



Evaluation Matters

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Concordance Study of the Senior Exit Survey, 2019: The Effect of Student Characteristics, Achievement, and Postsecondary Plans on College Attendance

1. What is the purpose of this report?

This report examines the extent to which student characteristics, achievement, and postsecondary plans can predict the likelihood of college attendance. The report compares students' self-reported plans in spring 2019 with subsequent college attendance through the 2019-2020 school year. The postsecondary plans used in this report are obtained from the Senior Exit Survey, administered annually to all graduating high school students, which explores seniors' postsecondary plans, including the credentials they plan to earn as well as the institutions they plan to attend, and the fields of study they choose to pursue. The three-fold purpose of this report is to (a) establish the validity of the Senior Exit Survey by determining the degree to which seniors' reported postsecondary plans are predictive of college attendance, separately and in combination with student characteristics/achievement; (b) estimate the impact of individual factors on college attendance; and (c) determine the likelihood that a given senior will attend college given their postsecondary plan, achievement, and characteristics.

2. Which populations were targeted for this survey?

All twelfth-grade students enrolled in traditional and charter high schools with valid diploma codes who participated in the Senior Exit Survey administered during spring 2019 are included in this analysis. Seniors attending special education, residential, and incarceration centers are excluded.

3. How were the data for this report collected and analyzed?

Data to conduct this analysis were obtained from responses to the Senior Exit Survey, which was administered online via Survey Gold 8.0 between April 19 and June 6, 2019; archival data on student characteristics/achievement obtained from the District's data warehouse; and subsequent college attendance obtained from the National Student Clearinghouse (NSC). The analysis consisted of separate logistic regressions conducted to estimate the likelihood of college attendance determined for a particular student by the presence of valid enrollment data from May 5, 2019 to July 14, 2020 as recorded on the NSC as of August 2020. The NSC is a not for profit non-governmental organization that provides for the reporting and verification of students' enrollment in postsecondary institutions. The database includes 3,600 postsecondary institutions serving over 98 percent of nationally enrolled students. A senior is judged to have attended college if his or her enrollment information appears on the NSC.

The 5.6% of seniors who participated in the Senior Exit Survey (Urdegar, 2019) who subsequently attended institutions that do not report to the NSC, were assumed to not have attended college. Thus, the estimates stemming from this analysis may be conservative.

4. To what extent can we distinguish between students who do and do not attend college?

Separate logistic regressions were conducted to determine the extent that college attendance could be predicted from (a) student factors/achievement alone (e.g., gender, ethnicity, English language learner status, free/reduced price lunch eligibility, exceptional student education program participation, over age for grade status, and unweighted/weighted grade point average; and (b) postsecondary plans obtained from the Senior Exit Survey, 2019 (i.e., work/military, bachelor's or more advanced degree, associate's degree, or certificate/license); or (c) both in combination. Students who selected "Undecided" with regard to their postsecondary plans served as the reference group. The outcome of college attendance was established for a given student by the presence of valid enrollment data as recorded on the NSC database. Significant improvement to predictions of college attendance achieved through the addition of postsecondary plans to a model limited to student achievement/characteristics, would provide evidence of the usefulness of the survey data.

Student characteristics/achievement alone

- 64.4% (n=13,101) of the cases were correctly classified as college vs. non-college bound by student characteristics alone, including 62.5% (n=8,527) of the students who attended college and 68.5% (n=4,574) who did not.
- The model was better at identifying students who were non college-bound.
- The improvement over the proportional chance criterion¹, 60.7%, represented a weak-moderate effect size ($I=.19$).²

Postsecondary plans alone

- 71.8% (n=14,592) of the cases were correctly classified as college vs. non-college bound by responses to the Senior Exit Survey alone, including 83.5% (n=11,400) of the students who attended college, and only 47.8% (n=3,192) who did not.
- The model was poor at identifying students who would not attend college.
- The improvement over the proportional chance criterion³, 60.7%, represented a moderate-strong effect size ($I=.36$).

¹ The proportional chance criterion is the chance probability of correctly classifying two unequal groups (Hair, Anderson, Tatham, & Black, 199).

