# Trends in student achievement in Portugal: What does the data tell us?

2024 EDULOG International Conference

May 2024

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EDULOG
FUNDAÇÃO BELMIRO DE AZEVEDO

Illustration by Paulo Albuquerque

# PISA

## OECD's Programme for International Student Assessment

# PISA: Measuring Real-Life Skills

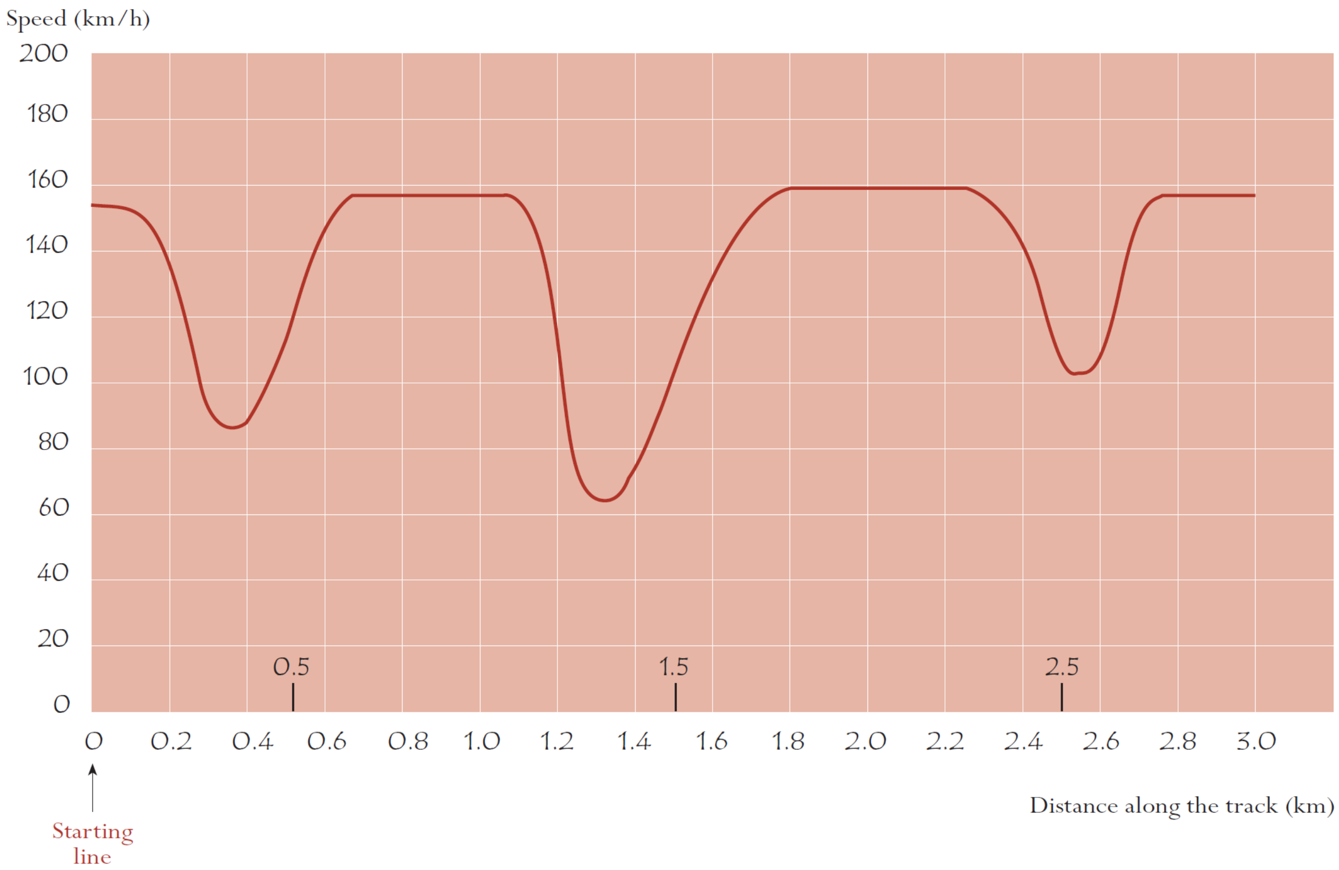
- Assesses **15-year-olds'** ability to apply **Reading**, **Mathematics**, and **Science** knowledge to real-world challenges.

- Provides a **global benchmark** for educational performance and problem-solving skills.

- Helps identify areas for improvement and inform **educational policies** worldwide.

# The first PISA, in 2000

Speed of a racing car along a 3 km track (second lap)



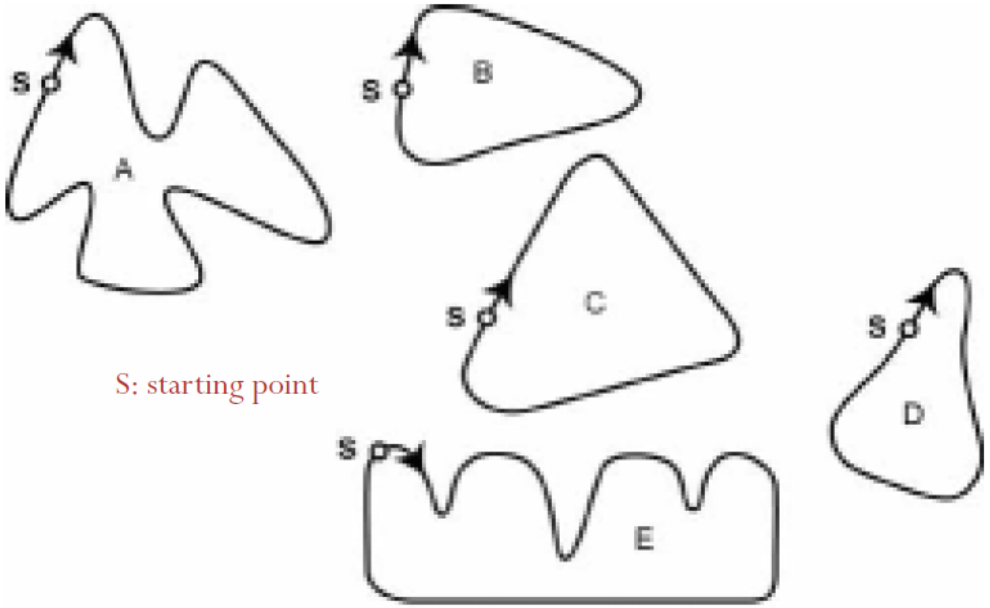

## QUESTION 8

*SPEED OF A RACING CAR*

Here are pictures of five tracks: Along which one of these tracks was the car driven to produce the speed graph shown earlier?

*Score 1* (655*)

– Answer B.



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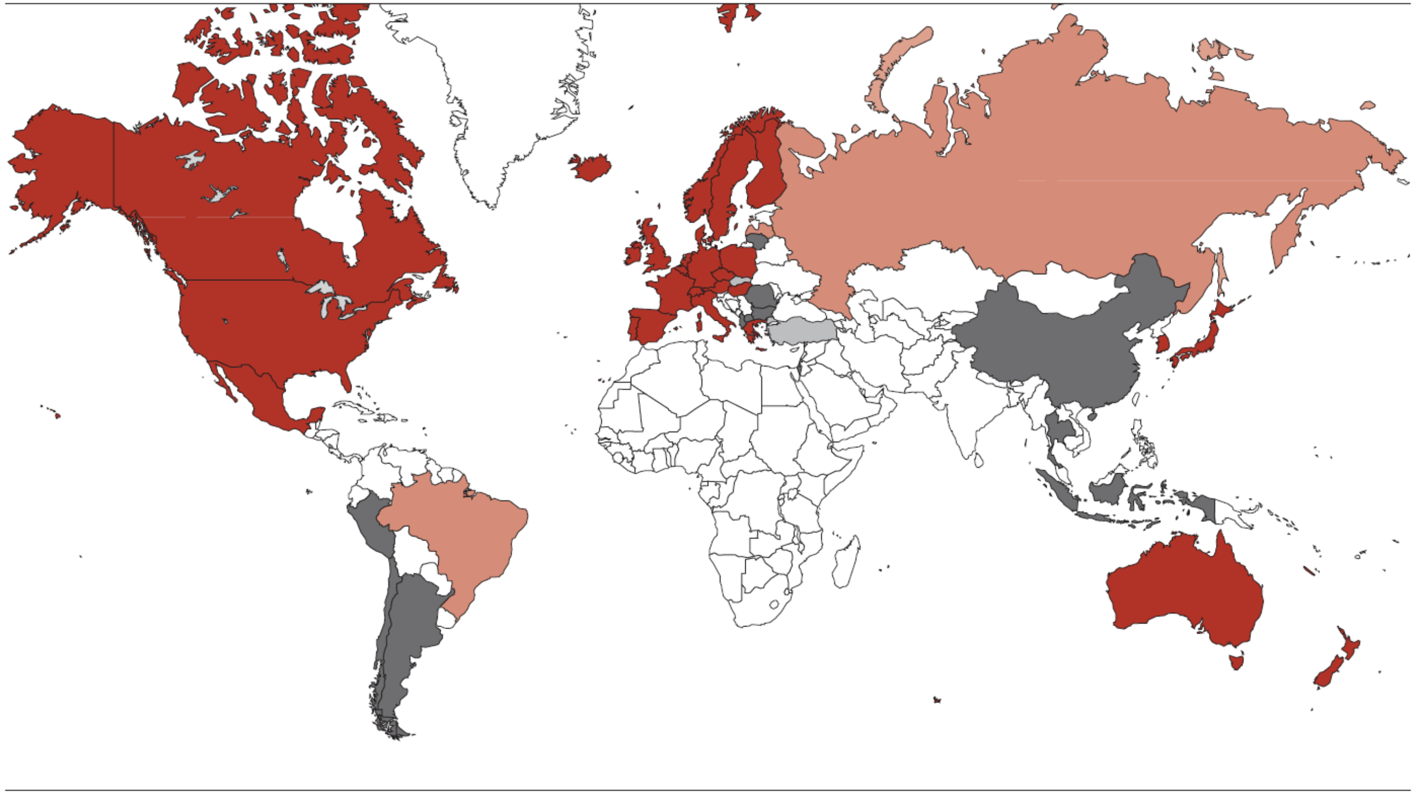
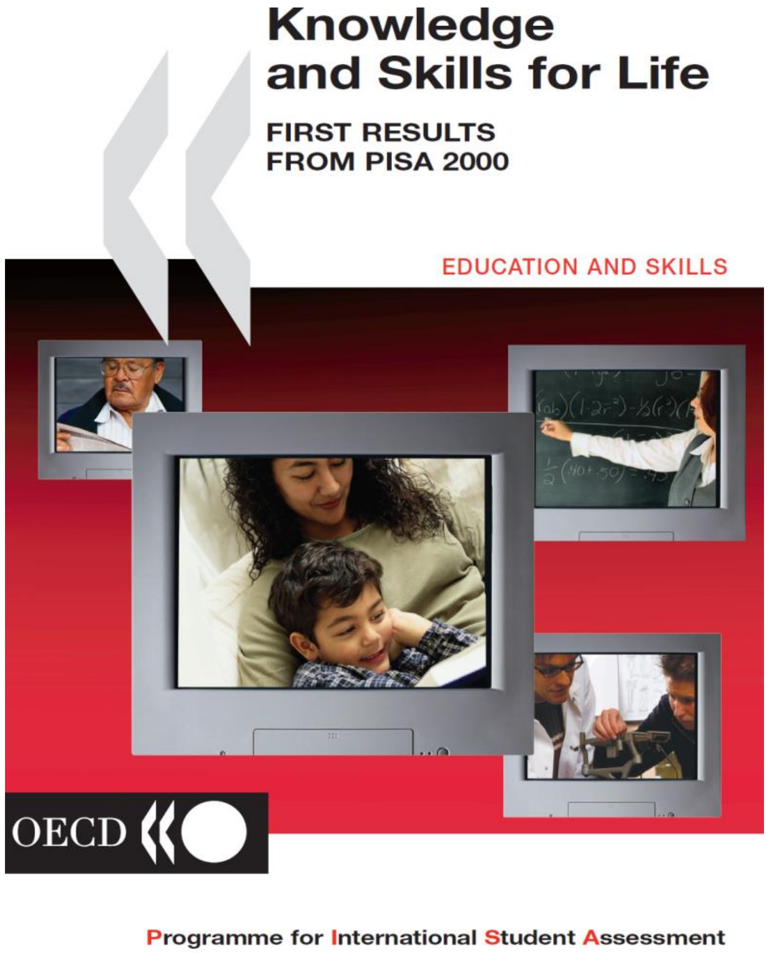
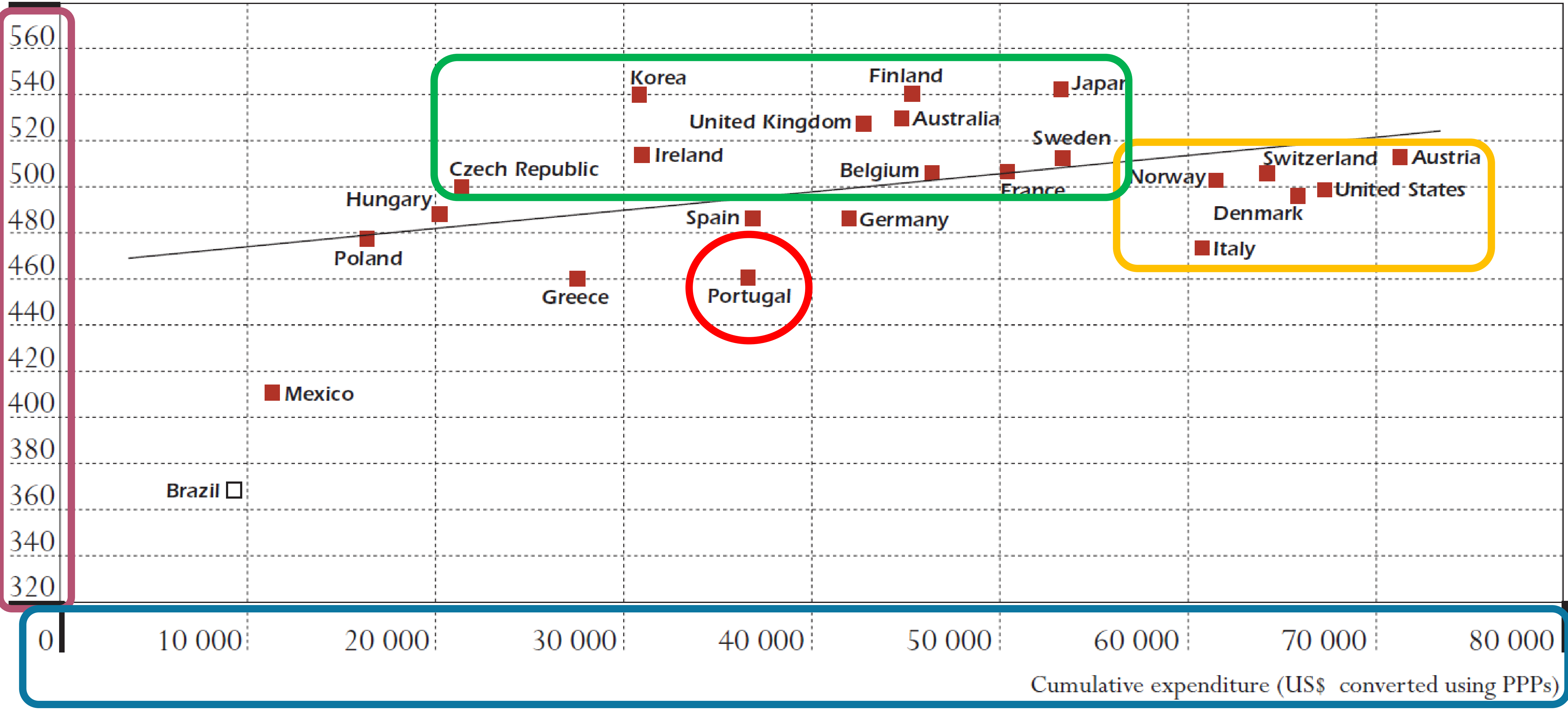


