Research Report

2026-07

High School Grade Inflation and Academically Discrepant College Readiness Indicators

EDGAR I. SANCHEZ

Conclusions

This study looked at the relationship between high school grade inflation and academic discrepancy (that is, the misalignment between high school GPA and ACT Composite scores). The findings of this study confirmed that academic discrepancy is widespread, affecting about one fourth to one third of students, and that HSGPA discrepancy (that is, where grades substantially outpace test scores) is strongly associated with schools that show higher levels of grade inflation. Multiple imputation of missing HSGPA showed that HSGPA discrepancy had increased to approximately 28% of students by the 2023–2024 cohort. Additionally, the relationship between grade inflation and academic discrepancy is consistent across demographic groups, with only minor differences observed by gender, race/ethnicity, and family income.

So What?

These findings are important because high school GPA has long served as a primary signal of college readiness; however, this study demonstrates that grade inflation is eroding the reliability of that signal for some students. When the meaning of grades is detached from actual content mastery, students with HSGPA discrepancy may enter college appearing better prepared than they actually are. This can have real-world consequences such as lower first-year college GPA, greater likelihood of needing developmental coursework, and increased risk of early departure. In an era of growing test-optional admissions, these findings raise important questions about whether high school GPA can be used as the sole equitable and accurate measure of college readiness.

Now What?

For practitioners, this study calls for a more contextually informed approach to interpreting high school GPA. Admissions officers should be mindful that a student's GPA may reflect different levels of content mastery depending on the school's grading environment and remember that it is always advisable to consider additional indicators, such as standardized test scores, alongside high school GPA. Policymakers advocating for test-optional admissions should weigh these findings carefully as well, because removing test scores from consideration may leave inflated GPAs as the primary decision-making tool. Finally, colleges should use discrepancy patterns to identify students who may benefit from targeted interventions early in their enrollment, thereby ensuring that students whose transcripts may overstate their readiness are supported rather than set up to struggle.

About the Author

Edgar I. Sanchez, PhD

Dr. Sanchez is a principal research scientist at ACT, where he studies postsecondary admissions, national testing programs, test preparation efficacy, and intervention effectiveness. Throughout his career, Dr. Sanchez has focused on both studying the transition between high school and college and supporting the decision-making capacity of students and their families as well as that of college administrators. His research has been widely cited in academic literature and by the media, including *The Wall Street Journal*, *The Washington Post*, *USA Today*, and the education trade press.

Acknowledgments

The author would like to thank Alex Casillas and Heather Buzick for their comments on previous drafts of this report.

Introduction

High school grades are on the rise nationwide, yet objective exams suggest students aren't learning more than before. This phenomenon, known as grade inflation, means an A average today doesn't always equal an A average from a decade ago. In the past decade, high school grades have risen considerably even as more objective achievement measures have either stagnated or declined. In fact, national data show that the average high school GPA (HSGPA) increased from about 3.17 in 2010 to 3.36 in 2021 (Sanchez & Moore, 2022). During that same time, average ACT Composite scores declined from about 21.0 to 20.3. This widening gap between high school grades and standardized test scores suggests grade inflation, meaning that many students are receiving higher grades without an additional gain in academic content mastery. In fact, by 2020, more than half of U.S. high school graduates were earning an A average, up from about two fifths a decade earlier (Sanchez & Moore, 2022).

Sanchez & Moore (2022) demonstrated that grade inflation accelerated in the late 2010s, especially during the pandemic disruptions of the 2020–2021 school year. During this time period, many schools and districts adopted “no harm” grading policies that further inflated GPAs (Chen & Sanchez, 2024; Loria & Sanchez, 2025). Even as grade inflation increased, it was not experienced equally across subjects or students. Math and science grades rose more quickly than English and social studies grades (Sanchez, 2023). In fact, there was evidence that grade inflation was highest for mathematics, followed by science and then English and finally social studies. Grade inflation has also been most pronounced among specific student subgroups. For example, lower-achieving students saw larger GPA gains over time than higher-achieving students (Sanchez, 2025), and Black students' GPAs rose even more sharply than those of White or Hispanic students during the same time (Sanchez & Moore, 2022). This aligns with previous research that suggests that static grade inflation has historically been more pronounced among schools that serve disadvantaged populations (Tyner & Gershenson, 2020). What this means is that the meaning of high school GPA has shifted: It now reflects a different level of academic skill depending on where and how it was earned.

These changes in the way grades are assigned have exacerbated academic discrepancy between HSGPA and test scores. Academic discrepancy means a student's grades and test scores don't tell the same story (e.g., HSGPA is high, but test scores are low). Exactly how academic discrepancy is defined (and how prevalent it is) can vary. However, literature generally describes two common forms of discrepancy: a high GPA coupled with a low test score (HSGPA discrepancy) or a low GPA coupled with a high test score (test score discrepancy). The former may represent a valedictorian who has a modest SAT or ACT score. The latter may correspond with a student who has mediocre grades but a strong test score. Research indicates that such discrepancy is common. There is evidence to suggest that between one quarter and one third of students have some form of discrepancy between GPA and test scores. As an example, studies of SAT students have found that roughly 30% of students have large discrepancies between their high school GPAs and SAT scores, while studies using ACT data report about 25% (Kobrin et al., 2002; Lin & Sanchez, 2017; Mattern et al., 2011; Ramist et al., 1997; Sanchez & Edmunds, 2015). Another study found that approximately 11% of students had a high school GPA much higher than their ACT score would suggest, while another 14% had significantly higher ACT scores than GPAs, which would leave about three quarters of the students with both academic indicators in alignment (Sanchez & Mattern, 2018).

Students who graduate high school with high HSGPAs but low ACT scores often experience less favorable college outcomes when compared to peers whose academic credentials are consistently strong. This misalignment between grades and standardized test performance has been linked to reduced postsecondary success. Students with high HSGPAs and low ACT scores, for example, enroll in 4-year colleges at significantly lower rates (Edmunds & Sanchez, 2014), and once they are enrolled, they often underperform relative to their transcripts. Their first-year college GPAs tend to align more closely with their lower test scores than with their higher HSGPAs (Mattern et al., 2011; Sanchez & Mattern, 2018). They are also more likely to require developmental coursework, suggesting gaps in college preparation (Edmunds & Sanchez, 2014; Ramist et al., 1997). Further research on longer-term outcomes is mixed: One study found that HSGPA-discrepant students persisted to the sophomore year at rates comparable to those of consistently high-achieving students (Edmunds, 2010), but a national analysis showed they were more likely to drop out before their second year of college (Edmunds & Sanchez, 2014). The degree completion rates for these students may ultimately resemble those of non-discrepant students, though this finding comes from a single institution and merits further investigation (Edmunds, 2010). In contrast, students with test score discrepancy typically perform on par with consistently high-achieving students in college enrollment and retention outcomes (Sanchez & Lin, 2017).

There is growing concern that recent high school grade inflation may be making GPA and test score discrepancies worse. The present study examines whether inflationary grading practices have increased the prevalence of academic discrepancy across schools and student subgroups. I analyzed a decade of national ACT data (2014–2024) in conjunction with a school-level grade inflation index, which is derived from hierarchical linear modeling that quantifies how much a school's average GPA has risen above the expected levels after student academic achievement and data completeness are accounted for. This approach goes beyond just documenting discrepancy prevalence and directly examines the influence of grade inflation on misalignment between GPA and ACT scores. This examination is important because, in the context of grade inflation, grades can be decoupled from actual content mastery, thereby weakening the validity of HSGPA as an indicator of college readiness. If high school grades are a less reliable signal of high school achievement, students with inflated GPAs may enter college less prepared than their transcripts suggest. In linking grade inflation to academic discrepancy rates, this study addresses a gap in the literature and clarifies how contemporary grading practices could be distorting traditional college readiness indicators.

Additionally, this study provides updated insights into how demographic patterns intersect with grade inflation and academic discrepancy. Earlier studies identified subgroup differences in GPA and test score discrepancies, while my analysis controls for achievement and examines whether inflationary grading practices vary across race/ethnicity, gender, and income groups. In doing so, I hope to clarify whether observed discrepancies arise from differential grading standards or broader shifts in reporting and assessment. Collectively, these contributions offer a more nuanced understanding of how grade inflation reshapes the meaning of GPA and its alignment with college readiness indicators, which is an issue of growing importance in the test-optional admissions landscape.

These findings demonstrate the importance of understanding the role of grade inflation when grades do not accurately represent students' skills and abilities and the potential for greater academic risks that follows. Putting all these concepts together, we can see that academic discrepancy impacted by grade inflation has real implications for college success. Students with misaligned academic indicators are on less secure ground, indicating that transcript entries by themselves, if not backed up by solid academic skills, can lead to unrealistic expectations that colleges and students themselves may not fulfill (Allensworth & Clark, 2020).

This study aims to understand the intersection of grade inflation and academic discrepancy and seeks to answer three key questions:

1. How prevalent is academic discrepancy among high school graduates?
2. How is grade inflation related to academic discrepancy?
3. Does the relationship between grade inflation and academic discrepancy vary across demographic categories such as race, gender, and family income?

Methods

Analytical Sample

Three sets of analytical data were used in the present analysis. All three stem from the graduating class cohorts of 2014 through 2024. For Research Question 1, I used the populations of 2015 through 2024. For Research Questions 2 and 3, I added restrictions that limited the inclusion of certain students. For example, I required students to have valid HSGPAs and ACT Composite (ACTC) scores, and I included only schools that had at least 30 students in both 2013 and later years.

The data for Research Question 1 provide a comprehensive overview of the student population across multiple academic years. These data capture broad demographic and enrollment trends and serve as the foundational dataset for comparison in this analysis (refer to Table 1). We can see that the total number of students tested steadily declined from a peak of over 2 million in 2016–2017 to approximately 1.38 million in 2023–2024. White students, who made up 56.3% of students in 2014–2015, had decreased to just over 50% by the end of the decade. The percentages of Hispanic students and students of two or more races generally increased, reflecting a broader demographic change. The gender distribution shifted slightly across years, with more students electing not to respond to the gender question by 2023–2024. There were also some changes across years in family income distributions, largely driven by an increase in the number of students who did not report their family income. The percentage of students not reporting their family income increased dramatically, from 27.4% in 2014–2015 to 53.2% in

2023–2024. HSGPA increased over the decade, from 3.23 in 2014–2015 to 3.43 in 2023–2024. At the same time, ACTC scores declined from 20.97 in 2013–2014 to 19.48 in 2023–2024.

Admission test scores and high school grades frequently provide aligned assessments of students' academic performance; however, discrepancies can occur. Students may be categorized into three achievement groups based on these measures. The first group comprises individuals who demonstrate comparable performance on both their HSGPA and college admission tests, hereafter referred to as non-discrepant students. A second group includes those whose HSGPA exceeds their admission test performance—termed HSGPA discrepant (HSGPAd in Table 1). The third group consists of students who perform better on admission tests than on their HSGPA, identified as test score discrepant (or ACT score discrepant [ACTCd in Table 1]).

In this study, I used standardized scores to classify students within these categories. Specifically, I converted both test scores and HSGPAs to *z* scores, enabling a direct comparison of each student's relative standing among peers. Students whose standardized test score and HSGPA were within one standard deviation of each other were classified as non-discrepant. Those whose test score was more than one standard deviation above their HSGPA were deemed test score discrepant, while those whose HSGPA was more than one standard deviation above their test score were considered HSGPA discrepant.

The use of a one standard deviation threshold to define discrepancy groups is supported by multiple lines of evidence as well as historical practice. The one standard deviation rule has widely been used in prior research to classify discrepant versus non-discrepant achievers (e.g., Kobrin et al., 2002; Mattern et al., 2011), which establishes it as a benchmark in the discrepancy literature. Furthermore, a difference of one standard deviation in scores represents a large effect (Cohen, 1988), which indicates a substantial achievement discrepancy beyond typical measurement error. Empirical studies consistently find that about two thirds of students fall into the non-discrepant category, with approximately 15% to 20% in each discrepancy group, a stable distribution observed across independent samples (Kobrin et al., 2002; Mattern et al., 2011). The replicability of these samples suggests that the one standard deviation cutoff reliably captures pronounced disparities rather than minor fluctuations. Collectively, this evidence shows that the one standard deviation cutoff is grounded in research and practice, marking a notably large and meaningfully discrepant performance rather than an arbitrary differentiation.

