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Sticky at the Top, Churning at the Bottom: The Concentration and Persistence of Examination Success across Secondary Schools in Bangladesh, 2022–2026

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Abstract

Bangladesh publishes Secondary School Certificate (SSC) results for every school, and a school's count of top grades (GPA–5) is widely read as a measure of its quality. This article asks how concentrated those grades are among schools, and whether the same schools stay at the top and the bottom from year to year. It uses school-level results for 17,549 schools under the nine general education boards that entered candidates in every year from 2022 to 2026, which together entered 96% of the candidates officially reported in 2026. The tenth of schools with the most GPA–5s enrolled about a fifth of candidates but earned 60% of all GPA–5s in 2022 and 73% in 2026, as the national GPA–5 rate halved. Concentration was several times what random allocation would produce. Position at the top was persistent: 60% of schools in the top tenth on GPA–5 rate in 2022 were still there in 2026, about four-fifths of the retention produced by a reference model in which school propensities stay fixed and only binomial sampling varies. Position at the bottom was not: 19% of schools in the bottom tenth on pass rate in 2022 were still there in 2026, against 46% under the same model. The contrast held in all nine boards and in every robustness check, and widened among larger schools. Annual lists of the lowest-performing schools therefore identify largely different schools each year, while the concentration of top grades reflects persistent differences in results between schools, whose causes these data cannot identify.

1. Introduction

Every year, the publication of Secondary School Certificate (SSC) results in Bangladesh is followed by two kinds of lists. One names the schools with the most GPA-5s, the highest grade point average a candidate can obtain. The other names the schools where no candidate passed. Both lists are read as statements about schools: the first as evidence of excellence, the second as evidence of failure. Both are also used, explicitly or implicitly, to direct attention and resources. Schools with no passes are investigated, and families who can choose seek out schools that appear on the first list.

Both readings rest on an assumption that is rarely tested: that a school's position reflects something durable about the school rather than the luck of one cohort. Research on school performance in other systems has long warned that annual school-level results contain substantial noise, especially for small schools (Kane & Staiger, 2002), and that rankings based on one year of results are a poor guide to future performance (Leckie & Goldstein, 2009). Whether the same is true in Bangladesh, where the examination system is centralised, results are published for every school and the number of candidates per school is often small, has not been examined at national scale.

This article asks two questions. First, how concentrated is examination success among Bangladeshi secondary schools, and did that concentration change between 2022 and 2026, a period in which pass rates and GPA-5 rates fell sharply? Second, how persistent are schools' positions at the top and the bottom of the distribution, and how does the observed movement compare with what a reference model of fixed school propensities and binomial sampling would produce?

To answer them, the article assembles school-level SSC results for all nine general education boards for five consecutive years and analyses the 17,549 schools that entered candidates in every year. It compares observed concentration with what random allocation of grades would produce, and observed persistence with what a model of fixed school positions and sampling noise would produce. The main finding is an asymmetry. Top grades are highly concentrated and the schools that earn them change little from year to year. Failure is more evenly spread, and the schools at the bottom change substantially, by more than the fixed-propensity reference model produces.

2. Background

2.1 The SSC examination and the 2022–2026 period

The SSC is the national examination taken at the end of Grade 10. For general education it is administered by nine regional boards, which publish results for every candidate and every institution. A candidate's subject grades are combined into a grade point average on a five-point scale, and GPA−5 is the maximum. The examination is high-stakes for students, since results determine admission to higher secondary colleges, and highly visible for schools, since school-level counts of passes and GPA−5s are published and widely reported.

The five years studied here were unusually unstable. The 2022 examination followed pandemic closures and was held on an abridged curriculum with reduced examination time (The Financial Express, 2022). The 2023 examination was held on all subjects with full marks but still on a shortened syllabus (The Business Standard, 2022). The full syllabus returned in 2024 (The Financial Express, 2026). In 2025 the national pass rate across all boards fell to 68.45%, from 83.04% the year before, a fall widely attributed to stricter evaluation of answer scripts (bdnews24.com, 2025a). In 2026 it fell again, to 62.25%, the lowest since 2007 (The Financial Express, 2026). The 2026 cohort also sat a shortened syllabus as regular candidates (bdnews24.com, 2025b).

These changes affected all schools in a given board and year. Because the analyses below compare schools within the same board and year, they remove any shift in difficulty or leniency common to all schools in a board and year. They do not remove differences in how schools with different streams or intakes responded to these changes, a point taken up in the discussion.

2.2 Stability and noise in school performance measures

Research on school effectiveness has repeatedly found that schools' raw examination results are fairly stable over time, while measures of change or "improvement" are much less so (Gray et al., 2003; Thomas et al., 2007). Kane and Staiger (2002) showed that a large share of the year-to-year variation in school-level test scores in the United States reflects sampling variation in which students happen to be tested, and that schools at either extreme of the distribution are disproportionately small schools, whose results are the noisiest. Leckie and Goldstein (2009) showed for England that once uncertainty is taken

into account, current school rankings carry little information about the future performance of a new cohort.

Two implications follow for the present study. Persistence should be judged against a benchmark that allows for sampling noise, not against perfect stability. And the extremes of the distribution, where both lists of “best” and “worst” schools are drawn, are where noise matters most.