- OECD countries participating in PISA 2000
- Non-OECD countries participating in PISA 2000
- Countries where the assessment will be completed in 2002
- OECD countries participating in PISA from 2003 onwards



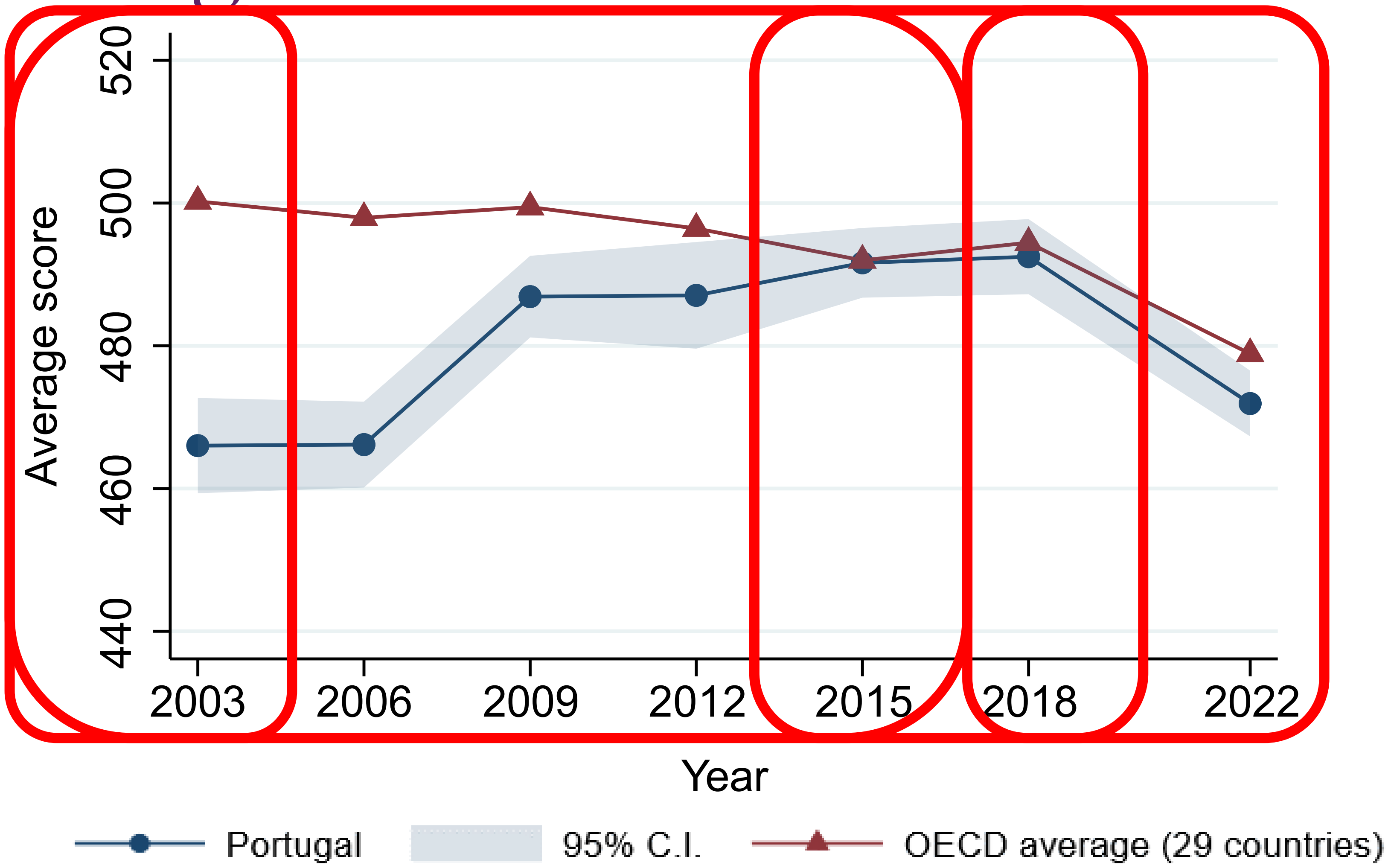
# Student performance and spending per student

*Relationship between average performance across the combined reading, mathematical and scientific literacy scales and cumulative expenditure on educational institutions up to age 15 in US$, converted using purchasing power parities (PPPs)*

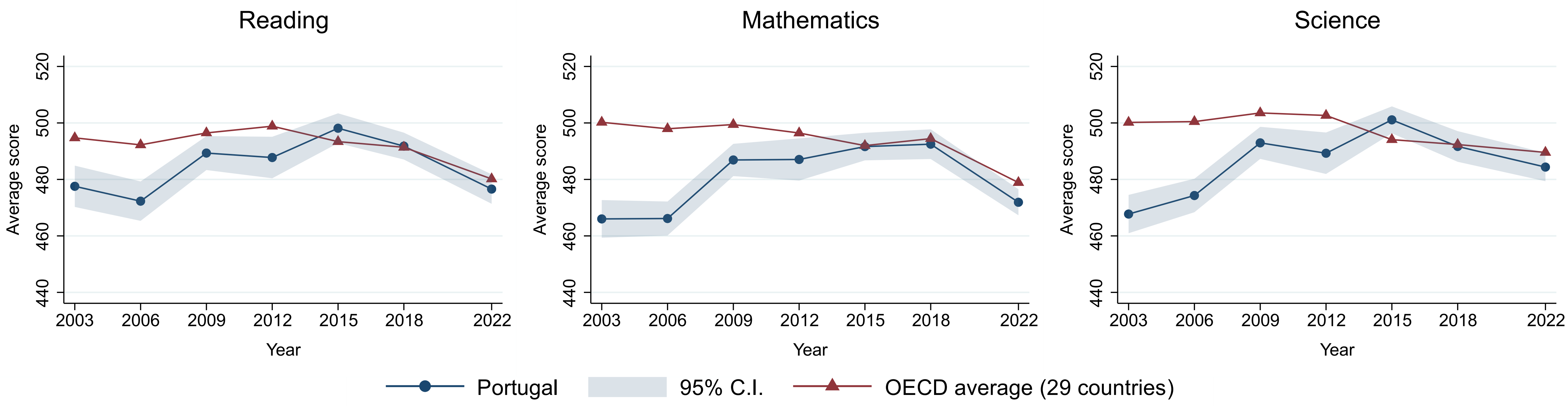


# Portugal in PISA

# Portugal in PISA - Mathematics



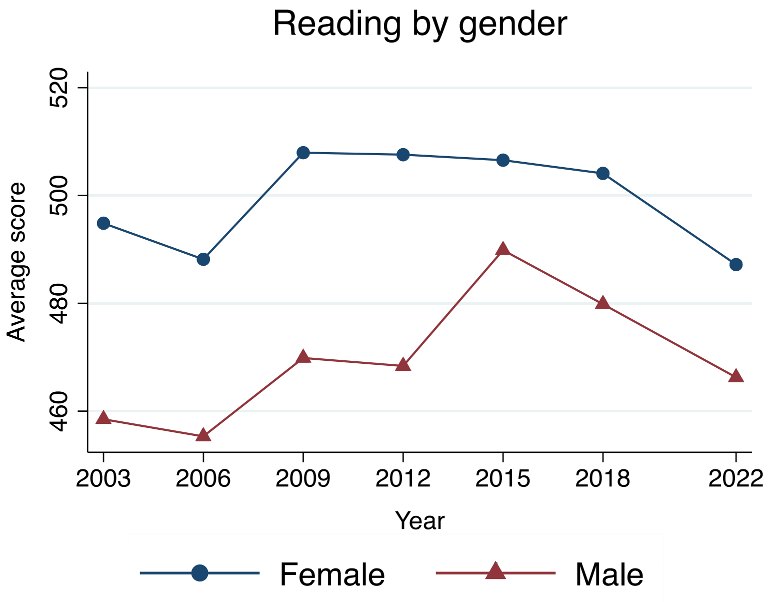
# Portugal in PISA

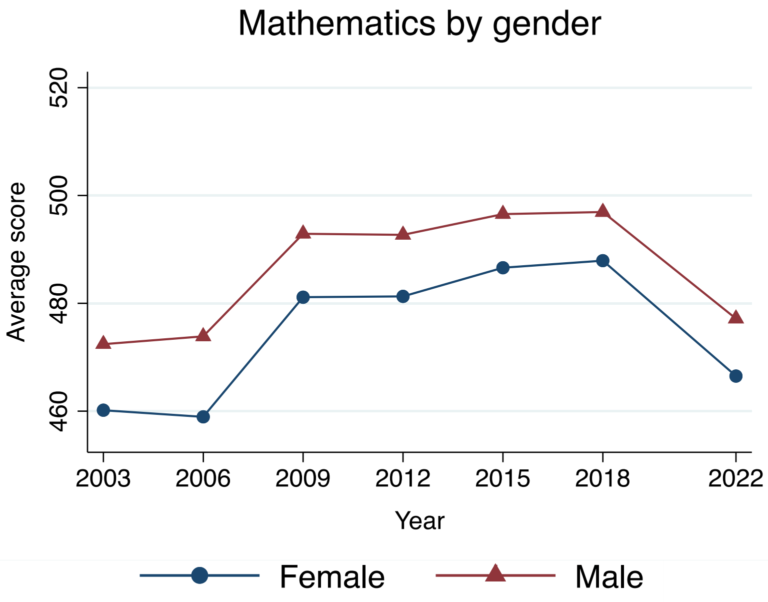


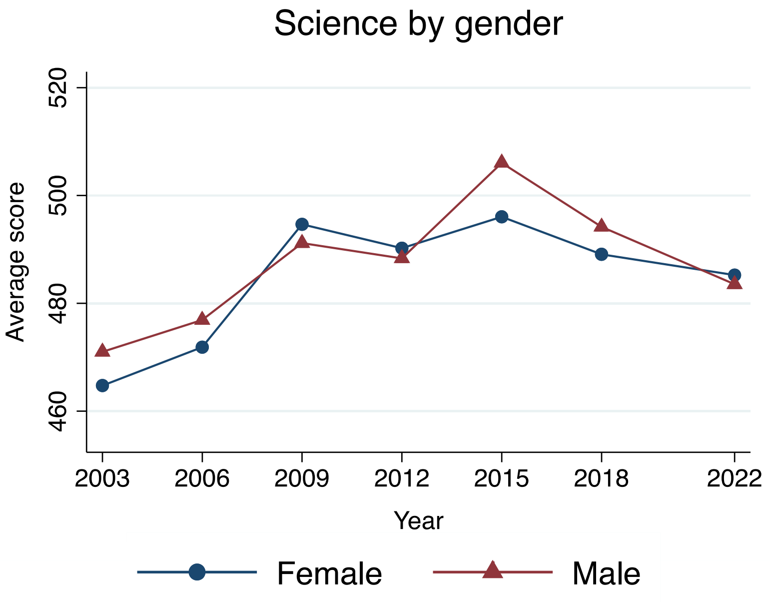

- **Portugal reached the OECD average in 2015** in all three domains.
- But in **2022**, mean scores fell **below the OECD average** and **below the 2009** levels.

