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Investigation of the 2019-2021 National Evaluation exam: A case study of high school admissions in Bucharest

Alexandra-Maria FIRESCU
Faculty of Administration and Business, University of Bucharest, Bucharest, Romania
alexandra.firescu@s.unibuc.ro

Marian NECULA
Economic Cybernetics and Statistics Doctoral School, The Bucharest University of Economic Studies, Bucharest, Romania
neculamarian18@stud.ase.ro

Cecilia Emanuela BĂSU
Economic Cybernetics and Statistics Doctoral School,
The Bucharest University of Economic Studies, Bucharest, Romania
basucecilia21@stud.ase.ro

Andreea ARDELEAN
Faculty of Administration and Business, University of Bucharest,
The Bucharest University of Economic Studies, Bucharest, Romania
andreea.ardelean@faa.unibuc.ro

Maria-Magdalena ROȘU
Economic Cybernetics and Statistics Doctoral School,
The Bucharest University of Economic Studies, Bucharest, Romania
rosumaria13@stud.ase.ro

Eduard C. MILEA*
Economic Cybernetics and Statistics Doctoral School,
The Bucharest University of Economic Studies, Bucharest, Romania
**Corresponding author, mileaeduard12@stud.ase.ro*

Mihaela PĂUN
Faculty of Administration and Business, University of Bucharest,
The Bucharest University of Economic Studies, Bucharest, Romania
mihaela.paun@faa.unibuc.ro

Abstract. *With knowledge being at the center of societal development, global policy forums, such as OECD, promote policies to improve national education systems. According to the most recent PISA evaluation, 40% of Romanian 15-year students are considered functionally illiterate. The Romanian education system's mission to catch up with international standards was challenged by the policy shocks following the ongoing COVID-19 pandemic. In an attempt to adapt to the new situation, the Minister of Education implemented a substantial reduction of the curricula covered by the National Evaluation exam held in 2020. In 2021, the exam was restructured so to resemble the PISA tests. The purpose of this paper is to investigate how these changes have impacted the Romanian upper education system. We used the*

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2019-2021 high school admission data published by the Ministry of Education. Our results indicate apparent progress of high school efficacy due to the inflationary grade effects. We provided an alternative metric based not on grades but high school candidates' rank. The classification of high schools based on this instrument is revealed as more robust. Most high schools in Bucharest run in the lowest performance category with the upper education system relying on a few top-performing high schools. For administrators and policymakers, this type of instrument is crucial for a proper evaluation of educational institution efficacy and authentic progress. This type of evaluation is the first action in the process to meet OECD requirements to close the gap between the lowest and highest education institutions in the EECA region.

Keywords: national evaluation exam, high-school admissions, PISA, OECD, COVID-19, functional illiteracy

Introduction

The triannual PISA assessment from 2015 to 2018 positions Romania as being in line with the average OECD performance score for "reading" and "science", but falling behind with the "mathematics" score. The score distribution modification from 2015-2018 no significant change regarding the best-performing students but with the lower performing students becoming worse (OECD, 2019).

The latest findings from PISA have been published in July 2021, based on data collected in 2018 (OECD, 2021). As a general conclusion for Eastern Europe and Central Asia (EECA), the latest results indicate slight progress, nevertheless inequity is acutely present, ranging from many students with poor performance to some of the world's best-achieving students originating from the region. Romania has a 29.8% share of the low achievers in all three subjects, above the OECD average, and a 4.1% share of top performers in at least one subject, below the OECD average. Departing from OECD average score, 40% of Romanian 15-year students are considered functionally illiterate.

OECD and UNICEF highlight the need to improve the academic performance of young adults in Romania and a reform of the Romanian National Education Strategy is implied. Considering the imminence of Romania joining OECD, human capital development should become a priority for Romania (OECD, 2017).

The current study proposes an exploratory analysis on how the most recent changes regarding the Romanian National Evaluation (RNE) exam have impacted the education system. The evaluation questions the performance and stability of the Romanian Education System such that Romania can align to OECD requirements. To ensure data homogeneity, we considered the Bucharest high schools to investigate the changes concerning secondary upper education admissions from 2019 to 2021.

Literature review

The Romanian Government mandates 11 compulsory school years, starting with primary education (classes 0-4), lower secondary education (classes 5-8), and the first two years of high school (classes 9-10), representing the first half of upper-secondary education. The last two of upper-secondary education and the early education (0-6 years old) are optional. (European Comission, 2017).

At age 14-15, to enroll in the secondary upper education level (high schools), students undertake the National Evaluation exam. Comparable to international tests, the exam results are calculated as scores (LEGE 1, 2011).

Based on their admission grade (80% the National Evaluation exam and 20% average grade from lower secondary education) and the list of high school preferences, students are then distributed into high-school classes. The main focus of the high school is the development and diversification of important competencies, as well as the formation of necessary skills according to a student's choice of field, profile, specialization, and qualification as represented in Figure 1 (Romanian Ministry of Education, n.d.).

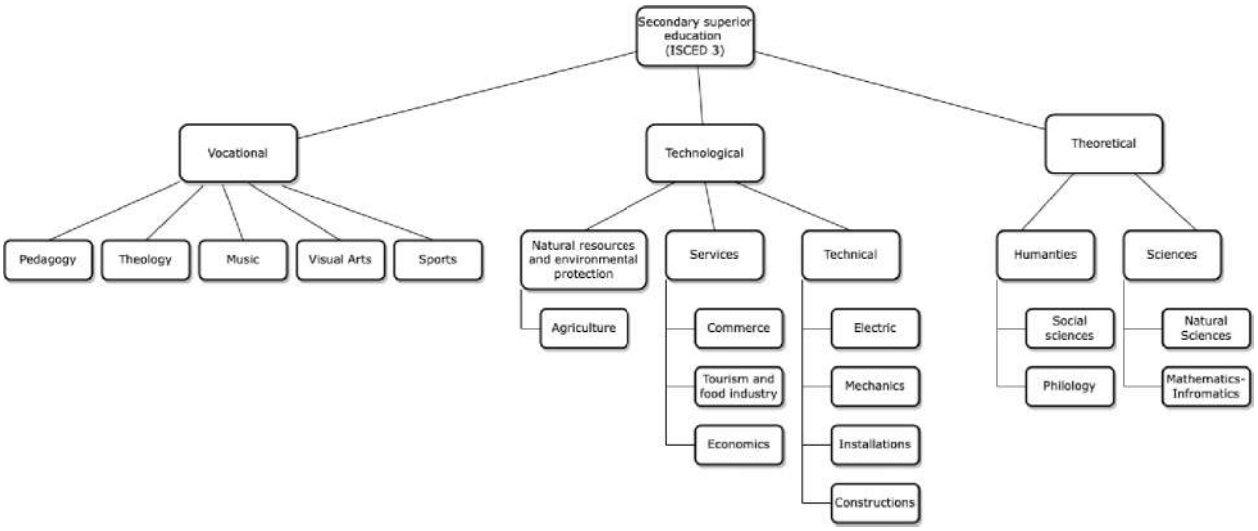


Figure 1. Secondary upper education: fields, profiles and specializations

Source: Authors' own research.

Some amendments regarding the methodology of the National Evaluation exam have been implemented in the past few years (OMEC 5077, 2016).

Since March 2020, due to the ongoing COVID-19 pandemic and lockdown policies implemented, several education-related measures were taken by the Romanian Government in order to minimize the risk of spreading the disease (DL 195/2020, 2020). One of the most important legislative amendments would be the transition from physical classes to online classes, applicable to all educational institutions.

The COVID-19 era also brought modifications to the structure and content of the National Examination. In order to "reflect this year's reality" (Mihai Peticilă, 2021a), the Minister of Education announced a substantial reduction of the curricula covered by the two examinations held in the summer of 2020. For the Mathematics exam, the most relevant reduction in curricula is represented by the exclusion of solid geometry elements, whereas the Romanian language exam will no longer include the argumentative essay (OMEC 3472, 2020).

We expect these changes to impact high school admissions trends. Our hypothesis is that some upper educational institutions are resilient to policy shocks, while others struggle to manage instability.

In 2021, the first generation of students was subjected to a completely new examination structure, meant to resemble the PISA tests. This new evaluation structure is more focused on first-sight text analysis, as opposed to class-taught material (OMEC 3472, 2020). In this regard,

the grades obtained by students in 2021 are expected to be sensibly lower as compared to the other years, due to the novelty of the exam structure.

