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College Prep for All Part II

Will San Diego Students Meet Challenging New Graduation Requirements?

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SUMMARY

Major urban school districts, including those in Los Angeles, San Diego, San Francisco and Oakland, have recently changed their high school graduation requirements, making college preparatory coursework mandatory. These districts now require students to complete the ‘a-g’ course sequence, 30 semester-long courses in assigned subjects required for admission to the University of California (UC) and California State University (CSU) systems. This bold reform seeks to equalize access to college prep coursework. But it also risks denying many students a high school diploma.

This report follows progress of the reform in the San Diego Unified School District (SDUSD), the second largest district in California. There, students in the class of 2016 will be the first required to complete the college prep coursework to obtain a diploma. While both public university systems in California require students to obtain grades of C or higher in these courses, SDUSD will allow those with grades of D or higher to graduate.

Comparing the classes of 2016 through 2018 with classes that have already graduated, the report finds that students facing the new requirement have increased their a-g course-taking. By the end of grade 11, students in the class of 2016 had completed about one (1.0) semester course more than predicted by past trends. Students with the lowest likelihood of completing the requirement have shown the greatest improvement.

It also appears that the percentage of students in the class of 2016 who will complete the coursework with grades of C or higher, which would make them eligible to apply to the two state public university systems, may rise by up to ten percentage points. These students could gain meaningfully from the reform.

In spite of that good news, many students in the class of 2016 are at risk of not graduating in June 2016. We estimate up to 27% of students will have trouble completing their required a-g courses by then; over half of English Learners and those receiving special education services are unlikely to do so. Further, SDUSD has long made a cumulative GPA of 2.0 a graduation requirement. Our estimate of those at risk of not graduating in June 2016 rises slightly to 28% when we incorporate this factor. The projected graduation rate of 72% would be far below the June 2014 graduation rate of 87.5%. (In that year 89.7% eventually graduated after summer school.)

In sum, due to the new graduation requirement, roughly ten percent more students may become eligible to apply to the CSU and UC university systems, but 16 percent more students may fail to graduate. On the present course, in the class of 2016, the new graduation policy is likely to produce many students who will win, and many who will lose.

How could this policy be reformed to become a win-win for both higher- and lower-achieving students? The answer may lie in increased supports for struggling students. SDUSD has made real strides towards making college prep coursework accessible to all, and summer school expansion has helped, to a modest extent, the students who are struggling. But many students appear to need substantial added support before and during high school to be prepared to meet this new graduation requirement.

The district also needs to consider two stipulations in California's Education Code that require districts to allow alternative routes to a high school diploma, including a vocational route that emphasizes Career and Technical Education. To date, the district has not clearly stated what alternative pathways might exist to a high school diploma.

Introduction

Throughout his presidency, President Obama has repeatedly called for the nation's high schools to prepare all students for success in both college and career. Currently, 23 states and the District of Columbia require all students to complete a college-prep and career-ready curriculum. This type of curriculum reduces tracking and ensures access to the relevant and rigorous instructional program that students need to gain entry to college and for jobs after high school.

Although California is not one of the states requiring college prep for all, the American Civil Liberties Union (ACLU) has campaigned to ensure that all California students have access to college prep coursework. It has done so by encouraging districts to audit student access to 'a-g' courses in high schools in San Diego and elsewhere, in some cases working together with Education Trust West. (In California, high school students must complete a set of college prep courses known as the a-g requirements, with grades of C or higher, in order to apply for admission to either of the state's public university systems – the University of California (UC) or the California State University system (CSU).)

Partly in response to the Education Trust West audits of a-g course-taking, which have shown large variations across schools, several large California school districts, including Los Angeles, Oakland, San Francisco, and San Diego, have adopted graduation policies requiring all students to complete the a-g course of study in order to graduate from high school. However, because the new coursework requirements are quite challenging, most of these districts allow grades of D or higher, rather than the

C or higher grades required by the state university systems.

This reform holds important implications for equality of opportunity. Theoretical and statistical evidence on the impact of raising graduation standards is mixed.¹ The policy could increase college access for historically underserved populations. But on the other hand, the policy change could inadvertently decrease equality of opportunity. Poorly prepared high school students may become discouraged by the more rigorous curriculum. Their attendance may start to lag. Their grades may drop. Ultimately, they may be more likely to drop out, or to persist until grade 12 without earning a diploma.

This report provides timely data from the San Diego Unified School District (SDUSD), where students in the classes of 2016 and later will be required to complete the a-g coursework with grades of D or higher in order to graduate. The report investigates whether students in the classes of 2016 and later have increased the number of college prep classes taken (both with the D or higher grades required to graduate and with the C or higher grades required by the UC/CSU), and which students are gaining the most. It compares course taking by students who face the new requirements with that of a-g completers in cohorts that have already graduated. The analysis suggests how far off pace current students might be. The study then takes a detailed look at the class of 2016 to estimate how many are unlikely to graduate in June 2016.

¹ Theoretical work on graduation standards shows that a rise in standards, without any increase in school resources, will make some students better off, and others, who fail to meet the requirement, worse off. (Costrell, 1994 and Betts, 1998). A reform in Chicago Public Schools in the 1990s that set new course requirements for grade 9 students appears to have produced negative side effects. (See Allensworth, Nomi, Montgomery and Lee, 2009 and Nomi and Allensworth, 2009.)

San Diego's New Graduation Requirements

The a-g requirements, shown in the rightmost column of Table 1, are the 30 semesters of coursework that high school students must complete in California to be eligible to apply for admission to either of the state's public university systems. San Diego Unified, like most of the other districts that have adopted the a-g course sequence as a graduation requirement, has decided to allow students to graduate if they earn letter grades of D or higher in a-g coursework, as long as their overall GPA is a C or higher. Although D grades would not allow students to attend either of the state's public university systems, proponents of the policy argue that it gives all students the opportunity to take all necessary college-preparatory coursework. SDUSD also requires, both now and in the past, students to obtain a cumulative grade point average (GPA) of 2.0 (a C average) in order to graduate. This additional requirement could interact with the new college prep requirement.

The middle column shows the former graduation requirements in San Diego. In some cases the requirements were quite similar to the new a-g

requirements. One notable change is the world language requirement, which has increased to 4 semesters of credit required, compared to zero before.

Recent graduating classes provide a baseline for the district's a-g completion rates. Looking at the SDUSD class of 2011, which was not affected by the new graduation policy, Betts, Zau, and Bachofer (2013) found that 61 percent of graduates met the a-g requirements with a D or higher mark (per the new policy) and 42 percent completed the requirements with a C or higher (as required by the UC/CSU).

Despite the large share of recent graduates who did not complete the a-g sequence, the graduation rate for the class of 2016 (and beyond) is unlikely to be as low as 61 percent. Had the new requirements been in place, many past students who fell just short of the mark would likely have adjusted their course taking to meet the standard. In addition, the district has recently increased spending on summer school to help high school students graduate on time. Even so, maintaining SDUSD's graduation rate of 89.7 percent for the class of 2014 – the most recent reported graduation rate – may present a challenge, given historical rates of a-g completion.

