

# Study on School Dropout in France

This study analyzes the phenomenon of school dropout in French middle schools, using data from 2019 to 2022. It examines differences between schools, the impact of the size of middle schools, variations between genders, regional disparities, and differences between public and private sectors. The objective is to provide an in-depth understanding of the factors influencing school dropout in France.



# Dataset Presentation

## 1 Data Source

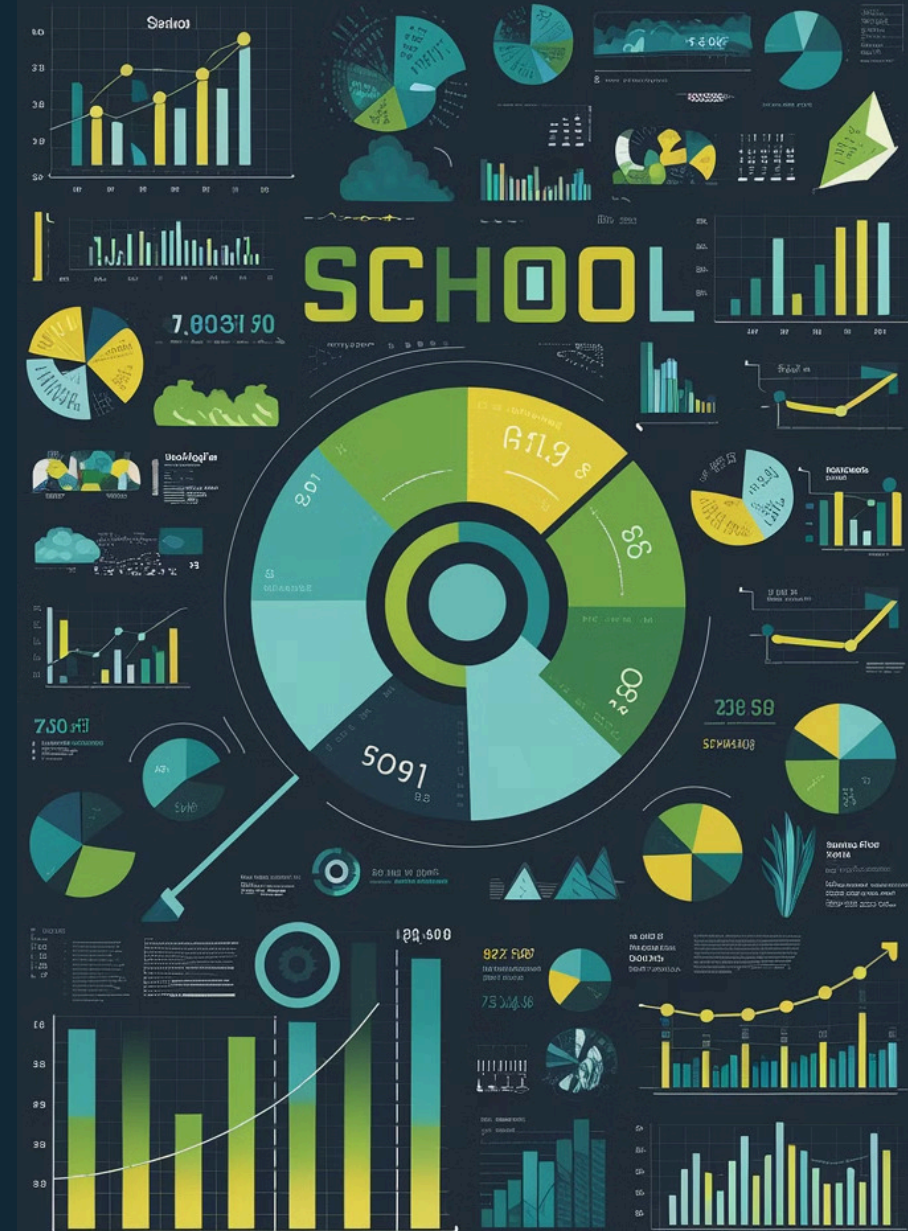
Dataset from the website [data.education.gouv.fr](https://data.education.gouv.fr), containing the number of students in middle schools by grade, gender and foreign languages.