Across the decade, we can see that the number of ACT score–discrepant students remained similar, while the number of HSGPA-discrepant students declined from 9.9% in 2013–2014 to 4.3% in 2023–2024. Declines were also seen in the percentages of non-discrepant students. These differences are the result of an increase in students not reporting their HSGPA and have resulted in a growing "missing discrepancy" category.

Research Question 2 narrows the focus to students for whom academic performance data such as HSGPA and ACT score are available (Table 2). The subset allows for a nuanced examination of educational preparedness and achievement. We can see that with the sample restrictions in place, HSGPA shows a modest but steady increase from an average of 3.22 in

2013–2014 to 3.40 in 2023–2024. ACTC scores, in contrast, had an average decline from about 21.0 to about 19.3 during the same time. This suggests an increase in grades but a decrease in ability to demonstrate content mastery on an external measure, potentially indicating lower levels of academic preparation. The sample restrictions did result in a slight decline in the total number of students.

The analytical sample used for Research Question 3 was drawn from the broader population examined in Research Question 1 and demonstrated a closely aligned demographic profile (Table 3). In both the population and subsample, the racial/ethnic distributions were similar, with 11%–13% identifying as African American, 0.7%–0.9% as American Indian or Alaska Native, 4%–5% as Asian, and 15%–17% as Hispanic, although with a slight decline in the Hispanic population over time in the subsample. Over the decade, the percentage of White students slightly increased in the subsample relative to the population. The remaining proportions included students identifying as Native Hawaiian or Pacific Islander and two or more races, with relatively similar representation across both groups.

Although the subsample for Research Question 3 was smaller in size, it largely preserved the demographic proportions observed in the population for Research Question 1. Slight differences were noted, including a modest increase in the percentages of Asian and White students in the subsample for Research Question 3. Income distribution also showed some variation, with higher representation in the $36,000–$60,000, $60,000–$100,000, and greater than $100,000 brackets alongside a reduction in missing income responses. Additionally, the subsample for Research Question 3 included a slightly higher proportion of students identifying as female.

Overall, the demographic composition of the subsample for Research Question 3 largely mirrors that of the population for Research Question 1, with minor deviations observed across race/ethnicity, family income, and gender categories. These similarities support the generalizability of findings from Research Question 3 to the broader population represented in Research Question 1.

Table 1. Research Question 1 Population

Characteristic	Descriptor	Cohort									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
N		1,845,787	1,924,436	2,090,342	2,030,038	1,914,817	1,782,820	1,670,497	1,295,349	1,349,644	1,386,335
Race/ethnicity *n* (%)	African American	241,678 (13.1)	252,566 (13.1)	272,363 (13.0)	256,756 (12.6)	243,080 (12.7)	220,627 (12.4)	203,517 (12.2)	153,641 (11.9)	153,579 (11.4)	171,380 (12.4)
	American Indian / Alaska Native	14,263 (0.8)	14,711 (0.8)	16,183 (0.8)	16,135 (0.8)	15,449 (0.8)	15,496 (0.9)	14,597 (0.9)	10,094 (0.8)	10,728 (0.8)	13,616 (1.0)
	Asian	80,370 (4.4)	87,499 (4.5)	93,493 (4.5)	96,097 (4.7)	91,899 (4.8)	83,507 (4.7)	78,707 (4.7)	54,272 (4.2)	54,464 (4.0)	57,600 (4.2)
	Hispanic	281,216 (15.2)	299,920 (15.6)	337,280 (16.1)	347,906 (17.1)	307,358 (16.1)	293,100 (16.4)	277,796 (16.6)	181,958 (14.0)	210,205 (15.6)	234,031 (16.9)
	Native Hawaiian / Pacific Islander	5,676 (0.3)	6,090 (0.3)	6,797 (0.3)	6,503 (0.3)	5,753 (0.3)	4,965 (0.3)	4,726 (0.3)	3,450 (0.3)	2,961 (0.2)	3,932 (0.3)
	Two or more races	70,013 (3.8)	76,066 (4.0)	85,494 (4.1)	86,119 (4.2)	85,316 (4.5)	80,629 (4.5)	76,782 (4.6)	58,528 (4.5)	64,330 (4.8)	68,095 (4.9)
	White	1,038,435 (56.3)	1,057,803 (55.0)	1,119,398 (53.6)	1,062,439 (52.3)	996,712 (52.1)	918,937 (51.5)	860,496 (51.5)	698,565 (53.9)	708,952 (52.5)	722,990 (52.2)
	Prefer not to respond / missing	114,136 (6.2)	129,781 (6.7)	159,334 (7.6)	158,083 (7.8)	169,250 (8.8)	165,559 (9.3)	153,876 (9.2)	134,841 (10.4)	144,425 (10.7)	114,691 (8.3)
Family income *n* (%)	<$36K	287,164 (15.6)	292,701 (15.2)	313,450 (15.0)	289,021 (14.2)	242,166 (12.6)	208,724 (11.7)	163,334 (9.8)	102,028 (7.9)	112,293 (8.3)	98,682 (7.1)
	$36K–$60K	312,736 (16.9)	319,582 (16.6)	339,758 (16.3)	318,381 (15.7)	274,928 (14.4)	242,329 (13.6)	197,861 (11.8)	134,097 (10.4)	156,038 (11.6)	134,929 (9.7)
	$60K–$100K	433,963 (23.5)	440,389 (22.9)	464,399 (22.2)	426,337 (21.0)	353,317 (18.5)	300,287 (16.8)	233,000 (13.9)	135,462 (10.5)	146,282 (10.8)	122,611 (8.8)
	>$100K	306,800 (16.6)	332,869 (17.3)	369,187 (17.7)	385,166 (19.0)	364,153 (19.0)	338,819 (19.0)	307,765 (18.4)	236,759 (18.3)	318,624 (23.6)	293,106 (21.1)
	Missing	505,124 (27.4)	538,895 (28.0)	603,548 (28.9)	611,133 (30.1)	680,253 (35.5)	692,661 (38.9)	768,537 (46.0)	687,003 (53.0)	616,407 (45.7)	737,007 (53.2)

Characteristic	Descriptor	Cohort									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Gender *n* (%)	Another gender	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	527 (0.0)	2,645 (0.2)	4,959 (0.4)	9,352 (0.7)
	Female	977,127 (53.3)	1,013,212 (53.1)	1,074,049 (52.5)	1,047,170 (52.7)	991,975 (52.6)	926,361 (52.8)	863,356 (52.7)	635,458 (51.4)	674,287 (50.8)	674,852 (49.8)
	Male	856,651 (46.7)	895,775 (46.9)	971,383 (47.5)	939,730 (47.3)	893,610 (47.4)	828,645 (47.2)	773,062 (47.2)	589,971 (47.7)	631,336 (47.6)	643,247 (47.5)
	Prefer not to respond / missing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1946 (0.1)	8,958 (0.7)	15,536 (1.2)	27,082 (2.0)
HSGPA mean (*SD*)		3.23 (0.64)	3.24 (0.64)	3.23 (0.65)	3.27 (0.63)	3.31 (0.62)	3.34 (0.62)	3.39 (0.60)	3.43 (0.59)	3.42 (0.60)	3.43 (0.60)
ACTC mean (*SD*)		20.97 (5.44)	21.01 (5.49)	20.81 (5.60)	20.97 (5.63)	20.81 (5.79)	20.68 (5.87)	20.59 (6.01)	20.34 (6.03)	19.79 (5.94)	19.48 (5.86)
Academic discrepancy group *n* (%)	ACTCd	222,902 (12.1)	226,615 (11.8)	243,943 (11.7)	240,750 (11.9)	224,953 (11.7)	220,112 (12.3)	200,772 (12.0)	152,184 (11.7)	185,850 (13.8)	180,977 (13.1)
	HSGPAd	183,281 (9.9)	191,748 (10.0)	183,061 (8.8)	173,017 (8.5)	138,416 (7.2)	122,509 (6.9)	89,076 (5.3)	59,264 (4.6)	63,959 (4.7)	59,050 (4.3)
	Missing	271,911 (14.7)	291,851 (15.2)	380,683 (18.2)	383,650 (18.9)	486,694 (25.4)	507,176 (28.4)	602,596 (36.1)	542,578 (41.9)	461,552 (34.2)	582,501 (42.0)
	NDSC	1,167,693 (63.3)	1,214,222 (63.1)	1,282,655 (61.4)	1,232,621 (60.7)	1,064,754 (55.6)	933,023 (52.3)	778,053 (46.6)	541,323 (41.8)	638,283 (47.3)	563,807 (40.7)
Academic discrepancy mean (*SD*)		−0.04 (0.89)	−0.04 (0.89)	−0.07 (0.89)	−0.07 (0.89)	−0.12 (0.89)	−0.14 (0.89)	−0.19 (0.90)	−0.24 (0.90)	−0.25 (0.91)	−0.29 (0.93)

Note. The "missing" academic discrepancy category includes students who did not report a high school GPA. The proportion of missing HSGPA data increased significantly over time, which may affect observed trends in discrepancy prevalence. This issue is addressed in the sensitivity analysis. NDSC = non-discrepant.

Table 2. Research Question 2 Subsample

Label	Cohort										
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
N	1,714,031	1,796,523	1,961,274	1,901,975	1,788,029	1,654,014	1,539,376	1,181,591	1,235,186	1,270,934	1,259,945
HSGPA mean (*SD*)	3.22 (0.64)	3.23 (0.64)	3.22 (0.65)	3.26 (0.63)	3.30 (0.62)	3.33 (0.62)	3.37 (0.60)	3.41 (0.59)	3.40 (0.60)	3.42 (0.60)	3.40 (0.62)
ACTC mean (*SD*)	21.00 (5.46)	21.05 (5.51)	20.84 (5.62)	20.99 (5.65)	20.82 (5.82)	20.68 (5.89)	20.56 (6.04)	20.25 (6.02)	19.68 (5.93)	19.37 (5.84)	19.32 (5.84)
%Δ missing mean (*SD*)	—	0.46 (11.54)	3.71 (15.65)	4.51 (18.18)	11.93 (25.32)	15.14 (27.11)	23.03 (28.89)	30.31 (33.44)	21.78 (29.72)	29.24 (29.90)	29.44 (29.69)