² Huberty's I is an effect size that classifies the improvement over chance achieved by a discrimination model as .10 (weak), .25 (moderate), and .40 (small), see Axelson & Henson (2005).

³ The proportional chance criterion is the chance probability of correctly classifying two unequal groups (Hair, Anderson, Tatham, & Black, 199).

Comprehensive model

- 71.8% (n=14,588) of the cases were correctly classified, including 76.9% (10,491) of the students who attended college and 61.3% (n=4,097) of the students who did not.
- The model was less effective at identifying students who would not attend college, but the percentage of correct classifications for each group were much closer
- The improvement over the proportional chance criterion, 71.8%, represented a moderate-strong effect size ($f^2=.36$).
- The fit obtained by adding postsecondary plans to a model containing student characteristics/achievement alone was statistically significant, $\chi^2(7, N = 20,329) = 1,129.4, p < .001$, indicating that student's postsecondary plans significantly predict college attendance once student characteristics and unweighted/weighted grade point average are taken into account.

5. Which specific factors significantly influence the likelihood that students will attend college, and to what extent do they do so?

The impact of specific student factors (i.e., demographic characteristics, achievement measured by unweighted/weighted grade point average, and postsecondary plans) on the likelihood that responding seniors with valid diploma codes would attend college within one year of graduation was gauged through a logistic regression analysis that compared the odds of attending college, once students' demographic characteristics, unweighted/weighted grade point averages, and postsecondary plans were taken into account. The analysis estimates the impact of the various predictors in terms of the odds of attending college (i.e., the likelihood of attending divided by the likelihood of not attending) by representing transition from non-attendance to attendance as an s-shaped curve, rather than an abrupt transition). Table 1 lists for each effect, the predictor weight (B) and its standard error (SE), followed by the Wald statistic, used to gauge statistical significance, and the change in the odds ratio due to the predictor and the effect size, d , of that change. The top half of the table presents the impact of student characteristics. Due to their synergistic effect, the bottom half of the table presents the combined impact of achievement and postsecondary plans. The overall model R^2 gives the percentage of variance explained by the model and represents a moderate-strong effect size, $f^2=.33^4$.

⁴ f^2 is an effect size that classifies the fit of a regression model as .02 (weak), .15 (moderate), and .35 (strong), see Cohen (1992).

Table 1. The Impact of Student Characteristics, Achievement, and Postsecondary Plans on College Attendance

Predictor	Coefficient		Wald Statistic	Effect Size	
	B	S.E.		Odds Ratio	d
Intercept	-0.06	0.07	0.85	0.36	-0.03
Student Characteristics					
Ethnicity ^a	-0.19	0.04	22.41 ***	0.83	-0.10
Free/Reduced Price Lunch	-0.18	0.04	20.25 ***	0.84	-0.10
English Language Learner ^b	-0.81	0.08	97.47 ***	0.44	-0.45
Special Education					
Students with Disabilities	0.18	0.06	8.31 **	1.20	0.09
Gifted	0.21	0.06	13.17 ***	1.23	0.12
Over Age for Grade	-0.47	0.05	99.50 ***	0.63	-0.26
Achievement and Postsecondary Plans					
Grade Point Average (GPA)	0.36	0.06	36.84 ***	1.43	0.20
Bonus GPA (Weighed - Unweighted)	0.54	0.07	60.20 ***	1.73	0.30
Work/Military	-0.69	0.09	59.34 ***	0.50	0.38
Certificate	-0.58	0.11	29.16 ***	0.56	0.32
Associate	1.18	0.08	218.89 ***	3.25	0.65
Associate's by GPA Interaction	0.32	0.13	5.93 *	1.38	0.18
Associate's plus Bachelor's	1.38	0.06	486.28 ***	3.97	0.76
Bachelor or more advanced degree	1.46	0.07	511.28 ***	4.31	0.81
Bachelor or more x GPA Interaction	0.27	0.08	11.18 ***	1.32	0.15

Note. The total number of cases classified was n=20,329, R² = .25.

^aBlack. ^bCurrent. *p < .05. ** p < .01 *** p < .001.