The change concerned both the Romanian Language and Literature exam – Subject II, instead of producing an essay in relation to an idea presented by the text, the students were asked to describe a specific event or experience (Mihai Peticilă, 2021b) – and the Mathematics exam – Subject III, which historically included 2 plane and solid geometry exercise, were replaced by 6 exercises, covering both algebra and geometry (Mihai Peticilă, 2021c).

Methodology

Each year, the Ministry of Education publishes the high school admission data for each county. We built our dataset by selecting the admission data for Bucharest from 2019 to 2021 (Ministry of Education, 2022), keeping only the variables which were consistent between years, and dropping those that were year-specific (e.g., observations where new academic specializations were created or disbanded). Our dataset does not include data from military high-schools in Bucharest as they have a different legal status.

Missing or incomplete information in the source data was filled using additional sources such as the yearly brochures published by Bucharest Municipality School Board (Bucharest Municipality School Board, 2019, 2020, 2021).

The final dataset consists of 729 observations and 12 variables regarding high-schools: reference year, name, specialization, primary language used for teaching, academic field, number of seats, last admission grade, last student rank based on their average grade, first average admission grade, first regional student rank based on their average grade, Google Maps API coordinates based on high school names. Since 89.07% of seats by field corresponded to theoretical and technological fields with only 10.03% seats allocated to the vocational field, we focused our evaluation on the former.

Results and discussions

We structured our results in three sections: the admission trends firstly in the theoretical and technological fields, and secondly by specializations, plus the high school classification based on the letter grade system. We opted for this system for greater data granularity. Compared to quartile cut-offs, this approach also minimizes the leverage effect of a bulk of low grades.

Theoretical and Technological fields

Last admission grade and last admission rank

As seen in Figure 2, we identified the highest median of the last admission grade for 2020 and the lowest for 2021. Across the three years, the Sciences profile presents the highest last admission grade among the five profiles, followed by the Humanities profile. We also note that the last admission grade in the Theoretical field is consistently below the otherwise passing grade (5/10), with the exception of 2020.

The differences between 2019 and 2021 are not notable for Humanities, Sciences, and Natural resources and environmental protection, due to the fact that the last admission grade is very high for the first two (above 8, 8.5 respectively) and very small (below passing grade) for the latter. Nonparametric analysis reveals the above-mentioned conclusions as statistically significant (Table 1).

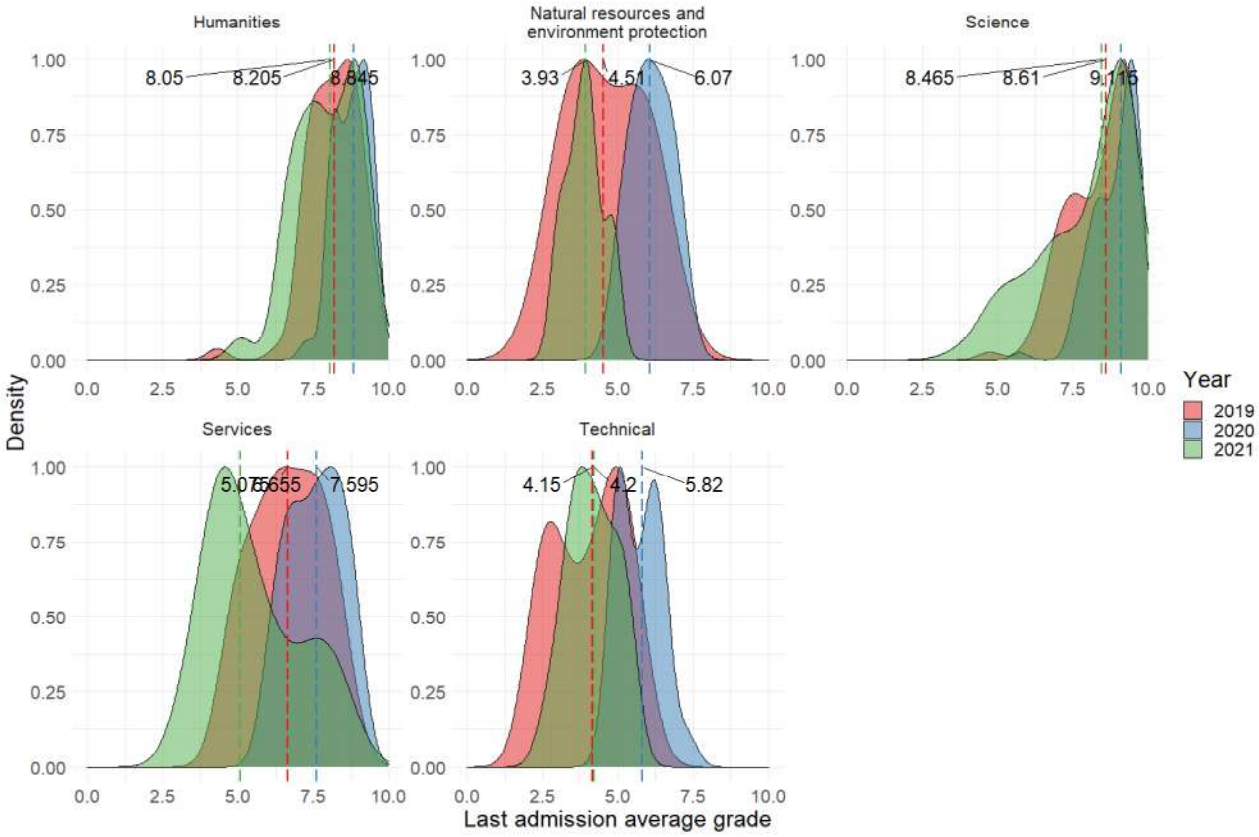


Figure 2. Distribution by last admission grade x profile x year (medians represented by dashed colored lines) for the theoretical and technological fields

Source: Authors' own research.

Table 1. Pairwise differences between medians of last admission average grades by profile for the theoretical and technological fields

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Humanities	***2019***	***2020***	1799 (0.00000264 *)	4.52 (0.0000124 *)
	2019	***2021***	3564 (0.215)	-0.976 (0.329)
	2020	***2021***	4730 (0.000000537 *)	-5.49 (0.000000118 *)
Natural resources and environmental protection	***2019***	***2020***	5 (0.226)	1.63 (0.208)
	2019	***2021***	17 (0.421)	-0.990 (0.322)

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
	2020	***2021***	25 (0.024 *)	-2.62 (0.0267 *
Science	***2019***	***2020***	3236 (0.000262 *)	3.54 (0.000788 *)
	2019	***2021***	5548 (0.139)	-1.28 (0.202)
	2020	***2021***	6838 (0.00000975 *)	-4.87 (0.00000343 *)
Services	***2019***	***2020***	286 (0.003 *)	2.56 (0.0137 *)
	2019	***2021***	748 (0.002 *)	-2.70 (0.0137 *)
	2020	***2021***	868 (0.00000543 *)	-5.27 (0.000000418 *)
Technical	***2019***	***2020***	68.5 (0.00000944 *)	4.82 (0.00000428 *)
	2019	***2021***	270 (0.711)	0.103 (0.918)
	2020	***2021***	530 (0.00000201 *)	-4.72 (0.00000477 *)

Source: Authors' own research.

Similarly, we have investigated the last admission rank in the five profiles of the Theoretical and Technological fields as illustrated in Figure 3. The median of the last admission rank fluctuated by less than 100 positions, around position 4910, the Sciences profile attracting the top 32.78% students from Bucharest).

