



Working as Designed

A Causal Analysis of AB 705 Shows Increased Rates of Transfer-Level Course Taking and Passage

By Alice Li

IN 2017, THE CALIFORNIA STATE LEGISLATURE AND GOVERNOR adopted new law that fundamentally disrupted the long-held practice of remedial (or developmental) education in the California Community Colleges (CCCs). The law, Assembly Bill 705,¹ was preceded by earlier reforms that changed how colleges could place students into remedial education, or basic skills courses.²

Numerous descriptive studies focused on CCC students have found that remedial education has had unintended negative consequences on student outcomes, such as lengthening time to degree and encouraging overall attrition, with disproportionate impacts on students of color.³ For example, a study by the Public Policy Institute of California (PPIC) found that underrepresented minorities are overrepresented in remedial education, and that most remedial education students do not advance to transfer-level coursework.⁴ Since the passage of AB 705, several descriptive reports show substantial reduction in basic skills course offerings, and that more students now enroll directly in transfer level courses. Yet, the direct impact of AB 705 and related policies had yet to be more formally examined.

This brief summarizes the results from the first causal study⁵ of the impact of remediation reform policies at CCCs. The study shows how remedial education reform influenced students' course selection and pass rates, finding that AB 705 led to a significant reduction in remedial education enrollment and an increase in transfer-level pass rates, particularly among students with higher levels of college readiness.

Background

In 2013, the state of California passed a mandate requiring community colleges to use multiple measures,⁶ such as high school courses taken or high school GPA, to place students into remedial education, instead of relying so heavily on entrance exam scores.⁷ Concurrently, there was a related push in the CCCs encouraging students to increase transfer-level course participation to increase

TOPLINES

- > The remedial education reforms required by AB 705 led to large increases in transfer-level course taking in both English and math for all students, irrespective of their college readiness.
- > Community college students who enrolled in transfer-level courses after the remediation reform passed transfer-level courses at rates similar to or higher than they did before the policy change.
- > Although there are positive effects in the form of increased transfer-level course taking and pass rates, these positive effects are smaller for students with lower indicators of academic preparation.

long-run student success.⁸ Together, these changes suggested that transfer-level course participation should enhance, and that remedial education enrollment should decrease during the period from 2013 to 2017. However, descriptive studies showed these policies were not working quickly enough to accelerate student success. To further address these issues, California implemented one of the nation's most sweeping changes to remedial education placement. AB 705 was enacted⁹ to fundamentally change how colleges could place students into remedial education, with mandatory implementation by Fall 2019.¹⁰

Proponents of remedial education argued that basic skills courses give struggling students an opportunity to develop or relearn key concepts and skills, and build confidence for later college-level courses.¹¹ However, causal studies regarding the efficacy of remedial education do not support this, finding a mix of negative or null effects of remedial education on a large range of student outcomes.¹²

Many academic papers dedicated to understanding the causal effect of enrolling in remedial education utilize a regression discontinuity strategy,¹³ which focuses on students at the margin of placement into remedial courses, who are potentially the students who would least benefit from remedial education. These papers find mixed results on the efficacy of remedial courses. Fewer papers are able to analyze the effects of remedial education on students along a spectrum of college readiness, and find that the benefits of remedial courses on students' academic success are dependent on the level of student preparation.¹⁴

Descriptive work studying the effects of AB 705 suggests positive effects on community college student outcomes. PPIC found large increases in the proportion of students who enrolled directly into introductory, transfer-level math and transfer-level English courses. Furthermore, there were corresponding increases in the proportion of students passing these entry level courses, for all groups of students, including underrepresented minorities, although equity gaps still persist.¹⁵

DATA AND METHODS

To understand how the effective removal of remedial education requirements affected student outcomes, I used administrative data on the CCC system, focusing on college enrollment from 2011 to 2020, before and after the implementation of remediation policies. CCCCCO data were matched at the student level to data on the entire universe of public high school students in California to examine the impact of the policy across all levels of college readiness. The California Department of Education (CDE) data include demographic information on the student's gender, race, socioeconomic status, prior academic achievement, and high school attended.

