

Academic Rigor and English Course-Taking: A Descriptive Analysis of Differential Enrollment

Patterns

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A college degree is more critical now than ever before. Recent figures indicate that the college wage premium is growing for college degree recipients (Ma, Pender, & Welch, 2016), while jobs increasingly require prospective employees to have postsecondary training, a trend that projections have indicated will continue to rise (Carnevale, Smith, & Strohl, 2010; Gao, 2016). Growing demand for a high-skilled work force thus necessitates an education system that will prepare students for life after high school.

However, high rates of college remediation (Sparks & Malkus, 2013) and low rates of college completion (Shapiro et al., 2016) indicate that students may not be acquiring the academic skills they need prior to college matriculation, suggesting a misalignment between high school outcomes and college expectations (Bettinger & Long, 2009; Kurlaender & Howell, 2012; Martorell & McFarlin, 2011; Scott-Clayton & Rodriguez, 2012; Conley, 2007; Jackson & Kurlaender, 2014). Given that students that require remediation are less likely to complete college (Martorell & McFarlin, 2011; Scott-Clayton, Crosta, & Belfield, 2012), it is unsurprising that recent efforts to increase college degree attainment have centered on improving the alignment between the K-12 and postsecondary systems.

Students' future educational and occupational outcomes therefore hinge on their K-12 schooling experiences and the accumulation of academic skills in core subjects, such as English and mathematics (Adelman, 1999/2006; Bettinger, Boatman, & Long, 2013). This is particularly true in terms of literacy; in 2016, nearly one-quarter of first-time freshmen at the California State University (CSU) system, the nation's largest public four-year higher education system, required

remediation in English¹, suggesting that students in California high schools are not acquiring the advanced reading and writing skills they need before entering college. As these skills directly impact schooling outcomes, including degree persistence (Adelman, 2006; Nagin, 2012), literacy plays a pivotal role in college readiness and its development depends, in large part, on the coursework a student is exposed to (Adelman, 1999; Long, Conger, & Iatarola, 2012).

Extant research indicates that students with exposure to more rigorous coursework in high school are more likely to succeed in college than their otherwise similar peers (Adelman, 1999; Adelman, 2006; Attewell & Domina, 2008; Horn & Kojaku, 2001; Long, Iatarola, & Conger, 2009). The type of preparation a student receives, then, can influence their overall trajectory, as enrollment in rigorous courses in high school is associated with a number of postsecondary outcomes, including college entry (Long, Conger, & Iatarola, 2012), type of college entry (Attewell & Domina, 2008; Long, Conger, & Iatarola, 2009), and college completion (Adelman, 2006; Attewell & Domina, 2008). Considering that students who do not participate in a rigorous course of study may not develop the skills needed to successfully engage with college-level work and therefore realize future career outcomes, course selection is arguably one of the most important decisions a student will make during their high school tenure.

While there is a significant body of literature on rigorous course-taking and its influences on varying school outcomes (Brody & Benbow, 1990; Gamoran & Hannigan, 2000; Klopfenstein & Thomas, 2009; Lee, Croninger, & Smith, 1997), findings are frequently limited to the effects of math and science courses (Gottfried, Bozick, & Srinivasan, 2014; Kelly, 2009; Trusty, 2002). Given the import of literacy, a fundamental skill that students in part develop in

¹ http://asd.calstate.edu/performance/combo/2016/Combo_Prof_Sys_Final_Fall2016.htm.

English classes, identifying the English courses students enroll in as they transition out of high school is key to understanding the potential efficacy of college preparatory coursework and its overall impact on college outcomes.

This paper explores the variation in English course enrollment among California high school students during their terminal year of high school, with particular attention to the differential enrollment patterns that emerge across student subgroups. Specifically, this analysis is guided by the following research questions: (a) How are 12th grade English course types distributed across high schools? (b) What are key differences in English course participation at the individual and school level? The rest of the article is organized as follows: Section II briefly reviews prior literature on the impact of rigorous course-taking and the mechanisms underlying course selection. Section III describes the context of course-taking in California and builds a framework within which rigorous courses should be considered. Section IV describes the data and methodological approach; and findings are presented in Section V. Section VI discusses the potential implications of these findings on students' educational pathways as well as avenues for future research.

Prior Research

Impact of Rigorous Course Enrollment

Research demonstrates that students who complete a rigorous high school curriculum realize better college outcomes than students who complete less-demanding coursework (Adelman, 1999; Horn & Kojaku, 2001). Therefore, students that develop a strong academic background while in high school are more likely to matriculate to college prepared for college-level work. Existing literature has explored this link between course-taking and future outcomes, finding positive associations between curricular intensity in high school and college completion

rates (Adelman 1999, 2006; Horn, Kojaku, & Carroll, 2001). Further, the intensity of a student's course of study in high school has also been found to be a more robust predictor of later college success than test scores or class rank (Adelman, 1999).

Studies also indicate that course type is more important than course quantity; therefore, it is not the number of courses students complete, but which ones (Lee, 2002; Lee, Croninger, & Smith, 1997; Rose & Betts, 2004). It is thus critical to examine rigorous course enrollment in high school given the strength of the association between these courses and postsecondary outcomes. For example, the highest level of mathematics a student enrolled in was found to have the strongest influence on college completion in a canonical descriptive study by Adelman (1999), while Long, Conger, and Iatarola (2012) find that for each subject studied (mathematics, English, science, social studies, and foreign language), taking a rigorous course in high school increases a student's likelihood of both attending a four-year college and receiving a bachelor's degree. Although enrolling in more rigorous courses is associated with better student outcomes, generally, students that take just one rigorous course are more likely to enroll in college than students who do not take a rigorous course at all (Long, Conger, & Iatarola, 2012).

In terms of the relationship between rigorous courses and college outcomes, however, causality has yet to be wholly established due to the fact that students self-select into rigorous courses. This suggests that students who do opt to enroll in a more rigorous course of study are likely to possess additional attributes (often unobservable to researchers) that could also lead to later success in college, such as motivation and self-concept of ability (Feather, 1988).