Table 3. Research Question 3 Subsample

Characteristic	Descriptor	Cohort									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
N		1,485,964	1,539,432	1,464,594	1,254,172	1,108,973	914,767	626,661	743,300	665,594	654,491
Race/ethnicity *n* (%)	African American	195,988 (13.4)	199,765 (13.2)	182,943 (12.7)	153,905 (12.5)	131,709 (12.1)	107,410 (11.9)	69,394 (11.2)	81,382 (11.0)	75,466 (11.3)	72,473 (11.1)
	American Indian / Alaska Native	10,144 (0.7)	10,361 (0.7)	9,873 (0.7)	8,487 (0.7)	8,091 (0.7)	6,583 (0.7)	3,891 (0.6)	4,980 (0.7)	4,705 (0.7)	4,504 (0.7)
	Asian	71,665 (4.9)	74,457 (4.9)	76,132 (5.3)	69,660 (5.7)	62,130 (5.7)	54,015 (6.0)	33,559 (5.4)	38,169 (5.1)	35,077 (5.3)	34,148 (5.2)
	Hispanic	231,148 (15.8)	246,594 (16.3)	246,056 (17.1)	200,161 (16.3)	178,515 (16.4)	144,857 (16.0)	79,051 (12.8)	97,277 (13.1)	93,787 (14.1)	96,612 (14.8)
	Native Hawaiian / Pacific Islander	4,627 (0.3)	4,935 (0.3)	4,572 (0.3)	3,573 (0.3)	3,074 (0.3)	2,334 (0.3)	1,528 (0.2)	1,439 (0.2)	1,410 (0.2)	1,485 (0.2)
	Two or more races	60,197 (4.1)	65,054 (4.3)	64,455 (4.5)	58,395 (4.7)	52,782 (4.8)	44,447 (4.9)	29,724 (4.8)	3,6203 (4.9)	33,782 (5.1)	34,621 (5.3)
	White	835,792 (57.1)	855,517 (56.6)	802,743 (55.8)	695,839 (56.5)	616,662 (56.6)	514,542 (56.9)	381,627 (61.8)	462,915 (62.3)	403,688 (60.7)	392,612 (60.0)
	Prefer not to respond / missing	53,882 (3.7)	55,217 (3.7)	51,102 (3.6)	41,431 (3.4)	36,535 (3.4)	29,694 (3.3)	18,631 (3.0)	20,486 (2.8)	17,549 (2.6)	17,772 (2.7)
Family income *n* (%)	<$36K	365,753 (24.6)	371,739 (24.1)	338,053 (23.1)	275,861 (22.0)	229,989 (20.7)	170,862 (18.7)	99,347 (15.9)	116,825 (15.7)	92,984 (14.0)	83,121 (12.7)
	$36K–$60K	245,922 (16.5)	256,465 (16.7)	234,767 (16.0)	192,838 (15.4)	163,793 (14.8)	122,534 (13.4)	76,881 (12.3)	90,602 (12.2)	76,090 (11.4)	71,663 (10.9)
	$60K–$100K	270,037 (18.2)	281,699 (18.3)	262,575 (17.9)	222,867 (17.8)	193,867 (17.5)	151,939 (16.6)	103,313 (16.5)	127,053 (17.1)	105,278 (15.8)	99,615 (15.2)
	>$100K	286,172 (19.3)	312,576 (20.3)	325,498 (22.2)	304,535 (24.3)	279,937 (25.2)	246,556 (27.0)	188,815 (30.1)	266,189 (35.8)	235,455 (35.4)	227,112 (34.7)
	Missing	318,080 (21.4)	316,953 (20.6)	303,701 (20.7)	258,071 (20.6)	241,387 (21.8)	222,876 (24.4)	158,305 (25.3)	142,631 (19.2)	155,787 (23.4)	172,980 (26.4)
Gender *n* (%)	Another gender	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	273 (0.0)	945 (0.2)	2,337 (0.3)	4,054 (0.6)	3,822 (0.6)
	Female	800,015 (54.1)	819,115 (53.9)	783,101 (54.1)	679,422 (54.4)	606,312 (54.9)	507,721 (55.7)	337,012 (54.3)	398,293 (53.6)	355,409 (53.4)	348,449 (53.3)
	Male	677,988 (45.9)	701,760 (46.1)	663,378 (45.9)	568,663 (45.6)	497,815 (45.1)	403,173 (44.2)	279,397 (45.0)	335,849 (45.2)	298,558 (44.9)	293,794 (44.9)
	Prefer not to respond / missing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	899 (0.1)	3,283 (0.5)	6,552 (0.9)	7,490 (1.1)	8,297 (1.3)
HSGPA mean (*SD*)		3.23 (0.64)	3.22 (0.64)	3.26 (0.63)	3.30 (0.62)	3.33 (0.62)	3.38 (0.60)	3.41 (0.59)	3.41 (0.60)	3.42 (0.60)	3.41 (0.61)

Characteristic	Descriptor	Cohort									
		2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
ACTC mean (*SD*)		21.31 (5.46)	21.26 (5.55)	21.48 (5.57)	21.61 (5.73)	21.59 (5.83)	21.85 (5.94)	21.84 (5.98)	21.31 (5.87)	21.21 (5.80)	21.16 (5.79)
Academic discrepancy group *n* (%)	ACTCd	214,192 (14.4)	227,755 (14.8)	222,416 (15.2)	206,193 (16.4)	199,895 (18.0)	180,456 (19.7)	131,749 (21.0)	160,005 (21.5)	154,388 (23.2)	152,752 (23.3)
	HSGPAd	165,104 (11.1)	155,339 (10.1)	144,548 (9.9)	113,412 (9.0)	98,646 (8.9)	70,534 (7.7)	45,786 (7.3)	50,889 (6.8)	45,950 (6.9)	46,536 (7.1)
	Missing	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
	NDSC	1,106,668 (74.5)	1,156,338 (75.1)	1,097,630 (74.9)	934,567 (74.5)	810,432 (73.1)	663,777 (72.6)	449,126 (71.7)	532,406 (71.6)	465,256 (69.9)	455,203 (69.6)
Academic discrepancy mean (*SD*)		−0.07 (0.89)	−0.09 (0.88)	−0.10 (0.89)	−0.15 (0.89)	−0.17 (0.89)	−0.23 (0.90)	−0.27 (0.90)	−0.27 (0.91)	−0.32 (0.93)	−0.32 (0.94)

Data Analysis

This study uses a combination of inferential modeling and descriptive analysis to examine the relationship between grade inflation and academic discrepancy. To estimate school-level grade inflation, I used hierarchical linear modeling (HLM) to predict HSGPA as a function of student standardized ACT Composite scores, the school's average ACT Composite score, cohort year, the change in percentage of students missing HSGPA between cohorts, and the interaction of these factors. The model included random intercepts and slopes for cohort year at the school level, which allows us to capture variation in GPA trends across schools. The resulting grade inflation index reflects each school's deviation from the average GPA change over time after adjustments are made for academic performance and data completeness. The grade inflation index is then calculated as the average increase in HSGPA across high school plus the individual change for a specific high school. Full model specifications and estimation procedures are provided in the technical appendix.

The inferential model serves as a foundation for the descriptive analysis used to address the study's three research questions. Specifically, I used the grade inflation index to examine patterns of academic discrepancy across cohorts and demographic groups. These descriptive statistics and visualizations summarize the prevalence of academic discrepancy, the distribution of grade inflation among discrepancy groups, and subgroup differences. This allows us to directly observe trends and effects in a large national dataset, while the HLM provides a statistically grounded measure of inflation that accounts for confounding factors. Put together, these two methods offer an understanding of how systemic grading practices influence individual level discrepancies between GPA and standardized test scores.

Given the large sample size used in this study, along with the exploratory nature of the research questions, I employ descriptive statistics and visualizations to illustrate patterns in academic discrepancy and grade inflation.

Measures

ACT Composite Score (ACTC)

Students' most recent ACT Composite scores prior to graduation were obtained from both statewide school-day exams and national weekend testing sessions. ACT is a college admissions test scored on a 36-point scale.

Cumulative High School GPA (HSGPA)

Students' cumulative HSGPAs were calculated by averaging self-reported grades from up to 23 courses in core subjects. HSGPA is typically on a 4.0 scale. Research indicates self-reported HSGPA closely aligns with transcript GPA, supporting its validity for research (Kuncel et al., 2005; Sanchez & Buddin, 2016; Shaw & Mattern, 2009).

Academic Discrepancy

To classify students by academic discrepancy, I calculated the standardized difference between HSGPA and ACT Composite score. Students were assigned to one of four categories based on academic discrepancy:

- HSGPA-discrepant (HSGPAd): Students with a standardized GPA more than one unit higher than their standardized ACT Composite score
- ACTC-discrepant (ACTCd): Students with a standardized ACT Composite score more than one unit higher than their GPA
- Non-discrepant (NDSC): Students whose standardized GPA and ACT Composite score were within one unit of each other
- Missing: Students whose missing values in high school GPA made it impossible to calculate discrepancy

This classification allows us to examine whether a student's high school GPA and ACT Composite score are sending consistent or conflicting signals about academic readiness. It is important to include both HSGPA-discrepant and ACTC-discrepant students because this allows us to distinguish between two very different types of situations. On the one hand, we have students whose high grades may overstate their academic readiness, and on the other, we have students whose strong test scores may be undervalued because of their GPA. It is likely that these two different types of students face different challenges and can even come from different school grading contexts, so analyzing them separately helps provide a more complete picture of how grade inflation impacts academic discrepancy.

Grade Inflation Index

To assess grade inflation at individual schools, I created a model predicting high school GPA based on both student and school ACT Composite scores, cohort year, the change in the proportion of students missing GPA data between cohorts, and how these factors interact. The result is a grade inflation index that reveals how much each school's GPA diverges from the norm over time while adjusting for academic achievement and gaps in data. This index differs from measures of student performance in that it specifically reflects long-term grading patterns at the school level. This model is the same as used in Sanchez (2025).

The observed relationship between school-level grade inflation and student-level GPA and the associated test score discrepancy is empirical rather than definitional. It is an observed correlation and not necessarily a built-in consequence of how these terms are defined.

The definition of grade inflation adopted in this study, an increase in grades without a corresponding improvement in student achievement, is well established by existing literature. Previous research, including Camara et al. (2003), Kuncel et al. (2005), and Shaw and Mattern (2009), has shown that high school GPAs have risen over time while standardized test scores have remained stable or declined. This inconsistency between grades and external benchmarks is widely accepted as indicative of grade inflation. By employing ACT scores as a reference, the present study builds on established definitions, enabling the identification of inflationary trends.

Furthermore, the methodology used in this research extends previous conceptions of grade inflation by integrating longitudinal data and examining variations at the school level. This aligns with the three detection strategies proposed by Finefter-Rosenbluh and Levinson (2015): tracking upward shifts in grade distributions, conducting grade compression analyses, and performing cross-school comparisons. The grade inflation index applied in this study operationalizes these principles through a hierarchical linear model that controls for student achievement, monitors cohort trends, and adjusts for changes in grade reporting rates over time.

The percentage of students missing GPAs serves as a statistical control to account for potential bias introduced by the changes in the reporting of GPA across cohorts. This adjustment helps ensure that the observed changes in grade inflation reflect shifts in grading practices rather than an artifact of missing data. I do not assume a causal relationship between missingness and grades; however, controlling for this variable allows me to isolate grade inflation effects from fluctuations in grade reporting. The missingness in my dataset seems to be growing over time as a function of the greater percentage of state and district testers across cohorts. Providing this information is not required by many state and district contract holders, indicating that the missingness may be closely related to how contract holders have students prepare for the ACT.

Demographic Variables

Three demographic variables were used in this study: gender, race/ethnicity, and family income. Gender was reported by students as either male, female, another gender, or prefer not to respond; some students provided no response. Students selected their racial/ethnic identity from the following options: Asian, African American, Hispanic, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, White, two or more races, or prefer not to respond; some students did not provide race/ethnicity information. Self-reported family income was categorized into four groups: below $36,000, $36,000–$60,000, $60,000–$100,000, and above $100,000. I also include a missing response category for income.

Percentage Missing in Cumulative High School GPA

Data from the 2013–2023 cohorts are used to estimate a measure of grade inflation at the high school level. As part of that estimation, I accounted for attrition in the self-reporting of HSGPA. To do so, I calculated the percentage of students without HSGPA at a school in 2013 and subsequent years. In the model estimating grade inflation, I calculated the change in the percentage of missing HSGPA between a given cohort year and 2013. If fewer students report their GPAs (especially if those who don’t report tend to have lower GPAs), then average reported GPA might rise even if actual performance doesn’t.

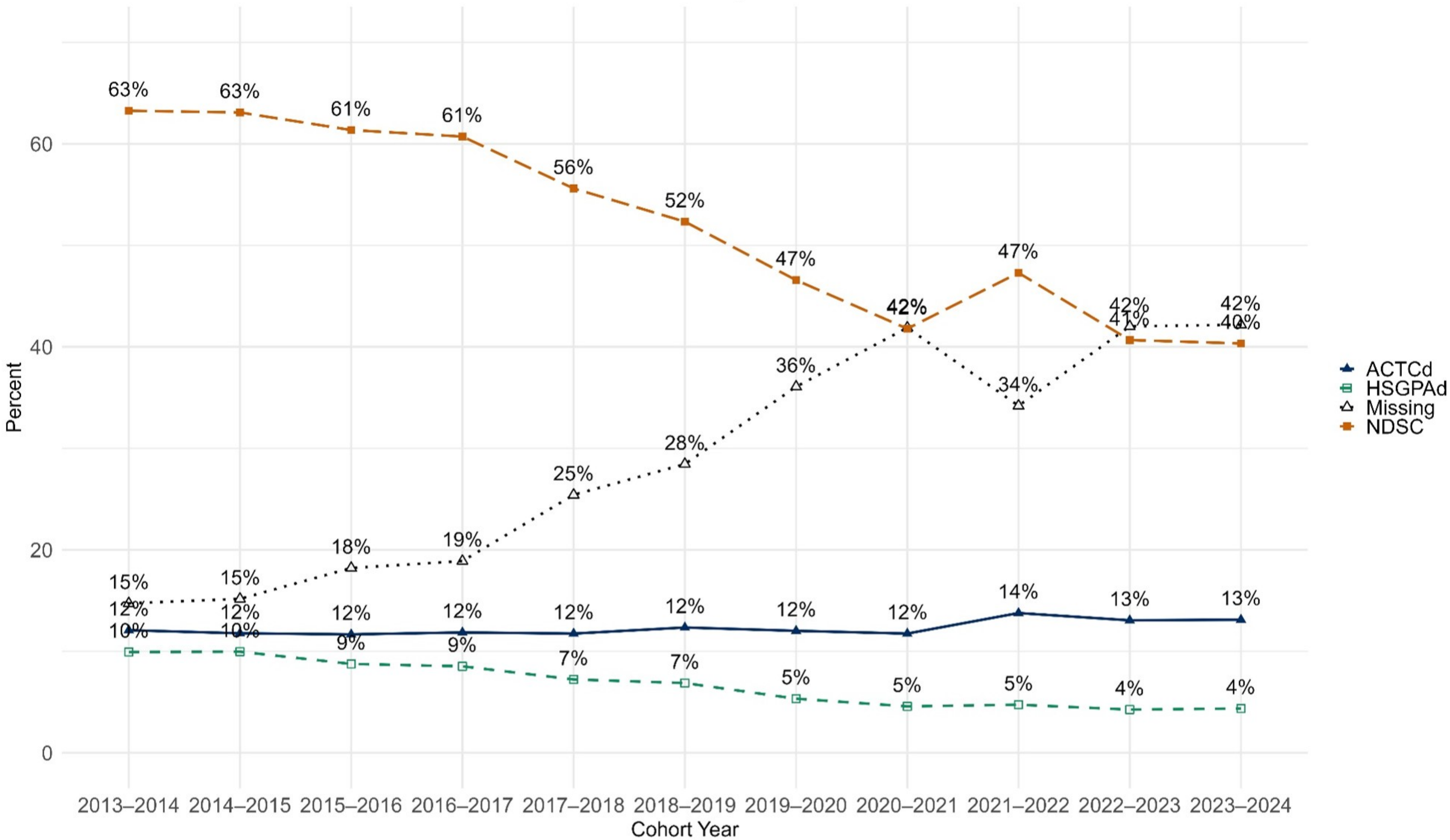
Results

How prevalent is academic discrepancy among high school graduates?

