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# Deconstructing the EL Gap

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### Abstract

Federal law requires that English learners (ELs) receive language support services that ensure equal access to instructional programs; nonetheless, ELs achieve much lower educational outcomes than non-ELs. This “EL-gap” is assumed to derive from language barriers. It is unclear, however, the extent to which it is instead driven by other factors that ELs commonly share, such as racial/ethnic minority, low SES, and attending poorly resourced schools. Using longitudinal student-level administrative data from Massachusetts, we find evidence that ELs achieve similar and in some cases better later educational outcomes than do non-ELs from similar backgrounds. Our finding that the EL-gap is largely a reflection of other well-documented achievement gaps associated with race/ethnicity and SES has important policy and pedagogical implications.

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## Introduction

Multilingual students classified as English learners (ELs) on average achieve much lower educational outcomes than non-ELs (see for example National Education Association, 2016). Arguably the difference in outcomes between ELs and non-ELs (from here, the EL gap) is especially concerning relative to other commonly discussed achievement gaps because states and school districts have an obligation under federal law to provide ELs with language support services so that their access to instructional programs is equal to their English-proficient peers (*Castañeda v. Pickard*, 1981; *Lau v. Nichols*, 1974).

But direct comparisons of the later outcomes of ELs and non-ELs almost certainly overstate the extent to which ELs relatively lower outcomes are a product of insufficient supports while they are still learning English. Understanding the extent to which ELs' low educational outcomes are a product of factors that are specific to their need for support services as opposed to other demographic factors has important policy and pedagogical implications. If ELs experience substantially worse later outcomes than otherwise similar non-ELs, then policymakers must improve EL-specific services in order to satisfy their obligations. However, if ELs have the same or higher later outcomes than otherwise similar non-ELs, then it could be more productive for to shift focus towards interventions that address the challenges that ELs share with other historically underserved subgroups.

Indeed, the common practice of defining the EL gap as the unadjusted difference in the average outcomes of ELs and non-ELs is inconsistent with the stated purpose for EL services. The federal laws' specific focus on the impact of the student's emergent English proficiency implies that the purpose of EL services is not to produce outcomes for ELs that are equivalent to

all other non-ELs but rather to compensate for ELs' disadvantages that derive from learning in a language in which they are not yet fully proficient.

We use administrative data from Massachusetts to deconstruct the EL gap as it relates to differences in student test scores, educational attainment, and high school coursework. We find that the vast majority of the differences in observed later outcomes for ELs and non-ELs are explained by characteristics that are not related to their language status in the respective grade. Indeed, on many important educational outcome measures, students who were ELs in fifth grade on average achieve the same or higher outcomes than their non-EL fifth grade classmates with similar demographic characteristics.

Our findings add to recent research challenging the common understanding of the EL gap. Prior authors have pointed out that the EL gap differs from other achievement gaps because EL is by nature a transient category (Abedi, 2004; Hopkins et al., 2013; Ramsey & O'Day, 2010; Saunders & Marcelletti, 2013). We build upon this recent rethinking of the EL gap as conventionally understood by addressing two of its key underlying features. First, by comparing later rather than contemporaneous outcomes of ELs and non-ELs we effectively remove the "revolving door" issue identified in prior research. Second, we assess the extent to which the observed later outcomes of ELs relative to non-ELs in a given grade can be attributed to factors that are correlated with EL status but unrelated to the student's English proficiency or receipt of EL services.

Surprisingly few studies to date have compared the later outcomes of ELs and non-ELs conditional on other characteristics, and only for a limited set of outcomes. Umansky (2016) found evidence that, relative to non-ELs, ELs have limited access to advanced coursework and courses in core academic content areas in middle school after accounting for observed student

characteristics. However, she also found that controlling for prior test scores substantially reduced the magnitude of the difference in the access to advanced coursework. Kieffer and Thompson (2018) found that the difference between monolingual students' and multilingual students' fourth and eighth grade reading and math scores on the NAEP dropped dramatically when the model accounted for student race/ethnicity and socioeconomic status. Similarly, Kieffer (2010) reported that although ELs are more likely to reading difficulties in the upper elementary and middle school than non-ELs, when SES is accounted for, the differences are substantially reduced or disappear altogether. He argued, "SES, rather than ELL status, is the most predictive of these two confounded risk factors for late-emerging difficulties" (p. 486). Despite these trends, however, no study has systematically followed the same ELs over time and examined the impact of being an EL in different grades for a variety of later outcomes and how linguistic and non-linguistic factors contribute to the gaps between ELs and non-ELs. This study sets out to fill this gap in knowledge.

### **Data**

We utilize longitudinal student-level administrative data made available by the Massachusetts Department of Elementary and Secondary Education (MADESE). The dataset contains detailed information on student demographics and classifications, test scores, educational attainment, and course-taking for the universe of public school students in Massachusetts from 2006 through 2016.

We use the number of Advanced Placement (AP) courses that the student completed in high school as a measure of advanced coursework. We also evaluate student coursework in terms of MassCore, a program of studies that the state recommends as preparation for entry into a 4-year college, consisting of four years of English, four years of Math, three years of a lab-based

Science, three years of history, two years of the same foreign language, one year of an arts program and five additional ‘core’ courses such as business education, health, and/or technology (MADESE, 2016). We use a state-generated indicator variable that identifies whether the student has graduated and has satisfied the MassCore requirements. In addition, we separately analyze the number of MassCore-eligible courses that the student completed in the subjects of English and mathematics.

### **Primary Estimation Sample**

For each analysis, we present results for the relationship between later outcomes and EL status in either the fifth or ninth grade. We choose the fifth grade because it is the earliest grade for which we are able to observe a student through high school completion, and we choose the ninth grade because we are interested in students entering high school as ELs. The pattern of results for these grades is consistent with those in grades six through eight, which we report in the Online Appendix.

We restrict the estimation samples to include students who were enrolled in the particular grade considered during a year in which we can observe them through high school completion if cumulatively promoted. Thus, for the fifth grade analyses we use students who were in the fifth grade for the first time during the 2007, 2008, or 2009 school year, and for the ninth grade analyses the sample includes students who were in the ninth grade for the first time in the 2011, 2012, or 2013 school year. Finally, we restrict the sample to include only students for whom we observe a math score from the prior grade in order to produce results that are comparable whether or not the model controls for prior math score.

### **Empirical Strategy**

We present a series of regression estimates that each provide a different level of insight to address our overarching research question: To what extent is the observed difference in the later outcomes of ELs and non-ELs associated with factors other than the student's EL status? Our approach is to begin with a simple regression measuring the unconditional later educational outcomes of EL and non-EL students and then to gradually add covariates.

We begin by estimating equation (1), which is consistent with the common definition of the EL gap. The dependent variable is one of several later outcomes ( $y$ ) for student  $i$ , in cohort  $c$ , enrolled in grade  $g$  of school  $s$ . The independent variable of interest is an indicator that equals one if the student was classified as EL in the beginning of the grade and equals zero otherwise ( $EL$ ). The only additional covariate is an indicator for the student's cohort ( $\psi_c$ ), which accounts for aggregate differences in outcomes that could occur within the state over time and the fact that more recent cohorts had less time to complete the measures of educational attainment. In this model,  $\delta$  is the unadjusted difference in the average outcome for students who had an EL classification at the beginning of grade  $g$  relative to those who did not.

$$y_{icgs} = \delta EL_{icgs} + \varphi_c + \varepsilon_{icgs} \quad (1)$$

We then introduce additional covariates in order to assess the extent to which  $\delta$  is explained by factors that are correlated with a student's EL-status. We first introduce a vector ( $X$ ) that includes a series of student demographic characteristics such as race/ethnicity, gender, and receipt of free lunch. The models culminate with equations (2) and (3), which respectively incorporate a school fixed effect the student's math score from the previous grade.

$$y_{icgs} = \delta EL_{icgs} + \varphi_c + \alpha X_{icgs} + \pi_s + \varepsilon_{icgs} \quad (2)$$

$$y_{icgs} = \delta EL_{icgs} + \varphi_c + \alpha X_{icgs} + \beta f(test)_{icg-1s} + \pi_s + \varepsilon_{icgs} \quad (3)$$

Taken at face value,  $\delta$  as estimated from Equation (3) represents the measure of the EL gap that is most consistent with the legal mandate underpinning EL services. However, there is reason to be concerned that this estimate is biased upward because scores on a standardized math test might systematically understate ELs' actual math ability. It is impossible to verify the extent to which the prior math scores for ELs are systematically biased downward relative to non-ELs. Importantly, however, the direction of any such bias is clear. Equation (3) could be an upward biased estimate for the later outcomes of ELs relative to non-ELs. The estimate from (2), on the other hand, is biased downward because it assumes no difference in the historical schooling or average entering ability of ELs and non-ELs. The true EL gap thus must lie between these estimates, and thus  $\delta$  resulting from Equations (2) and (3) provide the feasible range for the true EL gap.

