

Grade Inflation in Virginia

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August 2026

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Grades and test scores serve as key indicators of student achievement — contributing to credential attainment for graduation, shaping postsecondary selection, and providing information about students' strengths and weaknesses. For students, the measures guide decisions about course selection, college applications, and career paths. For parents, grades and test scores are indications of where their children are excelling or face challenges that may need additional assistance. For colleges and employers, these measures provide signals to identify well-matched candidates from different backgrounds and school environments.

In Virginia public high schools, between 2014 and 2025, grades have increased substantially, while test scores have remained relatively flat. Grade inflation, defined as grades rising without commensurate gains in achievement, can change the signal value and interpretation of grades over time. This brief analyzes and documents key facts about grade inflation in Virginia.

Data

The analysis relies on the Virginia Longitudinal Data System (VLDS), which provides access to Virginia Department of Education (VDOE) records, including student grades, demographics, attendance, and enrollment. Importantly, VLDS also contains student score data for the Virginia Standards of Learning (SOL) exams — which is the state's end-of-course assessment system for high-school level classes — and Advanced Placement (AP) exams. Students take SOL exams to earn verified credits for graduation and AP exams to earn college credit from an AP course.

A full description of the construction of the analysis sample is contained in the Data Appendix.

The Grading Distribution Shifts Rightward

The distribution of grades has become more skewed toward higher GPAs in the last 15 years, with the shift starting before the pandemic. We plot the distribution of high school GPAs in Figure 1, highlighting the Classes of 2015, 2018, and 2024. The median GPA rose from 2.97 for the Class of 2015 to 3.13 for the Class of 2024. While the bottom of the distribution (below a 2.0 GPA) looks very similar between graduating cohorts, fewer students in the Class of 2024 earn between 2.0 and 3.5 GPA. This suggests that the shift in grades is concentrated among students at the top of the distribution.

Figure 2 presents further evidence of inflation at the top of the distribution. We display histograms of the distribution of letter grades for three graduating cohorts. Across all subjects, the percent of students earning As has increased, displacing a decrease in the percent of students earning Bs and Cs. The percent of students earning Ds and Fs has remained fairly constant. For example, in Biology, the share of students receiving an A grew from 30% to 40%, offset by a 10 percentage point decline in the share of students receiving a B or a C. Figure 3 shows a similar pattern among AP classes where increases in As have mainly displaced decreases in Bs.

Test Scores Remain Flat

While grades have risen over time, test scores have remained stable or declined over this time period. Figure 4 shows the growth in percent of students earning an A, percent of students earning a B, and the mean test score indexed to 2014. The indexed values are the percent change relative to 2014. For example, in 2022, the percent of students earning an A or B in Algebra I reaches 150, which means there has been a 50% increase from 2014.

Across all SOL subjects, the mean test score has remained relatively flat around 100 or even declined slightly. This indicates that there has been little

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movement in overall test performance. The percent of students earning As and As or Bs has grown.

Figure 5 shows the analogous results for AP classes, where there has been more movement in mean test score. For AP Biology, AP English Literature, AP US Government, and AP US History, changes in the College Board’s internal score calibration contribute to this shift. Across most subjects, however, the growth in As has still outpaced changes in the mean test score. If we consider test scores a stable measure of achievement, the divergence between grades and test scores since 2014 meets our definition of grade inflation.

While the descriptive evidence establishes a clear increase in grades without rising test scores, a linear regression model quantifies how much of the observed increase persists when holding test scores fixed.³ Figure 6 summarizes these estimates. Each dot should be interpreted as the average yearly increase in the probability of receiving an A, accounting for differences in performance. A positive coefficient is indicative of grade inflation: the probability of receiving an A is going up year-to-year without a corresponding rise in test scores. We present these estimates looking at years before the pandemic (Class of 2014 – 2019) and for the full sample (Class of 2014 – 2025).

Among SOL subjects, grade inflation occurred in all subjects prior to the pandemic, except for Algebra II, where we find modest evidence of grade deflation in the pre-COVID period. In English/Reading, the probability of receiving an A increased 0.4 percentage points each year, holding test scores fixed. Across the subjects with grade inflation, pre-pandemic inflation of the probability of receiving an A occurred at a rate of 0.2 to 0.6 percentage points per year.

After COVID-19, there was grade inflation in every

SOL subject, and the level of grade inflation was higher when including COVID-19, ranging from 0.6 to 1.3 percentage points per year. The increase suggests that grade inflation accelerated during and after the pandemic.

Among AP subjects, there was grade inflation in all 6 classes pre-pandemic, and grade inflation was stronger over the entire sample. Pre-pandemic, grade inflation ranged from a 0.7 (AP Calculus AB) to 1.8 percentage point (AP US History) increase in the probability of an A per year. After the pandemic, the range was 1.0 (AP Calculus AB) to 2.3 (AP US History) percentage points, indicating that AP grade inflation also accelerated after 2019.

Robustness & Group Differences

The findings of grade inflation do not disappear when we account for demographic changes or student attendance. This suggests that changes in the composition of students or changes in student attendance do not explain observed increases in grades conditional on test scores.

