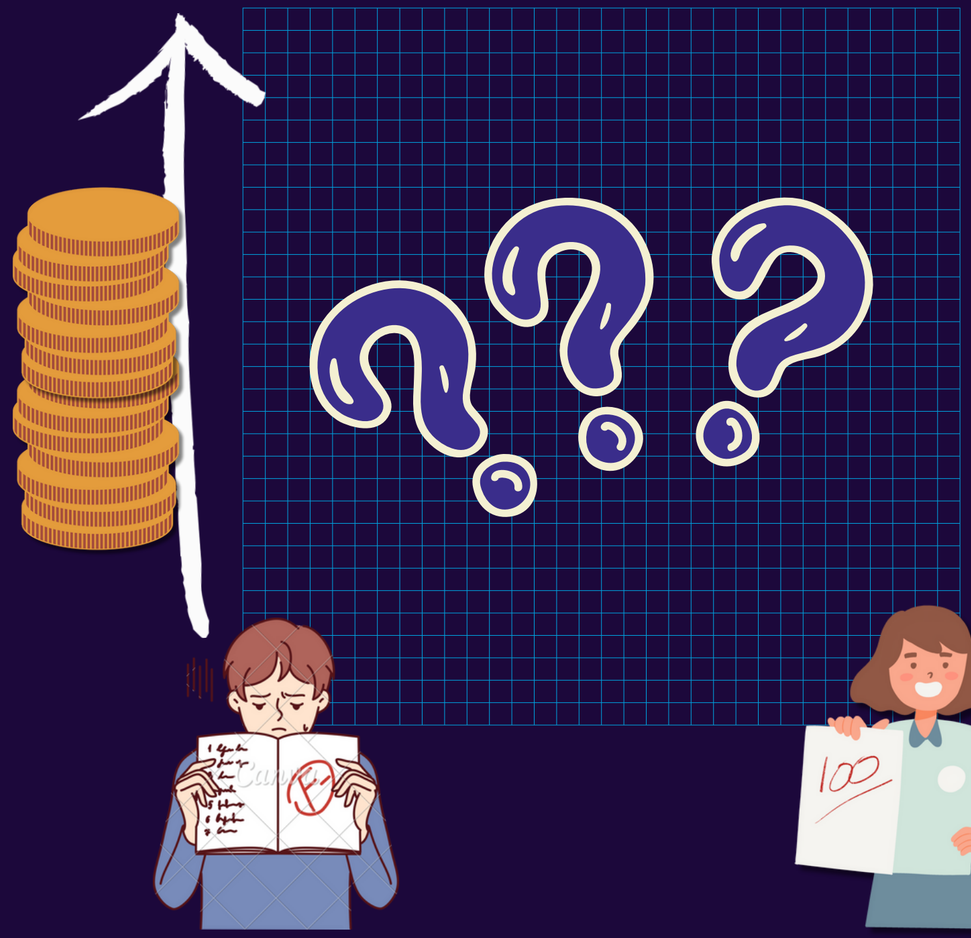
Teacher Salaries, National Salaries & Student Outcomes in Europe

Beejal Parekh, March 2025

AN EDA FOR allWomen



Research Questions

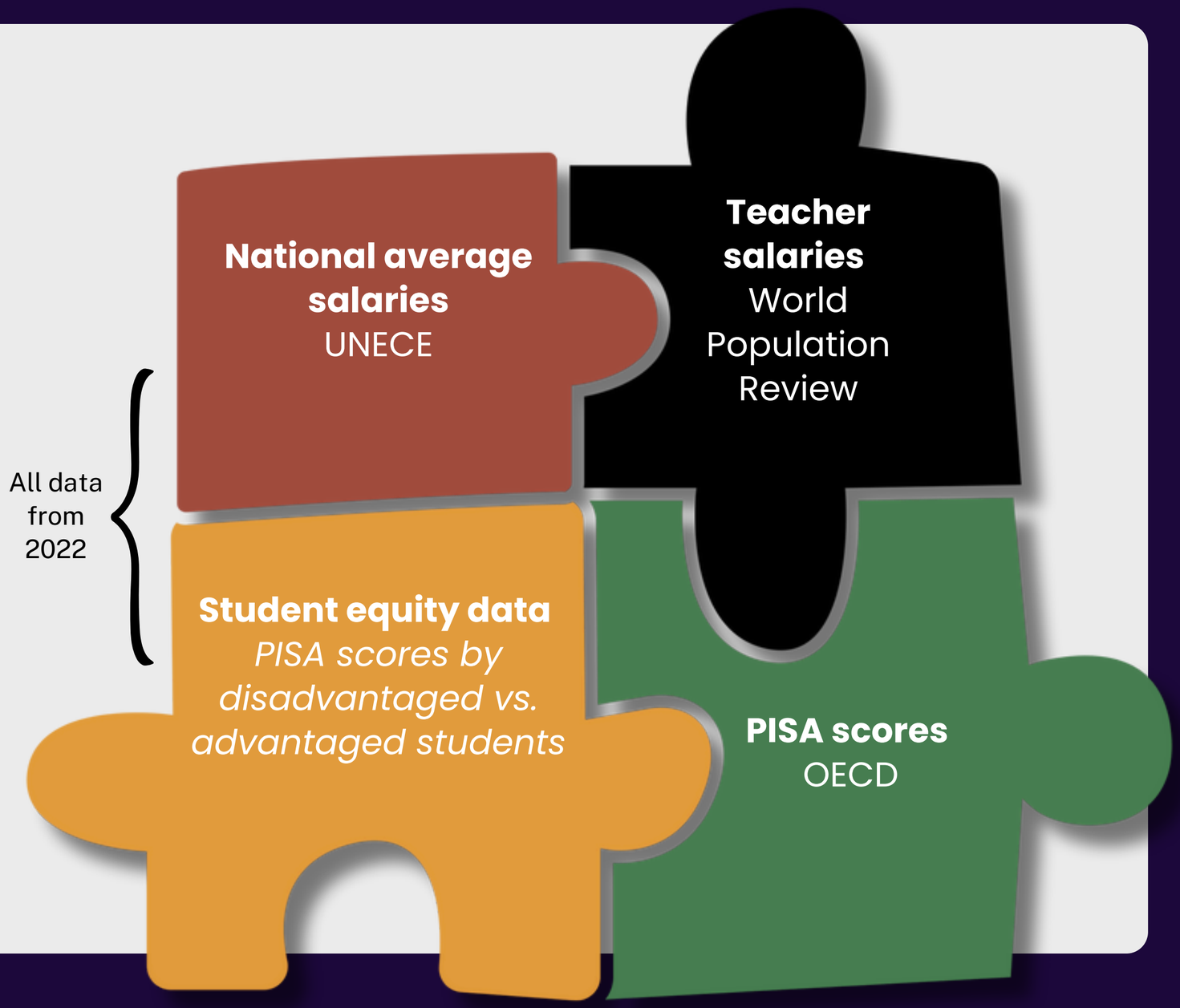
1. How do teacher salaries compare to national average wages?