To put our results for ELs into context, we go on to consider whether other kinds of achievement gaps are similarly reduced when accounting for other covariates. To do this, we estimate models similar to those described above, but replace EL-status in each model with a different characteristic of interest. We then compare the extent to which the estimated relationship between each characteristic and student outcomes differs when the model includes additional covariates.

## Results

Table 1 reports the results from models evaluating the relationship between EL status and student math scores and educational attainment. For ELs in both fifth and ninth grades the initially large unadjusted EL gap for later educational outcomes becomes substantially smaller, and in some cases completely disappears, once we account for other factors. If we assume that prior math scores of ELs are biased downward, then the true EL gap is found between the final

two lines in the figure within the subgroup. ELs in fifth grade perform worse in math at the end of the year (between -0.426 and -0.0679). However, accounting for other covariates, fifth grade ELs are at least as likely to eventually graduate from high school, enroll in any postsecondary school, and enroll in a 4-year college as non-ELs.

The range of potential relative outcomes for ninth grade ELs is considerably larger. However, in all cases the EL gap adjusted for other factors is substantially smaller than the unadjusted EL gap. The ninth grade EL gap for high school graduation ranges between -9.38 and a statistically insignificant -0.095 percentage points when accounting for other characteristics. Accounting for relevant covariates similarly drops the ninth grade EL gap for 4-year college entry from -32.6 percentage points to between -9.22 percentage points and 1.75 percentage points.

Table 2 reports the results from regressions measuring the relationship between EL status and measures of student course taking in high school. Fifth grade ELs complete very similar coursework in high school as do their non-EL peers. Students who are EL in the fifth grade are between 1.08 percentage points less likely (Equation 5) and 2.01 percentage points more likely (Equation 6) to graduate and complete the MassCore coursework than are otherwise similar non-ELs. In contrast, when the model does not account for other demographic characteristics, ELs were 28.4 percentage points less likely to graduate and complete MassCore (Equation 2). The results for outcomes associated with opportunity to learn are more negative for EL status in the ninth grade, but are again substantially reduced when the model accounts for student demographics and entering math scores.

Figure 1 illustrates the estimated gaps in the later outcomes after applying various statistical controls between (a) ELs and non-ELs, (b) Hispanic and White students, (c) African-

American and white students, and (d) low-income students (eligible for free lunch) and non-low-income students (eligible for neither free nor reduced-price lunch). The lines illustrate the 95% confidence interval for the coefficient on an indicator variable for the subgroup (EL, African American, eligible for free lunch) when accounting for different levels of covariates. Within each subgroup category, the first line is the base model with no additional controls, the second line adds student demographics; the third line adds a fixed effect for school attended during the respective grade, and the fifth line adds prior grade math score.

The relative changes in the respective coefficients from adding basic demographic controls highlight the extent to which each gap derives from features that students in one category share with the other. Controlling for demographic characteristics consistently has the largest impact on the estimated EL gap than for other gaps. A substantial portion of the EL gap is a reflection of the fact that ELs are very likely to be racial/ethnic minorities who come from low-income households. In contrast, most other educational gaps remain even after controlling for other student characteristics.

### **Discussion and Conclusion**

Our central insight is that ELs' relatively lower educational outcomes are primarily a reflection of other well-documented achievement gaps associated with race/ethnicity and household income. The fifth grade EL gap in educational attainment is either small or does not exist. However, we cannot rule out a meaningful ninth grade EL gap on several important outcomes.

That the results are different for fifth and ninth grade ELs is not entirely surprising. Most ninth grade ELs are either long-term ELs or newly arrived immigrants. Long-term ELs' severely constricted opportunity to learn is well documented (Clark-Gareca et al., 2020, Olsen, 2010;

Thompson, 2015). For recent arrivals, we suspect that part of the reason why they do not reach parity with non-ELs from similar demographic backgrounds is that they have a significant amount of English learning to do and that they simply do not have enough time to acquire grade-level academic language proficiency and catch up academically by the end of high school. That said, a growing body of literature is identifying the institutional barriers that inhibit high school ELs' access to advanced courses (e.g., Callahan, 2005; Callahan & Shifrer, 2016; Kanno, 2021). Thus, we suspect that in addition to lack of adequate time, high school ELs face systemic barriers that prevent them from achieving parity with non-ELs in a way that younger ELs do not.

We emphasize that our results do *not* imply that ELs on the whole are achieving adequate educational outcomes or that the current EL support services are superfluous. The unadjusted EL gap is staggering, real, and important, and if we eliminated or reduced the supports that they are currently receiving, ELs would likely perform even lower than comparable non-ELs. Rather, what we do argue, given our results, is that the factors that drive down the achievement of ELs primarily derive not from schools' inability to scaffold ELs' language development and academic participation, but from the challenges ELs share with other racial/ethnic minority students living in low-income households. Our results imply that at least in Massachusetts, the current language support services seem to be successful in offsetting the additional challenges of being an EL at the elementary level, but also that the persistent undereducation of racially minoritized and low-income students remain in the state. Thus, a potential implication of our results is that policymakers seeking to address the EL-gap, especially in early grades, should consider combining the current level of EL support services with policies that promote a more equitable education to the quality of schooling offered to racial minority and lower-income students.

### References

- Abedi, J. (2004). The No Child Left Behind Act and English language learners: Assessment and accountability issues. *Educational Researcher*, 33(1), 4-14.  
<https://doi.org/10.3102/0013189X033001004>
- Callahan, R. M. (2005). Tracking and high school English learners: Limiting opportunity to learn. *American Educational Research Journal*, 42(2), 305-328.  
<https://doi.org/10.3102/00028312042002305>
- Callahan, R. M., & Shifrer, D. R. (2016). Equitable access for secondary English learner students: Course taking as evidence of EL program effectiveness. *Educational Administration Quarterly*, 52(3), 463-496. <https://doi.org/10.1177/0013161X16648190>
- Castañeda v. Pickard, 648, F. 2d 989 (5th Cir. 1981).
- Clark-Gareca, B., Short, D., Lukes, M., & Sharp-Ross, M. (2020). Long-term English learners: Current research, policy, and practice. *TESOL Journal*, 11(1), e00452.  
<https://doi.org/https://doi.org/10.1002/tesj.452>
- Kanno, Y. (2021). *English learners' access to postsecondary education: Neither college nor career ready*. Bristol, UK: Multilingual Matters.
- Hopkins, M., Thompson, K. D., Linqunti, R., Hakuta, K., & August, D. (2013). Fully accounting for English learner performance: A key issue in ESEA reauthorization. *Educational Researcher*, 42, 101-108. <https://doi.org/10.3102/0013189X12471426>
- Kieffer, M. J. (2010). Socioeconomic status, English proficiency, and late-emerging reading difficulties. *Educational Researcher*, 39(6), 484-486.  
<http://www.jstor.org.ezproxy.bu.edu/stable/40793357>

Kieffer, M. J., & Thompson, K. D. (2018). *Hidden progress of multilingual students on NAEP*. *Educational Researcher*, 47(6), 391–398. <https://doi.org/10.3102/0013189x18777740>

Lau v. Nichols, 414 U.S. 563. (1974).