The introduction of various remedial education reforms in 2013, as well as the removal of mandatory remedial education in 2017, provided sources of quasi-experimental variation. The intuition is that students' overall characteristics are similar before and after the policy changes, and thus can serve as a useful control condition. I examined whether changes in access to transfer-level courses as a function of these policy changes affect students' academic success at CCCs, measured by course selection and pass rates in transfer-level courses.

Importantly, these methods do not allow observation of whether students are recommended to enroll in remedial education, only if they actually enroll in a remedial education course. Furthermore, as students no longer have to take the entrance exam that places students into remedial education after the implementation of AB 705, it is difficult to pinpoint which students would have been placed into remedial education, had AB 705 not been passed.

Instead, I used a rich variety of variables on demographics and prior academic ability combined through a data-driven process to predict treatment intensity—a continuous variable representing the predicted probability a student would have enrolled in remedial English (and separately for math) within the first semester of enrollment. This predicted probability of enrolling in a remedial course functions as a proxy for treatment intensity had remedial education reforms not been passed.¹⁶ Specifically, I focused on the first semester within the first year of enrollment conditional on the student being enrolled in credit-bearing courses.¹⁷

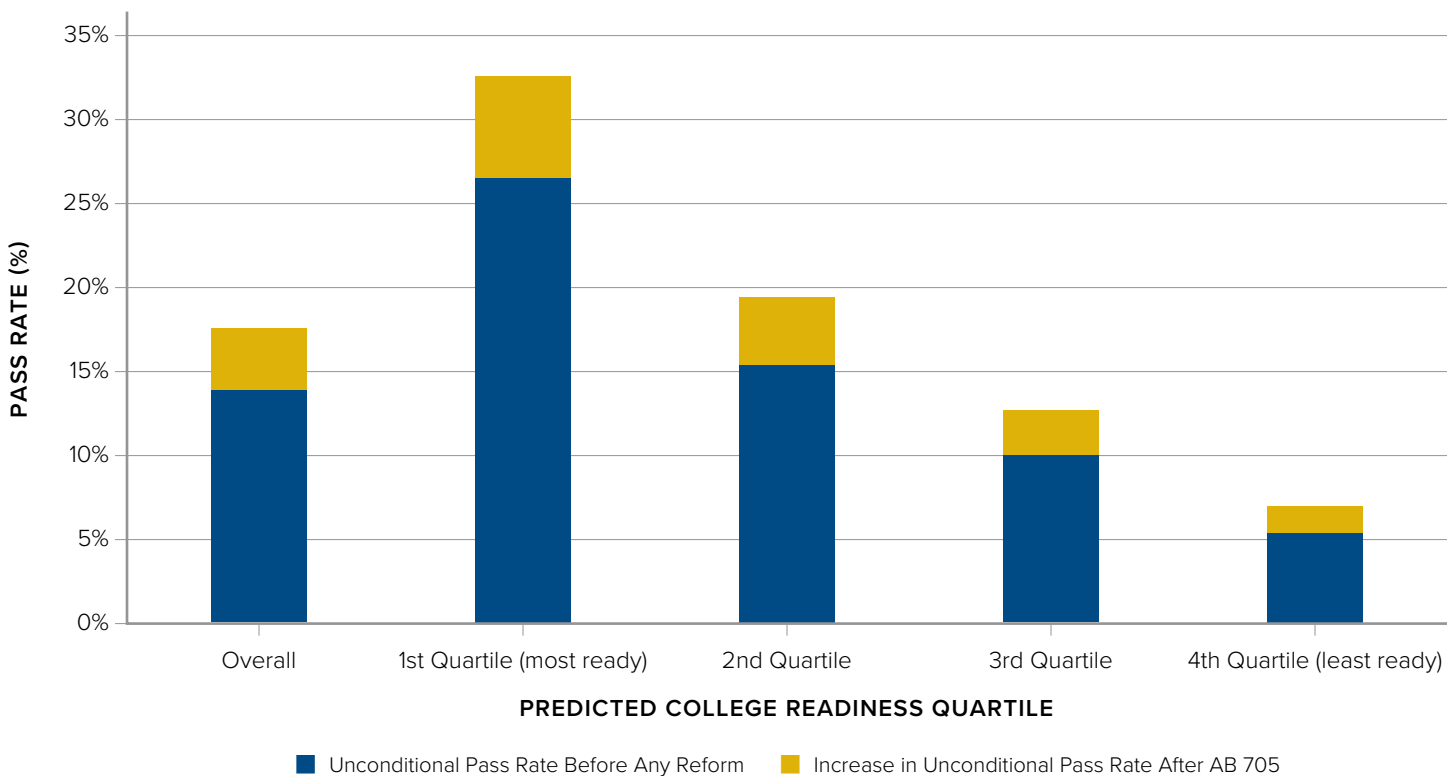
I compare college outcomes of students—before, during, and after the policy changes—who are in the same quartile of predicted college readiness. Students in the fourth quartile are students who are considered the least prepared for college courses, and the most likely to require additional support.