# Gender gaps

# Gender gaps




**Reading: Girls** better than boys.

**Mathematics: Boys** better than girls.

**Science:** No clear difference.

# Tracks: Academic and Vocational

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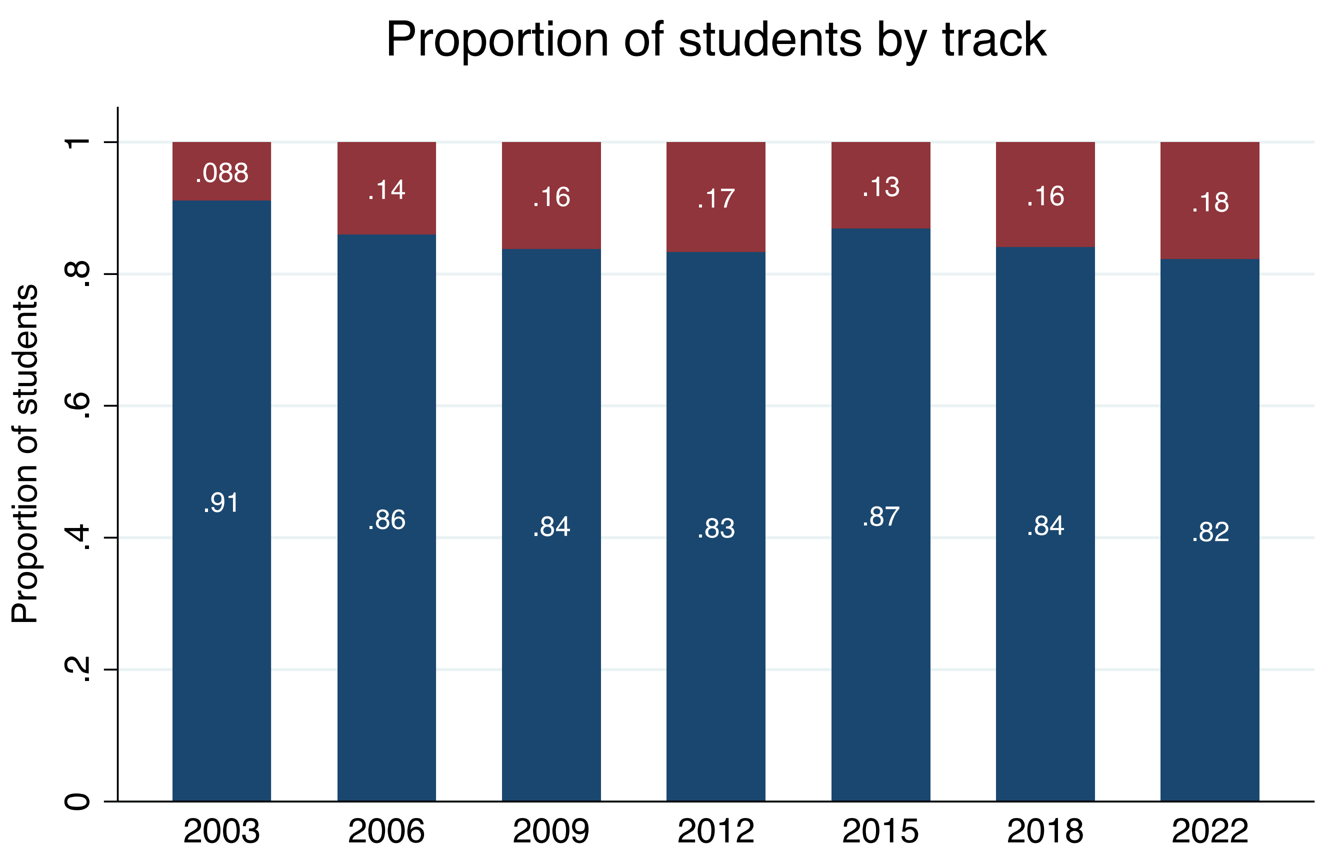
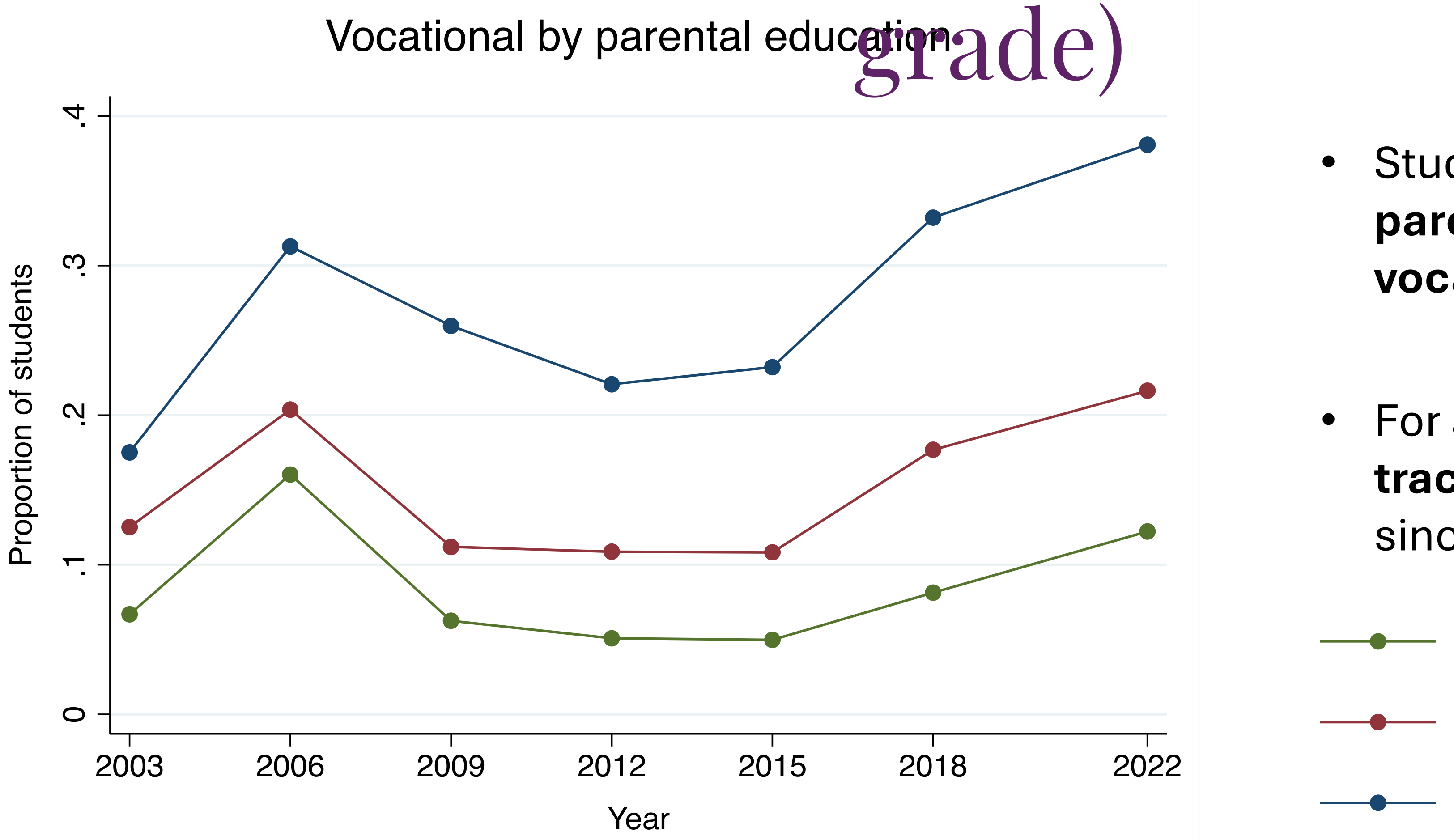



- In 2022, **18%** of the 15-year-old students were in **vocational** tracks.
- Note: There are more students in the vocational track but are older than 15 (many repeated a grade in the past)

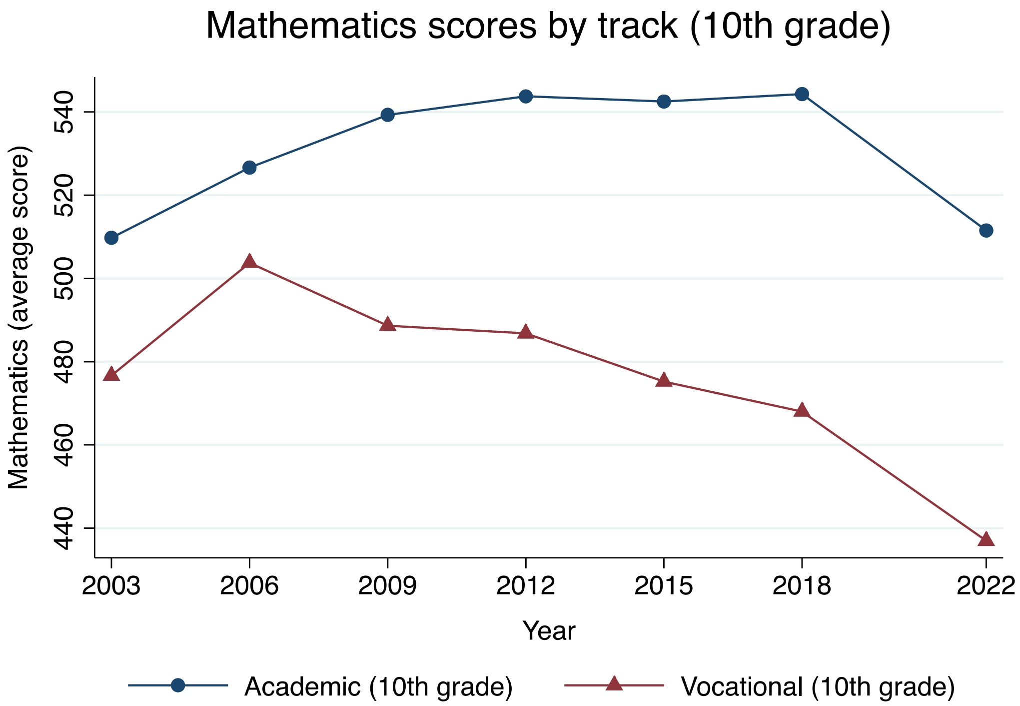
# Choice of track by parental education (10th grade)




- Students with **less qualified parents** choose more often a **vocational track**.
- For all groups, **vocational track** becoming **more popular** since 2018.

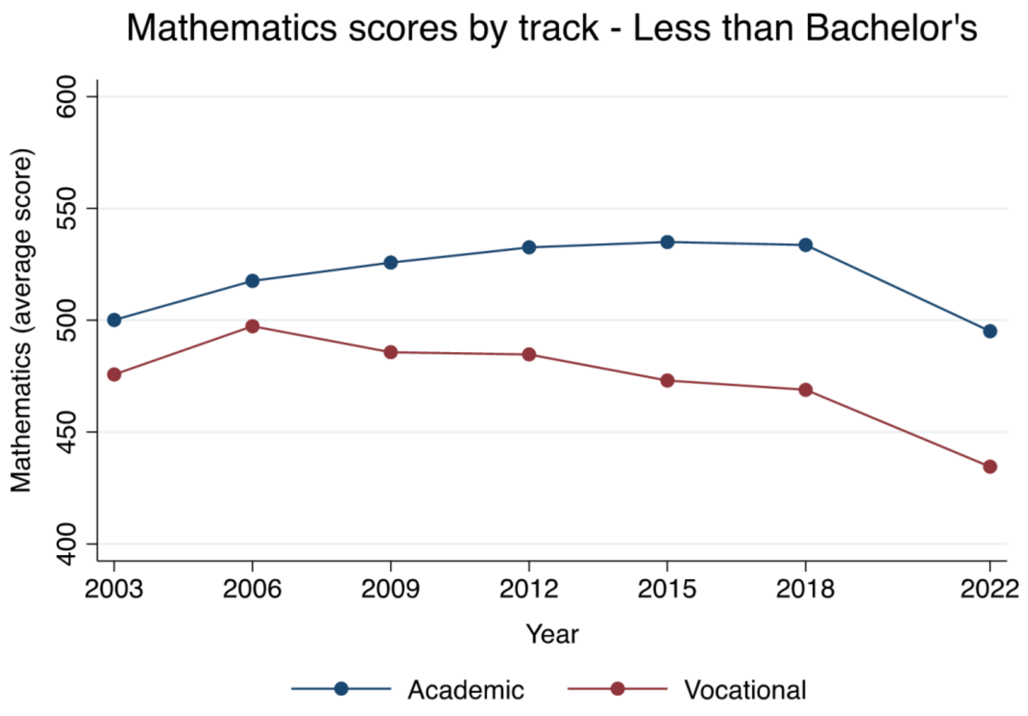
# Mean scores by track (10$^{th}$ grade)

- **Large and increasing gap** in scores between students in academic and vocational



# Mean scores by track (10$^{th}$ grade) by parental education

- **The gap between academic and vocational tracks remains** even when comparing students **with similar parental education**.



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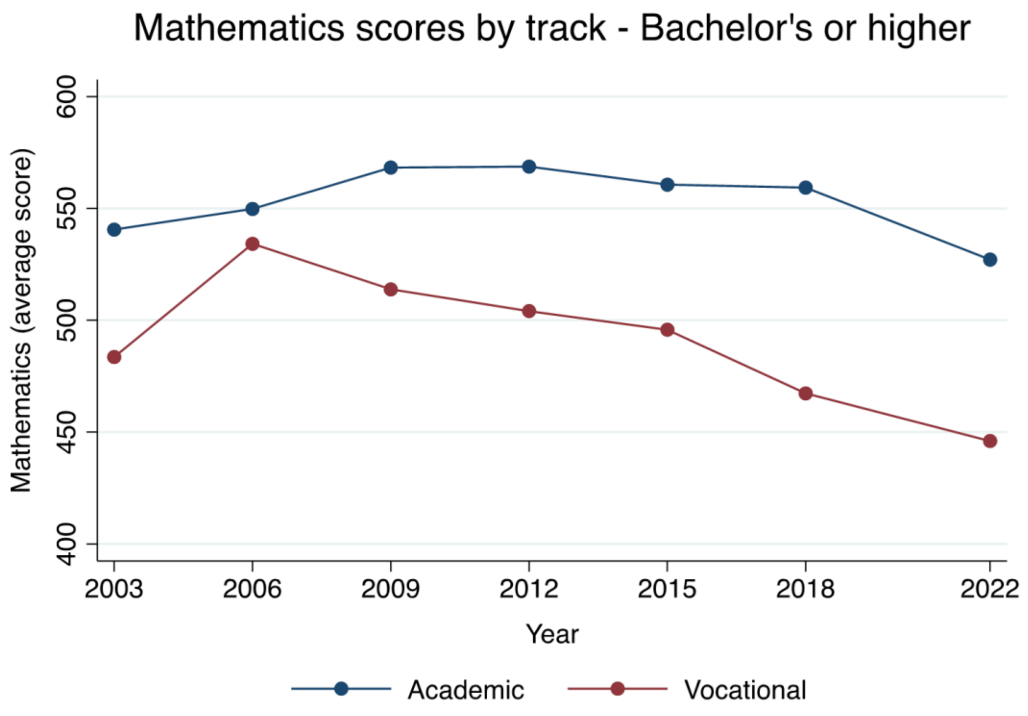

# Private and Public Schools

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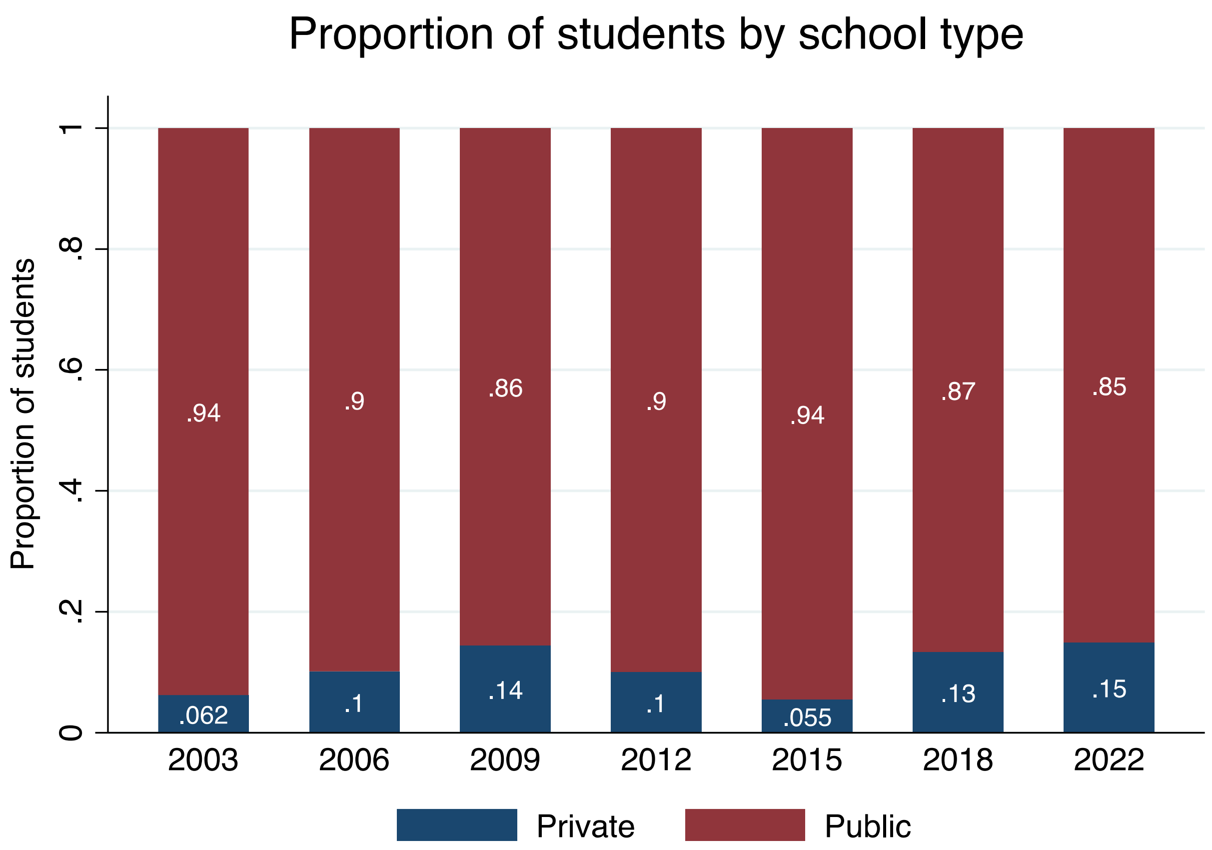
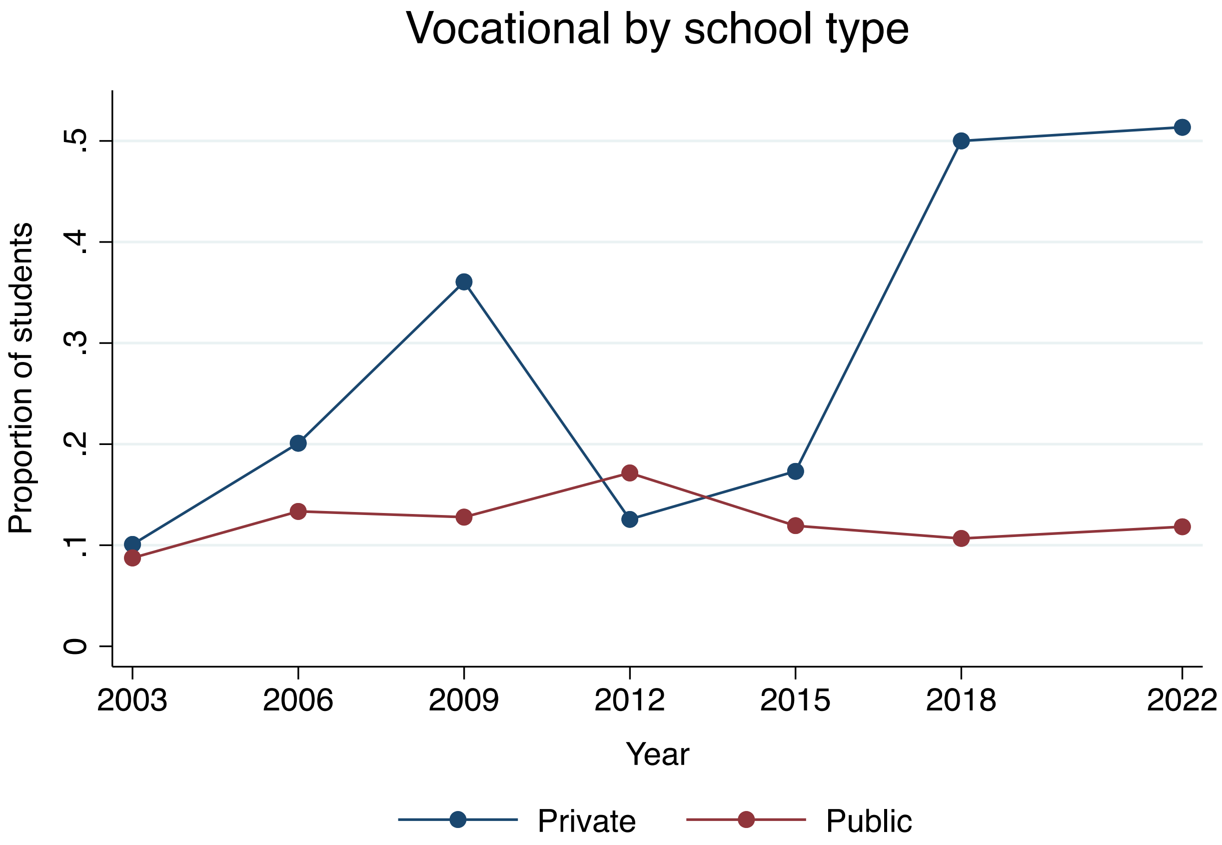