Controlling for the school a student attends also does not change the grade inflation results over the full sample.⁴ This is evidence that grade inflation is occurring within schools over time, and our findings are not driven by differences across schools.

We still find evidence of grade inflation in all subjects when dropping observations where the course or test was from the 2019-2020 and 2020-2021 school years. The consistency shows that our results are not driven by transitory pandemic-era grading leniency but reflect a larger pattern across years.

The robustness of the result suggests that measured grade inflation is a structural change in the relationship between grades and student achievement proxied via test scores.

In secondary analyses, we document demo-

³We use standardized-score bins (SOL scores standardized by test code, AP scores standardized by pre- and post-calibration testing era) and a dummy for non-exam takers to allow for non-linearities in the relationship between test score and the probability of getting an A. All specifications also control for the grade level the student was in when they took the exam, so that the estimated trend is not driven by changes over time in *when* students take a course – for example, the growing share of students taking Algebra I in eighth grade.

⁴The estimated grade inflation in Earth Science pre-pandemic is not significantly different from zero when including school fixed effects.

graphic differences in grades conditional on test scores. At the same test score, non-economically-disadvantaged students receive higher grades than their economically-disadvantaged peers, girls receive higher grades than boys, and white students receive higher grades than Black students. Further work is needed to disentangle the sources of these differences and the implications for student outcomes.

Open Questions for Policy & Research

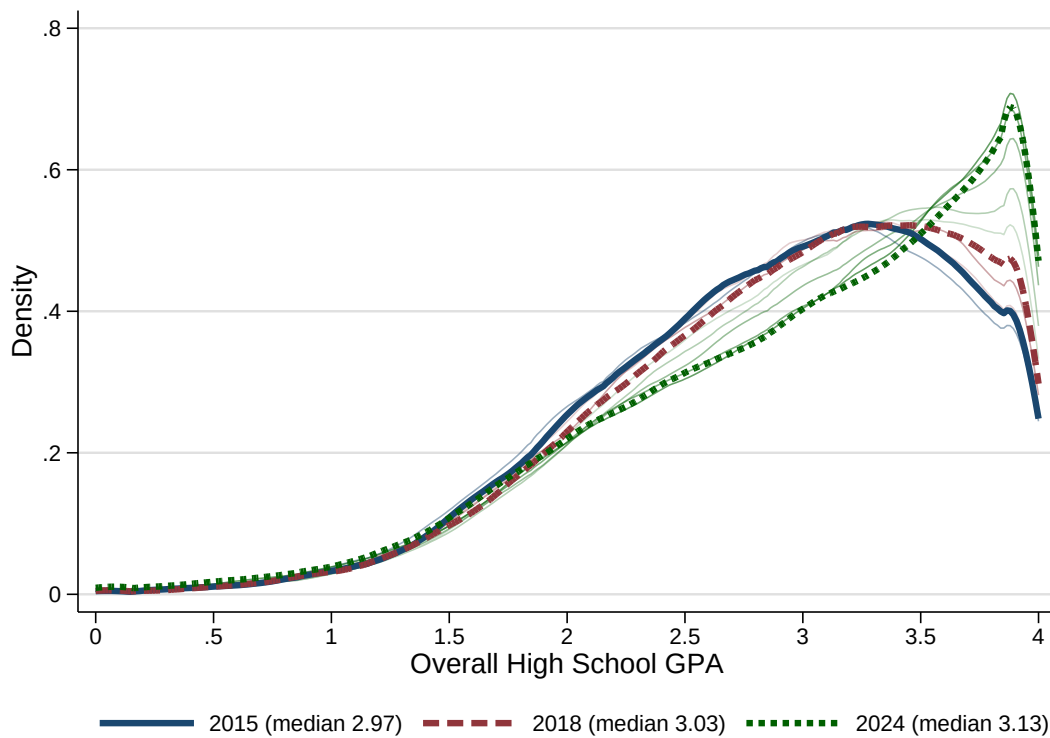
Whether looking at grades overall or in specific courses, high school grades have increased markedly without reciprocal increases in test-based achievement measures between 2014 and 2025. Why these shifts occurred and to what effect remain open questions for policy discussion and research.

A number of factors may affect the alignment of grades and test scores. First, a number of districts have shifted grading policies in the last decade toward “standards-based grading” or “grading for equity” policies. How these intentional policy shifts – which may include retake policies or grade floors – affect the alignment between grades and test scores is an open question.

We underscore that grades and test scores need not capture the identical dimensions of student achievement – some divergence reflects the different timing and scope of assessments. In turn, how grades and test scores may differentially predict future outcomes in college and the workforce remains an open question that we hope to pursue in future work.

Figures

Figure 1. Overall High School GPA, by Graduation Cohort



Note: Bold lines highlight the 2015, 2018, and 2024 graduation cohorts; thin lines in the background show every other cohort from 2014–2024, colored to match the upcoming highlighted cohort they lead into (navy shades lead to 2015, maroon shades to 2018, green shades to 2024) and with color intensity increasing as the cohort nears its benchmark year, giving a sense of the full year-by-year progression without cluttering the headline comparison. The sample is all students assigned to a 2014–2024 federal graduation cohort with a valid overall high school GPA – assignment to a cohort is based on a student’s expected on-time graduation year, not on whether the student actually earned a diploma. Students who dropped out or transferred are therefore included as long as they have a computed GPA from their course records; the figure does not restrict to students who actually graduated. Each student is weighted by the number of high school courses their GPA is based on, so students with fuller course records (e.g., those who stayed enrolled longer) count more heavily than students with only a few recorded courses.