Results

Results show that the effective removal of mandatory remediation requirements had large, positive effects on CCC students in the form of increased transfer-level course taking and pass rates for both English and math courses. These results held for students all along the distribution of predicted college readiness, except for those deemed the least prepared.

Figure 1 shows the increase in the proportion of students statewide who passed transfer-level English with a C or better, by quartile, and during each reform period in comparison to the period before any remedial education reforms were implemented.¹⁸ Note that these are unconditional pass rates, meaning that these statistics include students who chose not to enroll in transfer-level English courses, and thus necessarily did not “pass.”

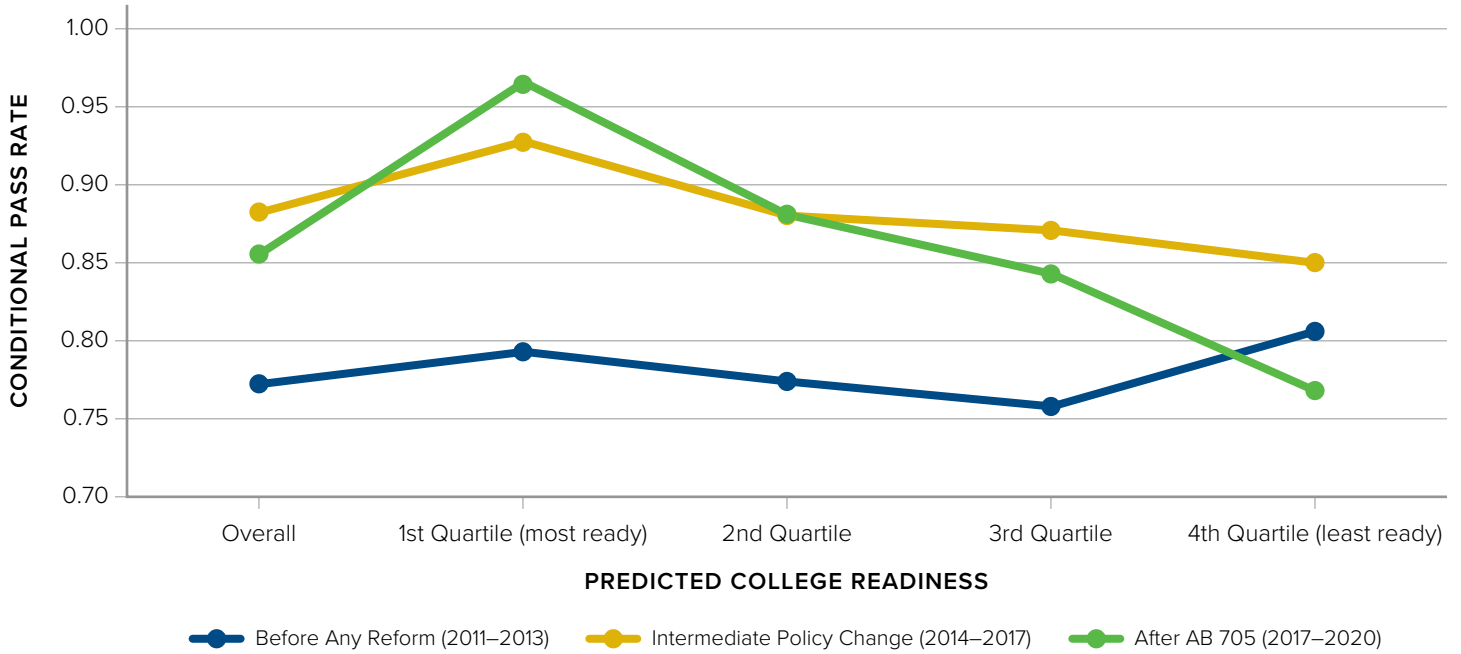
Figure 1. Transfer-Level English Pass Rates, by Quartile of College Readiness