2. Does higher teacher pay correlate with better student outcomes?

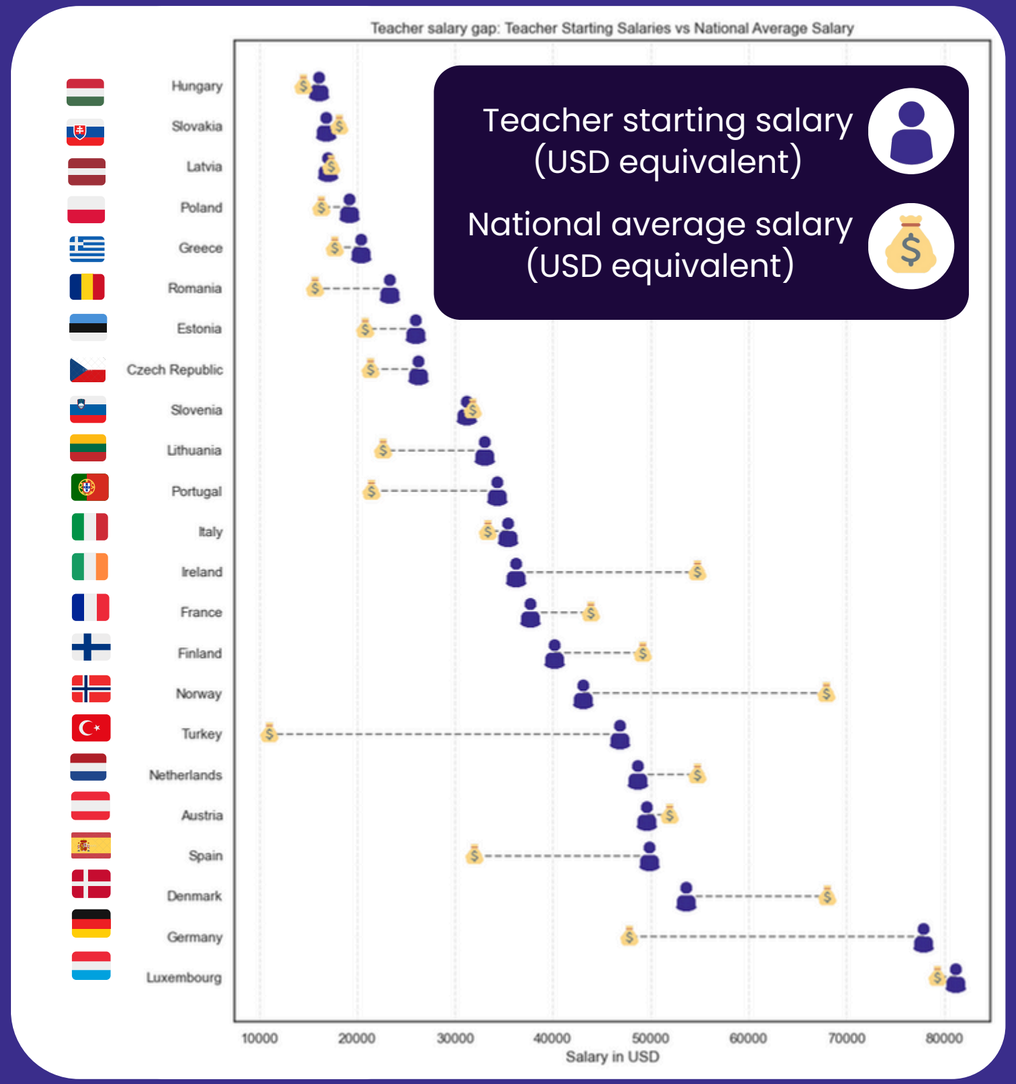
3. Do teacher salaries correlate with educational equity (performance of advantaged vs. disadvantaged students)?

The data

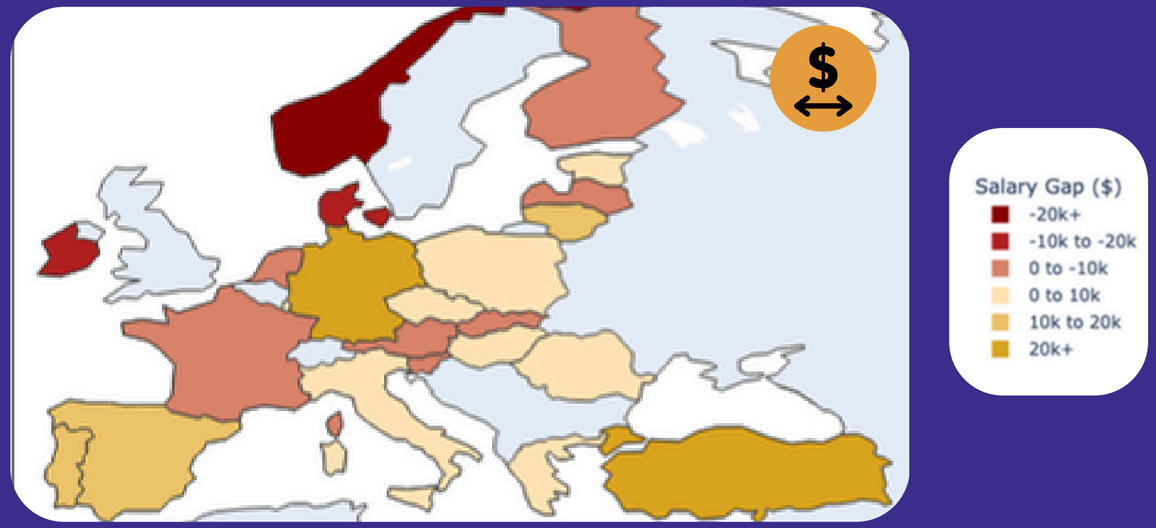
- Converted **data types to numeric** where needed
- Handled **missing values** across datasets
- **Standardised country names** across datasets
- **Merged & added columns** for comparison e.g. annual salary, salary difference, % salary difference, mean PISA score etc.



Are teachers well paid?



How much are teachers paid compared to the national average salary?



