non-EOP students (76%,  $n = 63$ ), with EOP students having about 93% lower odds: OR = .071 (.014 - .354),  $p = .001$ . Rather, EOP students who transferred out of the institution where this research took place were far more likely (92%,  $n = 11$ ) to enroll in a community college than non-EOP students (24%,  $n = 20$ ). While this pattern of results is quite clear, EOP cell sizes for these outcomes were particularly small. Therefore, the OR reported here should be interpreted cautiously.

## Discussion

The goal of the current study was to examine the extent to which the EOP program at a selective four-year public comprehensive college contributed to achievement, persistence, and retention among students from underrepresented backgrounds who were admitted and provided support via a provisional admission policy. In terms of improving access, the EOP program doubled

the number of students from first-generation backgrounds and substantially increased the number of students from low-income and African-American and/or Latino/a backgrounds on campus, thereby contributing to the increased diversity of the student body. Hurtado and Ruiz (2012) have observed direct associations between cultural diversity, more welcoming climates, and improved intergroup relationships on campus. Thus, benefits of improving access to higher education to students from underrepresented backgrounds are likely to extend beyond support services and to the college community at large.

Two distinct patterns emerged in our results. The first pattern indicated domains in which EOP students exhibited outcomes that appeared to “close the gap” and set the stage early in their college career for bachelor’s degree attainment. These included first-semester GPA, continuous enrollment during the first year, and first-year retention levels comparable to those of typical non-EOP students. EOP students also had Dean’s list status and academic probation status rates that were comparable to non-EOP students at or above the admissions cut-off. In each of these domains, average EOP values exceeded the counterfactual values that would be expected for non-EOP students, had non-EOP students been admitted with comparable admission scores to the EOP students. Such findings are not trivial, particularly when we consider the much lower likelihood that EOP students entered the institution with experiences of college-level coursework, and the fact that EOP students would not be enrolled at the college without the EOP program’s existence and support. Given that EOP students, on average, enter college with far greater educational and social disadvantages, these results provide solid quantitative evidence that the program is working.

The other pattern revealed domains in which disparities persisted that had the potential to pose unique challenges to timely graduation among EOP students. Consistent with equity gaps reported by the College Board (2014), EOP students were about half as likely to enter college with college course credits as non-EOP students. Aside from the academic preparation benefits of prior college-level course experience, “extra” college credits provide students with more flexibility/choice to drop or withdraw from

courses or to take a lower course load during selected semesters en route to graduation. This observation is particularly noteworthy given that EOP students were less likely than non-EOP students to earn all credits attempted during the first semester, a finding in line with national data on first-generation college students (see Chen, 2005). Students risk losing financial aid when their ratio of credits earned to credits attempted falls too low. For low-income students, loss of financial aid is equivalent to loss of college access.

When we examined transfer outcomes at what would have been the fourth year of college among the small proportion of students who were not retained following their freshman year, a quite significant disparity was observed. EOP students who left tended to transfer to community colleges, whereas non-EOP students tended to transfer to bachelor's degree granting institutions (non-EOP students from African-American and/or Latino/a backgrounds were in the middle). EOP students who continued their studies in a community college setting tended to have struggled academically during their transition to college.

Strengths of this study include a method of analysis that allowed for precise measurements of the extent to which initial educational disparities were reduced post-college entry and the use of the National Student Clearinghouse Student Tracker program to gather persistence data for students who were not retained following their initial year of college. Limitations included insufficient power to detect differences in outcomes between: (a) students from African-American backgrounds and students from Latino/a backgrounds; (b) EOP students from African-American backgrounds and/or Latino/a backgrounds and a much smaller group of EOP students who identified as Caucasian and/or Asian (despite better academic preparation indicators, the latter group appeared to have less successful achievement and retention outcomes); and (c) male and female students within EOP. Furthermore, we did not examine EOP and non-EOP group differences with regard to first-semester courses taken and patterns of course withdrawal. Results from such an examination could potentially shed light on the role that these factors played in EOP student success during the college transition. Stronger evidence for program effectiveness would result if functional

equivalence across EOP and non-EOP student outcomes could be demonstrated (see Rodgers, Howard, & Vessey, 1993). Further research in this area should use educationally-relevant degrees of functional difference that are defined by policy-makers and/or stakeholders as a basis for such analyses.