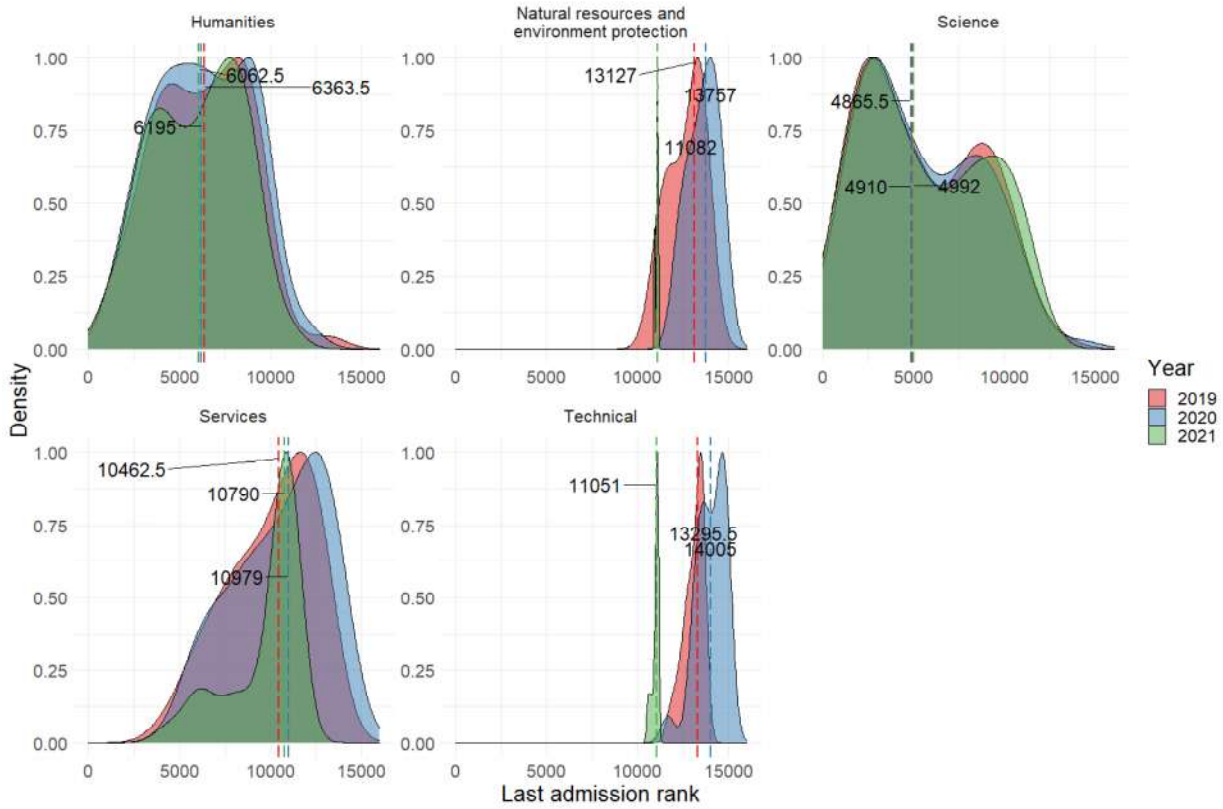


Figure 3. Distribution by last rank x profile x year (medians represented by dashed colored lines) for the theoretical and technological fields

Source: Authors' own research.

As we can see in Table 2, no statistically significant difference was found between the last admission rank between the investigated years for any profile, with the exception of two profiles in the Technological field.

Table 2. Pairwise differences between medians of last admission rank by profile for the theoretical and technological fields

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Humanities	***2019***	***2020***	2832 (0.839)	0.182 (1)
	2019	***2021***	3146 (0.839)	-0.352 (1)
	2020	***2021***	3185 (0.839)	-0.537 (1)
Natural resources and environmental	***2019***	***2020***	6 (0.222)	0.919 (0.358)

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
protection	***2019***	***2021***	25 (0.012)	-2.19 (0.0568)
	2020	***2021***	25 (0.012 *)	-3.11 (0.00559 *)
Science	***2019***	***2020***	4682 (0.955)	0.0713 (1)
	2019	***2021***	4836 (0.955)	0.260 (1)
	2020	***2021***	4876 (0.955)	0.188 (1)
Services	***2019***	***2020***	435 (0.319)	0.942 (0.692)
	2019	***2021***	587 (0.319)	-0.915 (0.692)
	2020	***2021***	643 (0.239)	-1.86 (0.190)
Technical	***2019***	***2020***	101 (0.00000579 *)	2.58 (0.000990 *)
	2019	***2021***	576 (0.00000000 *)	-4.67 (0.00000060 *)
	2020	***2021***	576 (0.00000000 *)	-7.25 (0.00000000 *)

Source: Authors' own research.

First admission grade and first admission rank

Figure 4 suggests no considerable change of the median of the first admission grade between 2019 and 2021, but consistent differences between 2020 and the other two years. The statistical significance of these observations is sustained by the tests summarized in Table 3.

First admission average grades are tightly concentrated around the median scores for the profiles in the Theoretical academic field, median scores for Humanities and Science profiles varying between years by a margin of .10 points, with more than 50% of the scores landing above the median for Humanities, and about a third of the scores are above the median for Sciences. In the case of Technological academic field, although by year, first average grades are fitted by a highly leptokurtic, apparently more symmetric, distributions, between years, especially for 2020, a greater variation in the median tend to support the presence of an underlying systemic change either in the national assessment exam structure and content, either by an education policy implemented in past which manifested itself in 2020.

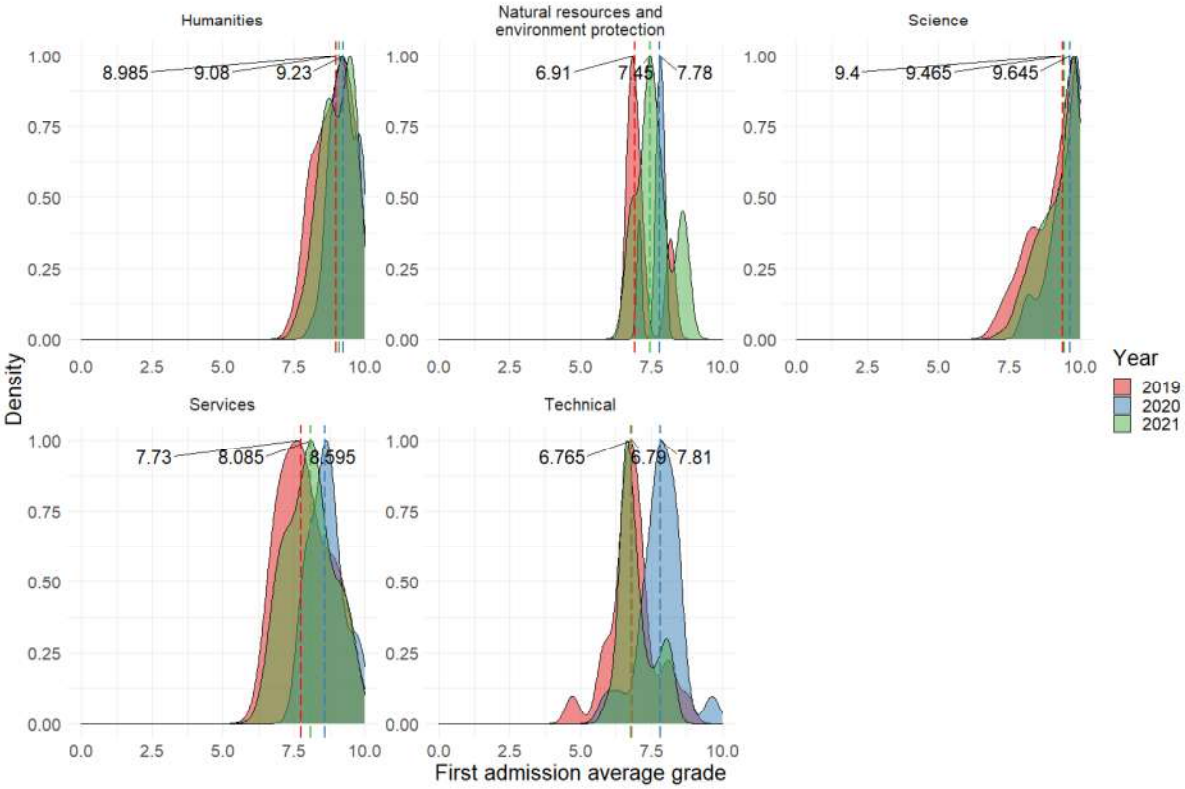


Figure 4. Distribution by first admission grade x profile x year (medians represented by dashed colored lines) for the theoretical and technological fields

Source: Authors' own research.