Additional research also indicates that students tend to draw on social networks, such as family, friends, and advisors, during the course selection process. For example, Valadez (2002) notes the importance of parental involvement during mathematics course selection in high school, while

findings from Brooks (2003) suggest that even though families have a strong influence on students, friends and peers play an important role in informing decisions about what constitutes a “feasible” course choice. Students that enroll in rigorous courses may therefore have more academic support and encouragement overall. These, and a host of other unobservable attributes, make it very difficult to disentangle the effects of the course on subsequent outcomes from the attributes of self-selection into such courses. Nevertheless, when all observable characteristics available have been controlled for (Allensworth, Nomi, Montgomery, & Lee, 2009; Long, Conger, & Iatarola, 2012), research intimates that taking more credits, particularly in advanced² courses, has an impact on college outcomes (Adelman, 2006; Attewell & Domina, 2008; Gamoran & Hannigan, 2000; Klopfenstein & Thomas, 2009).

Impact of Rigorous English Course Enrollment

While few studies explore the impact of enrolling in an advanced English course, research indicates English courses have a slight effect on wage earnings (Rose & Betts, 2004) and test scores (Long, Conger, & Iatarola, 2012). In contrast, a study evaluating a policy in Chicago that mandated college preparatory coursework for all students found that although more students enrolled in English, students were no more likely to enter college (Allensworth, Nomi, & Montgomery, 2009). These limited findings therefore indicate a significant space with which this research can fill, as the present analysis examines course-taking at a granular level in order to highlight the course choices students are making.

Course Enrollment and Individual Differences

Related research has examined both individual differences in course access and selection as well as the impacts course-taking can have on subsequent outcomes. While a majority note

² Throughout this paper, “rigorous” and “advanced” are used interchangeably to broadly refer to courses that extend the learning experiences of students in terms of academic challenge.

that prior course-taking is a strong indicator of later course enrollment (Conger, Long, & Iatarola, 2009; Schneider, Swanson, & Riegle-Crumb, 1998; Zeitz & Joshi, 2005), disparities persist across gender, race/ethnicity, and socioeconomic status in both access to and enrollment in advanced courses. A study by Attewell and Domina (2008) found significant differences in access to rigorous courses that cannot be explained by prior academic performance, noting that these differences operate primarily along socioeconomic status, rather than race or gender. Additional research relates that higher income, White, and Asian students tend to enroll in college preparatory courses more than any other group (Attewell & Domina, 2008; Conger, Long, & Iatarola, 2009; Davenport et al., 1998). However, research is mixed on the relationship between course-taking and outcomes across demographic groups; though early studies suggest differences in the effects of advanced courses for students from different backgrounds (Dougherty, Mellor, & Jian, 2006; Shettle et al., 2007), others find little heterogeneity in these relationships (Long, Conger, & Iatarola, 2012). Potential explanations for these mixed results may lie in elements of course-taking that are exceedingly difficult to tease out, such as teacher quality and differences in the rates students both receive passing grades and retain material.

An important aspect in the investigation of individual differences in course-taking is the school a student attends. Research has suggested that schools serving primarily low-income students offer fewer advanced courses than schools serving a more affluent population (Adelman, 1999; Conger, Long, & Iatarola, 2009); however, studies attending to school differences find that disparities in advanced course offerings are a result of characteristics within schools rather than between schools (Attewell & Domina, 2008; Gamoran, 1987). Additionally, while the effects of taking a rigorous course can vary by demographic characteristics, part of this variation is due to the school a student attends. Findings from a study by Long, Conger, and

Iatarola (2012) on the effects of rigorous coursework on college outcomes indicate that students taking advanced courses at high-poverty schools experience greater increases in high school graduation and college enrollment rates than students attending more affluent schools. Research also intimates that the size of the school one attends impacts the courses available to students (Monk & Haller, 1993); however, research is mixed on whether small or large schools have more impact (Lee & Smith, 1997; Leithwood & Jantzi, 2009; Schreiber, 2002).

Therefore, the advanced courses available, students' access to these courses, and the courses students ultimately take are all conditional on the high school a student attends, suggesting that schools and the attributes of students must be considered concurrently.

Theoretical Framework

The notion of choice as an input is inherent to any investigation of students' educational pathways. This is particularly salient given that students self-select into rigorous courses, highlighting that these pathways are driven by a series of choices that ultimately shape students' academic development. These choices, however, can be limited by the academic organization of high schools (Lee, Croninger, & Smith, 1997; McFarland, 2006; Spade, Columbia, & Vanfossen, 1997), as course availability and access can either truncate or encourage further study.

Assuming that all course decisions students make are bounded by the school they attend, choice is initially limited at the school level. For example, schools that are small, in rural areas, and serve low-income, minority students have been found to be less likely to offer AP courses than other schools (Iatarola, Conger, & Long, 2011; Klopfenstein, 2004). Course availability is therefore an essential component to course-taking, as students simply cannot take an advanced course that is not offered. Conversely, if a school primarily offers advanced courses, one would expect more students to be enrolled in these courses given their prevalence. Described as an

“offering disparity” (Conger, Long, & Iatarola, 2009, p. 556), this suggests that students may not be enrolling in a course, specifically an advanced course, simply because it is not available. This recognizes that the courses students take are simply an extension of the curriculum a school has to offer (Lantz & Smith, 1981; Schmidt, 1983). Thus, a potential explanation for the differential patterns of English course-taking that may occur is the constrained curriculum hypothesis outlined by Lee, Croninger, and Smith (1997), which posits that high school curriculum is primarily a school phenomenon. This is in contrast to research that frames course-taking within a student choice model (e.g., Meece, Parsons, Kaczala, & Goff, 1982).

