



“Greece in the Global Classroom”

Insights from PISA 2018

An Evidence-Based Overview of Student Performance, Investment and Equity

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Data Visualization and Communication
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Introduction

Introduction

- **Why PISA Matters**

- Global benchmark as Academic and Socioeconomic Status of Students in Reading, Math & Science
- Conducted by the OECD in 70+ countries every 3 years
- Enables cross-country comparisons of student outcomes
- Informs education policy with evidence-based insights

- **What this study examines**

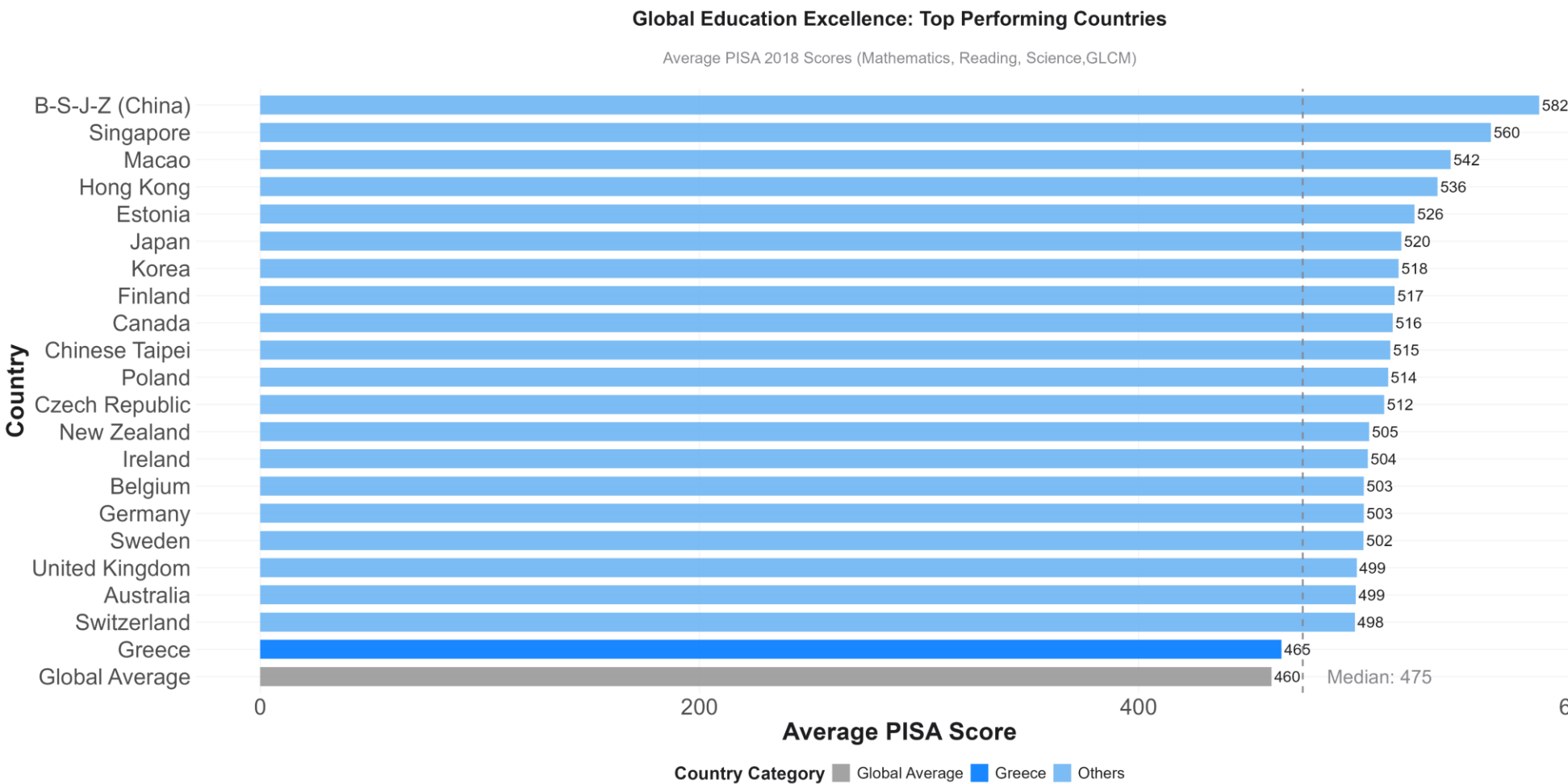
- Greece's performance in context of global, gender, equity, and investment dimensions



R - Plots

Academic Insights

Global Education Excellence: Top Performing Countries



Global Education Excellence: PISA 2018 Highlights

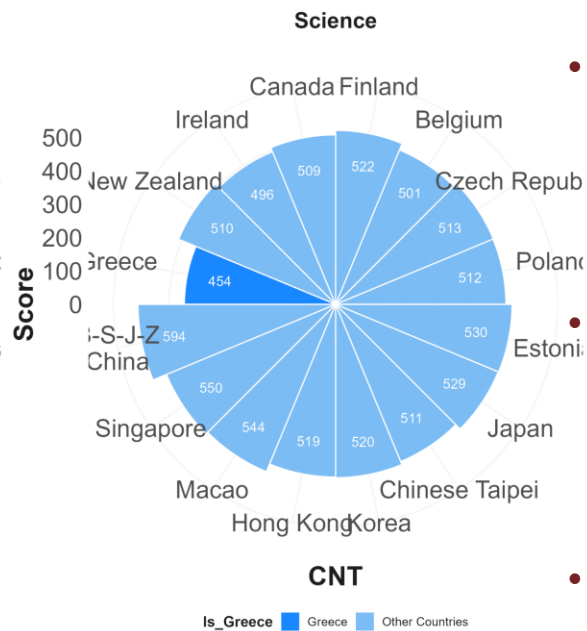
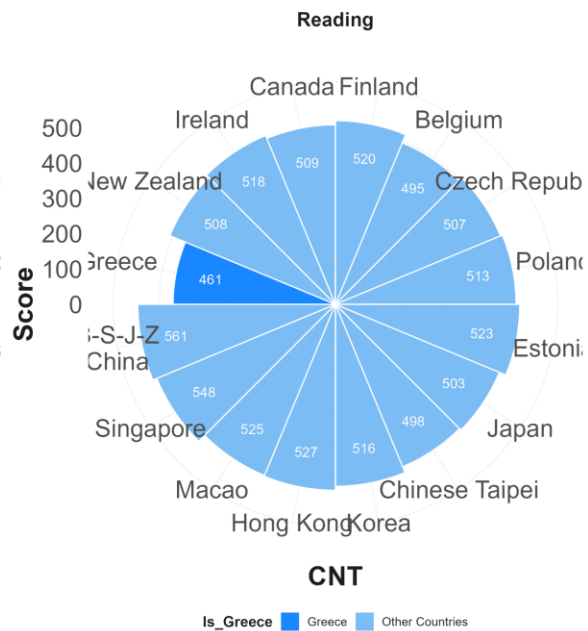
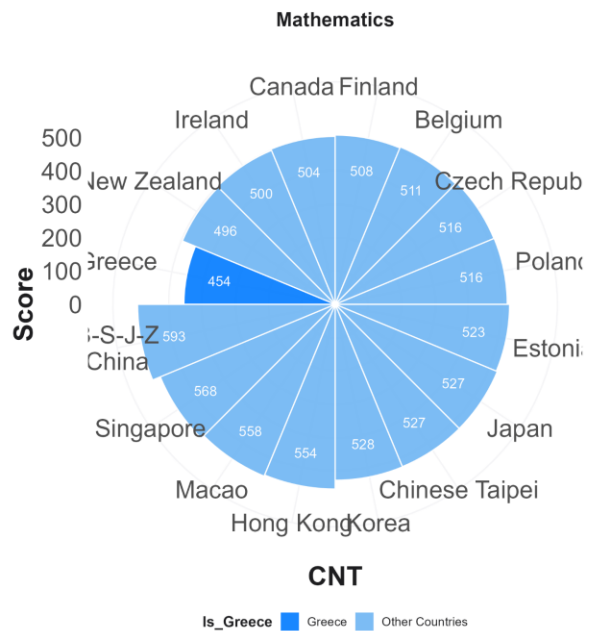
- **Top Performers:**
 - East Asian economies (China, Singapore, Macao) lead.
- **Strong Showing:**
 - Many European nations excel.
- **Greece's ranking:**
 - Greece's score (465), slightly above the global average of (460) below the median (475)
- **Overall:**
 - Wide range in global education performance.