Massachusetts Department of Elementary and Secondary Education [MADESE]. (2016). *College and career readiness: MassCore*. <http://www.doe.mass.edu/ccr/masscore/>

National Education Association. (2016). *Understanding the gaps: Who are we leaving behind—and how far?* Retrieved from: <http://www.nea.org/home/AchievementGaps.html>

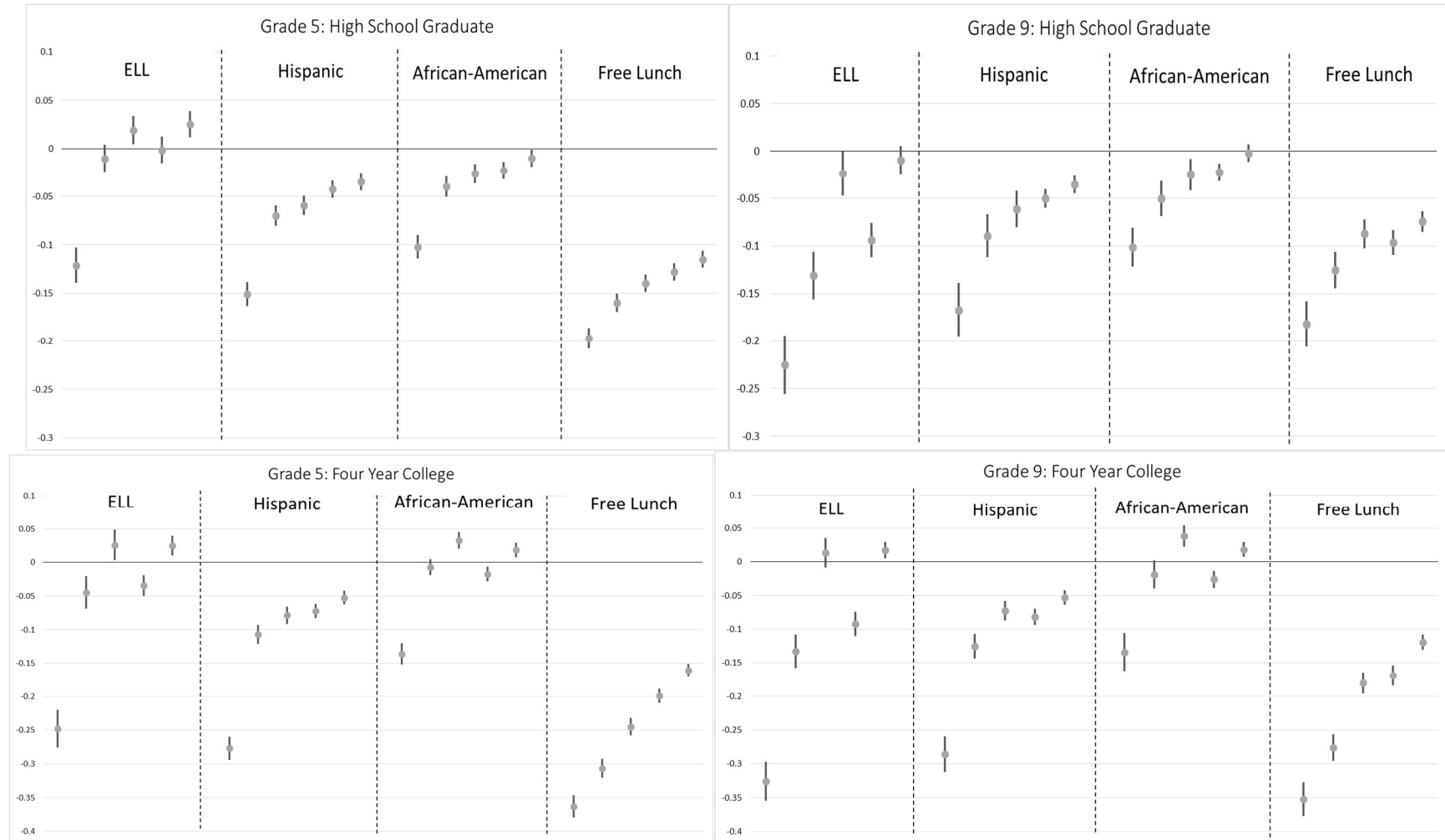
Olsen, L. (2010). *Reparable harm: Fulfilling the unkept promise of educational opportunity for California's long term English learners*. A Californians Together Research & Policy Publication. <http://www.ctdev.changeagentsproductions.org/wp-content/uploads/2015/01/ReparableHarm2ndedition.pdf>

Saunders, W. M., & Marcelletti, D. J. (2013). The gap that can't go away: The Catch-22 of reclassification in monitoring the progress of English learners. *Educational Evaluation and Policy Analysis*, 35(2), 139-156. <https://doi.org/10.3102/0162373712461849>

Thompson, K. D. (2015). Questioning the long-term English learner label: How classification and categorization can blind us to students' abilities. *Teachers College Record*, 117(12), 1-50.

Umansky, I. M. (2016). Leveled and exclusionary tracking: English learners' access to academic content in middle school. *American Educational Research Journal*, 53(6), 1792-1833. <https://doi.org/10.3102/0002831216675404>

Figure 1: Impact of Covariates on Estimated Gaps in Educational Attainment



Note: Figure illustrates coefficient and 95% confidence level for respective coefficient. For each dependent variable/grade/category, estimates are from same order line (first to fifth) and from same regression. All regressions control for student cohort. In all categories, first line is the base model with no additional controls; second line includes student demographics; third line includes demographics and math test score from prior grade; fourth line includes demographics and fixed effect for school attended during the respective grade (five or nine); and fifth line includes demographics, school fixed effect, and prior grade math score. Standard errors are clustered by school attended in respective grade.

Table 1: *Regression Results: Relationship Between EL Status and Student Performance and Attainment*

Model	(2)	(3)	(4)	(5)	(6)
<b>Grade 5</b>					
Math score in Grade 5	-0.867*** (0.0332)	-0.455*** (0.0233)	-0.0639*** (0.0144)	-0.426*** (0.0175)	-0.0679*** (0.0105)
Graduate high school	-0.121*** (0.00869)	-0.0105 (0.00697)	0.0194*** (0.00686)	-0.00132 (0.00648)	0.0254*** (0.00638)
Any college	-0.158*** (0.0102)	-0.0132 (0.00837)	0.0412*** (0.00801)	-0.00530 (0.00774)	0.0435*** (0.00746)
Two-year college	0.0902*** (0.00809)	0.0315*** (0.00836)	0.0154* (0.00814)	0.0291*** (0.00652)	0.0187*** (0.00644)
Four-year college	-0.248*** (0.0134)	-0.0446*** (0.0117)	0.0260** (0.0107)	-0.0343*** (0.00703)	0.0249*** (0.00681)
<b>Grade 9</b>					
Math score (Grade 8 sample and test score)	-1.135*** (0.0368)	-0.700*** (0.0257)	-0.0256** (0.0113)	-0.633*** (0.0217)	-0.0342*** (0.0101)
Graduate high school	-0.225*** (0.0151)	-0.131*** (0.0120)	-0.0234** (0.0114)	-0.0938*** (0.00860)	-0.0095 (0.00705)
Any college	-0.261*** (0.0139)	-0.135*** (0.00889)	0.00546 (0.00890)	-0.102*** (0.00937)	0.0103 (0.00754)
Two-year college	0.0654*** (0.0103)	-0.00223 (0.0105)	-0.00795 (0.00959)	-0.00945 (0.00751)	-0.00706 (0.00674)
Four-year college	-0.326*** (0.0138)	-0.133*** (0.0120)	0.0135 (0.0105)	-0.0922*** (0.00837)	0.0175*** (0.00543)
Student demographics	NO	YES	YES	YES	YES
School fixed effect	NO	NO	NO	YES	YES
Prior grade math score	NO	NO	YES	NO	YES

Note: Models estimated via OLS. Each cell lists the coefficient on an indicator variable that equals one if the student was classified as EL in the respective grade and zero otherwise. Each cell reports the estimated relationship between a student being observed as EL in the respective grade on the respective outcome listed at the beginning of the row. All regressions control for student cohort. Demographic characteristics and school attended are as of the student's initial grade year. Standard errors clustered by school attended in respective grade are in parentheses.

