

# SCHOOL SEGREGATION EFFECTS ON EDUCATIONAL INEQUALITIES

School social characteristics and variability of educational outcomes using TIMSS 2019 data

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# INTRODUCTION

**Objective 1:** To analyze the effects of school segregation on the inequality of educational outcomes of primary school students.

**H1:** The existence of a *composition effect* intensified by the concentration of students who are distanced from the school culture, which is expected to have an impact on the gap in educational outcomes between students according to their social origins...

**H2:** ... but also a remarkable variability between schools of similar social composition, which would point to the possibilities of resilience and improvement of educational outcomes in schools affected by segregation processes.

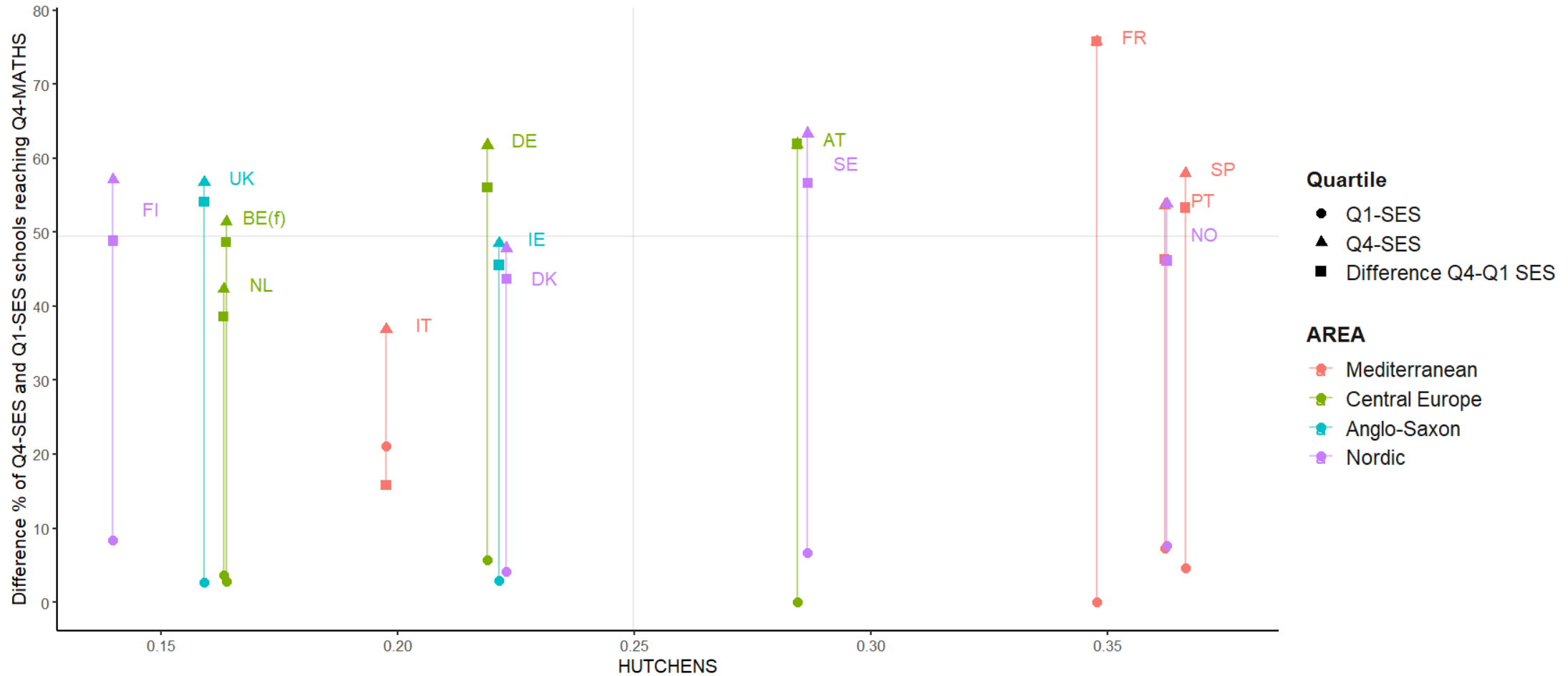
## Data and methods

**Sample:** 9,555 students of 4<sup>th</sup> grade, in 501 schools in Spain, + 13 other European countries, totalling 59,605 students in 2177 schools.