Table 3. Pairwise differences between medians of first admission average grade by profile for the theoretical and technological fields

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Humanities	***2019***	***2020***	2022 (0.004 *)	3.27 (0.00322 *)
	2019	***2021***	2804 (0.403)	0.767 (0.443)
	2020	***2021***	3778 (0.013 *)	-2.55 (0.0218 *)
Natural resources and environmental protection	***2019***	***2020***	6 (0.333)	1.56 (0.359)
	2019	***2021***	6 (0.333)	1.20 (0.459)
	2020	***2021***	15 (0.69)	-0.354 (0.724)

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Science	***2019***	***2020***	3674 (0.025 *)	2.73 (0.0190 *)
	2019	***2021***	4684 (0.517)	0.562 (0.574)
	2020	***2021***	5876 (0.033 *)	-2.20 (0.0553)
Services	***2019***	***2020***	254 (0.002 *)	3.61 (0.000925 *)
	2019	***2021***	440 (0.34)	0.821 (0.412)
	2020	***2021***	730 (0.005 *)	-2.79 (0.0106 *)
Technical	***2019***	***2020***	101 (0.00036 *)	4.00 (0.000187 *)
	2019	***2021***	260 (0.571)	0.445 (0.656)
	2020	***2021***	466 (0.000363 *)	-3.56 (0.000744 *)

Source: Authors' own research.

As for the distribution of first admission rank, Figure 5, one can note differences in the median first admission rank for each profile. However, as seen in Table 4, the differences are not statistically significant, with one exception being the Technical profile between 2019 and 2021.

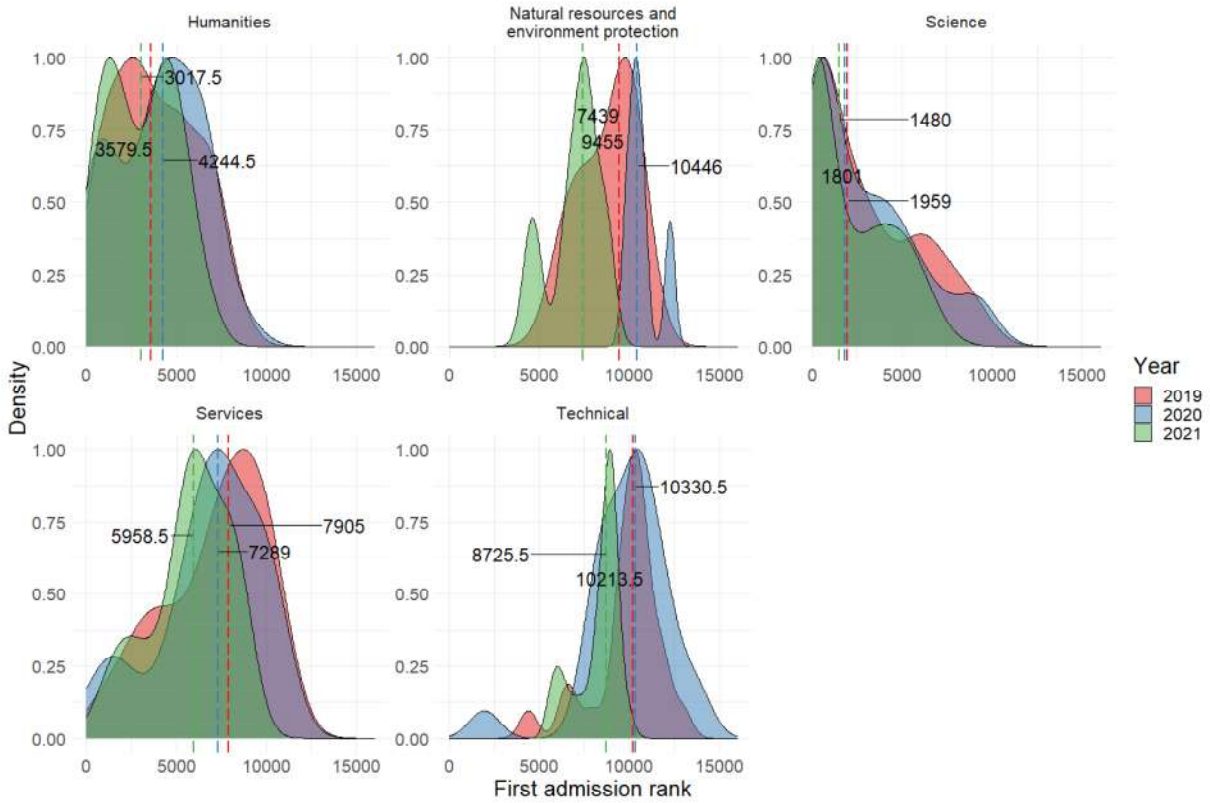


Figure 5. Distribution by first admission rank x profile x year (medians represented by dashed colored lines) for the theoretical and technological fields

Source: Authors' own research.

Table 4. Pairwise differences between medians of first admission rank by profile for the theoretical and technological fields

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Humanities	***2019***	***2020***	2743 (0.594)	0.538 (0.590)
	2019	***2021***	3486 (0.173)	-1.58 (0.226)
	2020	***2021***	3641 (0.1)	-2.13 (0.0996)
Natural resources and environmental protection	***2019***	***2020***	3 (0.083)	1.70 (0.179)
	2019	***2021***	20 (0.151)	-1.27 (0.203)
	2020	***2021***	25 (0.024)	-2.97 (0.00894)

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Science	*2019*	*2020*	4810 (0.788)	-0.295 (0.768)
	2019	*2021*	5543 (0.394)	-1.44 (0.446)
	2020	*2021*	5402 (0.394)	-1.15 (0.504)
Services	*2019*	*2020*	542 (0.697)	-0.399 (0.690)
	2019	*2021*	687 (0.055)	-2.35 (0.0558)
	2020	*2021*	657 (0.078)	-1.95 (0.101)
Technical	*2019*	*2020*	277 (0.83)	-0.124 (0.901)
	2019	*2021*	489 (0.0000375 *)	-3.81 (0.000422 *)
	2020	*2021*	449 (0.000992 *)	-3.68 (0.000461 *)

Source: Authors' own research.

Specializations

Due to the low number of observations for some academic specializations by year of admission, we selected the first four specializations by the highest average number of enrollments, which account for >50% of the total enrollments, namely Social Sciences, Philology, Natural Sciences, and Mathematics, all specializations from the Theoretical field (Figure 1).

Last admission grade and last admission rank

Figure 6 suggests that the last admission grade for Sciences profile (Mathematics and Informatics and Natural Sciences) is between 8 and 9 with the median around 9. The grades in 2021 were lower than in the previous 2 years and the median shifted to the left with almost one full point compared to 2020. In the Humanities profile (Philology and Social Sciences) the distribution of the last admission grade was not as skewed to the left as in the case of the Sciences profile, the last admission grade was more stable and it ranged between 6 and 9. These results reflect the particularities of these last 3 years and the COVID-19 impact on education.

The last admission grade distribution for Mathematics-Informatics has a longer tail to the left (lowest grades) which can be attributed to the change in the format and structure of the National Evaluation exam, although the median last admission average grade is stable.

The change in the examination is consistent with the findings in the other specializations, the distributions of the last admission grades for the Philology and Social Sciences has horizontal shift to the left, the median last admission grade by year dropping by almost 1 full point, the highest in 2020, then in 2019 and lowest in 2021. Natural Sciences specialization shows a similar distribution horizontally shifted in 2020 and 2019 and a different distribution in 2021 with an increase in the share of last admission average grade in the range of 4 to 6 points. Nonparametric analysis reveals that these differences are statistically significant, Table 5.