\* $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

Table 2: *Regression Results: Relationship Between EL Status and Opportunity to Learn*

Model	(2)	(3)	(4)	(5)	(6)
<b>Grade 5</b>					
Graduate & MassCore	-0.284*** (0.0151)	-0.0987*** (0.0125)	-0.0585*** (0.0121)	-0.0108* (0.00637)	0.0201*** (0.00643)
AP courses	-0.512*** (0.0320)	-0.295*** (0.0344)	-0.0340 (0.0278)	-0.296*** (0.0265)	-0.0420* (0.0233)
MassCore courses	-2.558*** (0.248)	-1.217*** (0.240)	-0.210** (0.0823)	-0.641*** (0.232)	0.229*** (0.0837)
MassCore English courses	0.0609 (0.0419)	0.0648* (0.0353)	0.0227 (0.0359)	0.226*** (0.0233)	0.168*** (0.0232)
MassCore math courses	-0.141*** (0.0369)	-0.0326 (0.0306)	-0.0199 (0.0318)	0.0690*** (0.0187)	0.0794*** (0.0192)
<b>Grade 9</b>					
Graduate & MassCore	-0.385*** (0.0194)	-0.208*** (0.0145)	-0.0978*** (0.0161)	-0.0781*** (0.00953)	-0.00111 (0.00774)
AP courses	-0.760*** (0.0424)	-0.508*** (0.0530)	-0.227*** (0.0314)	-0.503*** (0.0543)	-0.261*** (0.0338)
MassCore courses	-4.850*** (0.313)	-3.475*** (0.306)	-1.909*** (0.294)	-2.374*** (0.205)	-1.380*** (0.171)
MassCore English courses	-0.284*** (0.0974)	-0.263*** (0.0971)	-0.143 (0.0933)	-0.117 (0.0828)	-0.0772 (0.0769)
MassCore math courses	-0.358*** (0.0673)	-0.291*** (0.0562)	-0.100* (0.0597)	-0.206*** (0.0328)	-0.0846*** (0.0291)
Student demographics	NO	YES	YES	YES	YES
School fixed effect	NO	NO	NO	YES	YES
Prior grade math score	NO	NO	YES	NO	YES

Note: Models estimated via OLS. Each cell lists the coefficient on an indicator variable that equals one if the student was classified as EL in the respective grade and zero otherwise. Each cell reports the estimated relationship between a student being observed as EL in the respective grade on the respective outcome listed at the beginning of the row. All regressions control for student cohort. Demographic characteristics and school attended are as of the student's initial grade year. Standard errors clustered by school attended in respective grade are in parentheses.

\* $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

## Online Appendix

Appendix Table 1: Regression Results: Relationship Between EL in Grade 6 and Educational Outcomes

Equation	(2)	(3)	(4)	(5)	(6)
Math score	-1.030*** (0.0393)	-0.583*** (0.0267)	-0.557*** (0.0223)	-0.0618*** (0.0153)	-0.0705*** (0.0105)
Graduate high school	-0.146*** (0.0102)	-0.0380*** (0.00761)	-0.0308*** (0.00637)	0.0125* (0.00714)	0.0140** (0.00589)
Any college	-0.195*** (0.0102)	-0.0514*** (0.00847)	-0.0406*** (0.00777)	0.0311*** (0.00772)	0.0332*** (0.00684)
Two-year college	0.0825*** (0.00845)	0.0212** (0.00851)	0.0117* (0.00669)	0.00477 (0.00814)	0.00333 (0.00640)
Four-year college	-0.277*** (0.0126)	-0.0725*** (0.0110)	-0.0522*** (0.00725)	0.0265*** (0.00994)	0.0300*** (0.00661)
Graduate & MassCore	-0.323*** (0.0162)	-0.140*** (0.0132)	-0.0372*** (0.00651)	-0.0788*** (0.0132)	0.0109 (0.00670)
AP courses	-0.608*** (0.0342)	-0.362*** (0.0401)	-0.356*** (0.0306)	-0.0837*** (0.0312)	-0.0835*** (0.0258)
MassCore courses	-2.894*** (0.256)	-1.513*** (0.248)	-0.524*** (0.0814)	-0.659*** (0.244)	0.105 (0.0835)
MassCore English courses	0.105** (0.0477)	0.109*** (0.0401)	0.268*** (0.0255)	0.0741* (0.0421)	0.211*** (0.0254)
MassCore math courses	-0.147*** (0.0410)	-0.0436 (0.0322)	0.0253 (0.0188)	0.00807 (0.0354)	0.0640*** (0.0198)
Student demographics	NO	YES	YES	YES	YES
School fixed effect	NO	NO	NO	YES	YES
Prior grade math score	NO	NO	YES	NO	YES

Note: Models estimated via OLS. Each cell lists the coefficient on an indicator variable that equals one if the student was classified as EL in the respective grade and zero otherwise. Each cell reports the estimated relationship between a student being observed as EL in the respective grade on the respective outcome listed at the beginning of the row. All regressions control for student cohort. Demographic characteristics and school attended are as of the student's initial grade year. Standard errors clustered by school attended in respective grade are in parentheses.

\* $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

Appendix Table 2: *Regression Results: Relationship Between EL in Grade 7 and Educational Outcomes*

Equation	(2)	(3)	(4)	(5)	(6)
Math score	-1.120*** (0.0380)	-0.657*** (0.0279)	-0.589*** (0.0215)	-0.0356*** (0.0137)	-0.0284*** (0.0106)
Graduate high school	-0.163*** (0.0107)	-0.0580*** (0.00799)	-0.0394*** (0.00672)	0.0179** (0.00731)	0.0254*** (0.00619)
Any college	-0.219*** (0.0108)	-0.0804*** (0.00851)	-0.0547*** (0.00816)	0.0254*** (0.00843)	0.0373*** (0.00781)
Two-year college	0.0806*** (0.00872)	0.0157* (0.00900)	0.00126 (0.00662)	0.00519 (0.00823)	3.54e-05 (0.00618)
Four-year college	-0.300*** (0.0117)	-0.0960*** (0.0112)	-0.0559*** (0.00755)	0.0204* (0.0106)	0.0374*** (0.00697)
Graduate & MassCore	-0.345*** (0.0170)	-0.164*** (0.0132)	-0.0463*** (0.00667)	-0.0817*** (0.0150)	0.0191*** (0.00671)
AP courses	-0.678*** (0.0374)	-0.421*** (0.0442)	-0.375*** (0.0306)	-0.137*** (0.0325)	-0.124*** (0.0224)
MassCore courses	-3.297*** (0.258)	-1.909*** (0.251)	-0.684*** (0.0899)	-0.798*** (0.267)	0.0997 (0.0858)
MassCore English courses	0.0851 (0.0520)	0.0943** (0.0457)	0.288*** (0.0328)	0.117** (0.0473)	0.277*** (0.0312)
MassCore math courses	-0.170*** (0.0485)	-0.0771** (0.0373)	-0.00441 (0.0231)	0.0363 (0.0415)	0.0748*** (0.0223)
Student demographics	NO	YES	YES	YES	YES
School fixed effect	NO	NO	NO	YES	YES
Prior grade math score	NO	NO	YES	NO	YES

Note: Models estimated via OLS. Each cell lists the coefficient on an indicator variable that equals one if the student was classified as EL in the respective grade and zero otherwise. Each cell reports the estimated relationship between a student being observed as EL in the respective grade on the respective outcome listed at the beginning of the row. All regressions control for student cohort. Demographic characteristics and school attended are as of the student's initial grade year. Standard errors clustered by school attended in respective grade are in parentheses.  
 \* $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

Appendix Table 3: *Regression Results: Relationship Between EL in Grade 8 and Educational Outcomes*