This research question asked about the prevalence of academic discrepancy, and I addressed this by examining the yearly percentages of students in each discrepancy category. This descriptive approach shows how prevalent academic discrepancy is by providing the number of students who fall into each group over time. In Figure 1, we can see that the percentage of students who were ACTC discrepant—that is, who had an ACT Composite score that was substantially higher than their HSGPA—remained at 12% from the 2013–2014 academic year through the 2020–2021 academic year. In subsequent years, the percentage of students who were ACTC discrepant increased slightly. It appeared that the percentage of students who were HSGPA discrepant (i.e., who had higher HSGPAs than ACT scores) decreased over the decade; however, coinciding with this decrease was a dramatic increase in the number of students who did not report their HSGPA. In the 2013–2014 academic year, 15% of students did not report their HSGPA; by the 2023–2024 academic year, that percentage had increased to 42%. It is possible that students who would have been considered HSGPA discrepant were failing to report their HSGPA in later years (I test this theory in a subsequent section examining imputed HSGPA). The percentage of non-discrepant students was similar up until the 2016–2017 school year (about 62%), at which point the percentage began to fall, reaching 40% in the 2023–2024 school year. Some percentage of these students were also likely no longer reporting their HSGPA.

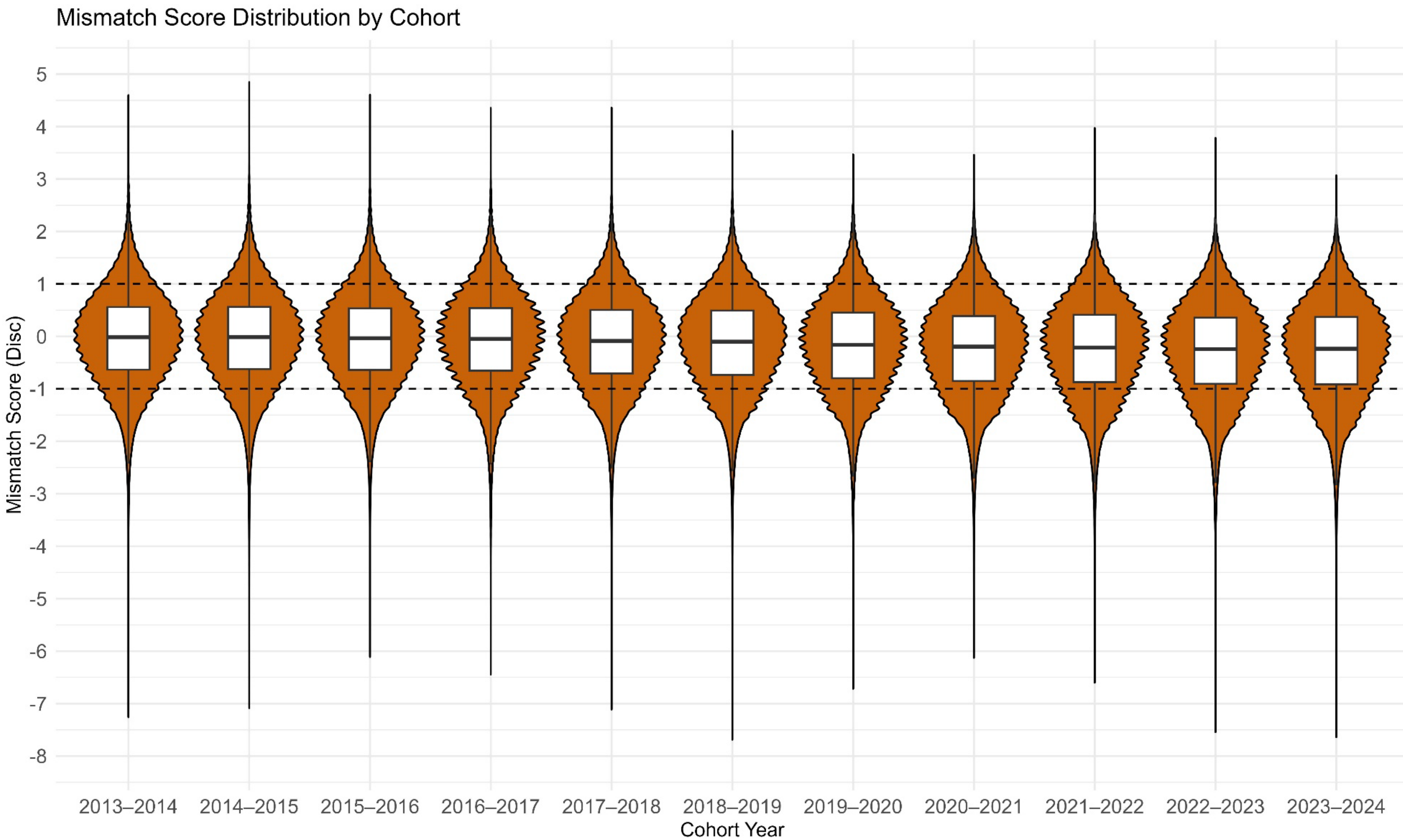
Figure 2 displays the annual percentage of students in each discrepancy category over time. The trends in this figure align with the patterns seen in Figure 1 but are more subtle. While we might expect more students to have much higher GPAs than test scores as average GPAs increase and ACT scores slightly decrease, Figure 2 instead shows a small decrease in the HSGPAd group along with a small increase in the ACTCd group. The changes are modest, which reflects the changes in test taker populations, and concurrent declines in ACT scores have tempered the impact of grade inflation on extreme discrepancy. Importantly, Figure 2 helps us see that substantial discrepancy between GPA and test scores has persisted across the decade. Even in recent cohorts, a notable percentage of students fell within each discrepancy category, indicating that academic discrepancy remains common. This means that some students from every graduating class continue to receive mixed signals about their college readiness. In examining the stability of these discrepant groups over time, we can see that despite rising GPAs, we do not see a wholesale surge in or disappearance of discrepancy. Instead, the balance shifts only slightly from GPA-heavy discrepancies to test-heavy discrepancies. This figure confirms that the prevalence of large GPA and ACT inconsistencies has changed only incrementally, which reinforces the narrative that such discrepancy is a persistent feature of student achievement even as overall performance metrics shift and evolve.

Figure 1. Academic Discrepancy Prevalence by Cohort



Note. ACTCd = ACT Composite score discrepant; HSGPAd = high school GPA discrepant; missing = missing HSGPA; NDSC = non-discrepant.

Figure 2. Academic Discrepancy Distribution by Cohort



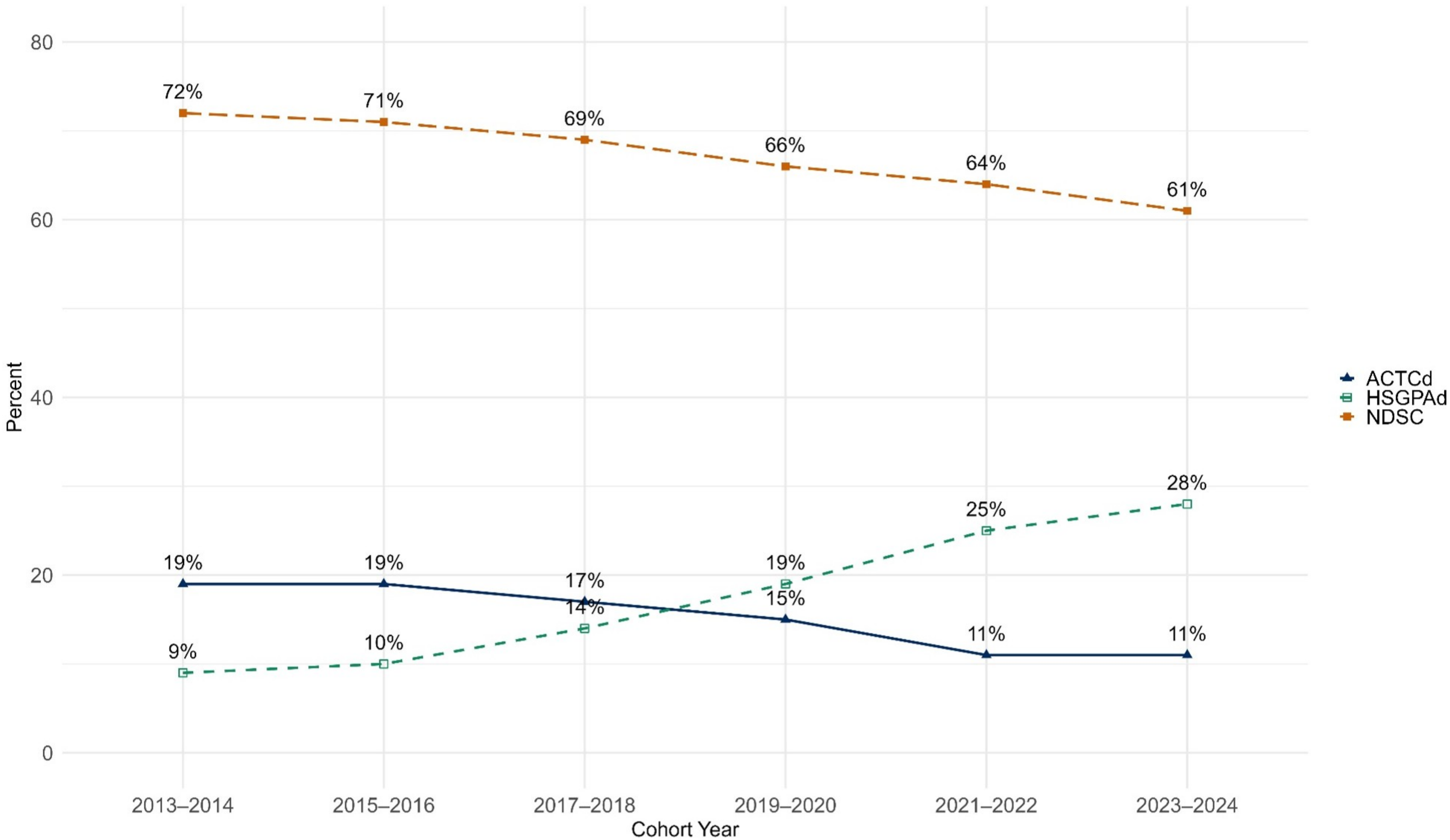
Note. The dashed lines represent ±1 *SD* (i.e., the threshold for ACT and HSGPA discrepancy).

In summary, only about 70% of recent graduates (who reported GPA) had their grades and test scores in agreement, down from about 74% a decade earlier. The rest showed some form of discrepancy, indicating that a notable portion of students receive mixed messages about their readiness.

