NSW Department of Education

Evaluation of the Numeracy Content Endorsed Course (CEC) in NSW Government secondary schools

Appendices

Centre for Education Statistics and Evaluation

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NSW GOVERNMENT

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Teacher survey questions

Table 1:

Numeracy CEC Year 11 teacher survey questions

Survey question	Question type	Response options
Prior to teaching the Numeracy CEC, what was the highest level of mathematics you have taught?	Single response	a. Primary mathematics b. Mathematics 7-10 c. Mathematics life skills d. Mathematics standard (1 or 2) e. Mathematics advanced f. Mathematics extension 1 g. Mathematics extension 2
Do you have a mathematics teaching qualification?	Single response	a. No b. Yes
How easy or difficult was it for you to access the SharePoint site for Numeracy CEC?	Single response	a. I could always access it b. I could access it most times c. I could sometimes access the site d. I frequently could not access the site
To what extent did you engage with the NESA Teaching Guide on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. Teaching Guide	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource
To what extent did you engage with the NESA materials in the Teaching and Learning Program on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. Teaching and Learning Program b. Professional readings in 'Other useful materials' c. Online interactive materials in 'Other useful materials' d. Reference material in 'Other useful materials' e. Numeracy progression links f. Learning objects in 'Other useful materials'	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource
To what extent did you engage with the following on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. Online professional learning community b. Resource sharing c. Discussion board to provide feedback to NESA staff	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource

Survey question	Question type	Response options
To what extent did you engage with the following DoE materials on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. 'Around the world' resources b. 'Organising a sports tournament' resources c. 'Footy tipping' resources d. 'Module 2' resources	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource
Were you able to obtain support from NESA project officers regarding the Numeracy CEC pilot when you needed it in (2019/2020)?	Single response	a. Every time b. Most times c. Occasionally d. Rarely e. Never f. Did not require direct support
Did you attend a Numeracy CEC conference in your first year teaching the Numeracy CEC?	Single response	a. Yes b. No
Thinking about your practice last year/this year, please indicate the extent to which you:	Single response (0-10 scale) a. Changed your view of teaching mathematics b. Were able to tailor your teaching for individual students c. Shared new mathematical content with colleagues d. Improved your confidence in teaching mathematics	a. 0 – no extent b. 5 – a moderate extent c. 10 – to a great extent
Overall, how supported did you feel in your first year of teaching the Numeracy CEC?	Single response (0-10 scale)	a. 0 – not supported at all b. 5 – supported sometimes c. 10 – extremely well supported
The Numeracy CEC aims to support students develop their core numeracy skills. How suitable were the syllabus and support materials in achieving this aim?	Single response (0-10 scale)	a. 0 – not suitable at all b. 5 – moderately suitable c. 10 – completely suitable
Overall, how satisfied are you with the following in regards to the Numeracy CEC?	Single response (0-10 scale) a. Syllabus of this course b. The support materials developed for this course c. Support provided by NESA project officers	a. 0 – completely dissatisfied b. 5 – somewhat satisfied c. 10 – completely satisfied

Survey question	Question type	Response options
Please rate how well your needs were met regarding each of the following resources for the Numeracy CEC.	Single response (0-10 scale) a. Online (SharePoint) resources b. Ability to share resources with other teachers c. Online professional learning community d. Professional learning at the Numeracy CEC conference e. Professional learning in general through this course	a. 0 – did not meet any of my needs b. 5 – somewhat met my needs c. 10 – met all of my needs
Please rate your level of agreement with the following statement in regards to the Numeracy CEC: The flexibility in implementing the syllabus has allowed you to focus on the needs of your students, more so than if you had to implement it rigidly.	Single response	a. Completely disagree b. Strongly disagree c. Disagree slightly d. Agree slightly e. Strongly agree f. Completely agree
Thinking about the resources, what would you like to tell us about your experience teaching the Numeracy CEC last year?	Free text	

Table 2:

Numeracy CEC Year 12 teacher survey questions

Survey question	Question type	Response options
Prior to teaching the Numeracy CEC, what was the highest level of mathematics you have taught?	Single response	a. Primary mathematics b. Mathematics 7-10 c. Mathematics life skills d. Mathematics standard (1 or 2) e. Mathematics advanced f. Mathematics extension 1 g. Mathematics extension 2
Do you have a mathematics teaching qualification?	Single response	a. No b. Yes
How easy or difficult was it for you to access the SharePoint site for Numeracy CEC?	Single response	a. I could always access it b. I could access it most times c. I could sometimes access the site d. I frequently could not access the site
To what extent did you engage with the NESA Teaching Guide for Year 12 on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. Teaching Guide	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource
To what extent did you engage with the NESA materials in the Teaching and Learning Program for Year 12 on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. Teaching and Learning Program b. Professional readings in 'Other useful materials' c. Online interactive materials in 'Other useful materials' d. Reference material in 'Other useful materials' e. Numeracy progression links f. Learning objects in 'Other useful materials'	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource
To what extent did you engage with the following on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. Online professional learning community b. Resource sharing c. Discussion board to provide feedback to NESA staff	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource

Survey question	Question type	Response options
To what extent did you engage with the following DoE materials on the Numeracy CEC SharePoint site?	Single response (0-10 scale) a. 'Life after school' resources b. 'Percentages in real life' resources	a. 0 – did not use b. 5 – moderately c. 10 – to a great extent d. I was not aware of this resource
Were you able to obtain support from NESA project officers regarding the Numeracy CEC pilot when you needed it in 2020?	Single response	a. Every time b. Most times c. Occasionally d. Rarely e. Never f. Did not require direct support
Thinking about your practice this year, please indicate the extent to which you:	Single response (0-10 scale) a. Changed your view of teaching mathematics b. Were able to tailor your teaching for individual students c. Shared new mathematical content with colleagues d. Improved your confidence in teaching mathematics	a. 0 – no extent b. 5 – a moderate extent c. 10 – to a great extent
Overall, how supported did you feel teaching the Year 12 Numeracy CEC?	Single response (0-10 scale)	a. 0 – not supported at all b. 5 – supported sometimes c. 10 – extremely well supported
The Numeracy CEC aims to support students develop their core numeracy skills. How suitable were the Year 12 syllabus and support materials in achieving this aim?	Single response (0-10 scale)	a. 0 – not suitable at all b. 5 – moderately suitable c. 10 – completely suitable
Overall, how satisfied are you with the following in regards to the Year 12 Numeracy CEC?	Single response (0-10 scale) a. Syllabus of this course b. The support materials developed for this course c. Support provided by NESA project officers	a. 0 – completely dissatisfied b. 5 – somewhat satisfied c. 10 – completely satisfied
Please rate how well your needs were met regarding each of the following resources in teaching Year 12 this year.	Single response (0-10 scale) a. Online (SharePoint) resources b. Ability to share resources with other teachers c. Online professional learning community d. Professional learning in general through this course	a. 0 – did not meet any of my needs b. 5 – somewhat met my needs c. 10 – met all of my needs

Survey question	Question type	Response options
Please rate your level of agreement with the following statement in regards to the Numeracy CEC: The flexibility in implementing the syllabus has allowed you to focus on the needs of your Year 12 students, more so than if you had to implement it rigidly.	Single response	a. Completely disagree b. Strongly disagree c. Disagree slightly d. Agree slightly e. Strongly agree f. Completely agree
Thinking about the resources, what would you like to tell us about your experience teaching the Year 12 Numeracy CEC last year?	Free text	

Appendix B: **Interview guides**

NESA project officers

Thank you for agreeing to this interview. We would like to ask you a few questions about your experience implementing the new Numeracy Content Endorsed Course, as part of the pilot evaluation. Your time and honesty is appreciated.

Introduction and context

1. Tell us about your role within the Numeracy CEC pilot?

Teachers' uptake of support

2. Tell us about the uptake of support among participating teachers:
    a. How many of the participating teachers attended training?
    b. How many participating teachers made requests for support outside of formal or arranged professional learning? (Ask for an indication of the proportion of teachers.)