- Student characteristics have small fixed impacts on the likelihood of attending college; students classified as Black (Ethnicity 0.83 to 1) and free/reduced price lunch eligible (0.84 to 1) are somewhat less likely to attend when all other factors are taken into consideration. The negative effect of current English language learner (ELL) vs. Non-ELL/Former-ELL (0.45 to 1) and over age for grade (0.26 to 1) is somewhat less pronounced. Special Education status (both students with disabilities and gifted) has a small positive effect on college attendance (1.20 to 1) when all other factors are taken into consideration.
- The likelihood that students will attend college is mostly driven by a combination of unweighted grade point average (GPA), Bonus GPA (weighted minus unweighted) and postsecondary plans.
 - Each one-point increase in unweighted GPA above the mean of 3.03 increases the odds of attending college by a factor of 1.43 to 1. Each one-point increase in Bonus GPA above the mean of 0.48 increases the odds of attending college by a factor of 1.73 to 1.
- The strongest indicators of college attendance were students' self-reported intentions to go to college.
 - The odds of attending college for students stating they will earn an Associate's degree are 3.25 times greater than students who are undecided, representing a moderate-strong effect size (d=0.65).
 - The significant interaction indicates that planning to earn an Associate's degree covaries with unweighted GPA.

- The odds of attending college for students stating that they will earn an Associate's and then a Bachelor's or more advanced degree are 4.31 times greater than students who are undecided and represent a strong effect size ($d=0.76$).
- The odds of attending college for students stating that they will earn a Bachelor's or more advanced degree are 3.97 times greater than students who are undecided and represent a strong effect size ($d=0.81$).
- The significant interaction indicates that the effect of planning to earn a Bachelors' or more advanced degree covaries with unweighted GPA.
- The odds of attending college for students stating they will enter the workforce/active military service are half as much as students who are undecided and represent a weak-moderate effect size ($d=0.38$).
- The odds of attending college for students stating they will earn a certificate/license are slightly more than half as much as students who are undecided, representing a weak-moderate effect size ($d=0.38$).

6. How well does the model predict the likelihood that students will attend college?

As stated above, a complex combination of achievement and postsecondary plans affect the likelihood that a given student will attend college. Taken together a predicted probability is obtained. Figures 1 through 3 present the likelihood of college attendance as a function of various combinations of unweighted GPA and Bonus GPA for plans of Associate's degree, Associate's then Bachelor's degree, and Bachelor's or more advanced degree, respectively.