Sensitivity Analysis: Discrepancy Prevalence With Imputed GPAs

To address the fact that by 2023, many students weren't reporting a GPA (42% had missing GPAs), I used multiple imputation to impute those missing GPAs. This analysis suggested that many missing cases likely belonged to the high-GPA/low-test group. We can see in Figure 3 that the percentage of non-discrepant students decreased slightly, from 72% in the 2013–2014 academic year to 61% in the 2023–2024 academic year. During the same time period, the percentage of ACTC-discrepant students decreased from 20% to 11%, and the percentage of HSGPA-discrepant students increased from about 9% to 28%. In other words, as high school grades have been increasingly impacted by grade inflation in later cohorts, a larger number of students have fallen into the HSGPA discrepant category, which is consistent with my finding that grade inflation tends to produce more discrepancy between GPA and test scores.

Figure 3. Academic Discrepancy Prevalence With Imputed HSGPA by Cohort



Note. ACTCd = ACT Composite score discrepant; HSGPAd = high school GPA discrepant; missing = missing HSGPA; NDSC = non-discrepant.

When I used multiple imputation to fill in missing GPAs, the decline in HSGPA-discrepant students reversed. After imputation, HSGPA-discrepant cases increased to about 28% by 2023–2024. Non-discrepant alignment fell to about 61%. This suggests that many students missing GPAs in recent years would have had a high HSGPA and a low test score. This reinforces the conclusion that discrepancy prevalence remains high.

The imputation model encompassed 6 admission cohorts: 2013–2014, 2015–2016, 2017–2018, 2019–2020, 2021–2022, and 2023–2024. High school GPA was the student variable of interest in the imputation. To ensure that imputed values were informed by a rich set of auxiliary variables, I included the following indicators of high school academic preparation, demographics, and curriculum:

- high school GPA range
- class rank
- curriculum descriptor
- core coursework indicator
- years of coursework in English, mathematics, social studies, and natural science
- advanced course indicators for English, mathematics, social studies, and natural science
- subject-average GPAs for English, mathematics, social studies, and natural science
- race/ethnicity
- gender
- parental education
- family income
- public/private school attendance

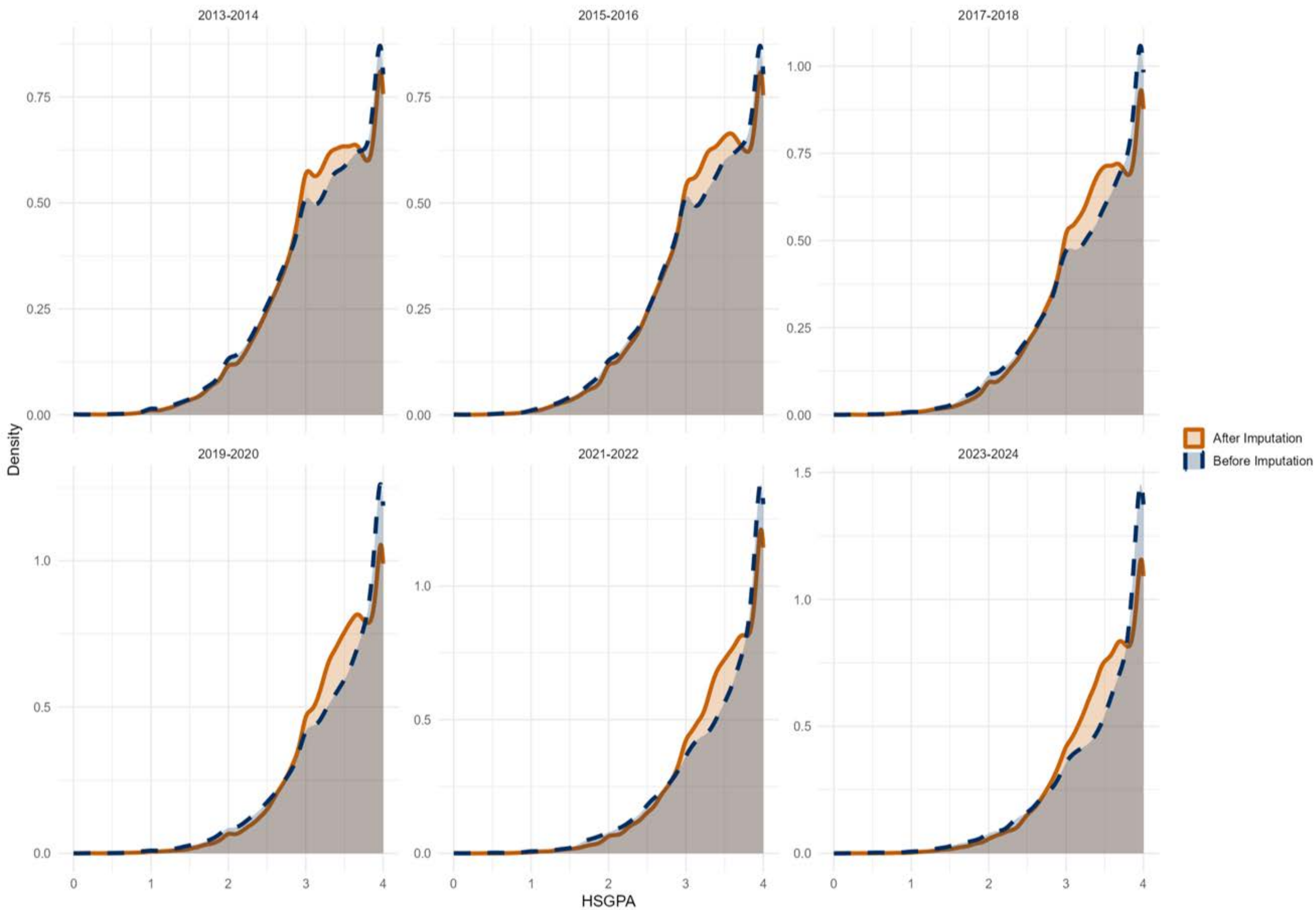
I assumed “missing” was missing at random, conditional on the observed covariates that were included in the imputation model. To evaluate the success of the imputation of HSGPA, I reserved a random holdout validation set of 5% of observed HSGPA values and compared these holdout HSGPAs to their imputed values to gauge accuracy.

Because grading practices, course-taking patterns, and reporting conventions can change over time, I conducted imputation separately within each cohort to preserve cohort-specific distributions and relationships. To facilitate the imputation within computational limitations (i.e., memory capacity), I extracted a 30% random sample from each cohort to conduct the imputation. I used multiple imputation by chained equations (MICE) with 20 imputations per cohort.

The imputed values were highly correlated (r over 0.99) with the known values that were withheld in the 5% sample. This indicates that the imputation was successful at recapturing the known HSGPA values. This supports the use of the imputed GPA values in broader contexts.

As shown in Figure 4, the kernel densities of observed HSGPA, in navy blue, and the imputed values for Imputation 1, in orange, largely overlap for each cohort. Across the cohorts, the imputed distribution closely aligns with the observed distributions, reproducing the right-skewed shape and the prominent increase in scores around 4.0. There were small and localized differences worthy of note, most notably a slight increase in the density in the upper-mid range (HSGPA about 3.0–3.6), where missingness was more prominent. Cohort-specific imputations preserve the temporal features seen in the original dataset, such as the sharp increase in 4.0 HSGPAs in more recent cohorts, rather than making distributions across years more similar. These distributions, taken in combination with the high correlations between observed and imputed HSGPAs, confirm that the imputations are both plausible and accurate.

Figure 4. Distribution of HSGPA With Missing HSGPA Compared to Imputation 1 With Imputed HSGPA



How is grade inflation related to academic discrepancy?

In this research question, where we examine the relationship between grade inflation and academic discrepancy, I plot the average grade inflation index by academic discrepancy group. This descriptive approach directly illustrates whether students who are HSGPA discrepant tend to come from schools with greater grade inflation. Plotting the school-level grade inflation index by discrepancy category directly conveys how grade inflation relates to academic discrepancy. After adjustments for ACTC score, school average ACTC score, and the percentage of students not reporting their HSGPA, we can see that students who were HSGPA discrepant were associated with higher levels of average grade inflation across much of the past decade (Figure 5). Students who were ACTC discrepant were associated with lower average grade inflation across the entire decade.