- In 2022, **15%** of the students were in **private schools**.

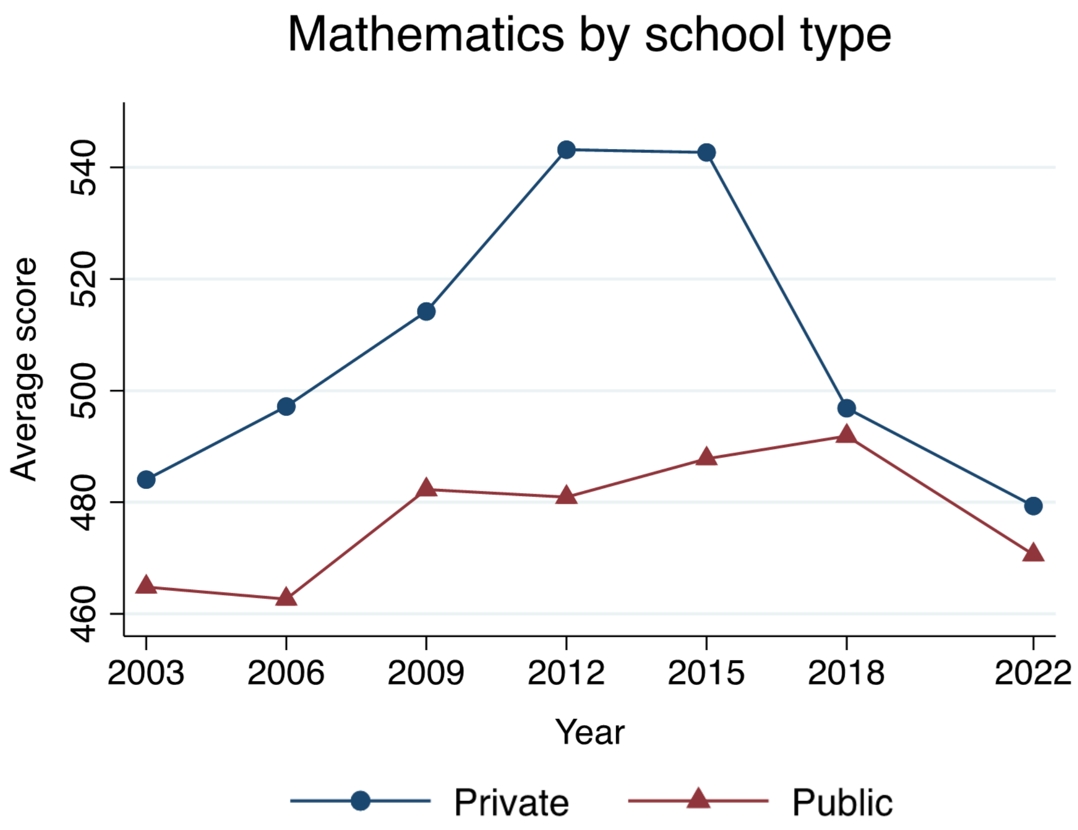
# Private and Public Schools: Vocational track




Large expansion of **Vocational** tracks in **private schools** in **2018**

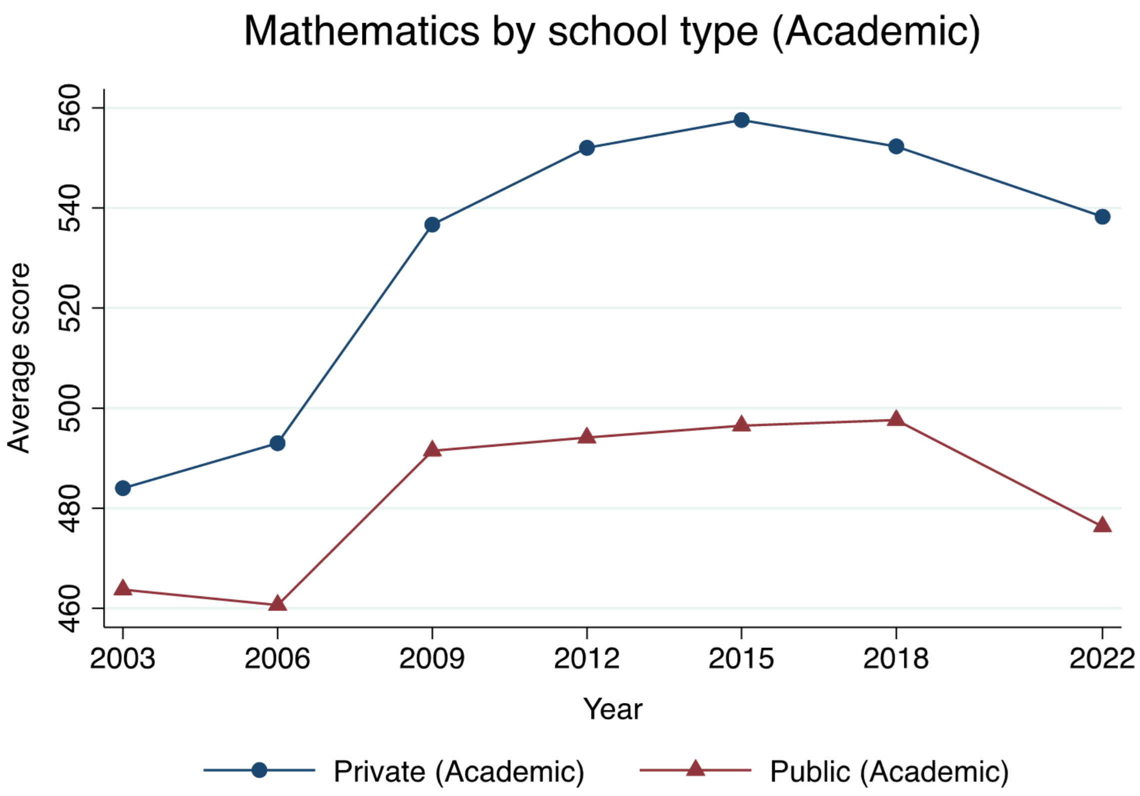
# Scores in Private and Public Schools

Since 2018, mean **score of private schools fell** and is now similar **to public schools**



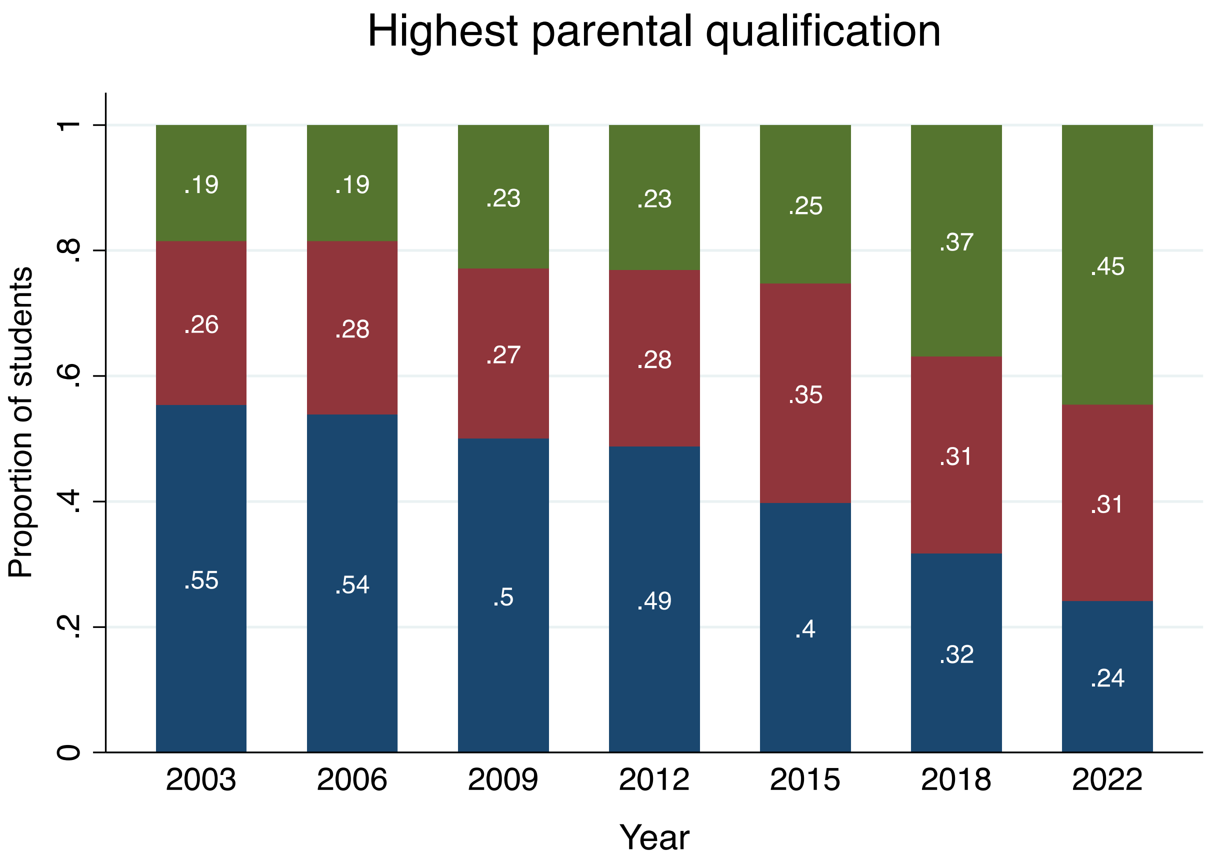
# Scores in Private and Public Schools: Academic track

- **When looking only at students in academic track:**
  - **Large gap** in scores between **private and public** schools

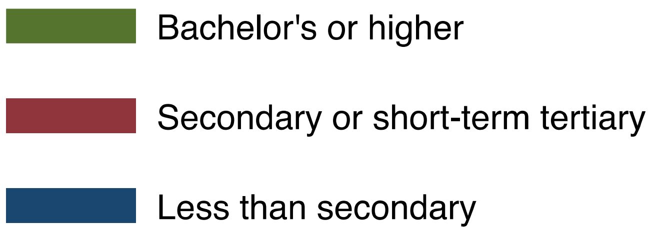


# Parental Education

# Parental education




- The proportion of students with at least **one college educated parent has been increasing over the years,** particularly from 2015 onwards.



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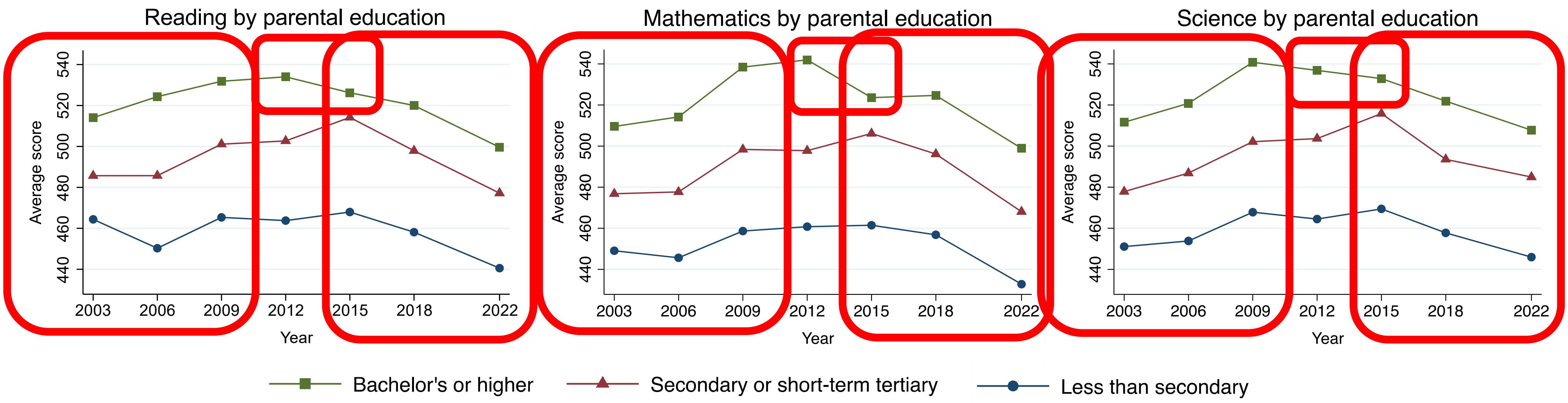



- Students with more qualified parents score higher on average in all three domains.
- Until 2009, all groups improved their performance in all domains.
- Signs of decline in performance, as early as 2015.
- Generalized decline started in 2018, before the pandemic.