Figure 2. SOL Subjects: Course Grade Distributions, by Graduation Cohort

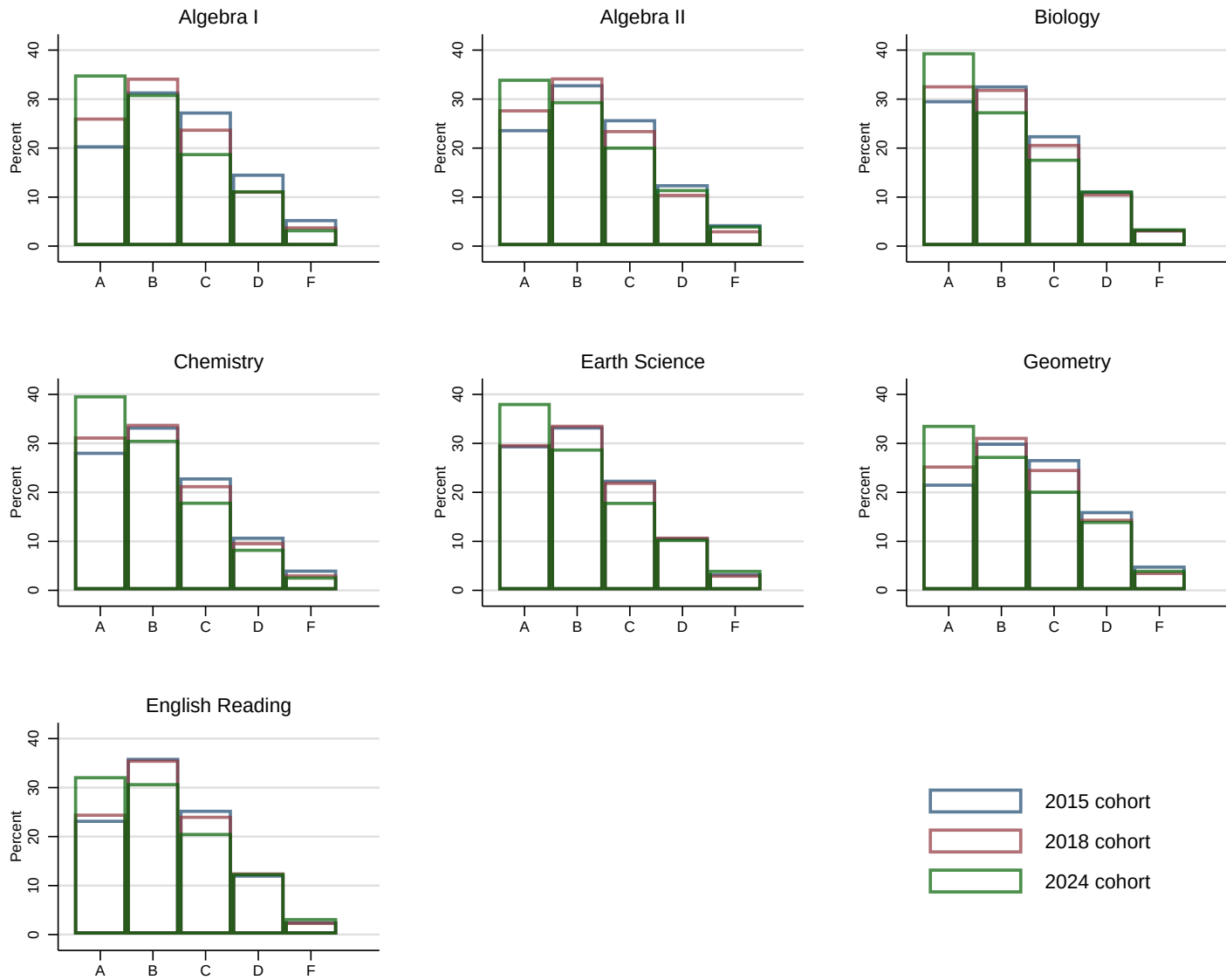


Figure 3. AP Subjects: Course Grade Distributions, by Graduation Cohort

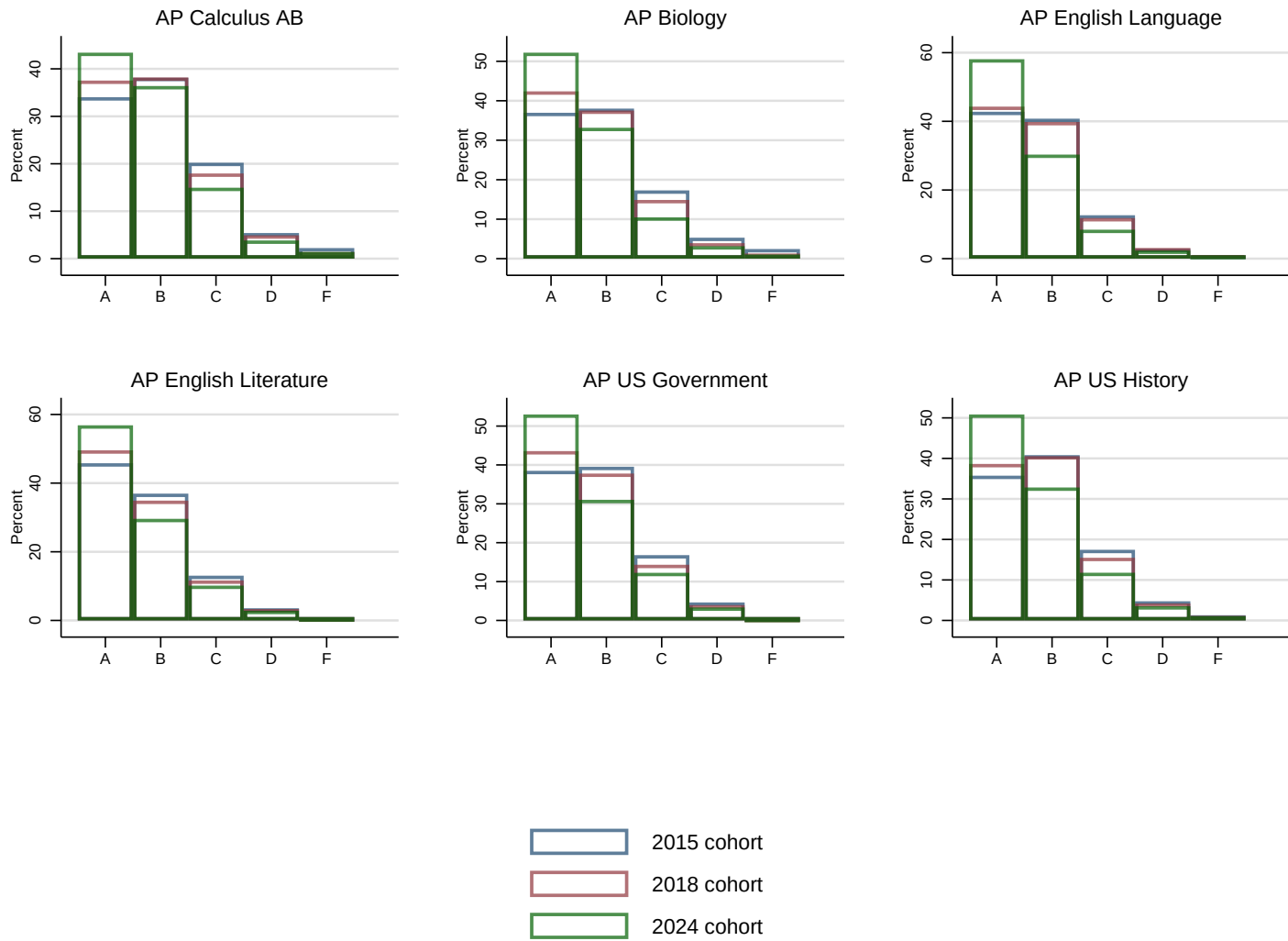


Figure 4. SOL Subjects: Course Grades vs. Test Scores, Indexed Trends

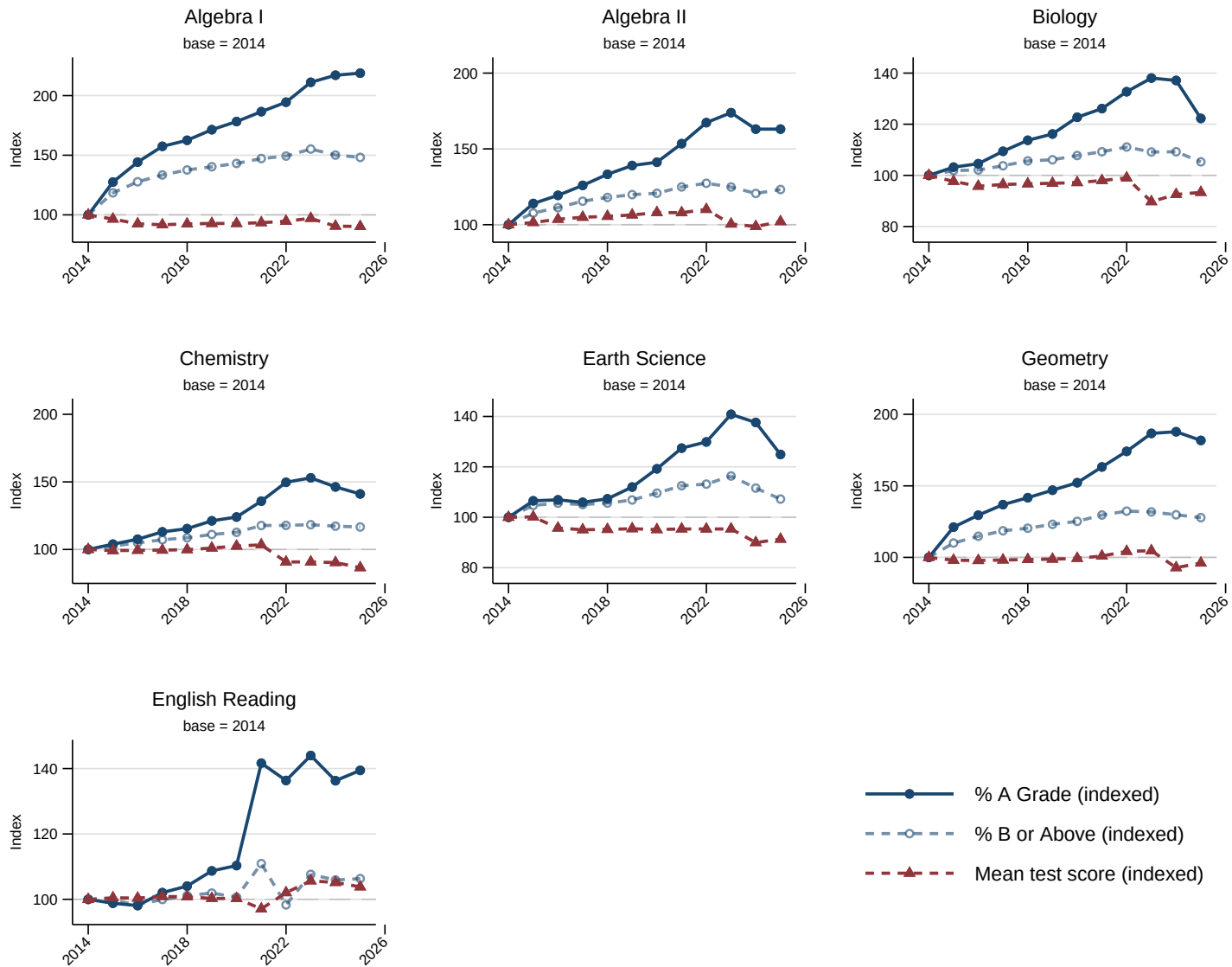