2.3 Concentration and the small-unit problem

The concentration of an outcome across units is commonly summarised by the dissimilarity index (Duncan & Duncan, 1955), which here measures how far the distribution of GPA–5s across schools departs from the distribution of candidates. When units are small and the outcome is rare, random allocation alone produces substantial unevenness, so the index overstates systematic concentration (Carrington & Troske, 1997). This matters in Bangladesh because many schools enter fewer than 50 candidates and GPA–5 became rarer over the period. A rise in measured concentration could therefore partly reflect the falling GPA–5 rate rather than any change in how schools differ. The analysis below separates the two by comparing observed concentration with a random-allocation benchmark computed for every board and year.

2.4 School inequality in Bangladesh

Bangladesh’s secondary system is predominantly non-government, with schools differing widely in size, resources and intake. School-level studies have found that achievement in the national examinations is lower where the surrounding population is less educated (Hossain, 2025) and that the density of competing schools is associated with achievement and stratification (Hossain, 2026). Science-stream participation and success have been described as concentrated among urban and better-off students (Alam & Parvin, 2024). These studies concern the level of achievement and its correlates. They do not examine how examination success is distributed across schools over time, or whether positions at the top and bottom persist. That is the gap this article addresses.

A further reason to expect persistence at the top comes from the literature on cumulative advantage, in which a favourable relative position becomes a resource that produces further gains (DiPrete & Eirich, 2006). Schools known for GPA–5s may attract stronger applicants, more fee income and better teachers, reinforcing their position. No comparable mechanism keeps a school at the bottom, and schools there may be subject to interventions, changes in leadership or simply a better cohort.

3. Data and Methods

3.1 Data

The analysis uses school-level SSC results for 2022–2026 for all nine general education boards: Barishal, Chattogram, Cumilla, Dhaka, Dinajpur, Jashore, Mymensingh, Rajshahi and Sylhet. For each school (identified by its Educational Institution Identification Number, EIIN) and year, the data record the

number of candidates who appeared, the number who passed and the number who obtained GPA–5. For four boards the data are recorded by stream (Science, Humanities and Business Studies) and were summed to school totals. The data were compiled from the boards' published institution-level results and archived copies of those results.

Two checks were applied. First, internal consistency: in every school-year, passes do not exceed candidates and GPA–5s do not exceed passes. Second, coverage: the 2026 totals in the data were compared with the official totals published by each board. Coverage of candidates ranges from 94.7% (Chattogram) to 102.3% (Barishal and Mymensingh), and coverage of GPA–5s from 96.1% to 107.6% (Mymensingh) (Table 1). The two excesses arise from differences in definition and timing that could be reconciled only in part. In the Barishal 2026 source, the absentee field is zero for every school and the candidate count equals the number registered, not the number who sat the examination. The board reported that 80,458 candidates appeared (Bangladesh Sangbad Sangstha, 2026), whereas the archive lists 82,901 candidates in total and labels all of them as having appeared. The data hold 82,310 of these candidates in 1,505 schools, and their passes and GPA–5s are 99.3% of the official totals. For Barishal in 2026, rates are therefore computed per registered candidate. One robustness check estimates each Barishal school's 2026 attendees from its own 2022–2025 attendance history. A second calibrates the historical school-specific ratios to the board-wide 2026 attendance rate; both are sensitivity exercises rather than verified counts of attendees at individual schools (Table 6). The Mymensingh 2026 data were taken from the board's results portal, which marks 1,121 candidates in 492 schools as having non-final results; a further 17 candidates in 14 schools have no recorded outcome. These 1,138 candidates are counted as appeared but neither passed nor failed. The remaining difference from the official figures, including the excess of 432 GPA–5s, may reflect updates after re-scrutiny but could not be verified against a dated official release. Analyses excluding both boards are also reported in Table 6. For Dhaka, 21 schools flagged in the source data as having unresolved stream-level inconsistencies were excluded.

The analytic sample consists of the 17,549 schools that entered candidates in all five years. These schools account for 97.6% of candidates in the 2026 data and 96.4% of the candidates officially reported by the nine boards. Analyses that rank schools by rates use the 17,013 of them that entered at least 10 candidates in every year, since rates for smaller cohorts are dominated by noise. Staffing information for 2026 was taken from the national Education Management Information System (EMIS) and is used only descriptively.

Table 1
Sample and coverage by board

Board	Schools in 2026 data	Schools in all five years	Of which ≥ 10 candidates every year	2026 candidates, % of official	2026 GPA−5s, % of official
Barishal	1,505	1,452	1,377	102.3	99.3
Chattogram	1,081	1,081	1,074	94.7	96.1
Cumilla	1,763	1,763	1,741	98.4	97.9
Dhaka	3,409	3,179	3,130	98.3	98.9
Dinajpur	2,800	2,673	2,532	99.4	99.7
Jashore	2,534	2,534	2,407	98.5	97.5
Mymensingh	1,344	1,301	1,271	102.3	107.6
Rajshahi	2,686	2,647	2,564	98.7	98.0
Sylhet	963	919	917	99.3	98.7
Total	18,085	17,549	17,013	98.8	98.8

Note. Official totals are the 2026 SSC totals published by each board. Coverage above 100% indicates that the compiled data contain more candidates or GPA−5s than the official figure; the sources of these differences are discussed in Section 3.1, and both boards are excluded in a robustness check (Table 6). Dhaka excludes 21 schools with unresolved stream-level inconsistencies in the source data.