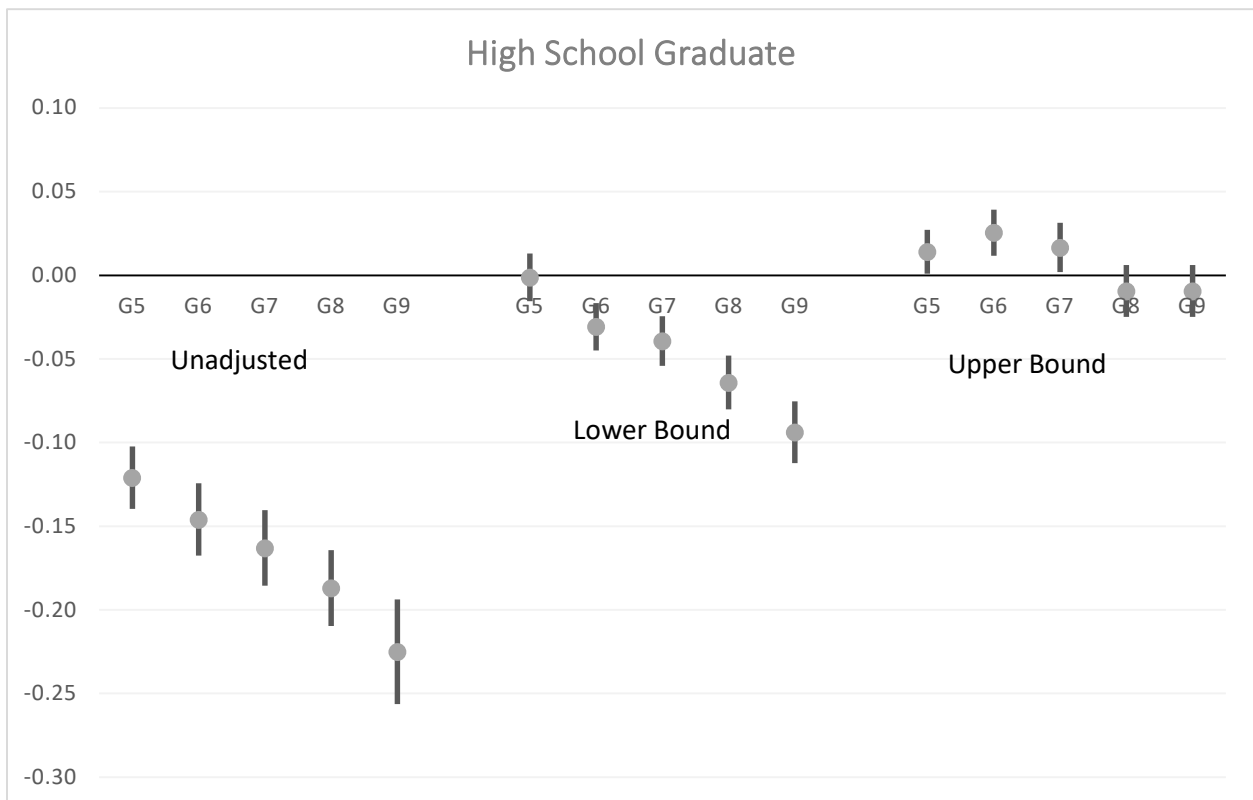
Equation	(2)	(3)	(4)	(5)	(6)
Math score	-1.135*** (0.0368)	-0.700*** (0.0257)	-0.633*** (0.0217)	-0.0256** (0.0113)	-0.0342*** (0.0101)
Graduate high school	-0.187*** (0.0107)	-0.0871*** (0.00845)	-0.0642*** (0.00736)	0.00755 (0.00789)	0.0165** (0.00668)
Any college	-0.237*** (0.0118)	-0.104*** (0.00900)	-0.0754*** (0.00875)	0.0222** (0.00887)	0.0326*** (0.00824)
Two-year college	0.0750*** (0.00920)	0.0103 (0.00938)	-0.00481 (0.00696)	0.00278 (0.00846)	-0.00170 (0.00674)
Four-year college	-0.311*** (0.0127)	-0.114*** (0.0117)	-0.0706*** (0.00793)	0.0196* (0.0105)	0.0344*** (0.00730)
Graduate & MassCore	-0.362*** (0.0166)	-0.183*** (0.0131)	-0.0640*** (0.00725)	-0.0824*** (0.0149)	0.0149** (0.00704)
AP courses	-0.732*** (0.0379)	-0.486*** (0.0441)	-0.438*** (0.0328)	-0.200*** (0.0287)	-0.202*** (0.0235)
MassCore courses	-3.892*** (0.247)	-2.541*** (0.249)	-1.198*** (0.116)	-1.224*** (0.266)	-0.305*** (0.101)
MassCore English courses	-0.0142 (0.0633)	0.00314 (0.0568)	0.200*** (0.0468)	0.0736 (0.0557)	0.222*** (0.0437)
MassCore math courses	-0.232*** (0.0481)	-0.154*** (0.0373)	-0.0708*** (0.0258)	-0.0120 (0.0431)	0.0334 (0.0248)
Student demographics	NO	YES	YES	YES	YES
School fixed effect	NO	NO	NO	YES	YES
Prior grade math score	NO	NO	YES	NO	YES