Figure 5. AP Subjects: Course Grades vs. Exam Scores, Indexed Trends

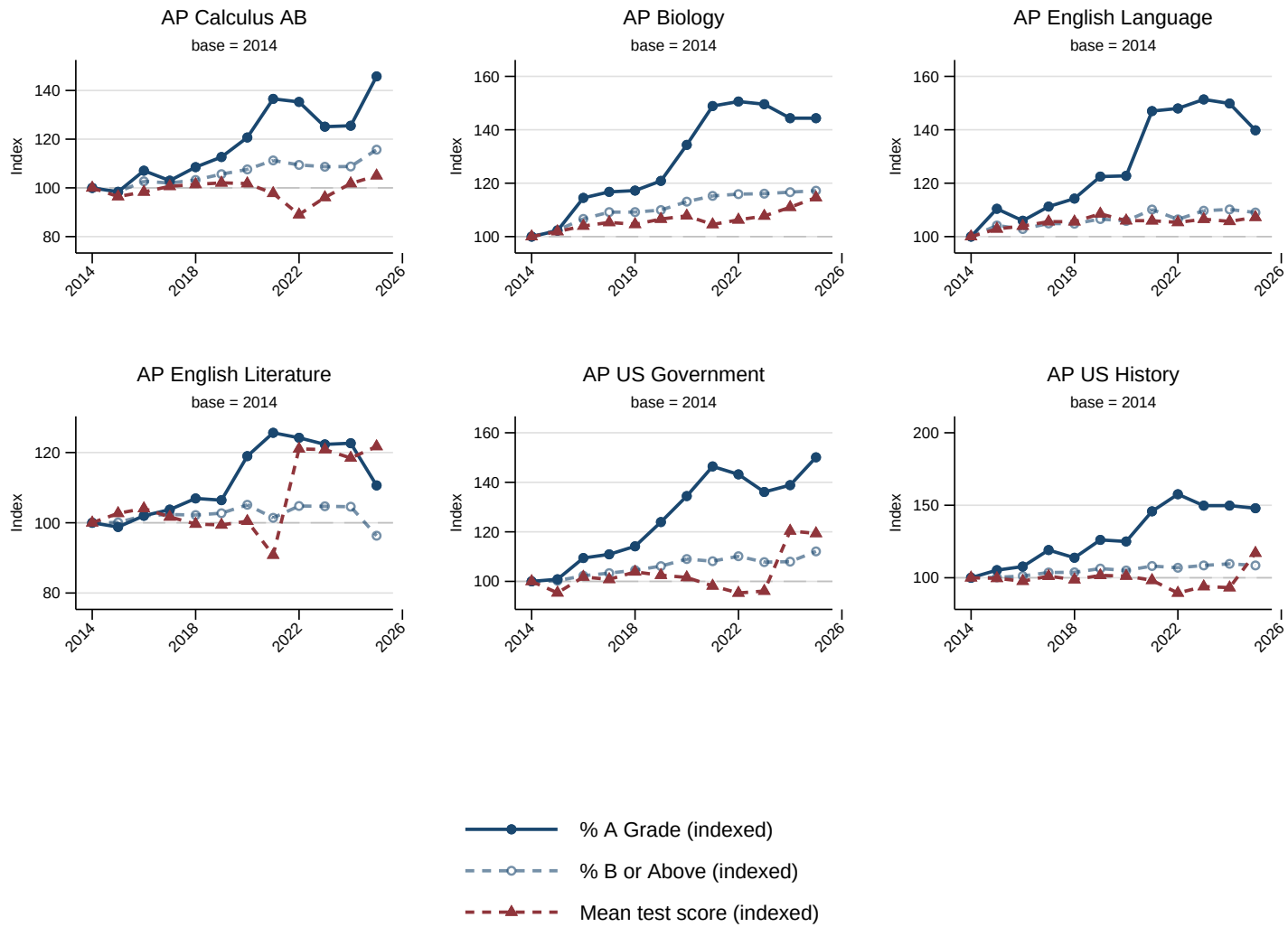
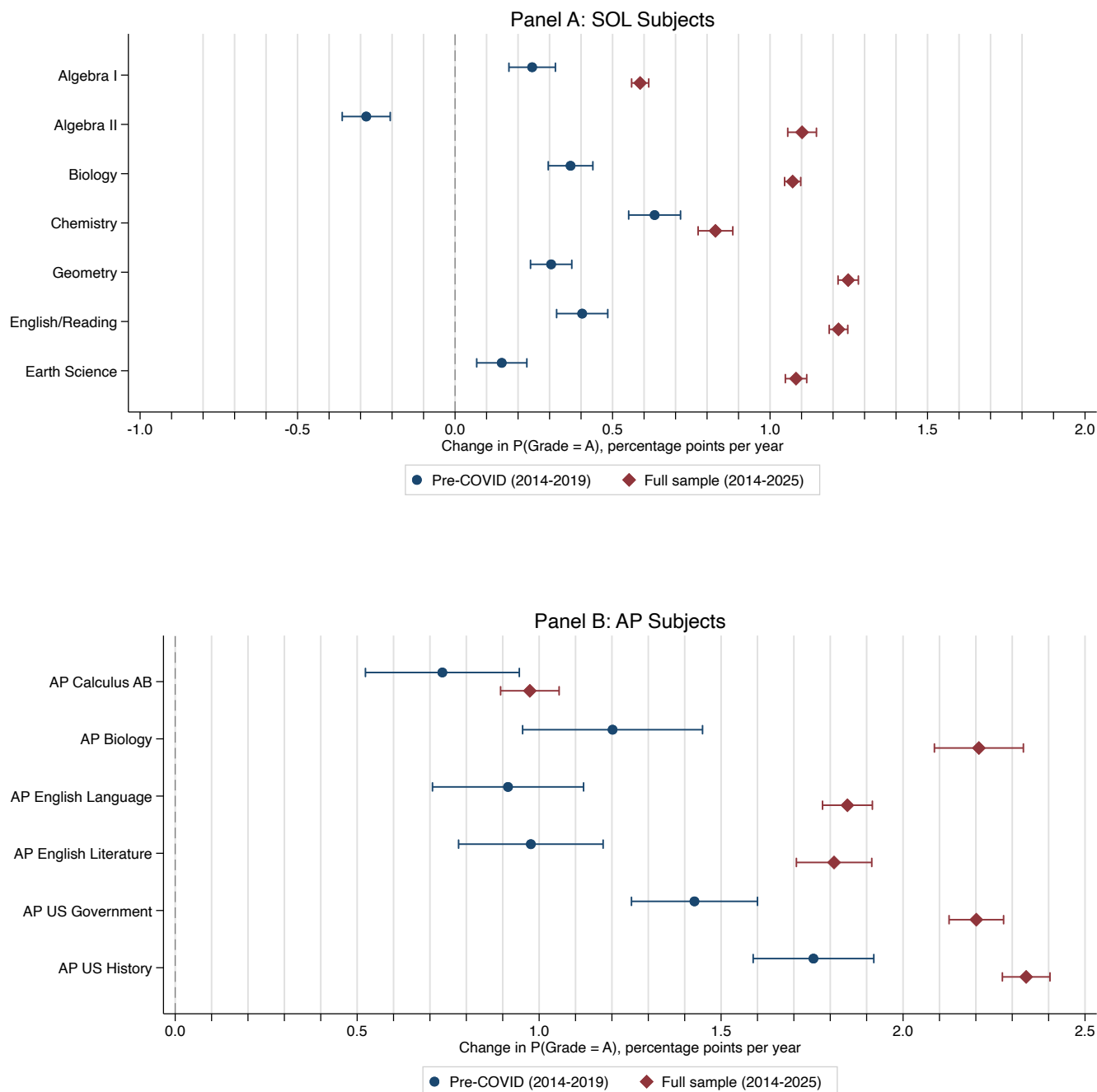


Figure 6. Estimated Annual Change in $P(\text{Grade} = A)$, Holding Test Scores Fixed



Note: Each estimate is the coefficient on a linear graduation-cohort trend in a linear probability model for earning an A, converted to percentage points per year with 95% confidence intervals, controlling for the student's standardized test-score bin (score z-scored to mean 0, SD 1 within raw test code for SOL or within subject x redesign era for AP, then grouped into 0.5-SD-wide bins) and the grade level the student was in when they took the exam. Navy circles are the pre-COVID sample (graduation cohorts 2014–2019); maroon diamonds are the full sample (2014–2025). Points to the right of the dashed zero line indicate that students with the same test score became more likely to earn an A in later cohorts. That the maroon estimates lie to the right of the navy ones in every subject indicates grade inflation accelerated during and after the pandemic.