3.2 Measures of concentration

For each board and year, schools were ranked by their number of GPA−5s, and the share of all GPA−5s earned by the top tenth of schools was computed together with that tenth's share of candidates. Nine-board figures pool the top tenth of each board. Concentration was also summarised by the dissimilarity index $D = \tfrac{1}{2} \Sigma |g_i/G - n_i/N|$, where g_i and n_i are school i's GPA−5s and candidates and G and N the board totals. D is the share of GPA−5s that would have to move between schools for every school to have the board's GPA−5 rate.

To separate systematic concentration from small-unit noise, GPA−5s were reallocated at random 200 times for every board and year, with each candidate having the board's GPA−5 rate as the probability of a GPA−5. The mean of D, the top-tenth share and the share of schools with no GPA−5 across these simulations give the values expected if schools did not differ at all. The difference between observed and random D is reported as excess concentration.

3.3 Measures of persistence

Schools were ranked within each board and year by GPA−5 rate (GPA−5s per candidate) and by pass rate, and converted to percentile ranks. Ranking within board and year removes differences in leniency

between boards and years. Ties were broken at random. They matter for the many schools with no GPA−5 and for schools with a 100% pass rate, which in 2022 made up 19.5% of the rate-based sample in Jashore and 11.8% in Cumilla. To show how much the results depend on this convention, the main retention measures were recomputed for 100 independent random orderings of tied schools (Appendix Table A2). Persistence was measured in three ways: the Spearman correlation of ranks between years; the share of schools in the top or bottom tenth in 2022 that were in the same tenth in 2026 (and, separately, in consecutive years); and the share of schools in the top or bottom tenth in all five years. Quintile transition matrices from 2022 to 2026 complete the description.

The main analysis compares the top and bottom of the pass-rate distribution, since a comparison on the same measure is the most direct test of asymmetry. The top of the GPA−5 distribution is reported alongside it because that is where public lists of leading schools are drawn. The bottom of the GPA−5 distribution is not used for substantive claims: in 2026, 40% of schools had no GPA−5, so their ranks are decided by random tie-breaking.

3.4 A benchmark for persistence under stable positions

Even if no school's underlying performance changed, observed positions would move because each year's cohort is a sample. To estimate how much persistence sampling noise alone would allow, each school was assigned a fixed underlying pass rate and GPA−5 rate equal to its pooled five-year rate. For each board and year these rates were shifted by a common amount on the logit scale so that expected totals reproduced the observed board totals, which allows the examinations to become harder or easier while every school keeps its relative position. Pass and GPA−5 counts were then drawn from binomial distributions with each school's actual number of candidates, and all persistence measures were recomputed. This was repeated 200 times.

The result is a reference model, not an upper bound. It describes the persistence expected if school propensities were fixed and candidates' outcomes were independent binomial draws. Because the propensities are estimated from the same five years, the model is internally calibrated rather than an independent estimate of underlying school performance. It also ignores sources of variation such as the clustering of students within classes, changes in cohort composition and uneven responses to changes in the examination, any of which would reduce persistence. A gap between observed and modelled persistence is therefore movement that the reference model does not capture, not proof of improvement or decline in schools. The comparison between the top and the bottom is less dependent on these assumptions, since they apply equally at both ends.

3.5 Robustness

Persistence was re-estimated after excluding Barishal and Mymensingh (whose 2026 source counts differ from official totals), restricting the sample to schools with at least 30 candidates each year, excluding Dhaka, analysing Dhaka separately, examining boards individually, using 2023 as the base year, and ending the comparison in 2025. Barishal 2026 was additionally assessed under two alternative denominators. The first used each school's pooled ratio of appeared to registered candidates during

2022–2025, restricted to the interval 0.80–1.00; schools without a historical ratio received the board median. The second preserved these relative school-specific attendance ratios but multiplied them by a common factor to match the 2026 board-wide proportion who appeared (80,458 of 82,901 registered candidates). The archived school file covers 82,310 registered candidates, so its calibrated target was 79,884 estimated attendees, assuming the missing 591 registered candidates had the same attendance rate. Estimated attendance at each school was constrained to lie between recorded passes and registered candidates; fractional estimates were allocated as integers by largest remainders. Baseline school membership and the random ordering of tied schools were held fixed for both comparisons, so differences reflect denominator assumptions rather than a new tie draw. No school-level 2026 attendance data were observed: neither adjustment should be interpreted as a corrected school result.

3.6 Use of generative AI tools

ChatGPT (OpenAI) was used to help compile school-level results, mainly from a third-party archive of board results, and staffing records from public sources, and to develop the additional attendance-calibration sensitivity analysis and draft revisions to its Methods and Results descriptions. Claude (Anthropic; Claude Opus models, including Opus 5.5) was used for data harmonisation, statistical coding, analysis, and language editing. The corresponding author chose the research questions and supplied the source data; the second author contributed to the preliminary analyses and reviewed the draft. Both authors reviewed and revised all AI-assisted data, code, text and results, and take full responsibility for the integrity of the article, including its references. No AI tool is listed as an author.

