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The Effects of a Mathematics Remedial Program on Mathematics Success and Achievement among Beginning Mathematics Major Students: A Regression Discontinuity Analysis

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Abstract : The proficiency in Mathematics skills is fundamental to success in the STEM disciplines. In the US, beginning college students who are placed in remedial/developmental Mathematics courses frequently struggle to achieve academic success. Therefore, Mathematics remediation in college has become an important concern, and providing Mathematics remediation is a prevalent way to help the students who may not be fully prepared for college-level courses. Programs vary, however, and the effectiveness of a particular remedial Mathematics program must be empirically demonstrated. The purpose of this study was to apply the sharp regression discontinuity (RD) technique to determine the effectiveness of the Jack Leaps Summer (JLS) Mathematic remediation program in supporting improved Mathematics learning outcomes among newly admitted Mathematics students in the South Dakota State University. The researchers studied the newly admitted Fall 2019 cohort of Mathematics majors (n=423). The results indicated that students whose pretest score was lower than the cut-off point and who were assigned to the JLS program experienced significantly higher scores on the post-test (Math 101 final score). Based on these results, there is evidence that the JLS program is effective in meeting its primary objective.

Keywords : causal inference, mathematisc remedial program evaluation, quasi-experimental research design, regression discontinuity design, cohort studies
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