# Parental education: *Counterfactual*

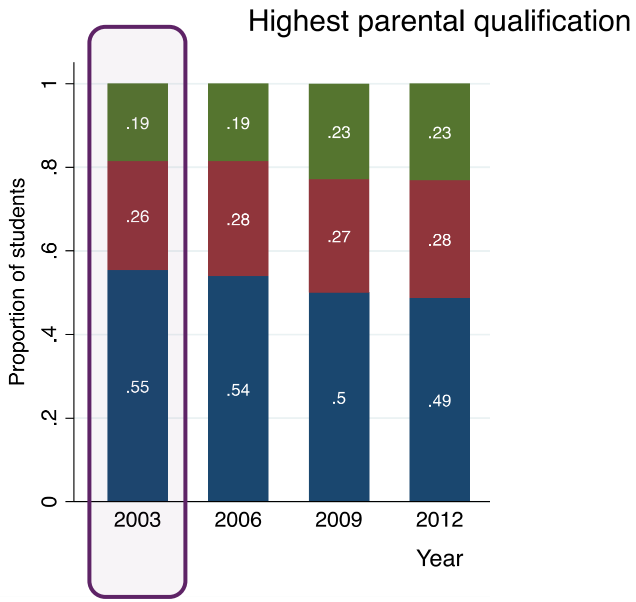
*How much of the evolution in the PISA scores can be explained by the increase in the parents' qualifications?*

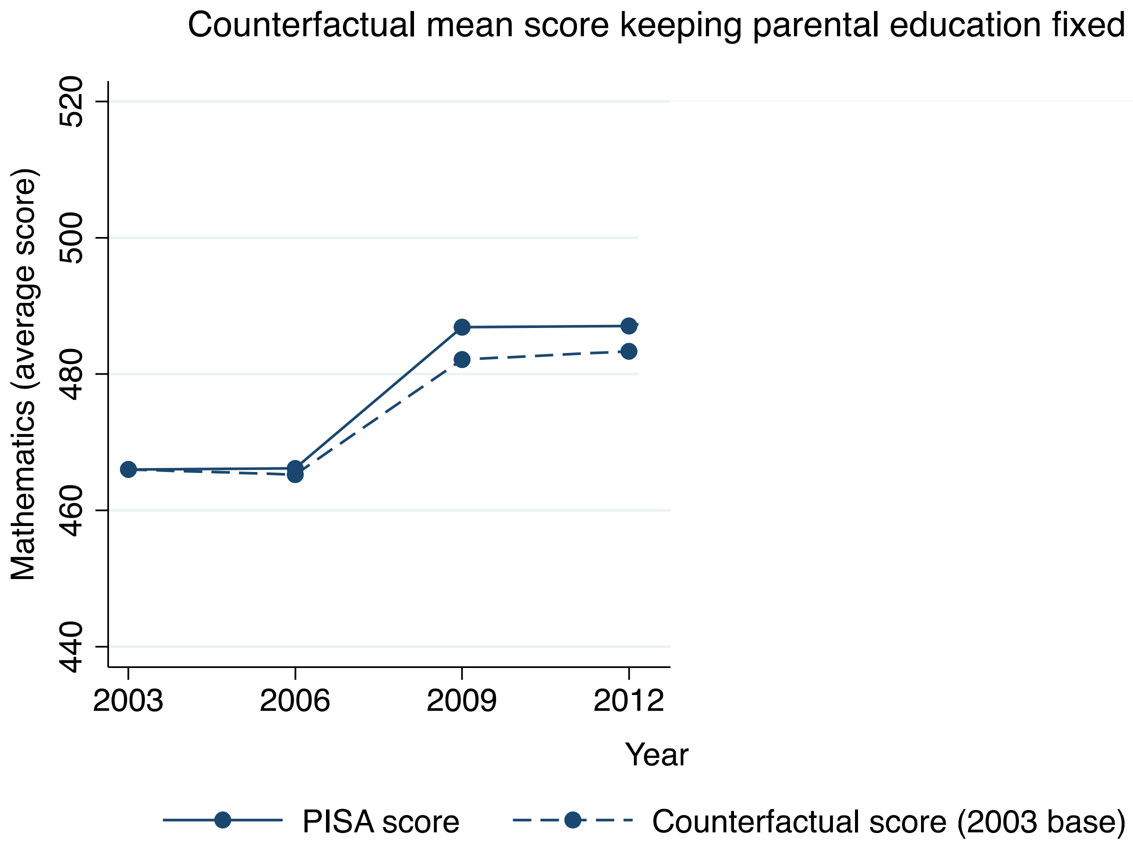
*Let's start with the case of Mathematics.*

# Parental education: *Counterfactual*

*Suppose the population of students by parental education was like in **2003**, for all years...*

*...how would have the mean scores evolved?*



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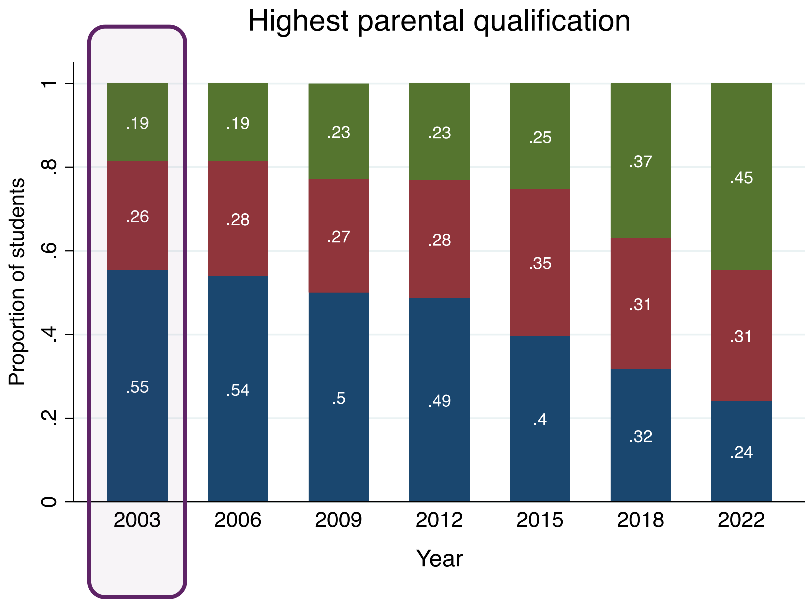
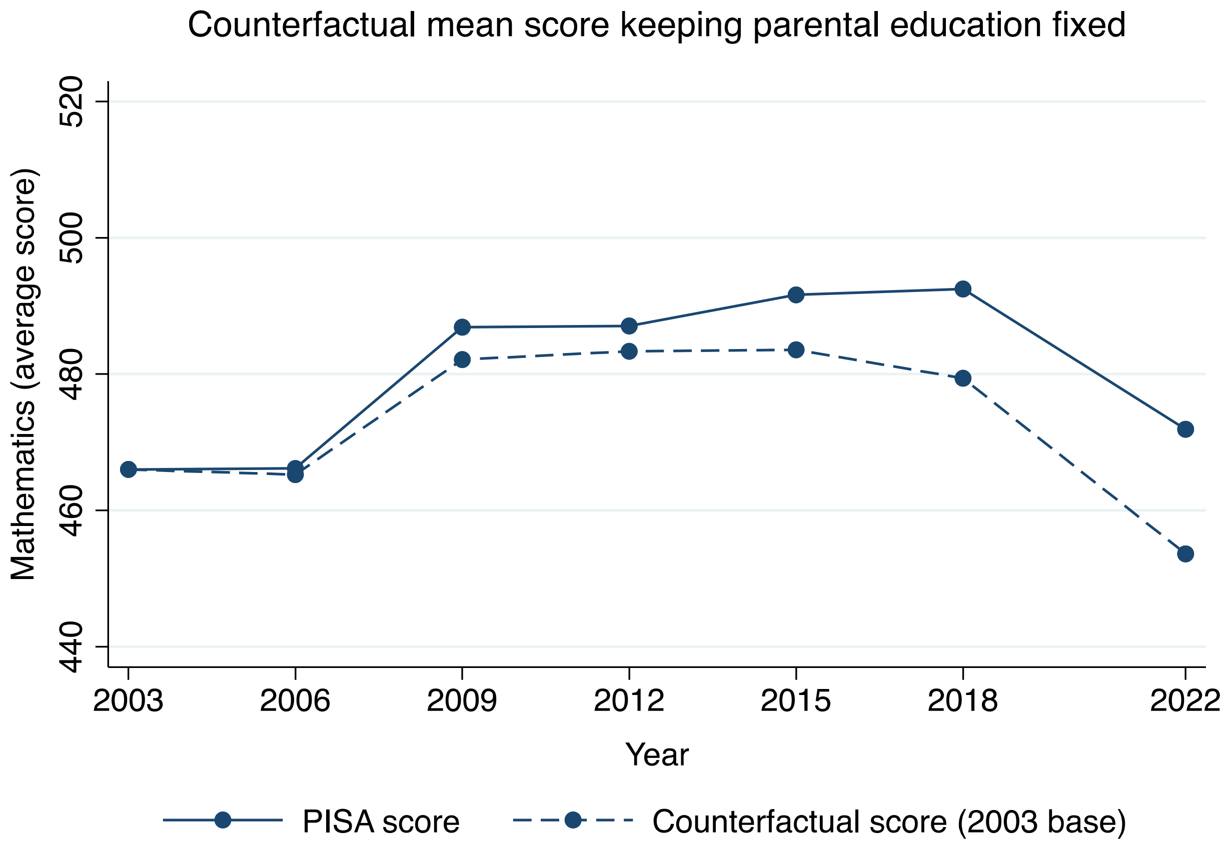


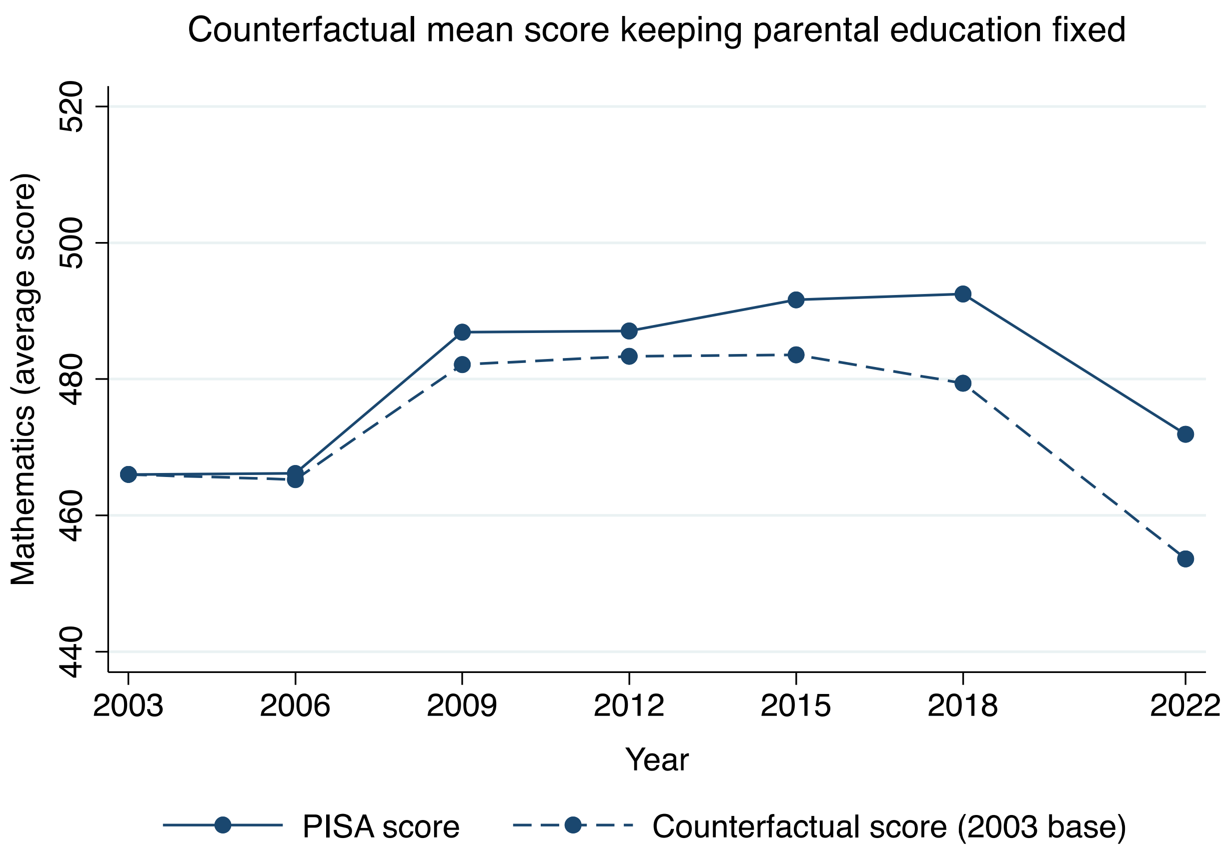



# Parental education: *Counterfactual*

*Suppose the population of students by parental education was like in **2003,** for all years...*

*...how would have the mean scores evolved?*

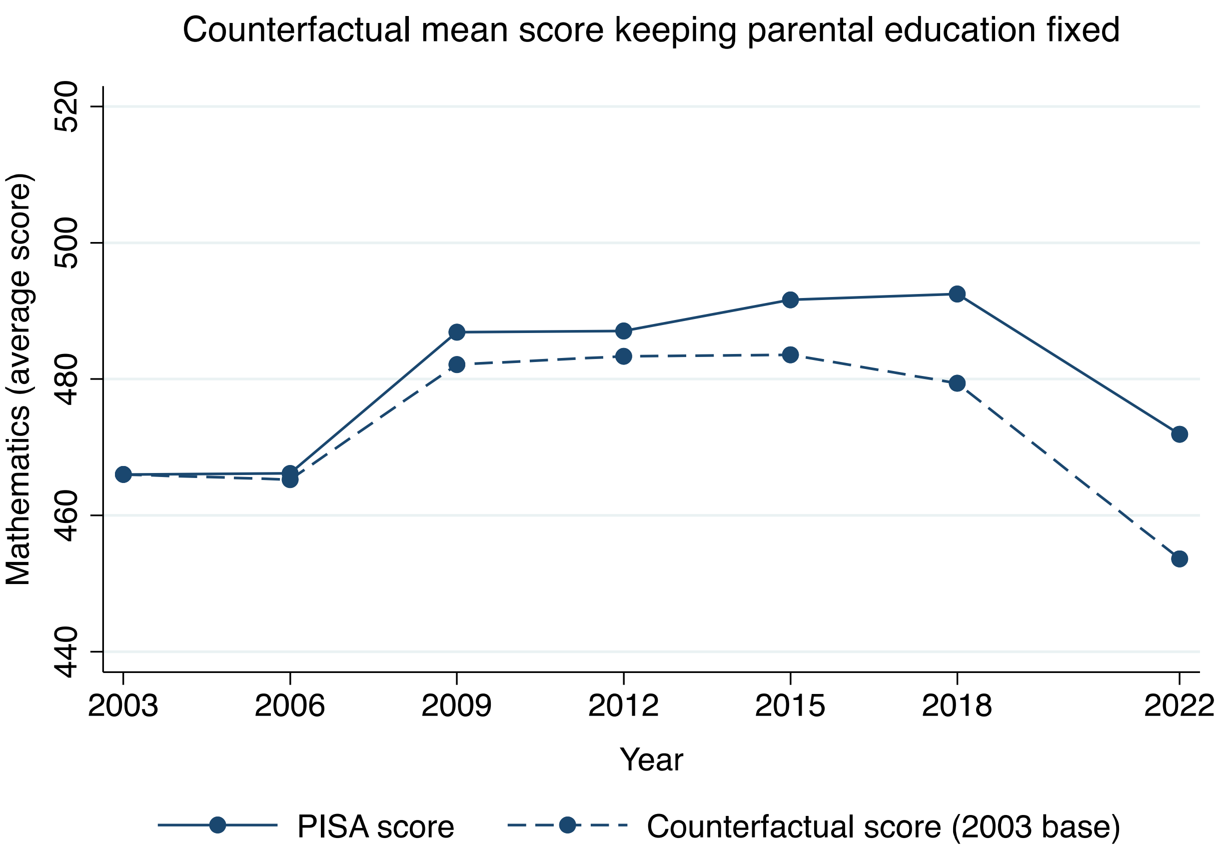
- **Up until 2012**, mean scores would have been slightly lower than the actual ones.
- **From 2015 onwards**, the scores would have been increasingly lower than what was observed.
- The **gradual improvement in scores** until 2018, would have **ended** much earlier, **in 2009**.
- In 2022, the fall would have been larger.