Appropriateness of the course materials and support

2. Do you think the course syllabus and material supports students in developing core numeracy skills in everyday life? Why or why not?
3. Do you think the course syllabus and material could meet the needs or appeal to the current population of students not taking Stage 6 mathematics?
4. Do you think the course provides a good foundation for post-school education and employment?
5. Did you receive any feedback from teachers about the content and syllabus of the course?
    a. Do you think participating teachers were satisfied with the **support** that NESA provided?
2. Now that the Numeracy CEC has been implemented in pilot schools, we would like to ask your opinions on the course now:
    a. How well does the structure and delivery of support address teachers' needs?
    b. How well does the structure and delivery of support address the course aims?
    c. Is the syllabus appropriate for teachers, and do stakeholders consider the syllabus appropriate?

Implementation of the support provided to teachers

2. Has the support provided to teachers been implemented as intended?
    a. Did things go as well as they were planned? Why or why not?

The future of the Numeracy CEC

2. What were the main challenges or barriers you had to deal with in your role as project officer?
3. What were the main enablers in your role as project officer?
4. In your opinion, was NESA sufficiently resourced to deliver this course?
5. In your opinion, how successful was the pilot?
6. Do you think the Numeracy CEC should be implemented more widely across NSW?
    a. Do you believe the support model is scalable and sustainable within schools' usual operations?
    b. What additional supports would be needed for NESA to roll out the pilot across NSW?
    c. How can someone in your role be better prepared?
    d. How many more support officers would be needed to roll out the pilot across NSW?
2. Do you think any changes should be made to the course syllabus?
    a. What are some of the changes to the syllabus that would be necessary to make it more sustainable?
2. Can you think of any other positive or negative unintended consequences of the introduction of the Numeracy CEC course?

Other matters

3. Do you have anything else you would like to add?

Thank you for your time.

Numeracy CEC teachers and head teachers

Thank you for agreeing to this interview. We would like to ask you a few questions about your experience with the new Numeracy Content Endorsed Course, as part of the pilot evaluation. Your time and honesty is appreciated. It helps us understand how the Numeracy CEC was implemented in schools.

School context

1. Tell us about your school, and your role in the introduction of the Numeracy Stage 6 Content Endorsed Course?
    a. Did you teach the course?
2. Why was your school interested in the Numeracy Stage 6 CEC pilot?

Participation and student uptake

3. Teachers in your school attended conferences and were given access to online professional learning to implement this course.
    a. Did this work for your school, in terms of teacher time and school resources?
2. How did you communicate to students about the Numeracy CEC?
    a. How were students in your school encouraged to participate in the course? (For example, was it an open enrolment, or were particular students encouraged to participate?)
2. How did you communicate with the broader school community about the pilot?
3. Did you get the expected level of uptake?
    a. How many Year 11 students enrolled in the course in your school?
    b. How many Year 12 students enrolled in the course in your school?
    c. How did this compare to the group of students you think would be suitable for the course?
    d. Which types of students opted in to the course in your opinion?
    e. Of students who did not take mathematics in Year 11, why do you think it is that they did not opt in to this course?
2. Did any of those students who enrolled discontinue the course? What were the reasons for not completing the course?
3. Did any students in your school enrol in both standard mathematics and the Numeracy CEC?

The future of the Numeracy CEC

4. In your opinion, did the course impact Stage 6 participation in mathematics at your school?
5. Do you think there is large enough demand for the course in your school?
6. Can you see this course as a good solution for encouraging higher participation in Stage 6 mathematics in NSW? Why or why not?
7. Do you think the current Numeracy Content Endorsed Course should be implemented more widely across NSW?
8. Can you think of any other positive or negative unintended consequences of the Numeracy CEC program?

Other matters

9. Do you have anything else you would like to add?

Thank you for your time.

Other stakeholders

Thank you for agreeing to this interview. We would like to ask you a few questions about your opinions of the new Numeracy Content Endorsed Course, as part of the pilot evaluation, the materials for which you would have received beforehand. The Numeracy CEC aims to provide functional numeracy skills to students who are not served by existing mathematics curriculum offerings, such as those who have not met the HSC minimum standard. Another aim of the course is to increase Stage 6 mathematics participation. Your time and honesty is appreciated.

Your organisation's context

We'd like to start off by asking you a few general questions.

1. Could you describe your role, your organisation's role, and how numeracy and mathematics are of interest to you and your organisation?
2. Do you think that fostering functional numeracy is important for our students, and why?
    a. How important do you think functional numeracy is compared to other issues and concerns about mathematical ability among NSW high school students and graduates? (For example, declining participation in higher-level mathematics, or declining attainment in mathematics.)

Your opinions about the Numeracy CEC

You have had a chance to review the syllabus and materials for the Numeracy CEC. I'd like to ask a few questions about the content of that syllabus in relation to the issues we've discussed.

2. Do you think that the syllabus aligns well with the concept of 'functional numeracy'? Why or why not?
3. Do you think the course has wide appeal to students who typically do not study mathematics in Stage 6? (For example, those who aren't meeting the HSC minimum standard.)
4. What do you think the benefits of studying this course are for students?
    a. Are there particular students that you think benefit more or less from this course?
2. Do you think that there are benefits to prospective employers from students studying this course?
3. Do you think that the course adequately equips students for post-school education and employment? (Prompt: does this course comprehensively do that, or is there anything that it needs to add, or change?) Why or why not?
    a. Were there any parts of the syllabus that you think could be improved, or changed?
2. Do you think there are any possible unintended (positive or negative) consequences from making this course available to NSW students?
3. Are there any other comments you'd like to make about this course, from your organisation's perspective?

Appendix C:
Student level summary statistics

Table 3:
Summary statistics, Year 11 students 2019

Variable	Comparison schools		Pilot 1 schools		Pilot 2 schools	
	Obs.	Mean	Obs.	Mean	Obs.	Mean
Any mathematics course	34,591	0.867 (0.339)	3,706	0.846 (0.361)	4,799	0.832 (0.373)
Mathematics extension	34,591	0.171 (0.377)	3,706	0.084 (0.277)	4,799	0.065 (0.247)
Mathematics advanced	34,591	0.329 (0.470)	3,706	0.195 (0.397)	4,799	0.184 (0.388)
Mathematics standard	34,591	0.502 (0.005)	3,706	0.512 (0.500)	4,799	0.602 (0.490)
Mathematics life skills	34,591	0.037 (0.109)	3,706	0.040 (0.196)	4,799	0.048 (0.213)
Numeracy CEC	34,591	0	3,706	0.109 (0.312)	4,799	0
Year 9 NAPLAN Numeracy Band 8 or above	28,690	0.622 (0.485)	2,931	0.451 (0.498)	3,668	0.407 (0.491)
Year 9 NAPLAN Reading Band 8 or above	28,792	0.614 (0.487)	2,949	0.440 (0.496)	3,694	0.429 (0.495)
Year 9 NAPLAN Writing Band 8 or above	28,817	0.473 (0.499)	2,952	0.314 (0.464)	3,691	0.299 (0.458)
Female	34,591	0.506 (0.500)	3,706	0.508 (0.500)	4,799	0.520 (0.500)
Aboriginal and/or Torres Strait Islander	34,591	0.048 (0.215)	3,706	0.085 (0.279)	4,799	0.105 (0.307)
Language background other than English	32,340	0.425 (0.494)	3,481	0.359 (0.480)	4,298	0.361 (0.480)
Year 10 mathematics result	32,475	5.916 (2.512)	3,454	5.177 (2.264)	4,466	5.190 (2.319)
SEA quartile						
1	31,871	0.211 (0.408)	3,430	0.373 (0.484)	4,248	0.334 (0.472)
2	31,871	0.264 (0.441)	3,430	0.332 (0.471)	4,248	0.334 (0.472)
3	31,871	0.267 (0.442)	3,430	0.203 (0.402)	4,248	0.221 (0.415)
4	31,871	0.258 (0.438)	3,430	0.091 (0.288)	4,248	0.111 (0.314)

Note. Standard deviation in parentheses.

Variable	Comparison schools		Pilot 1 schools		Pilot 2 schools	
	Obs.	Mean	Obs.	Mean	Obs.	Mean
ASGS Remoteness Area						
Major Cities of Australia	34,577	0.783 (0.412)	3,706	0.699 (0.459)	4,799	0.715 (0.451)
Inner Regional Australia	34,577	0.169 (0.375)	3,706	0.227 (0.419)	4,799	0.232 (0.422)
Outer Regional Australia	34,577	0.044 (0.205)	3,706	0.074 (0.262)	4,799	0.045 (0.208)
Remote Australia	34,577	0.004 (0.060)	3,706	0.001 (0.023)	4,799	0.005 (0.073)
Very Remote Australia	34,577	<0.001 (0.019)	3,706	0	4,799	0.002 (0.041)

Note. Standard deviation in parentheses.