TABLE 1
SDUSD Graduation Requirements that Applied up to the Class of 2015 and the a-g Subject-Area Requirements

Subject (a-g subject code)	Former SDUSD Graduation Requirements	UC/CSU Requirements for Freshman Admissions
Social Sciences (a)	6 Semester Courses (including world history, US history, 1 semester of government, and 1 semester of economics)	4 Semester Courses (including US history or 1 semester of US history and 1 semester of civics or American government; and world history, cultures, and geography)
English (b)	8 Semester Courses	8 Semester Courses
Mathematics (c)	6 Semester Courses (including algebra, geometry, and intermediate algebra OR unifying algebra and geometry)	6 Semester Courses (including algebra, geometry, and intermediate algebra)
Science (d)	6 Semester Courses (including UC-approved life science ('d'), UC-approved physical science ('d'), and 1 additional UC-approved science)	4 Semester Courses (with lab required, chosen from biology, chemistry, and physics)
World Language (e)	World Languages and Visual and Performing Arts Combined: 3 Semester Courses (Option A: 1 year of world language and 1 semester of visual, performing, or practical arts or Option B: 1 year of visual and/or performing arts and 1 semester of practical arts)	4 Semester Courses (in the same language)
Visual and Performing Arts (f)		2 Semester Courses (of visual and performing arts chosen from dance, drama/theater, music, or visual art)
Physical Education	4 Semester Courses	Not applicable
Electives (g)	Additional credits needed to complete required 44 semester credits	2 Semester Courses
Total (Semester Courses)	44	30 (14 in the last 2 years of high school)

SOURCES: SDUSD requirements up to the class of 2015: Betts, Zau and Bachofer, Table 5, (2013).

a-g requirements: The University of California Office of the President

<http://admission.universityofcalifornia.edu/counselors/freshman/minimum-requirements/index.html>

NOTES: Students can meet some of the a-g requirements by taking certain college courses or scoring at certain levels on Advanced Placement (AP), International Baccalaureate (IB), or SAT subject area examinations. More information is available from the last website listed above. For SDUSD requirements currently, see:

(<http://www.sandi.net/cms/lib/CA01001235/Centricity/Domain/34/procedures/pp4770.pdf>)

Students Are Taking More College Prep Courses

Increased a-g course completion is one clear sign that the new requirements are having an impact. As of June 2015, students in the classes of 2016 through 2018 have on average completed 29.6, 19.6, and 10.8 a-g semester courses with grades of D or higher. To test for improvement over past cohorts, we estimated time trends for a-g course completion through grades 9, 10, and 11 respectively, and tested for a significant “break” from this trend for the classes of 2016 and later. All corresponding results can be found in the appendix.² (Technical Appendices to this paper are available on the SanDERA website at <http://sandera.ucsd.edu>.)

We find that the classes of 2016 and later are completing more a-g courses with grades of D or higher as well as C or higher. They are also attempting more courses. Figures 1-3 show a-g course attempts and completion by the ends of grades 9 through 11, graphed against the expected year of graduation. In each case the top line shows the total number of a-g courses attempted (including failed courses). The middle line shows the average number of courses completed with grades of D or higher, and the bottom line shows the corresponding average for C or higher. The figures reveal a longstanding trend towards higher a-g course taking and completion across cohorts. But there has been improvement on top of these trends for the classes of 2016 and later, shown to the right of the vertical line.

² Following district practice, we assign a student to a graduation “class of” based on the first time they enroll in grade 9. We then measure a-g course completion in that year, and label the next three years as grades 10, 11 and 12, which are really the grades we expect them to be in. The appendix provides details.

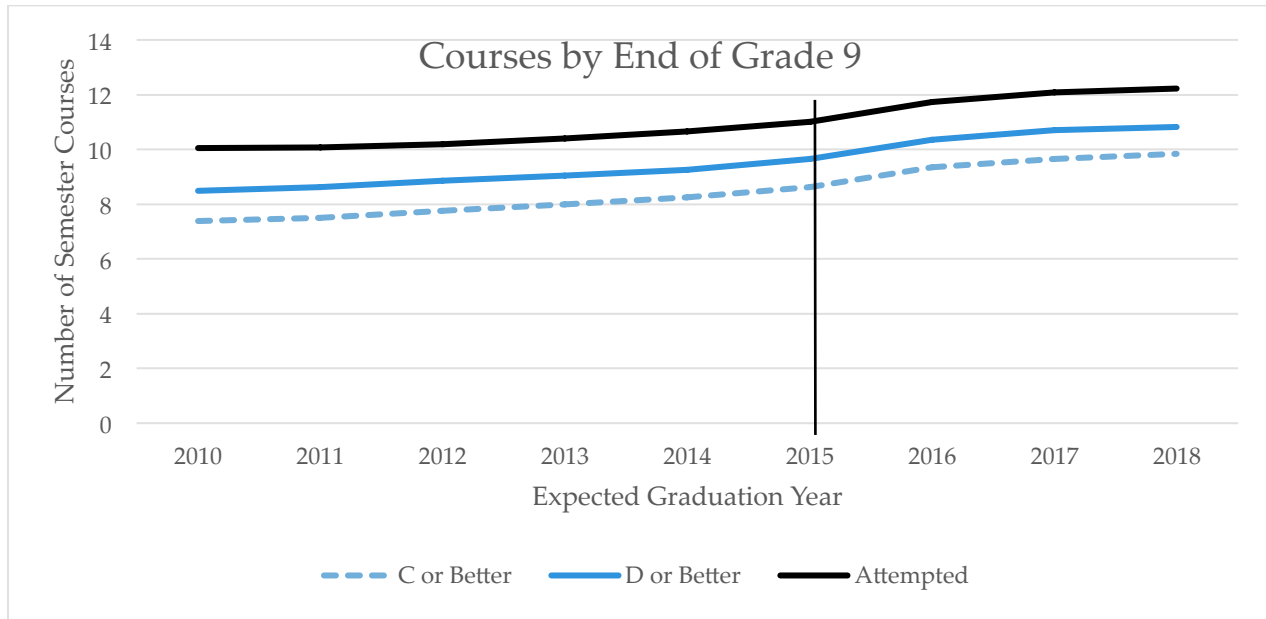
These breaks from trend are statistically significant, except that for the class of 2018 (in grade 9), we cannot say for certain if the improvement is simply an extension of the pre-existing trend.³ The exact magnitude of the break from trend varies by grade level, and generally appears to be larger in later grades as students progress through high school. Through grade 11, we estimate that the class of 2016 has increased its a-g completion by about one semester course relative to trends. Together, these three figures provide evidence, but not causal proof, that the new graduation requirement is boosting a-g course completion.

The lines in these figures showing the number of courses attempted provide indirect evidence on the question of whether *access* to a-g courses has improved. It would be inaccurate to state that there has been a massive increase in a-g course-taking for the classes of 2016 and later, but there has been a small but significant shift upwards for these cohorts. It is important to remember that SDUSD’s prior graduation requirements were not markedly different from the UC/CSU a-g requirements. For instance, Figure 3 and models in the appendix show that by the end of grade 11, students in the class of 2016 had enrolled in about 1.2 more semester-long a-g courses than we would have predicted given historical trends, or about a 4 percent increase in the total number of a-g courses taken.

