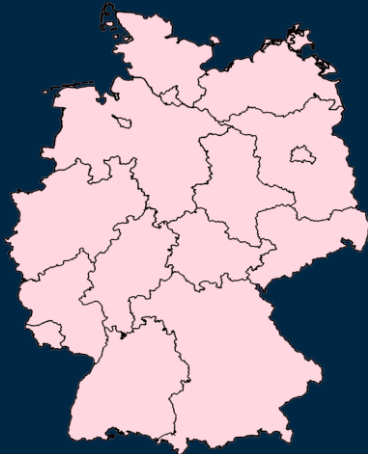


Education Excellence

- A comparative analysis of the quality of Germany's Federal State Education



Analysis by the Research Center
of Germany's Education

Wednesday 10.05.2023

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Tech & Tools

Team Work



Data Sources



Data Tools



Overview



Time period

2010 - 2022



Data

- Abitur grades / passing rates in a country comparison
- Students, classes, teachers and school graduates
- Expenditure for public schools per student

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Overview

Key Indicators

Hypothesis 1

Hypothesis 2

Hypothesis 3

Findings

Conclusion

Hypothesis

1

Federal states with more investment in education and more teachers for students have higher graduation rates.

Hypothesis

2

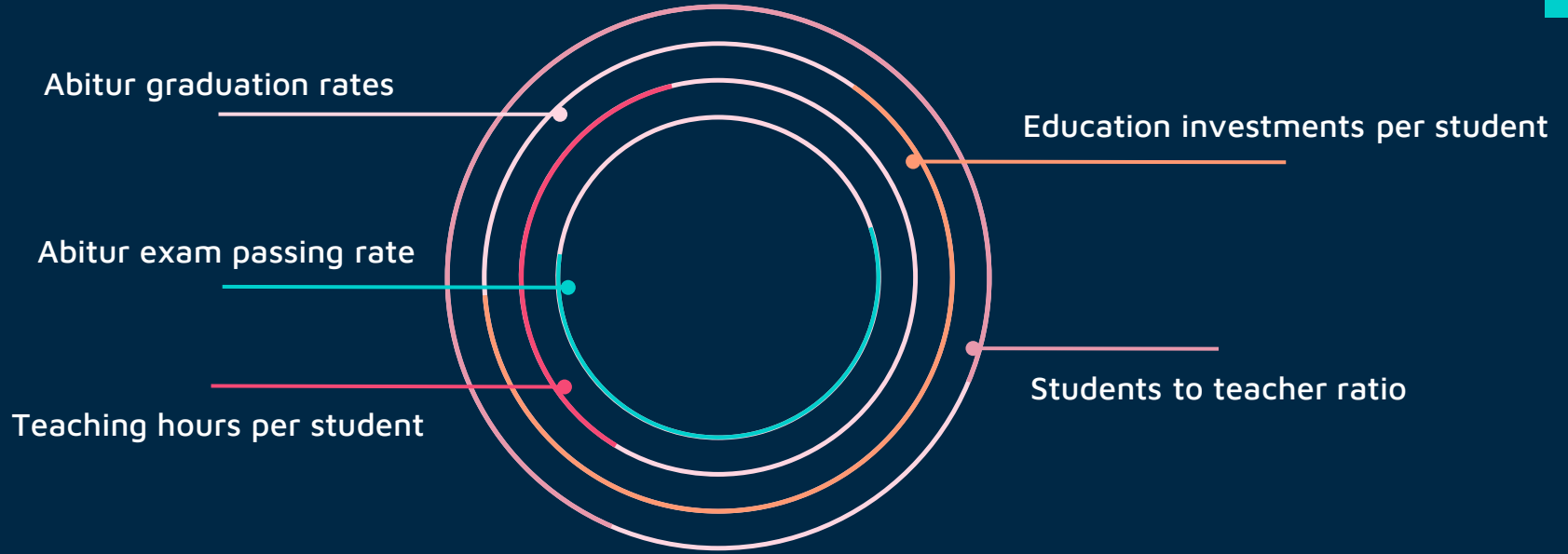
Students in states with longer lesson hours may experience higher exam passing rate and lower dropouts.

Hypothesis

3

The quality of education in schools across the country is declining.

Key Indicators



Hypothesis

1

Federal states with more investment in education and more teachers for students have higher graduation rates.

Highest Investment on Education

Max

Berlin: 10,081 €

Hamburg: 10,027 €

Bayern: 8,909 €

Thüringen: 8,900 €

NRW: 6,854 €

Min

- Berlin and Hamburg Top 2 investing states
- Lowest investment: Nordrhein-Westfalen