# Parental education: *Counterfactual*

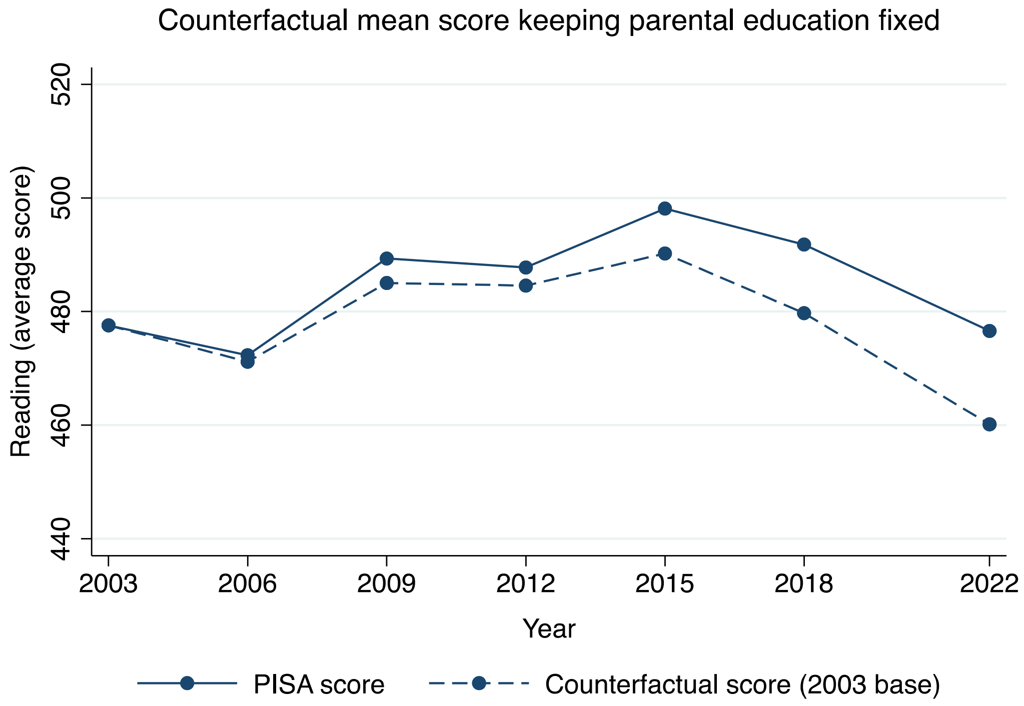
*How much of the evolution in the PISA scores can be explained by the increase in the parents' qualifications?*

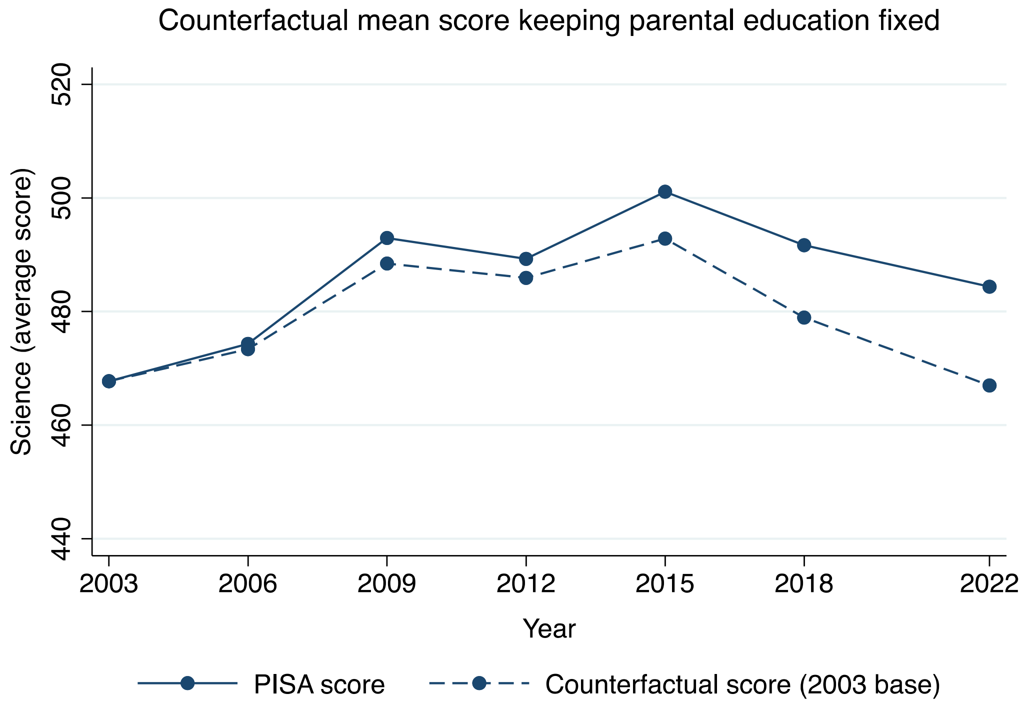
- **Until 2009**, the improvement in scores is mostly explained by a **generalized improvement in scores** of all students regardless of their parents' qualifications.
- The **generalized improvement in scores came to an end in 2009**.
- The **continued improvement until 2018** was sustained by **higher parents' qualifications.**
- **2018**, already before the pandemic, marks the **beginning** of a generalized **deterioration** in scores.



# Parental education: *Counterfactual*

Conclusions for Reading and Science are similar, except that the continued increase in scores lasted until 2015



# Equity and opportunity in education: Portugal and the OECD

# Socioeconomic status

To identify the **most advantaged and the least advantaged students**, we use the PISA index of economic, social and cultural status (ESCS). In particular, we look at the top and bottom 10% of the ESCS distribution in each year.

## Home possessions

Whether their household possessed certain items or how many of an item their household possessed.

- *Works of art*
- *Books*
- *Musical instruments*
- *Digital devices*
- *Bathrooms*
- *Own room*
- *Motor vehicles*

## Parental occupation

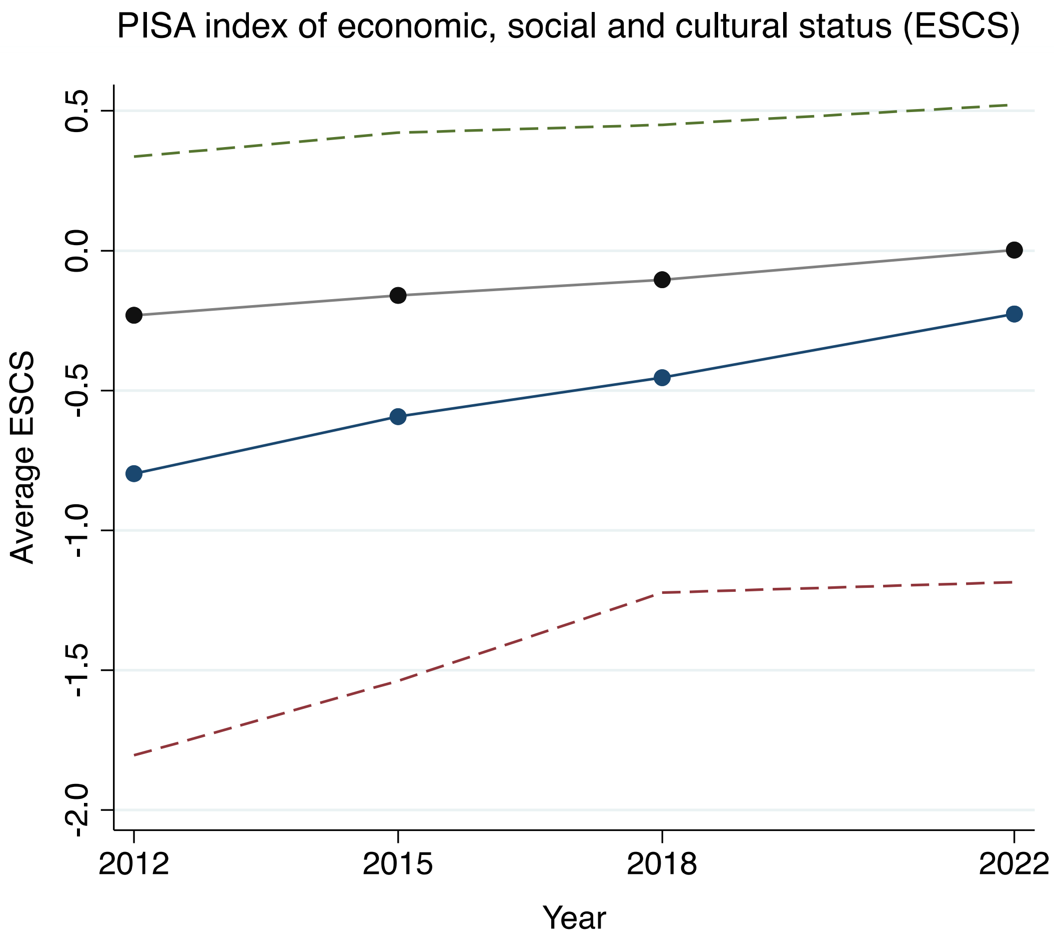
Open-ended questions about parents' occupation, converted into an index which combines income and education to reflect the status of an occupation.

## Parental education

Median years of education of completion of the highest level of parental education.

- *Primary*
- *Lower secondary*
- *Upper secondary*
- *Post-secondary non-tertiary*
- *Short-cycle tertiary*
- *Bachelor's*
- *Master's*
- *Doctoral*

# Socioeconomic status



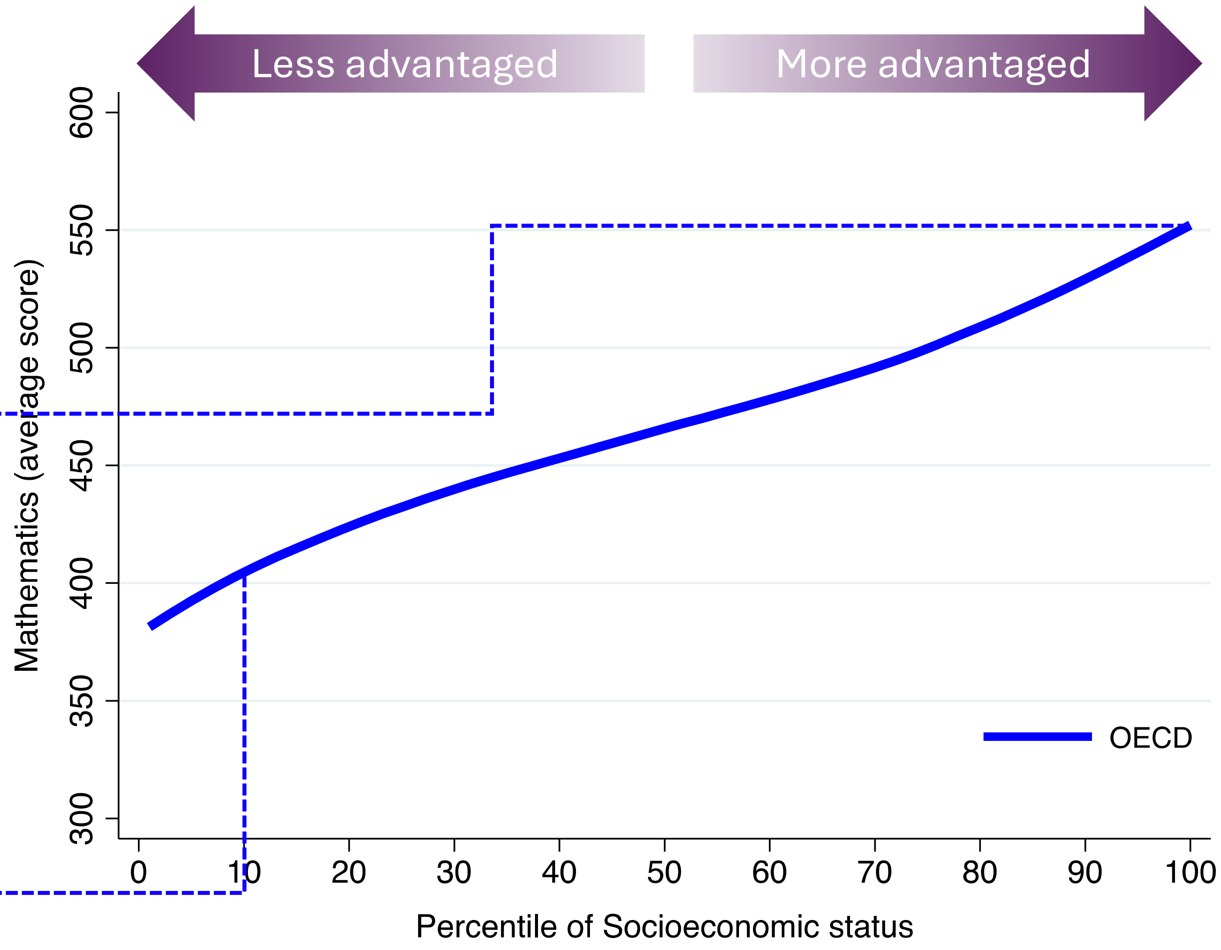

- The mean of the index of socioeconomic status of students in Portugal has been **converging** to the average of the OECD countries.

# Scores by socioeconomic status

**Focusing on 2022:**

- On average for the OECD countries, the higher the socioeconomic status, the higher the score.