## 2 Data Scope

76 columns and 32 982 records, covering 8337 public and private middle schools under contract.

## 3 Period Covered

From the 2019 school year to the 2022 school year, with the last observation on 01/10/2022.





# Calculating the School Dropout Rate

## Calculation by Level

Calculation of the differences in student numbers between consecutive levels for girls and boys.

## Overall Rate

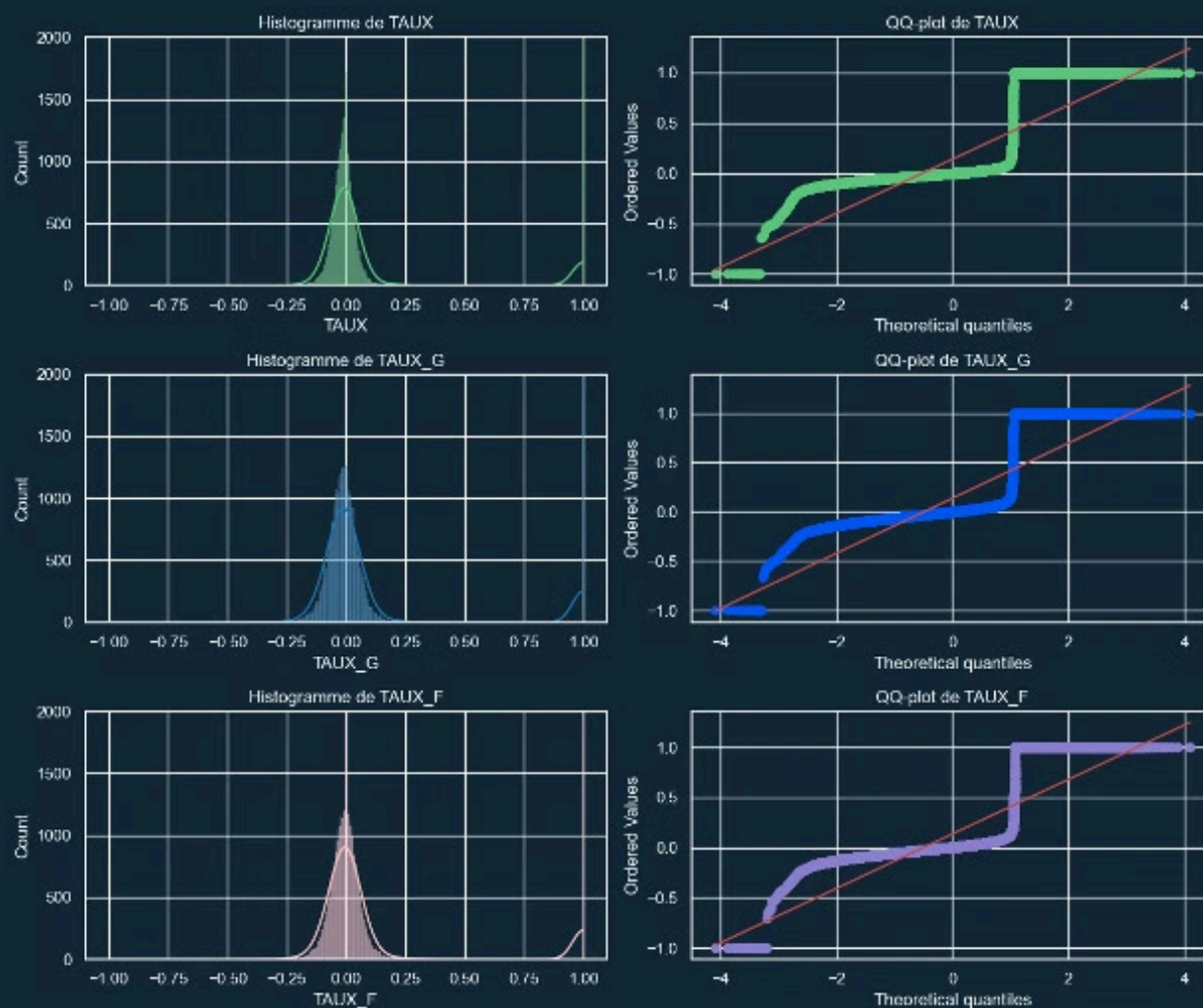
Sum of the differences divided by the total number of students to obtain the overall dropout rate.