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Overview

Key Indicators

Hypothesis 1

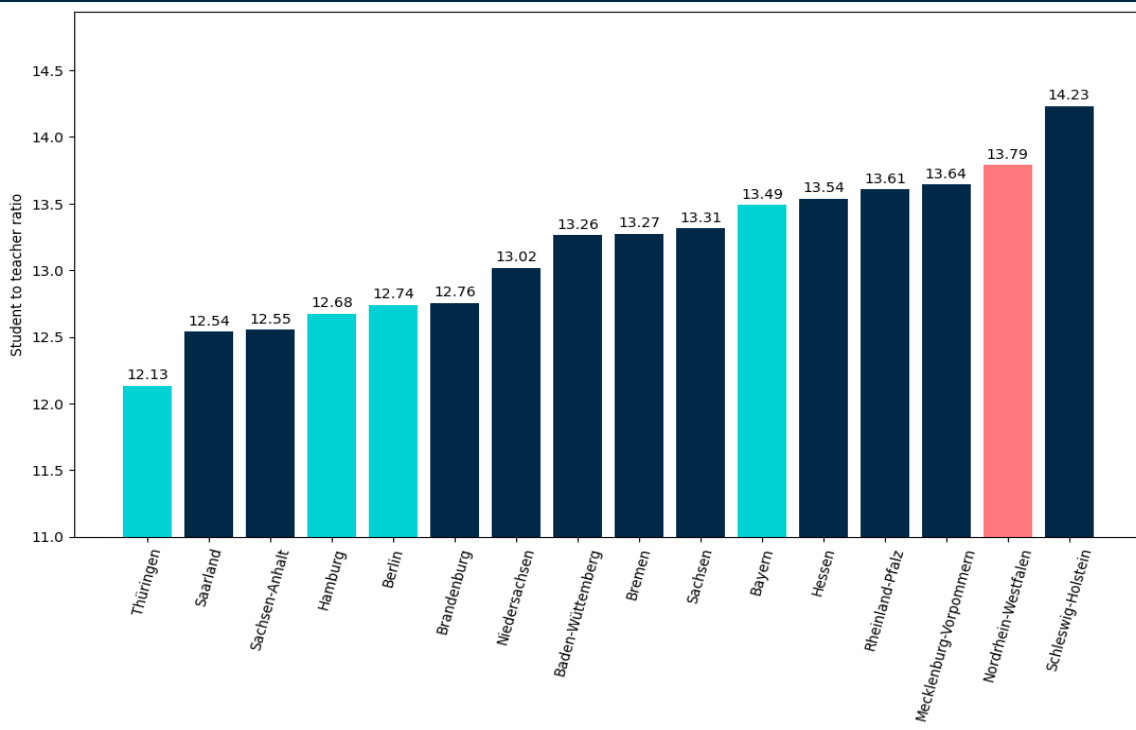
Hypothesis 2

Hypothesis 3

Findings

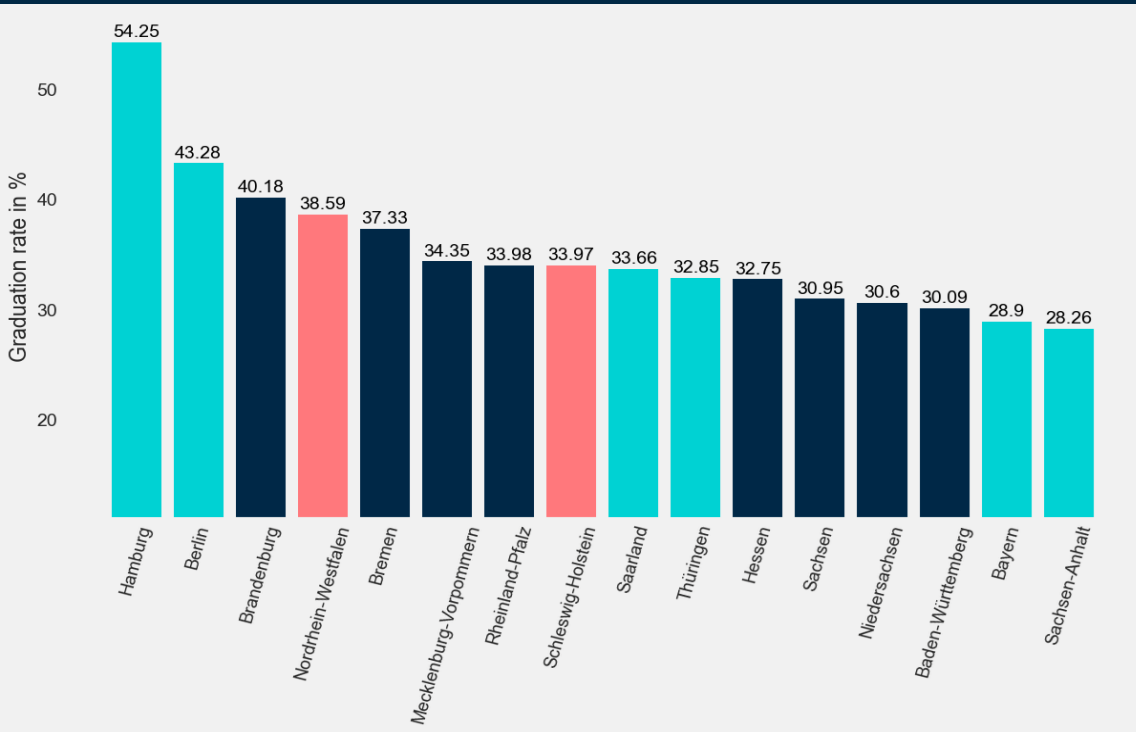
Conclusion

Where do Students Have More Access to Teachers?