Data Note

Data Source

This brief uses restricted-use student-level administrative records from the Virginia Longitudinal Data System (VLDS), which link each Virginia public school student's enrollment, course-taking, course grades, and Standards of Learning (SOL) and Advanced Placement (AP) exam scores over time. The analysis covers federal graduation cohorts 2014–2025.

How the Underlying Student Records Were Assembled

Before any of the exhibits in this brief were produced, the raw student records went through several standardization and deduplication steps. Where a student had more than one enrollment record in the same school year, only the record showing the most days physically present was kept. Demographic characteristics (such as race and gender) that were recorded inconsistently for the same student across different years were standardized to that student's most commonly reported value. Where a student had multiple attempts on the same SAT, ACT, PSAT, AP, or SOL exam, only their highest score was retained, so test scores in this brief reflect each student's best recorded attempt rather than a full retake history. Likewise, where a student had more than one grade on record for the same course – for example, after retaking a class – only the highest recorded grade was kept; course grades analyzed in this brief are therefore each student's best recorded attempt in that course, not necessarily their first attempt. No student was removed from the underlying records for having missing test scores or course grades – these deduplication rules only ever removed a lower-scoring or lower-grade *duplicate* record, never a student's only record.

Exhibit-Level Sample Filters

On top of the assembled student records described above, every exhibit excludes students whose course record is tied to a prison, juvenile-detention, or special-education school placement, since grading practices at these placements are not comparable to a typical high school setting. Each exhibit is then built on the subset of remaining students with a valid course grade in the subject being analyzed; exhibits that relate grades to test performance further require a valid SOL or AP score for that student in that subject and year.

Variable Definitions

Course grades are recorded on a plus/minus GPA scale (0–4). $P(A)$ is an indicator for earning an A (grade equals 4.0) in a subject; $P(A/B)$ additionally counts grades of 3.0 or above. SOL scores are a student's highest recorded score on the relevant end-of-course exam (scaled 0–600; 400 is passing). AP scores are the College Board's 1–5 exam score. Demographic characteristics (female, Black, Hispanic, Asian, economically disadvantaged) and course-specific attendance rates (the share of scheduled school days a student was absent during the year they took the course) are drawn from the same student records. Overall high school GPA (Figure 1) is a student's course-weighted plus/minus GPA across all of their high school courses, so that GPAs based on more courses count more heavily than GPAs based on only a few. Grade level at testing is computed from the student's graduation cohort and the year they took the exam, treating a student who tests in the year they are scheduled to graduate as a twelfth grader.

How the Figures Were Built

Figure 1 plots the distribution of overall high school GPA separately for the 2015, 2018, and 2024 graduation cohorts. **Figures 2 and 3** plot overlaid course-grade distribution histograms by subject for the 2015, 2018,

and 2024 graduation cohorts, showing the rightward shift of the full grade distribution over time rather than just the share earning an A. **Figures 4 and 5** track, for each subject and graduation cohort, the share of students earning an A, the share earning an A or B, and the mean test score; each of the three series is indexed to its own earliest available cohort (=100) so that grade trends and score trends can be compared on the same scale despite being measured in different units. **Figure 6** plots, separately for each subject, the coefficient on a linear graduation-cohort trend from a regression estimating how likely a student is to earn an A given their standardized test-score bin and the grade level they were in when they took the exam, with 95% confidence intervals, on a percentage-point-per-year scale. This is the least-controlled specification in a four-specification ladder that also adds demographics, course-specific attendance, and school fixed effects one at a time to check how much of the estimated trend survives once student composition and school are held fixed as well.

Score Standardization, Bins, and Omitted Categories

Test scores are standardized (mean 0, standard deviation 1) before binning, so that a single set of bins is comparable across test revisions: SOL scores are standardized within their own raw test form (VDOE reissues a new SOL test code whenever a subject's exam is revised), and AP scores are standardized within subject by pre-/post-redesign era for the four subjects with a known College Board exam-form redesign in this window (AP Biology and AP English Literature: new form starting the 2022 exam; AP US Government and AP US History: new form starting the 2024 exam). Standardized SOL scores are grouped into seven 0.5-standard-deviation-wide bins, with the band from -0.5 to 0.5 standard deviations used as the reference category against which all other bins are compared. Standardized AP scores are grouped the same way, plus a separate no-exam-recorded category, so that a student who took the course but did not have a matched AP exam score is retained in the analysis rather than dropped.