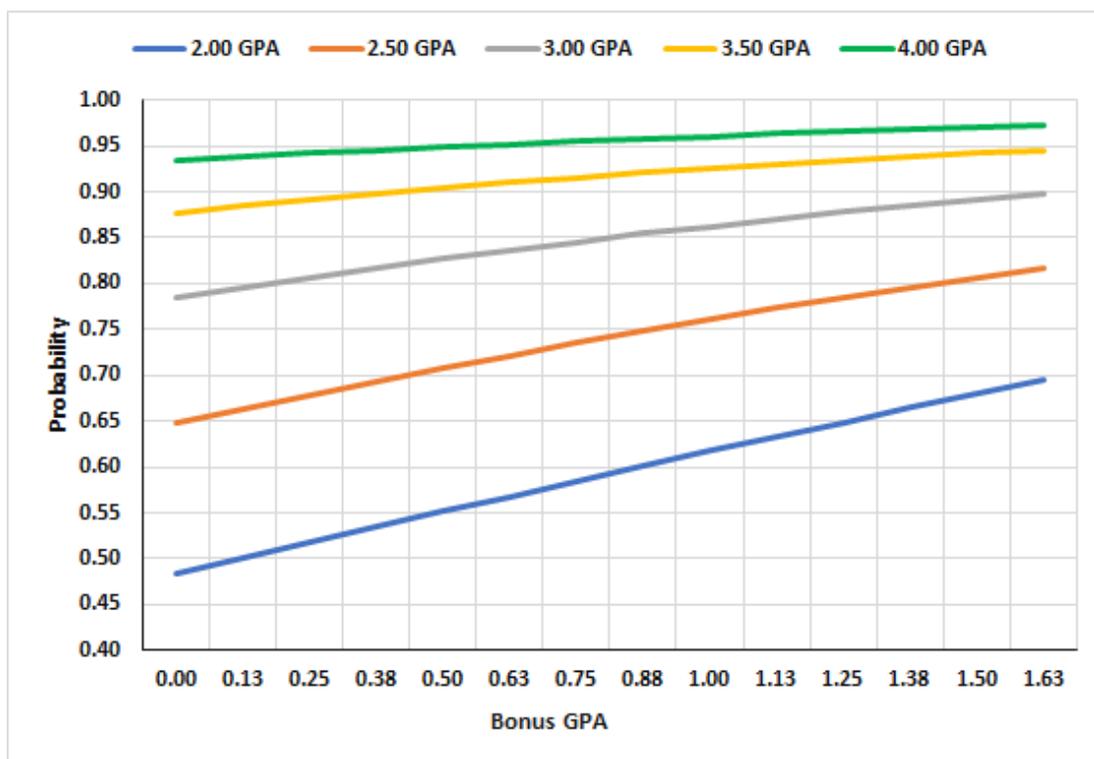


Figure 1. The predicted effect of GPA and Bonus GPA on likelihood of attending college for students who plan to earn an Associate's degree.

- The likelihood of college attendance for students planning to earn an Associate’s degree is influenced by both unweighted GPA and Bonus GPA, each in a different way, with unweighted GPA having the greatest impact.
- The effect of Bonus GPA is to provide a steady fixed improvement as indicated by the upward slope of the lines.
- The effect of unweighted GPA is to provide a fixed jump as indicated by the spacing between the lines and a small amplifying effect as indicated by the closer spacing of the lines seen at higher GPA values.

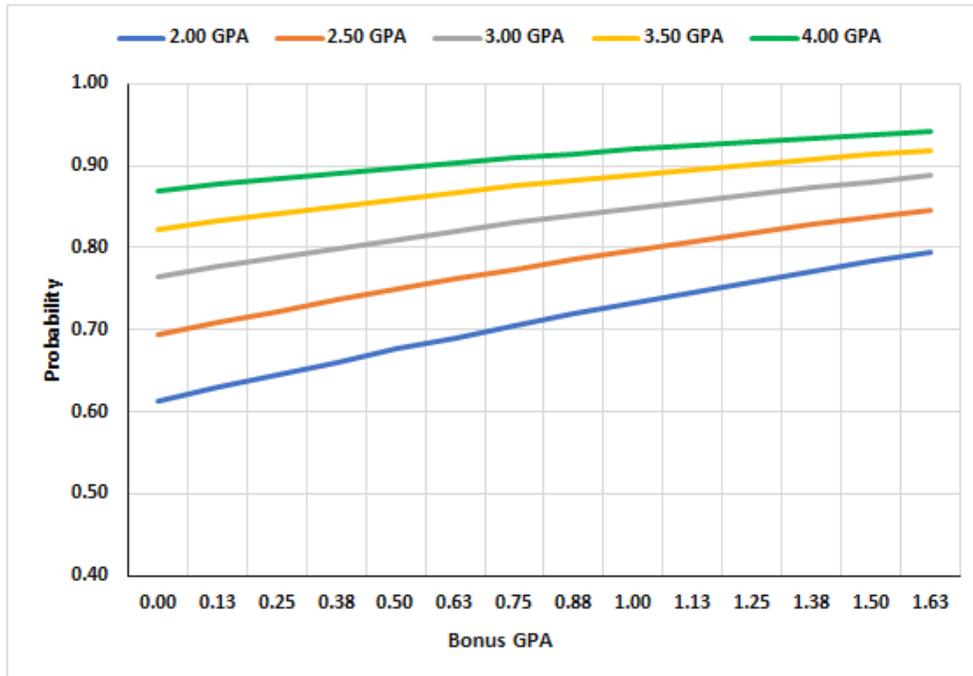


Figure 2. The predicted effect of GPA and Bonus GPA on likelihood of attending college for students who plan to earn an Associate’s and then a Bachelor’s or more advanced degree.

