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Research Title:

Evaluating the Transition to College Mathematics Course in Texas High Schools

Abstract of Proposed Plan of Research:

The overarching aim of this project is to evaluate the impacts of the Transition to College Mathematics course [developed by the Dana Center] on students' success in post-secondary education. Several considerations are relevant to how I plan pursue this broad goal. First, TCM is designed for students who are under-prepared for college-level mathematics coursework. Therefore, an initial step in the project is to understand the performance of this student population prior to the introduction of the college preparatory math course requirements, as a baseline against which to compare the effects of TCM.

Another consideration is that there are several points of comparison relevant to understanding the impacts of TCM. One counterfactual possibility is that, in the absence of TCM, students would participate in typical high school coursework, as they would if no college preparatory mathematics course were available. Comparing TCM to this counterfactual is relevant for understanding the full effects of the program. A second counterfactual possibility is that students would participate in an alternative college preparatory mathematics course, typically remedial Algebra II. Comparing TCM to this counterfactual is informative about the relative effects of the course's design and content, which are relevant for school districts considering how best to respond to the college preparatory mathematics course mandate of House Bill 5.

Finally, given that previous research has indicated that student background characteristics may be important moderators of the effects of developmental courses (e.g., Xu, 2016), dual credit courses (An, 2013), and other forms of institutional interventions (Angrist et al., 2009), it is important to consider how program effects might vary depending on students' socio-economic status, and race/ethnic identity. In light of these considerations, the project will investigate the following three research questions:

- 1) Prior to the introduction of college preparatory math course requirements, what proportion of students did not meet college readiness standards in mathematics? Of students not meeting college readiness standards, what proportion graduated from high school, enrolled in postsecondary institutions, and completed or attempted college-level math coursework? How do these rates vary depending on students' background?
- 2) For students not meeting college readiness standards, what are the full program effects of participating in the TCM—compared to typical high school coursework—on high school graduation, post-secondary enrollment, post-secondary math course participation and completion, and post-secondary persistence? To what extent do the full program effects vary depending on students' background?
- 3) For students not meeting college readiness standards, what are the relative effects of participating in the TCM—compared to participating in a conventional college preparatory math course—on high school graduation, post-secondary enrollment, post-secondary math course participation and completion, and post-secondary persistence? To what extent do the relative effects vary depending on students' background?