³ The technical appendix shows results of regression models that allow for statistical tests of whether there is a break from the pre-existing trend. In the main text, when we refer to “significant” results we mean that there is less than a 5 percent chance that the stated effect is truly 0. The models taken into account students’ predicted likelihood of completing the a-g coursework based on their grade 6 characteristics. The models assume that the change in the graduation requirement is the only other factor that could be producing a break from trend in the classes facing the new graduation requirement.

FIGURE 1

The classes of 2016 to 2018 are attempting and completing more a-g courses by the end of grade 9 than older cohorts

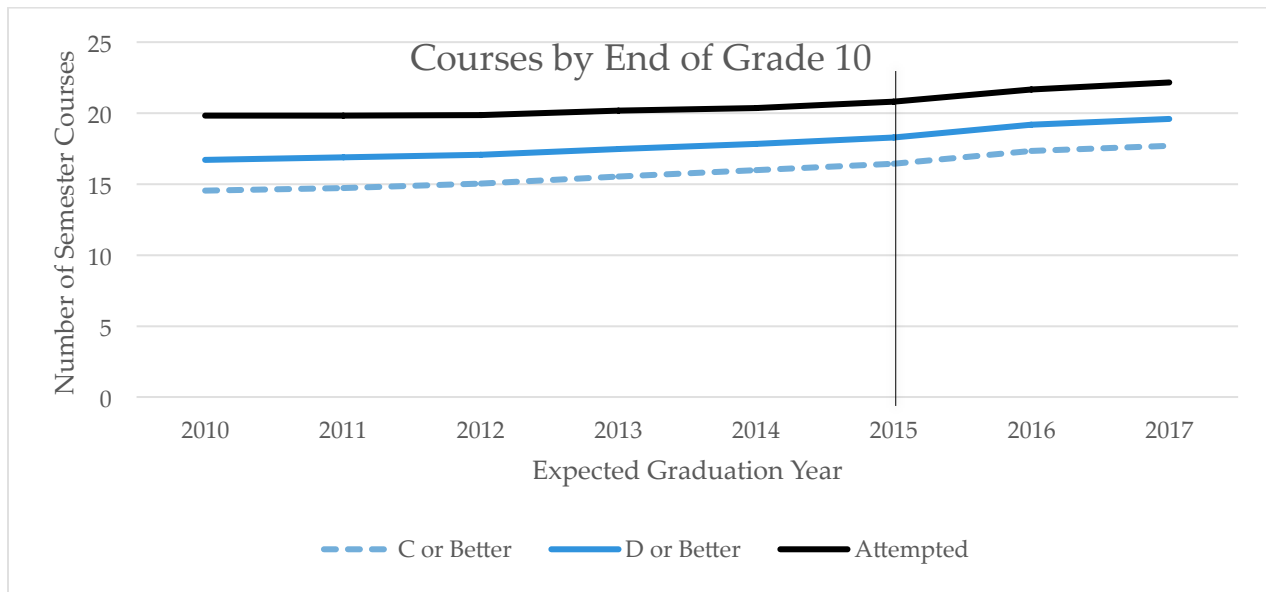


SOURCE: Authors' calculations based on student administrative records.

NOTE: Lines show the average number of a-g semester courses completed by students in each cohort with grades of D or higher or C or higher. Students were assigned to an expected year of graduation, or "class of", set to three years after the first school year in which they enrolled in grade 9. Appendix A provides more details.

FIGURE 2

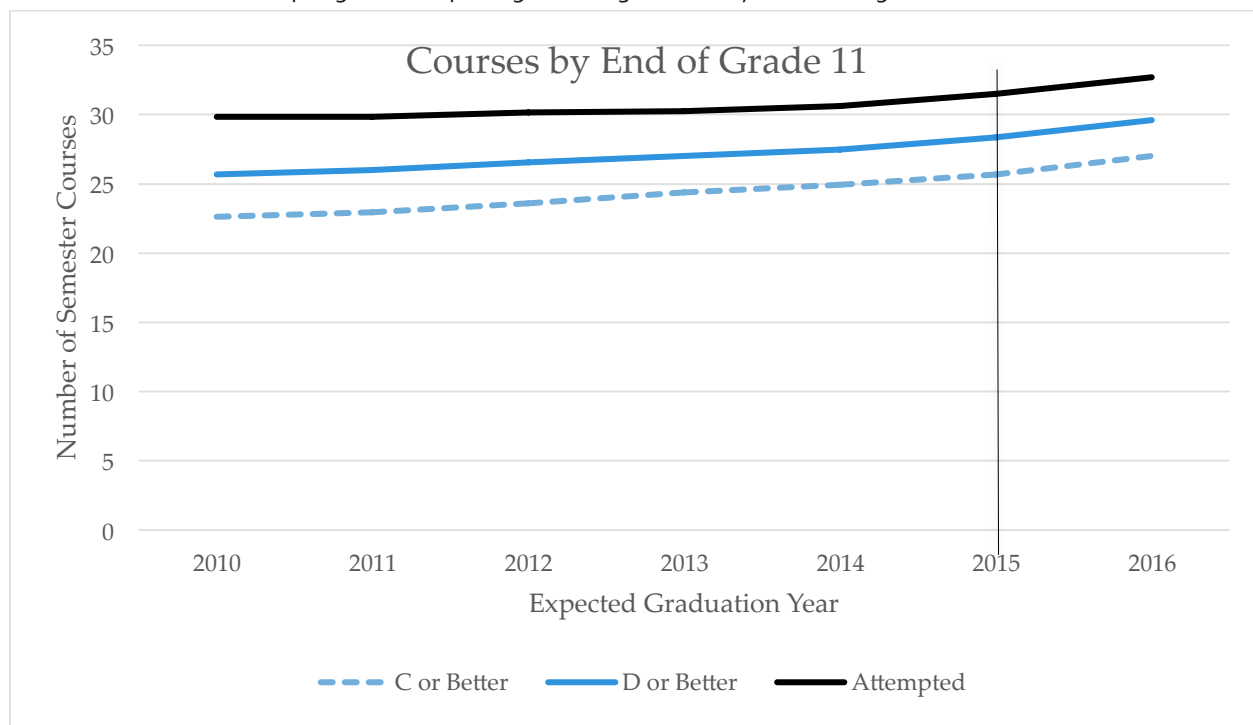
The classes of 2016 and 2017 are attempting and completing more a-g courses by the end of grade 10 than older cohorts



SOURCE: Authors' calculations based on student administrative records.

FIGURE 3

The class of 2016 is attempting and completing more a-g courses by the end of grade 11 than older cohorts



SOURCE: Authors' calculations based on student administrative records.

NOTE: See notes to Figure 1.

We also tested whether students in the affected classes have completed more a-g *subject areas* by the end of a given grade. We find no difference by the end of grade 9. But we did find positive breaks from trend by the end of grades 10 and 11, by about 0.2 additional subject areas each.

