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Lessons From Two Experimental Studies of Multiple Measures Assessment

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Research suggests that using only standardized placement test scores to determine which new college students should take developmental coursework is inadequate, as many students may be unnecessarily assigned to developmental courses. These courses generally take one or more semesters to complete, delaying entry into college-level coursework, and students earn no credit toward a credential for completing them. MDRC and the Community College Research Center recently completed two experimental studies of multiple measures assessment (MMA), in which colleges use high school GPA and other measures in addition to placement test scores to assign incoming students to either developmental or college-level courses in math and English. Overall, results from both studies indicate that student outcomes improve under MMA as compared to status quo placement based on test scores alone. In this brief, we explain what we have learned from these studies.

The Studies

The first study, funded by the Institute of Education Sciences through the Center for the Analysis of Postsecondary Readiness, was conducted at seven community colleges from the State University of New York (SUNY) system. The second, funded by Ascendium Education Group, took place at four Minnesota community colleges and one Wisconsin community college. The aim of both studies was to learn whether MMA yields placement determinations that lead to better student outcomes than a system based solely on placement test scores.

Both studies employed randomized controlled trial designs to determine the causal impact of MMA on student outcomes. Incoming students were randomly assigned to one of two groups: One received MMA placement and the other received the existing test-based placement. Students in both studies were tracked for at least three terms. The main difference between the two studies was the type of MMA model implemented at the participating colleges.

In **New York**, SUNY colleges used algorithms (one for math and one for English) that took several factors into consideration before placing students into developmental or college-level courses: performance on a standardized test, high school GPA, and years since high school graduation. Each college used data on their former students to develop the algorithms by weighting the measures according to how well they predicted success in college-level math and English courses. Faculty at each college then chose cutoff points on these predictive algorithms to assign students to either developmental or college-level math and English courses. The algorithms "bumped up" some students into college-level courses who would have been assigned to developmental courses under the status quo system; it also "bumped down" a smaller number of students from college-level courses into developmental courses.

In **Minnesota and Wisconsin**, participating colleges developed a set of decision rules in which each of several measures were considered in a specific order to determine which courses students were eligible to take. Typically, colleges first considered waivers to identify students who would be exempt from consideration of other measures. Then results from placement tests, high school GPA, and noncognitive assessments were considered. In some cases, a system of "decision bands" was used so that students who earned test scores within a certain range would be evaluated using other measures. Unlike in the SUNY study, the colleges in the Minnesota and Wisconsin study set the rules so that no student received a lower placement than they otherwise would have under the status quo system (i.e., they could never be "bumped down").

Major Takeaways

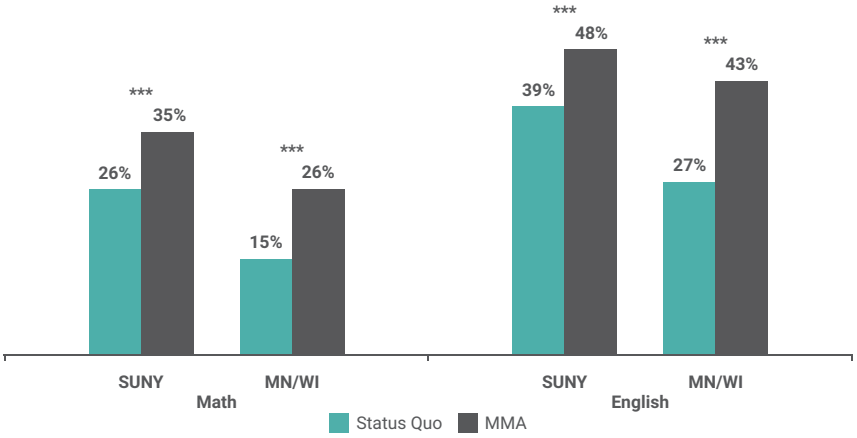
Students bumped up by MMA are more likely to complete college-level courses. Results from both studies indicate that student outcomes improve under MMA compared to the status quo. All subgroups defined by race/ethnicity, gender, and Pell status were more likely to enroll in these courses. Most subgroups also saw similar benefits on completion of those courses, although findings for men and students of color differed slightly across subjects and studies. The SUNY study found significant positive effects on college-level English course completion among men and students of color but no significant effects on college-level math course completion. The Minnesota and Wisconsin study found significant positive effects in both subjects among all demographic subgroups.

While most students' placement levels were not changed by MMA, some students in both studies were bumped up into college-level courses. In the SUNY study, 16% of students were bumped up in math and 23% were bumped up in English. In the Minnesota and Wisconsin study, about 15% of students were bumped up in each subject. The proportions bumped up in both

studies were determined by faculty-set cutoff scores on the algorithm (SUNY) or on specific measures (Minnesota and Wisconsin).

Students bumped up by MMA benefitted from being placed directly into college-level math and English courses instead of into developmental courses. Being bumped up by MMA increased enrollment and completion of college-level courses by roughly 10 percentage points in both studies and both subjects, even after three semesters, enough time for students placed into developmental education to have caught up.

College-Level Course Completion Rates Among Students in the Bump-Up Zone



*NOTE: SUNY rates include the completion of any college-level course in math or English; MN/WI rates include the completion of only introductory courses in these subjects. ***p < .01*

Students bumped down by MMA are less likely to complete college-level courses in math and English. In the SUNY study, the placement algorithm bumped down a small number of students into a developmental course. In those cases, MMA hurt student outcomes: Students bumped down to developmental courses were less likely to complete introductory college-level courses, even after three semesters.

High school cumulative GPA is the best observable predictor of success in college-level courses. Both studies analyzed historical data from the participating colleges to understand the relationship between available measures of college readiness and student performance in college-level courses. Both studies found high school GPA to be far and away the best predictor of success in college-level courses, much better than placement test scores. Other measures — including scores from noncognitive assessments that were used in the placement of students in Minnesota and Wisconsin (the Learning and Study Strategies Inventory [LASSI] and the Grit Scale) — improved the predictive utility of the models very little if at all.

Simpler rules are less costly to implement and just as effective. The MMA system used in the SUNY colleges was much more costly to implement than the MMA system based on simple decision rules used in the Minnesota and Wisconsin colleges, in large part because of the additional level of effort associated with generating placements based on weighted algorithms at each SUNY college. Since the studies produced similar impacts, the simpler rules appear to be more cost effective per credit earned.

Recommendations

Taken together the two studies suggest that institutions seeking to reform placement should:

- Use MMA to bump more students up from developmental prerequisite courses to introductory college-level courses. Results from both studies suggest that increased access to college-level courses improves students' chances of completing college-level math and English courses. Evidence does not suggest that students benefit when MMA bumps them down from college-level to developmental courses.
- Develop an MMA system that places increased emphasis on high school transcripts. Both studies found that high school GPA is the best observable measure for predicting success in college-level courses, while other measures, such as noncognitive assessment scores, add little predictive utility.
- Design and implement a simple MMA system based on decision rules with cutoffs on a few measures. Comparing results of the two experimental studies shows that a simpler placement system works as well as a more complicated algorithmic system, and can be less expensive to implement.

FOR MORE INFORMATION ON

The New York study, visit: https://postsecondaryreadiness.org/multiple-measures-impact-findings/

The Minnesota and Wisconsin study, visit: https://mdrc.org/publication/increasing-gatekeeper-course-completion

Rigorous study of MMA at both sets of sites will continue. Future research will estimate the impact of MMA on student graduation rates; explore variation in impact by race/ethnicity, gender, and Pell subgroups; and consider the potential effects of modifying multiple measure cutoff scores.

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