Sources

OECD PISA 2018, World Bank Education Data

Source: OECD PISA 2018

Subject Excellence Across Top Performing Nations



Subject-Wise PISA 2018 Performance

- **Mathematics**
 - China leads (593), followed by Singapore and Macao.
 - Greece: 454 — well below OECD average.
- **Reading**
 - Top scorers: China (561), Singapore, Hong Kong.
 - Greece: 461 — modestly below global average.
- **Science**
 - China again tops (594), followed by Singapore and Estonia.
 - Greece: 454 — among the lowest in this comparison.
- **Insights**
 - East Asian countries dominate across all subjects.
 - Europe performs well, especially in reading and science.
 - Greece trails significantly in all subjects, highlighting need for systemic educational improvements.

Sources

OECD PISA 2018, World Bank Education Data

Greece in Global Context: PISA Performance Ranking

Greece in Global Context: PISA 2018

- Ranking Overview

Countries are ranked by average scores across math, reading, and science.

- Performance tiers are color-coded:

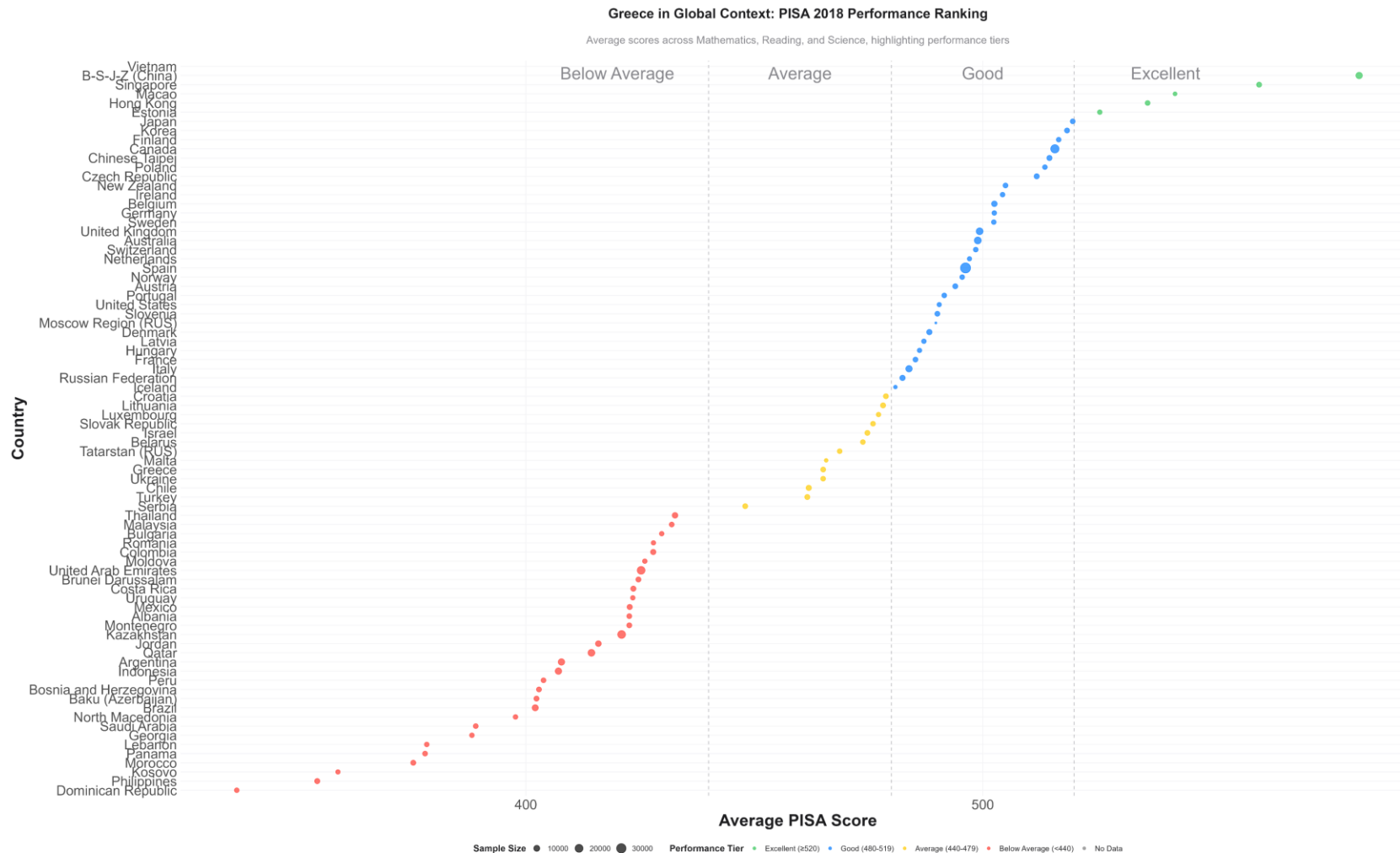
- Excellent (≥ 520)
- Good (480–519)
- Average (440–479)
- Below Average (< 440)

- Greece

- Score: 465, placing in the “Average” tier.
- Positioned just above the global average, but below most OECD peers

- Insights

- East Asian countries dominate across all subjects.
- Europe performs well, especially in reading and science.
- Greece trails significantly in all subjects, highlighting need for systemic educational improvements.