It is not surprising that the number of subject areas completed does not change noticeably by the end of grade 9, since most subject area requirements call for more than two semesters of high school coursework. One notable exception is world language coursework, which may be taken in middle school. To support student progress toward meeting the new a-g requirements, the district has taken steps to ensure that a-g world language coursework is now

available in all middle schools. This is notable because, as seen in Table 1, world language is the subject area in which graduation requirements were raised the most.

An additional finding is that summer school—an area in which the school district has expanded its spending— appears to be helping students with a-g course completion, albeit to a modest extent. During summer school in 2015, each of the classes of 2016 through 2018 increased their a-g coursework by about 0.3 semester courses on average. These additional credits are largely concentrated in English, science, and math.

Finally, although it is encouraging to see evidence of increased a-g completion, it is important to note that

the estimated improvements are small proportionally. For example, the estimated increase of 1.0 semester course through grade 11 corresponds to about a 3 percent increase in the number of courses completed. Moreover, these improvements still may not ensure students are on track to meet the a-g requirements. While the affected graduating classes appear to have increased their a-g course completion compared to overall past averages, they still lag behind the average pace of students *who successfully completed* the a-g sequence in the past. Through June 2015, students in the class of 2016 were about 3 semester courses behind the average pace of a-g completers in the classes of 2011–2013 through grade 11, with this gap widening somewhat as students progress through high school. The classes of 2017 and 2018 also lag behind the historical average pace of a-g completers, but the gaps are slightly smaller than for the class of 2016. Additional details on this comparison can be found in the appendix.

Which Students Are Responding Most Strongly?

For the new graduation requirements to make college access more equal among student groups, students who historically have underachieved must increase their a-g course completion the most. We used several approaches to investigate whether this has been the case.

First, we predicted students' baseline likelihood of completing the a-g sequence. Using students from the classes of 2011–2013, we estimated the

likelihood that a given student completes the a-g sequence (with grades of D or higher) based on student characteristics in grade 6. We found that students with higher grades, higher math and reading test scores, and those who were not English Learners or in special education—all measured in grade 6—had markedly higher probabilities of completing the a-g coursework. Applying these estimates for students in younger cohorts, we tested whether the break from trend in a-g courses completed varied with students' baseline likelihood of completing the a-g sequence.

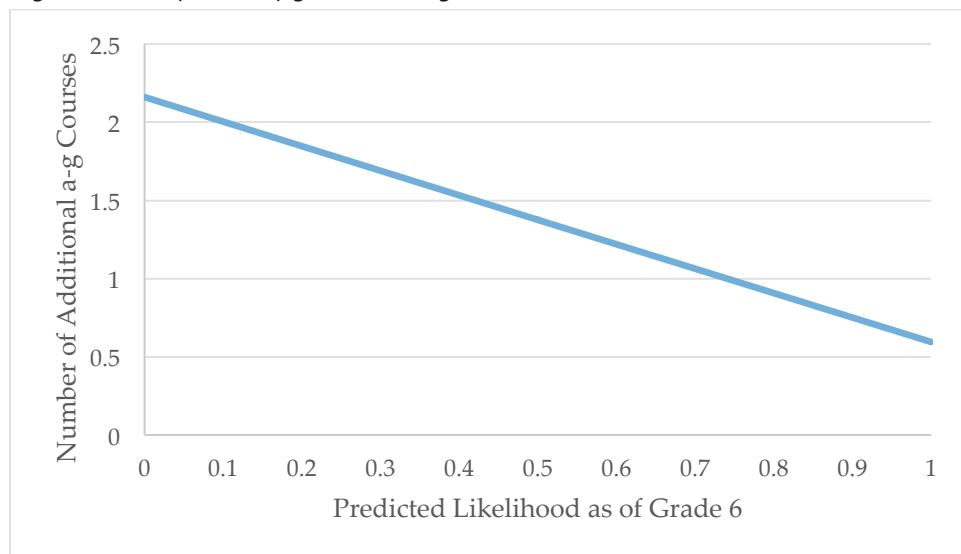
At the outset of high school (grade 9), we find relatively little difference in the increase in students' a-g course completion by baseline likelihood of completion. But a pattern appears to emerge at later grade levels. By grade 11, we find that students who had lower baseline likelihood of completion have increased their a-g course-taking the most. Figure 4 shows this for the class of 2016.

We also looked for variations by parental education, race/ethnicity, and English Learner and special education status. Consistent with earlier results, several groups showed a positive break from trend. But differences between groups were often not statistically significant, perhaps due to the small size of some groups. This prevents us from making strong claims that different groups responded differently.

One exception is parental education, where models of courses completed for each of grades 9-11 uniformly pointed to differences in the response to the a-g policy. Figure 5 shows that, broadly speaking, students whose parents had lower levels of education showed a larger increase in course taking.

FIGURE 4

Students in the class of 2016 who had lower predicted likelihood of completing the a-g requirements have increased their a-g course completion by grade 11 to a greater extent than other students

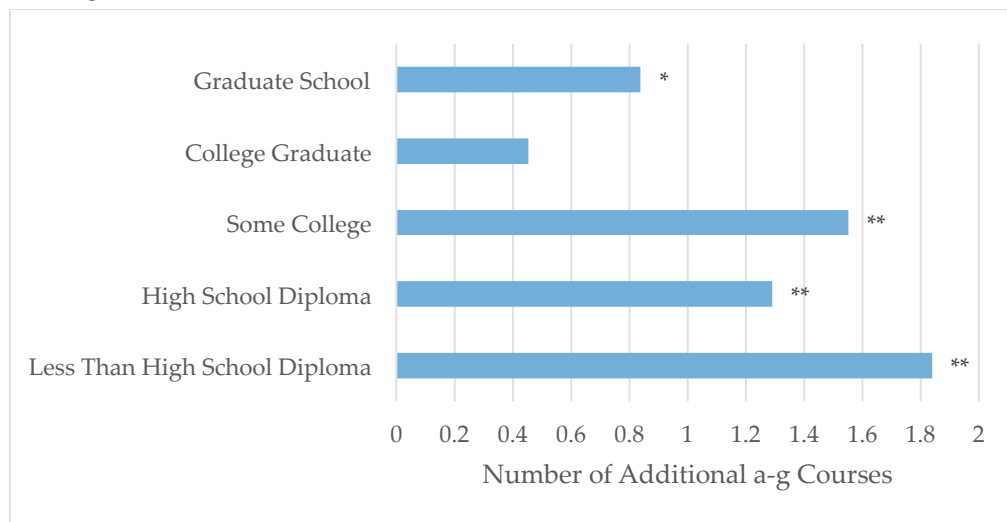


SOURCE: Authors' calculations based on student administrative records.

NOTE: The break from the pre-existing trend in a-g courses completed with grades of D or higher by the end of 11th grade and how it varies by students' predicted likelihood of completing the a-g coursework based on their characteristics in grade 6. See Appendix B for the underlying model. The slope shown is significantly different from zero.

FIGURE 5

Students in the class of 2016 whose parents had lower levels of education increased their a-g course completion by grade 11 to a greater extent than other students



SOURCE: Authors' calculations based on student administrative records.

NOTE: ** and * indicate that the break from the pre-existing trend in a-g courses completed with grades of D or higher for the class of 2016 was statistically significant at the 1% and 5% levels respectively. The length of the bars indicates the increase in the number of a-g courses completed beyond what was expected based on pre-existing trends.