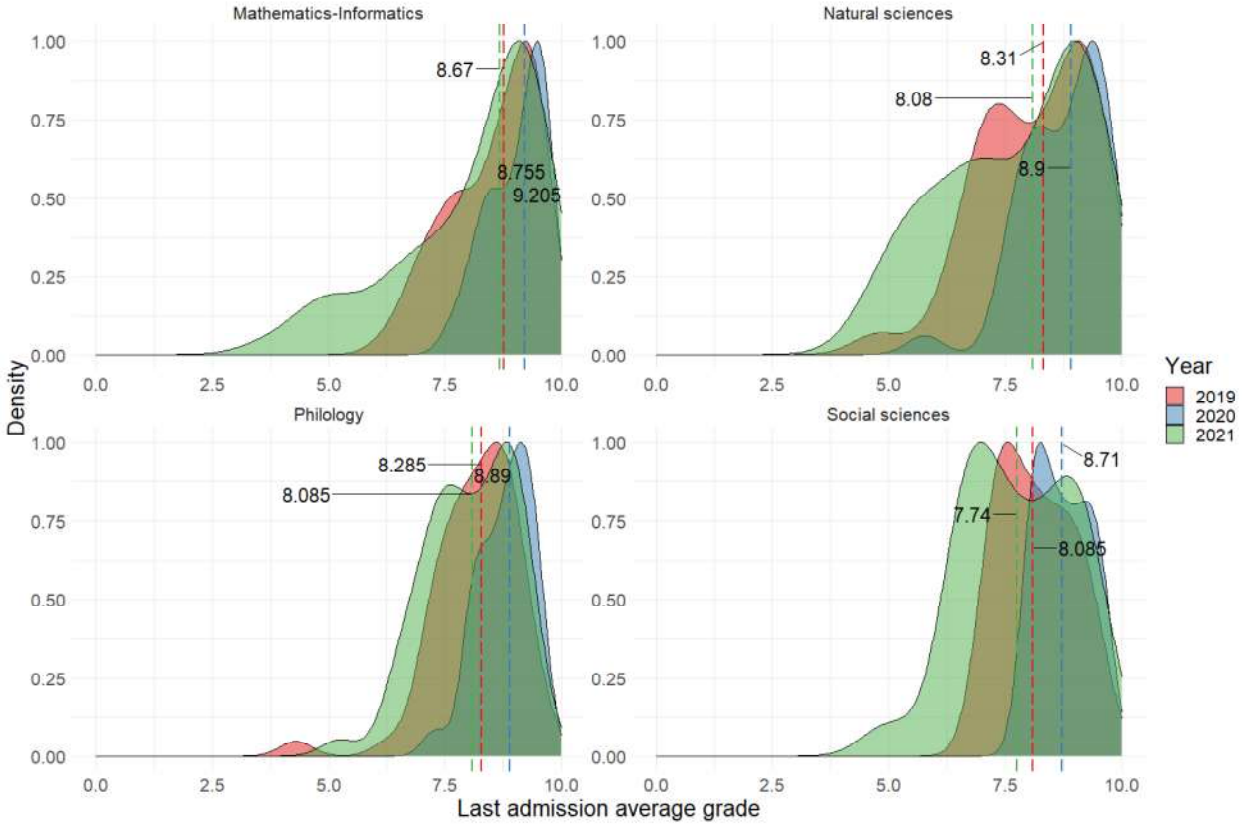


Figure 6. Distribution by last admission average grade x specialization x year (medians represented by dashed colored lines) for the theoretical field

Source: Authors' own research.

Table 5. Pairwise differences between medians of last admission average grade by specialization for the theoretical field

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Mathematics-Informatics	***2019***	***2020***	1218 (0.003 *)	2.88 (0.00807 *)
	2019	***2021***	2146 (0.26)	-0.956 (0.339)
	2020	***2021***	2660 (0.00066 *)	-3.88 (0.000316 *)

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Natural sciences	***2019***	***2020***	458 (0.05 *)	2.01 (0.0897)
	2019	***2021***	770 (0.256)	-1.01 (0.311)
	2020	***2021***	928 (0.012)	-3.03 (0.00725 *)
Philology	***2019***	***2020***	750 (0.000138 *)	3.78 (0.000313 *)
	2019	***2021***	1528 (0.433)	-0.652 (0.514)
	2020	***2021***	2088 (0.0000462 *)	-4.47 (0.0000236 *)
Social sciences	***2019***	***2020***	164 (0.017 *)	2.25 (0.0495 *)
	2019	***2021***	390 (0.132)	-1.23 (0.220)
	2020	***2021***	478 (0.004 *)	-3.52 (0.00131 *)

Source: Authors' own research.

Although the last admission grades varied by year quite significantly, the last admission rank by specialization is invariant, with slightly more students in the lower rank for Mathematics-Information that seemed to be captured by the Philology specialization (Figure 7). As we can see in Table 6, no statistically significant difference was found between the last admission rank between the investigated years for any specialization.

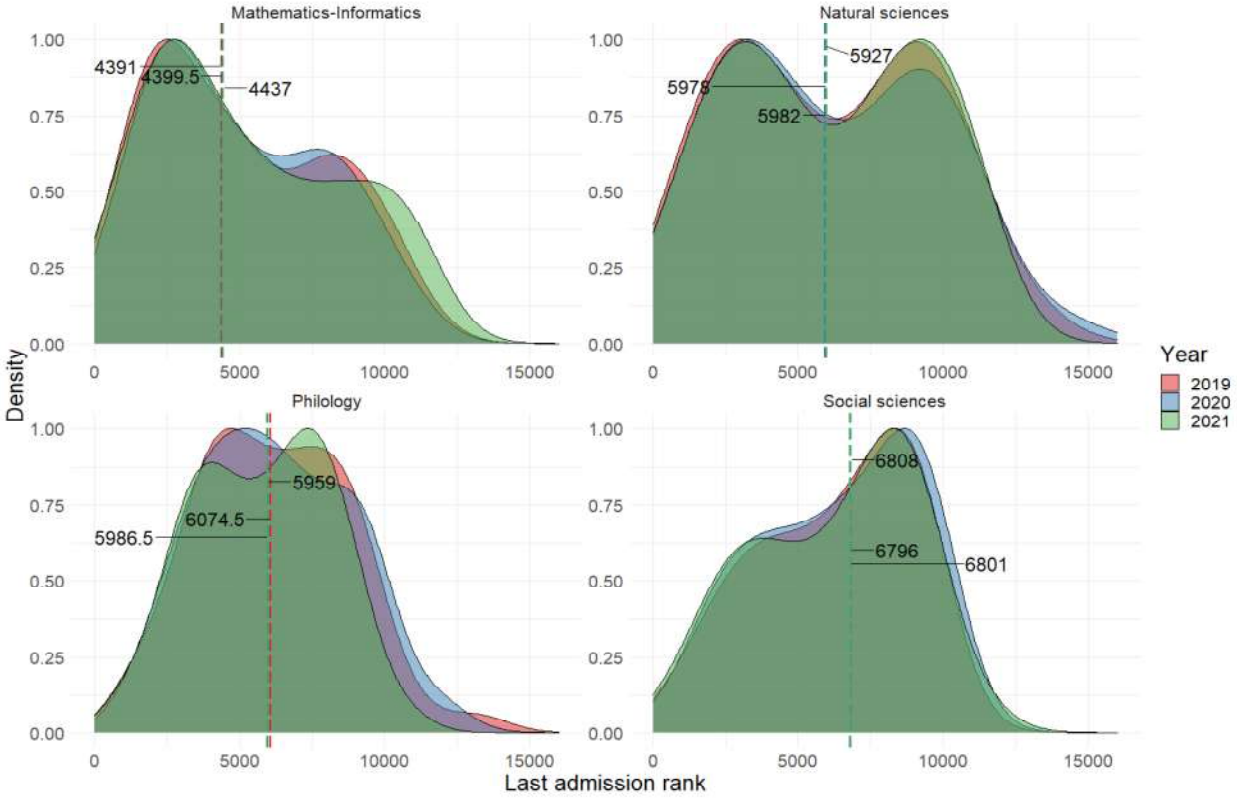


Figure 7. Distribution by last admission rank x specialization x year (medians represented by dashed colored lines) for the theoretical field

Source: Authors' own research.

Table 6. Pairwise differences between medians of last admission rank by specialization for the theoretical field

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Mathematics-Informatics	***2019***	***2020***	1807 (0.973)	-0.0129 (1)
	2019	***2021***	1859 (0.973)	0.283 (1)
	2020	***2021***	1866 (0.973)	0.296 (1)
Natural sciences	***2019***	***2020***	633 (0.934)	0.190 (1)
	2019	***2021***	653 (0.934)	0.123 (1)
	2020	***2021***	674 (0.934)	-0.0681 (1)

Academic Profile	Year - 1	Year - 2	Kruskal-Wallis statistic (p-value adj.)	Dunn statistic (p-value adj.)
Philology	***2019***	***2020***	1332 (0.902)	0.0964 (1)
	2019	***2021***	1503 (0.801)	-0.597 (1)
	2020	***2021***	1509 (0.801)	-0.694 (1)
Social sciences	***2019***	***2020***	280 (0.977)	0.178 (1)
	2019	***2021***	300 (0.977)	0.232 (1)
	2020	***2021***	310 (0.977)	0.0505 (1)

Source: Authors' own research.