A constrained curriculum is thus structurally constrained by the course options available to students, as well as behaviorally constrained by the actual choices students make. This echoes the notion of constrained choice (Kurlaender & Hibel, forthcoming), which suggests a complex interplay between structural forces and student decision-making. In the context of education, both the student’s own positioning as well as the organization of the school are involved at all times; therefore, course-taking must be considered as a dynamic relationship between students’ individual consciousness and the social structure of schools.

Given this constraint in the course selection process along with the impact a rigorous course of study can have, why might a student choose to enroll or eschew enrollment in a particular course? Research reveals two competing mechanisms through which this may occur: human capital theory and the signaling model. Human capital theory implies that a course holds value for a student because of the skills it can potentially impart; in this case, students might select a particular advanced course due to a perceived absolute effect on skill-building. This suggests that the more rigorous a course, the more skills one might learn. In contrast, the signaling model (Spence, 1973) proposes that a student could select a course because of the

perceived value others, such as college admissions officers, may put upon it. Under this framework, enrollment in a rigorous English course does not *cause* a student to be more motivated or possess a higher degree of ability, but rather students already possessing these attributes enroll in advanced courses to signal these innate qualities to postsecondary institutions.

Course-taking in California

The notion of rigor as it pertains to California high schools is most adequately reflected in the undergraduate admissions requirements to the State's four-year public postsecondary institutions: the University of California (UC)³ and California State University (CSU)⁴ systems. Colloquially referred to as the A-G requirements, these subject requirements indicate the courses students must take and satisfactorily complete while in high school in order to be considered as eligible, at least in part, for admission in either postsecondary system.⁵ Importantly, every course designated as A-G has been approved by the college systems, putting the State's high schools in direct relationship with the major postsecondary institutions.

These courses capture a variety of fields, as denoted by the "A-G" letters assigned to each subject area: (a) history/social science, (b) English, (c) mathematics, (d) laboratory science, (e) foreign language, (f) visual/performing arts, and (g) an additional college preparatory elective course in any aforementioned subject. While at the state level three year-long English courses are required, in order to be eligible for admission, freshman applicants must complete four.⁶ Additionally, for a course to satisfy A-G requirements, its initial approval hinges on whether or not it is (1) academically challenging; (2) involves a substantial amount of reading, writing,

³ <http://regents.universityofcalifornia.edu/governance/policies/2103.html>

⁴ http://www.csumentor.edu/planning/high_school/

⁵ In addition to A-G subject requirements, high school grade point average and standardized test scores from the ACT and/or SAT are additional measures of academic achievement both university systems draw on in determining applicants' admission eligibility.

⁶ <https://www.cde.ca.gov/ci/gs/hs/hsgtable.asp>.

problems, and laboratory work; and (3) demonstrates significant attention to analytical thinking, factual content, and the development of students' oral and listening skills.⁷ The A-G requirements therefore reflect a concerted effort to ensure students are enrolled in rigorous coursework so that they can fully participate in their first-year program of study

The rigor of A-G courses, however, likely differs across California; depending on where a student attends high school, the same course of study may amount to varying degrees of college preparedness, a result of the quality, preparation, and experience of teachers, the curriculum itself, or the pedagogy of instruction (among other explanations). Given this potential variation, this analysis further interrogates courses for which there are more stringent requirements in terms of course content and teacher preparation, such as Advanced Placement (AP) and International Baccalaureate (IB) courses. Along with these requirements, the general aim of these courses is standardization, ensuring the experience of each student is similar in terms of depth, breadth, and pace of the material. In addition, courses designated as Honors are also extensively reviewed prior to receipt of the label.

One course that bears particular attention is the Expository Reading and Writing Course (ERWC). Developed by CSU faculty in 2003, the ERWC is a year-long 12th grade preparatory English course that emphasizes the in-depth study of expository, analytical, and argumentative reading and writing.⁸ Similar to AP and IB courses, the ERWC is rigorous in its materials and preparation of teachers, and evidence suggests that enrollment in the course is associated with gains in achievement (Hafner, Joseph, & McCormick, 2010). The ERWC is also a core component of the Early Assessment Program (EAP), which provides students and schools with an indication of students' readiness for college-level work. Students not found "ready" for

⁷ <http://www.ucop.edu/agguide/a-g-requirements/index.html>

⁸ For more information on the ERWC, see: <https://writing.csusuccess.org>.

college based on this signal can then enroll in the ERWC to not only bolster their skills in academic literacy, but also potentially bypass placement exams and remedial coursework in college if students earn a grade of “C” or higher.⁹ This conditional exemption also applies to AP, IB, and designated honors courses.

Conceptual Framework

The nature of a rigorous course of study is that it is academically challenging; however, the degree to which this challenge is presented can vary depending upon the course a student enrolls in and the depth, breadth, and pace of the content provided (Dougherty, Mellor, & Jian, 2006). Due to this variation, this analysis situates rigorous coursework in California as part of a broader taxonomy of courses fundamentally centered around college readiness. A rigorous course in California can therefore be categorized as either: (1) college preparatory, (2) accelerated college preparatory, or (3) college-level.