The Graduation Rate for the Class of 2016 is Likely to Fall Below Recent Rates

Given the earlier finding that students in the class of 2016 have completed fewer a-g courses than students in older cohorts who ultimately did complete the coursework by the time they graduated, it becomes important to estimate how many students in the class of 2016 will graduate on time. We project what share of the class of 2016 is likely to finish the a-g requirements by the intended graduation date. To do this, we classify students as either “on track” or “off track” based on how many a-g courses they still must complete (as of August 2015) and how many can be feasibly taken in one school year.

Typically, students in SDUSD take six courses in each of two semesters during the school year, and no more than one course in a given subject at a time (since one course usually serves as a prerequisite for the next course in the sequence). So if a student has 12 or fewer a-g semester courses to complete, and no more than 2 semester courses to complete in any subject, he or she has a realistic chance of completing the college prep requirements by June 2016. We refer to these students as “on track,” and students who do not meet one or both criteria as “off track.”⁴

Using this approach, 73% of students in the class of 2016 are on track while 27 percent of students are

⁴ Note: Some district high schools operate on 4X4 schedules, allowing students to enroll in up to eight courses per semester. We did not conduct separate analyses for students attending 4X4 schools, which means that districtwide “on track” percentages may actually be slightly higher than reported here.

off track.⁵ In order to provide an overall estimate of the graduation rate in June 2016, we also need to consider the district’s cumulative GPA requirement of 2.0. Assuming student GPAs remain the same in 2015-16, overall we estimate that 72 percent of the class of 2016 is likely both to complete the college prep coursework and meet the cumulative GPA requirement. This projected graduation rate is well below the SDUSD June graduation rate of 87.5 percent for the class of 2014.⁶ **Put differently, 28% are unlikely, at their current pace, to graduate in June 2016, compared to 12.5 percent in 2013-14.** Perhaps making matters worse is that, of the students in the class of 2016 who are off track because of a-g coursework completion, about half also have GPAs below 2.0. These students, representing about 13% of the class of 2016, face “double jeopardy” in the sense of having to take a large number of a-g courses while improving their GPAs.

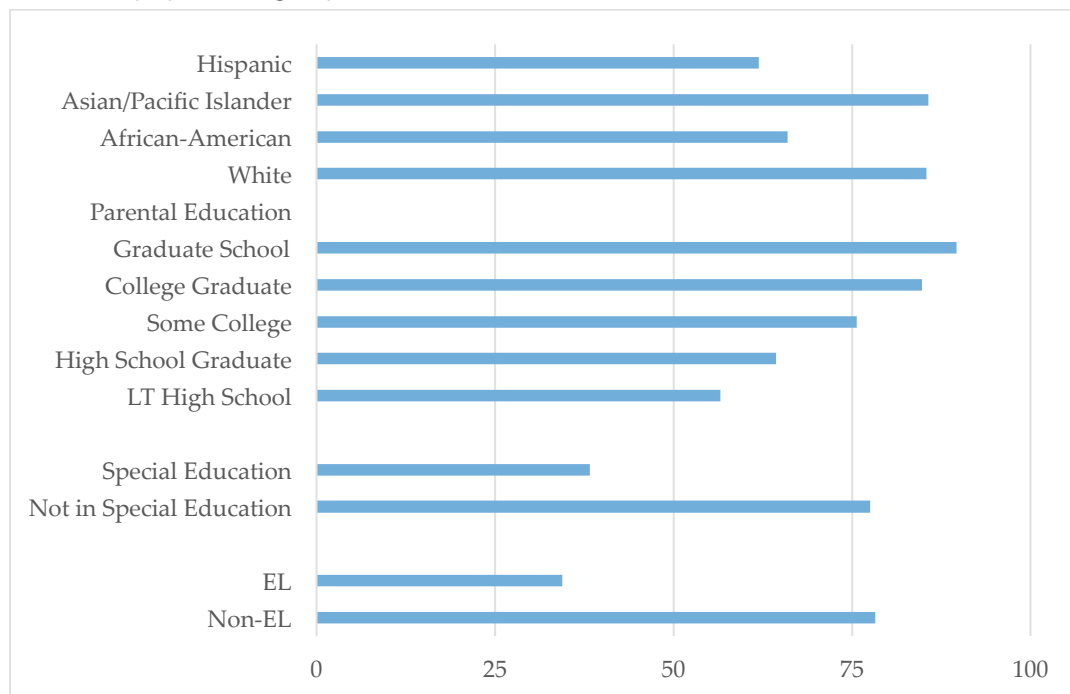
On track status is not evenly distributed by language, racial/ethnic or socioeconomic groupings. This can be seen in Figure 6 for the class of 2016. Only a minority of students in special education and students who are English Learners appear likely to graduate in June. Further, although students whose parents have less education increased their course-taking more, far fewer of these students are on track to complete the requirements on time than are students whose parents have college educations.

⁵ As a robustness check, we also estimate a probit model of completing the a-g requirements on time based on coursework through 11th grade, and found an average likelihood of completion of 72% for the class of 2016. This is similar to the 73% projection above.

⁶ The class of 2014 had an 87.5% graduation rate in June 2014. This rate later rose to 89.7% by the end of summer 2014. It is worth noting that this official 89.7% graduation rate includes students who entered SDUSD after grade 9, whereas our models focus exclusively on students already in the district in grade 9. This could be another factor contributing to the quite large gap between our forecast and recent history. The 2013-14 graduation numbers exclude charter school students, and focuses on district-managed schools, the same ones subject to the new graduation requirement.

FIGURE 6

The percentage of students in the class of 2016 who are on track to complete the a-g coursework by June 2016 varies dramatically by student group



SOURCE: Authors' calculations based on student administrative records.

NOTE: The bar shows, for students in the stated subgroup of the class of 2016, the percentage who are on track to complete the a-g coursework in time to graduate in June. English Learner and Special Education status is measured as of grade 9 for each student.

How Far Off Track Are Students in the Class of 2016?