After the implementation of AB 705, there were large increases in the proportion of students passing transfer-level English with a C or better; these pass rates increased across quartiles of predicted college readiness.

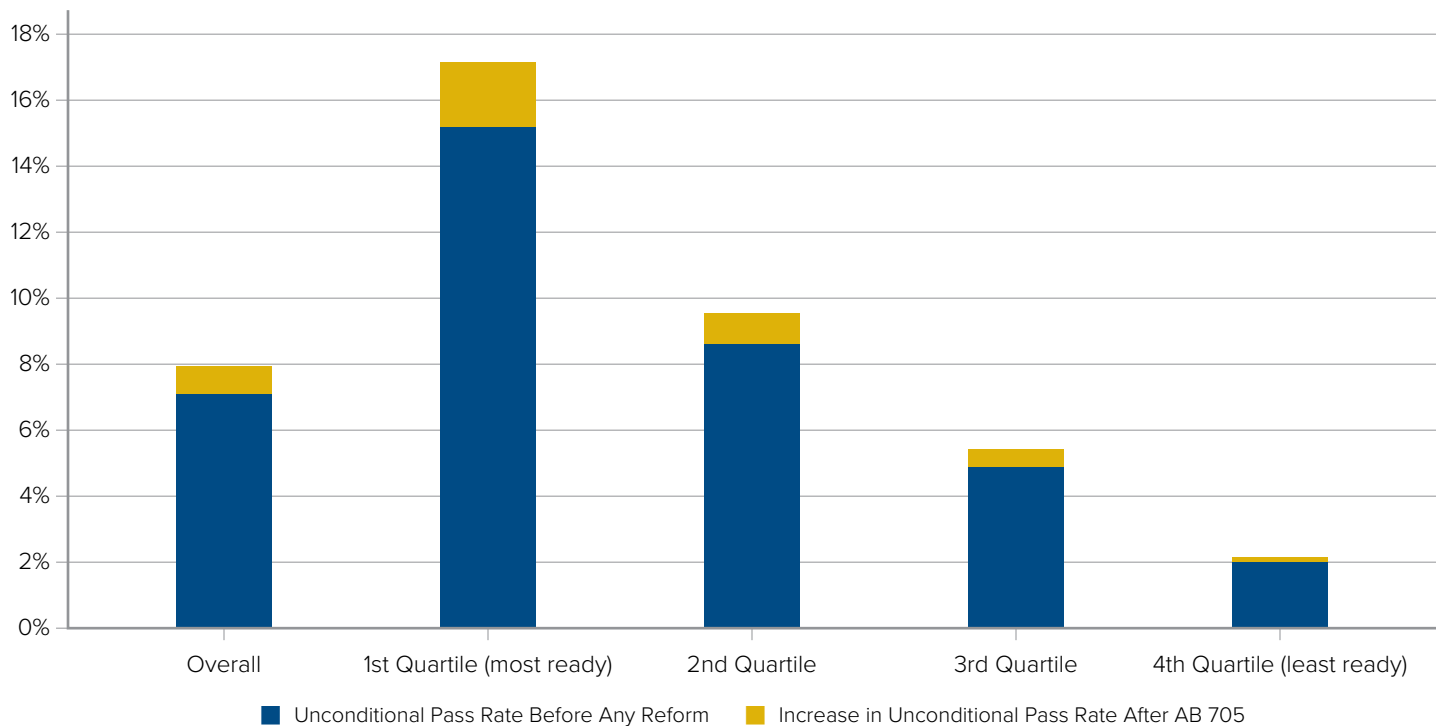
When looking across the spectrum of college readiness in Figure 2, the pass rate for students who actually took a transfer-level English course was higher for students enrolled in the period after AB 705 than the period before any remedial education reforms. This is true for all students except those in the fourth quartile, or those who were predicted to be most likely to require extra support to succeed, suggesting that some of the students in the fourth quartile who enrolled in transfer-level English might have needed more support to succeed in that course.