Key insights

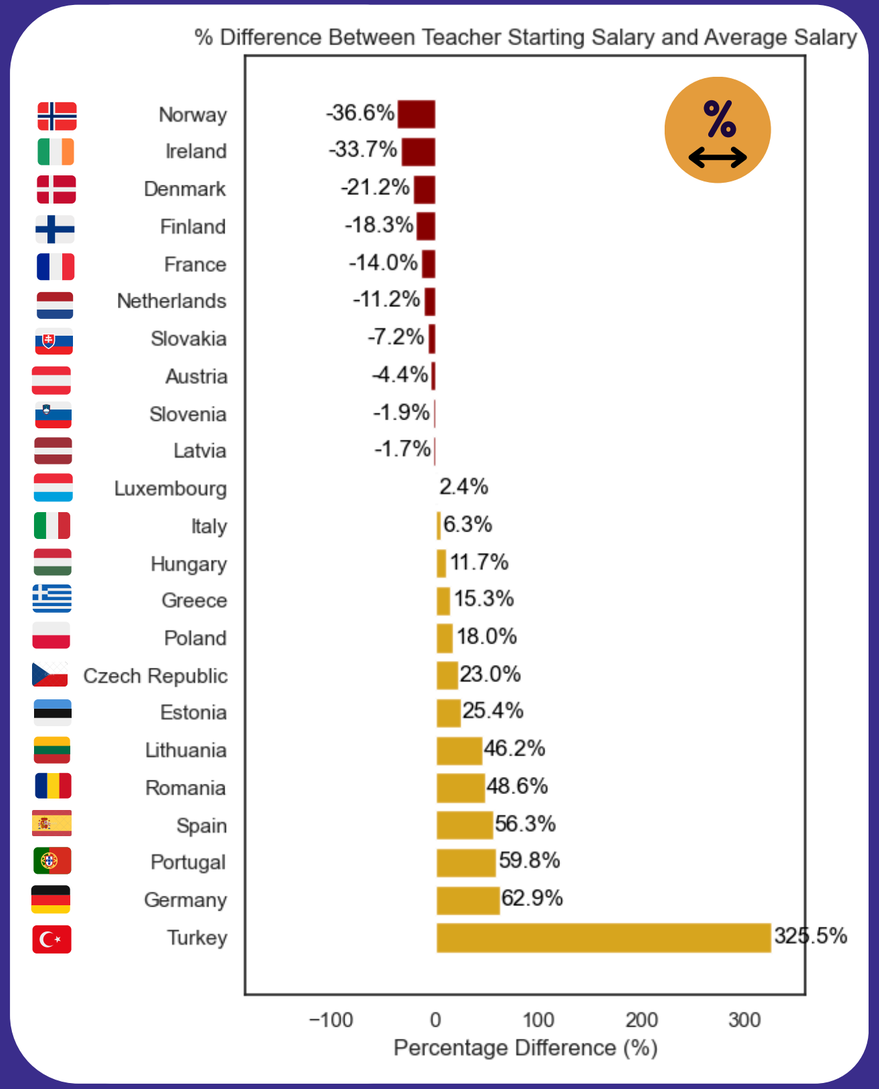
- Teaching is a well-paid profession relative to the national average in most European countries
- Northern European teachers are paid more than average worker and Southern European teachers less than average worker
- A weak correlation between higher salaries and bigger salary gaps

Are teachers well paid?

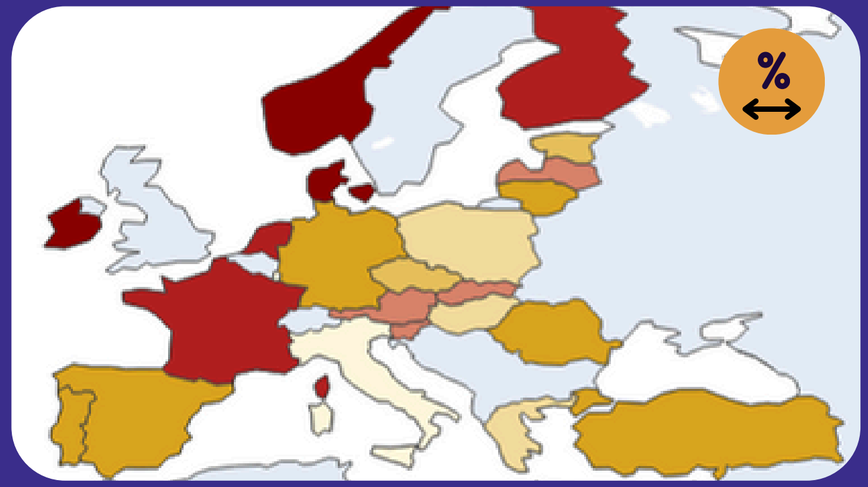
Teachers earn **less than** the average worker

Teachers earn about **the same as** the average worker

Teachers earn **more than** the average worker



How much are teachers paid compared to the national average salary?



Key insights

Strong correlation between gap in USD and gap in %,

Suggests gap is similar when accounting for economy / cost of living

Programme for International Student Assessment (PISA)

Good Scores

600+ Excellent *(Top performers)*
550-600 Very Good
500-550 Above Average

Average Scores

≈500 OECD Average

Worrying Scores

400-500 Below average
400-450 Weak *(Significant gaps)*
< 400 Very Concerning *(Serious learning difficulties)*

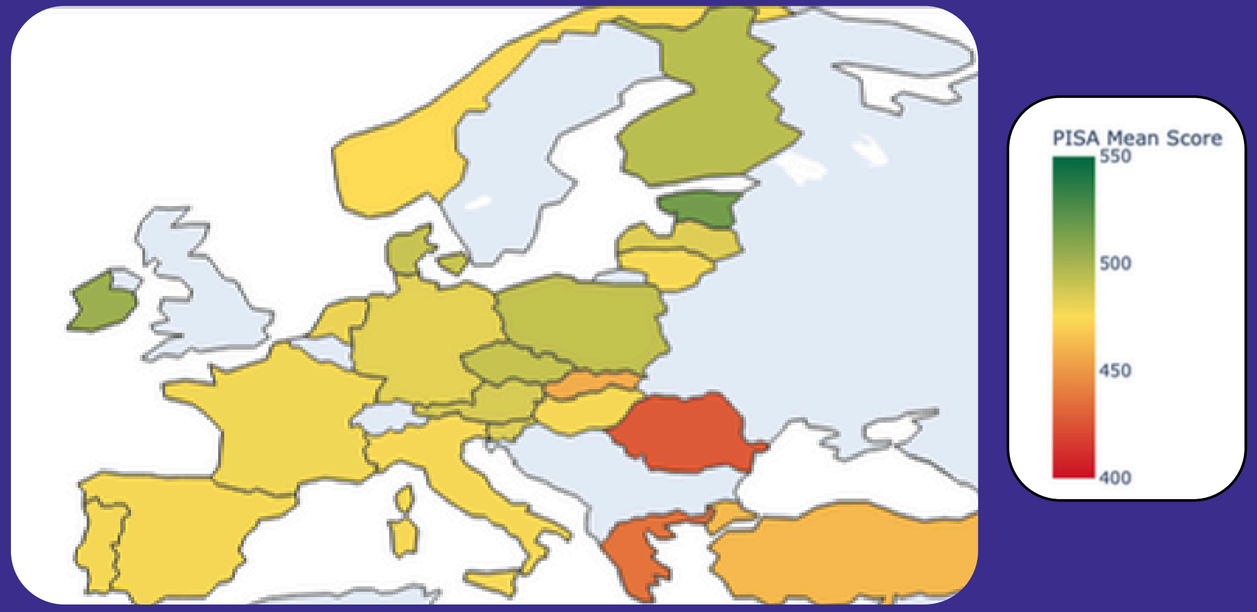
Methodology

- Worldwide study by the OECD
- Every 3 years
- 15-year-old students
- At least 5,000 students per country
- Mathematics, science, and reading proficiency