Variability based on the letter grade system

In order to get a better representation of the difference, we've classified high school observations using the letter grade scale as presented in Table 7 by quantiles cutoffs.

Table 7. Letter grade classification

Letter grade	For last admission average grade - interval	For last admission rank - quantile cut off
A	(9, 10]	90% - 100%
B	(8, 9]	80% - 89%
C	(7, 8]	70% - 79%
D	(6, 7]	60% - 69%
F	[1, 6]	< 60%

Source: Authors' own research.

The greatest shift among classes was registered between 2020 and 2021, where for 2020 the majority of high schools were classified in the A and B grade bracket (Figure 8) while in 2021 a greater relative proportion of high schools were placed in the C, D, F brackets. When comparing last admission grade and last admission rank letter grade classes, an evident pattern of some inverse relation can be observed, which can entail that, on average, there is an inflation of high scores obtained at the national assessment or there is a very strong competition for entry at high schools placed in A and B brackets, or both at the same time.

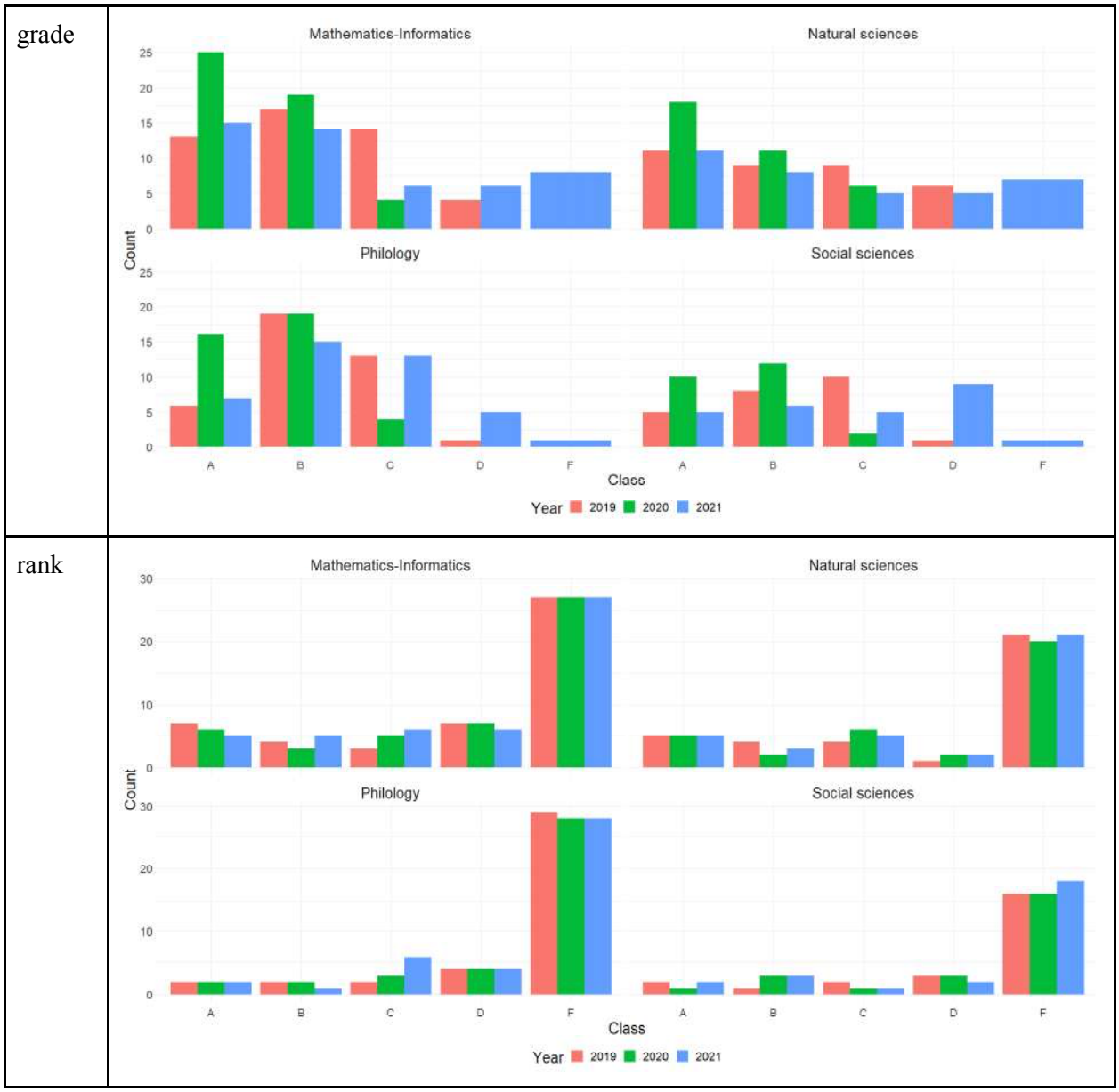


Figure 8. Counts of classified high schools using the letter grade scale

Source: Authors' own research.

Figure 9 to Figure 12 propose a visual representation using the letter grade classification for each of the four specializations by last admission average grade and last admission rank. The former classification underlines a higher variation between the three years. As discussed below, the classification by last admission rank is more stable than the classification by the last grade. The year 2020 is most illustrative for a metric robustness comparison between the last admission grade and the last admission rank.

For Mathematics-Informatics specialization, Figure 9 reveals that, based on the last grade, there were thirteen grade-A high schools in Bucharest in 2019, fourteen high schools in 2021,

and almost thirty in 2020. In 2020, there was no high school classified lower than C. Most high schools were grade-A high schools, during all three years. Only 2021 presented grade-F high schools.

When considering the last rank, the classification is much more restrictive. In 2019, only seven high schools in Bucharest were included in the grade-A category. In 2021 and 2020, the number of grade-A high schools was five. Most high schools were grade-F high schools, during all three years.