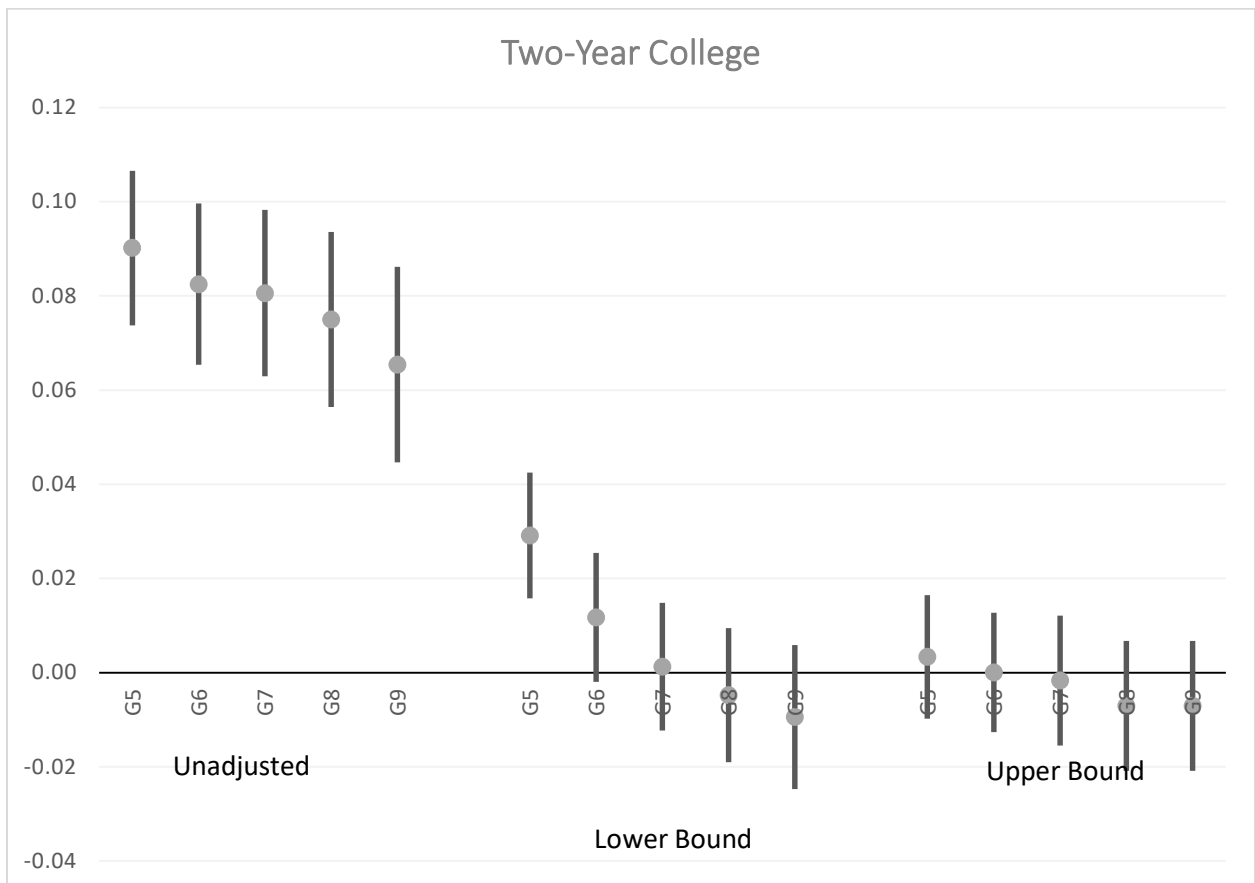
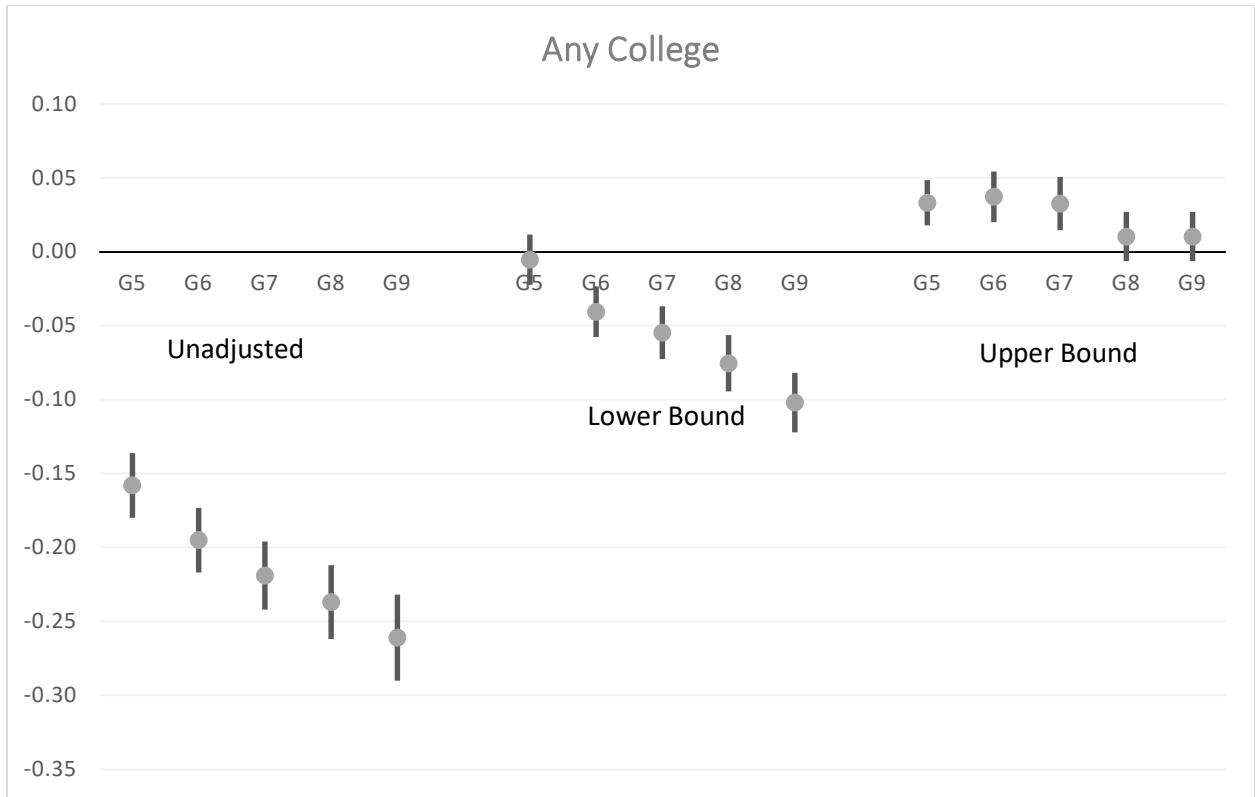
Note: Models estimated via OLS. Each cell lists the coefficient on an indicator variable that equals one if the student was classified as EL in the respective grade and zero otherwise. Each cell reports the estimated relationship between a student being observed as EL in the respective grade on the respective outcome listed at the beginning of the row. All regressions control for student cohort. Demographic characteristics and school attended are as of the student's initial grade year. Standard errors clustered by school attended in respective grade are in parentheses.

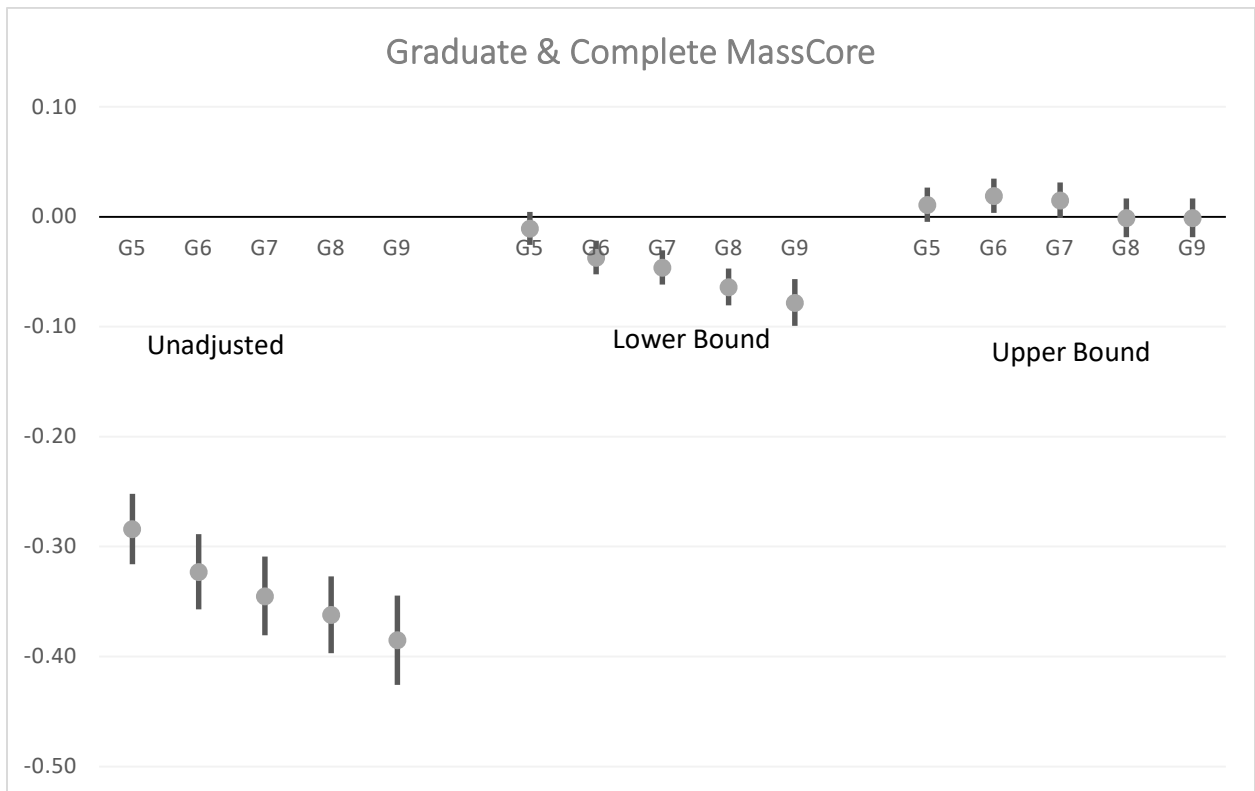
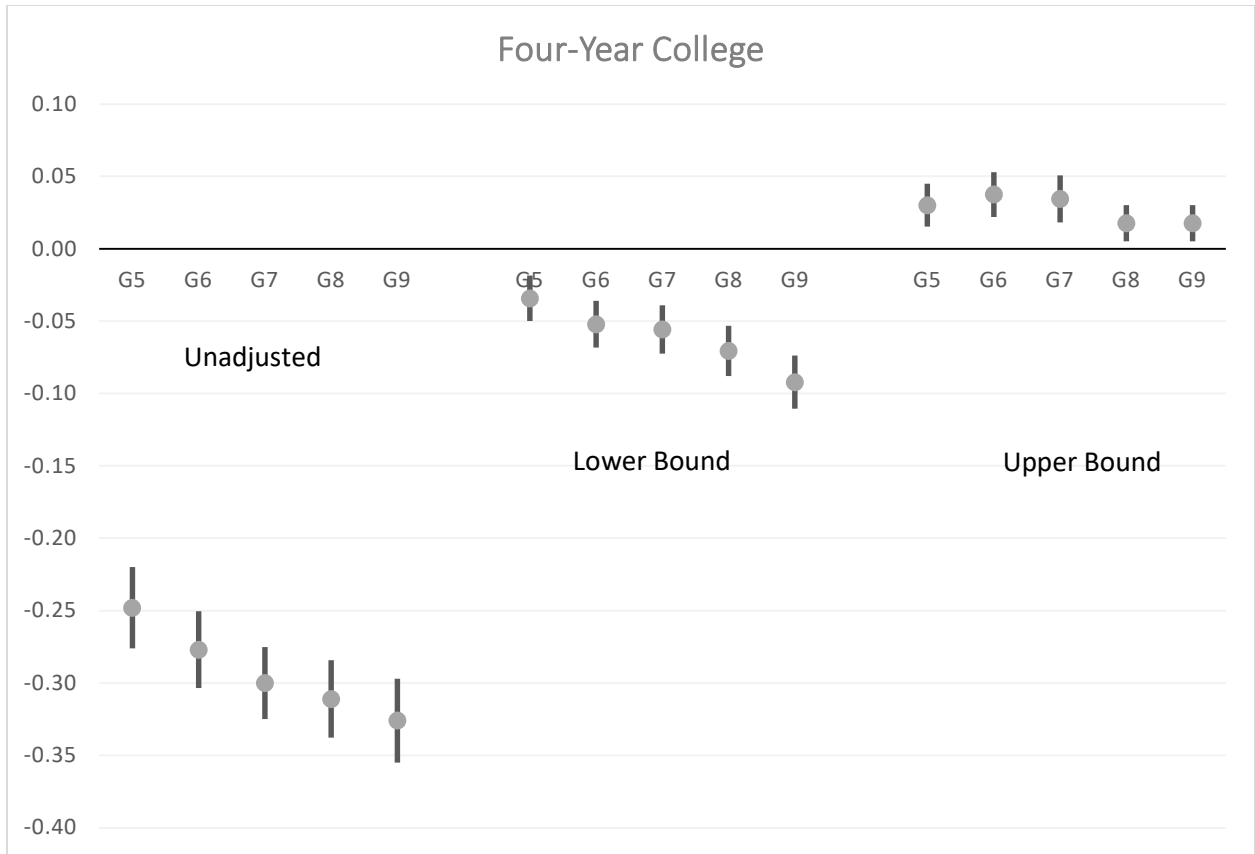
\* $p < .10$  \*\*  $p < .05$  \*\*\*  $p < .01$