Table 4:

Summary statistics, Year 11 students 2020

Variable	Comparison schools		Pilot 1 schools		Pilot 2 schools	
	Obs.	Mean	Obs.	Mean	Obs.	Mean
Any mathematics course	37,044	0.862 (0.345)	4,047	0.868 (0.338)	5,506	0.839 (0.367)
Mathematics extension	37,044	0.161 (0.367)	4,047	0.069 (0.253)	5,506	0.066 (0.248)
Mathematics advanced	37,044	0.322 (0.467)	4,047	0.187 (0.390)	5,506	0.194 (0.395)
Mathematics standard	37,044	0.505 (0.500)	4,047	0.553 (0.497)	5,506	0.523 (0.500)
Mathematics life skills	37,044	0.035 (0.183)	4,047	0.042 (0.201)	5,506	0.056 (0.230)
Numeracy CEC	37,044	0	4,047	0.091 (0.288)	5,506	0.071 (0.257)
Year 9 NAPLAN Numeracy Band 8 or above	29,968	0.577 (0.494)	3,197	0.429 (0.495)	4,244	0.407 (0.491)
Year 9 NAPLAN Reading Band 8 or above	30,287	0.559 (0.496)	3,233	0.429 (0.495)	4,309	0.391 (0.488)
Year 9 NAPLAN Writing Band 8 or above	30,352	0.410 (0.492)	3,245	0.269 (0.444)	4,327	0.261 (0.439)
Achieved HSC minimum standard numeracy	34,379	0.846 (0.361)	3,782	0.778 (0.416)	5,064	0.760 (0.427)
Achieved HSC minimum standard reading	34,379	0.894 (0.308)	3,782	0.838 (0.368)	5,064	0.834 (0.372)
Achieved HSC minimum standard writing	34,379	0.814 (0.389)	3,782	0.722 (0.448)	5,064	0.710 (0.454)
Female	35,464	0.507 (0.500)	3,898	0.487 (0.500)	5,249	0.498 (0.500)
Aboriginal and/or Torres Strait Islander	35,464	0.055 (0.227)	3,898	0.097 (0.296)	5,249	0.105 (0.307)
Language background other than English	35,464	0.413 (0.492)	3,898	0.343 (0.475)	5,249	0.342 (0.474)
Year 10 mathematics result	35,022	5.757 (2.503)	3,841	5.002 (2.289)	5,133	5.052 (2.417)

Note. Standard deviation in parentheses.

Variable	Comparison schools		Pilot 1 schools		Pilot 2 schools	
	Obs.	Mean	Obs.	Mean	Obs.	Mean
SEA quartile						
1	35,363	0.227 (0.419)	3,881	0.383 (0.486)	5,234	0.347 (0.476)
2	35,363	0.264 (0.441)	3,881	0.334 (0.472)	5,234	0.330 (0.470)
3	35,363	0.268 (0.443)	3,881	0.196 (0.397)	5,234	0.216 (0.412)
4	35,363	0.241 (0.428)	3,881	0.087 (0.282)	5,234	0.107 (0.309)
ASGS Remoteness Area						
Major Cities of Australia	37,022	0.778 (0.416)	4,047	0.706 (0.455)	5,506	0.707 (0.455)
Inner Regional Australia	37,022	0.170 (0.376)	4,047	0.215 (0.411)	5,506	0.243 (0.429)
Outer Regional Australia	37,022	0.049 (0.215)	4,047	0.079 (0.269)	5,506	0.045 (0.208)
Remote Australia	37,022	0.003 (0.056)	4,047	<0.001 (0.016)	5,506	0.004 (0.065)
Very Remote Australia	37,022	<0.001 (0.017)	4,047	0	5,506	0.001 (0.033)

Note. Standard deviation in parentheses.

Table 5:

Summary statistics, Year 12 students 2020

Variable	Comparison schools		Pilot 1 schools	
	Obs.	Mean	Obs.	Mean
Any mathematics course	35,777	0.823 (0.382)	3,174	0.808 (0.394)
Mathematics standard 1	35,777	0.081 (0.273)	3,174	0.093 (0.290)
Mathematics standard 2	35,777	0.425 (0.494)	3,174	0.422 (0.494)
Mathematics advanced	35,777	0.227 (0.419)	3,174	0.150 (0.357)
Mathematics extension 1	35,777	0.140 (0.347)	3,174	0.065 (0.247)
Mathematics extension 2	35,777	0.058 (0.234)	3,174	0.022 (0.148)
Mathematics life skills	35,777	0.038 (0.192)	3,174	0.041 (0.197)
Numeracy CEC	35,777	0	3,174	0.090 (0.286)
Year 9 NAPLAN Numeracy Band 8 or above	29,860	0.623 (0.485)	2,547	0.480 (0.500)
Year 9 NAPLAN Reading Band 8 or above	29,976	0.617 (0.486)	2,562	0.465 (0.499)
Year 9 NAPLAN Writing Band 8 or above	30,011	0.479 (0.500)	2,564	0.340 (0.474)
Achieved HSC minimum standard numeracy	34,616	0.957 (0.204)	3,083	0.926 (0.262)
Achieved HSC minimum standard reading	34,616	0.969 (0.172)	3,083	0.946 (0.226)
Achieved HSC minimum standard writing	34,616	0.943 (0.231)	3,083	0.903 (0.296)
Female	34,927	0.524 (0.499)	3,113	0.524 (0.500)
Aboriginal and/or Torres Strait Islander	34,927	0.049 (0.216)	3,113	0.082 (0.274)
Language background other than English	34,927	0.433 (0.495)	3,113	0.388 (0.487)
Year 10 mathematics result	33,518	6.010 (2.481)	2,946	5.387 (2.274)

Note. Standard deviation in parentheses.

Variable	Comparison schools		Pilot 1 schools	
	Obs.	Mean	Obs.	Mean
SEA quartile				
1	34,857	0.225 (0.418)	3,108	0.374 (0.484)
2	34,857	0.268 (0.443)	3,108	0.332 (0.471)
3	34,857	0.268 (0.443)	3,108	0.198 (0.398)
4	34,857	0.238 (0.426)	3,108	0.096 (0.294)
ASGS Remoteness Area				
Major Cities of Australia	35,763	0.791 (0.407)	3,174	0.709 (0.454)
Inner Regional Australia	35,763	0.162 (0.369)	3,174	0.216 (0.412)
Outer Regional Australia	35,763	0.043 (0.203)	3,174	0.074 (0.261)
Remote Australia	35,763	0.003 (0.059)	3,174	0.001 (0.025)
Very Remote Australia	35,763	0.001 (0.024)	3,174	0

Note. Standard deviation in parentheses.

Appendix D:
Testing the common trends assumption

The difference-in-differences (DID) approach allows us to eliminate the differences between pilot and comparison schools that are constant over time. However, it does not eliminate differences that change over time. In order to use the difference-in-differences method we assume that pilot and comparison schools must have common trends in our outcomes, in the absence of the Numeracy CEC.