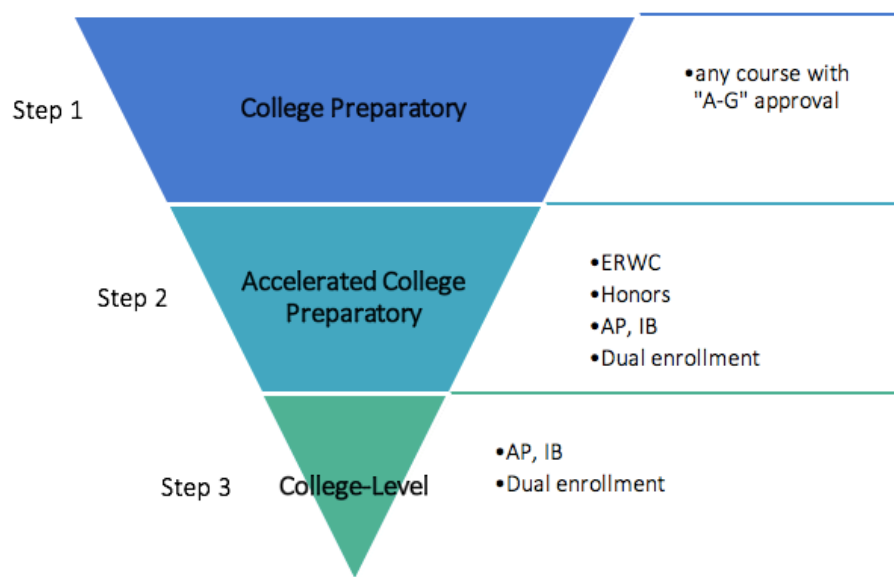
Figure 1 presents this classification as an inverted pyramid, a purposeful illustration given that while there are fewer course options at each “step”, a student can potentially learn and earn more by taking a college-level course (step 3) compared to a college preparatory course (step 1). For example, AP and IB courses allow students to earn college credit conditional on exam performance, while AP, IB, and honors courses typically offer students a boost in grade point average upon enrollment. The latter is particularly important for students enrolled in California high schools seeking admission in the UC or CSU college system, as eligibility policies guarantee admission to the top students at the state and local level based primarily on academic achievement in high school.¹⁰ Students enrolled in step 2 courses may therefore see

⁹ For more information on the EAP, see: <https://www.cde.ca.gov/ci/g/hs/eapindex.asp>.

¹⁰ Students in the top one-third of all California public high school graduates are eligible for admission to the CSU system, while freshman applicants within the top 9 percent are eligible for admission to the UC. Additionally, students that meet these requirements at the end of 11th grade are identified as eligible in the local context for the UC

greater returns on course-taking in terms of college access and entry.

Figure 1. Taxonomy of Rigorous Coursework



Although all courses that fall within this taxonomy suggest a college preparatory curriculum in that they've met the state's comprehensive course approval system, courses within steps 2 and 3 uniquely serve as important signals to college admissions officers outside of California, particularly for those at highly selective institutions, where there is more competition for entry (Geiser & Santelices, 2004). As rigorous courses in high school are also frequently taught by more skilled teachers, those who may hold additional credentials as well as experience, students enrolled in accelerated college preparatory and college-level courses are likely to be exposed to instructors with more specialized knowledge, which research finds has an influence on student outcomes (Clotfelter, Ladd, & Vigdor, 2010).

This taxonomy is unique in that course categories are not mutually exclusive, recognizing that different courses have different goals. These goals inherently draw on students' prior academic preparation; for example, while college preparatory courses emphasize the skills

system, a pathway that centers on top students from each participating high school rather than statewide (<http://regents.universityofcalifornia.edu/governance/policies/2103.html>).

students need to succeed in college (i.e., note-taking, intellectual discipline), courses designated as college-level assume these skills are already in place (Klopfenstein & Thomas, 2009).

Therefore, not all courses geared toward college readiness may be as rigorous as others, with potential downstream effects on students' educational trajectories. Thus, while all college-level courses are also college preparatory, not all college preparatory courses are college-level.

Data and Methods

Setting

California is an important setting for a study of English course-taking. It is the nation's most populous state and serves students from a tremendous range of ethnic and socioeconomic backgrounds, reflecting the student populations of other states. Additionally, California has also been a leader in linking the state's K-12 and postsecondary systems, jointly developing programs and policy to bridge the extant gaps between K-12 educational outcomes and postsecondary expectations. One outcome of this is the California Longitudinal Pupil Achievement Data System (CALPADS), a statewide longitudinal data system that tracks students' course-taking behavior, which this analysis draws from in part.

Data Analysis

This paper relies on data provided by the California Department of Education (CDE) and leverages demographic information as well as students' complete course-taking histories for the census of students enrolled in the 12th grade during the 2013-2014 and 2014-2015 academic years.¹¹ The sample was restricted to students in the 12th grade due to the import course selection can have at this time. Given that course selection can be used as a signal to college admissions officers and that the college application process occurs during students' senior year, an

¹¹ Alternative and special education high schools are excluded in this analysis.

exploration of course-taking in the 12th grade can illuminate the types of rigorous English courses students are enrolling in at the start of this process.

Demographic information includes race/ethnicity, gender, and a dummy measure of socioeconomic disadvantage (SED), a proxy for socioeconomic status.¹² For course-level information, this analysis draws on detailed records of students' high school course histories, including state and local course codes, course names, and an indicator of A-G approval.¹³ English course types (such as AP, IB, etc.) were identified using state course codes, which were directly linked to course names with the exception of courses that were classified as honors. In this case, local course names alone were considered.¹⁴ Further, the English courses leveraged in this analysis are restricted to those determined to be rigorous based on postsecondary requirements of college readiness as defined by the major college systems in the state; in this case, a course was selected as rigorous if it was labeled as A-G, AP, IB, Honors, or ERWC.¹⁵

Additionally, aggregated measures of school size were generated to examine potential variability in course enrollment at the school-level in accordance with prior research. Table 1 presents key summary statistics for the census of students this analysis draws from. California secondary schools served a fairly diverse population of students that includes a number of

¹² This measure is based on the definition of socioeconomic disadvantage adopted by the State Board of Education in California. A student is considered to be socioeconomically disadvantaged if: (1) neither of the student's parents received a high school diploma, or (2) the student is eligible for free- or reduced-price lunch through the National School Lunch Program, which utilizes income levels to determine eligibility (<https://www.cde.ca.gov/ta/ac/ap/glossary06e.asp>).

¹³ In this case, "A-G approval" refers to whether or not a course has been approved by the UC-led A-G Course Management Portal (CMP) system (<https://hs-articulation.ucop.edu/agcmp>). This designation is important given that courses that are A-G approved are reviewed to ensure they are presenting content that will help prepare students for the demands of college-level work.

¹⁴ In identifying honors courses, qualitative coding of local course names was utilized. Examples of codes included "Honors", "Hon", etc. to ensure the most complete coding scheme.