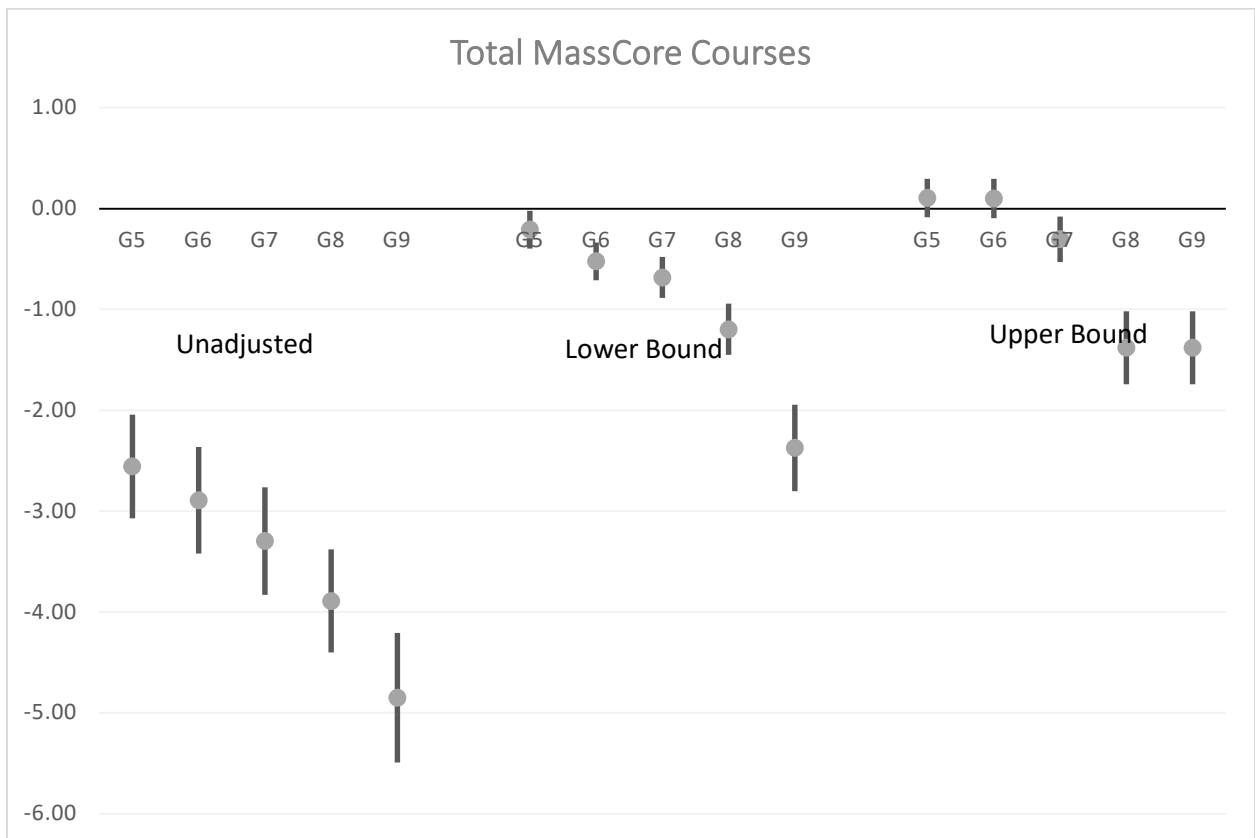
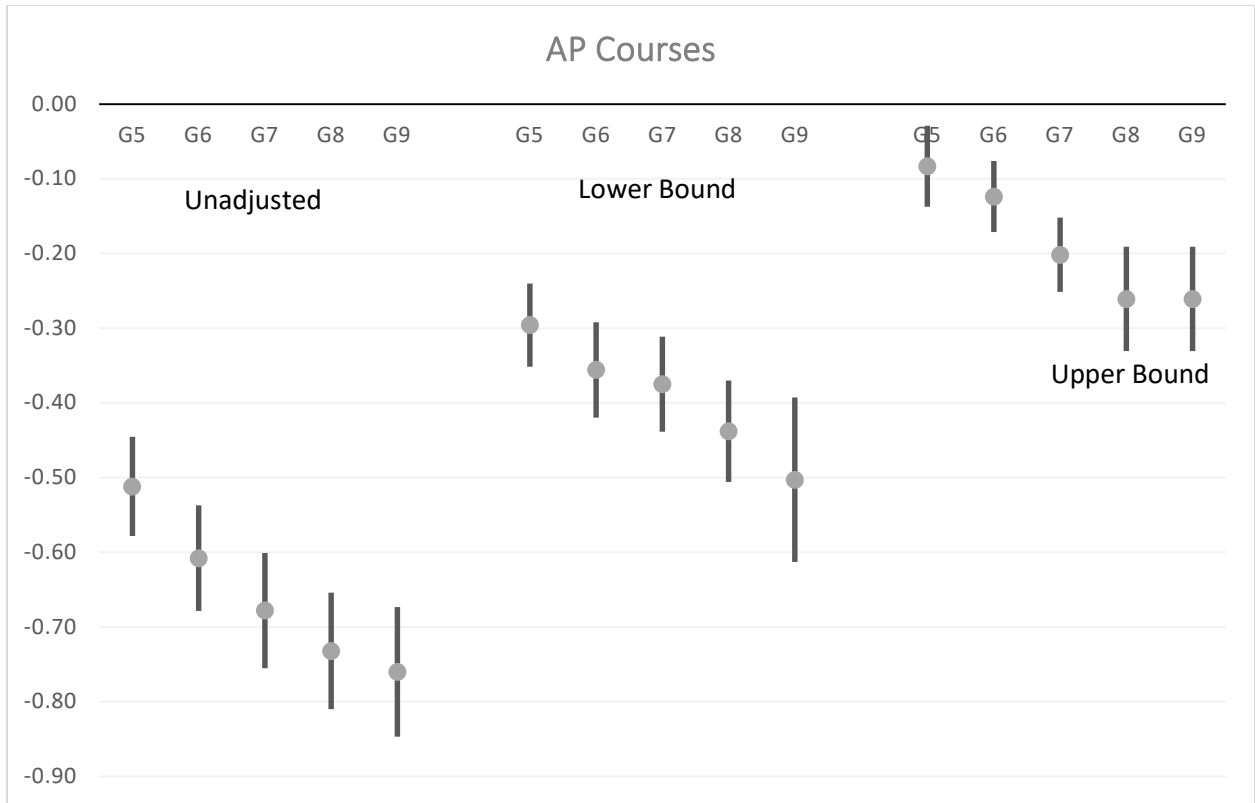
Appendix Figures 1 – 10