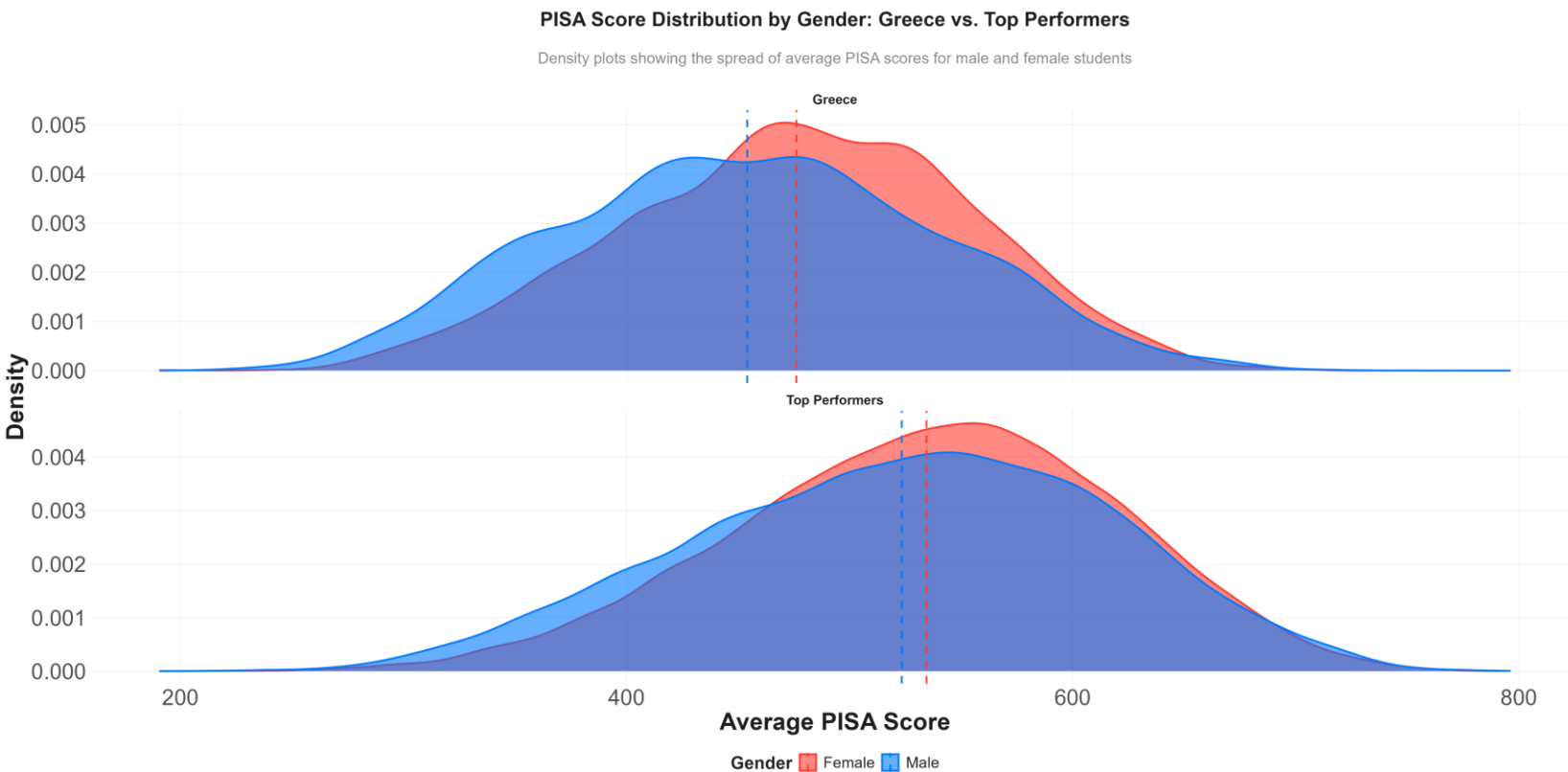


Sources

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Demographic Insights

Gender Performance in Greece



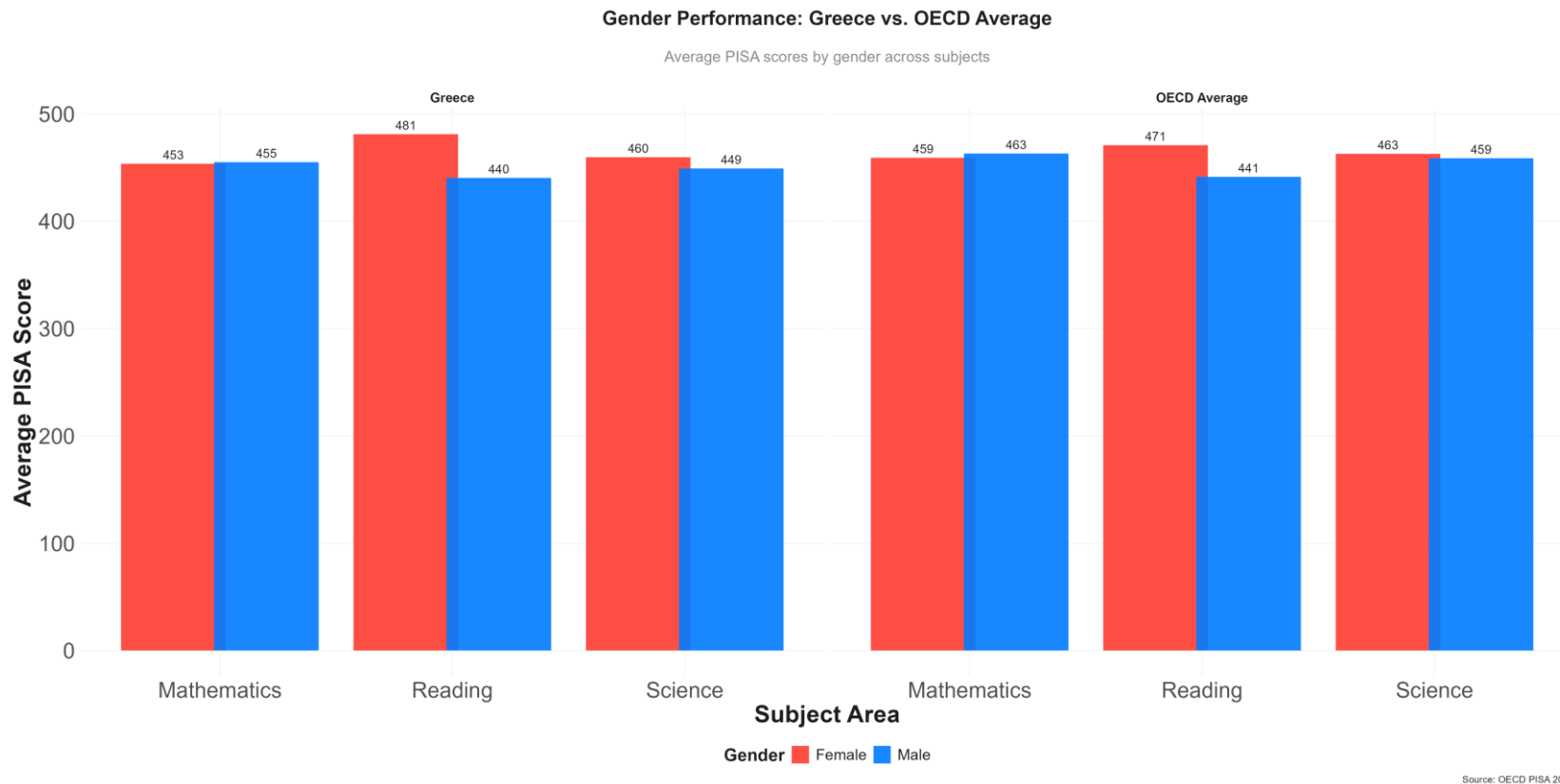
Gender-Based Score Distribution

- **Top Performers (bottom plot):**
 - Females slightly outperform males. Scores are tightly clustered (550–580), indicating consistency.
 - Well above the OECD average.
- **Greece (top plot):**
 - Females lead slightly.
 - Broader score spread shows more variability.
 - Average: ~465 — above global average (460), below OECD median (475).
- **Insights**
 - Top performers: high, consistent results across genders.
 - Greece: moderate scores, wider spread implies equity/quality gaps
 - Gender gap is small but favors females in both groups.