Score calculations:

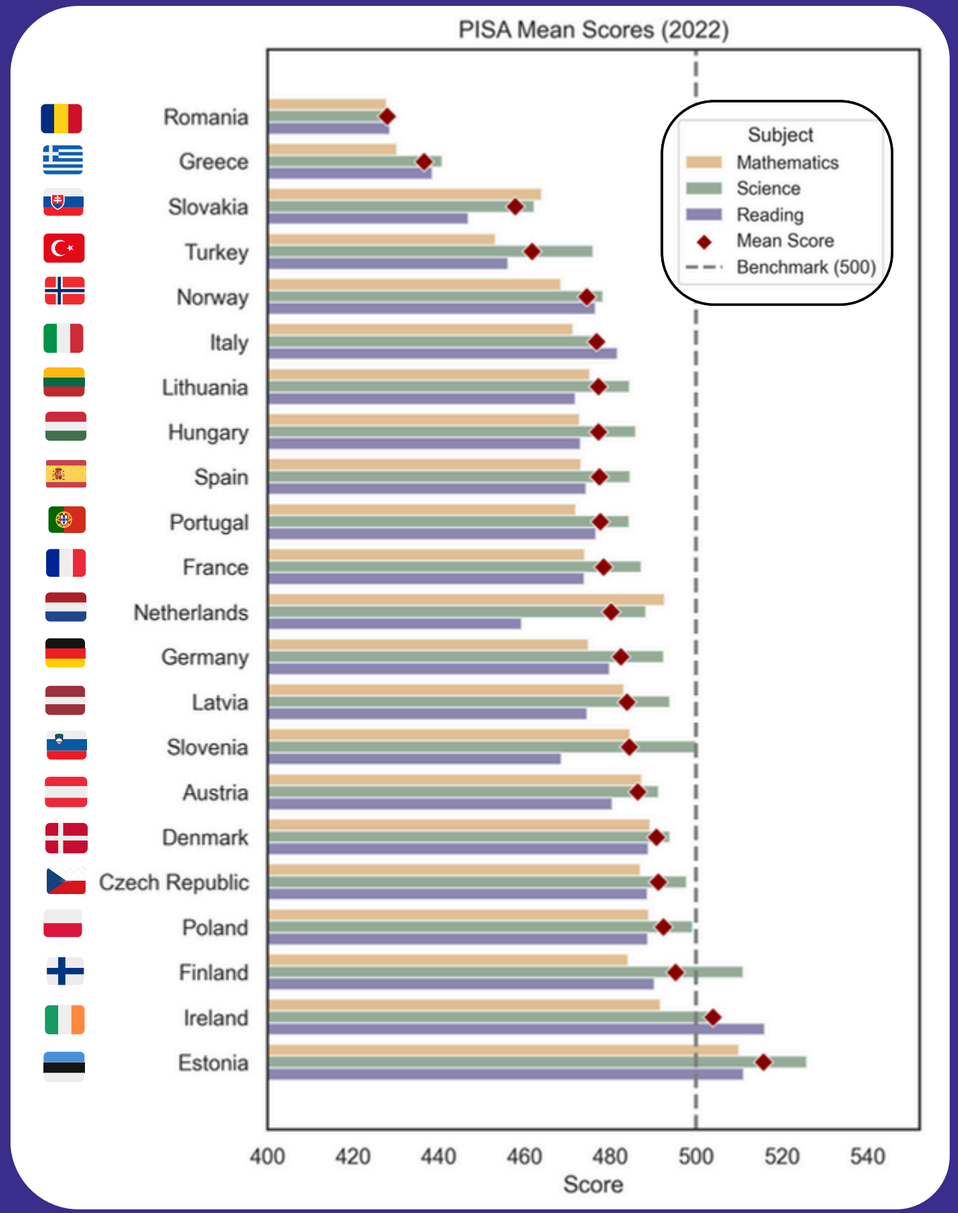
- First PISA: average score (all participating OECD countries) = 500 in each subject
- Now scores linked to past results (consistent scale)
- Standard deviation = 100