The likelihood of college attendance for students planning to earn an Associate’s and then a Bachelor’s or more advanced degree is influenced by both unweighted GPA and Bonus GPA.

- The effect of both components of GPA is to provide a steady fixed improvement as indicated by the spacing between the lines at the middle of the graph.

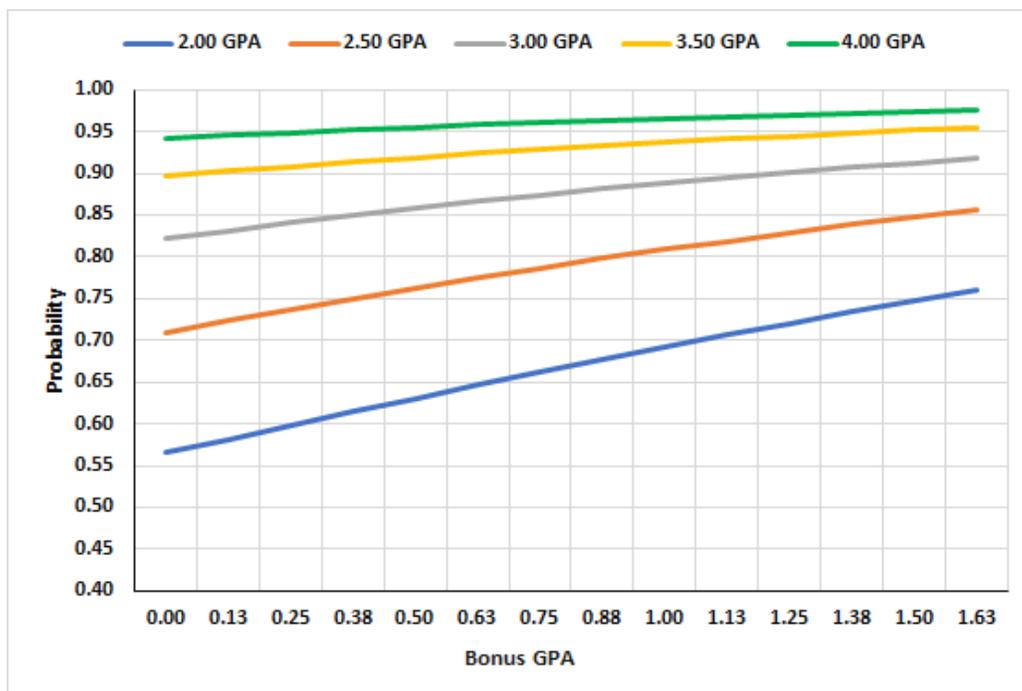


Figure 3. The predicted effect of GPA and Bonus GPA on likelihood of attending college for students who plan to earn a Bachelor’s or more advanced degree.

- The likelihood of college attendance for students planning to earn an Bachelor’s or more advanced degree is influenced by both unweighted GPA and Bonus GPA.
- The effect of Bonus GPA is to provide a steady fixed improvement as indicated by the spacing between the lines at the middle of the graph.
- The effect of unweighted GPA is to provide a fixed jump as indicated by the spacing between the lines and a small amplifying effect as indicated by the closer spacing of the lines seen at higher GPA values.

7. What are the principal conclusions of this report?

This report examined the extent to which student characteristics, achievement, and postsecondary plans could predict actual college attendance. The analysis consisted of separate logistic regressions conducted to estimate the likelihood of college attendance determined for a particular student by the presence of valid subsequent enrollment data from the National Student Clearinghouse. A comprehensive model incorporating all three factors correctly classified 71.8% of cases correctly, discriminating between students who would and would not attend college. The likelihood that students will attend college is mostly driven by a combination of achievement (unweighted grade point average and bonus grade point average) and postsecondary plans, while student characteristics have a small but fixed effect. The odds of attending college for students who state they will earn a Bachelor’s or more advanced degree are 4.31 times greater than students who are undecided and are further amplified by unweighted GPA. The odds of attending college for students who state they will earn an Associate’s degree are 3.25 times greater than students who are undecided and are also further amplified by unweighted GPA. Finally, the odds of attending college for students who state they plan to enter the workforce/active military service are half as great as students who are undecided.

References

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