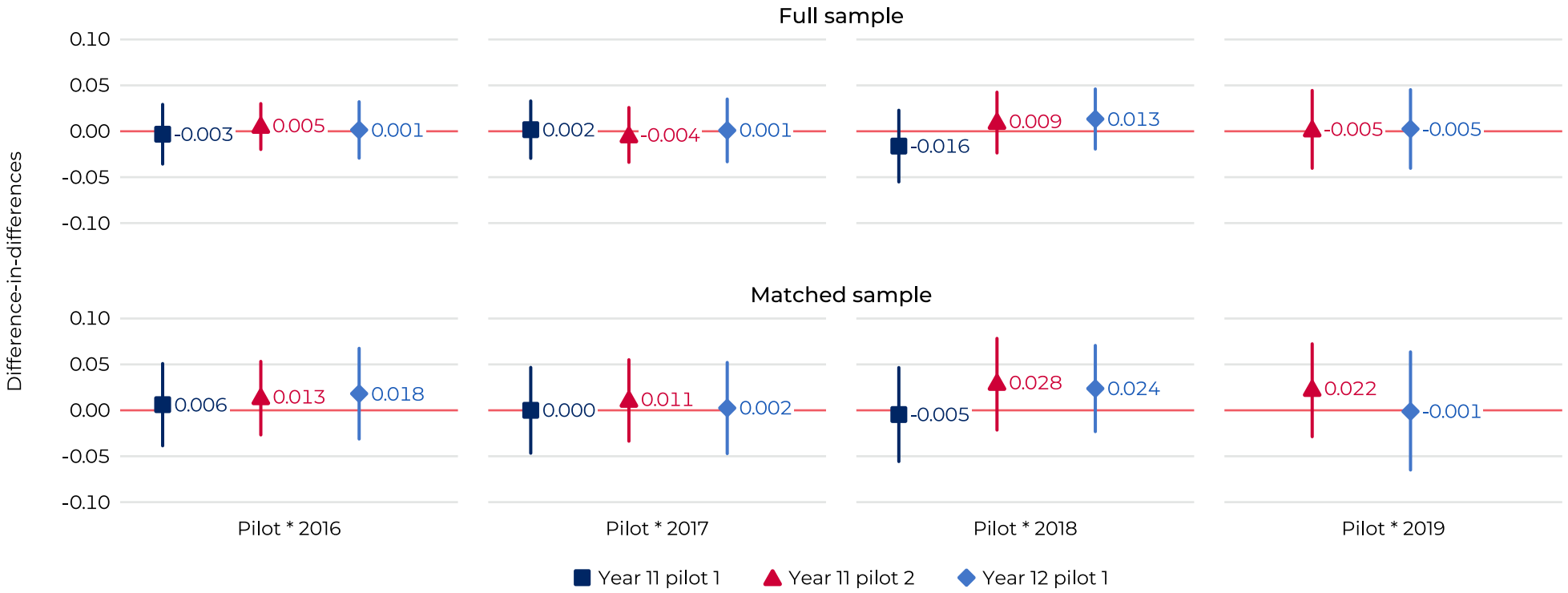
We test the validity of the common trends assumption by performing a difference-in-differences estimation using cohorts of Stage 6 students prior to the Numeracy CEC as placebo treatment groups. These estimates should all be very close to zero and non-significant to support that trends in outcomes would have been similar in comparison schools and pilot schools absent the course.

Figure 1 shows the DID estimates for the common trends test of Stage 6 participation in any mathematics course, for each pilot cohort. The estimates are close to zero and statistically insignificant, indicating that the common trends assumption is supported. The assumption is also supported when we limit our analysis to specific groups of students.

Figure 1:

DID estimates and 95% confidence intervals for common trends test of Stage 6 mathematics participation, pilot versus comparison schools

Note. Model specification shown includes covariates and fixed effects.



Similarly, Figure 2 shows the DID estimates for the common trends test of Stage 6 participation in mathematics standard are close to zero and statistically insignificant. This is evidence that prior trends in participation in mathematics standard between pilot and comparison schools is similar.

Figure 2:

DID estimates and 95% confidence intervals for common trends test of Stage 6 mathematics standard participation, pilot versus comparison schools

Note. Model specification shown includes covariates and fixed effects.

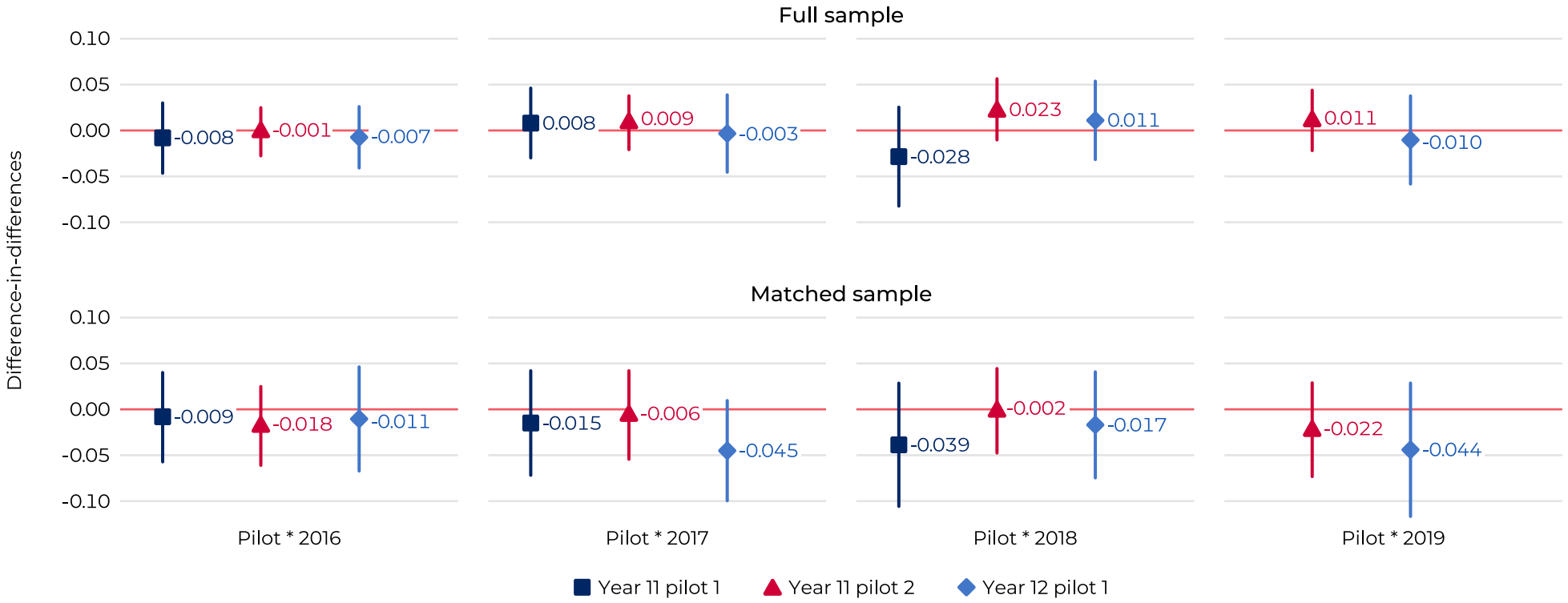


Figure 3 shows the DID estimates for the common trends test of Stage 6 participation in mathematics advanced and/or extension. The estimates for the full sample are statistically insignificant. However, when the analysis is limited to matched pilot and comparison schools the estimates are different from zero. This suggests there are differences in prior trends between pilot schools and matched similar schools. Therefore we consider the DID analysis using the full sample of students from comparison schools more robust than the unmatched analysis.

Figure 3:

DID estimates and 95% confidence intervals for common trends test of Stage 6 mathematics advanced and extension participation, pilot versus comparison schools

Note. Model specification shown includes covariates and fixed effects.