PISA Scores

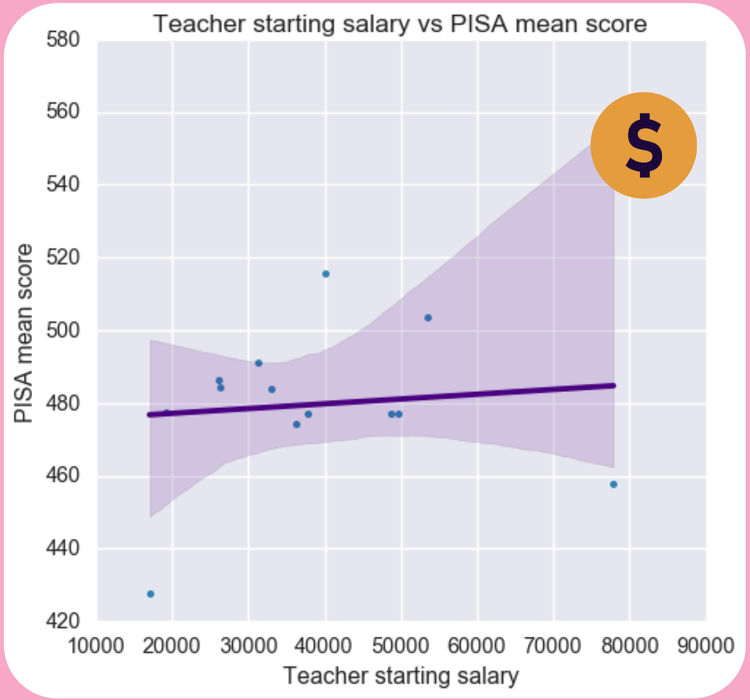


Key insights

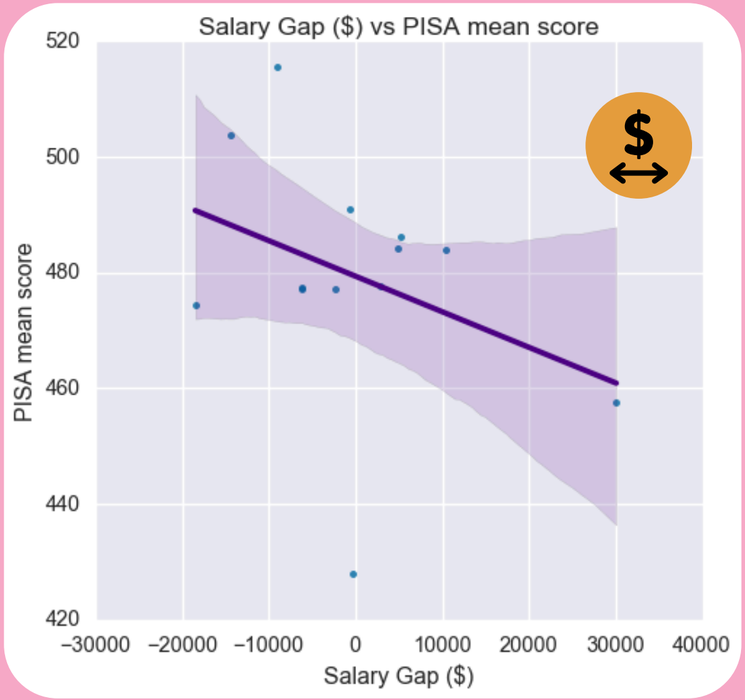
- Average amongst countries sampled here was 478.55
- Most countries here are scoring best in science (17 countries) and worst in Maths (12 countries)
- Global score decline in 2022 widely attributed to COVID school closures



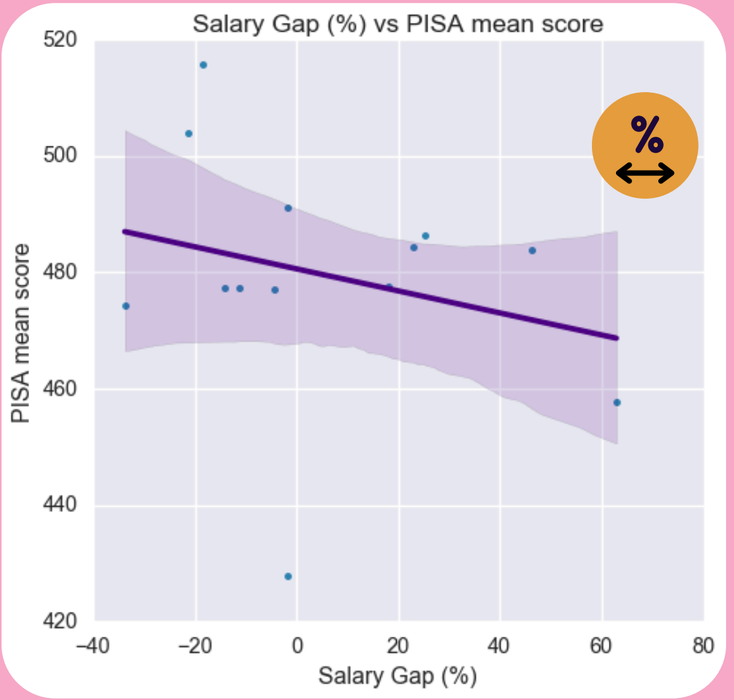
Student outcomes compared to teacher salaries



Weak positive correlation



Negative correlation



Negative correlation

Key insight Wide confidence interval + small sample size = not statistically significant relationship

PISA socio-economic status (SES)

Methodology

- Based on: parental education, parental occupation & home possessions e.g. books, internet access etc.

Score calculations:

- Calculated using an Index of Economic, Social, and Cultural Status (ESCS)

Data:

- Average point difference between advantaged and disadvantaged students
- Percentage of disadvantaged students who are academically resilient

Smallest difference

< 85 points
> 12% disadvantaged resilient

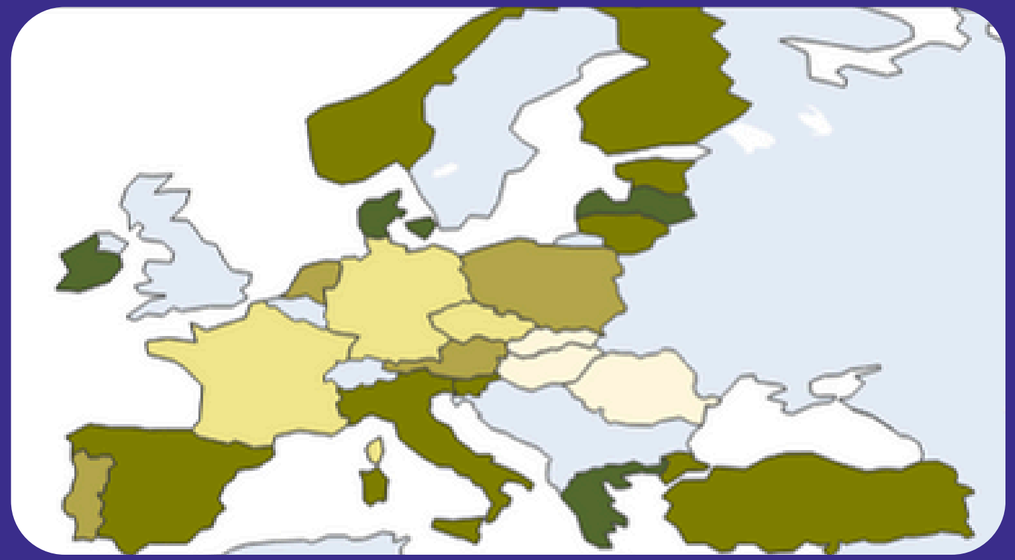
Average difference

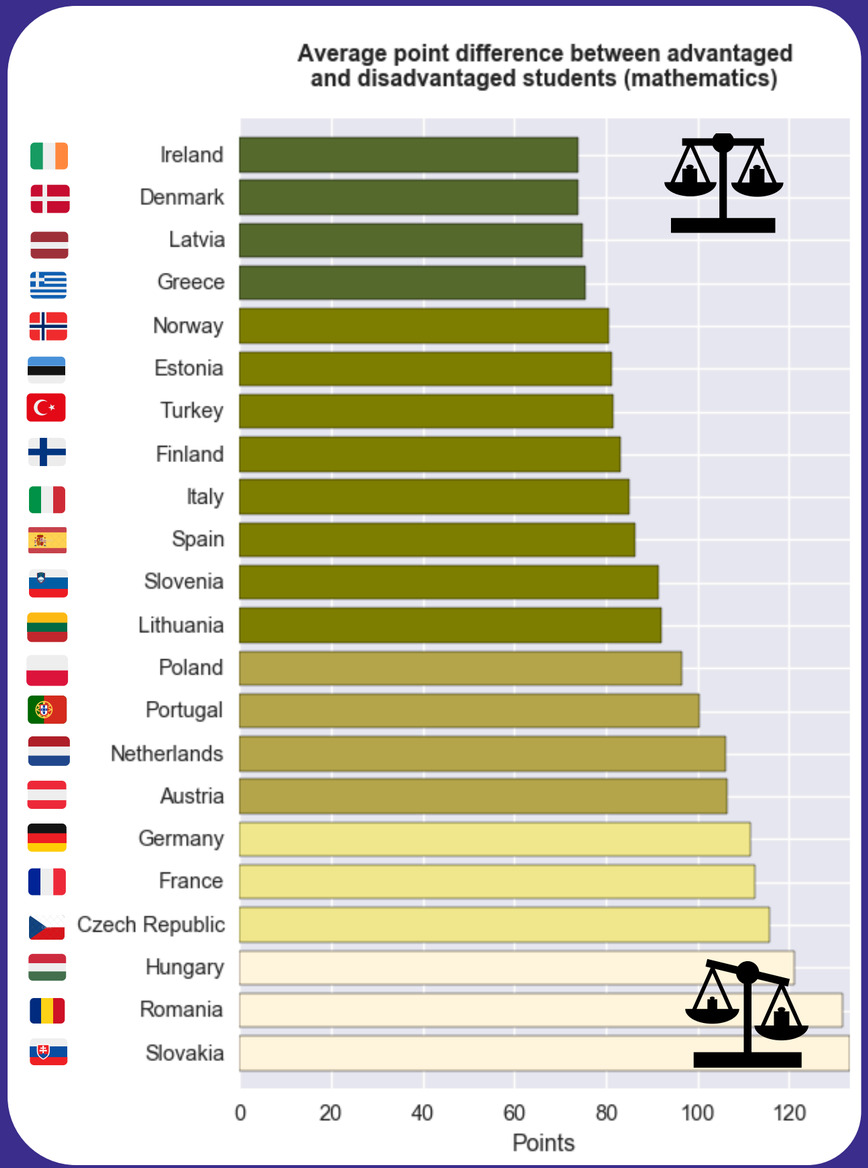
93 points (OECD avg)
10% disadvantaged resilient