¹⁵ Dual enrollment is not included in this analysis as records for this program were not documented until the following year (2015-2016).

underrepresented minority groups and a high number of lower income students. Males make up a greater proportion of the data, however this difference between groups is minimal for both years.

Table 1. Summary Statistics of Analytical Sample

	2013-2014	2014-2015
	<i>N</i> = 430,907	<i>N</i> = 450,371
Gender		
% Female	49.39%	49.19%
% Male	50.61%	50.81%
Race/Ethnicity		
% American Indian/Alaskan Native	0.68%	0.64%
% Asian	12.09%	11.88%
% Black	6.69%	6.50%
% Hispanic/Latino	48.50%	49.73%
% Pacific Islander	0.56%	0.54%
% White	27.31%	25.72%
% Two or More Races	3.68%	4.42%
% Not Reported	0.50%	0.56%
SED		
% Yes	58.94%	58.99%
% No	41.06%	41.01%

To explore the distribution of rigorous course-taking in English across students and schools, I rely on descriptive tables and graphs, analyzed by key individual subgroups (gender, race/ethnicity, and socioeconomic disadvantage). Further, to examine school-level differences in English course-taking, I analyze data by school size.

Limitations

One limitation lies in the course coding, as a unique course number did not exist across schools to identify honors English courses. Unlike AP, IB, and ERWC, honors courses were coded based on course title alone. To corroborate coding, courses designated as honors were also checked against transcript data in the CMP; however, as there is not an indicator for honors courses included in the dataset, there is still potential for error in the courses identified. Low

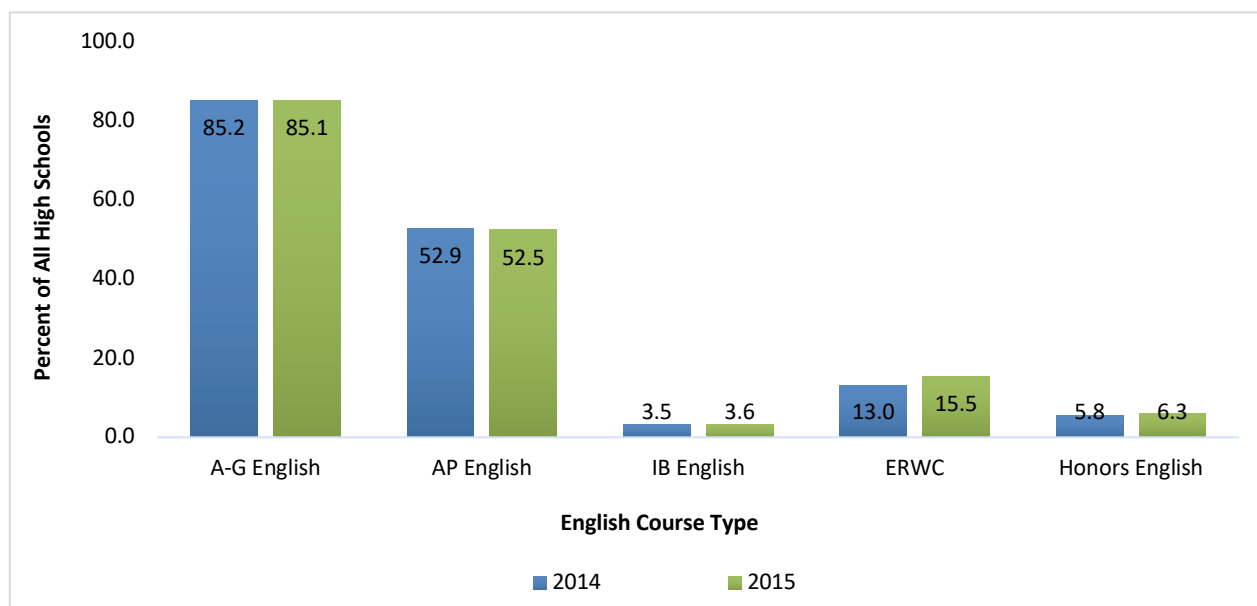
honors course identification may also be driven by the fact that at some schools, AP and IB courses are also noted as honors. Given that the coding scheme utilized for this analysis sought to isolate AP and IB enrollment from honors, this parsing may offer more conservative estimates than actually occur.

An additional caveat is that these results only speak to the courses students enrolled in. While assumptions can be made about the options students had based on this enrollment, exact conclusions cannot be drawn about the academic organization of the high schools considered in this analysis.

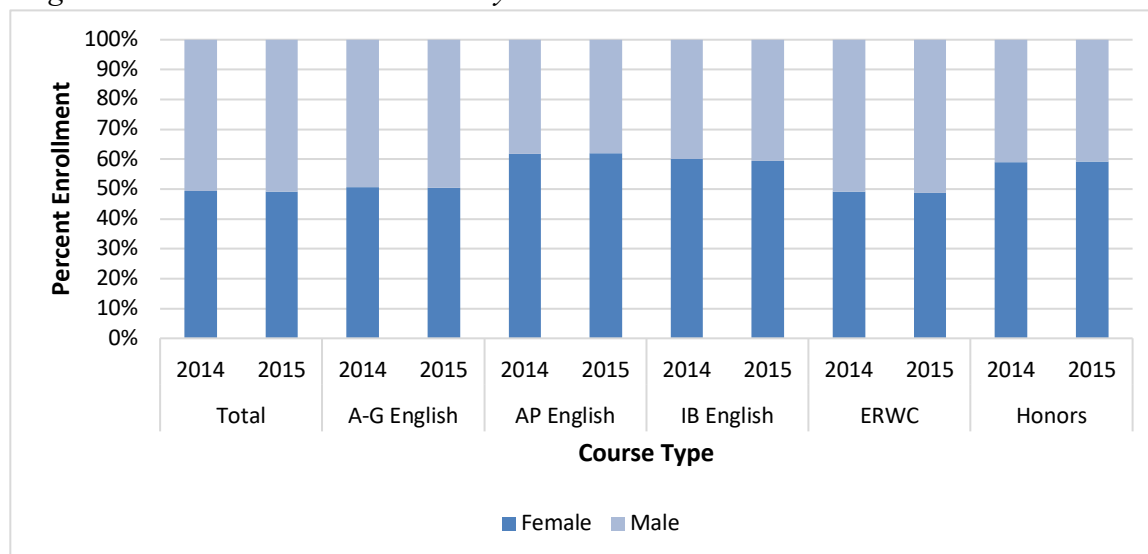
Findings

In the first part of this analysis, the rate of English course selection across high schools in California was examined. Figure 2 presents this distribution across course types for both academic years considered, revealing that while enrollment rates remain relatively unchanged, at about 15 percent of schools, students do not enroll in a college preparatory course their senior year.