## Rate by Gender

Separate calculation of the dropout rates for girls and boys.

4) + 7 = 23 X 3 = 5 = 0 L 2 3 6 3 0 = 7  
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# Dropout Rate Distribution



## Non-Normality

Normality tests (Shapiro-Wilk, Kolmogorov-Smirnov, Anderson-Darling, Jarque-Bera) indicate that the distribution of the dropout rate does not follow a normal distribution.

# Asymmetry

The **skewness coefficient** of **1.8721** shows a right-skewed distribution.

# Flattening

The **kurtosis of 1.7708** indicates a flatter distribution than a normal distribution.





# Differences between Colleges

1

## Kruskal-Wallis Test

Performed to compare dropout rates between colleges.

2

## Significant Result

$H = 21288.25$ ,  $p\text{-value} = 0.0$ , indicating significant differences.

3

## Conclusion

Some colleges indeed have higher dropout rates than others.



# Impact of College Size

## Pearson Correlation

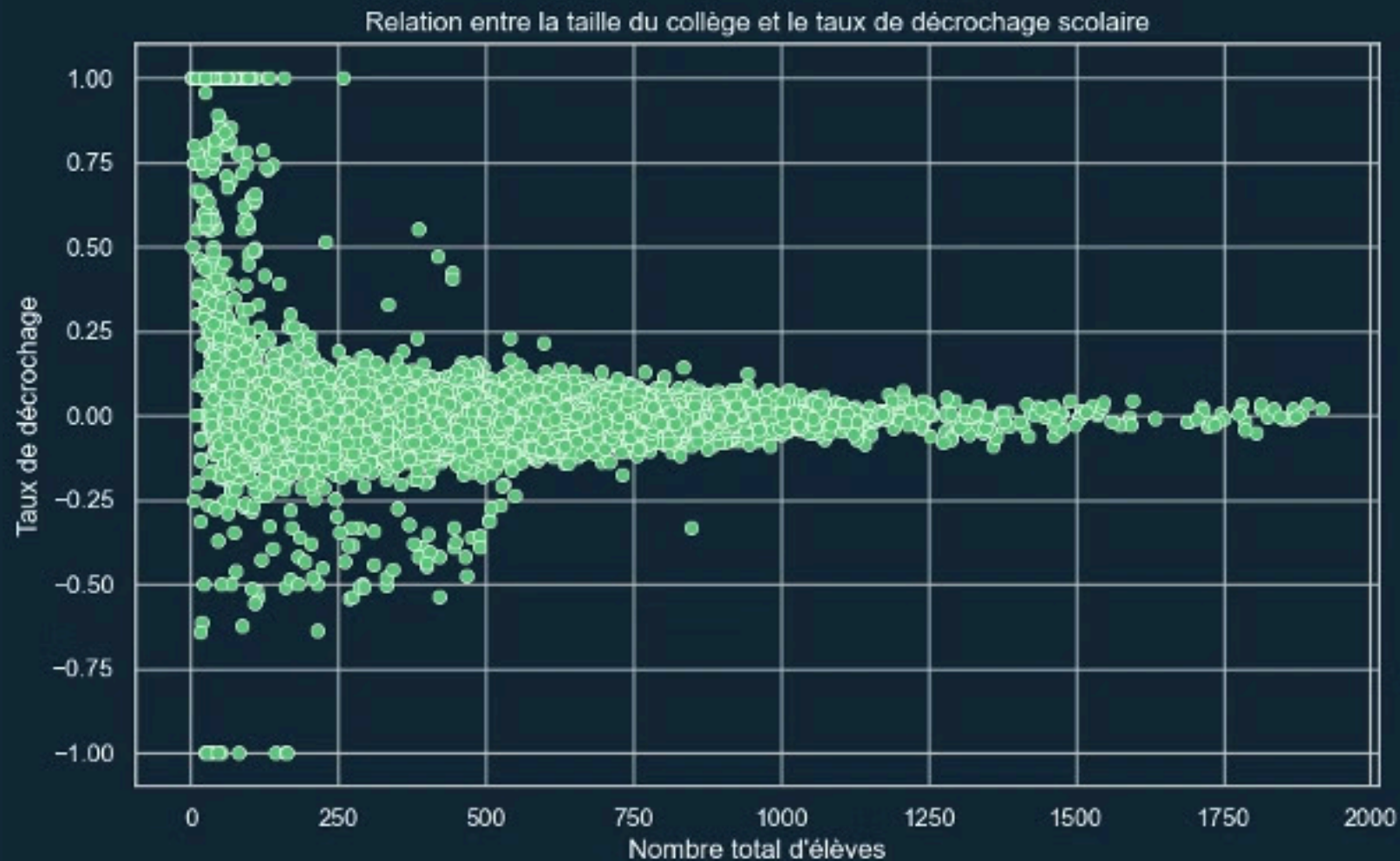
-0.6129, p-value: 0.0