Sources

OECD PISA 2018, World Bank Education Data

Gender Performance Gaps Across Countries



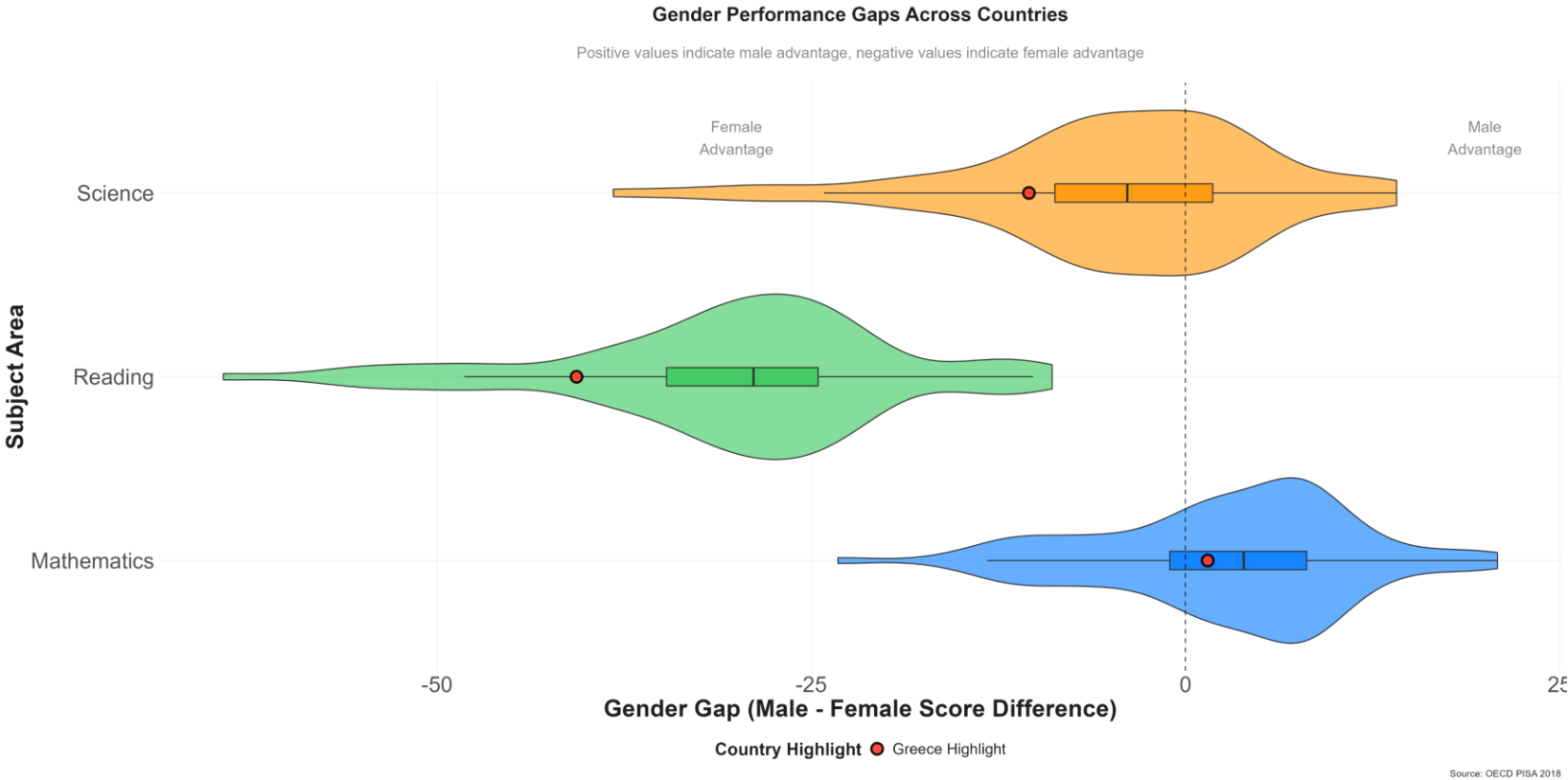
Gender Comparison Across Subjects Greece:

- Girls outperform boys in Reading and Science.
- Math scores are nearly equal (Girls: 453, Boys: 455).
- Biggest gap in Reading: +41 for girls.
- **OECD Average:**
- Similar trends: Girls lead in Reading (+30) and Science (+22). Boys slightly ahead in Math.
- **Insights**
- Gender gaps in Greece reflect OECD patterns, but Reading gap is larger.

Sources

OECD PISA 2018, World Bank Education Data

Gender Performance Gaps Across Countries



Gender Gaps in PISA 2018: Global Overview

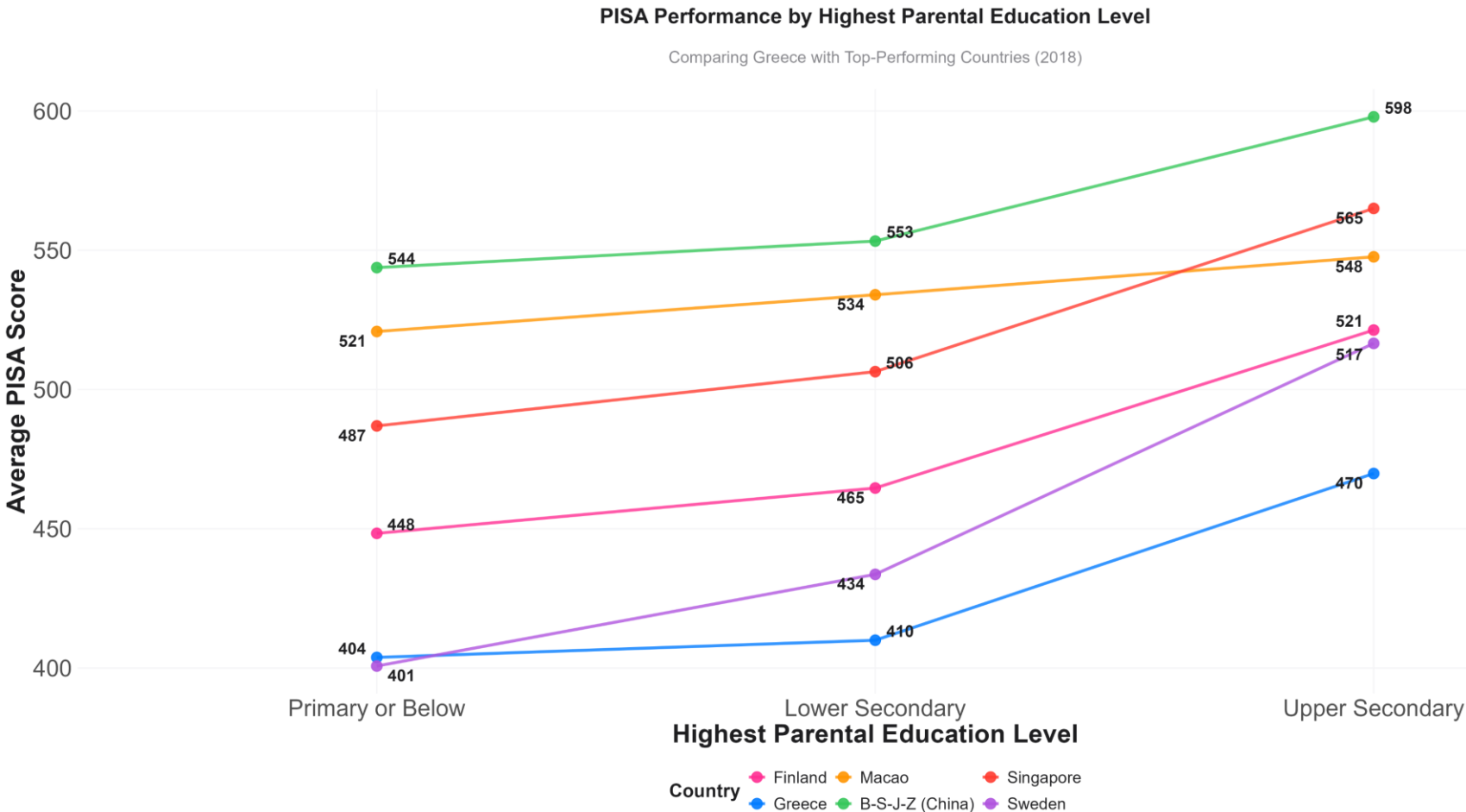
- **Science**
 - Most countries show a male advantage. Greece is near the global median — small gap.
- **Reading**
 - Female advantage is widespread and significant.
 - Greece aligns with this trend — strong female lead.
- **Mathematics**
 - Slight male advantage overall.
 - Greece again near the middle, with a small gender gap.
- **Insights**
 - Reading shows the largest and most consistent gender gap, favoring females.
 - Greece's gender gaps are moderate and closely match international patterns.