A little over half of all regular high schools (52 percent) across both years have students that enrolled in AP English courses, with IB English and Honors English reflecting a small percentage of schools (3 percent and 6 percent, respectively) at which students enrolled in either course. The Expository Reading and Writing Course (ERWC) shows the most change, as over 2 percent of high schools saw increased ERWC enrollment between 2014 and 2015.

Figure 2. School-Level Distribution of English Course Enrollment

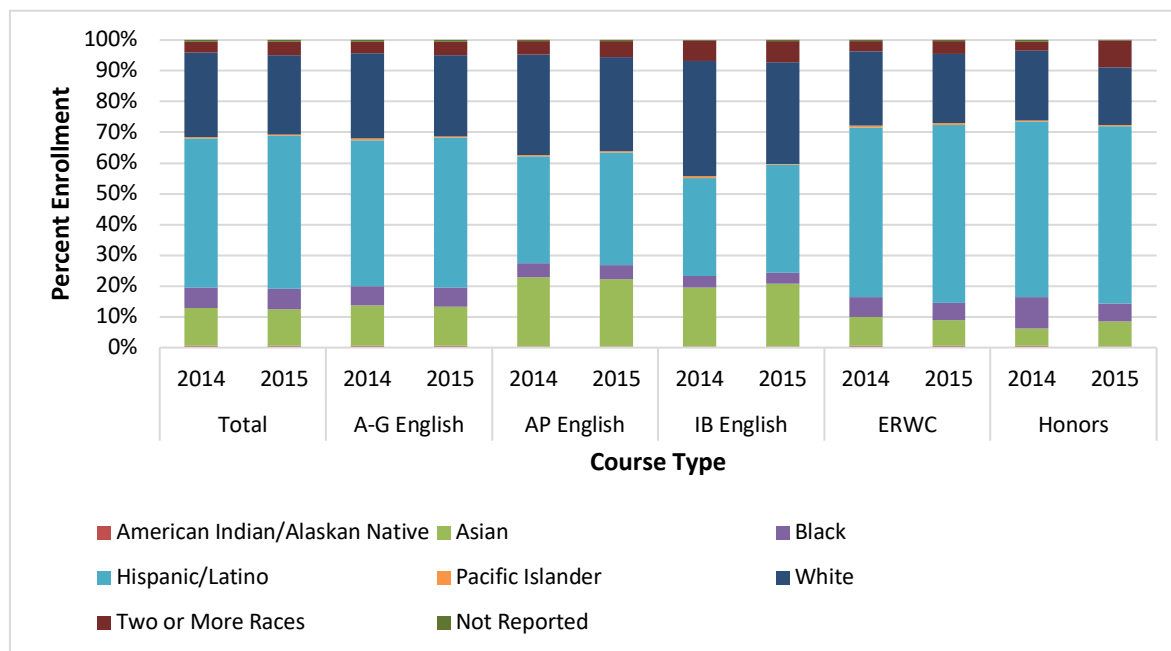
These enrollment rates echo those at the individual level; however, differences emerge across course types and subgroups. Figure 3 presents these rates for both 2014 and 2015. In 2014, women enrolled in all course types at higher rates than men with the exception of ERWC, where this difference is a little over one percentage point (1.58). This minimal difference is echoed in terms of A-G enrollment as well, intimating that for the most part, women and men take up these courses at the same rate. For AP, IB, and Honors English, the nearly twenty percentage point difference between these groups may be additional evidence that women tend to enroll in English courses at higher rates than men overall, regardless of rigor, due to gender-related beliefs (Leaper, Farkas, & Brown, 2012). Similar course enrollment patterns occur in 2015, although there is a slight widening of the gaps between genders in AP, ERWC, and honors enrollment.

Figure 3. Course Enrollment Rates by Gender

Results also reveal disproportionate course enrollment in terms of race/ethnicity, particularly in courses identified as college-level. For example, across both years, Asian and White students comprise about 22 percent and over 30 percent of students enrolled in AP English courses, respectively. Compared to the proportion of Asian and White students in the population of 12th graders in California, these student groups enroll in AP courses more than expected. These patterns are similar for IB English, where the gap slightly widens in enrollment. In contrast, for both years, Black and Hispanic/Latino students enroll disproportionately less than expected. This echoes prior research that suggests course-taking differs across racial/ethnic groups (Attewell & Domina, 2008; Davenport et al., 1998), revealing that these patterns of disparity extend beyond math and science. In terms of ERWC, for both 2014 and 2015, Hispanic/Latino students enrolled at higher rates than any other group.