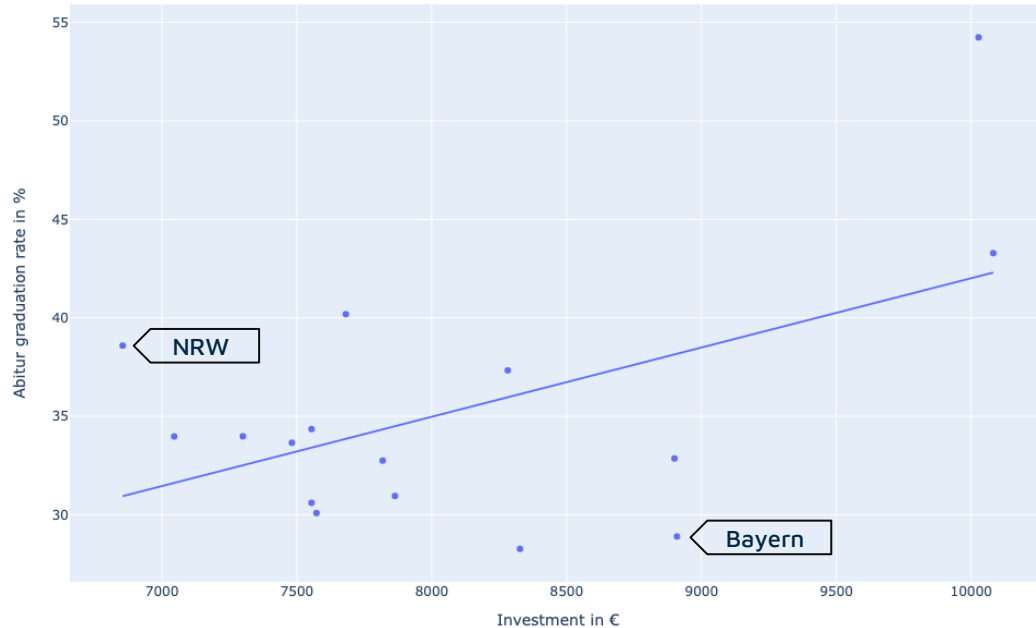
- Students in **Thüringen** have the **best access** to teachers, followed by **Saarland** and **Sachsen-Anhalt**
- **Hamburg** and **Berlin** have good values (Top 5)
- **Bayern** has a mediocre value, the high investment is not visible here

Abitur Graduation Rates Vary Widely



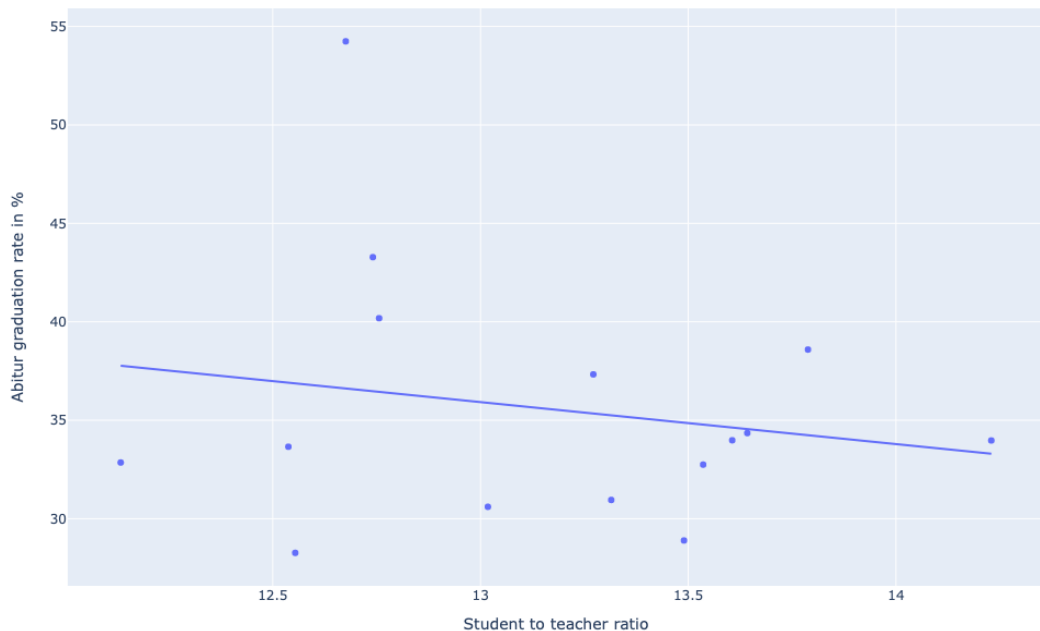
- Hamburg has by far the highest graduation rate, followed by Berlin
- High investment in education or a good student to teacher ratio does not always result in a high graduation rate.
- Despite low investment, NRW has a high graduation rate

Graduation Rates Increase with Investment



- positive correlation supporting the hypothesis
- Outliers confirm: high graduation rates are not only a question of money