Based on the results reported above, we recommend that EOP students and struggling non-EOP students from low-income backgrounds be provided with additional time and resources to fulfill course requirements. With financial aid for summer opportunities to increase the number of credits earned, students can gain additional momentum towards graduation (Attewell, Heil, & Reisel, 2012). Recent revision to PELL grants as of May of 2017 (see [https://www.nasfaa.org/legislative\\_tracker\\_pell\\_grants](https://www.nasfaa.org/legislative_tracker_pell_grants)) allow for year-round aid to students from low-income backgrounds, a hopeful step in this direction. For students who leave for community colleges, perhaps program counselors could maintain contact and offer an invitation to return in the future, contingent upon a satisfactory academic record at the transfer institution. We also can envision additional outreach and support for students from African-American and/or Latino/a backgrounds who are not eligible for the kinds of support provided by a provisional admission program, as results reported here indicate that students from these backgrounds were more likely to transfer to community colleges (vs. bachelor-degree granting institutions) than other non-EOP students.

Future research will examine similarities and differences in outcomes between EOP and non-EOP program participants across subsequent semesters. We also will examine graduation rates among this cohort at six-year follow-up, both from the current institution and from institutions to which the students have transferred. Plausible mechanisms (e.g., increased sense of belonging, mastery of student role, utilization of academic support services on campus) by which the program contributes to student achievement and retention will be investigated.

Douglass and Thomson (2012) describe the historical mission of public universities to educate students from a wide range of backgrounds as “a formal mandate or social contract” (p. 68). The combination of access and support provided by provisional

admission programs such as EOP, along with the renewed federal commitment to year-round PELL grants that support academic momentum and reduce disparities in academic attainment (see Attewell et al., 2012) have the potential to help fulfill this social contract.

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**Appendices**

**Appendix A: Tables**

**Table 1**

*Background Characteristics by Program Participation*

<b>Program Participation</b>	<b>PELL Status, Count (%)</b>	
	<b>PELL</b>	<b>Non-PELL</b>
EOP	121 (100%)	0 (0%)
Non-EOP	178 (18.5%)	786 (81.5%)
Total	299 (27.6%)	786 (72.4%)
	<b>First-Generation Status, Count (%)</b>	
	<b>First-Generation</b>	<b>Non-First-Generation</b>
EOP	109 (90.1%)	12 (9.9%)
Non-EOP	67 (7%)	897 (93%)
Total	176 (16.2%)	909 (83.8%)
	<b>Cultural Background, Count (%)</b>	
	<b>African-American and/or Latino</b>	<b>Other Cultural Background</b>
EOP	98 (81%)	23 (19%)
Non-EOP	116 (12%)	848 (88%)
Total	214 (19.7%)	871 (80.3%)

**Table 2**  
*First-Semester GPA*

Predictors	First Semester GPA			
	EOP		Non-EOP	
	<i>B</i> (SE)	<i>p</i> -value	<i>B</i> (SE)	<i>p</i> -value
Intercept	-1.343 (.393)	.001	.106 (.045)	.019
Admissions Score	<b>.230</b> (.111)	.039	<b>.309</b> (.037)	.000
Gender	-.288 (.211)	.173	<b>-.328</b> (.060)	.000
Low-Income	---	---	-.036 (.076)	.632
African American or Latino/a	<b>.661</b> (.252)	.009	-.082 (.088)	.352
First-Generation College Student	<b>1.046</b> (.323)	.001	<b>.255</b> (.102)	.012
	$R^2 = .161$		$R^2 = .115$	

*Note.* Female, non-low-income, non-first-generation college students from Caucasian and Asian backgrounds were the reference group. Because all EOP students received federal PELL grants, low-income was not included as a predictor in regression models for EOP students.