Biggest difference

> 115 points
< 8% disadvantaged resilient

PISA SES data

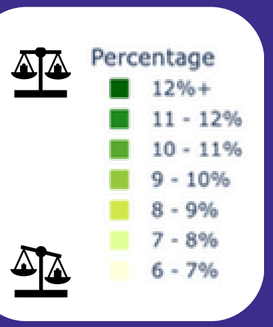


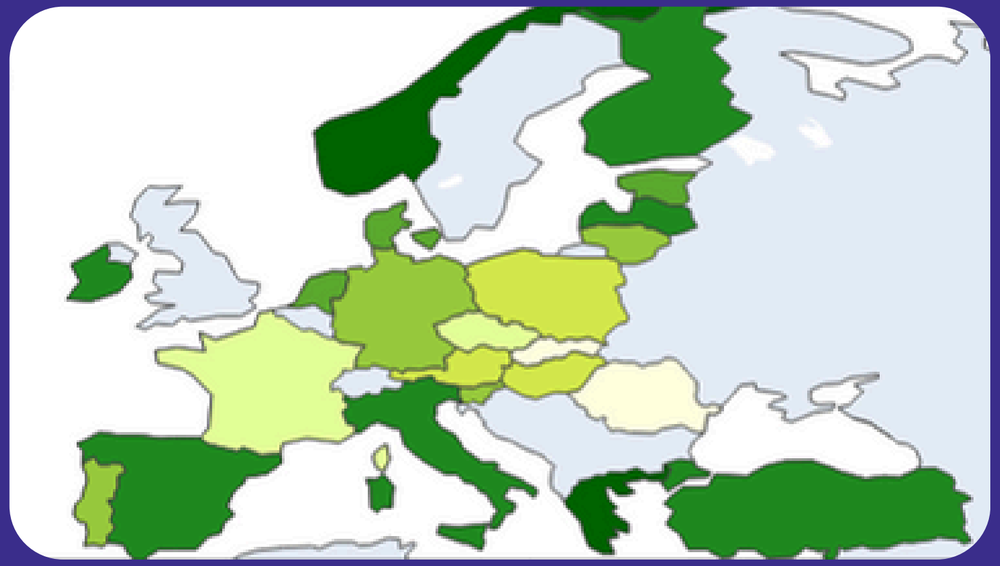


Key insights

- A large spread in point difference amongst European countries

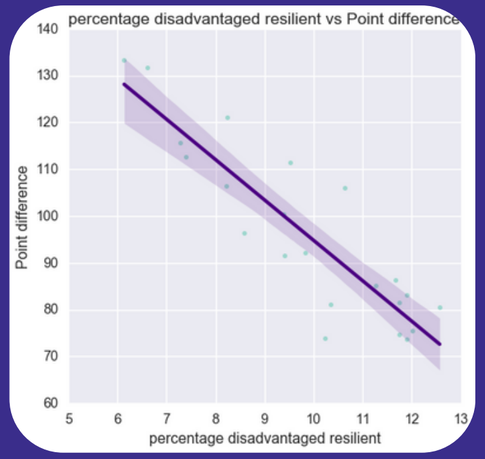