4. Results

4.1 Results fell, and top grades became more concentrated

Among the 17,549 schools, the pass rate fell from 88.0% in 2022 to 63.6% in 2026, and the GPA–5 rate halved, from 14.5% to 7.4% (Fig. 1b). The share of schools with no GPA–5 doubled, from 20.7% to 40.5%.

GPA–5s were highly concentrated throughout (Table 2). In 2022, the tenth of schools with the most GPA–5s in each board enrolled 23.1% of candidates and earned 59.6% of all GPA–5s. By 2026 that tenth earned 73.4% of GPA–5s with 24.6% of candidates (Fig. 1a). The dissimilarity index rose from 0.41 to 0.52: in 2026, just over half of all GPA–5s would have had to move between schools for every school to have its board's GPA–5 rate.

Part of this rise is mechanical. As GPA–5s became rarer, random allocation alone would have produced more unevenness: the random-allocation D rose from 0.10 to 0.16, and the share of schools expected to have no GPA–5 by chance rose from 1.3% to 6.9%. But observed concentration exceeded these benchmarks by a wide and growing margin. Excess concentration rose from 0.31 in 2022 to 0.39–0.40 in 2024–2025 before easing to 0.36 in 2026, and in every year the share of schools with no GPA–5 was between 6 and 16 times what chance would produce. Across the 45 board-years, boards and years with lower GPA–5 rates had both higher top-tenth shares (r =−0.76) and higher excess concentration (r

=−0.56). These correlations are descriptive: the 45 board-years come from nine boards and are not independent observations. When top grades became scarcer, they became more concentrated in the schools that already earned most of them, beyond what their scarcity alone implies.

Table 2
Results and concentration of GPA−5s, schools present in all five years (N = 17,549)

Pass rate (%)	**2022**	**2023**	**2024**	**2025**	**2026**
	88.0	**80.9**	**83.7**	**67.9**	**63.6**
GPA−5 rate (%)	14.5	9.6	10.0	8.3	7.4
Top tenth of schools: share of GPA−5s (%)	59.6	67.6	68.5	73.6	73.4
Top tenth of schools: share of candidates (%)	23.1	21.4	21.8	23.1	24.6
Dissimilarity index D, observed	0.41	0.50	0.51	0.54	0.52
D under random allocation	0.10	0.13	0.12	0.15	0.16
Excess concentration (observed − random)	0.31	0.38	0.39	0.40	0.36
Schools with no GPA−5, observed (%)	20.7	34.7	36.7	43.7	40.5
Schools with no GPA−5, random allocation (%)	1.3	2.5	2.5	5.4	6.9

Note. The top tenth is defined within each board and year as the 10% of schools with the most GPA−5s; nine-board figures pool these schools. D and the random-allocation benchmarks are computed within each board and year (200 simulations, each candidate having the board's GPA−5 rate) and averaged across boards, weighted by number of schools.

4.2 Positions at the top persisted; positions at the bottom did not

Schools' ranks were moderately stable (Table 3). The average correlation of GPA−5-rate ranks between consecutive years was 0.56, and between 2022 and 2026 it was 0.49. Pass-rate ranks were less stable: 0.44 between consecutive years and 0.31 between 2022 and 2026.

Table 3

Persistence of school positions, observed and under a fixed-propensity reference model (N = 17,013)

Measure	Observed	Fixed-propensity reference model [central 90%]	Ratio
Rank correlation (Spearman)			
GPA−5 rate, consecutive years (mean)	0.56	0.70 [0.69, 0.70]	0.80
GPA−5 rate, 2022–2026	0.49	0.68 [0.68, 0.69]	0.71
Pass rate, consecutive years (mean)	0.44	0.72 [0.72, 0.73]	0.61
Pass rate, 2022–2026	0.31	0.71 [0.70, 0.71]	0.44
Still in the same tenth in 2026 (% of 2022 tenth)			
Top tenth, GPA−5 rate	60.0	75.8 [74.9, 76.8]	0.79
Top tenth, pass rate	36.7	62.4 [61.0, 63.6]	0.59
Bottom tenth, pass rate	19.1	45.7 [44.3, 47.1]	0.42
Still in the same tenth the next year (%, mean of four transitions)			
Top tenth, GPA−5 rate	66.1	76.6 [76.0, 77.1]	0.86
Top tenth, pass rate	45.2	65.6 [64.9, 66.3]	0.69
Bottom tenth, pass rate	24.3	47.8 [47.1, 48.6]	0.51
In the same tenth in all five years (% of schools)			
Top tenth, GPA−5 rate	4.50	6.14 [6.05, 6.22]	0.73
Top tenth, pass rate	1.83	4.48 [4.38, 4.57]	0.41
Bottom tenth, pass rate	0.15	1.77 [1.67, 1.89]	0.08

Note. Schools present in all five years with at least 10 candidates every year. Ranks are percentile ranks within board and year. Reference-model values come from 200 simulations in which each school keeps its five-year pooled pass and GPA−5 rates, shifted by a common board-year amount on the logit scale to reproduce board totals, and counts are drawn from binomial distributions. Under random positions, 10% of a tenth would remain in it and 0.001% of schools would be in the top or bottom tenth in all five years. Bracketed ranges are the central 90% of simulated values under the model, not confidence intervals. Ratio = observed ÷ model mean.