**Table 3**  
*Dean's List and Academic Warning*

	Count (Percentage)		OR	<i>p</i> -value	95% CI
	EOP ( <i>N</i> = 121)	Non-EOP ( <i>N</i> = 964)			
Dean's List	434 (45%)	26 (21.5%)	<b>.334</b>	.000	.213 - .525
Academic Warning	10 (8.3%)	37 (3.8%)	<b>2.257</b>	.028	1.092 - 4.664

*Note.* Among non-EOP students from African-American and/or Latino/a backgrounds, 8.6% ( $n = 10$ ) were placed on academic probation.

**Table 4**  
*First-Semester Credits Earned*

Predictors	Fall Credits Earned			
	EOP		Non-EOP	
	<i>B</i> (SE)	<i>p</i> -value	<i>B</i> (SE)	<i>p</i> -value
Intercept	-1.209 (.459)	.008	.122 (.046)	.007
Admissions Score	<b>.319</b> (.130)	.014	<b>.122</b> (.057)	.032
Gender	-.319 (.246)	.196	<b>-.240</b> (.057)	.000
Low-Income	---	---	.115 (.076)	.131
African American or Latino/a	<b>.702</b> (.294)	.017	<b>-.209</b> (.093)	.025
First-Generation College Student	<b>.765</b> (.377)	.043	.208 (.118)	.078
Interaction: Admissions x Gender	---	---	<b>.186</b> (.092)	.045
	R <sup>2</sup> = .125		R <sup>2</sup> = .047	

*Note.* Female, non-low-income, non-first-generation college students from Caucasian and Asian backgrounds were the reference group. Because all EOP students received federal PELL grants, low-income was not included as a predictor in regression models for EOP students.

**Table 5**  
*All Credits Earned/ Attempted, First Semester;*

	Count (Percentage)		OR	<i>p</i> -value	95% CI
	EOP ( <i>N</i> = 121)	Non-EOP ( <i>N</i> = 964)			
All credits earned/ attempted	73 (60.3%)	747 (75.5%)	<b>.442</b>	.000	.296 - .655

*Note.* Among non-EOP students from African-American and/or Latino/a backgrounds, 81 (69.8%) earned all credits attempted.

**Table 6***First-Year Continuous Enrollment and Retention*

	<b>Count (Percentage)</b>		<b>OR</b>	<b>p-value</b>	<b>95% CI</b>
	<b>EOP (N = 121)</b>	<b>Non-EOP (N = 964)</b>			
Retention	104 (86%)	837 (86.8%)	<b>.928</b>	.789	.538 - 1.602
Continuous Enrollment	116 (95.9%)	913 (94.7%)	<b>1.296</b>	.588	.507 - 3.313

**Table 7***Transfer College (2-Year vs. 4-Year)*

	<b>Count (Percentage)</b>		<b>OR</b>	<b>p-value</b>	<b>95% CI</b>
	<b>EOP (N = 11)</b>	<b>Non-EOP (N = 83)</b>			
2-Year College	9 (82%)	20 (24%)			
4-Year College	2 (18%)	63 (76%)	<b>.071</b>	.001	.014 - .354