Sources

OECD PISA 2018, World Bank Education Data

Socioeconomic Insights

Socioeconomic Impact on Performance



Parental Education & Student Performance

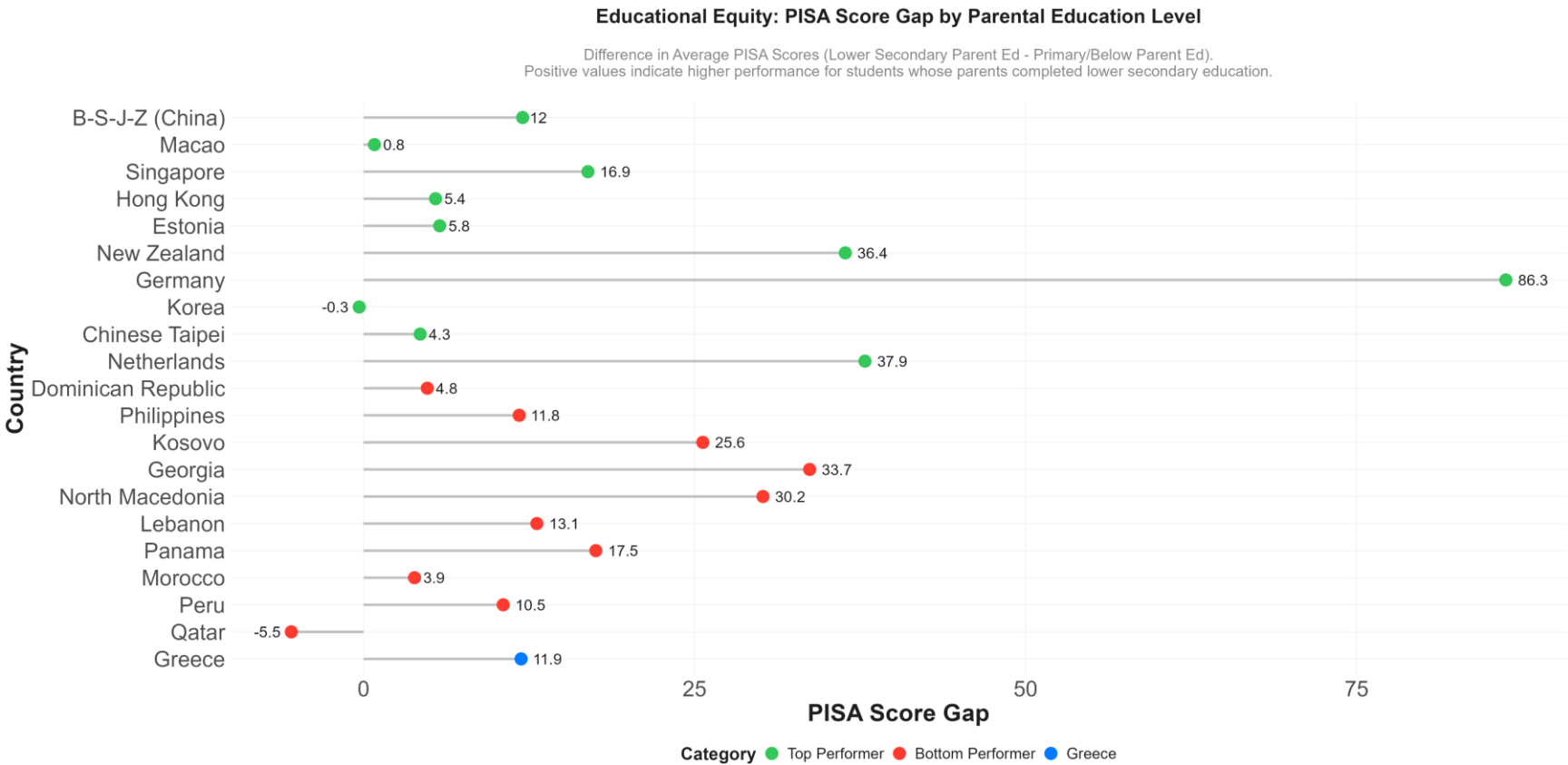
- **Greece:**
 - Greece shows a steady increase in student scores as parental education rises — from 404 (Primary or Below) to 470 (Upper Secondary). This represents a ~70-point gap, with lower baseline performance than peers.
- **Other Countries:**
 - Singapore and China (B-S-J-Z) show the highest scores across all levels, but also a steep gradient — indicating strong impact of family background.
 - Macao Sweden and Finland exhibit less steep gains, reflecting more equitable systems where parental education has less impact on student outcomes.
- **Insights**
 - In Greece, student success is closely tied to family education level.

Sources

OECD PISA 2018, World Bank Education Data

Educational Equity:

Gap Between Primary and Lower Secondary Parental Education



Greece:

- Greece shows a gap of 11.9 points, meaning students with lower-secondary educated parents perform moderately better than those with primary or less.

Top Performers:

- Countries like Singapore (16.9), China (12), and Korea (-0.3) show small or no gaps, suggesting greater equity at early education stages.

Bottom Performers:

- Bottom-performing countries like Georgia (33.7) and North Macedonia (30.2) display large gaps, highlighting strong socioeconomic dependence.

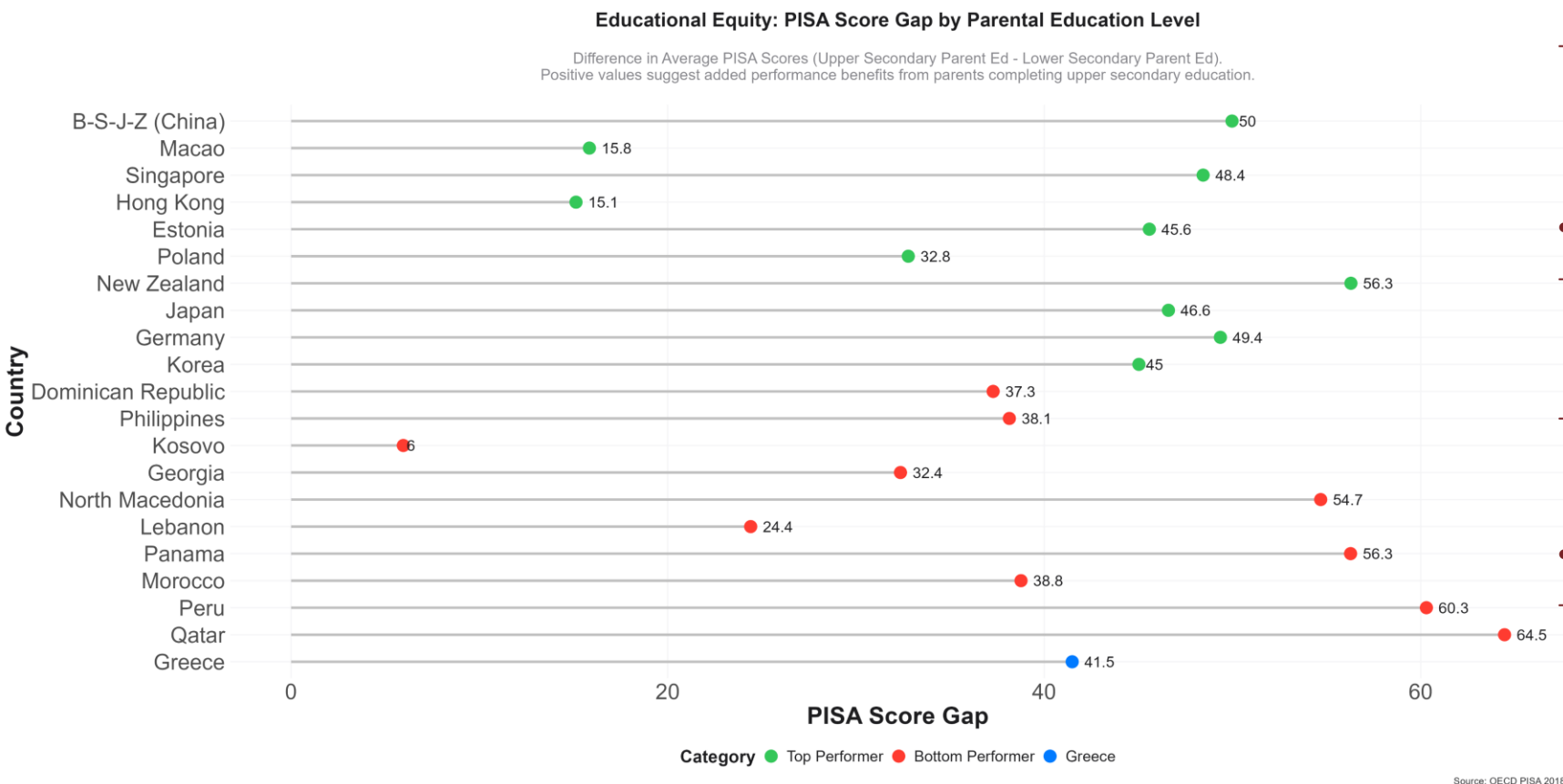
Insight:

- Greece's early equity gap is moderate — it reflects some benefit from parental education, but equity could be improved with stronger foundational support.

Sources
OECD PISA 2018, World Bank Education Data

Educational Equity:

Gap Between Upper Secondary and Lower Secondary Parental Education



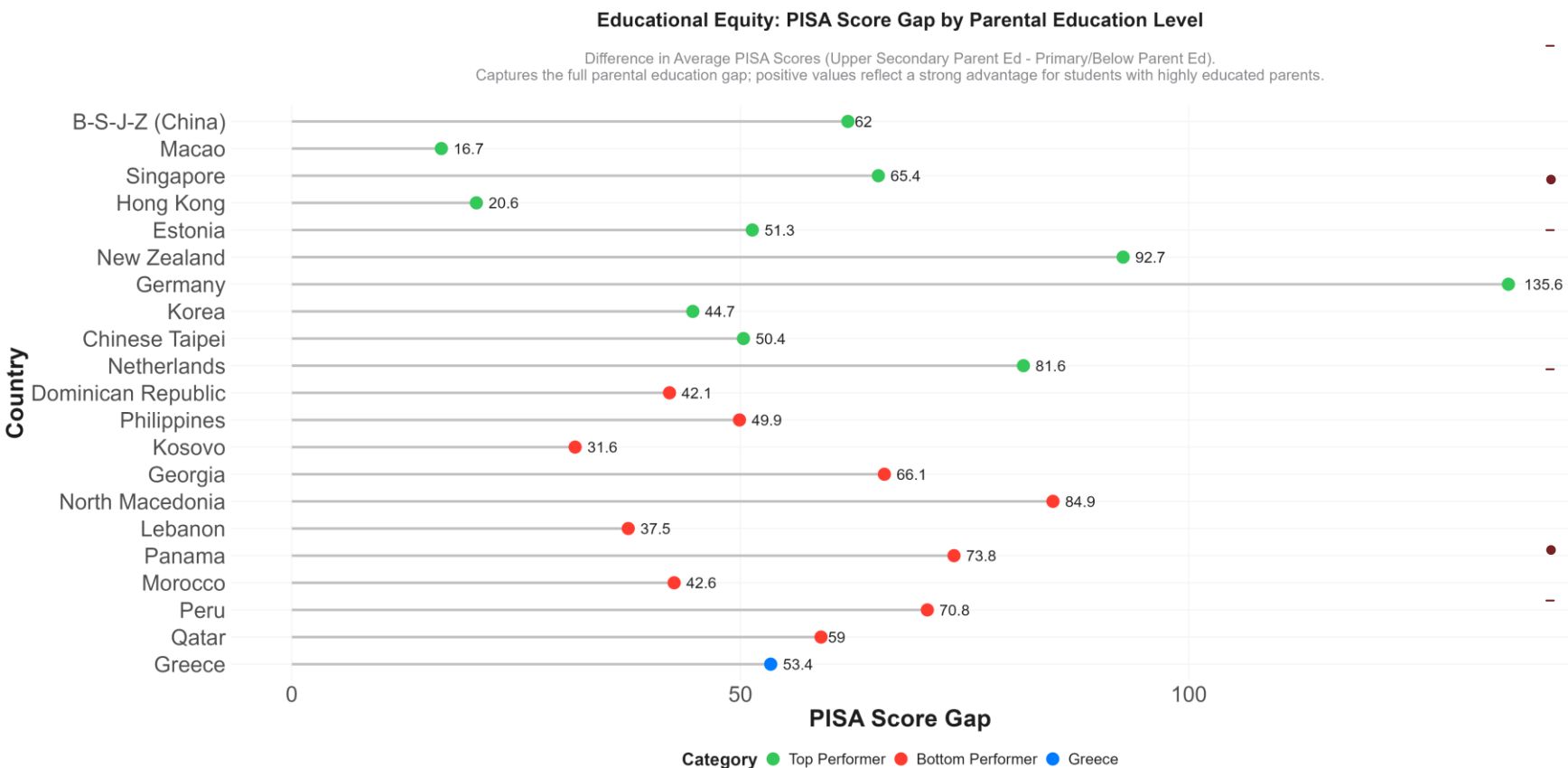
- **Greece:**
 - ● Greece shows a gap of 41.5 points, meaning students benefit significantly when parents complete upper secondary education.
- **Other Countries:**
 - ● New Zealand (56.3) and China (50.0) show strong but expected gains with upper parental education.
 - ● Countries like Peru (60.3) and Panama (56.3) exhibit high dependence on parental education, signaling systemic inequality.
- **Insight:**
 - Greece's uplift gap is large, suggesting parental education remains a key performance driver in secondary schooling outcomes.

Sources

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Educational Equity:

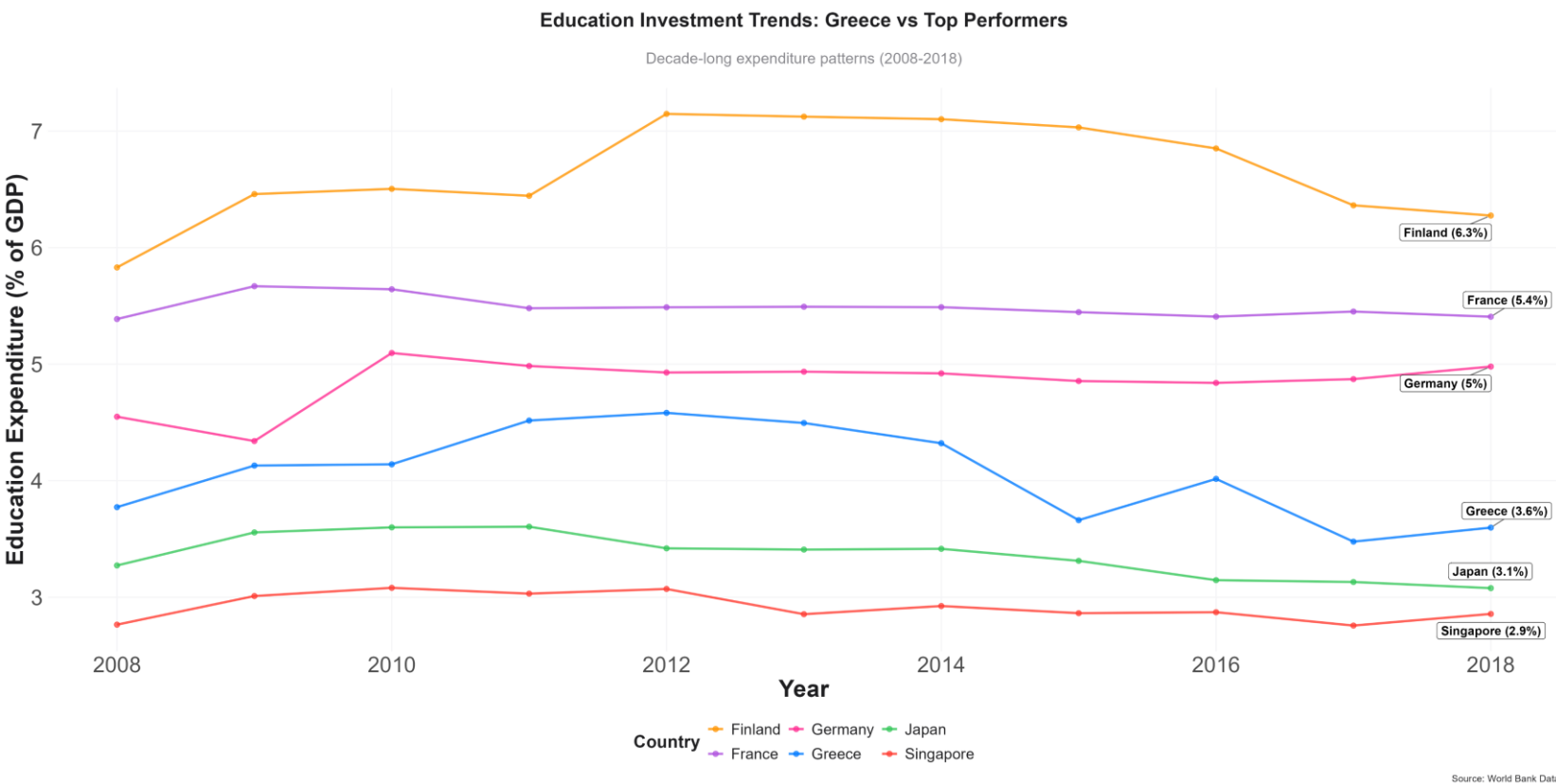
Gap Between Upper Secondary and Primary or Below Parental Education



- **Greece:**
 - ● Greece shows a total gap of 53.4 points, meaning students with highly educated parents score substantially better.
- **Other Countries:**
 - ● Germany (135.6) and New Zealand (92.7) show massive gaps, reflecting stratified systems.
 - ● Several lower-performing countries (e.g., Panama, Peru) also show large full gaps, highlighting persistent generational disadvantages.
- **Insights**
 - Greece's full gap is significant but not extreme — still, more targeted support is needed for students from low-Socioeconomic Status families.

Sources
OECD PISA 2018, World Bank Education Data

Education Investment Trends: Greece vs Top Performers



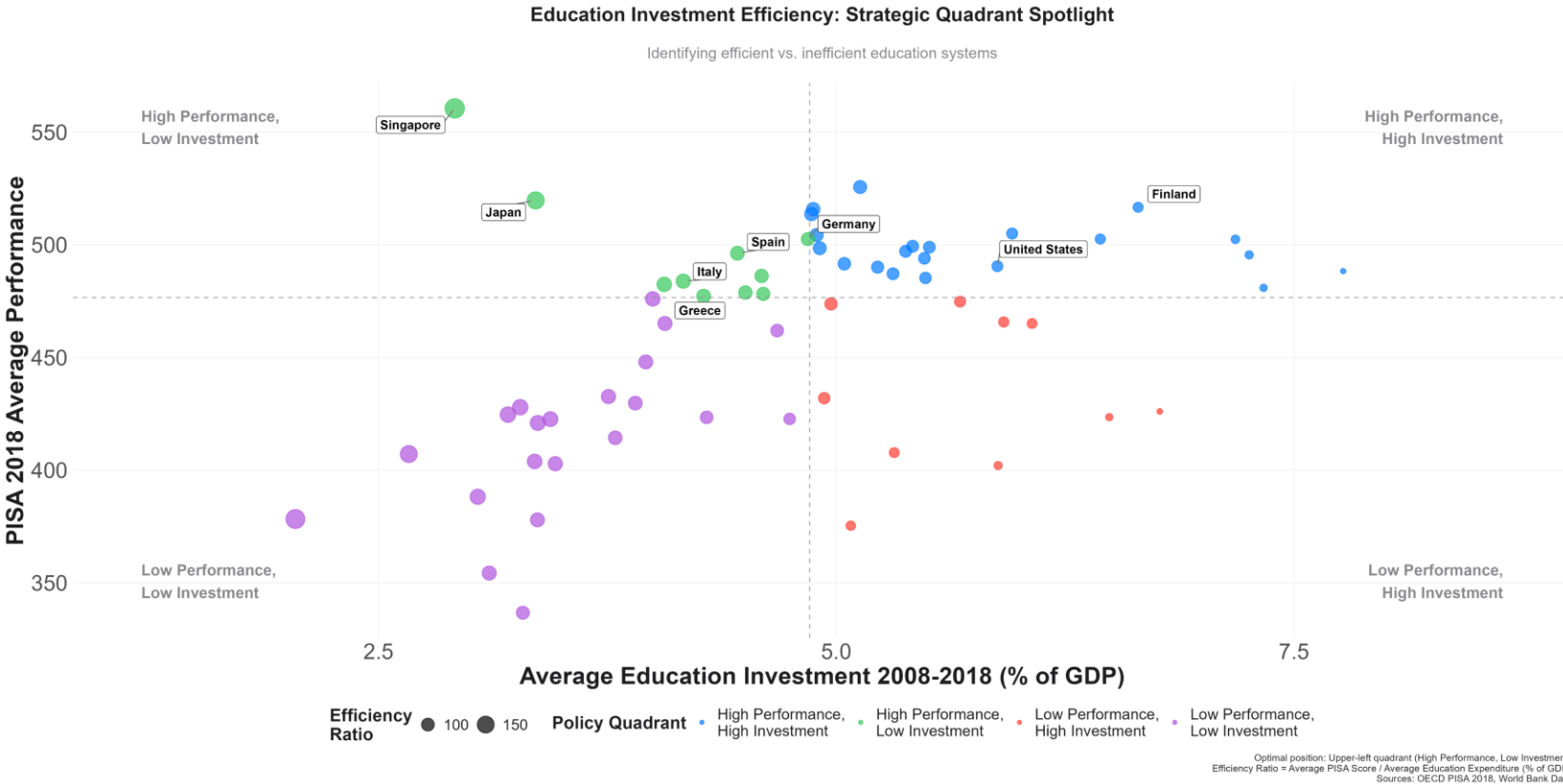
Investment in Education: 2008–2018 Trends

- **Greece**
 - Started at 3.8% of GDP, peaked at 4.6% (2012), but dropped to 3.6% by 2018. Trend reflects economic constraints post-crisis.
- **Finland**
 - Consistently leads with 6–7% investment, finishing at 6.3% — highest among peers.
- **Other Nations**
 - France stable around 5.4%.
 - Germany around 5.0%, with a slight upward trend.
 - Japan and Singapore invest least (~3.1%–2.9%), yet perform strongly in PISA.
- **Insights**
 - Greece's declining investment impacts education quality long-term.
 - High performance isn't solely tied to high spending — but sustained investment like Finland's shows clear benefits.
 - Effective use of resources is as critical as volume of spending.