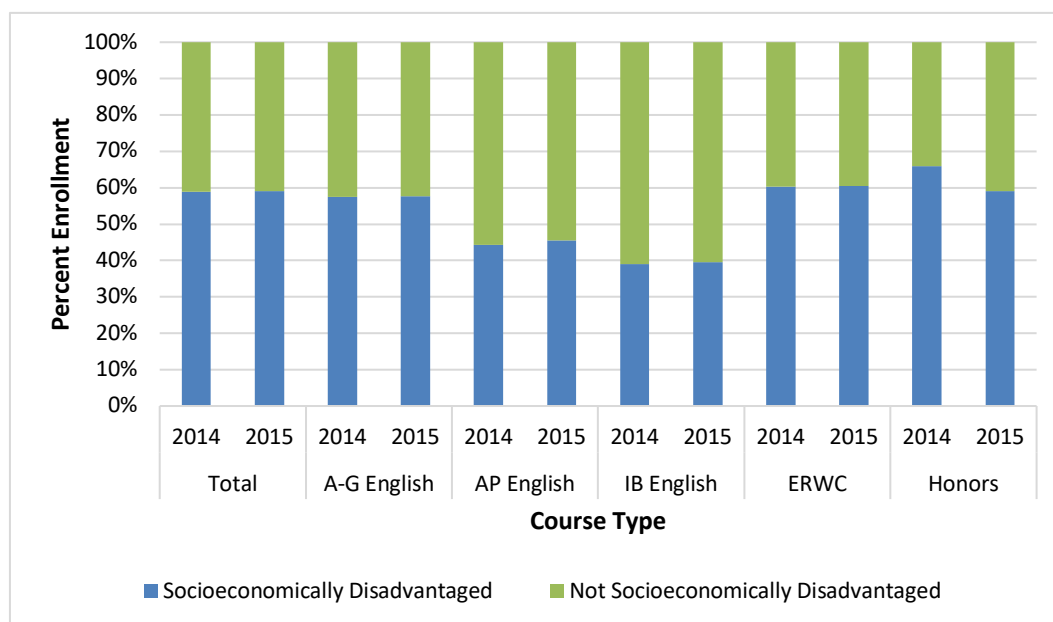
Additionally, the proportion of students from each race/ethnic category identified enrolling in A-G English courses are relatively similar to those anticipated, indicating that, overall, students are enrolling in English courses that aim to prepare them for college-level work.

Figure 4. Course Enrollment Rates by Race/Ethnicity



An examination of course type enrollment rates by socioeconomic disadvantage reveals that students enroll in each advanced course highlighted in this study at rates one might expect with the exception of AP and IB courses (see Figure 5). In this case, students that are socioeconomically disadvantaged enroll in these college-level courses at severely lower rates than students that are not, and this trend is the same across both years.

Figure 5. Course Enrollment Rates by Socioeconomic Disadvantage



A clear pattern emerges when considering school size¹⁶ in conjunction with student attributes (see Table 2). Across gender, race/ethnicity, and socioeconomic status, students at large schools (over 1,300 students) disproportionately enroll in A-G, AP, and IB courses. Additionally, results indicate that overwhelmingly students at medium-sized schools enroll in honors English compared to other rigorous courses, particularly Black students, where over 60 percent enrolled in honors English attended medium-sized schools. While these findings may be driven by the fact that larger schools cater to more students, an offering disparity in terms of college-level courses may still exist; for example, if a student is interested in enrolling in an Advanced Placement course and one is not available, a rational alternative is the honors course, which can accomplish many of the same goals that drive course selection. In this case, honors English may act as a substitute for other college preparatory courses not available to students; however, such a conclusion is outside the scope of this initial descriptive analysis.

Table 2. Average Course Enrollment by Student Subgroup and School Size

	<i>Small</i>	<i>Medium</i>	<i>Large</i>
All Students			
% Total	6.09%	22.33%	71.58%
% A-G	4.02%	20.98%	75.00%
% AP	8.82%	22.00%	77.12%
% IB	0.41%	17.16%	82.43%
% ERWC	1.35%	11.27%	87.38%
% Honors	5.52%	45.36%	49.12%
Female			
% Total	5.23%	22.12%	72.18%
% A-G	3.55%	20.81%	75.64%
% AP	0.83%	21.50%	77.68%
% IB	0.19%	17.00%	82.81%
% ERWC	1.27%	10.94%	87.80%
% Honors	4.86%	45.00%	50.14%

¹⁶ School size was determined based on the total number of students enrolled at a particular high school during the years of interest (“small” < 247 students, “large” > 1,347 students). Additionally, schools were split into equal-sized groups given the skewness of the enrollment distribution.

	<i>Small</i>	<i>Medium</i>	<i>Large</i>
Male			
% Total	6.94%	22.53%	70.53%
% A-G	4.49%	21.16%	74.34%
% AP	0.97%	22.81%	76.22%
% IB	0.74%	17.41%	81.85%
% ERWC	1.43%	11.60%	86.97%
% Honors	6.48%	45.88%	47.64%
American Indian/ Alaskan Native			
% Total	15.37%	27.40%	57.23%
% A-G	11.33%	24.66%	64.01%
% AP	3.80%	25.86%	70.34%
% IB	0.00%	25.00%	75.00%
% ERWC	2.15%	14.16%	83.69%
% Honors	27.27%	54.55%	18.18%
Asian			
% Total	1.96%	13.84%	84.20%
% A-G	1.34%	13.47%	85.19%
% AP	0.39%	14.29%	85.33%
% IB	1.19%	11.15%	87.66%
% ERWC	0.62%	5.13%	94.25%
% Honors	6.80%	31.07%	62.14%
Black			
% Total	8.81%	26.18%	65.01%
% A-G	6.29%	24.77%	68.93%
% AP	1.38%	29.53%	69.10%
% IB	0.61%	23.93%	75.46%
% ERWC	2.45%	14.63%	82.92%
% Honors	6.01%	60.66%	33.33%
Hispanic/Latino			
% Total	6.69%	24.23%	69.07%
% A-G	4.54%	22.73%	72.74%
% AP	0.90%	26.01%	73.09%
% IB	0.28%	17.56%	82.16%
% ERWC	1.50%	12.72%	85.78%
% Honors	2.81%	43.60%	53.59%
Pacific Islander			
% Total	7.78%	22.18%	70.04%
% A-G	5.23%	21.11%	73.66%