## Appendix B: Figures

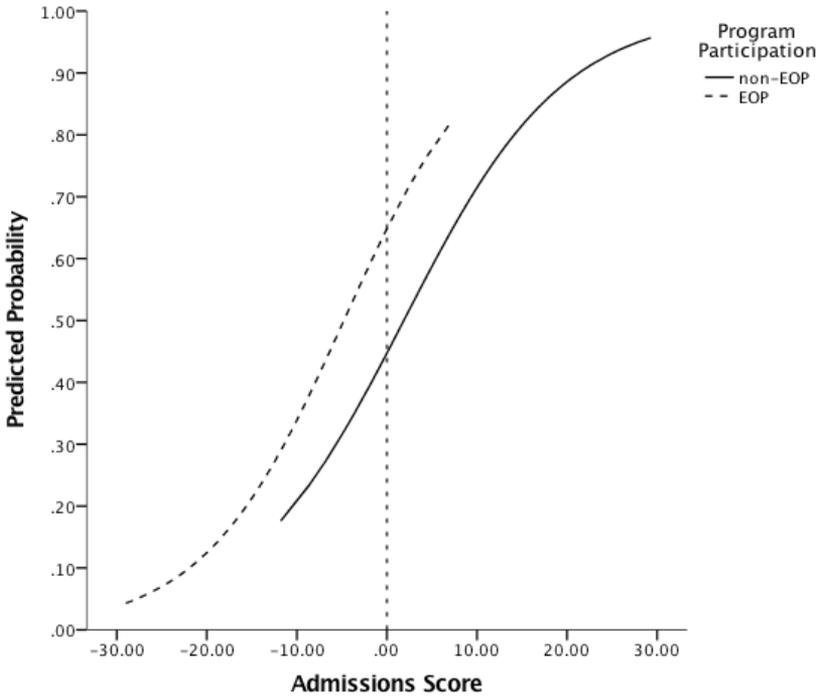


Figure 1. Predicted probability of entering the institution with college credits by admission score (centered at cut-off) and program participation.

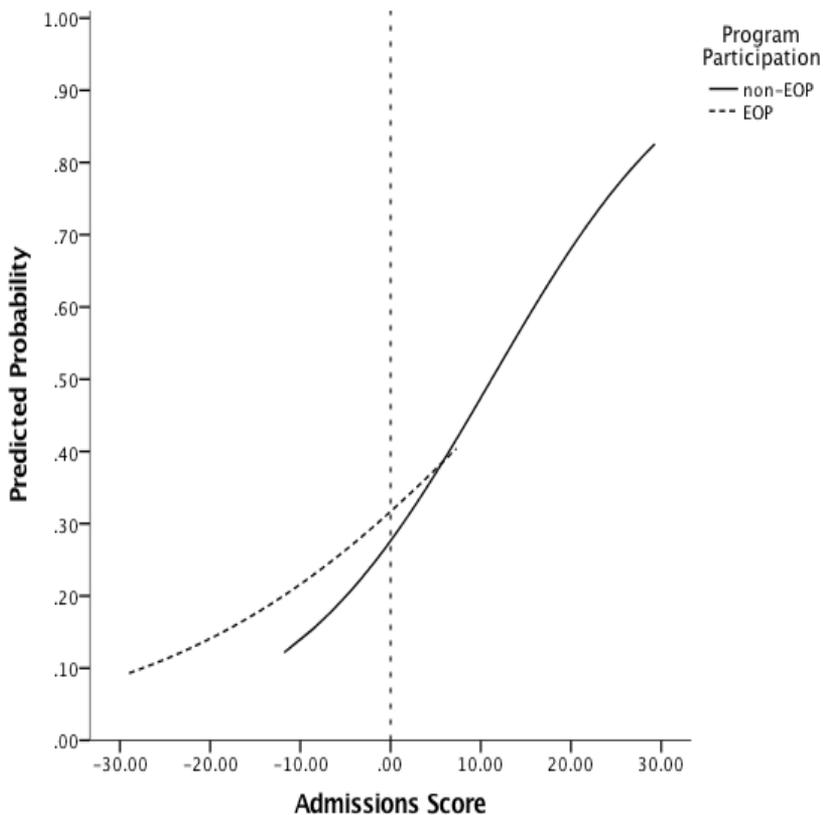


Figure 2. Predicted probability of earning Dean's list status during first semester by admission score (centered at cut-off) and program participation.