Figure 5. Adjusted Mean Grade Inflation by Cohort and Academic Discrepancy

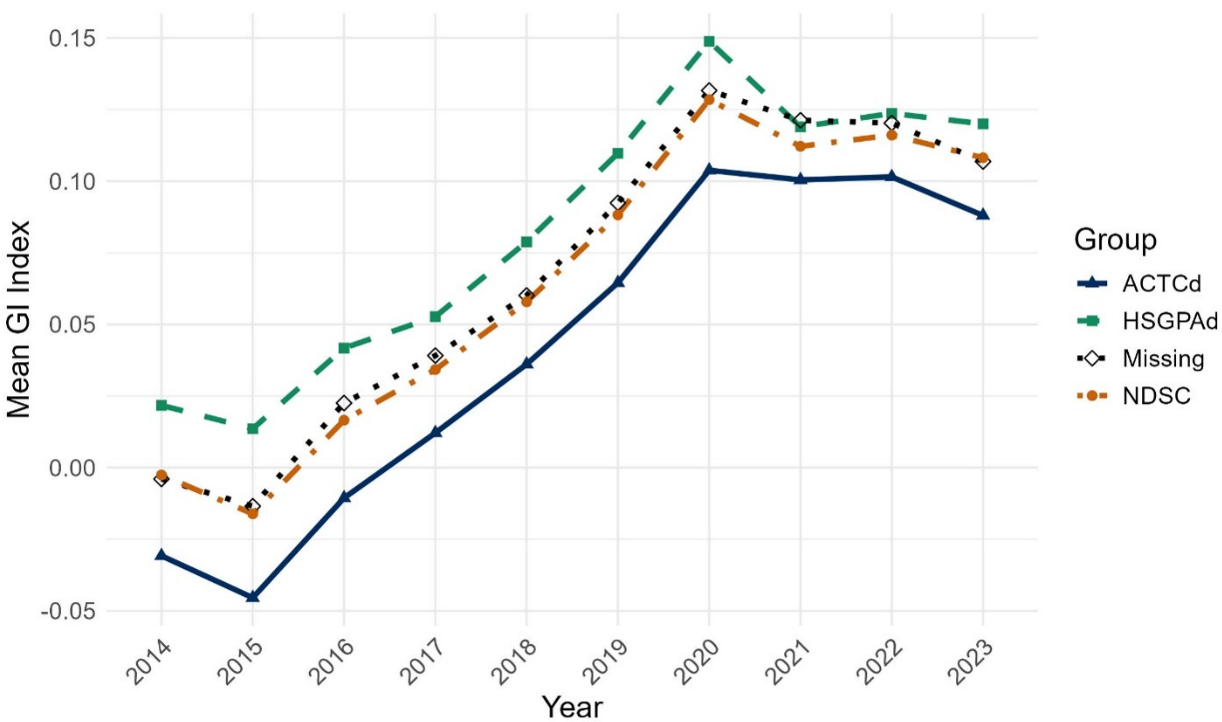


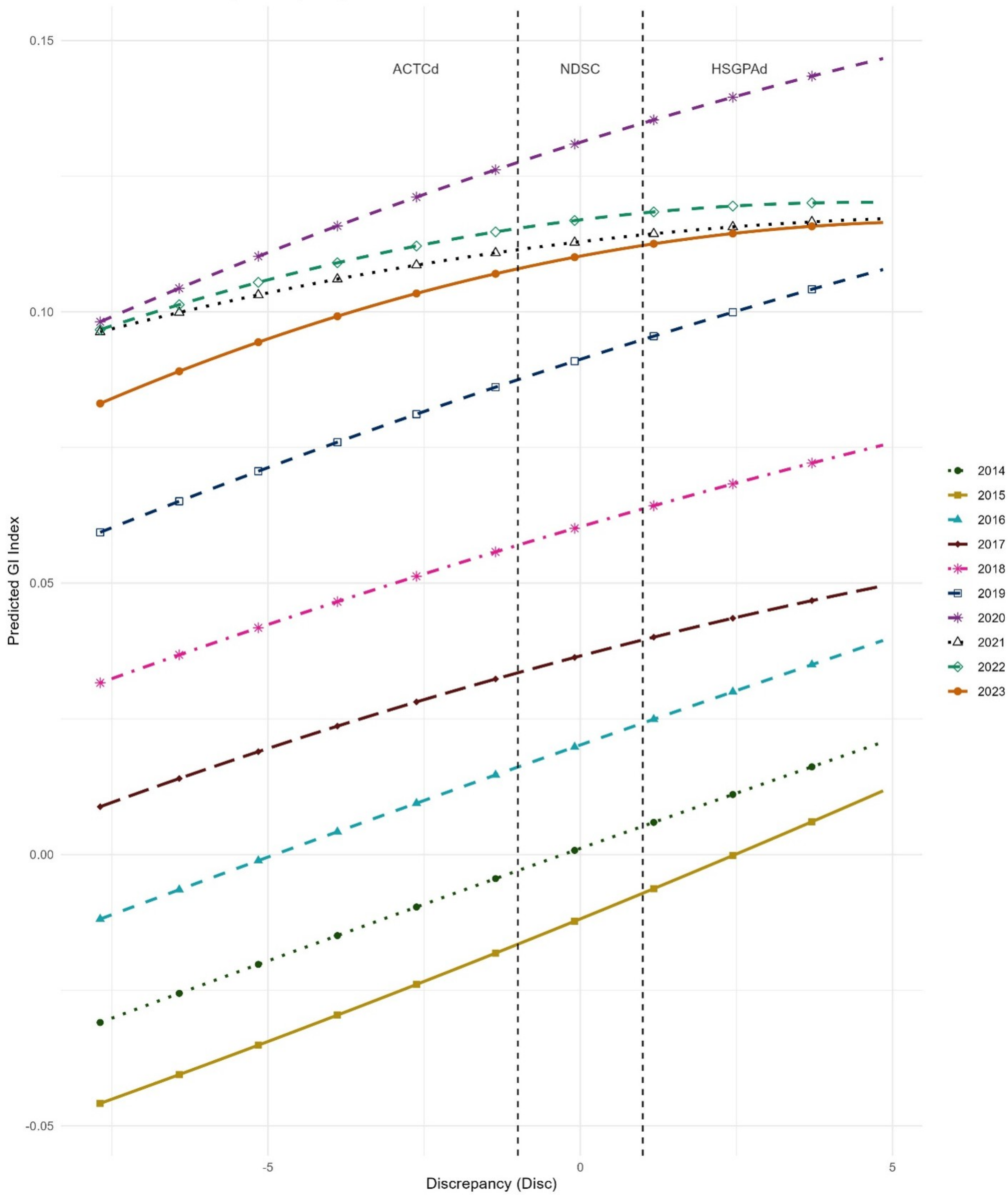
Figure 6 illustrates how predicted grade inflation varies with academic discrepancy across student cohorts from 2014 to 2023. We can see that across all the years, a consistent pattern emerges: As discrepancy increases, so does the predicted grade inflation, indicating that students with higher HSGPA discrepancies tend to experience greater grade inflation. This means that students who have a higher HSGPA than their standardized test score may be impacted by grade inflation. Generally speaking, the change across discrepancy for most cohorts was less than 0.1 GPA points. However, the average grade inflation was greater than 0.1 particularly for the cohorts of 2020 to 2023. The gap in inflation between HSGPA-discrepant and ACTC-discrepant students was approximately 0.045 GPA points in 2020, which is nearly half the distance between letter grades (e.g., from a B+ to an A−). Even modest differences like

0.05 to 0.10 GPA points can potentially have practical implications for students when it comes to scholarship or honors thresholds. It is worth mentioning that although the average grade inflation was modest across most cohorts, the distribution of grade inflation illustrates that some schools do exhibit greater degrees of grade inflation (see Figure A1).

The differences in predicted GPA due to grade inflation were on the order of 0.05 to 0.10 grade points from moderate discrepancy, which is relatively small on a 4.0 scale. However, at the extreme end, for the pandemic cohort, the effect exceeded 0.10, which is a significant increase in GPA points. Even small average differences can have a meaningful consequence when compounded; for a marginal student, 0.10 GPA points could be the difference between meeting a cutoff and failing to do so. In general, the grade inflation effect sizes observed are modest for most students.

This analysis confirms that grade inflation is a significant contributor to discrepancy between GPAs and test scores. Students whose grades outpace their test scores tend to come from schools where grades have risen more than test scores would predict. Conversely, where we see low GPAs with high test scores, grading may be tougher. This suggests that differences in school grading standards can partly explain why some students' GPAs and ACT scores tell different stories.

Figure 6. Predicted Grade Inflation by Academic Discrepancy Across Cohorts



Note. ACTCd = ACT Composite score discrepant; HSGPAd = high school GPA discrepant; missing = missing HSGPA; NDSC = non-discrepant.

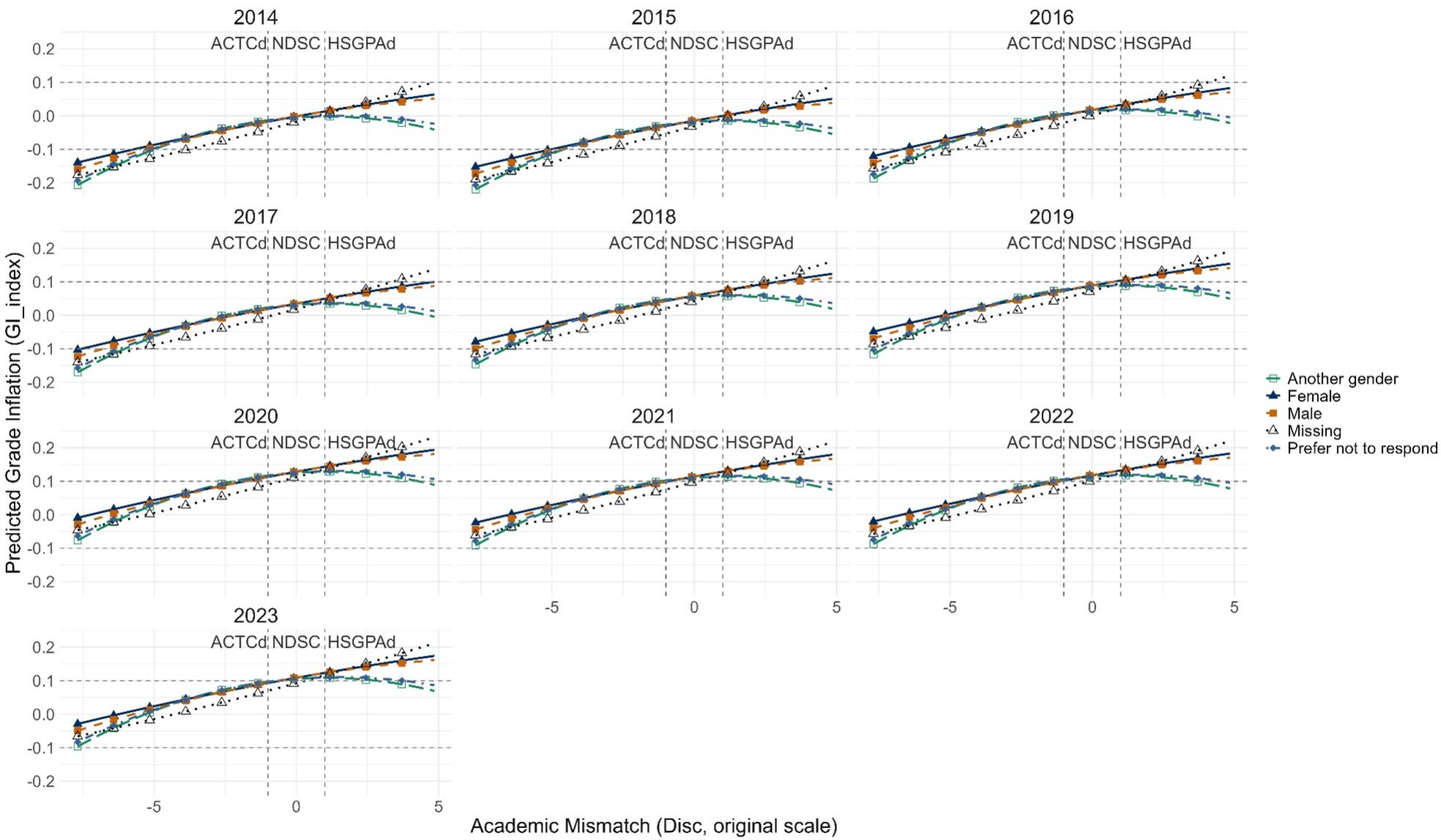
Does the relationship between grade inflation and academic discrepancy vary across demographic categories such as race, gender, or family income?

To address this research question, I stratified the analysis by gender, family income, and race/ethnicity to examine whether the relationship between academic discrepancy and high school grade inflation changes across student subgroups. The overarching finding of this analysis is that the relationship holds consistently across all subgroups, with only small differences in magnitude. Across subgroups, students whose HSGPAs substantially exceed their ACT scores (high positive discrepancy) tend to come from schools with higher grade inflation, whereas students with much higher test scores than GPAs (high negative discrepancy) tend to come from schools with little to no grade inflation or even a slight grade deflation. This pattern of results is virtually identical across gender, family income, and racial/ethnic groups. Importantly, gaps between demographic groups were minimal, often just a few hundredths of a GPA point, and remained stable over time.

At the same time, we can see that there is a gradual upward shift in the overall level of predicted grade inflation from 2015–2016 to 2023–2024 for all students. Later cohorts saw higher grade inflation across the board: The shape of the discrepancy/inflation curve did not change. As an example, a student with a +1.0-discrepant GPA (HSGPA discrepancy) in the class of 2015–2016 would have essentially 0 points of predicted inflation, whereas the same discrepancy in the class of 2020–2021 would correspond to around +0.10 GPA points of inflation. After 2020–2021, the predicted inflation level did decrease slightly, but it remained higher than in the mid-2010s. Of note is that the year-to-year shifts affected all subgroups equally: The small differences between demographics persisted, and every group's curve moved up. Given this consistency, I show an example for gender that looks very similar to the results for family income and race/ethnicity.

Male and female students have virtually identical discrepancy and inflation relationships. Across cohorts, both genders show an upward sloping line, indicating that as academic discrepancy increases from negative to positive, or from ACT score discrepancy to HSGPA discrepancy, the predicted grade inflation rises for both groups. Female students do consistently have slightly higher predicted inflation than males at the same discrepancy value, but the gender gap is very small, on the order of 0.01 to 0.03 GPA points. This minor difference was stable across all cohorts. Figure 7 presents the predicted grade inflation by academic discrepancy, cohort year, and gender.

Figure 7. Predicted Grade Inflation by Academic Discrepancy, Cohort Year, and Gender



Note. ACTCd = ACT Composite score discrepant; HSGPAd = high school GPA discrepant; missing = missing HSGPA; NDSC = non-discrepant.

Taken together, these results show a clear connection between grade inflation and academic discrepancy. Academic discrepancy affected roughly a third of students, and the recent acceleration of grade inflation (especially during COVID-19 disruptions) likely contributed to more students having high GPAs that outpaced their test scores. Notably, this phenomenon was widespread across student groups—differences by gender, race/ethnicity, or family income were minimal once achievement was accounted for.

Discussion

The current study indicates that school-level grade inflation is strongly associated with a higher rate of GPA and test score discrepancies, which indicates that rising grades correspond with more frequent academic discrepancy. This study provides a needed update on discrepancy prevalence in the test-optional era, highlighting the issues that remain even as reporting practices change.

My first question asked how prevalent discrepancy is. This study reaffirms that for recent cohorts, academic discrepancy is widespread among ACT-tested high school graduates, affecting roughly one quarter to one third of students, which is in line with previous research. The nature of this academic discrepancy, however, shifted over the years examined. The percentage of students with HSGPA-discrepant scores appears to decline over the 2013–2014 to 2023–2024 period. At the same time, students who were ACTC score discrepant held steady at about 12% through 2021–2022 and then increased slightly. There is an important caveat that must be noted, however: This apparent decline in HSGPA discrepancy cases is confounded by a dramatic increase in the number of students who no longer report their GPA data at ACT registration. By the 2023–2024 cohort, 42% of students were no longer reporting their HSGPAs, up from 15% in 2013–2014. It seems plausible that many HSGPA-discrepant students are hidden among those who are not reporting their GPAs. So while academic discrepancy remains prevalent, changes in reporting and grading practices over the decade have altered the observable distribution of the discrepancy.

While the apparent decline in HSGPA discrepancy in more recent cohorts does raise concern about the persistence of academic discrepancy, it is important to note that this trend is confounded by the substantial increase in the number of students who failed to report their GPA at the time they took the ACT. Understanding academic discrepancy remains important, and we can use statistical methodologies like multiple imputation to estimate what those missing values would be.