PISA SES data

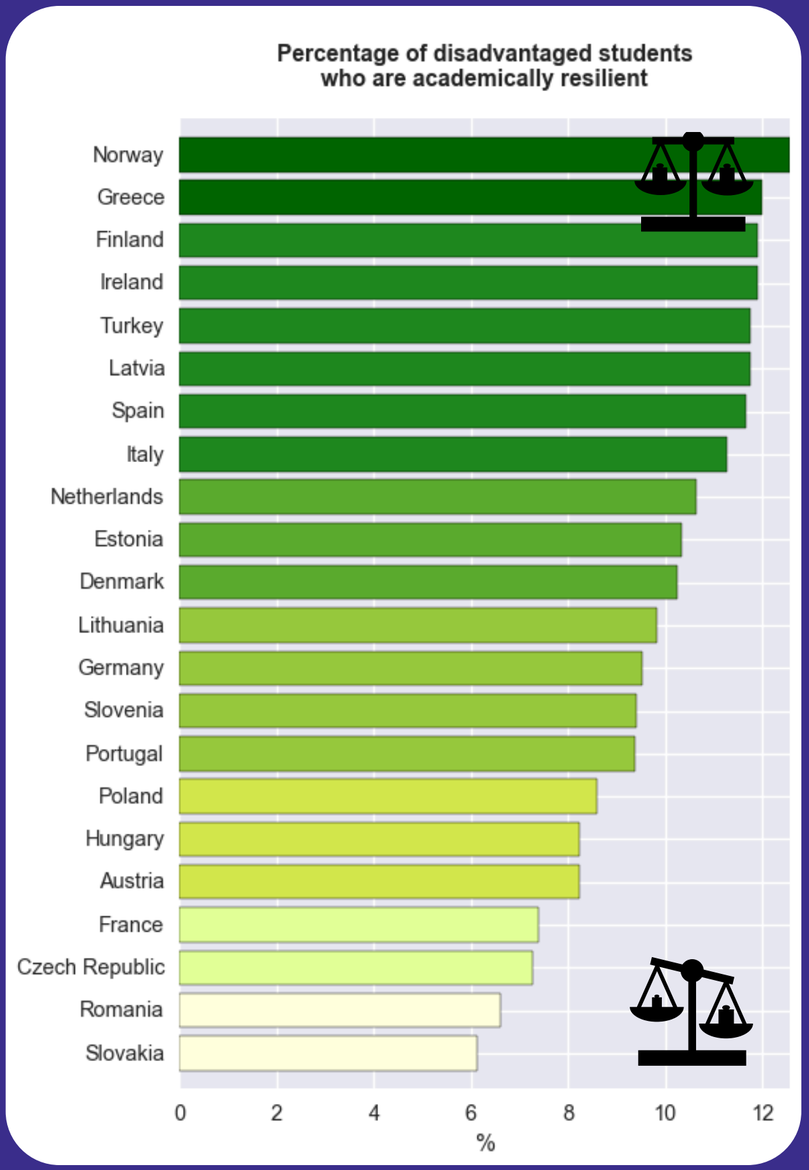




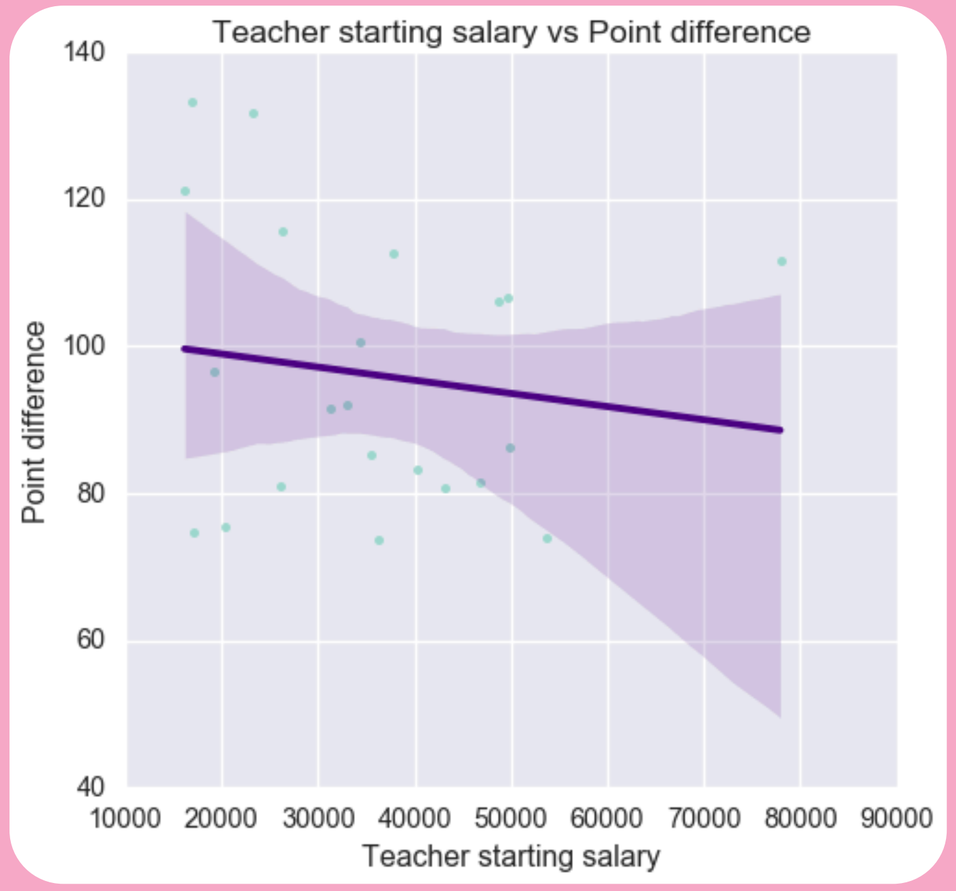
Key insights

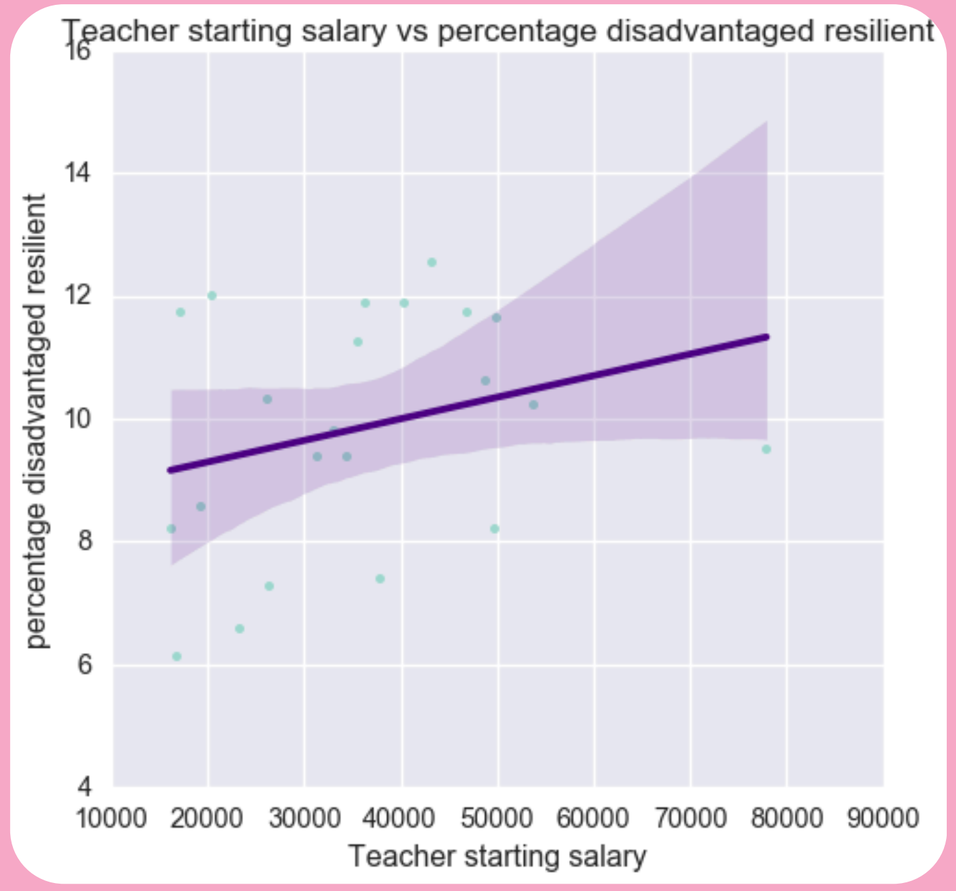
- Strong negative linear correlation between points difference and percentage of disadvantaged students who are academically resilient