Graduation Rates Decline with Less Access to Teachers



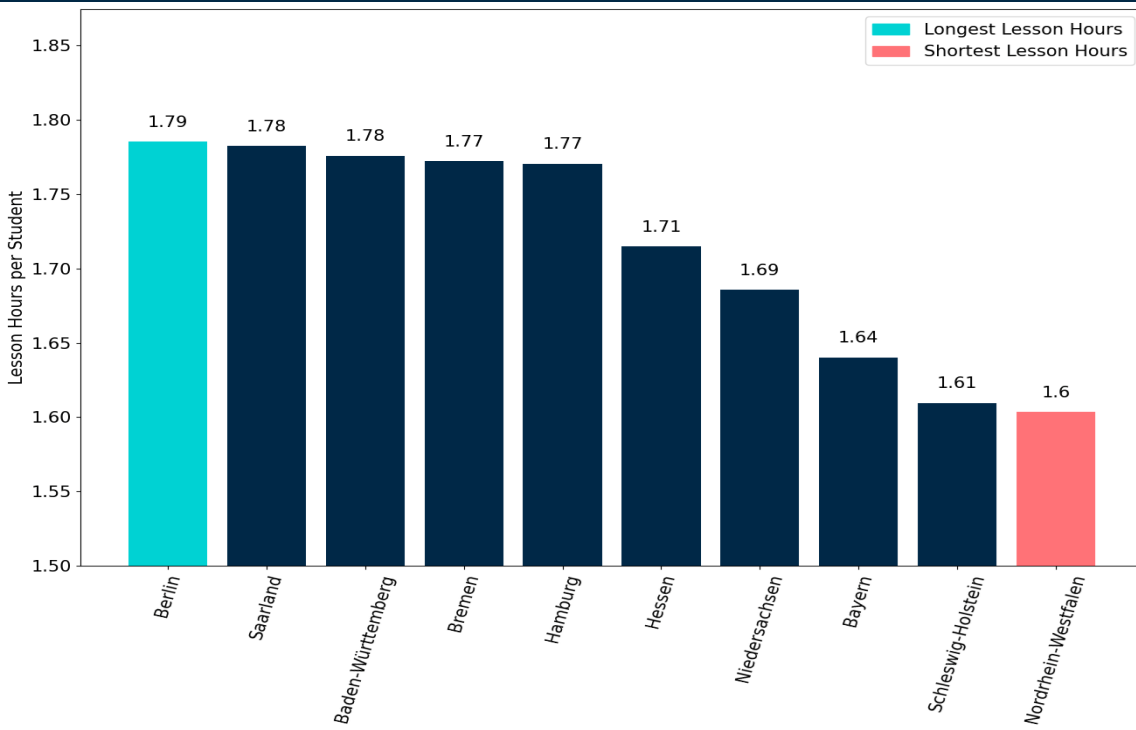
- Only a **smaller impact** on the graduation rate
- Nevertheless, the **negative correlation corresponds** with our expectations
- Considering both correlations, we decide to **accept the hypothesis**

Hypothesis

2

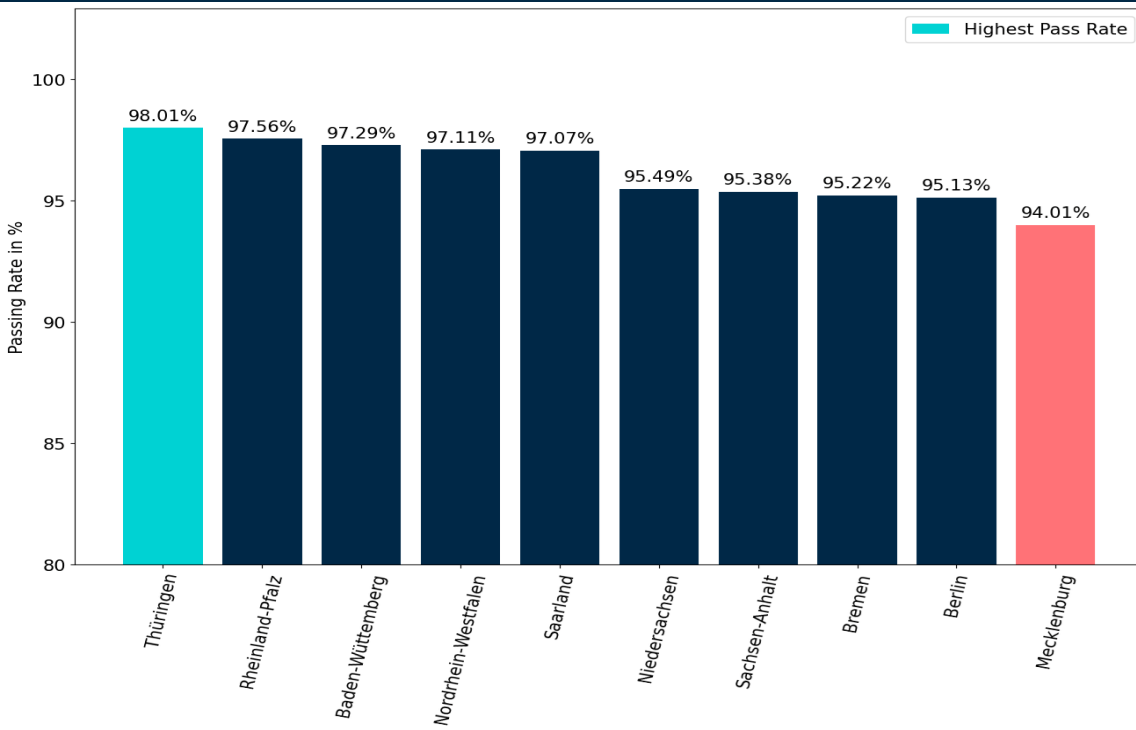
Students in states with longer lesson hours may experience higher exam passing rate and lower dropouts.