Figure 2. Transfer-Level English Pass Rates, by Quartile of College Readiness, for Students Enrolled in Transfer-Level English



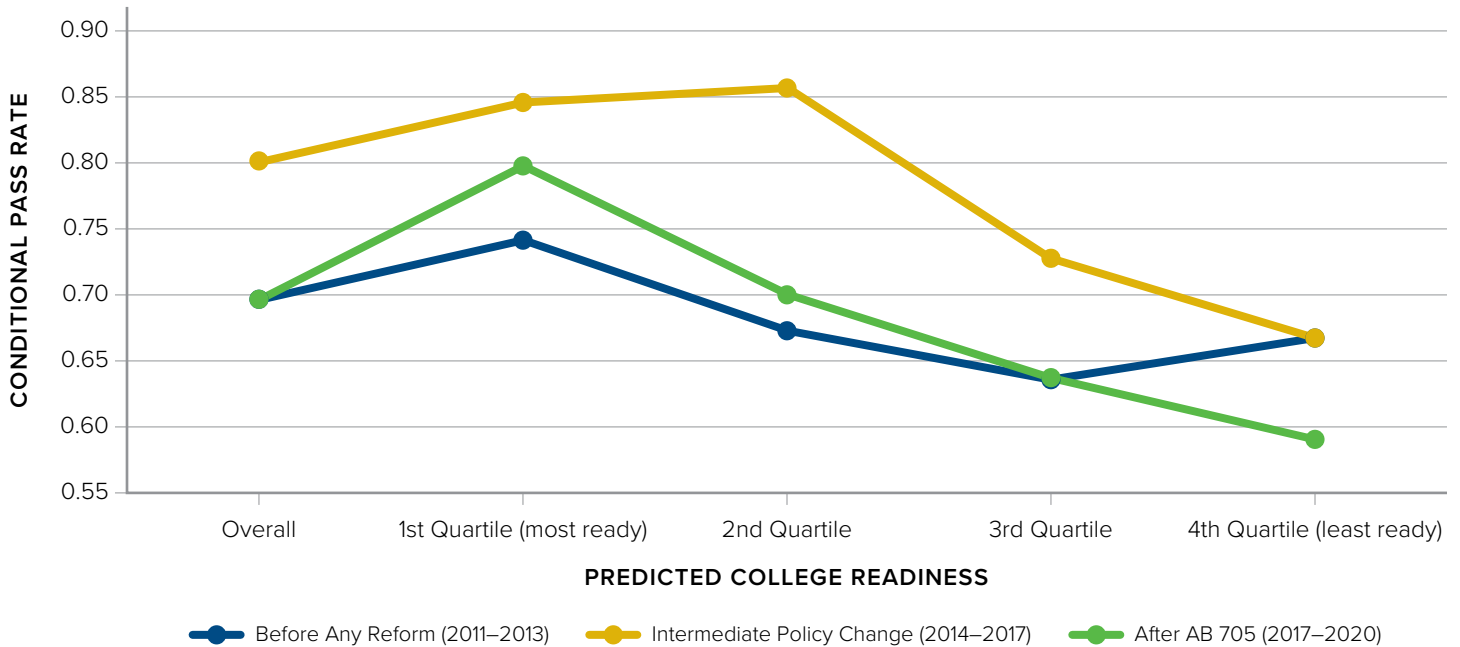
Analysis of transfer-level math course participation (Figure 3) shows similar, though more muted, patterns. Post AB 705, there were still increases in the proportion of students passing transfer-level math with a C or better across all quartiles, although at a lower rate than those passing transfer-level English.