Students in the 99th percentile of the socioeconomic distribution score just over 550, on average

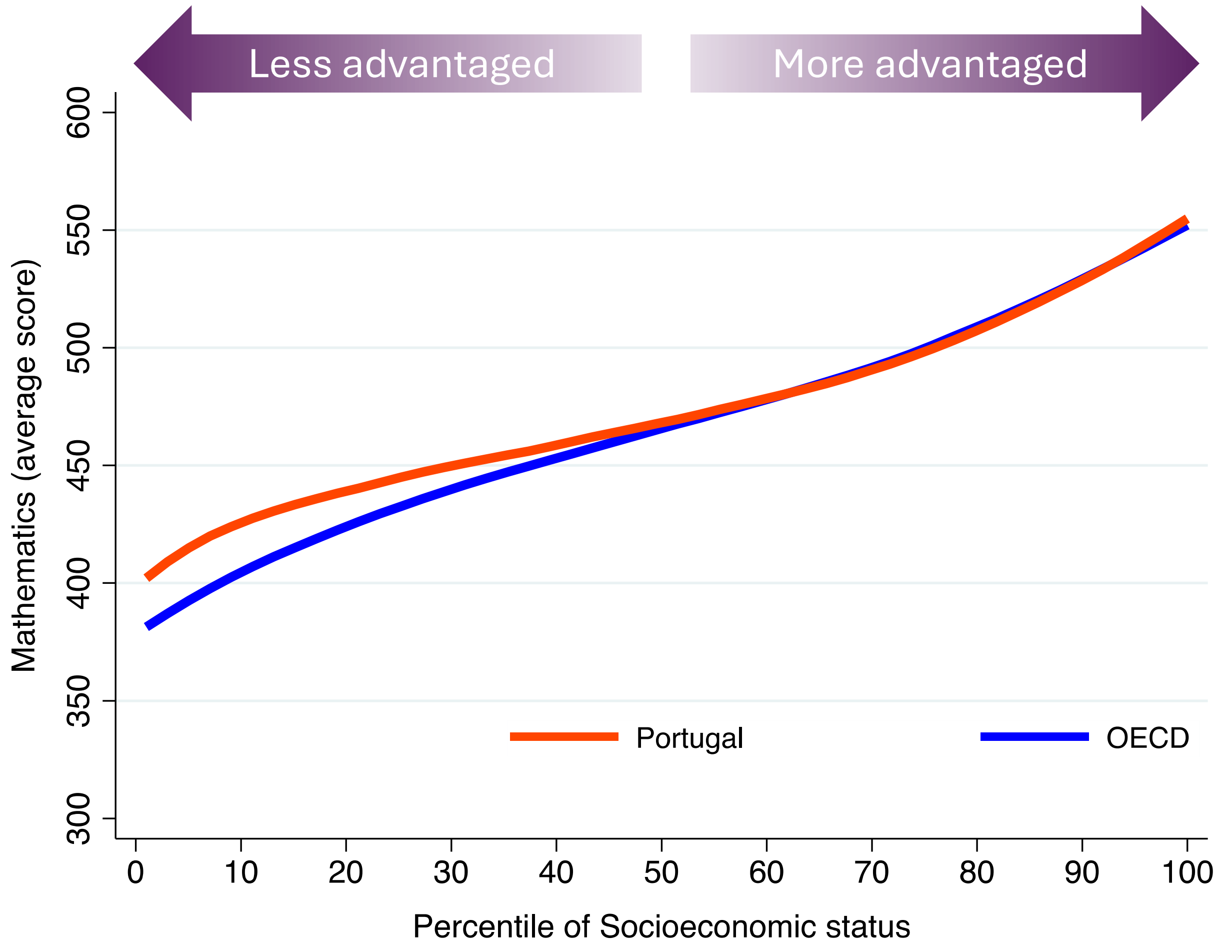



Students in the 10th percentile of the socioeconomic distribution score just over 400, on average

# Scores by socioeconomic status

**Focusing on 2022:**

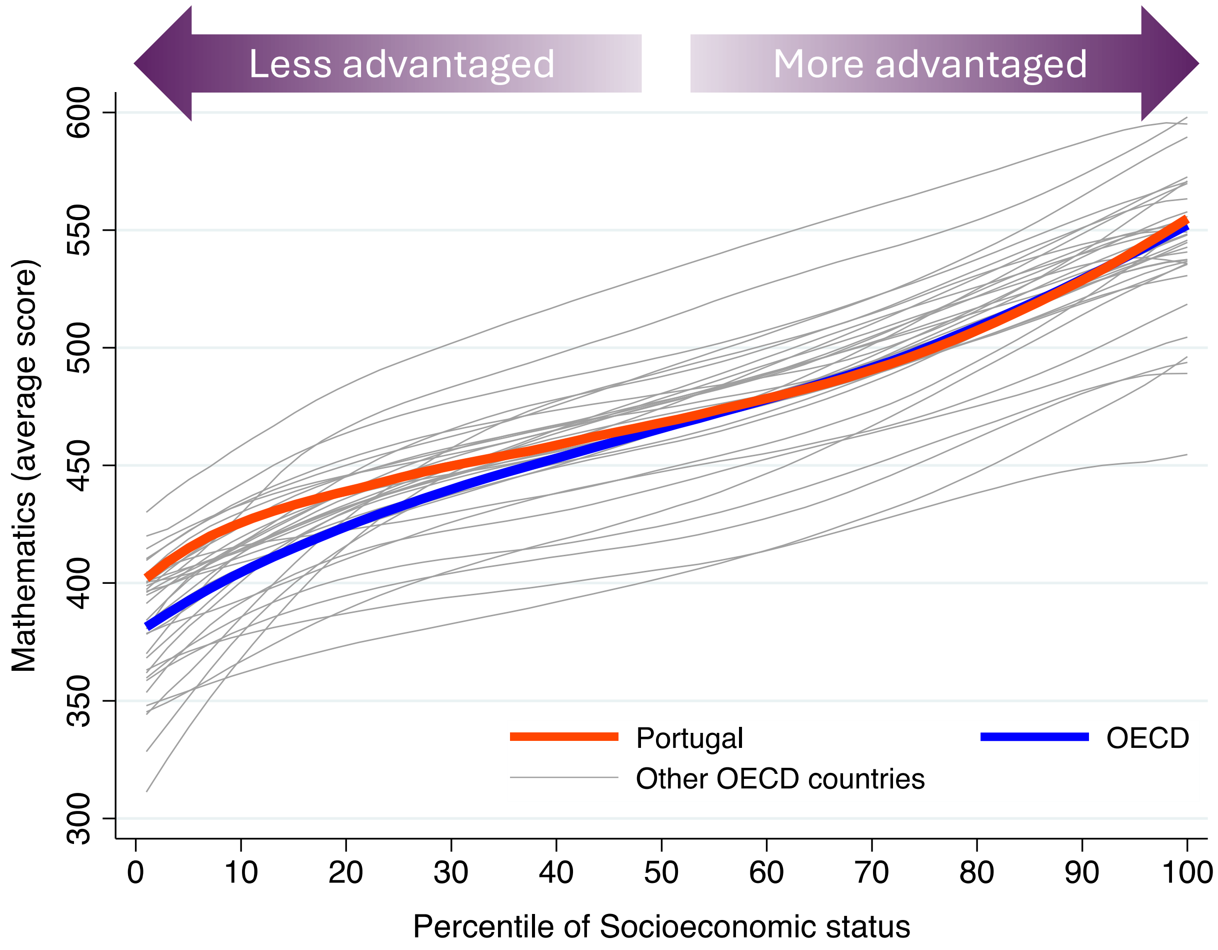
- On average for the OECD countries, the higher the socioeconomic status, the higher the score.
- The same is true for Portugal



# Scores by socioeconomic status

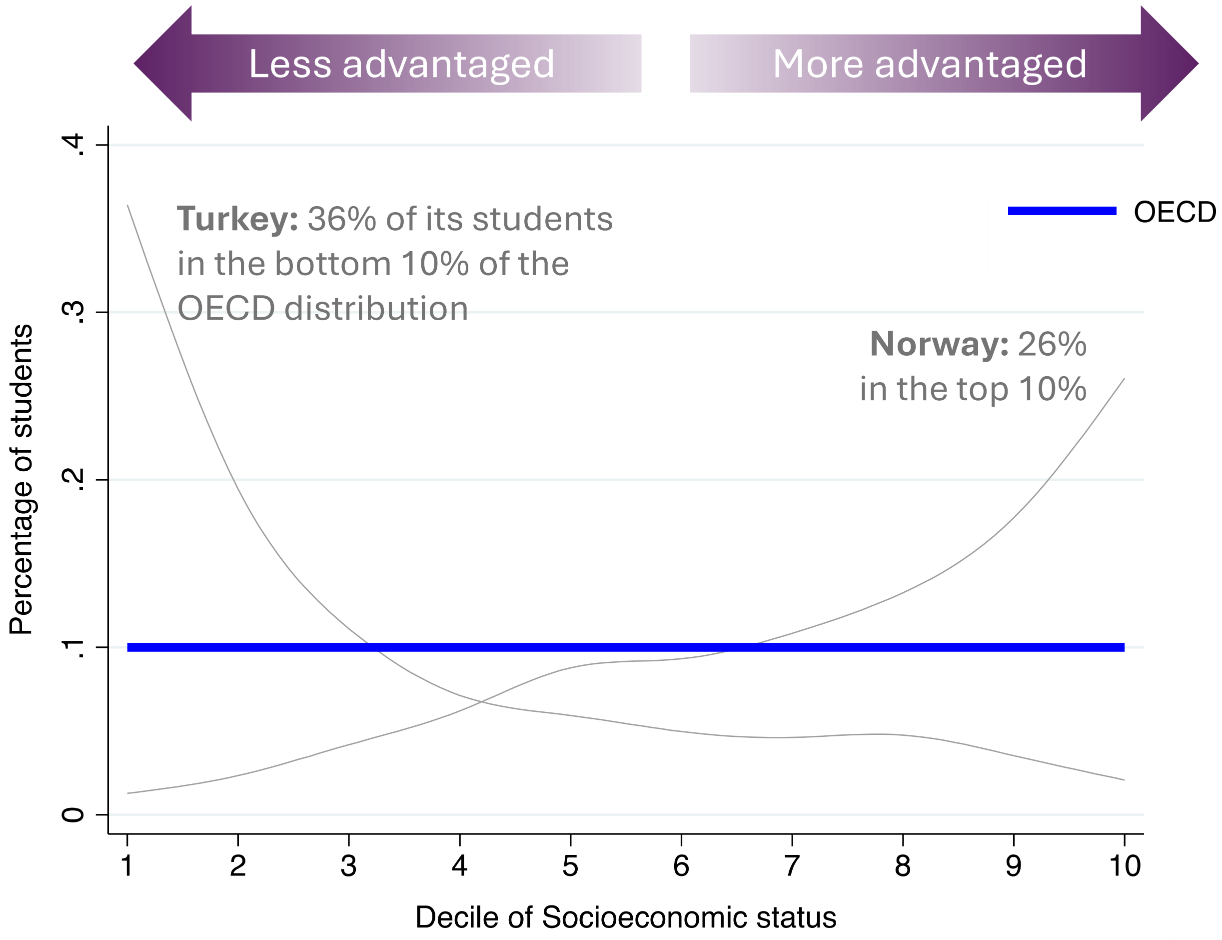
**Focusing on 2022:**

- On average for the OECD countries, the higher the socioeconomic status, the higher the score.
- The same is true for Portugal
- However, **Portugal does relatively well for less advantaged** students when compared to other OECD countries.
- For the top half, the mean scores are essentially the same as for the OECD average.
- **So, how come Portugal's overall mean score is not above the OECD average?**
- Because Portugal has a **high percentage of less advantaged students**...



# Distribution of socioeconomic status

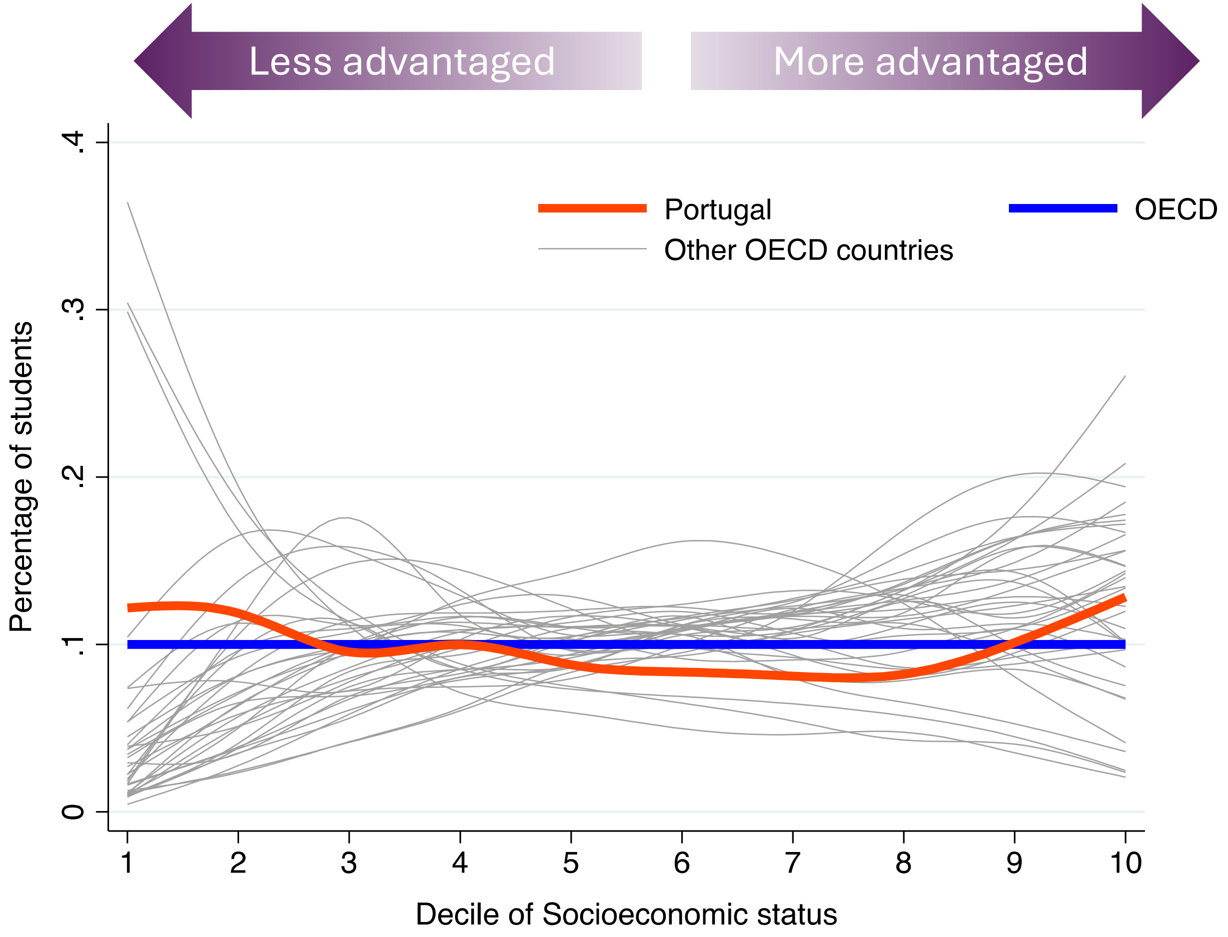
- We can compare the distribution of students by socioeconomic status across countries.



# Distribution of socioeconomic status

- We can compare the distribution of students by socioeconomic status across countries.

- **Countries with the highest percentages of least advantaged students** are Turkey (36%), Colombia, Mexico, Portugal (12%) and Chile (10%).