No Significant Difference in Lesson Hours



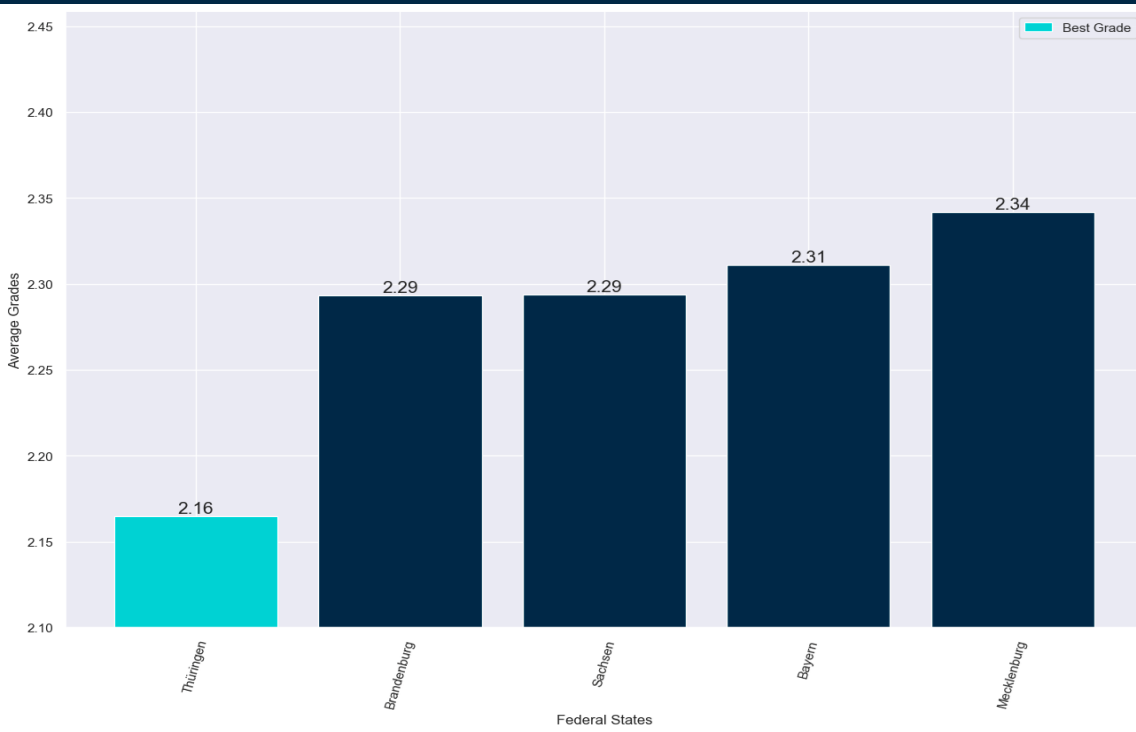
- No correlation between state size/population and lesson hours
- NRW (largest state) has lowest lesson hours, while Berlin (small state) has high lesson hours
- Difference between longest and shortest lesson hours is 10 minutes (0.18 hours)

Thüringen has the Highest Exam Passing Rate



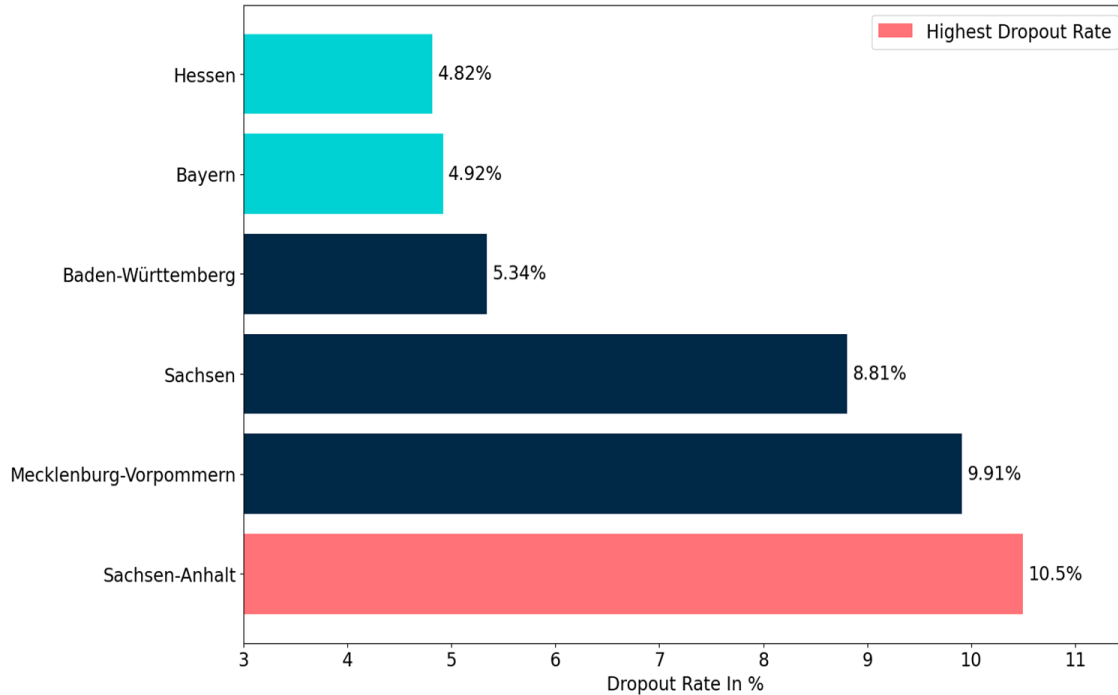
- Thüringen has the highest Abitur exam passing rate by far with 98% passing rate
- RP, BW, NRW, and SL are the top states with passing rates above 97%.
- In comparison Mecklenburg has the lowest exam passing rate 94%