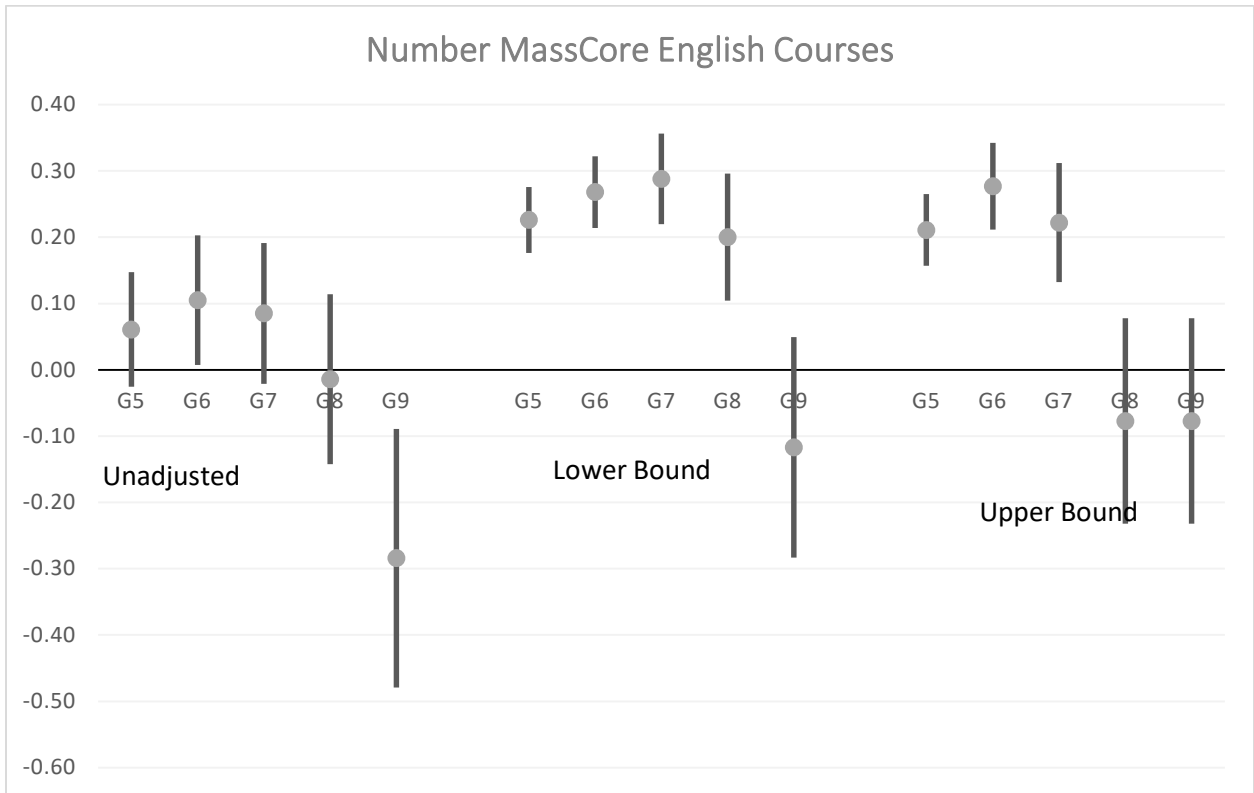
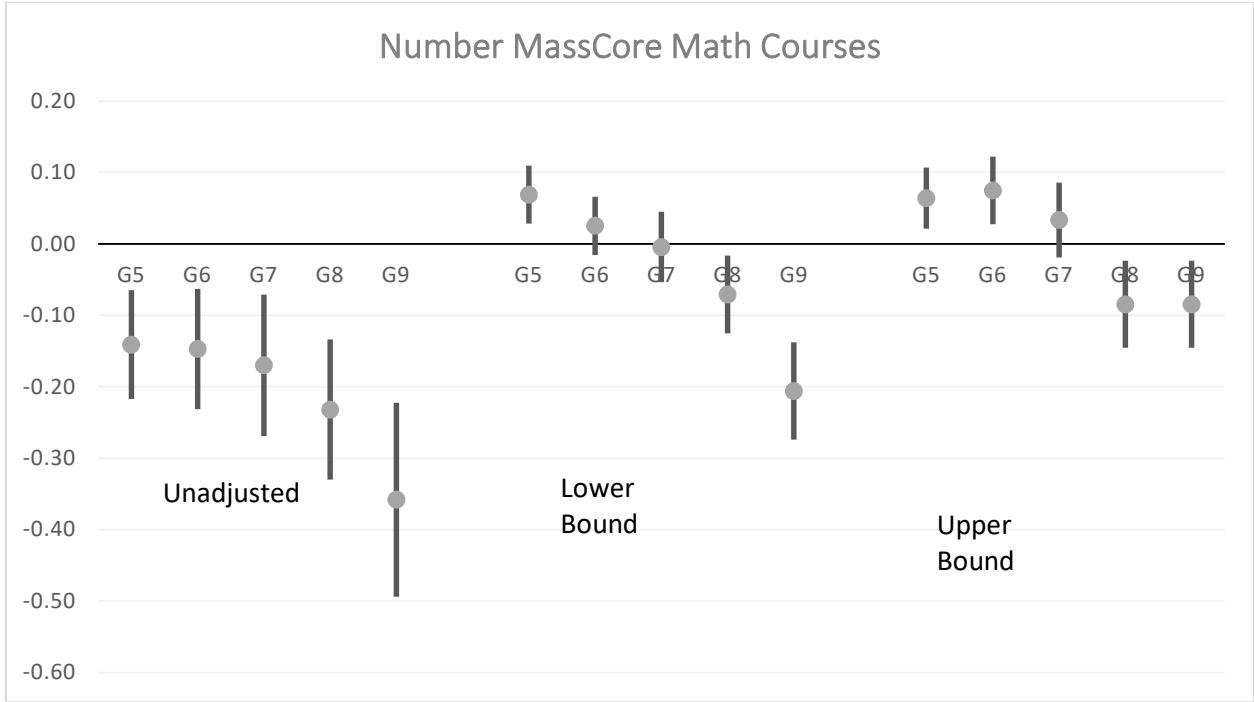
*Estimates for Relationship between EL Status and Later Outcomes by Grade and Specification*











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