# What we have seen so far

**Inequalities:**

- As in many other countries, there is a gap in performance between students from different socioeconomic backgrounds
- But compared to other OECD countries, the more disadvantaged students perform better in Portugal than similar students in other countries
- However, the large inequalities in Portugal, with a high prevalence of students from disadvantaged backgrounds, is a limiting factor for the country to be able to achieve a better ranking position
- A continued trend of more qualified parents will help the overall scores go up

# Outlook: Portugal in PISA 2025

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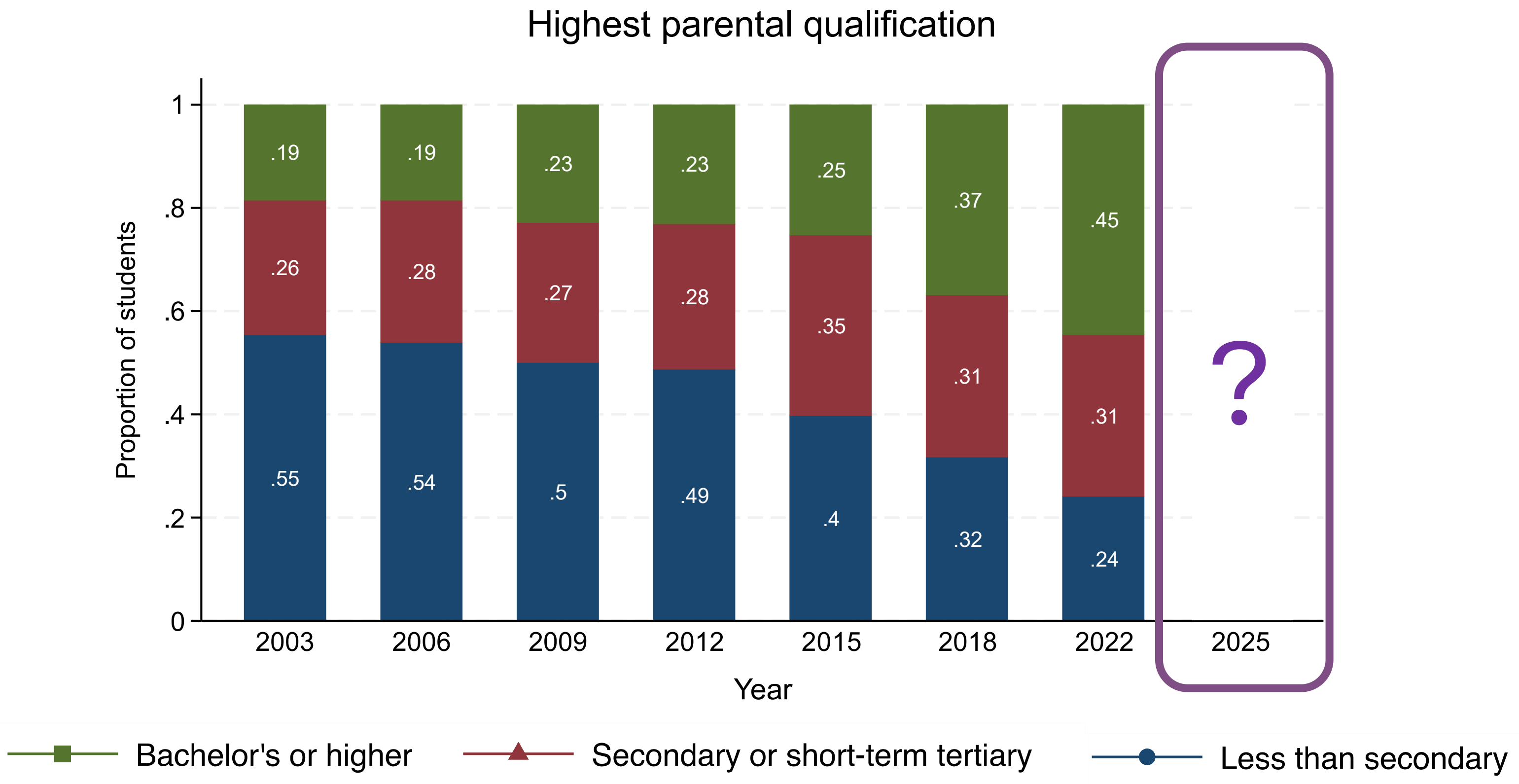
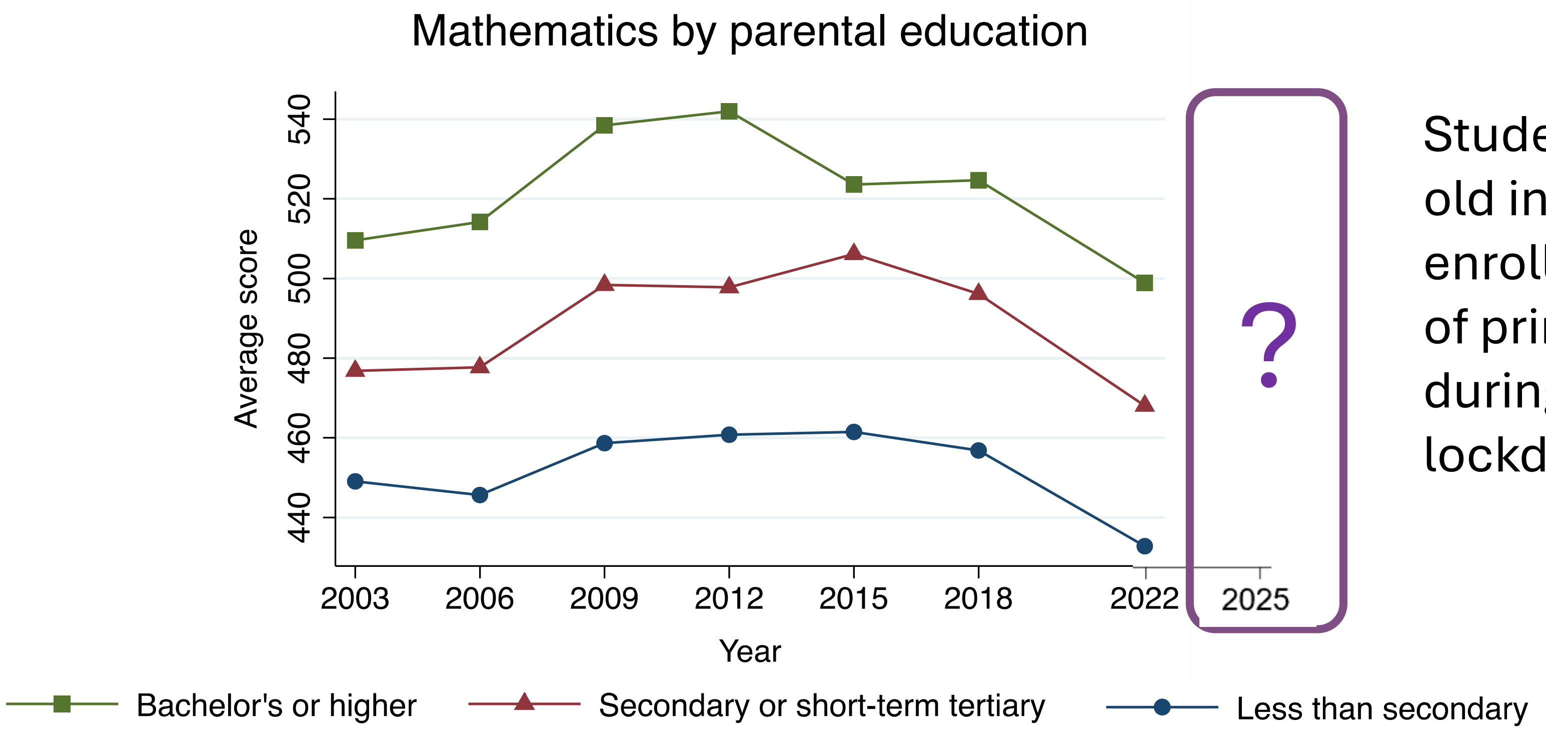
Continued trend of improved parental qualifications of the new 15-year-old generation



# Outlook: Portugal in PISA 2025

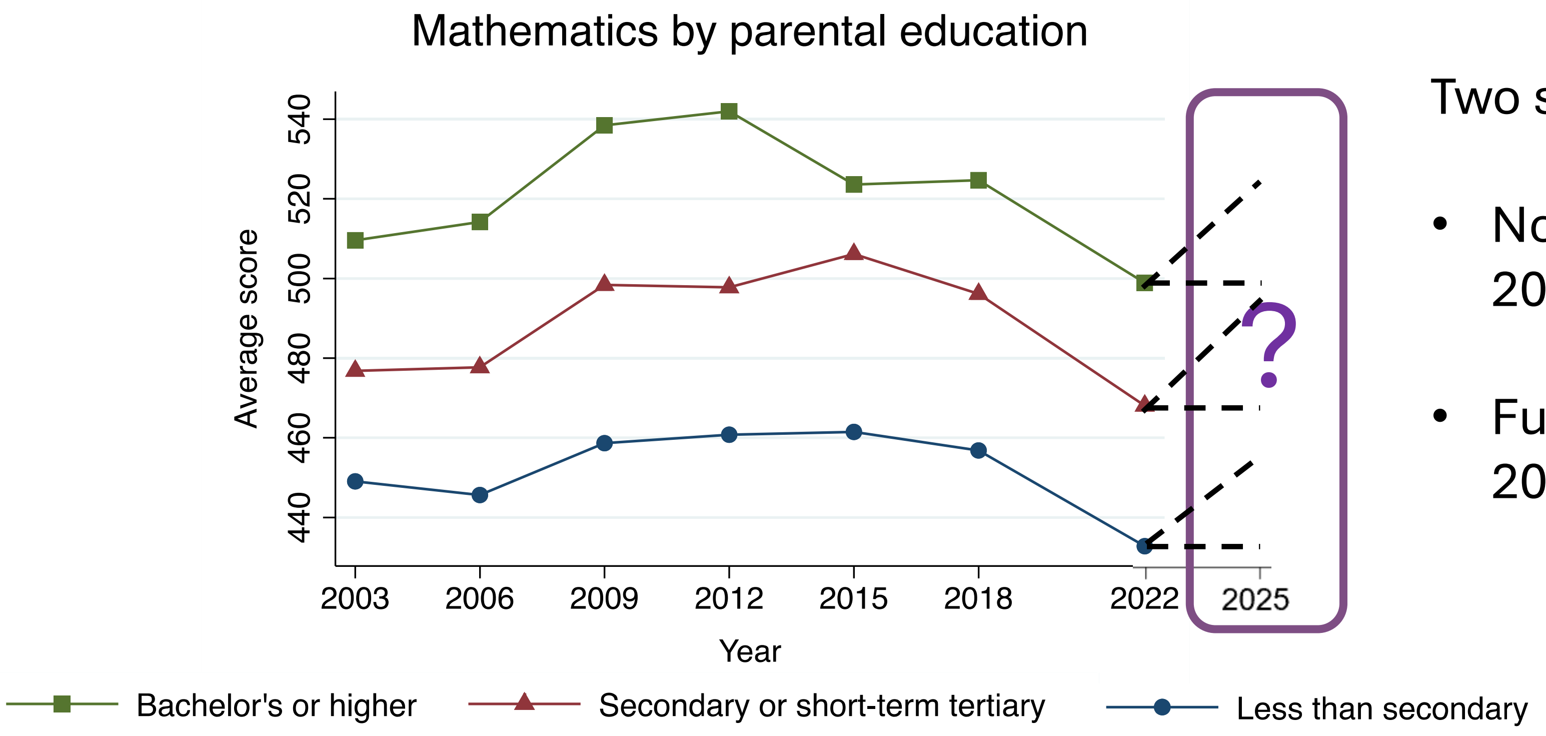
Student performance by parental education




Students aged 15 years old in 2025 were enrolled in 4th/5th grade of primary education during the first lockdown in 2020.

# Outlook: Portugal in PISA 2025

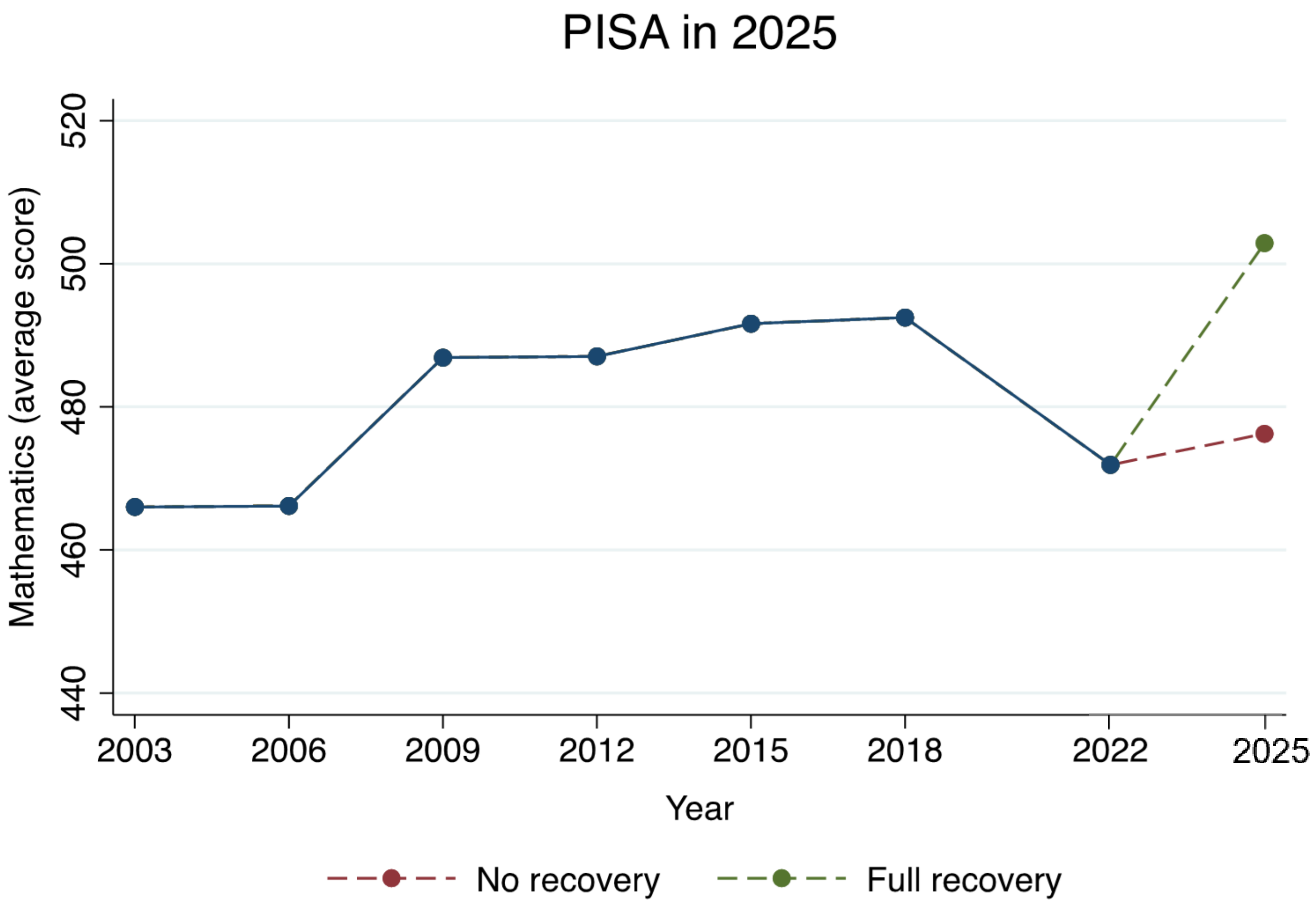
Student performance by parental education




Two scenarios:

- No Recovery: maintain 2022 levels.
- Full Recovery: back to 2018 levels.

# Outlook: Portugal in PISA 2025




- Both scenarios: improvement in 2025 relative to 2022
- Higher qualifications of the parents of the new 15-year-old cohort is an important driver of the improvement
- The actual score in 2025 will be somewhere in between, depending on the pace of the learning recovery
- The generalized deterioration in scores that started before the pandemic is not included in these two scenarios. If it continues into 2025, the results will be worse and the mean score could even go below the 2022 level.

# Outlook: Portugal in PISA 2025

- The outlook for the future is very uncertain given the lack of knowledge about whether students are recovering, or not, their learning losses.

  - In 2023, a follow-up report of the recovery plan by IAVE did not show a recovery of learning losses since 2021 for students in the $6^{th}$ and $9^{th}$ grade.

  - Even before the pandemic, there were signs of a decline in performance of students from all backgrounds.

# Outlook: Education System in Portugal

- Education is a cumulative process – Important to monitor the education system to be able to act early

- Portugal needs to improve its framework of standardized and regular evaluation of the education system

- Evidence-based policies are fundamental to understand what works and what does not work

- Need for effective public policies that allow the education system to adapt to varied and constantly changing contexts

# Thank you