The apparent decline in HSGPA-discrepant students in recent cohorts seems largely attributable to increased rates of GPA missingness, not an actual reduction of academic discrepancy. When I applied multiple imputation to estimate the missing HSGPAs, the trend reversed, revealing that the proportion of HSGPA-discrepant students had actually increased to approximately 28% by the 2023–2024 cohort. This suggests that many students with missing HSGPA data likely belong to the high-HSGPA and low–test score group, and their absence in the study data artificially deflates the observed prevalence of discrepancy. Importantly, the foundational findings of the study remain consistent across both observed and imputed datasets: In both cases, academic discrepancy is widespread, and schools with higher grade inflation are more likely to produce students whose HSGPAs substantially exceed their standardized test scores. Given this, the imputation results reinforce the study's conclusions, underscoring the robustness of the observed relationships between grade inflation and academic discrepancy.

The sensitivity analysis used in this paper revealed that when missing GPAs were accounted for, the prevalence of HSGPA-discrepant cases actually increased in recent years, with about 28% of students in the 2023–2024 cohort exhibiting HSGPA discrepancy. This 28% prevalence represents a substantial number of students and carries practical significance. Prior research indicates that students with high HSGPAs but low test scores often face academic challenges in college. As Sanchez and Mattern (2018) found, such students earned FYGPAs significantly lower than one would predict from their inflated high school GPAs, instead performing at levels more consistent with their lower standardized test scores. Similarly, Radunzel and Noble (2012) showed that students with high GPAs and low ACT test scores were more likely to require developmental coursework and complete fewer credits in their first year of college, which suggests that their strong high school grades did not translate into the expected college performance. These findings suggest a real-world risk factor for college underperformance.

To better put this into perspective, a discrepancy of 1 standard deviation is roughly the same as a student graduating high school with a 3.8 HSGPA but an ACT Composite score of 18 or, conversely, a student with a 2.8 HSGPA and an ACT score of 30. These profiles are not rare; they represent approximately 10% to 15% of students in recent cohorts. The implications of this discrepancy are noteworthy because a student with a high GPA but modest test score might be perceived as well prepared based on grades alone but could struggle in college without additional support, whereas a student with a moderate GPA but high test score might be underestimated if judged only on their transcript. These two examples show the importance of recognizing achievement discrepancy in the student population. The persistence and scale of GPA and test score discrepancies in our data reinforce the value of using multiple measures to assess college readiness as well as tailoring interventions to ensure that students who appear strong on paper but who may still benefit from additional supports, as well as those with untapped potential, are not overlooked.

Additionally, grade inflation and its potential impact on misalignment can be observed in the earlier part of the decade, when data were more complete, as well as later, when they were imputed. These findings suggest that the observed decline in academic discrepancy is largely an artifact of missing data rather than a true reduction in prevalence. By applying multiple imputation methods and validating results across cohorts, I demonstrate that academic discrepancy remains a widespread and growing concern, underscoring the continued importance of examining the implications of grade inflation for college readiness. As indicated previously, it is reasonable to assume that the missingness that is emerging is due to the policy changes of state and district contract holders and not due to HSGPAs themselves.

About one in four students have a notable discrepancy between their grades and test scores. This is not just a statistical anomaly; it means that a large percentage of students are receiving mixed signals about their academic readiness. For colleges, this is a significant group who may need extra support. A discrepancy rate of 25% is meaningful, as it implies that potentially thousands of students are graduating nationwide with transcripts that may over- or understate their true college preparation.

The findings from this study suggest that schools with higher levels of grade inflation tend to have more students whose high school GPAs substantially exceed their ACT scores. This pattern indicates a strong association between inflationary grading practices and academic discrepancy, though causality cannot be definitively established. This study demonstrates that across the decade examined, HSGPA-discrepant students were much more likely than ACTC-discrepant students to come from schools with greater average grade inflation. In contrast, students with ACTC score discrepancy tended to come from schools with neutral or even slightly deflated grading trends. That is to say that the combination of having a high HSGPA and a low test score is often associated with inflationary grading environments, whereas having a low HSGPA and a high test score is more likely associated with rigorous grading practices. This overall pattern held even after I accounted for student academic abilities and school average ACT test performance, indicating that these differences are not simply due to higher-achieving students being clustered in certain schools but in fact reflect real differences in grading practices.

The overall magnitude of grade inflation was modest for most cohorts, with the predicted inflation for academically discrepant students on the order of only a few hundredths of a GPA point or lower on average. However, these differences became more pronounced in the 2020–2021 cohort, where students with HSGPA discrepancy came from schools with over 0.10 points of GPA inflation, on average, on a 4.0 scale. This coincides with the COVID-19 pandemic and the transition of many schools to “no harm” grading practices, which artificially increased grades. More recent cohorts saw an attenuation of this grade inflation impact, which supports the idea that this abrupt policy change widened the discrepancy between course grades and standardized test scores.

This study demonstrates that schools with documented grade inflation produced graduates whose GPAs outpaced their standardized test scores, which sets the stage for potential misalignment in college readiness and success. The present study also shows that the more a school’s grades demonstrate grade inflation, the more likely students from that school are to have HSGPA discrepancy. This is important to keep in mind for college admissions and placement decisions, which should not rely on HSGPA alone without considering the context of the high school’s grading rigor. One of the reasons this is so important is because of the results found by Sanchez and Mattern (2018), where HSGPA-discrepant students earned significantly lower first-year college GPAs than non-discrepant students. These students are also more likely to require developmental courses and may struggle in credit completion in college.

I examined demographic differences and found only minor variations: In essence, the inflation–discrepancy link looks similar for students of different genders, race/ethnicities, and family income levels. Previous research has found that particular subgroups of students experience greater grade inflation. The present study demonstrates that when we control for test scores and look at inflation at the school level, demographic gaps largely disappear. The minor racial/ethnic differences found in this study may seem to contrast with reports that Black students' GPAs rose faster than White students' in the last decade. The key is that the present analysis accounts for ACT performance and is focused on relative inflation at the school, not student, level. It seems that when we compare students of similar test and achievement levels, the inflationary grading practices are similar across schools serving different racial populations. This could mean that the main drivers of grade inflation, such as school policies or other cultural shocks, have impacted schools universally; it may also mean that disparities in grade inflation by school demographics were mitigated by our adjustments for student achievement. Regardless, we can see that grade inflation's influence spans demographic subgroups, indicating that it is a systemic issue.

Ultimately, understanding the prevalence and nature of this discrepancy is crucial. With this knowledge, high schools and colleges can take steps to ensure that grades remain a trustworthy signal of readiness.

Implications for Stakeholders

There are some key implications for students, parents, high school counselors, educators, college admissions officers, and policymakers. It is important to consider that some students are entering college with transcripts that may not accurately reflect content mastery, which can lead to students struggling when faced with college-level work. Students who have high GPAs but relatively low test scores may face challenges in college that are not immediately apparent based on their transcripts. This study suggests that high school grades, particularly in schools with inflationary grading practices, may not fully reflect academic readiness. High school staff may need to interpret top grades with caution when external metrics like standardized test scores suggest gaps in content mastery, as research suggests some high-GPA students may still struggle with certain skills. In a test-optional context, our results suggest that a given GPA can represent different levels of mastery depending on the school a student comes from. Admissions officers should be mindful that a 4.0 at one high school may not indicate the same level of content mastery as a 4.0 at another school. The findings of this study raise an equity concern in that two students with identical GPAs might not have the same level of content mastery depending on their high school's grading standards. This could unfairly advantage students from schools with more lenient grading practices in college admissions.

Grade inflation has changed the educational landscape; high school grades may no longer tell the full story of student achievement. Students, educators, and colleges must now read these signals more carefully. By recognizing when a GPA might be inflated and taking steps to ensure academic skills back up the grades, we can better prepare students for the challenges of college. The alignment of grading standards with actual learning is crucial to ensuring that an A grade truly signifies excellence to students, parents, and colleges alike.

In conclusion, high school GPA and standardized test scores are sending increasingly mixed signals about student readiness. Grade inflation has made it more difficult to rely on HSGPA alone as a readiness indicator. Recognizing and adjusting for this discrepancy is crucial so that students are accurately prepared for and placed in college.

Limitations

There are three pertinent limitations that are worth discussing. The first is the reliance on self-reported grades. While research suggests we can trust self-reported grades at the aggregate level, students might misreport their grades, either intentionally or unintentionally, and we cannot overlook that a significant portion of students did not report their GPA at all in later years. I do attempt to account for this by including the change in the missing GPA rates in the grade inflation model, but nonetheless, a measure of caution should be applied for the results from 2019–2020 to 2023–2024. Second, the data from this study came from ACT test takers. While this sample is a large national sample, it is not a random sample of all students across the country. Third, it is important to consider that this study captures the COVID-19 pandemic in 2020–2021, which led to atypical changes in how grades were assigned. This external shock to the education system led to the adoption of grading practices that artificially bolstered grades during this period. Further research is needed to monitor whether the grade inflation trends observed in this study persist in the years following the pandemic.

References

Allensworth, E. M., & Clark, K. (2020). High school GPAs and ACT scores as predictors of college completion: Examining assumptions about consistency across high schools. *Educational Researcher*, *49*(3), 198–211. https://journals.sagepub.com/doi/pdf/10.3102/0013189X20902110

Camara, W., Kimmel, E., Scheuneman, J., & Sawtell, E. A. (2003). *Whose grades are inflated?* (Research Report 2003-4). College Board. https://files.eric.ed.gov/fulltext/ED563203.pdf

Chen, X., & Sanchez, E. I. (2024). *Has the predictive validity of high school GPA and ACT scores on postsecondary enrollment changed over time?* (Research Report R2321). ACT. https://www.act.org/content/dam/act/unsecured/documents/pdfs/R2321-Has-the-Predictive-Validity-of-HSGPA-and-ACT-Scores-on-Postsecondary-Enrollment-Changed-2024-01.pdf

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587

Edmunds, A. O. (2010). *An examination of the likelihood of persistence of students with discrepant high school grades and standardized test scores* [Doctoral dissertation, University of Louisville]. https://ir-api.ua.edu/api/core/bitstreams/102c9307-50c7-48c9-b5ff-e6aea1e671a9/content

Edmunds, A. O., & Sanchez, E. I. (2014, April). *Examining the likelihood of admission and persistence of students with discrepant high school grades and standardized test scores* [Conference presentation]. Annual convention of the Southern Association for College Admissions Counseling, Myrtle Beach, SC, United States.

Finefter-Rosenbluh, I., & Levinson, M. (2015). What is wrong with grade inflation (if anything)? *Philosophical Inquiry in Education*, *23*(1), 3–21. https://doi.org/10.7202/1070362ar

Kobrin, J. L., Camara, W. J., & Milewski, G. B. (2002). *Students with discrepant high school GPA and SAT I scores* (Research Notes RN-15). College Board. https://files.eric.ed.gov/fulltext/ED562878.pdf

Kuncel, N. R., Credé, M., & Thomas, L. L. (2005). The validity of self-reported grade point averages, class ranks, and test scores: A meta-analysis and review of the literature.

Review of Educational Research, *75*(1), 63–82. https://doi.org/10.3102/00346543075001063

Lin, S., & Sanchez, E. I. (2017, April 27). *Effects of discrepant ACT and high school GPA on enrollment and persistence* [Presentation]. Annual conference of the American Educational Research Association, San Antonio, TX, United States.

Loria, R. N., & Sanchez, E. I. (2025). *A synthesis of ACT research examining COVID's impact on college readiness, career plans, and prediction of college success* (Research Report R2420). ACT. https://www.act.org/content/dam/act/unsecured/documents/R2420-Synthesis-ACT-Research-examining-COVID-Impact-Student-Performance-2025-01.pdf

Mattern, K. D., Shaw, E. J., & Kobrin, J. L. (2011). An alternative presentation of incremental validity: Discrepant SAT and HSGPA performance. *Educational and Psychological Measurement*, *71*(4), 638–662. https://doi.org/10.1177/0013164410383563

Radunzel, J., & Noble, J. (2012). *Predicting long-term college success through degree completion using ACT Composite score, ACT Benchmarks, and high school grade point average* (Research Report 2012-5). ACT. https://files.eric.ed.gov/fulltext/ED542027.pdf

Ramist, L., Lewis, C., & McCamley-Jenkins, L. (1997). *Students with discrepant high school GPA and SAT scores* (Research Summary RS-01). College Board. http://files.eric.ed.gov/fulltext/ED562853.pdf

Sanchez, E. I. (2023). *Evidence of grade inflation since 2010 in high school English, mathematics, social studies, and science courses* (Research Report R2300). ACT. https://www.act.org/content/dam/act/secured/documents/Evidence-of-Grade-Inflation-in-English-Math-Social-Studies-and-Science.pdf

Sanchez, E. I. (2025). *The implications of grade inflation: Evaluating the prediction of first-year college GPA using high school GPA and ACT scores* (Research Report R2432). ACT. https://www.act.org/content/dam/act/unsecured/documents/R2432-The-Implications-of-Grade-Inflation-2025-11.pdf

Sanchez, E., & Buddin, R. (2015). *How accurate are self-reported high school courses, course grades, and grade point average?* (Research Report 2016-3) https://www.act.org/content/dam/act/unsecured/documents/5269-research-report-how-accurate-are-self-reported-hs-courses.pdf

Sanchez, E. I., & Edmunds, K. (2015). *How discrepant high school GPAs, test scores, and engagement impact persistence* [Presentation]. Annual conference of the Association of Institutional Research, Denver, CO, United States.