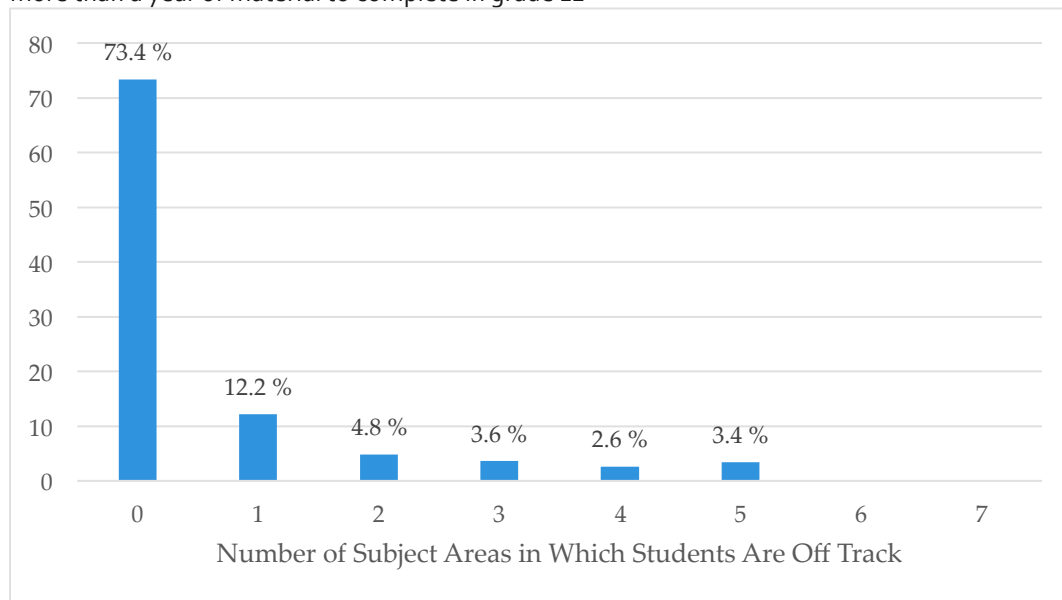
The estimate that about 72 percent of students in the class of 2016 are on track to graduate in June 2016 is important, but does not give a sense of how far from meeting the course requirements students might be.

Not all of the off track students are equally behind. Figure 7 shows, for the class of 2016, the number of

subject areas in which students must complete more than two semester courses in 2015-16 in order to graduate in June. Ten percent of students, or about a third of those we project to be off track, had at least three such subjects. And an additional 5 percent of students had two such subjects. Because it is very difficult to complete more than two semester courses in the same subject area in one year, students who must do this for multiple a-g subjects are unlikely to graduate in June 2016, and may be unable to graduate even if they attend summer school in 2016.

FIGURE 7

The percentage of students in the class of 2016 by the number of subject areas in which they have more than a year of material to complete in grade 12



SOURCE: Authors' calculations based on student administrative records

NOTE: The bar shows, for students in the class of 2016, the distribution of the number of subject areas in which they have more than a year's worth of work (more than 2 semester courses) yet to complete during grade 12.

Which subject areas currently pose the biggest obstacles? Figure 8 shows the percentage of students in the class of 2016 by number of semester courses yet to complete in each a-g subject area. As seen in the figure, English and math appear to be giving students the most trouble, with 23 percent and 12 percent of students off track, respectively.⁷ Social studies, science, and world language all have between 7 and 10 percent of students off track. The colors in the graph provide additional detail on exactly how many credits students have yet to complete. As can be seen, students sometimes have

⁷ This 12% figure may somewhat understate the true share of students who are off track in math, since the math requirement specifies both a total number of semester credits and specific courses. Historically, between 5-8% of students in SDUSD who finish with 6 or more semesters of math credit nevertheless fail to complete the math requirement. For students who finish with exactly 6 semester credits, however, this non-completion rate is nearly 25%.

4 or more semester credits remaining in a given subject (corresponding to two school years' worth), which will be extremely difficult to complete by June 2016.

Prior to the change in graduation requirements, English, math, and world language had historically been the a-g subjects that students most commonly did not complete, each having about a 75 percent completion rate.⁸ That English and math continue to be the most challenging subjects is not too surprising. World language appears headed for a large increase in its completion rate. Just over 90 percent of students in the class of 2016 are on track to complete the world language requirement by June,

⁸ See Table B22 of the appendix for full details about historical completion rate by subject.

perhaps due in part to expanded language course offerings in middle school.

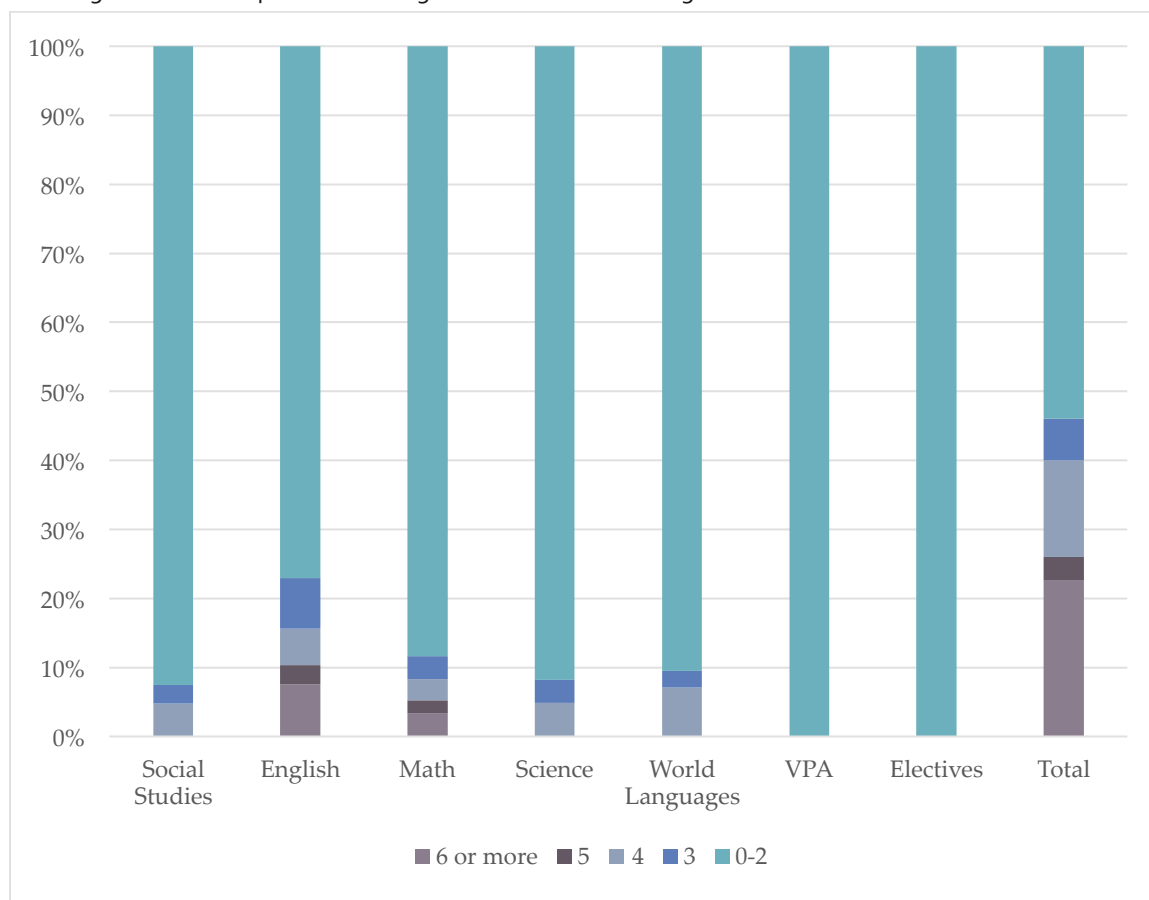
In contrast, the share of students on track to complete the English requirement by June is mostly unchanged from its historical completion rate.

English Learners account for a disproportionate share of those who are off track in English. In the class of 2016, students who were EL in grade 9 account for 28 percent of those who are off track in English, but only 12 percent of the class as a whole.