Appendix: Tables

Table 1. SOL Subjects: Linear Cohort-Trend Coefficient Across Control Specifications

	(1)	(2)	(3)	(4)
	Bins + Trend	+ Demographics	+ Absence	+ School FE
<i>Panel A: Pre-COVID Cohorts (2014–2019)</i>				
Algebra I	0.0024*** (0.0004)	0.0025*** (0.0004)	0.0025*** (0.0004)	0.0033** (0.0016)
Algebra II	-0.0028*** (0.0004)	-0.0022*** (0.0004)	-0.0014*** (0.0004)	-0.0025 (0.0016)
Biology	0.0037*** (0.0004)	0.0050*** (0.0004)	0.0051*** (0.0004)	0.0057*** (0.0016)
Chemistry	0.0063*** (0.0004)	0.0068*** (0.0004)	0.0074*** (0.0004)	0.0061*** (0.0019)
Geometry	0.0031*** (0.0003)	0.0035*** (0.0003)	0.0037*** (0.0003)	0.0039** (0.0016)
English/Reading	0.0040*** (0.0004)	0.0055*** (0.0004)	0.0064*** (0.0004)	0.0073*** (0.0018)
Earth Science	0.0015*** (0.0004)	0.0027*** (0.0004)	0.0025*** (0.0004)	0.0009 (0.0020)
<i>Panel B: Full Sample (2014–2025)</i>				
Algebra I	0.0059*** (0.0001)	0.0064*** (0.0001)	0.0067*** (0.0001)	0.0072*** (0.0007)
Algebra II	0.0110*** (0.0002)	0.0115*** (0.0002)	0.0120*** (0.0002)	0.0124*** (0.0010)
Biology	0.0107*** (0.0001)	0.0115*** (0.0001)	0.0119*** (0.0001)	0.0112*** (0.0008)
Chemistry	0.0083*** (0.0003)	0.0088*** (0.0003)	0.0093*** (0.0003)	0.0088*** (0.0014)
Geometry	0.0125*** (0.0002)	0.0129*** (0.0002)	0.0130*** (0.0002)	0.0139*** (0.0009)
English/Reading	0.0122*** (0.0002)	0.0134*** (0.0001)	0.0146*** (0.0001)	0.0147*** (0.0008)
Earth Science	0.0108*** (0.0002)	0.0114*** (0.0002)	0.0113*** (0.0002)	0.0102*** (0.0011)

Coefficient on the linear graduation-cohort trend (fed_grad_cohort) from a P(Grade = A) linear probability model; SE in parentheses, clustered at the school level in column (4) only (robust otherwise). Score control: raw SOL score is z-scored (mean 0, SD 1) within its own raw test code, then entered as six 0.5-SD-wide bin dummies (omitted reference: -0.5 to 0.5 SD). All columns also include dummies for the grade level the student was in when they took the exam. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 2. AP Subjects: Linear Cohort-Trend Coefficient Across Control Specifications

	(1) Bins + Trend	(2) + Demographics	(3) + Absence	(4) + School FE
<i>Panel A: Pre-COVID Cohorts (2014–2019)</i>				
AP Calculus AB	0.0073*** (0.0011)	0.0079*** (0.0011)	0.0081*** (0.0011)	0.0097*** (0.0032)
AP Biology	0.0120*** (0.0013)	0.0121*** (0.0013)	0.0123*** (0.0012)	0.0084** (0.0037)
AP English Language	0.0091*** (0.0011)	0.0096*** (0.0011)	0.0102*** (0.0010)	0.0078* (0.0044)
AP English Literature	0.0098*** (0.0010)	0.0097*** (0.0010)	0.0095*** (0.0010)	0.0126** (0.0054)
AP US Government	0.0143*** (0.0009)	0.0151*** (0.0009)	0.0146*** (0.0009)	0.0135*** (0.0040)
AP US History	0.0175*** (0.0008)	0.0178*** (0.0008)	0.0185*** (0.0008)	0.0170*** (0.0037)
<i>Panel B: Full Sample (2014–2025)</i>				
AP Calculus AB	0.0097*** (0.0004)	0.0102*** (0.0004)	0.0108*** (0.0004)	0.0121*** (0.0019)
AP Biology	0.0221*** (0.0006)	0.0226*** (0.0006)	0.0219*** (0.0006)	0.0213*** (0.0021)
AP English Language	0.0185*** (0.0003)	0.0191*** (0.0003)	0.0198*** (0.0003)	0.0193*** (0.0022)
AP English Literature	0.0181*** (0.0005)	0.0185*** (0.0005)	0.0174*** (0.0005)	0.0199*** (0.0028)
AP US Government	0.0220*** (0.0004)	0.0226*** (0.0004)	0.0224*** (0.0004)	0.0236*** (0.0021)
AP US History	0.0234*** (0.0003)	0.0236*** (0.0003)	0.0243*** (0.0003)	0.0259*** (0.0016)

Coefficient on the linear graduation-cohort trend (fed_grad_cohort) from a P(Grade = A) linear probability model; SE in parentheses, clustered at the school level in column (4) only (robust otherwise). Score control: AP exam score is z-scored (mean 0, SD 1) within subject x redesign era, then entered as six 0.5-SD-wide bin dummies (omitted reference: -0.5 to 0.5 SD) plus a no-exam dummy. All columns also include dummies for the grade level the student was in when they took the course, and a post-redesign dummy for AP Biology, AP English Literature (new exam form starting 2022), AP US Government, and AP US History (new exam form starting 2024); AP Calculus AB and AP English Language have no known redesign in this window. * p<0.10, ** p<0.05, *** p<0.01.