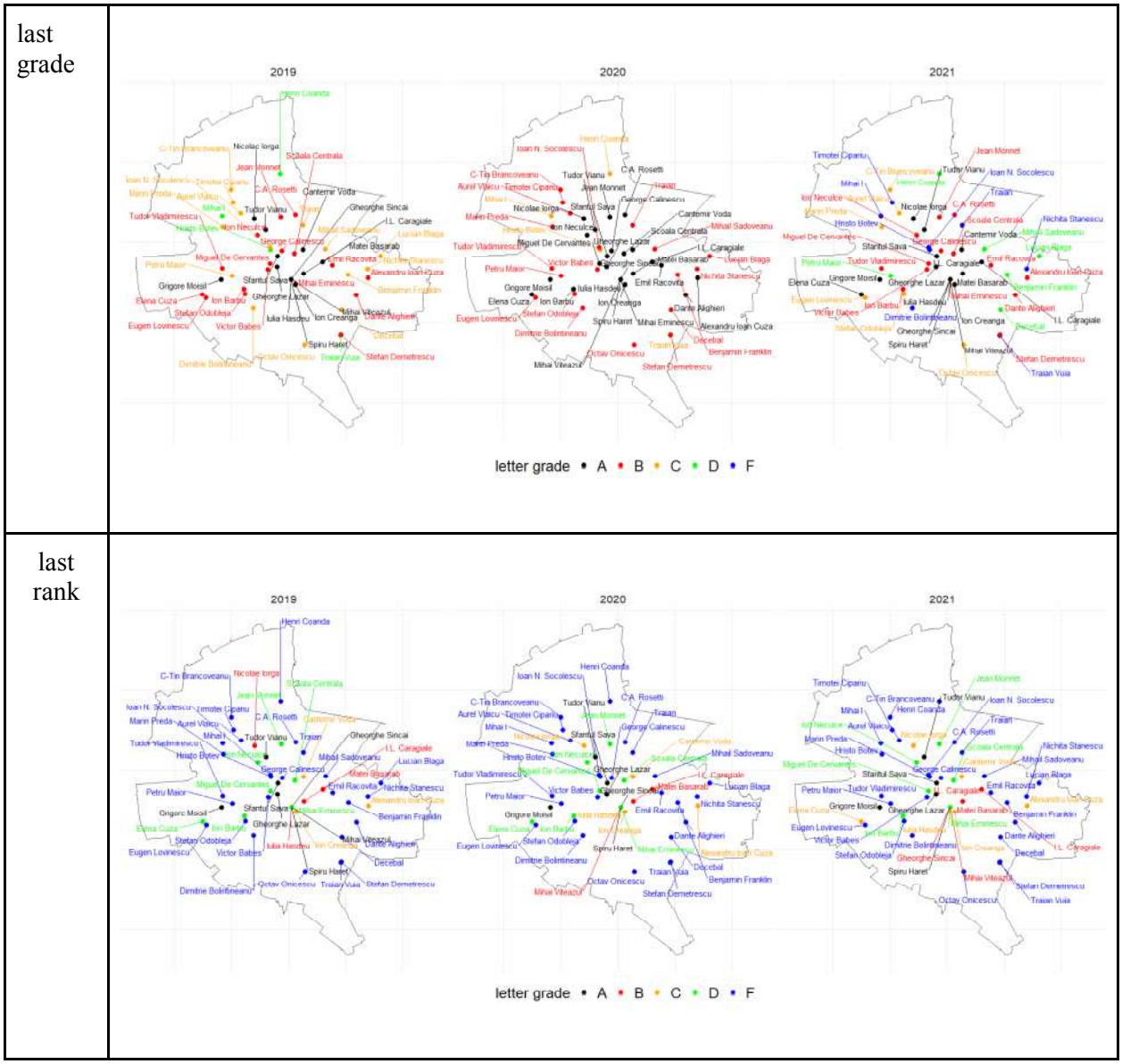
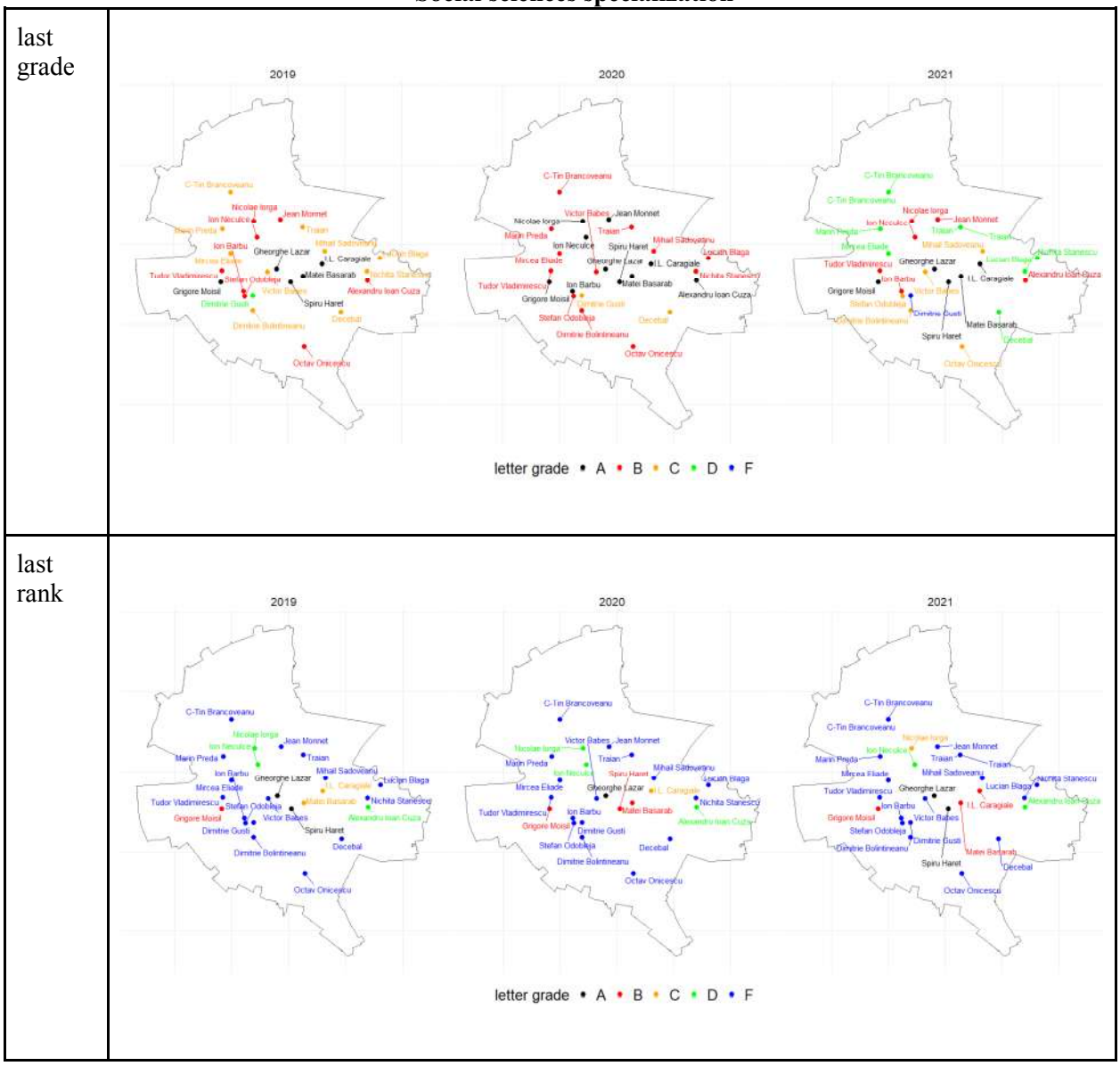


Figure 9. Letter grade classification of high schools by last grade and last rank, Mathematics-Informatics specialization

Source: Authors' own research.

Figure 10. Letter grade classification of high schools by last grade and last rank, Social sciences specialization



Source: Authors' own research.

For Social sciences, Figure 10 reveals that, based on the last grade, there were five grade-A high schools in Bucharest in 2019 and 2021. In 2020 the number of grade-A high schools was ten. Most high schools were grade-A high schools, across all three years. Only 2021 comprised grade-F high schools.

Based on the last rank, only two high schools in Bucharest were included in the grade-A category in 2019 and 2021. As for 2020, there was only one grade-A high school. Most high schools were grade-F high schools, during all three years.