Given how far some students are behind, it is natural to ask whether they can catch up, given the options the district makes available to students who are credit deficient. The district has recently introduced online credit recovery versions of a-g courses. If a student is just one course shy of graduating in June, the availability of these online courses during the school year could help. Similarly, a student who is still two courses short of graduating in June could perhaps attend summer school in 2016 and graduate in late summer.

FIGURE 8

A breakdown of the class of 2016 by the number of semester courses yet to complete in grade 12 by a-g subject area shows that English and math present the largest barriers to on-time graduation



SOURCE: Authors' calculations based on student administrative records.

NOTE: The bar shows, in the class of 2016, the percentage of students by the number of courses yet to complete in a given subject area during grade 12. Students with more than 2 semester courses to complete in a given subject will have difficulty graduating on time.

The Class of 2016: How Many Are Likely to Become Eligible to Attend CSU or UC?

Ultimately, the goal of making college preparatory coursework the norm for high school graduation is to increase the number of students who become eligible to attend university. In California students must complete all a-g coursework with grades of C or higher to be eligible to apply.

In the class of 2016, how many students might meet that goal? Using a similar approach as before, based on coursework through August 2015, we find that 59% of students are on track to complete the a-g requirements with grades of C or higher, making them eligible to apply to the CSU and UC systems.⁹

In comparison, in the graduating classes of 2011-2014, 44.0%, 45.8%, 49.8% and 47.9% of graduates in SDUSD fulfilled the UC/CSU requirements.¹⁰ The comparison to our figure of 59% for the class of 2016 is not exact because, for this study, we followed cohorts of students rather than analyzing completion rates for all students at the end of their grade 12 year. Our cohort model counts dropouts as non-completers of the a-g requirements, and we ignore students who arrive in SDUSD after grade 9. The former makes our calculation “too low” and the latter makes our number “too high” if later arrivers are relatively ill prepared.¹¹ Although we cannot

⁹ This estimate may be slightly high because it assumes that none of these students will get a grade below C in their remaining college prep courses. A probit model based on coursework through grade 11 estimates 55% may be a more realistic rate.

¹⁰ Downloaded from Dataquest on December 17, 2015, at <http://dq.cde.ca.gov/dataquest/>.

¹¹ Historically, the students arriving later than 9th grade finish with fewer a-g credits on average than those who arrive in or before 9th grade. Further, if our

compare our estimate directly to these numbers, the gap of over ten percentage points suggests that the new graduation policy may in fact be succeeding at making more students eligible to attend the two state university systems.

Unintended Consequences?

Increasing college prep graduation requirements could have unintended consequences. Discouraged students may be more likely to skip school, to transfer to charter schools in the district because for the most part they have not imposed the a-g requirements, or to leave the district altogether. Students with a strong interest in Career and Technical Education (CTE) might be discouraged from taking these courses, which often do not qualify for a-g credit. Grades and grade point average (GPA) may also be affected when students start taking more rigorous courses. The last of these possibilities is especially important because SDUSD has long made a GPA of 2.0 or higher a graduation requirement.

We assessed each of these possibilities using separate models for grades 9, 10 and 11. We found no evidence that students in the classes of 2016 or later were more likely to be absent, to switch to charter schools, or to take fewer CTE courses. GPA was not affected, and there was similarly no break from trend in the percentage of students with a cumulative GPA below 2.0.

estimates that 72% of students in the class of 2016 will graduate on time and that 59% (total) will graduate having fulfilled the a-g requirement with grades of C or higher prove accurate, the percentage of graduates meeting the UC/CSU requirement would be 81%, far above the recent rates for the district. Of course, part of this increase would come from the sizeable reduction in the number of students allowed to graduate.

We found some weak evidence that, in the classes of 2016 and later, students were slightly more likely to leave the district compared to past cohorts. The increase beyond trend was statistically significant but very small. Overall, we find no evidence of the many negative side effects that seemed possible.¹²

An Unresolved Policy Issue

In prior work on the SDUSD graduation policy, Betts, Zau and Bachofer (2013) raised one policy question that remains unanswered. Two provisions in the California Education Code mandate that school districts provide alternative routes to a high school diploma. One stipulation requires districts to adopt “alternative means” for students to meet graduation requirements (Ed Code 51225.3). A second stipulation requires districts to allow students who have successfully completed grade 10 to choose either a traditional college preparatory or a career preparatory program (Ed Code 52336.1). It is not clear that SDUSD currently allows the latter option. In August 2015, the district introduced Administrative Procedure 4771 which, among other things, indicated alternative means for students to signal mastery of a world language, and emphasized that online credit recovery has been available to students who fail a course, but alternative pathways to a regular high school diploma, including a Career and Technical Education (CTE) route, remain elusive. Logically, the problem seems to be that “college prep for all” means that all students must

complete the a-g requirements, which is inconsistent with multiple routes to a diploma.

SDUSD has worked hard to increase the academic content of its CTE courses in recent years, which helps to reduce the problem. But perhaps the district can, in the future, lay out specific rules for an alternative path that would substitute one or more two- or three-course CTE concentrations in specific career areas for a-g coursework for students who had completed much but not all of the a-g sequence. One possible approach would be to mimic the minimum course requirements for a high school diploma in California (Ed Code 51225.3), which state that a one-year requirement in either visual or performing arts, or foreign language, can be replaced by a one-year course in career technical education.

Thus, it remains to be seen exactly how San Diego and other districts will maintain their vision of a single college-preparatory track toward graduation while allowing students with special needs or with a strong interest in Career and Technical Education some flexibility. For some students in the class of 2016, these questions could make the difference between graduating or not.

Conclusion

Students and teachers in San Diego are clearly responding to the district’s new graduation policy. But even though affected cohorts of students are completing more a-g courses, many students are likely to fall short of meeting the new requirement. SDUSD currently has one of the highest graduation rates among large urban districts in California, at

¹² Our data on which students enrolled in charter schools in 2013-14 and 2014-15 are incomplete, meaning that our data may misidentify some students who switched to charter schools as having left the district. When we instead modeled the probability that students *either* leave the district or enroll in charter schools, we found no significant evidence of breaks from trend in this probability.

89.7 percent in 2013-14 (measured as of August).¹³ In an earlier study, Betts, Zau and Bachofer (2013) pointed out that only 61 percent of the class of 2011 completed the new a-g requirements. While we are confident that the class of 2016 will top the rate attained by the class of 2011, our analysis indicates that its graduation rate will fall well below the district's June 2014 graduation rate of 87.5 percent. Our current best estimate, using data as of August 2015, is that 72 percent of students in the class of 2016 will meet both the district's "D or higher" a-g requirement and the cumulative GPA requirement by June – a drop in the graduation rate of more than 15 percentage points. (The graduation rate could rise if some students finish coursework over the summer, but it will surely be lower than the August 2014 rate of 89.7 percent.)