Thüringen has the best Average Abitur Grade



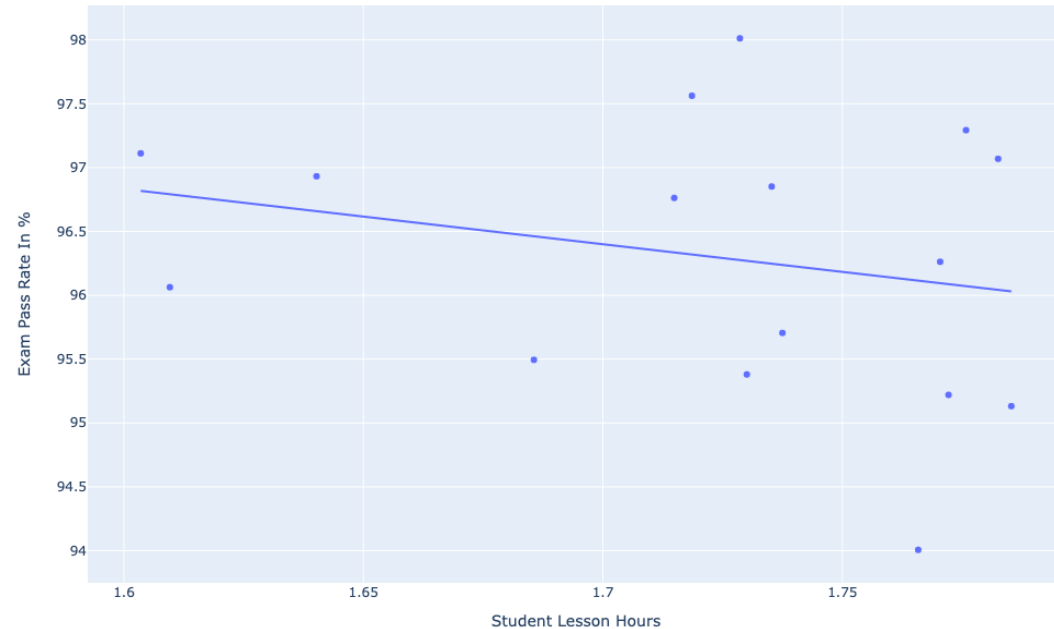
- Thüringen also has the best average exam grade by far
- States that come close are Brandenburg, Sachsen, Bayern, and Mecklenburg Vorpommern

Hessen & Bayern have the Lowest Dropout Rate



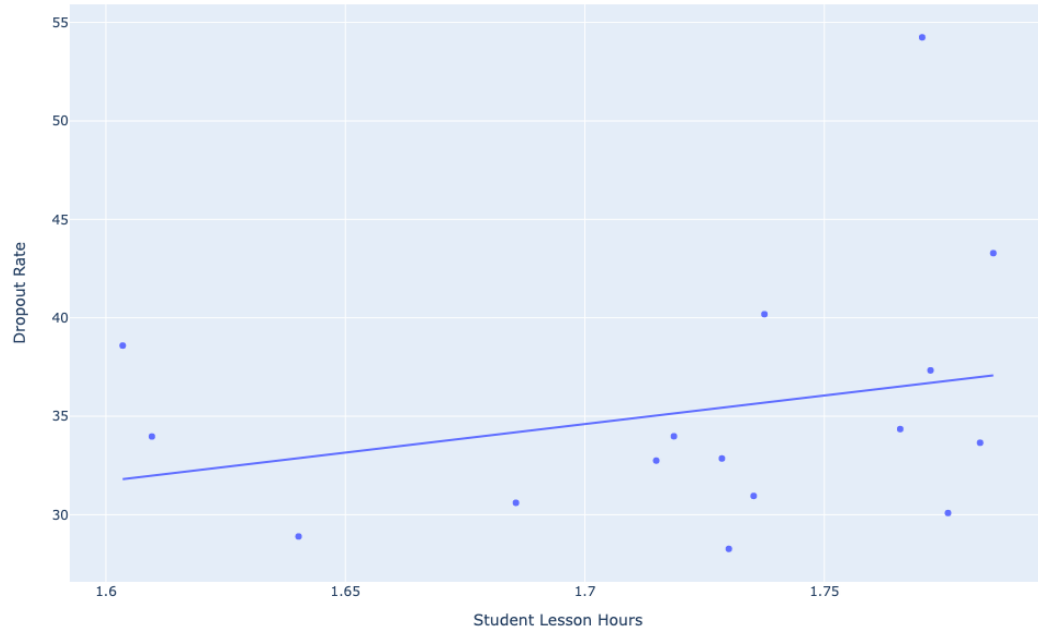
- Hessen and Bayern have the lowest dropout rate with less than 5% of students dropping out
- States including Sachsen, M.V., and Sachsen-Anhalt have the highest dropout rate

Exam Passing Rate Decrease with Longer Lesson Hours



- A **negative** linear relationship between the lesson hours and the exam pass rate
- Indicating that as the lesson hours **increase**, the exam pass rate tends to **decrease**

Dropout Rate Increase with Longer Lesson Hours



- Positive linear relationship between the student lesson hours and the average dropout rate
- As the lesson hours increase, the dropout rate also tends to increase
- Our analysis refutes the hypothesis

Hypothesis

3

The quality of education in schools across the country is declining.