The contrast between the two ends of the distribution is sharper (Fig. 2). Of the schools in the top tenth on GPA−5 rate in 2022, 60.0% were still in the top tenth in 2026, six times the 10% expected if positions were random. On pass rate, 36.7% of top-tenth schools remained there, but only 19.1% of bottom-tenth schools did. In consecutive years, 66.1% of top-tenth schools on GPA−5 rate and 45.2% on pass rate stayed in the top tenth, against 24.3% of bottom-tenth schools on pass rate. Over the full period, 4.5% of

schools were in the top tenth on GPA−5 rate in all five years, against 0.001% expected by chance, while only 0.15% of schools (25 schools) were in the bottom tenth on pass rate in all five years.

The reference model provides a benchmark for this movement. If every school had kept a fixed propensity and only cohort sampling varied, 75.8% of top-tenth schools on GPA−5 rate would have remained in the top tenth from 2022 to 2026. The observed 60.0% is 79% of that benchmark. On pass rate, the benchmark is 62.4% at the top and 45.7% at the bottom, so under the model the bottom would be less persistent than the top, because bottom schools are smaller. The observed values, however, fall much further below the benchmark at the bottom (19.1%, or 42% of the benchmark) than at the top (36.7%, or 59%). The same pattern appears for consecutive years and for the five-year measures: 4.5% of schools stayed in the top tenth on GPA−5 rate in all five years against 6.1% under stable positions, while 0.15% stayed in the bottom tenth on pass rate against 1.8%.

In other words, much of the movement out of the top of the GPA−5 distribution is of the size binomial sampling would produce, whereas movement out of the bottom of the pass-rate distribution is far larger than the reference model allows. The data do not show whether that extra movement reflects changes within schools, changes in which students sit the examination or other sources of variation. What they do show is that schools that do badly in one year are, to a large extent, different schools from those that do badly a few years later.

The same is true of the schools at the very bottom, those in which no candidate passed. Such schools are rare in the panel and very small, with a median of five candidates in the school-years concerned. Of the 36 schools with no passes in 2025, three also had none in 2026. Over the five years, 78 schools had at least one year with no passes, and six had more than one.

4.3 Transitions across the whole distribution

The quintile transition matrices show the same asymmetry across the distribution (Table 4). Of schools in the top fifth on GPA−5 rate in 2022, 57% were in the top fifth in 2026 and 7% had fallen to the bottom fifth. On pass rate, 41% of top-fifth schools stayed in the top fifth, while 31% of bottom-fifth schools stayed in the bottom fifth, and 25% of bottom-fifth schools had risen to the top two fifths by 2026. The middle quintiles were close to uniform, which is consistent with substantial movement throughout the distribution except at the top.

Table 4
Quintile transitions from 2022 to 2026 (% of schools in each 2022 quintile) A. GPA−5 rate

2022 quintile	1 (lowest)	2	3	4	5 (highest)
1	35.0	31.6	17.4	11.3	4.7
2	25.5	26.0	24.0	17.8	6.7
3	19.1	20.7	24.8	23.6	11.7
4	13.7	15.1	23.4	28.4	19.4
5	6.6	6.5	10.5	18.8	57.5
B. Pass rate					

2022 quintile	1 (lowest)	2	3	4	5 (highest)
1	31.3	25.4	18.7	15.8	8.7
2	23.0	23.3	22.9	19.9	11.0
3	18.6	20.7	23.3	22.2	15.2
4	15.0	17.3	20.1	23.7	24.0
5	12.1	13.3	15.1	18.4	41.1

Note. Rows sum to 100. Quintiles are defined within board and year (N = 17,013). For the GPA−5 rate, the lowest quintiles consist largely of schools with no GPA−5, whose ranks are decided by random tie-breaking.

4.4 Which schools stayed where

The schools that persisted at either end differed sharply in size and resources (Table 5). The 766 schools in the top tenth on GPA−5 rate in every year had a median of 160 candidates a year and a median of 32 teaching staff recorded in EMIS, and 26% were combined school-and-college institutions. The 1,382 schools that produced no GPA−5 in any of the five years had a median of 35 candidates and 11 teaching staff, and 1% were school-and-colleges. Across the full balanced sample of 17,549 schools, 1,690 (9.6%) produced no GPA−5 in any year. The 651 schools in the bottom tenth on pass rate in at least three of the five years were also small (median 41 candidates, 12 teaching staff). The typical school in the sample had 67 candidates and 14 teaching staff.

Table 5
Characteristics of schools that persisted at the top and bottom

Group	Schools	Mean candidates per year	Median candidates per year	Median teaching staff (EMIS 2026)	School-and-college (%)
Top tenth on GPA−5 rate every year	766	198	160	32	26.4
No GPA−5 in any year	1,382	40	35	11	1.0
Bottom tenth on pass rate in 3 + years	651	55	41	12	1.7
All schools (min 10 candidates)	17,013	88	67	14	6.5

Note. Schools present in all five years with at least 10 candidates every year. The first three groups can overlap. In the full balanced sample (N = 17,549), 1,690 schools had no GPA−5 in any year. Teaching staff are as recorded in the 2026 Education Management Information System for schools with a successful record.