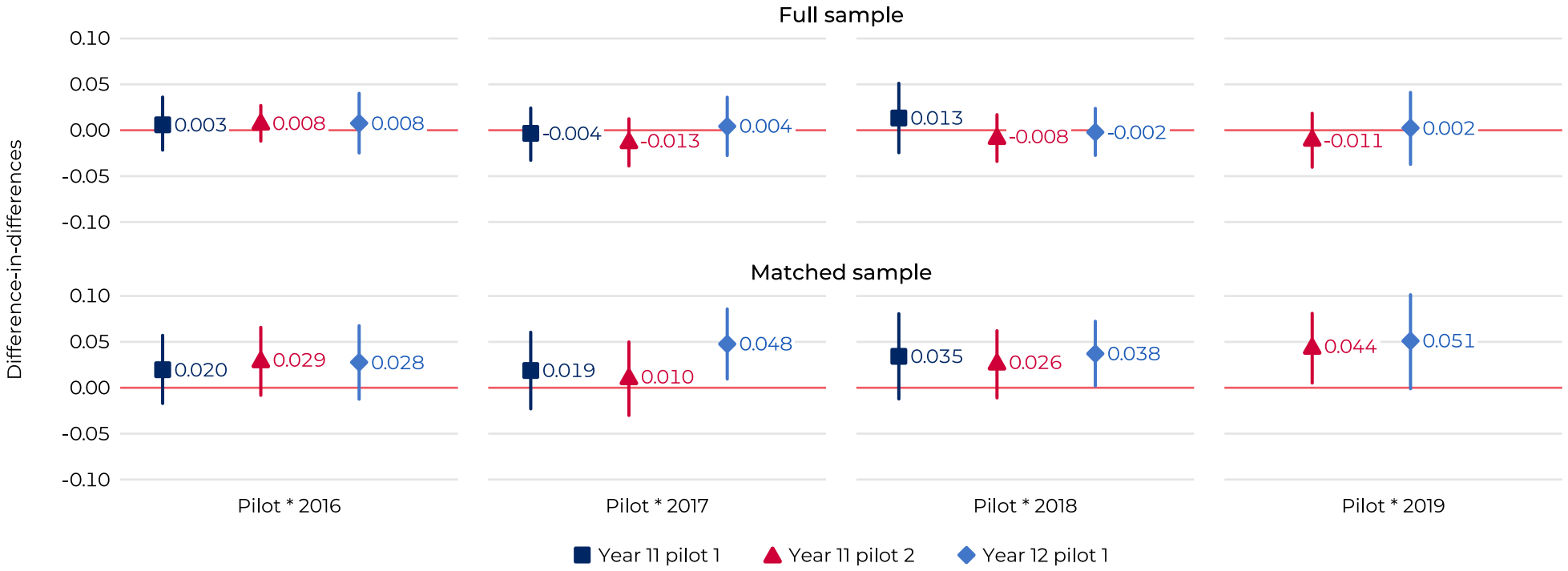


Figure 4 and Figure 5 show the DID estimates for the common trends test of achievement of the numeracy minimum standard, for Year 11 and Year 12 cohorts respectively. Achievement of the numeracy minimum standard is represented by achievement of a Band 8 or above in Year 9 NAPLAN Numeracy exams. The estimates are close to zero and insignificant for the Year 11 and Year 12 cohorts in the simplest DID model without covariates and fixed effects. However, the estimates are positive and significant for the Year 12 cohorts when covariates are included in the model.

Figure 4:

DID estimates and 95% confidence intervals for common trends test of achievement of HSC minimum standard, among Year 11 (HSC 2021 cohort) in pilot 1 and pilot 2 schools versus students in matched comparison schools

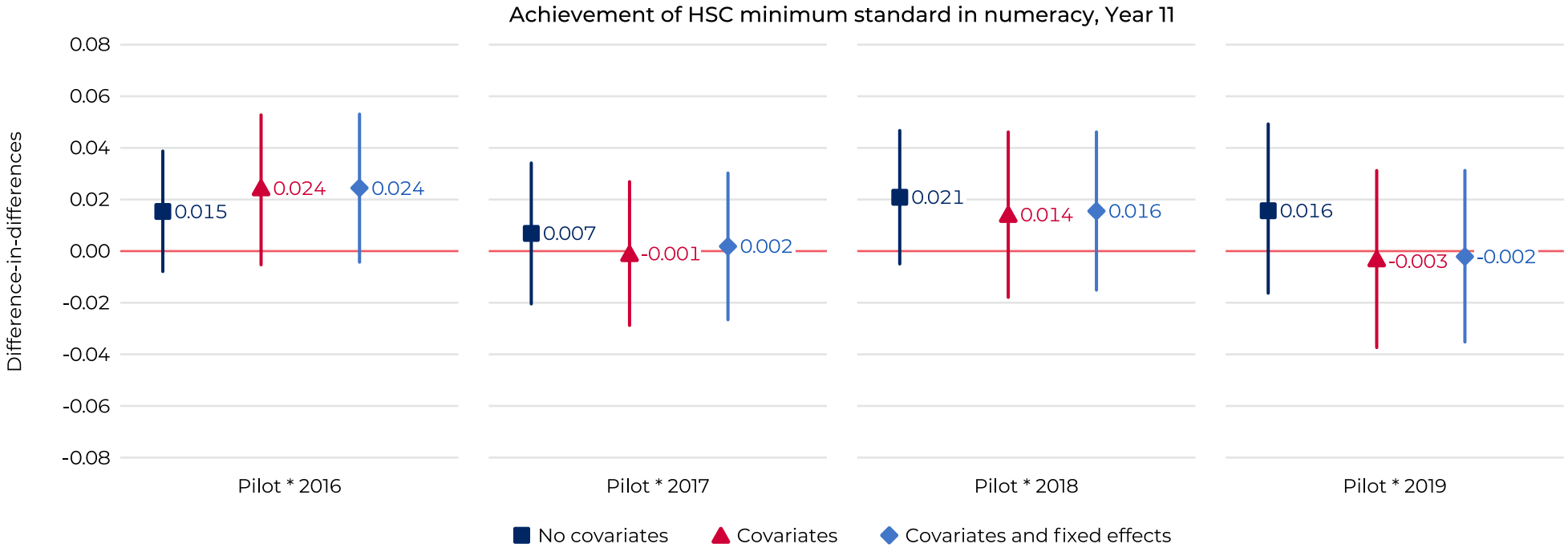
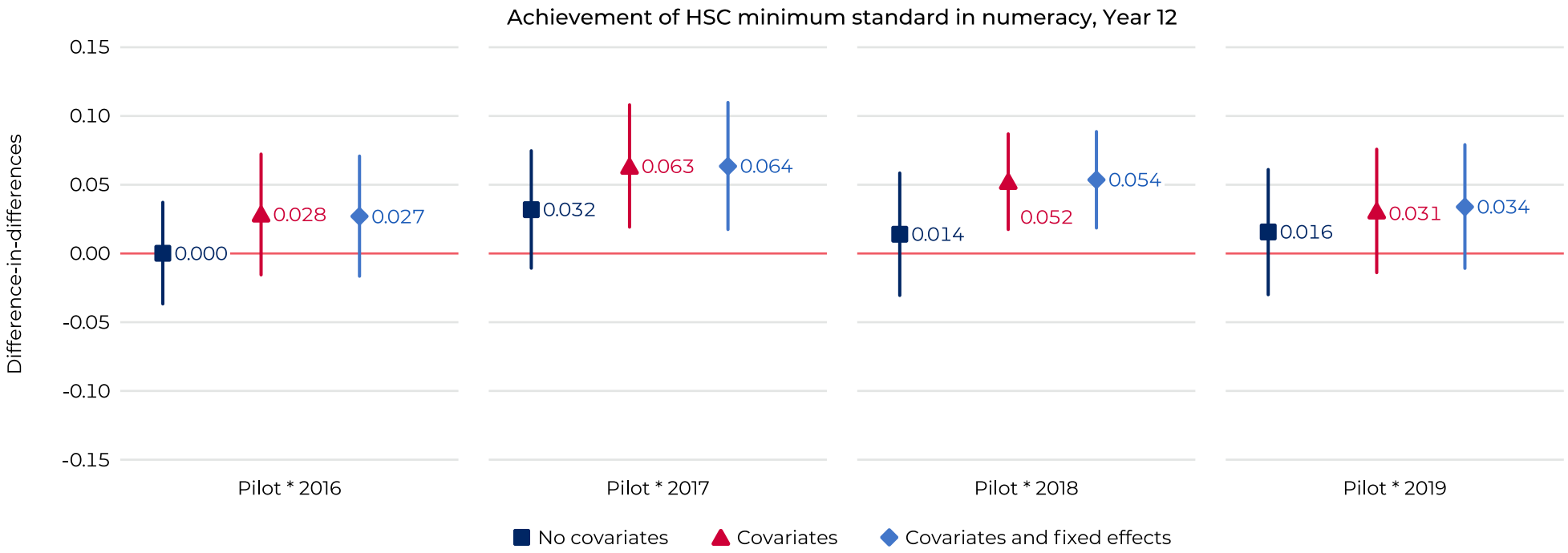


Figure 5:

DID estimates and 95% confidence intervals for common trends test of achievement of HSC minimum standard, among Year 12 (HSC 2020 cohort) in pilot 1 versus students in matched comparison schools



Appendix E:
Regression tables

Participation in any Stage 6 mathematics course

Table 6:

Common trends test for DID regression of Stage 6 mathematics participation

Year 11 pilot 1 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2016	-0.0083 (0.0175)	-0.0049 (0.0172)	-0.0034 (0.0173)	-0.0031 (0.0238)	0.0089 (0.0237)	0.0062 (0.0234)
Pilot 1 2017	-0.0106 (0.0182)	0.0001 (0.0162)	0.0016 (0.0167)	-0.0153 (0.0259)	0.0020 (0.0246)	0.0000 (0.0243)
Pilot 1 2018	-0.0108 (0.0200)	-0.0124 (0.0199)	-0.0163 (0.0206)	0.0023 (0.0247)	0.0016 (0.0257)	-0.0046 (0.0265)
Observations	156,903	136,034	136,034	28,233	24,986	24,986
R-squared	0.0004	0.1477	0.2085	0.0008	0.1202	0.1749
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 11 pilot 2 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2 2016	0.0080 (0.0121)	0.0038 (0.0144)	0.0047 (0.0137)	0.0162 (0.0193)	0.0126 (0.0220)	0.0132 (0.0210)
Pilot 2 2017	-0.0017 (0.0140)	-0.0037 (0.0169)	-0.0041 (0.0160)	0.0070 (0.0238)	0.0155 (0.0256)	0.0107 (0.0231)
Pilot 2 2018	0.0079 (0.0146)	0.0106 (0.0180)	0.0093 (0.0176)	0.0120 (0.0226)	0.0304 (0.0268)	0.0284 (0.0259)
Pilot 2 2019	0.0064 (0.0187)	0.0014 (0.0233)	-0.0051 (0.0223)	0.0038 (0.0258)	0.0242 (0.0279)	0.0218 (0.0263)
Observations	201,649	174,361	174,361	42,256	36,647	36,647
R-squared	0.0015	0.1475	0.2053	0.0027	0.1468	0.2098
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Year 12 pilot 1 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2016	-0.0018 (0.0151)	0.0037 (0.0172)	0.0013 (0.0164)	0.0117 (0.0256)	0.0188 (0.0257)	0.0181 (0.0256)
Pilot 1 2017	-0.0073 (0.0170)	0.0006 (0.0177)	0.0008 (0.0182)	-0.0152 (0.0248)	0.0035 (0.0257)	0.0017 (0.0261)
Pilot 1 2018	-0.0016 (0.0195)	0.0149 (0.0176)	0.0132 (0.0174)	-0.0030 (0.0258)	0.0226 (0.0241)	0.0237 (0.0244)
Pilot 1 2019	-0.0097 (0.0214)	-0.0022 (0.0231)	-0.0055 (0.0230)	-0.0108 (0.0298)	0.0071 (0.0308)	-0.0007 (0.0331)
Observations	173,621	154,849	154,849	27,024	24,020	24,020
R-squared	0.0004	0.1696	0.2190	0.0005	0.1504	0.2064
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 7:

DID regression of Stage 6 mathematics participation

Year 11 pilot 1 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2019	-0.0049 (0.0130)	-0.0067 (0.0146)	-0.0068 (0.0146)	0.0159 (0.0169)	0.0051 (0.0181)	0.0058 (0.0180)
Pilot 1 2020	0.0227 (0.0149)	0.0293^ (0.0153)	0.0254^ (0.0151)	0.0590* (0.0225)	0.0522* (0.0240)	0.0493* (0.0234)
Observations	236,292	206,475	206,475	43,073	38,352	38,352
R-squared	0.0003	0.1407	0.1974	0.0013	0.1079	0.1644
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 11 pilot 2 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2 2020	0.0150 (0.0132)	0.0206 (0.0145)	0.0220 (0.0151)	0.0324 (0.0197)	0.0247 (0.0213)	0.0282 (0.0213)
Observations	244,198	212,725	212,725	51,488	45,056	45,056
R-squared	0.0013	0.1409	0.1959	0.0037	0.1323	0.1921
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 12 pilot 1 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2020	-0.0084 (0.0143)	0.0019 (0.0172)	0.0052 (0.0176)	-0.0102 (0.0240)	-0.0081 (0.0247)	-0.0092 (0.0266)
Observations	208,295	186,498	186,498	32,485	29,049	29,049
R-squared	0.0005	0.1618	0.2092	0.0004	0.1373	0.1930
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Participation in any Stage 6 mathematics course, by student group

Table 8:

Common trends test for DID regression of Stage 6 mathematics participation by student groups, Year 11 pilot 1 versus comparison schools

	Aboriginal and/or Torres Strait Islander			Taking a VET course		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 1 2016	-0.0516 (0.0475)	-0.0545 (0.0499)	-0.0627 (0.0572)	-0.0664 (0.0438)	-0.0523 (0.0446)	-0.0308 (0.0430)
Pilot 1 2017	-0.0462 (0.0509)	-0.0425 (0.0538)	-0.0394 (0.0606)	0.0167 (0.0538)	0.0229 (0.0559)	0.0369 (0.0593)
Pilot 1 2018	-0.0245 (0.0601)	-0.0281 (0.0612)	-0.0568 (0.0651)	0.0314 (0.0412)	0.0096 (0.0429)	-0.0026 (0.0428)
Observations	7,547	6,511	6,511	14,589	12,686	12,686
R-squared	0.0014	0.1060	0.2797	0.0011	0.1164	0.2454
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
	Rural and remote schools			**Socio-educational disadvantage**		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 1 2016	-0.0169 (0.0256)	-0.0185 (0.0243)	-0.0194 (0.0208)	-0.0037 (0.0219)	-0.0034 (0.0204)	-0.0000 (0.0207)
Pilot 1 2017	-0.0507 (0.0458)	-0.0393 (0.0535)	-0.0383 (0.0586)	-0.0040 (0.0191)	-0.0036 (0.0190)	-0.0029 (0.0194)
Pilot 1 2018	0.0661^ (0.0379)	0.0668 (0.0408)	0.0375 (0.0519)	-0.0029 (0.0254)	-0.0059 (0.0242)	-0.0089 (0.0251)
Observations	9,123	7,775	7,775	71,408	67,432	67,432
R-squared	0.0087	0.0869	0.1846	0.0002	0.1354	0.2113
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

	Female students			Male students		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 1 2016	0.0055 (0.0235)	0.0139 (0.0230)	0.0140 (0.0227)	-0.0192 (0.0170)	-0.0231 (0.0174)	-0.0213 (0.0181)
Pilot 1 2017	-0.0063 (0.0260)	0.0081 (0.0238)	0.0089 (0.0236)	-0.0106 (0.0168)	-0.0085 (0.0173)	-0.0091 (0.0175)
Pilot 1 2018	-0.0062 (0.0255)	-0.0032 (0.0262)	-0.0099 (0.0263)	-0.0137 (0.0192)	-0.0199 (0.0198)	-0.0247 (0.0205)
Observations	79,597	69,593	69,593	77,306	66,441	66,441
R-squared	0.0005	0.1657	0.2308	0.0006	0.1018	0.1702
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 9:

DID regression of Stage 6 mathematics participation by student groups, Year 11 pilot 1 versus comparison schools

	Aboriginal and/or Torres Strait Islander			Taking a VET course		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 1 2019	0.0755* (0.0340)	0.0696^ (0.0372)	0.0359 (0.0347)	0.0469 (0.0483)	0.0666 (0.0426)	0.0903* (0.0428)
Pilot 1 2020	0.1026* (0.0407)	0.1062* (0.0427)	0.0797* (0.0331)	0.0813* (0.0385)	0.1159*** (0.0292)	0.1140*** (0.0270)
Observations	11,851	10,393	10,393	22,131	19,387	19,387
R-squared	0.0018	0.0910	0.2387	0.0027	0.1137	0.2297
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
	Rural and remote schools			**Socio-educational disadvantage**		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 1 2019	0.0494* (0.0241)	0.0697** (0.0254)	0.0585^ (0.0327)	-0.0019 (0.0166)	-0.0015 (0.0181)	-0.0031 (0.0177)
Pilot 1 2020	0.0839** (0.0249)	0.0821*** (0.0230)	0.0719** (0.0271)	0.0426* (0.0171)	0.0459** (0.0175)	0.0427* (0.0175)
Observations	13,297	11,448	11,448	109,112	103,309	103,309
R-squared	0.0046	0.0804	0.1736	0.0004	0.1262	0.1972
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
	Female students			**Male students**		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 1 2019	-0.0052 (0.0180)	-0.0062 (0.0194)	-0.0080 (0.0188)	-0.0027 (0.0141)	-0.0081 (0.0161)	-0.0080 (0.0164)
Pilot 1 2020	0.0234 (0.0163)	0.0346* (0.0176)	0.0287^ (0.0172)	0.0169 (0.0162)	0.0250 (0.0165)	0.0218 (0.0169)
Observations	118,830	105,258	105,258	115,733	101,217	101,217
R-squared	0.0005	0.1594	0.2191	0.0005	0.0963	0.1592
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 10:

Common trends test for DID regression of Stage 6 mathematics participation by student groups, Year 11 pilot 2 versus comparison schools

	Aboriginal and/or Torres Strait Islander			Taking a VET course		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 2 2016	-0.0021 (0.0354)	0.0068 (0.0341)	0.0105 (0.0349)	-0.0140 (0.0330)	-0.0269 (0.0356)	-0.0091 (0.0360)
Pilot 2 2017	0.0103 (0.0371)	0.0019 (0.0390)	0.0113 (0.0390)	0.0372 (0.0335)	0.0416 (0.0355)	0.0337 (0.0376)
Pilot 2 2018	-0.0162 (0.0396)	0.0144 (0.0383)	0.0247 (0.0396)	0.0020 (0.0373)	0.0195 (0.0335)	0.0165 (0.0313)
Pilot 2 2019	0.0063 (0.0437)	-0.0043 (0.0467)	0.0002 (0.0470)	0.0053 (0.0471)	0.0029 (0.0504)	0.0032 (0.0535)
Observations	10,491	8,844	8,844	19,327	16,732	16,732
R-squared	0.0009	0.1019	0.2479	0.0005	0.1158	0.2321
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
	Rural and remote schools			**Socio-educational disadvantage**		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 2 2016	-0.0170 (0.0338)	-0.0195 (0.0314)	-0.0353 (0.0292)	0.0095 (0.0159)	0.0085 (0.0174)	0.0098 (0.0166)
Pilot 2 2017	-0.0531 (0.0450)	-0.0625 (0.0535)	-0.0739 (0.0507)	0.0061 (0.0186)	0.0105 (0.0191)	0.0064 (0.0182)
Pilot 2 2018	-0.0783 (0.0611)	-0.0527 (0.0529)	-0.0741 (0.0553)	0.0207 (0.0186)	0.0221 (0.0208)	0.0218 (0.0200)
Pilot 2 2019	-0.0370 (0.0556)	-0.0343 (0.0543)	-0.0372 (0.0581)	0.0200 (0.0243)	0.0135 (0.0268)	0.0088 (0.0259)
Observations	10,787	9,261	9,261	92,376	87,401	87,401
R-squared	0.0031	0.0718	0.1565	0.0009	0.1340	0.2055
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

	Female students			Male students		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 2 2016	0.0264 (0.0180)	0.0122 (0.0217)	0.0153 (0.0213)	-0.0096 (0.0117)	-0.0073 (0.0125)	-0.0071 (0.0124)
Pilot 2 2017	0.0059 (0.0200)	-0.0017 (0.0251)	0.0029 (0.0244)	-0.0019 (0.0126)	-0.0064 (0.0140)	-0.0104 (0.0138)
Pilot 2 2018	0.0262 (0.0216)	0.0177 (0.0268)	0.0220 (0.0259)	-0.0068 (0.0122)	0.0001 (0.0135)	-0.0047 (0.0136)
Pilot 2 2019	0.0251 (0.0237)	0.0081 (0.0285)	0.0033 (0.0272)	-0.0066 (0.0193)	-0.0075 (0.0228)	-0.0155 (0.0228)
Observations	102,418	89,407	89,407	99,231	84,954	84,954
R-squared	0.0021	0.1651	0.2273	0.0010	0.1016	0.1659
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 11:

DID regression of Stage 6 mathematics participation by student groups, Year 11 pilot 2 versus comparison schools

	Aboriginal and/or Torres Strait Islander			Taking a VET course		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 2 2020	0.0448 (0.0319)	0.0566^ (0.0326)	0.0561 (0.0343)	0.0395 (0.0273)	0.0630* (0.0300)	0.0760** (0.0274)
Observations	12,978	11,209	11,209	24,253	21,145	21,145
R-squared	0.0008	0.0906	0.2225	0.0019	0.1111	0.2179
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
	Rural and remote schools			**Socio-educational disadvantage**		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 2 2020	0.0874** (0.0311)	0.0955** (0.0354)	0.0918* (0.0372)	0.0327* (0.0156)	0.0339* (0.0166)	0.0371* (0.0168)
Observations	12,996	11,238	11,238	113,289	107,300	107,300
R-squared	0.0028	0.0712	0.1469	0.0007	0.1252	0.1935
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
	Female students			**Male students**		
Cohort	**Model 1**	**Model 2**	**Model 3**	**Model 1**	**Model 2**	**Model 3**
Pilot 2 2020	0.0155 (0.0186)	0.0220 (0.0191)	0.0219 (0.0208)	0.0119 (0.0116)	0.0168 (0.0148)	0.0201 (0.0142)
Observations	122,994	108,700	108,700	119,367	104,025	104,025
R-squared	0.0018	0.1597	0.2186	0.0009	0.0947	0.1547
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Participation in Stage 6 mathematics standard

Table 12:

Common trends test for DID regression of Stage 6 mathematics standard participation

Year 11 pilot 1 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2016	-0.0112 (0.0194)	-0.0099 (0.0205)	-0.0082 (0.0203)	-0.0019 (0.0243)	-0.0097 (0.0255)	-0.0087 (0.0253)
Pilot 1 2017	0.0086 (0.0205)	0.0086 (0.0199)	0.0082 (0.0202)	-0.0086 (0.0287)	-0.0150 (0.0300)	-0.0150 (0.0295)
Pilot 1 2018	-0.0323 (0.0276)	-0.0237 (0.0289)	-0.0284 (0.0282)	-0.0425 (0.0343)	-0.0372 (0.0351)	-0.0388 (0.0347)
Observations	156,903	136,034	136,034	28,233	24,986	24,986
R-squared	0.0047	0.1886	0.2525	0.0010	0.0923	0.1395
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 11 pilot 2 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2 2016	0.0017 (0.0160)	-0.0026 (0.0157)	-0.0013 (0.0142)	-0.0075 (0.0231)	-0.0205 (0.0244)	-0.0182 (0.0225)
Pilot 2 2017	-0.0043 (0.0160)	0.0119 (0.0167)	0.0085 (0.0158)	-0.0042 (0.0239)	-0.0022 (0.0268)	-0.0063 (0.0251)
Pilot 2 2018	0.0185 (0.0161)	0.0255 (0.0180)	0.0231 (0.0178)	0.0047 (0.0238)	0.0008 (0.0248)	-0.0016 (0.0240)
Pilot 2 2019	0.0080 (0.0159)	0.0203 (0.0178)	0.0111 (0.0167)	-0.0193 (0.0268)	-0.0196 (0.0275)	-0.0223 (0.0266)
Observations	201,649	174,361	174,361	42,256	36,647	36,647
R-squared	0.0043	0.1774	0.2403	0.0023	0.0508	0.1075
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Year 12 pilot 1 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2016	-0.0099 (0.0156)	-0.0044 (0.0188)	-0.0074 (0.0178)	-0.0121 (0.0258)	-0.0078 (0.0292)	-0.0106 (0.0294)
Pilot 1 2017	-0.0103 (0.0201)	-0.0022 (0.0229)	-0.0032 (0.0223)	-0.0274 (0.0271)	-0.0435 (0.0283)	-0.0449 (0.0281)
Pilot 1 2018	0.0092 (0.0209)	0.0163 (0.0237)	0.0111 (0.0226)	-0.0093 (0.0269)	-0.0137 (0.0297)	-0.0170 (0.0299)
Pilot 1 2019	-0.0126 (0.0219)	-0.0056 (0.0257)	-0.0103 (0.0244)	-0.0265 (0.0329)	-0.0361 (0.0357)	-0.0442 (0.0374)
Observations	173,621	154,849	154,849	27,024	24,020	24,020
R-squared	0.0045	0.1318	0.1998	0.0006	0.0443	0.0802
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 13:

DID regression of Stage 6 mathematics standard participation

Year 11 pilot 1 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2019	-0.1020*** (0.0171)	-0.1072*** (0.0183)	-0.1054*** (0.0179)	-0.0974*** (0.0208)	-0.0934*** (0.0216)	-0.0886*** (0.0212)
Pilot 1 2020	-0.0635*** (0.0184)	-0.0862*** (0.0178)	-0.0861*** (0.0175)	-0.0291 (0.0264)	-0.0365 (0.0262)	-0.0352 (0.0265)
Observations	236,292	206,475	206,475	43,073	38,352	38,352
R-squared	0.0033	0.1698	0.2309	0.0046	0.0698	0.1138
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 11 pilot 2 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2 2020	-0.0790*** (0.0198)	-0.0908*** (0.0236)	-0.0947*** (0.0232)	-0.0761** (0.0262)	-0.0812** (0.0277)	-0.0825** (0.0279)
Observations	244,198	212,725	212,725	51,488	45,056	45,056
R-squared	0.0036	0.1627	0.2236	0.0037	0.0418	0.0923
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 12 pilot 1 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2020	-0.0971*** (0.0160)	-0.1068*** (0.0165)	-0.1021*** (0.0167)	-0.1108*** (0.0264)	-0.1087*** (0.0269)	-0.1072*** (0.0279)
Observations	208,295	186,498	186,498	32,485	29,049	29,049
R-squared	0.0038	0.1207	0.1885	0.0030	0.0354	0.0701
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Participation in Stage 6 mathematics advanced and extension

Table 14:

Common trends test for DID regression of Stage 6 mathematics advanced and extension participation

Year 11 pilot 1 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2016	0.0139 (0.0141)	0.0073 (0.0160)	0.0072 (0.0156)	0.0116 (0.0169)	0.0239 (0.0203)	0.0204 (0.0195)
Pilot 1 2017	-0.0030 (0.0169)	-0.0058 (0.0163)	-0.0039 (0.0155)	0.0150 (0.0197)	0.0207 (0.0225)	0.0191 (0.0219)
Pilot 1 2018	0.0340* (0.0164)	0.0121 (0.0202)	0.0134 (0.0192)	0.0597** (0.0210)	0.0384 (0.0252)	0.0346 (0.0242)
Observations	156,903	136,034	136,034	28,233	24,986	24,986
R-squared	0.0082	0.5215	0.5580	0.0027	0.4059	0.4303
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 11 pilot 2 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2 2016	0.0088 (0.0108)	0.0072 (0.0110)	0.0076 (0.0107)	0.0259 (0.0162)	0.0307 (0.0204)	0.0292 (0.0195)
Pilot 2 2017	0.0010 (0.0109)	-0.0171 (0.0139)	-0.0132 (0.0139)	0.0082 (0.0188)	0.0104 (0.0213)	0.0102 (0.0210)
Pilot 2 2018	-0.0085 (0.0099)	-0.0104 (0.0139)	-0.0084 (0.0138)	0.0134 (0.0163)	0.0247 (0.0200)	0.0259 (0.0193)
Pilot 2 2019	0.0101 (0.0148)	-0.0141 (0.0160)	-0.0107 (0.0157)	0.0331^ (0.0182)	0.0426* (0.0213)	0.0435* (0.0200)
Observations	201,649	174,361	174,361	42,256	36,647	36,647
R-squared	0.0123	0.5180	0.5550	0.0013	0.3754	0.4079
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Year 12 pilot 1 students versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2016	-0.0022 (0.0101)	0.0070 (0.0174)	0.0078 (0.0165)	0.0142 (0.0133)	0.0249 (0.0211)	0.0279 (0.0210)
Pilot 1 2017	-0.0074 (0.0109)	0.0026 (0.0175)	0.0043 (0.0170)	0.0051 (0.0150)	0.0479* (0.0197)	0.0481* (0.0200)
Pilot 1 2018	-0.0116 (0.0112)	-0.0057 (0.0147)	-0.0018 (0.0139)	-0.0004 (0.0158)	0.0325^ (0.0185)	0.0375* (0.0186)
Pilot 1 2019	-0.0017 (0.0134)	-0.0002 (0.0202)	0.0021 (0.0199)	0.0213 (0.0185)	0.0495^ (0.0261)	0.0505^ (0.0266)
Observations	173,621	154,849	154,849	27,024	24,020	24,020
R-squared	0.0081	0.4884	0.5327	0.0017	0.3432	0.3690
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 15:

DID regression of Stage 6 mathematics advanced and extension participation

Year 11 pilot 1 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2019	0.0050 (0.0111)	0.0007 (0.0135)	-0.0021 (0.0129)	0.0230 (0.0154)	-0.0024 (0.0164)	-0.0071 (0.0161)
Pilot 1 2020	0.0038 (0.0097)	0.0166 (0.0119)	0.0123 (0.0111)	0.0059 (0.0137)	-0.0053 (0.0186)	-0.0092 (0.0186)
Observations	236,292	206,475	206,475	43,073	38,352	38,352
R-squared	0.0079	0.5171	0.5530	0.0015	0.4032	0.4251
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 11 pilot 2 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2 2020	0.0245* (0.0120)	0.0197 (0.0145)	0.0221 (0.0149)	0.0253^ (0.0141)	0.0139 (0.0170)	0.0182 (0.0176)
Observations	244,198	212,725	212,725	51,488	45,056	45,056
R-squared	0.0116	0.5125	0.5494	0.0009	0.3647	0.3987
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Year 12 pilot 1 versus comparison schools						
	Full sample			Matched sample		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 1 2020	0.0111 (0.0101)	0.0111 (0.0095)	0.0095 (0.0091)	0.0338* (0.0129)	0.0251^ (0.0142)	0.0214 (0.0133)
Observations	208,295	186,498	186,498	32,485	29,049	29,049
R-squared	0.0079	0.4853	0.5295	0.0013	0.3404	0.3652
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Achievement of the HSC minimum standard

Table 16:

Common trends test for DID regression of achievement of HSC minimum standard for numeracy

Pilot schools versus matched comparison schools						
	Year 11			Year 12		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2016	0.0154 (0.0121)	0.0237 (0.0150)	0.0244 (0.0148)	0.0003 (0.0191)	0.0284 (0.0226)	0.0272 (0.0225)
Pilot 2017	0.0071 (0.0140)	-0.0009 (0.0144)	0.0018 (0.0147)	0.0320 (0.0220)	0.0635** (0.0230)	0.0638** (0.0237)
Pilot 2018	0.0209 (0.0134)	0.0141 (0.0165)	0.0155 (0.0158)	0.0140 (0.0229)	0.0522** (0.0180)	0.0536** (0.0182)
Pilot 2019	0.0165 (0.0169)	-0.0031 (0.0177)	-0.0020 (0.0171)	0.0155 (0.0234)	0.0309 (0.0231)	0.0341 (0.0232)
Observations	71,525	70,018	70,018	33,389	27,147	27,147
R-squared	0.0061	0.4248	0.4549	0.0022	0.4408	0.4616
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

Table 17:

DID regression of achievement of HSC minimum standard

Numeracy minimum standard						
	Year 11 (HSC 2021 cohort)			Year 12 (HSC 2020 cohort)		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2020	0.0638 (0.0411)	0.0221 (0.0330)	0.0183 (0.0330)	0.0025 (0.0399)	0.0087 (0.0411)	0.0085 (0.0417)
Observations	86,395	83,784	83,784	39,851	33,178	33,178
R-squared	0.0943	0.4391	0.4650	0.1582	0.4750	0.4893
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Reading minimum standard						
	Year 11 (HSC 2021 cohort)			Year 12 (HSC 2020 cohort)		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2020	0.0287 (0.0443)	-0.0155 (0.0312)	-0.0185 (0.0319)	-0.0167 (0.0296)	-0.0094 (0.0315)	-0.0116 (0.0324)
Observations	87,106	84,469	84,469	40,161	33,436	33,436
R-squared	0.1296	0.3317	0.3492	0.1775	0.3546	0.3634
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes
Writing minimum standard						
	Year 11 (HSC 2021 cohort)			Year 12 (HSC 2020 cohort)		
Cohort	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Pilot 2020	0.0431 (0.0391)	0.0045 (0.0327)	0.0047 (0.0326)	0.0168 (0.0295)	0.0169 (0.0285)	0.0176 (0.0282)
Observations	87,278	84,636	84,636	40,226	33,483	33,483
R-squared	0.1390	0.3051	0.3234	0.2286	0.3712	0.3800
Covariates	No	Yes	Yes	No	Yes	Yes
School fixed effects	No	No	Yes	No	No	Yes

Notes. Robust standard errors in parentheses. All models include year fixed effects and pilot group indicators.
*** p<.001, ** p<.01, * p<.05, ^ p<.10

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