	<i>Small</i>	<i>Medium</i>	<i>Large</i>
% AP	1.12%	26.97%	71.91%
% IB	0.00%	22.58%	77.42%
% ERWC	2.94%	12.13%	84.93%
% Honors	12.50%	25.00%	62.50%
White			
% Total	5.90%	21.73%	72.37%
% A-G	3.74%	20.64%	75.62%
% AP	1.09%	22.44%	76.47%
% IB	0.79%	18.43%	80.78%
% ERWC	1.03%	10.46%	88.51%
% Honors	9.95%	46.60%	43.45%
Two or More Races			
% Total	5.80%	20.90%	73.30%
% A-G	3.13%	19.75%	77.11%
% AP	0.66%	17.06%	82.28%
% IB	0.00%	20.21%	79.79%
% ERWC	0.84%	4.63%	94.52%
% Honors	12.00%	40.00%	48.00%
Lower Income			
% Total	7.37%	24.98%	67.65%
% A-G	4.89%	23.44%	71.67%
% AP	1.14%	26.23%	72.63%
% IB	0.81%	16.84%	82.35%
% ERWC	1.72%	13.16%	85.12%
% Honors	5.36%	47.07%	47.57%
Higher Income			
% Total	4.27%	18.51%	77.22%
% A-G	2.83%	17.67%	79.50%
% AP	0.68%	18.63%	80.69%
% IB	0.15%	17.37%	82.48%
% ERWC	0.79%	8.40%	90.81%
% Honors	5.84%	42.05%	52.11%

Note: The race/ethnicity category of "Not Reported" is omitted as there were no school-level observations to report.

Discussion and Conclusion

A key choice students face while in high school is the type of academic program to pursue, and part of what makes this decision important is its impact on later outcomes, as it can

determine whether a student is sufficiently prepared for life after high school. Prior research reveals variation in both the learning opportunities available and students' use of these learning opportunities, with disparities appearing across gender, race/ethnicity, and socioeconomic status. This analysis explored this variation in course-taking, highlighting the rigorous English courses students opted to take in their terminal year of high school and asked: : How are 12th grade English course types distributed across high schools? What are key differences in English course participation at the individual and school level?

Results indicate that, generally, women enrolled in more advanced English courses than men, particularly in AP, IB, and honors English. This aligns with current research on the gender gap, which has noted that women enroll in English at higher rates than men, who tend to select into advanced mathematics courses (Leaper, Farkas, & Brown, 2012).

Disparity in terms of college-level course enrollment is also seen amongst race/ethnicity, where, across both years, Asian and White students comprised over 50 percent of all students enrolled in AP English. In contrast, Black and Hispanic/Latino students enrolled disproportionately less than expected. This also corroborates prior research, which notes that Black and Hispanic/Latino students are severely underrepresented in AP programs, while Asian students are overrepresented (Ashford, 2007; Lim, 2008). However, a study conducted by Hallett and Venegas (2011) in California found that students from low-income and minority backgrounds take AP courses when given the opportunity; therefore, access in itself is important, and is particularly vital for minority students given that access to higher level courses has been associated with an increase in the likelihood of college attainment (Taliaferro & DeCuir-Gunby, 2008).

Enrollment rates by socioeconomic status also reveal that students who are considered to be socioeconomically disadvantaged based on State definitions also enroll in college-level courses at severely lower rates than their counterparts. Drawing on the conceptual framework outlined, this indicates that low-income students and students of color are not selecting into courses that provide them with the most signaling power and opportunities to learn present in college-level (step 3) courses. Research notes that students from families with a higher-education background and higher income are more likely to pursue college programs (Zietz & Joshi, 2005), but is this a question of preference or limited choice? As articulated by Lee and Bryk (1989): Do students' course-taking patterns indicate institutional effects, or are they just a reflection of motivational differences among students?

Presently, it is impossible to tease out this distinction; however, in order to get a better sense of how enrollment rates compared at the school level, this analysis explored whether differences emerge by the size of the school one attended and compared this across subgroups. Across gender, race/ethnicity, and socioeconomic status, students at large schools disproportionately enrolled in A-G, AP, and IB courses. Further, students at medium-sized schools enrolled in honors English more than other courses, particularly Black students. While these findings may be driven by the fact that larger schools cater to more students, an offering disparity in terms of college-level courses may still exist; research intimates that schools serving high concentrations of low-income students often have fewer advanced curricular offerings than schools serving a more affluent student population (Adelman, 1999; Conger, Long, & Iatarola, 2009).

In terms of course choice, short-term decisions can ultimately have long-term implications. Prior research finds that improving the academic rigor of students' high school

experience is likely to lead to improved postsecondary outcomes, but one must also be attentive to the host of factors that contribute to students' sorting into various course levels in high school: availability of courses, knowledge of offerings at the school, academic ability, interest, motivation, familial involvement, and the influences of teachers, counselors, and/or peers. This study finds that, overall, students are enrolling in college preparatory courses, but college-level courses are still disproportionately taken by higher income, White, and Asian students. This suggests that while more students are taking rigorous courses in their final year, certain groups are not enrolling in courses that will enable them to see greater returns.

This analysis is positioned to extend prior work in several ways. One, it considers the types of rigorous English courses students are taking and how this enrollment is distributed at multiple levels, presently absent in the current literature. Further, it develops a framework for rigorous course-taking that enables a more in-depth conversation around how courses, with arguably similar goals, can operate in ways that may diverge student preparations. This study also draws on complete course histories for a census of students in one state, allowing for a more nuanced analysis; in contrast, studies on course-taking tend to leverage national samples of high school students (e.g., Attewell & Domina, 2008; Gamoran & Hannigan, 2000; Lee et al., 1998). A key exception is a set of studies conducted by Long, Conger, & Iatarola (2009; 2011; 2012) that use detailed course-taking information from Florida to study the effects of course-taking on various outcomes.

Given the descriptive nature of this analysis, more causal research on the effects of English course enrollment is needed to help explicate how today's students are not only navigating the course selection process, but how this process impacts future outcomes. Additional years of data would also allow a closer examination of enrollment trends, along with

a more intricate look at the impact of schools, as “high schools can exert a profound influence on the educational course pursued by their students” (Lee & Bryk, 1989, p. 92).

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