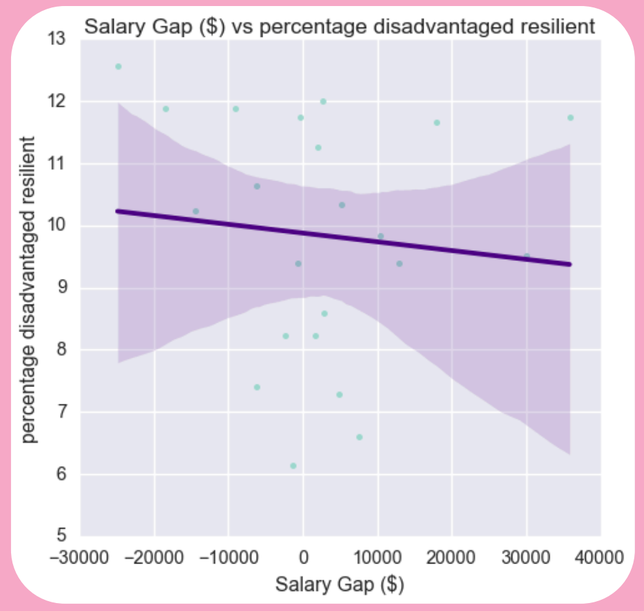
SES & Teacher Salary

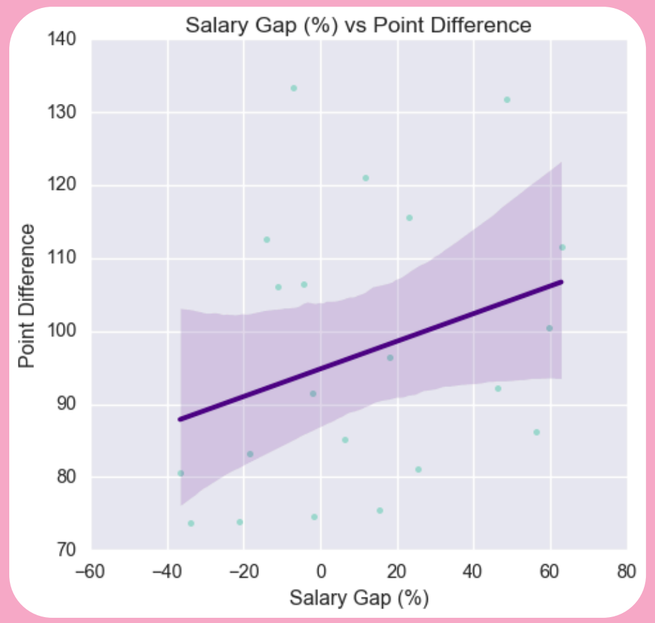




$

Key insight A week relationship but just salary alone could be due to other economic factors e.g. GDP





PISA, SES & teacher salaries

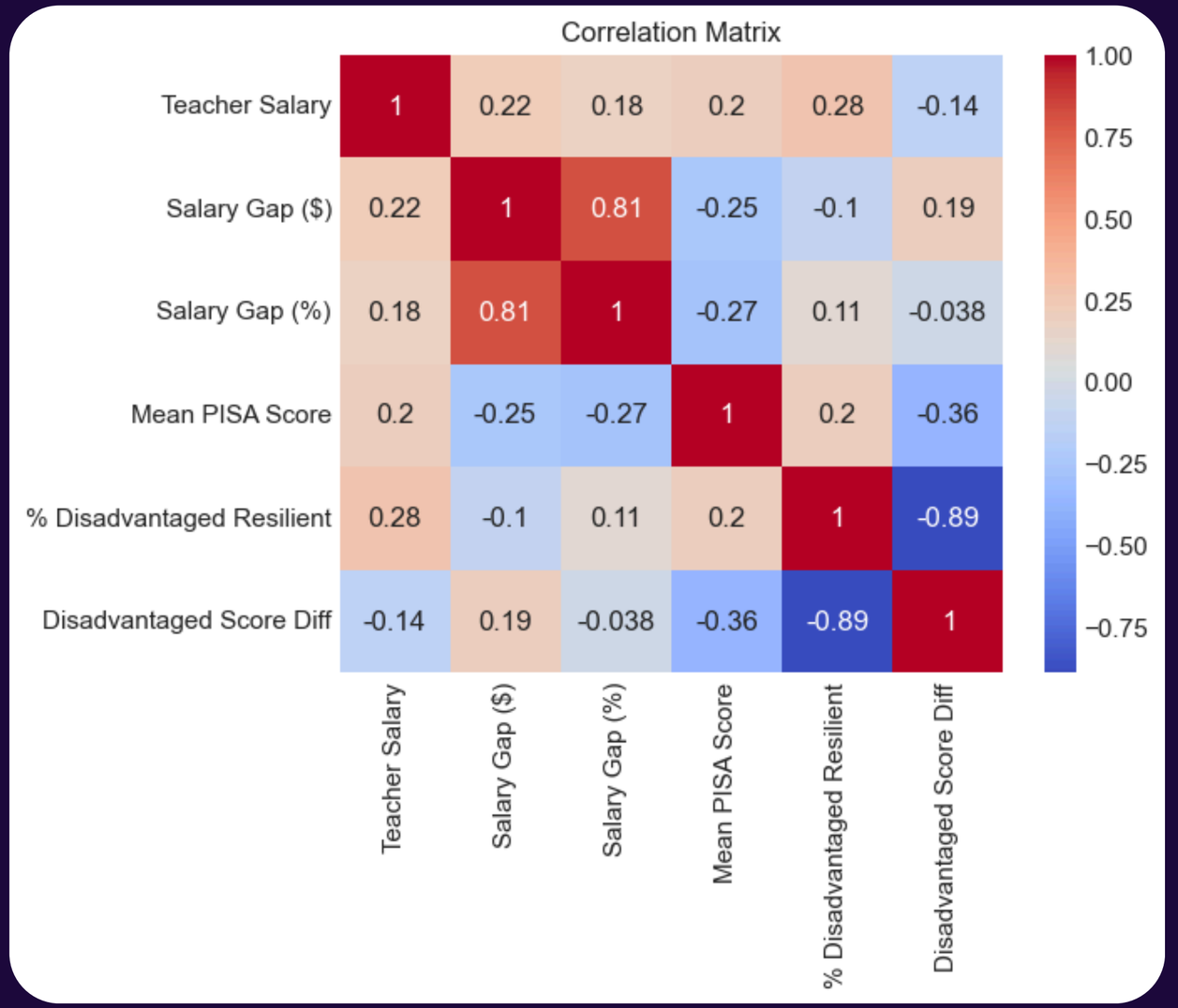
Key insight

Wide confidence interval + small sample size = not statistically significant relationship

Very similar to the PISA scores vs. salary plots

Summary

- No strong statistical relationship on this data alone
- Hints at a connection worth exploring with more robust models and bigger datasets



Conclusions

1. How do teacher salaries compare to national average wages?

Better paid than I expected!

2. Does higher teacher pay correlate with better student outcomes?

Not really

3. Do teacher salaries correlate with educational equity (performance of advantaged vs. disadvantaged students)?

Maybe?
Need more data!