These are descriptive contrasts. Schools that earn many GPA−5s are larger, record more teaching staff and are more often attached to colleges, but these characteristics are also associated with more selective intakes, and the data do not allow the two to be separated.

4.5 Robustness

The asymmetry was robust to the alternative denominator assumptions (Table 6). The Barishal 2026 file covers 82,310 registrations at 1,505 schools; the historical school-ratio adjustment estimated 80,949 attendees, whereas the independent calibration to the board-wide attendance proportion estimated 79,884. Across the 17,013 rate-analysis schools, both adjustments gave 60.0% retention in the top tenth on GPA−5 rate, 36.7% in the top tenth on pass rate and 19.0% in the bottom tenth on pass rate, compared with 60.0%, 36.7% and 19.1%, respectively, in the unadjusted analysis. The ranking of originally tied schools was held constant, so these comparisons do not reflect a fresh random tie ordering. Excluding Barishal and Mymensingh altogether gave 60.9% top-GPA−5 retention and 19.7% bottom-pass-rate retention. With a minimum of 30 candidates each year the corresponding figures were 64.0% and 18.6%; excluding Dhaka they were 57.9% and 18.7%, and for Dhaka alone 69.7% and 20.8%. Using 2023 as the base year they were 60.6% and 22.4%, and ending in 2025 they were 62.3% and 23.6%. On the same pass-rate measure, top-tenth retention exceeded bottom-tenth retention in every specification.

The contrast widened among larger schools (Appendix Table A2). With a minimum of 50 candidates a year (8,636 schools), median retention across 100 tie-orderings was 72.4% at the top on GPA−5 rate, 52.0% at the top on pass rate and 20.7% at the bottom; with a minimum of 100 candidates (3,083 schools) it was 81.2%, 62.4% and 26.2%. Random ordering of ties moved the nine-board estimates by at

most one percentage point, but it mattered more within some boards: in Jashore, where a fifth of schools had a 100% pass rate in 2022, top-tenth pass-rate retention ranged from 12.0% to 22.4% across tie-orderings. Board-level pass-rate estimates should be read with this in mind.

Board by board (Appendix Table A1), retention in the top tenth on GPA−5 rate ranged from 45.7% (Cumilla) to 80.6% (Chattogram), and retention in the bottom tenth on pass rate from 13.4% (Mymensingh) to 33.6% (Chattogram). In all nine boards, retention at the top exceeded retention at the bottom on both the GPA−5 and the pass-rate comparison. Across 100 tie-orderings, the GPA−5 comparison held in every board and every ordering, and the pass-rate comparison held in every ordering except in Jashore, where it held in 96 of 100.

Table 6
Persistence under alternative specifications (% retained)

Specification	Schools	Top tenth, GPA−5 rate	Top tenth, pass rate	Bottom tenth, pass rate
Main (all nine boards, min 10 candidates)	17,013	60.0	36.7	19.1
Excluding Barishal and Mymensingh	14,365	60.9	38.9	19.7
Min 30 candidates every year	13,200	64.0	42.3	18.6
Excluding Dhaka	13,883	57.9	35.0	18.7
Dhaka only	3,130	69.7	43.9	20.8
Barishal 2026: historical attendance ratios	17,013	60.0	36.7	19.0
Barishal 2026: calibrated board attendance	17,013	60.0	36.7	19.0
Base year 2023, end year 2026	17,013	60.6	43.1	22.4
Base year 2022, end year 2025	17,013	62.3	37.6	23.6

Note. Unless stated, the base year is 2022 and the end year 2026. Ranks are recomputed within board and year for each sample. For the two Barishal attendance checks, the original ordering of tied schools was held fixed. The new calibration uses school-specific historical attendance ratios rescaled to the board-wide attendance proportion; its 79,884 estimated attendees cover the 82,310 registrations included in the file, not the entire board. These are sensitivity estimates, not verified school-level attendance figures.

Table A1
Persistence by board, 2022 to 2026

Board	Schools	Top tenth, GPA−5 rate (%)	Top tenth, pass rate (%)	Bottom tenth, pass rate (%)	Rank correlation, GPA−5 rate	Rank correlation, pass rate
Barishal	1,377	48.6	26.1	17.5	0.36	0.19
Chattogram	1,074	80.6	58.3	33.6	0.69	0.56
Cumilla	1,741	45.7	26.3	19.0	0.41	0.25
Dhaka	3,130	69.7	43.9	20.8	0.55	0.35
Dinajpur	2,532	55.1	42.5	18.2	0.44	0.33
Jashore	2,407	61.0	19.5	14.6	0.51	0.24
Mymensingh	1,271	62.5	23.4	13.4	0.47	0.20
Rajshahi	2,564	58.8	43.6	18.8	0.49	0.36
Sylhet	917	58.7	50.0	22.0	0.45	0.31

Note. Schools present in all five years with at least 10 candidates every year. Percentages are shares of each board's 2022 tenth that were in the same tenth in 2026.