## Spearman Correlation

-0.3495, p-value: 0.0

## Interpretation

Significant negative correlation between college size and dropout rate. Larger colleges tend to have lower dropout rates.



# Boys vs Girls Comparison

Test	Result	Interpretation
Levene	p-value : 0.0045	Unequal variances
Mann-Whitney U	p-value : 6.27e-27	Different distributions
Median test	p-value : 1.33e-20	Different medians

## Conclusion

Gender does indeed have a different impact on school dropout rates.





# College Size and Dropout Correlation by Gender

As illustrated in the graph, we observed a significant negative correlation between college size and dropout rate, both for boys and girls.

## Boys

Pearson: **-0.6067** (p-value: **0.0**)

Spearman: **-0.3509**  
(p-value: **0.0**)

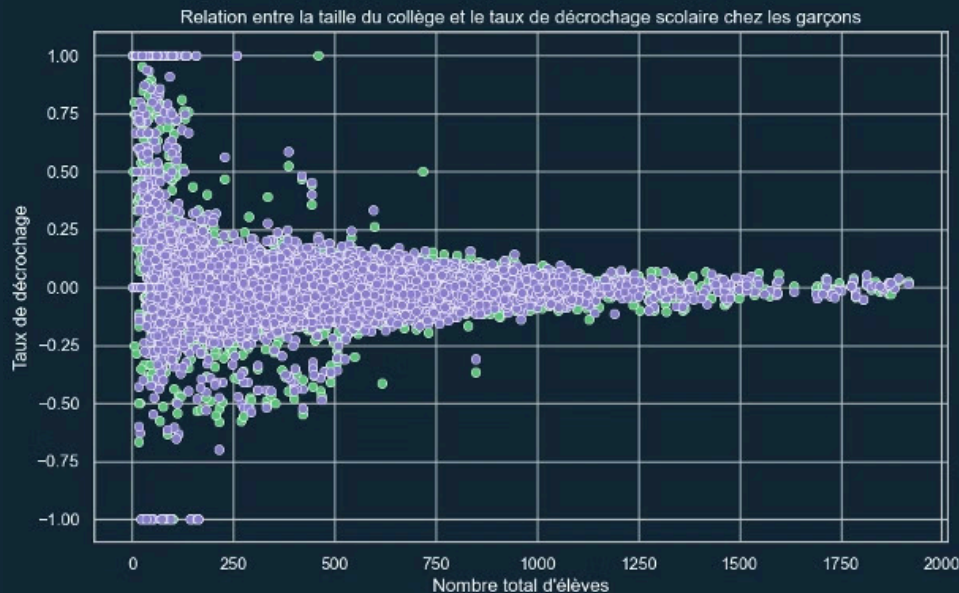
## Girls

Pearson: **-0.5947** (p-value: **0.0**)

Spearman: **-0.3530**  
(p-value: **0.0**)

## Conclusion

College size influences the dropout rate similarly for both boys and girls.