Figure 3. Transfer-Level Math Pass Rates, by Quartile of College Readiness



Similarly, as shown in Figure 4, the conditional pass rates for transfer-level math were higher for students enrolled in the period after AB 705 than the period before any remedial education reforms, except for those in the fourth quartile, or those predicted to be the most likely to be placed in remedial education prior to the reform.

Figure 4. Transfer-Level Math Pass Rates, by Quartile of College Readiness, for Students Enrolled in Transfer-Level Math



Students who benefitted the most from the increase in access to transfer-level courses were students on the margin of being placed into remedial education. These beneficial effects decreased but were still positive for students predicted to be less and less college ready. These results align with previous research, which found that students most negatively affected by remedial education have been those at the margin.¹⁹

Conclusion

The first statewide causal analysis of implementation of AB 705 found large, subsequent increases in CCC students’ transfer-level course participation and pass rates in both English and math. This suggests that many students who might have been recommended to take basic skills courses before AB 705 were actually capable of passing transfer-level courses at similar rates to students who were not recommended to take basic skills courses. Given prior evidence of the largely negative effect of remediation practices, the implementation of AB 705 was an important policy change that had a positive impact on student outcomes.

Author Biography and Acknowledgements

Alice Li is an economist with the Antitrust Division at the U.S. Department of Justice who earned her PhD in Economics from UC Davis in 2022. The author wishes to thank Michal Kurlaender, Paco Martorell and Scott Carrell for their contributions to this work. This research was supported by the Institution of Education Sciences, U.S. Department of Education, through Grant R305E150006 to the Regents of the University of California. Wheelhouse thanks The Bill & Melinda Gates Foundation and College Futures Foundation for support of this research and its dissemination. The opinions expressed here are those of the author and do not necessarily represent the views of Wheelhouse advisors, funders, or the agencies that provided data.