We conclude that 2016 could become a watershed moment in the history of the district. In the class of 2016 there will be many who win and many who lose as a result of the college prep for all policy. First, the wins. Students are attempting and completing slightly more a-g coursework with D or higher marks since the implementation of the new graduation policy. Also, students with a lower predicted likelihood of completing the a-g course sequence have shown greater improvement than their classmates with a higher likelihood of completion. In addition, as many as 59 percent of students in the class of 2016 may graduate having attained the C or higher a-g grades that make them eligible to apply for admission to the UC/CSU systems. We cannot compare exactly to historical data, but we believe that this exceeds recent college eligibility rates in SDUSD by up to ten percentage points. Further, theoretical models of graduation

standards such as Betts (1998) suggest that over time the labor market will recognize the greater skills acquired by recent San Diego graduates, possibly boosting their earnings.

But we must also consider students who lose in this new policy environment. The estimated 28 percent of students who will not graduate in June may never receive the high school diplomas they need to gain employment, to join the military, or to attend universities outside the UC/CSU system. English Learners, students with special needs, and Hispanic and African American students are particularly at risk. These groups at risk of not graduating are presumably the groups of students that the new graduation policy was designed to help.

Clearly, there is an immediate need to support struggling students in the class of 2016. To its credit, the district has recently increased summer school offerings, which appears to have helped students make modest gains, especially in English, mathematics and science. During summer 2015, the average number of semester courses completed rose by 0.3 for the classes of 2016 to 2018. Another support the district has provided is online credit recovery courses, which might help some students graduate on time. Given that many students who will not graduate in June are very close to meeting the new a-g requirements, an aggressive campaign to encourage continued high school enrollment in 2016-17 might offer non-graduates a "fifth-year" pathway to a high school diploma. (On average, over the classes of 2009 to 2013, the number receiving a diploma in five years was about 2.8 percentage points higher than the number receiving a diploma in four years.) Such a campaign could especially help disadvantaged students, given national evidence that the gap in five-year graduation rates between advantaged and disadvantaged groups is smaller than

¹³ Downloaded from Dataquest at <http://dq.cde.ca.gov/dataquest/dataquest.asp> in November 2015.

the gap in four-year graduation rates (Murnane 2013).

However, a fifth year of high school is at best a stopgap measure. Other supports, provided well before students reach high school, are urgently needed to ensure students' readiness to conquer the a-g curriculum. We note that the two subject areas posing the most difficulty to the class of 2016 are English and math. In both cases, the solution likely will require more help for students well before they reach high school. Expanded supports for the district's many long-term English Learners years before they enter high school may help more students to conquer the a-g English requirement. Likewise, the many students who are struggling with the math requirement as they enter grade 12 points to weak foundational skills in math that are apparent as early as elementary school. For example, our model predicting a-g coursework completion for cohorts that have graduated found that student characteristics gathered in grade 6 provided highly accurate forecasts of who would complete the coursework six years later. It is eminently feasible to identify at-risk students and to intervene well before high school.

What has been the experience of other districts adopting the a-g requirement? One close parallel is Los Angeles Unified School District (LAUSD), which is also requiring students in the classes of 2016 and later to complete the a-g coursework with grades of D or higher. Clough (2016) reports that as of fall 2015, only 54% of seniors in LAUSD were on track to graduate. This compares to a graduation rate of 74% for the most recent year available. However, the district has invested \$15 million in online credit recovery courses, in which many students have enrolled for spring semester of 2016, and several other supports including a variety of interventions

ranging from in-seat courses offered by continuation and adult schools and in-school interventions including extra periods, independent study and mastery learning. New reports from the district suggest that the graduation rate in June could be 63% or higher (Blume, 2016, Los Angeles Times, 2016). This estimate is based on the assumption that students in the class of 2016 will pass every regular and online course in which they have enrolled for spring semester.¹⁴ Thus, the graduation rate is likely to drop from 74% to at most 63% and potentially less, if students fail some classes or do not meet other graduation criteria in LAUSD.

Another close parallel is provided by the San Francisco Unified School District (SFUSD), which began requiring the a-g coursework for diplomas beginning with the class of 2014. The district experienced meaningful reductions in the graduation rate in 2013-14, the first year in which seniors faced the new policy. The four-year graduation rate dropped two percentage points, from 81.7 percent in 2012-13 to 79.9 percent in 2013-14, while the dropout rate rose from 8.9 percent to 11.9 percent. Graduation rates were about the same in those two years for both white and Asian students. But the graduation rate fell markedly from 68.7 percent to 61.2 for Hispanics, and from 65.5 percent to 57.3 percent for African-American students. Many who failed to graduate in these two groups may never graduate, given that dropout rates for Hispanics and African-Americans rose from 13.6 percent to 22.4 percent, and from 16.5 percent to 24.2 percent respectively between 2012-13 and 2013-14. (Dudnick, 2015 and Tucker, 2015)

¹⁴ We are grateful to Cynthia Lim, Executive Director of the Office of Data and Accountability at LAUSD, for explaining the basis for the district's estimate that as many as 63% of the class of 2016 will complete the graduation requirement.

There is a good chance that the fall in the graduation rate experienced by SFUSD is less than what will happen in other districts, for two reasons. First, somewhat akin to SDUSD, SFUSD had quite high course requirements for graduation before implementing the a-g requirement. With the new requirement, students were required to complete a third year of mathematics, and a second year of world language. (SFUSD, undated) Second, SFUSD has long had a higher proportion of its graduates completing the a-g coursework than many other districts. For instance, in 2010-11, a representative year well before any of these districts' new requirements were in place, the percentage of graduates completing the a-g coursework with grades of C or higher was 56.8 in SFUSD, compared to only 41.2 overall in the state, 48.5 in SDUSD and 38.7 in LAUSD.¹⁵ The implication is that the results in SFUSD may understate the challenges facing SDUSD and, even more so, LAUSD.

Given that in both SDUSD and LAUSD the graduation rate is likely to drop, and that the rate has already dropped in SFUSD, what are lessons for other districts contemplating making a-g coursework the norm for a high school diploma? Other districts considering the move to a “college prep for all” graduation policy would do well to carefully consider the differences between their existing and proposed graduation requirements, the types and amount of preparation needed to support students from the early elementary grades onward, the mechanisms through which students, parents, and community members will be engaged, and ensuring adequate funding to provide supports and services for struggling students. Because San Diego's graduation requirements were already quite similar

to the a-g course sequence, the “ramp up” was not as daunting as it might have been, and yet the district has faced considerable challenges in helping students to meet the new goal. Statewide in 2013-14, 41.9% of graduates completed the a-g requirements with grades of C or higher, compared to 47.9% in SDUSD, implying that the average district would face a slightly higher challenge than has SDUSD. Other districts that initially might have lower graduation requirements, or which lack San Diego's GPA requirement of 2.0 for graduation, could experience greater challenges in preparing students for the a-g hurdle.

By increasing graduation requirements, San Diego has opened more doors to success. Ironically, it has also opened more doors to failure, in the sense that a greater number of students are now at risk of not graduating. The “college prep for all” graduation requirement has made it more urgent than ever to support students, starting in the elementary grades, so they may achieve the best possible outcomes. Without such efforts, it is far from clear that this new policy, which was introduced to increase equality of opportunity, will in fact equalize educational opportunities between advantaged and disadvantaged groups.

¹⁵ Data downloaded 2/29/16 from Dataquest at the California Department of Education, at <http://dq.cde.ca.gov/dataquest/>.

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