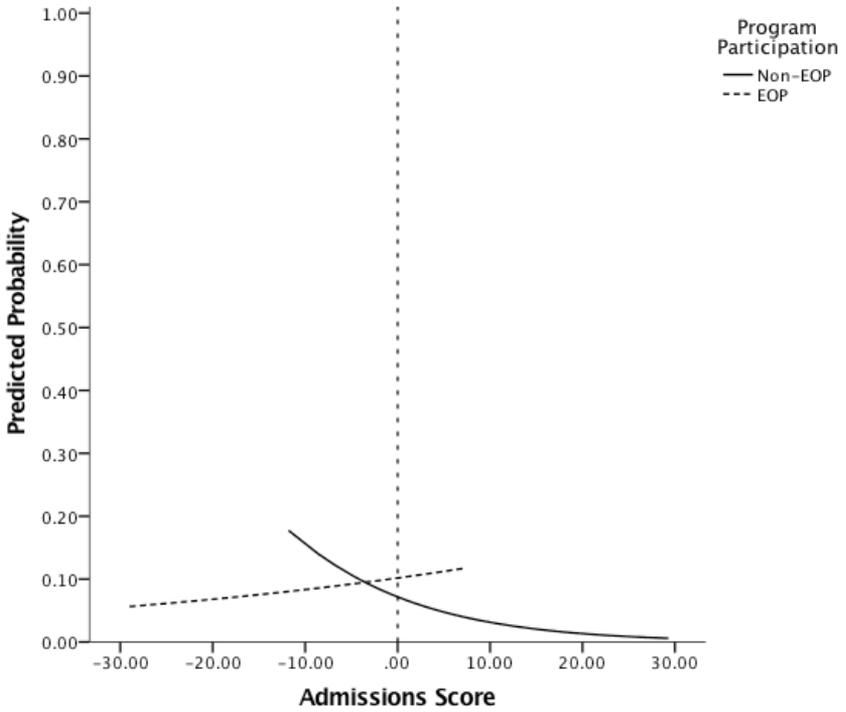


Figure 3. Predicted probability of academic probation status during the first semester relative to admission score (centered at cut-off) and program participation.

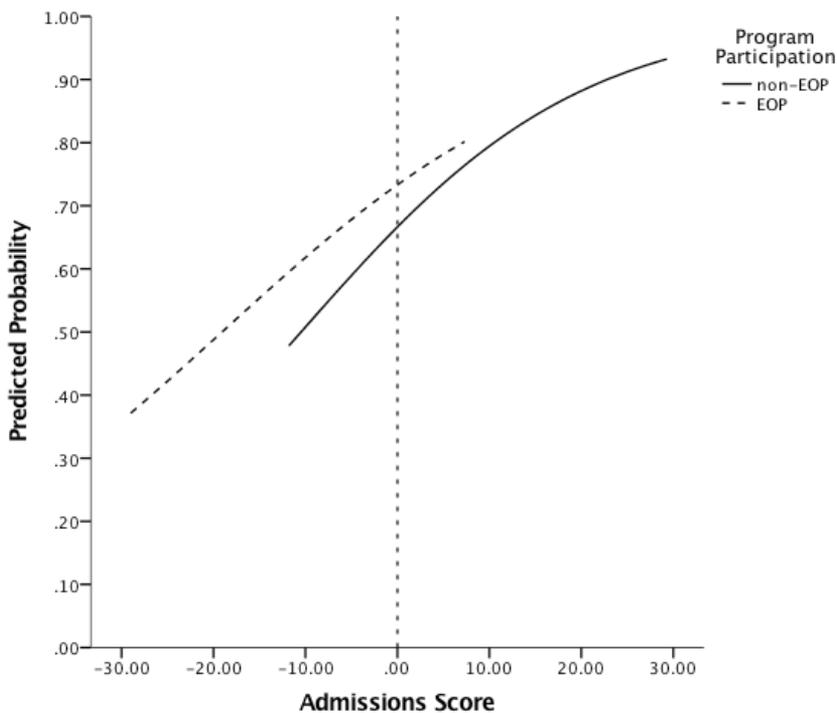


Figure 4. Predicted probability of earning all credits attempted by admission score (centered at cut-off) and program participation.