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Endnotes

- ¹ *What is AB 705?* California Community Colleges, assessment.cccco.edu/ab-705-implementation. Accessed 24 March 2021.
- ² *AB 705 Resources.* Academic Senate for California Community Colleges. asccc.org/ab-705-resources. Accessed 24 March 2021.
- ³ PPIC (2019). *Improving College Completion*, Tech. rep., Public Policy Institute of California Higher Education Center, ppic.org/wp-content/uploads/higher-education-in-california-improving-college-completion-october-2019.pdf, accessed 7 October 2021; Cuellar Mejia, M., O. Rodriguez, and H. Johnson (2016). *Preparing Students for Success in California's Community Colleges*, Tech. rep., Public Policy Institute of California, ppic.org/wp-content/uploads/content/pubs/report/R_1116MMR.pdf. Accessed 31 March 2021.
- ⁴ Cuellar Mejia, M., O. Rodriguez, and H. Johnson (2016). *Preparing Students for Success in California's Community Colleges*, Tech. rep., Public Policy Institute of California, ppic.org/publication/preparing-students-for-success-in-californias-community-colleges. Accessed 6 October 2023.
- ⁵ Causal designs aim to eliminate confounding factors that may be associated with treatment, in this case placement in remediation. Because students are rarely randomized into educational pathways, it is difficult to tease out whether a particular pathway (i.e., basic skills) caused a particular impact on students' outcome. Most pathways, or education conditions, are associated with a variety of factors that led students to be on that pathway (i.e., prior academic experiences), and these factors often also influence students' outcomes. Quantitative studies that aim to test a causal relationship utilize empirical approaches that try to mimic randomized treatment (i.e., being placed into basic skills versus not, all else equal).
- ⁶ California Code Regs. tit. 5 § 55522.
- ⁷ Other measures include grade in the last math/English course, high school GPA, the Early Assessment Program (EAP) or counselor recommendation.
- ⁸ The California Community Colleges Chancellor's Office has made a concentrated push to improve student outcomes, specifically through closing achievement gaps, increasing degree attainment and transfers to four-year universities, and reducing unnecessary credit accumulation. See, *Vision for Success.* California Community Colleges. cccco.edu/About-Us/Vision-for-Success. Accessed 6 October 2023.
- ⁹ *What is AB 705?* California Community Colleges, assessment.cccco.edu/ab-705-implementation. Accessed 24 March 2021.
- ¹⁰ *AB 705 Resources.* Academic Senate for California Community Colleges. asccc.org/ab-705-resources. Accessed 24 March 2021.
- ¹¹ Barrington, Kate. *How Community College are Changing Remedial Education.* Community College Review. 16 June 2021. communitycollegereview.com/blog/how-community-colleges-are-changing-remedial-education. Accessed 6 October 2023.
- ¹² Bettinger, E. and B.T. Long (2008). Addressing the Needs of Underprepared Students in Higher Education: Does College Remediation Work? *Journal of Human Resources*, 44, 736–71; Calcagno, J.C. and B.T. Long (2008). *The Impact of Postsecondary Remediation Using a Regression Discontinuity Approach: Addressing Endogenous Sorting and Noncompliance*, Tech. rep., National Bureau of Economics Research, working Paper No. 14194; Martorell P. and I. McFarlin (2011). Help or Hindrance? The Effects of College Remediation on Academic and Labor Market Outcomes, *Review of Economics and Statistics*, 93, 436–54; Boatman, A. and B.T. Long (2018). Does Remediation Work for All Students? How the Effects of Postsecondary Remediation and Developmental Courses Vary by Level of Preparation, *Educational Evaluation and Policy Analysis*, 40, 29–58.
- ¹³ Calcagno, J.C. and B.T. Long (2008). *The Impact of Postsecondary Remediation Using a Regression Discontinuity Approach: Addressing Endogenous Sorting and Noncompliance*, Tech. rep., National Bureau of Economics Research, working Paper No. 14194; Martorell P. and I. McFarlin (2011). Help or Hindrance? The Effects of College Remediation on Academic and Labor Market Outcomes, *Review of Economics and Statistics*, 93, 436–54; Duchini, E. (2017). Is College Remedial Education a Worthy Investment? New Evidence from a Sharp Regression Discontinuity Design, *Economics of Education Review*, 60, 36–53.
- ¹⁴ Boatman, A. and B.T. Long (2018). Does Remediation Work for All Students? How the Effects of Postsecondary Remediation and Developmental Courses Vary by Level of Preparation, *Educational Evaluation and Policy Analysis*, 40, 29–58.
- ¹⁵ Cuellar Mejia, M., O. Rodriguez, and H. Johnson (2020). *Community College Math in California's New Era of Student Success*, Tech. rep., Public Policy Institute of California, A New Era of Student Access at California's Community Colleges – Public Policy Institute of California (ppic.org), ppic.org/publication/a-new-era-of-student-access-at-californias-community-colleges. Accessed 23 May 2023.
- ¹⁶ I used a logit model to identify the best factors from the CDE dataset to predict the probability that a student would have enrolled in remedial education before the passing of remedial education reforms without overfitting the model. For a more detailed explanation, see: Li, A. (2023). *Remedial education reform in California and community college student outcomes.* (Working Paper). Davis, CA: California Education Lab, University of California, Davis. education.ucdavis.edu/sites/main/files/ab_705_working_paper_apr2023.pdf. To find the best factors, I use the lasso logit methodology, a purely data-driven process that does not rely on a theoretical basis for choosing variables for prediction. This allows me to be agnostic as to why certain variables should or should not predict remedial education status.
- ¹⁷ This restriction allows me to avoid any biases regarding students persisting into the spring semester, or students whose first semester is in the spring rather than the fall. 23 percent of students first enroll in community college in the spring semester rather than the fall semester. It is possible that students who choose to enroll in the spring semester might be systematically different than those who choose to enroll in the fall.
- ¹⁸ A necessary first stage is to ensure that, after the implementation of remedial education reforms, students took advantage of the increase in access to transfer-level courses and actually enrolled. I find that after AB 705, there was a large overall increase the proportion of students taking transfer-level English and math, and that these increases were particularly concentrated amongst students who were perceived to be less prepared for college-level courses.
- ¹⁹ There are some papers that find remedial education actually had the largest negative effect for students at the lowest levels of academic preparation (Calcagno and Long (2008)).