Sources

OECD PISA 2018, World Bank Education Data

Socioeconomic Impact on Performance



Efficiency of Education Systems

- **Top Efficiency:**
 - Singapore & Japan: High performance with low spending.
 - Best value-for-investment systems.
- **High Investment, High Performance:**
 - Finland, Germany, U.S. perform well but at higher cost.
- **Greece:**
 - Low performance despite moderate spending → low efficiency.
 - Positioned in low performance / low investment quadrant.
- **Insights**
 - Greece must improve either investment efficiency or outcome returns to shift quadrant.

Sources

OECD PISA 2018, World Bank Education Data

Tableau Dashboard

Dashboard

Click on Dashboard to Open Tableau File

Dashboard Purpose

To explore the relationship between educational performance (PISA 2018 scores) and national education expenditure (% of GDP) across countries, using dynamic visualizations.

Dashboard Components

1. World Map of PISA Math Scores

- **Bubble Size:** Total number of students per country.
- **Bubble Color:** Average Math score (red = low, blue = high).
- **Slider:** Filter top N performing countries.
- **Subject Selector:** Switch between Math, Reading, or Science.

2. Line Chart: Education Spending Over Time

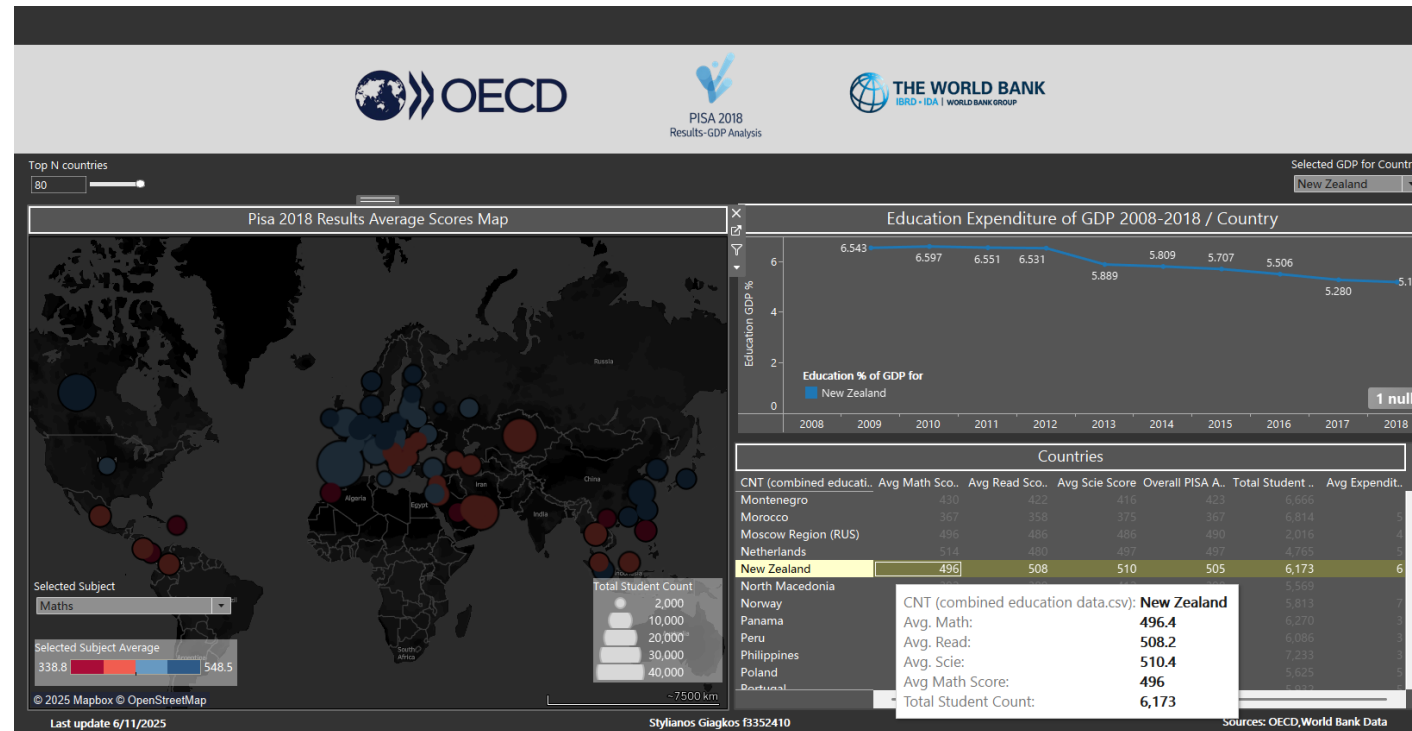
- Shows % of GDP spent on education (2008–2018) for selected country (e.g., *New Zealand*).
- Reflects spending trends and potential correlation with performance.

3. Data Table: Country Metrics

- Detailed metrics by country:
 - Average scores (Math, Reading, Science)
 - Overall PISA score
 - Total student count
 - Average GDP education expenditure

Example Insight

New Zealand's education expenditure dropped from ~6.6% (2010) to ~5.2% (2018), yet it maintains high average scores (~500+), suggesting spending efficiency.



Greece in the Global Classroom: Insights from PISA 2018

Sources

OECD PISA 2018, World Bank Education Data
Dashboard by:
Stylianios Giagkos

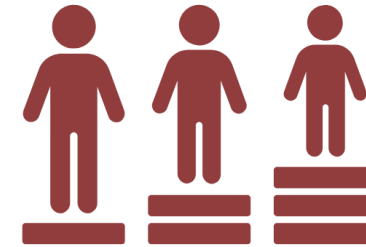
Conclusions and Policy Recommendations

| Summary of Findings



Performance:

- Greece performs below the OECD median in all subjects.
- Gender gaps exist but are aligned with international trends.



Equity & Socioeconomic Influence:

- Parental education strongly impacts student performance.
- Greece shows moderate-to-large equity gaps, especially in upper education transitions.



Investment vs Outcome:

- Education funding has declined, and returns are relatively low.
- Greece sits in the low efficiency quadrant, unlike top performers.



Global Standing

- Greece is not among the lowest, but trails behind high-achieving and equitable systems.
- Room for reform and smarter investment is clear.

Toward a More Equitable and Effective Education System



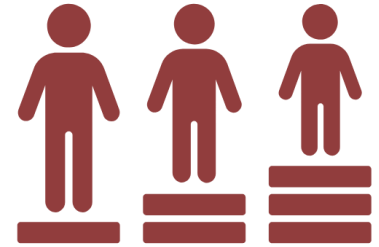
1. Strengthen Early Support

- Expand early childhood education and literacy programs for low-SES families.



2. Target Socioeconomic Gaps

- Introduce performance-based funding to schools in disadvantaged areas.
- Provide mentoring, tutoring, and enrichment for underperforming groups.



3. Promote Equity in Secondary & Tertiary Transitions

Reduce dropout rates and support pathways to upper secondary and vocational education.

Room for reform and smarter investment is clear.



4. Optimize Education Investment

- Increase investment in education gradually toward OECD average.
- Ensure funds target classroom-level quality, not just administrative expansion.



5. Leverage Data for Policy

Use PISA insights and school-level metrics to monitor impact, equity, and effectiveness.



Thank You!