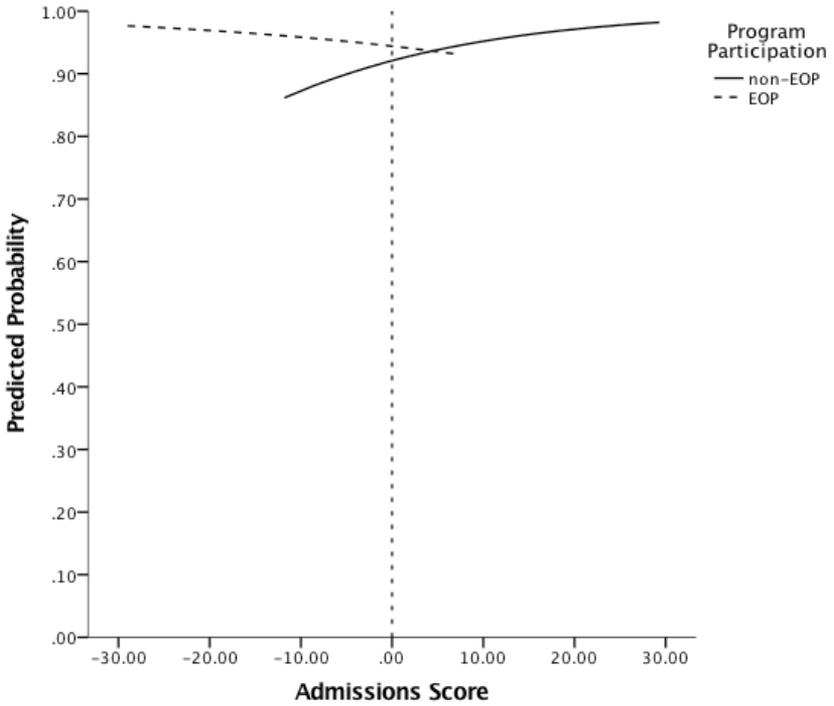


Figure 5. Predicted probability of continuous enrollment by admission score (centered at cut-off) and program participation.

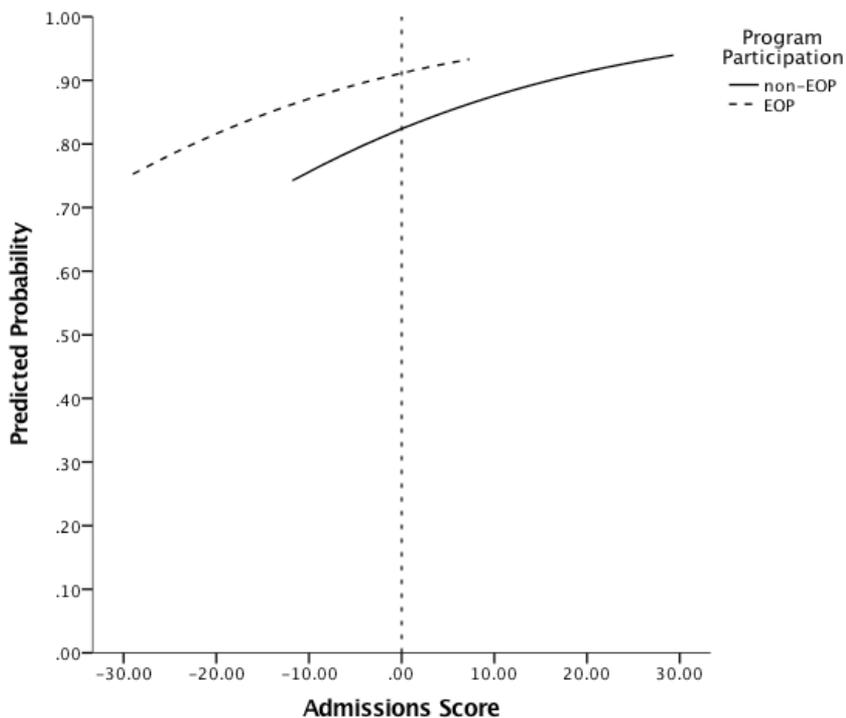


Figure 6. Predicted probability of first year retention by admission score (centered at cut-off) and program participation.