Table A2
Retention from 2022 to 2026 by minimum cohort size, across 100 random orderings of tied schools (%)

Minimum candidates every year	Schools	Top tenth, GPA−5 rate	Top tenth, pass rate	Bottom tenth, pass rate
10	17,013	60.0 [60.0–60.0]	36.6 [35.7–37.3]	19.0 [18.8–19.1]
30	13,200	64.0 [63.8–64.2]	42.4 [41.7–43.0]	18.6 [18.6–18.6]
50	8,636	72.4 [72.3–72.4]	52.0 [51.4–52.4]	20.7 [20.7–20.7]
100	3,083	81.2 [81.2–81.2]	62.4 [61.8–63.1]	26.2 [25.9–26.2]

Note. Schools present in all five years with at least the stated number of candidates in every year; tenths are recomputed within board and year for each sample. Cells show the median across 100 independent random orderings of schools with identical rates, with the minimum and maximum in brackets. The ranges show sensitivity to the ranking convention, not sampling uncertainty. Main-text figures use a single ordering and can differ slightly from the medians.

5. Discussion

The results describe a system in which examination success is concentrated in a small and stable group of schools, while poor results are spread more widely and move between schools. Three points deserve discussion.

First, the growing concentration of GPA–5s between 2022 and 2026 was not simply a consequence of GPA–5s becoming rarer. Random allocation would have increased measured concentration as the GPA–5 rate fell, but observed concentration rose further than that, and boards and years with lower GPA–5 rates showed more excess concentration. One interpretation is that stricter grading removed GPA–5s mainly from candidates near the threshold, who were spread across many schools, while candidates well above the threshold, concentrated in a few schools, kept theirs. Under this interpretation the leading schools did not improve. Rather, the lenient years had spread top grades more widely than the underlying distribution of high performance would justify. The data are consistent with this account but cannot test it directly, since candidate-level marks are not available.

Second, the persistence of the leading schools was close to what would be expected if their positions had not changed at all. This is consistent with the literature finding that raw results are relatively stable over time (Thomas et al., 2007) and with a process of cumulative advantage in which reputation attracts stronger intakes (DiPrete & Eirich, 2006). The profile of persistently leading schools, which are large, record more teaching staff and are often attached to colleges, fits that interpretation. It also means that a list of the schools with the most GPA–5s largely reproduces the same institutions every year, and that such lists say more about which schools receive high-attaining students than about which schools add most to their students' learning. Since the data contain no measure of students' prior attainment, the analysis cannot distinguish between the two.

Third, the bottom of the distribution churns. Fewer than one in five schools in the bottom tenth on pass rate in 2022 were still there in 2026, less than half the share produced by the fixed-propensity reference model. This movement could reflect real improvement in some schools, real deterioration in others, changes in which students enter, or forms of variation that the binomial benchmark does not capture, such as a single weak teacher in a key subject in one year. The changes in examination rules over the period may also have affected weak schools unevenly. Whatever its source, the implication for policy is direct. Lists of schools with the lowest pass rates, and of schools in which no candidate passed, receive extensive attention in Bangladesh every year, yet they identify largely different schools from year to year. Most schools with no passes in one year had passes the next, and they are so small that a handful of candidates decides their result. Interventions targeted at the schools that failed in one year are therefore likely to reach many schools that would have recovered without them and to miss many that will fail the following year. Kane and Staiger (2002) made the same argument for accountability systems that reward or sanction schools on single-year results.

There is one exception to the churn at the bottom. A group of 1,690 schools, almost one in ten, produced no GPA–5 in any of the five years. These schools are small, with a median of 35 candidates and 11 recorded teaching staff, but their size alone does not explain the pattern. If every candidate in a board

and year had that board-year's GPA–5 rate, about eight schools in the panel would be expected to record no GPA–5 in all five years. The observed number is two hundred times larger. Whatever its causes, whether intake, teaching, resources or the combination of streams offered, a substantial share of Bangladeshi secondary schools consistently produced none of the grade that most selective colleges require.

The study has several limitations. The data are school-level counts, so the analysis cannot adjust for students' prior attainment or background, and the persistence it measures is persistence of raw results, not of school effectiveness. The panel includes only schools that entered candidates in all five years, so schools that closed, merged or skipped a year are not observed, which may bias the persistence estimates in either direction. The data were compiled from published and archived institution-level results rather than from an official microdata release; most of these come from a third-party archive of board results, and totals match official figures closely except in two boards, where the discrepancies are explained only in part. Absolute staff counts are not staffing ratios, and the data contain no other measure of school resources. Rankings at tied thresholds depend on an arbitrary ordering, although the nine-board results are insensitive to it. The staffing measures are a 2026 snapshot and describe association, not cause. Finally, the period studied was marked by unusual changes in the examination, and the patterns may differ in more stable years.

6. Conclusion

Across 17,549 Bangladeshi secondary schools observed for five years, top examination grades were concentrated in a small group of schools whose positions changed little, while low pass rates moved between schools far more than a reference model of fixed propensities and binomial sampling would produce. As the GPA–5 rate halved between 2022 and 2026, the leading tenth of schools came to earn nearly three-quarters of all GPA–5s.

Two practical conclusions follow. Annual lists of failing schools are a poor basis for targeting support, since most of the schools on them will not be on next year's list; a measure that averages results over several years, or that identifies schools persistently near the bottom, would target support more reliably. And the concentration of top grades in a stable group of large schools with more recorded teaching staff is a feature of the system rather than of particular years, which suggests that questions about access to those schools, and about what happens to high-attaining students elsewhere, deserve as much attention as the annual count of GPA–5s.

