

3rd Edition

Data Research
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Comparative analysis of pre and post COVID exam results in Portugal

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INTRODUCTION

The socioeconomic status (SES) tends to be “inherited at birth”.

Education is key in breaking the cycle:

+74% premium on salary of higher education [1]

Is there an **After COVID/Before COVID (AC/BC)** in education?

All students were penalized, but the poorest suffered a **harder impact**. [2]

International assessments show Portugal has inverted a trend of improvement.

Q: Did exam scores change after COVID?



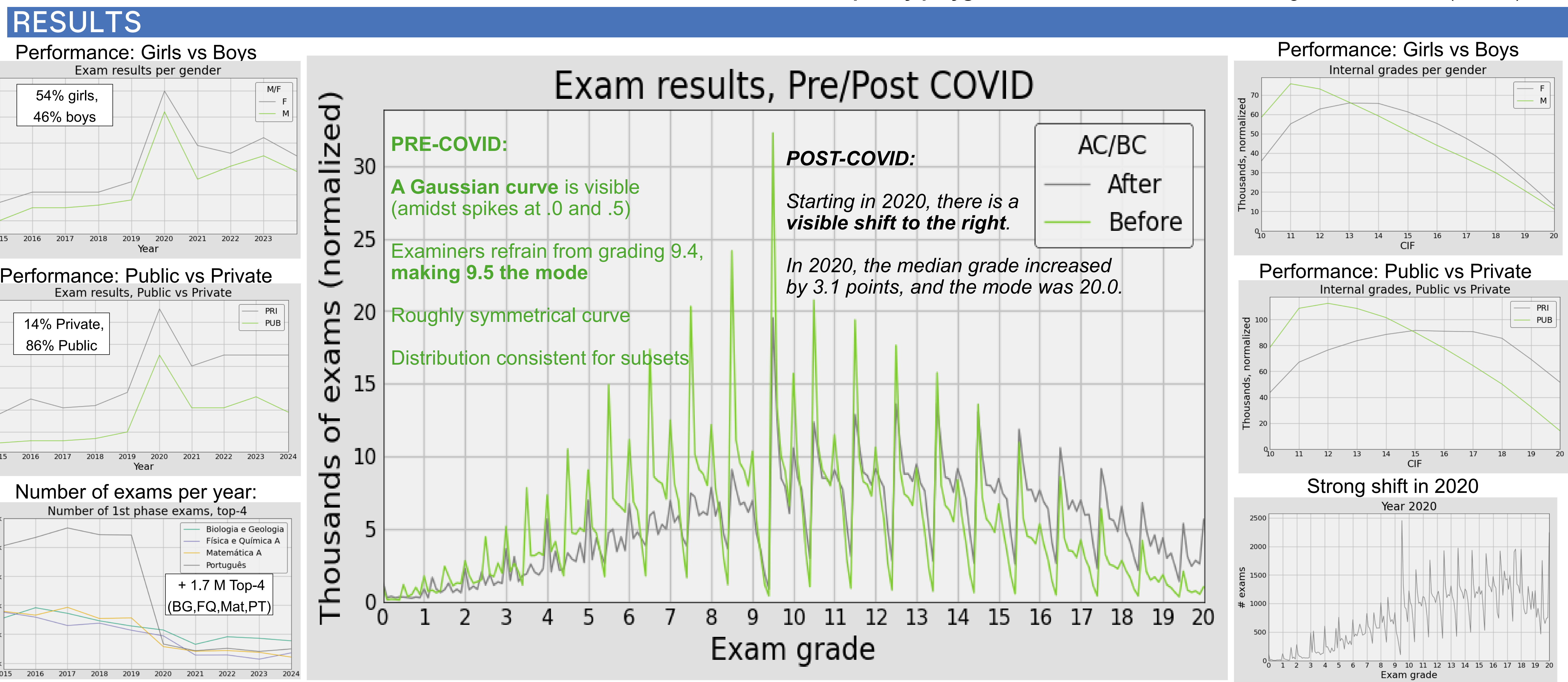
METHODS AND MATERIALS

Analysis conducted using **microdata from MNE** (Ministry of Education), 2015-24

Microdata import → Preprocessing → Uniformization → Filtering → Analysis

- Microdata import: Ministry of education's website
- Preprocessing: Normalize data structures
- Uniformization: Exam, region codes
- Filtering: 1st Phase, Mat, Pt, BG, FQ
- Analysis: Exploratory Statistics

- Whole population of exams+internal grades was used (**no selection bias**).
- Data was normalized to account for unequal subpopulation sizes (eg, central figure).
- Repeated cross-sectional analysis** examined trends in mean grades, stratified by variable of interest (school type, gender). Plotted using comparative time series.
- Frequency polygons** were used to illustrate shifts in grade distribution (AC/BC).



DISCUSSION

After COVID, results increased significantly, and even more so in the first year.

Exams have arguably the advantages of **objectivity and transparency** when compared to internal grades.

Are exam grades still useful for higher-education selection, knowing that **result compression reduces their discriminating power**?

Which students are penalized by the structural change? The best? Lower SES?

How can families **maximize admission likelihood**, knowing these changes?

CONCLUSION

The distribution of exam grades had a **significant shift towards higher grades**.

These preliminary results open several venues for investigation:

- Study factors that contribute to internal and exam grades, at the national level;
- Analyze regional effects, using **Multiscale Geographically Weighted Regression**;
- Run a **quasi-experimental study** to test whether the **existence of standard exams** improves educational results as measured by international assessments.

REFERENCES

[1] 2025, OECD Education at a Glance

[2] Betthäuser, B.A., Bach-Mortensen, A.M. & Engzell, P. A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic. Nat Hum Behav 7, 375–385 (2023). <https://doi.org/10.1038/s41562-022-01506-4>

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