# Regional Variations

## 1 Kruskal-Wallis Test

Total rate: p-value =  $1.10e-30$

Boys: p-value =  $6.41e-25$

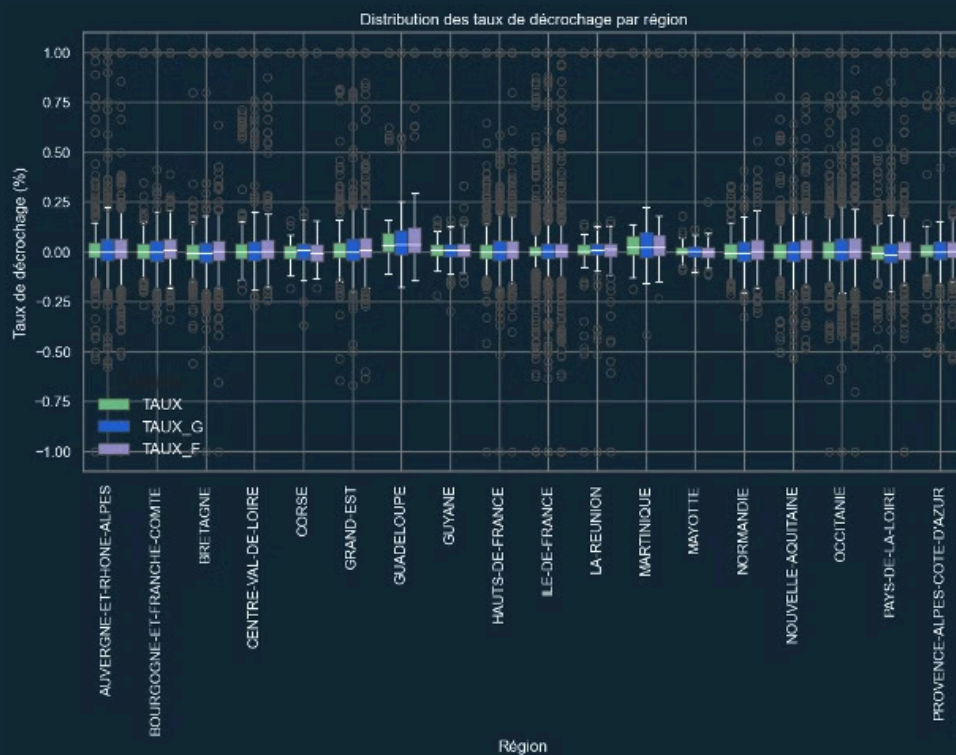
Girls: p-value =  $6.19e-16$

## 2 Dunn Test

Significant differences notably between AUVERGNE-ET-RHONE-ALPES, PAYS-DE-LA-LOIRE and GUADELOUPE, MARTINIQUE.

## 3 Conclusion

Dropout rates vary significantly by region, with marked differences between the mainland and the DOM-TOM.







# Public vs Private Comparison

Category	Public	Private	Difference
Girls	0.662%	0.0%	-0.662%
Boys	0.233%	-0.990%	-1.223%



# Analysis of Public vs. Private Results

## Mann-Whitney U Test

Girls: p-value =  $1.57e-06$

Boys: p-value =  $8.44e-33$

## Interpretation

The differences are statistically significant between public and private high schools for both genders.

## Conclusion

Private schools present lower median dropout rates than public schools, for both girls and boys.





# Study Conclusion

## Influential Factors

College size, student gender, region, and institution type (public/private) all have a significant impact on school dropout rates.

## Geographic Variations

Notable differences exist between regions, particularly between the mainland and the French overseas departments and territories.

## Impact of Gender

Girls tend to have no school dropout rate in private institutions (0.0%).

Boys tend to drop out more in private institutions mainly (-0.990%).

## Action Plans

These results can guide targeted educational policies to reduce school dropout rates, taking into account regional specificities, gender differences, and differences between types of institutions.