Future research could link these results to candidate-level marks to test whether stricter grading removed top grades mainly from candidates near the threshold, and to students' prior attainment to separate the effects of schools from those of their intakes.

Declarations

Availability of data and material. The school-level results analysed are derived from results published by the nine general education boards of Bangladesh. Most institution-level records were obtained from eboardresultsapp.com, a third-party archive of board results, and the remainder from the Jashore and Mymensingh boards' own portals; exact retrieval dates were not recorded. The compiled source files, the script that builds the harmonised dataset from them, the harmonised dataset, file checksums and the analysis scripts, which reproduce every numerical table and figure, are available from the corresponding author on reasonable request and will be deposited in a public repository on acceptance.

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Ethics approval and consent to participate. The study uses published school-level aggregate results and administrative staffing counts. It involves no individual-level data and no human participants, so ethics approval and informed consent were not required.

Competing interests. The authors report no competing interests other than any stated on the title page.

Authors' contributions. Author contributions are stated on the title page to preserve anonymity.

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Use of generative AI. Described in Section 3.6.

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Figures

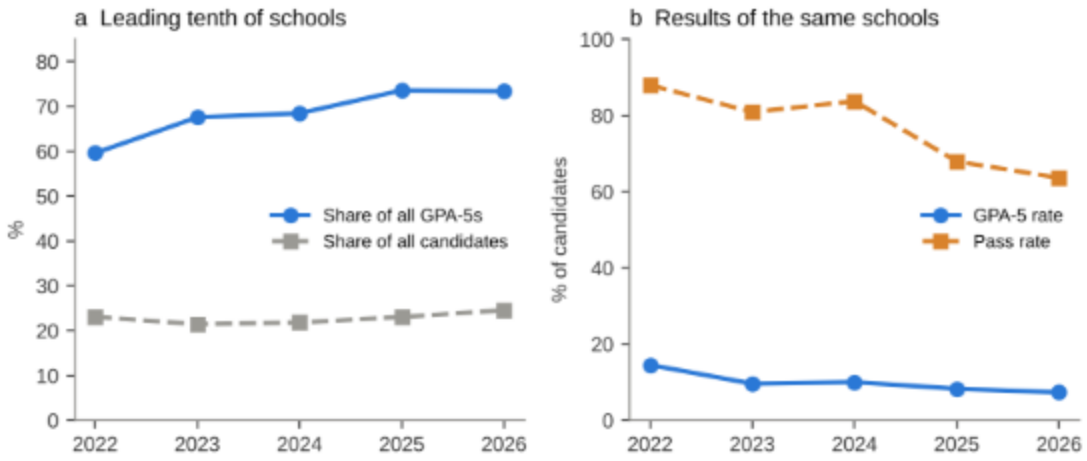


Figure 1

(a) Share of all GPA-5s and of all candidates in the tenth of schools with the most GPA-5s in each board. (b) Pass rate and GPA-5 rate of the same 17,549 schools, 2022–2026.

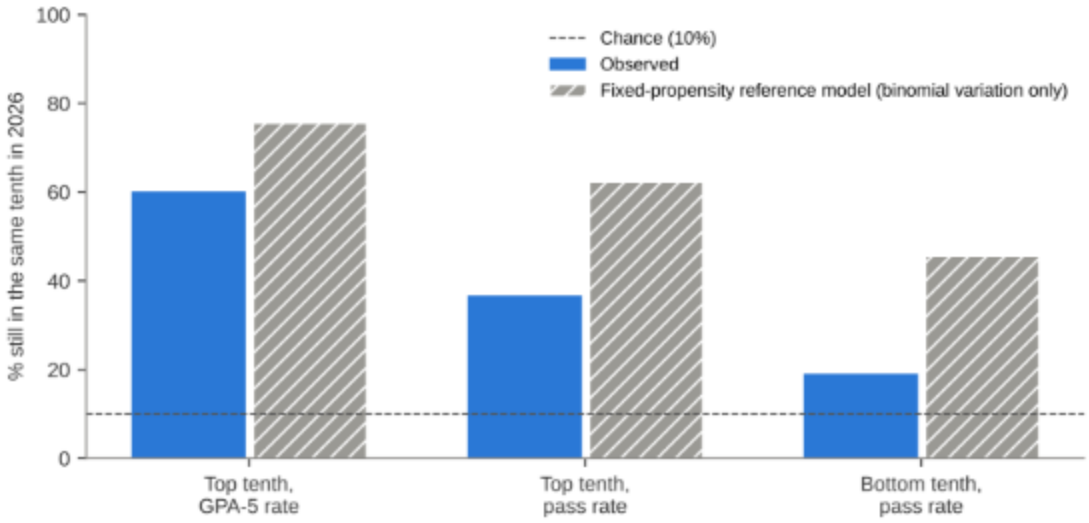


Figure 2

Share of schools in the top or bottom tenth in 2022 that were in the same tenth in 2026, observed and under a reference model in which every school keeps a fixed propensity and only binomial sampling varies. The bottom tenth on GPA-5 rate is omitted because positions there are decided largely by random tie-breaking among schools with no GPA-5.