Sanchez, E. I., & Lin, S. (2017, February 1). *Effects of discrepant ACT and high school GPA on enrollment and persistence* [Unpublished manuscript].

Sanchez, E. I., & Mattern, K. D. (2018). When high school grade point average and test scores disagree: Implications for test-optional policies. In J. Buckley, L. Letukas, & B. Wildavsky (Eds.). *Measuring success: Testing, grades, and the future of college admissions*. JHU Press. https://doi.org/10.1353/book.57383

Sanchez, E. I., & Moore, R. (2022). *Grade inflation continues to grow in the past decade* (Research Report R2134). ACT. https://www.act.org/content/dam/act/unsecured/documents/2022/R2134-Grade-Inflation-Continues-to-Grow-in-the-Past-Decade-Final-Accessible.pdf

Shaw, E. J., & Mattern, K. D. (2009). *Examining the accuracy of self-reported high school grade point average* (Research Report 2009-5). College Board. https://files.eric.ed.gov/fulltext/ED562616.pdf

Tyner, A., & Gershenson, S. (2020). Conceptualizing grade inflation. *Economics of Education Review*, *78*(3), 102037. https://doi.org/10.1016/j.econedurev.2020.102037

Technical Appendix

Grade Inflation Model

To estimate grade inflation while accounting for the nested structure of students within schools, I employed hierarchical linear modeling (HLM). I analyzed separate pairs of cohorts consisting of a baseline year of 2013–2014 and one comparison year, 2014–2015 through 2023–2024. For each pair of cohorts, I fit a two-level HLM. The average school grade inflation was estimated using the model

$$HSGPA = ACTCz + \overline{ACTC_{School}} + Cohort\ Year + Percent\ Missing\ HSGPA + (Cohort\ Year * Percent\ Missing\ HSGPA) + (1 + Cohort\ Year \mid High\ School\ Code).$$

ACTCz is the student's ACT Composite score standardized to a mean of 0 and a standard deviation of 1; the school's average ACT Composite score in the comparison year is also standardized. The model nests students within high schools and includes a random slope for cohort year, accounting for baseline/comparison year, change in missing HSGPA percentage, and their interaction. Average ACT scores distinguish higher- from lower-performing schools. The random slope reflects each school's deviation from the average change in HSGPA between 2013–2014 and the comparison year, controlling for individual and school-level ACT scores and changes in missing HSGPA percentage.

The percentage missing between 2013–2014 and the comparison year was used to account for student attrition in HSGPA reporting. This model allows for the impact of missing GPA rates to differ between the baseline and comparison year. This term helps us account for the possibility that schools with larger increases in percentage of missing GPA might show spurious GPA gains between 2013–2014 and the comparison year. Grade inflation was calculated as the sum of each cohort year's school-level intercept and cohort year fixed effect, with adjustments for ACT Composite standardized score, average school-level ACTC, and the interaction between cohort year and missing HSGPA data.

Using this methodology, I estimated 10 HLM models. The results of these models can be seen in Table A1. Each of the models uses data from two cohorts, 2013–2014 and the comparison year, and produces an estimate of the overall HSGPA change between the two years as well as a distribution of school-specific changes. As an example, the model comparing 2013–2014 and 2020–2021 indicates an average HSGPA increase of about 0.12 points on a 4.0 scale after controlling for ACT scores. It also estimates an increase of about 0.04 points on a 4.0 scale for every increase in the percentage of missing HSGPA. Looking across the multiple years, we can gain a sense for the trend in average grade inflation over time. These models indicate that on average, HSGPA did not dramatically increase between 2014–2015 and 2017–2018 but began to rise in later years, with a particularly large increase during the 2020–2021 years, which coincides with the COVID-19 pandemic.

Table A1. Grade Inflation HLM Models

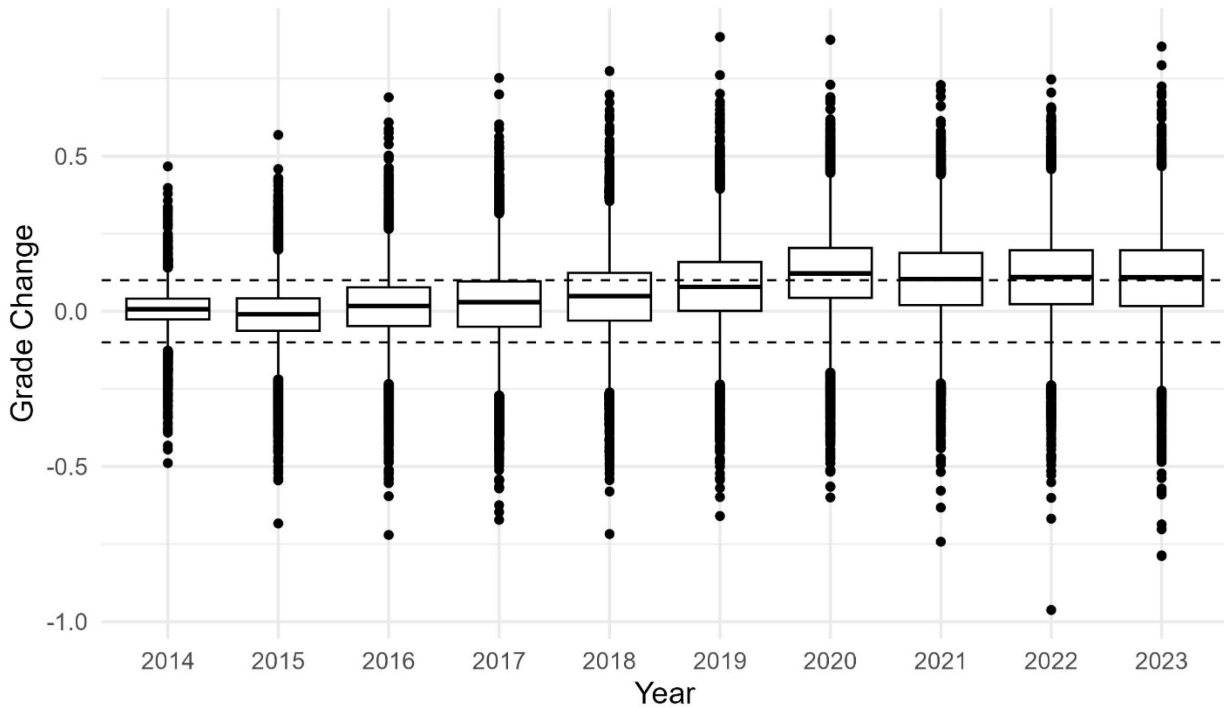
Predictor	Estimate									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
(Intercept)	3.24 (0.00)***	3.24 (0.00)***	3.25 (0.00)***	3.26 (0.00)***	3.26 (0.00)***	3.25 (0.00)***	3.24 (0.00)***	3.24 (0.00)***	3.24 (0.00)***	3.24 (0.00)***
ACTCz	0.40 (0.00)***	0.41 (0.00)***	0.40 (0.00)***	0.39 (0.00)***	0.39 (0.00)***	0.39 (0.00)***	0.39 (0.00)***	0.38 (0.00)***	0.38 (0.00)***	0.38 (0.00)***
ACTC school AVGz	−0.04 (0.00)***	−0.03 (0.00)***	−0.04 (0.00)***	−0.04 (0.00)***	−0.05 (0.00)***	−0.06 (0.00)***	−0.06 (0.00)***	−0.04 (0.00)***	−0.04 (0.00)***	−0.04 (0.00)***
cohort2014	0.01 (0.00)***	—	—	—	—	—	—	—	—	—
ΔMissing %HSGPA	−0.01 (0.00)***	−0.01 (0.00)***	−0.02 (0.00)***	−0.02 (0.00)***	−0.03 (0.00)***	−0.02 (0.00)***	−0.02 (0.00)***	−0.01 (0.00)***	−0.01 (0.00)***	−0.01 (0.00)***
cohort2014: ΔMissing %HSGPA	0.02 (0.00)***	—	—	—	—	—	—	—	—	—
cohort2015	—	−0.01 (0.00)***	—	—	—	—	—	—	—	—
cohort2015: ΔMissing %HSGPA	—	0.03 (0.00)***	—	—	—	—	—	—	—	—
cohort2016	—	—	0.02 (0.00)***	—	—	—	—	—	—	—
cohort2016: ΔMissing %HSGPA	—	—	0.02 (0.00)***	—	—	—	—	—	—	—
cohort2017	—	—	—	0.04 (0.00)***	—	—	—	—	—	—
cohort2017: ΔMissing %HSGPA	—	—	—	0.04 (0.00)***	—	—	—	—	—	—
cohort2018	—	—	—	—	0.06 (0.00)***	—	—	—	—	—
cohort2018: ΔMissing %HSGPA	—	—	—	—	0.04 (0.00)***	—	—	—	—	—
cohort2019	—	—	—	—	—	0.09 (0.00)***	—	—	—	—
cohort2019: ΔMissing %HSGPA	—	—	—	—	—	0.04 (0.00)***	—	—	—	—
cohort2020	—	—	—	—	—	—	0.12 (0.00)***	—	—	—
cohort2020: ΔMissing %HSGPA	—	—	—	—	—	—	0.04 (0.00)***	—	—	—
cohort2021	—	—	—	—	—	—	—	0.10 (0.00)***	—	—

Predictor	Estimate									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
cohort2021: ΔMissing %HSGPA	—	—	—	—	—	—	—	0.03 (0.00)***	—	—
cohort2022	—	—	—	—	—	—	—	—	0.11 (0.00)***	—
cohort2022: ΔMissing %HSGPA	—	—	—	—	—	—	—	—	0.03 (0.00)***	—
cohort2023	—	—	—	—	—	—	—	—	—	0.10 (0.00)***
cohort2023: ΔMissing %HSGPA	—	—	—	—	—	—	—	—	—	0.04 (0.00)***
AIC	3,943,750.70	4,017,919.49	3,786,215.43	3,377,160.33	3,137,658.86	2,786,210.02	2,175,219.73	2,373,082.68	2,267,964.02	2,253,654.85
BIC	3,943,879.59	4,018,048.55	3,786,344.07	3,377,287.97	3,137,785.80	2,786,335.93	2,175,343.14	2,373,206.78	2,268,087.56	2,253,778.15
Num. obs.	2,924,001	2,974,336	2,852,107	2,582,751	2,407,323	2,169,932	1,692,140	1,811,067	1,713,424	1,673,216
N HSCODE	12,411	12,368	11,717	11,090	10,648	10,069	7,834	7,927	7,756	7,531

***$p < 0.001$; **$p < 0.01$; *$p < 0.05$

Figure A1 shows the trends in the distribution of grade change across the years examined. We can see that over the course of the decade, from 2014 to 2023, the distribution of grade change increased notably. In the early years, the median grade change was very close to 0, indicating a relatively neutral shift in grades. However, by 2023, the median had risen to just above 0.1, a threshold marked by a dashed line in the plot, signifying a notable increase. This upward movement of the median suggests that, on average, student grades have been increasing over time. Additionally, the third quartile also shows an increase over time, which indicates that the higher end of the grade increases has grown over the years.

Figure A1. Distribution of Grade Change by Year



Note. The dashed lines represent ±0.1 grade points.

ABOUT ACT

ACT is transforming college and career readiness pathways so that everyone can discover and fulfill their potential. Grounded in more than 65 years of research, ACT's learning resources, assessments, research, and work-ready credentials are trusted by students, job seekers, educators, schools, government agencies, and employers in the U.S. and around the world to help people achieve their education and career goals at every stage of life. Visit us at www.act.org.