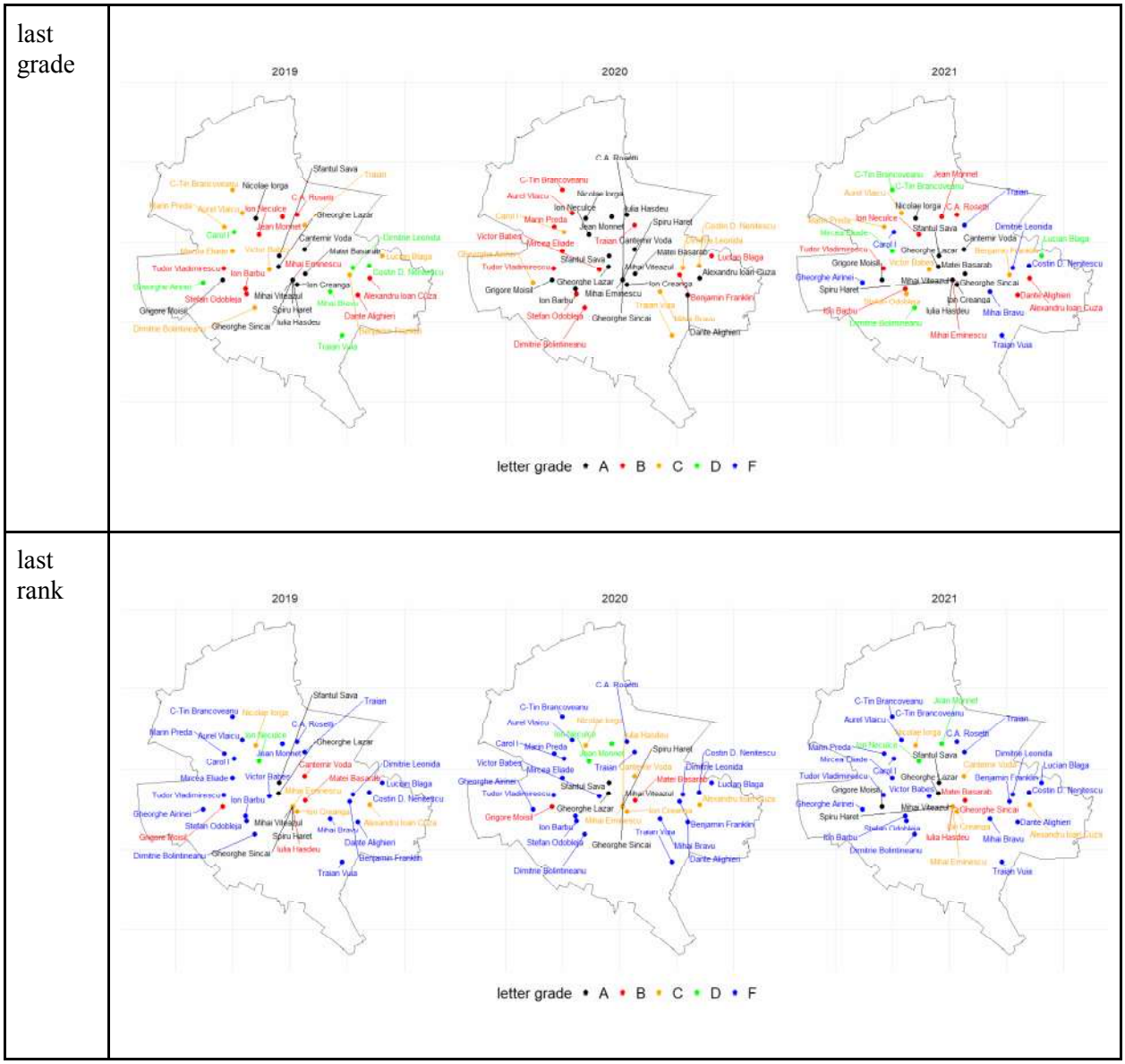


Figure 11. Letter grade classification of high schools by last grade and last rank, Natural sciences specialization

Source: Authors' own research.

For natural sciences, Figure 11 reveals that, according to the last grade, there were eleven grade-A high schools in Bucharest in 2019 and 2021, while in 2020 there were eighteen grade – A high schools. Only 2021 comprised grade-F high schools.

When considering the last rank, there were five grade-A high schools in 2019, 2020, and 2021. Most high schools were grade-F high schools, during all three years.

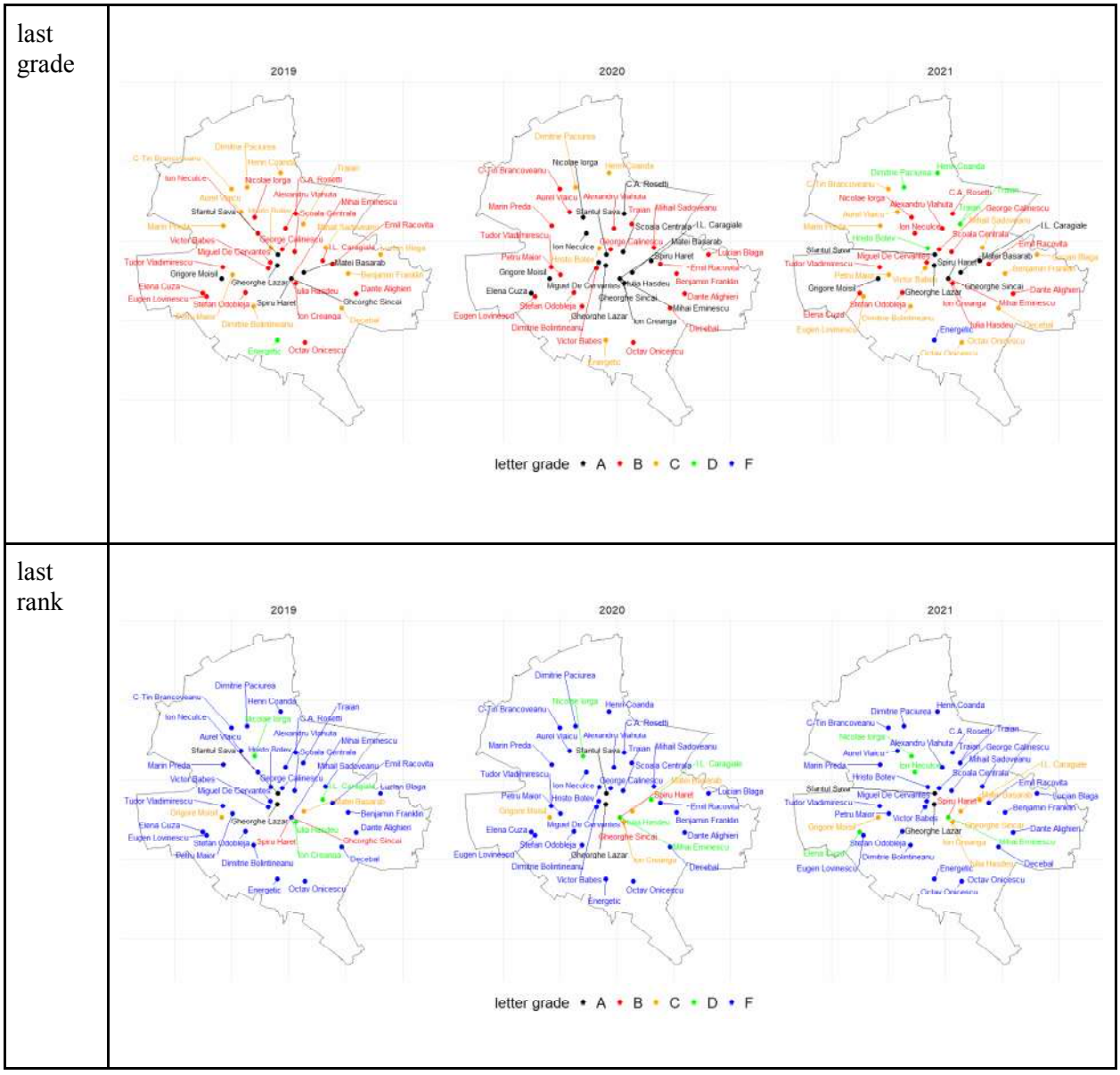


Figure 12. Letter grade classification of high schools by last grade and last rank, Philology specialization

Source: Authors' own research

For Philology, Figure 12 reveals that, according to the last grade, there were six grade-A high schools in Bucharest in 2019, seven grade-A high schools in 2021, and sixteen grade-A high schools in 2020. Only 2021 comprised grade-F high schools.

Based on the last rank, only two high schools in Bucharest were considered in the grade-A category across the three years. Most high schools were grade-F high schools, during all three years.

Conclusion

Our hypothesis of divergent educational institutions' reaction to recent changes was supported by the data analysis. While some admission efficacy due to online education and National Evaluation curricula reduction was apparent for all high schools in Bucharest, a closer investigation revealed that only top-performing educational institutions properly managed the change.

The analysis provides some evidence-based policy support regarding the requirement of looking at both ends of the high school admission performance spectrum, to obtain an insightful view on the potential inflationary effects on grades in education policy changes. The efficacy of the upper tail of the performance distribution should be extended to the majority of upper education institutions (Bodo et al., 2017). Our graphical representations indicate that most secondary upper education institutions in Bucharest run in the lowest performance category.

For reliable high school performance assessment, we provide an alternative set of two metrics based on using the last admission average grade and rank in high school classification as a qualitative measure of secondary superior education admission performance metrics. The results reveal the classification of high schools based on ranks is more stable. Considering the short period (three years), less variability in high school classification indicates measurement's robustness. For administrators and policymakers, it is of interest to employ this type of measurement to identify effective educational institutions and authentic progress.

When we consider the upper tail high schools, the changes regarding the National Evaluation exam or the prerequisites for the exam do not impact top-performing high schools. Meanwhile, the lower tail is highly sensitive to change by showing apparent progress. A more in-depth analysis of this progress reveals the underperformance of the system -- the majority of high schools did not exceed the threshold of the worst performance rating.

To close the gap between lowest and highest score-ranking high schools in the EECA region, OECD recommends an in-depth analysis of the national educational systems and suggests a closer interconnectivity between schools as a fast way towards more equitable (OECD, 2021).

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