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Overview

Key Indicators

Hypothesis 1

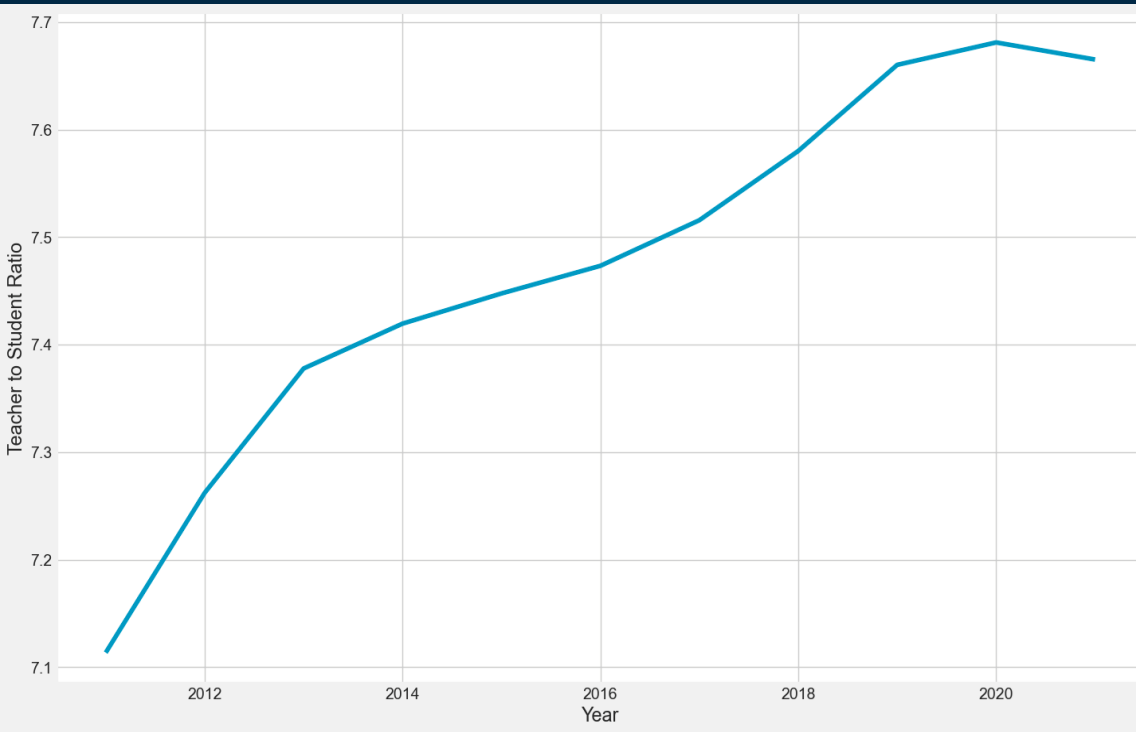
Hypothesis 2

Hypothesis 3

Findings

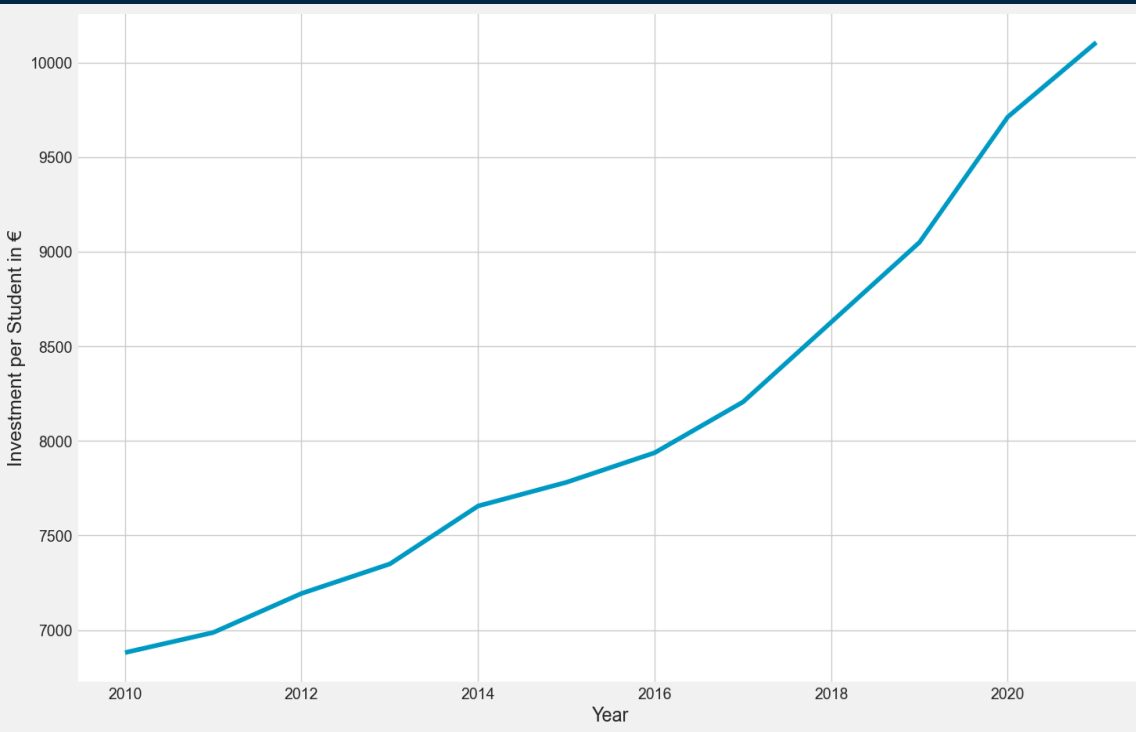
Conclusion

Access to Teachers Increase Over Time



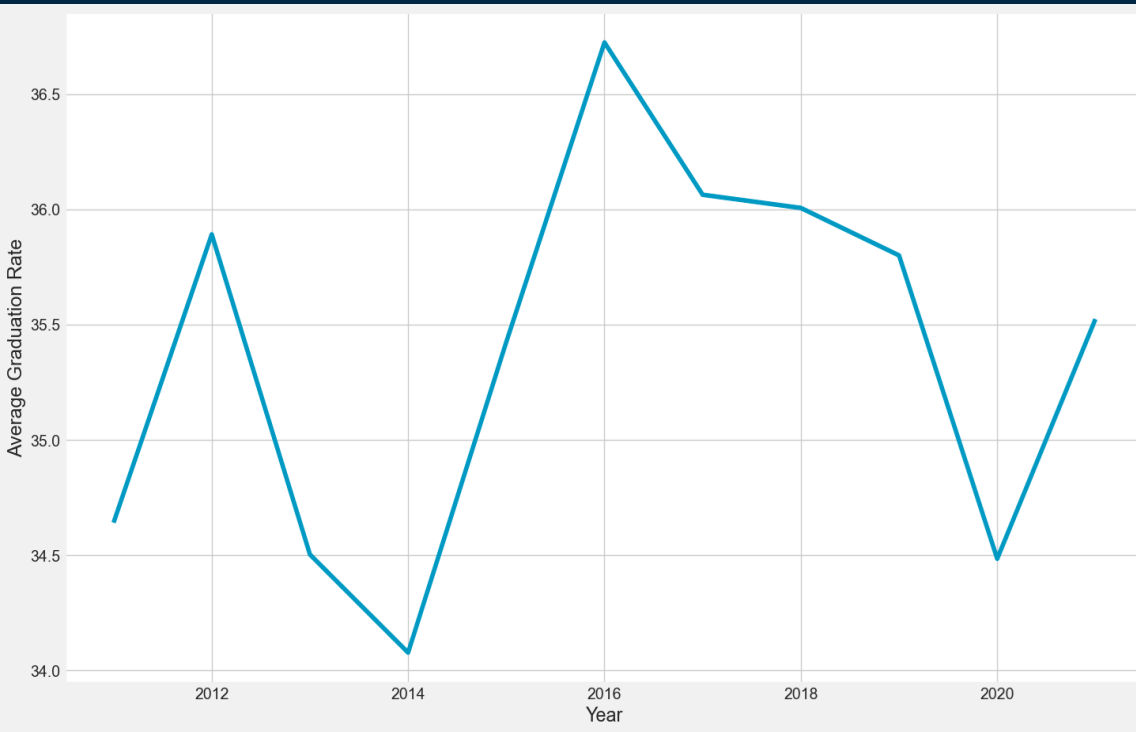
- Number of teachers has been **increasing** reaching its **peak** in 2020 at almost **8%**
- From **14** students per teacher to **12** students per teacher
- Access to teachers has improved over the years, **refuting the hypothesis**

Investment per Student Increase Over Time



- Investment per student **increased** from **6k** in 2010 to **10k** in 2021
- Positive impact on the quality of education providing **necessary resources**
- Can result in **better teaching** and a more **effective learning** experience for students

Graduation Rate Increase Over Time



- Graduation rate peaked in 2016 with over 36% students graduating
- Besides the two dips in 2014 and 2020 the graduation rate does show a positive trend over time

Hypotheses and Findings

H1

States with more investment in education and more teachers for students have higher graduation rate.



Qualitatively, the picture is mixed, but the **correlations** support the hypothesis

H2

Students in states with longer hours of lesson may experience higher passing exam rate and lower dropouts.



Longer lesson hours **do not equate** to less dropout and high pass rate, the data **does not support this hypothesis**

H3

The quality of education in schools across the country is declining.



The quality of education in Germany has not declined, **it has improved**.

Key Indicators Breakdown

Abitur graduation rate

Hamburg

Abitur exam passing rate

Thüringen

Investments In education

Berlin

Student to teacher ratio

Thüringen

Lowest dropout
rate

Hessen

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"There is only one thing more expensive
in the long run than education:
no education."

(John F. Kennedy)