**Methods:** Mean comparisons, Hierarchical Clustering, Multilevel Modelling.

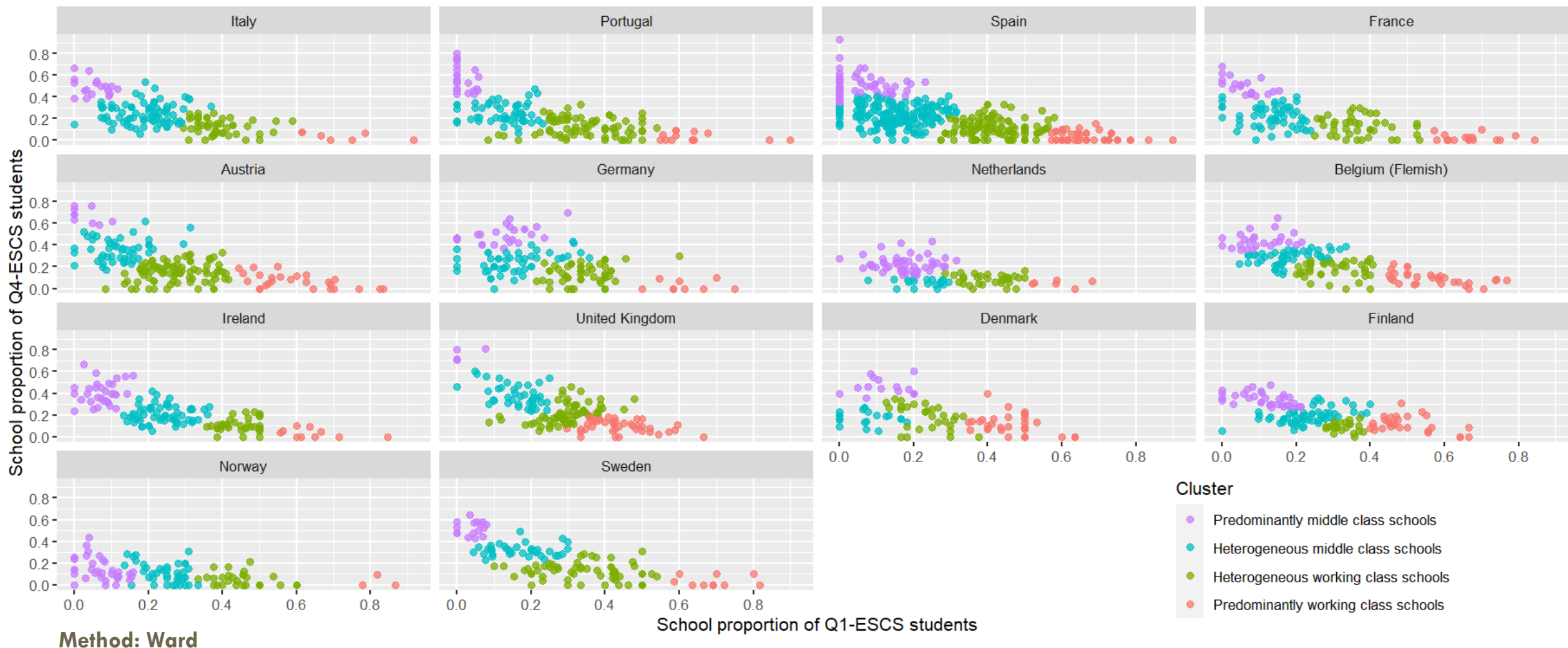
# RESULTS

Difference (%) between Q4-SES and Q1-SES schools reaching Q4-MATHS, by country level of segregation



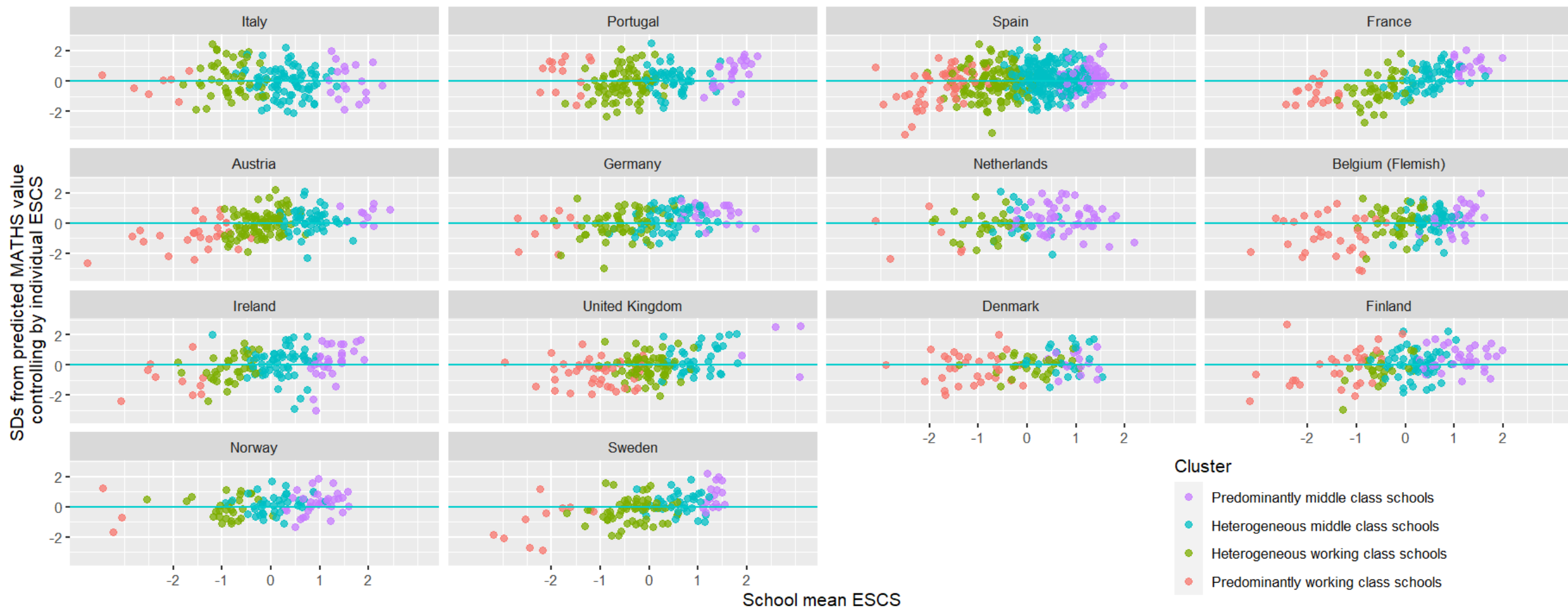
# Clustering of schools by distribution of Q1-ESCS and Q4-ESCS students

n = 2177 schools; 59,605 students



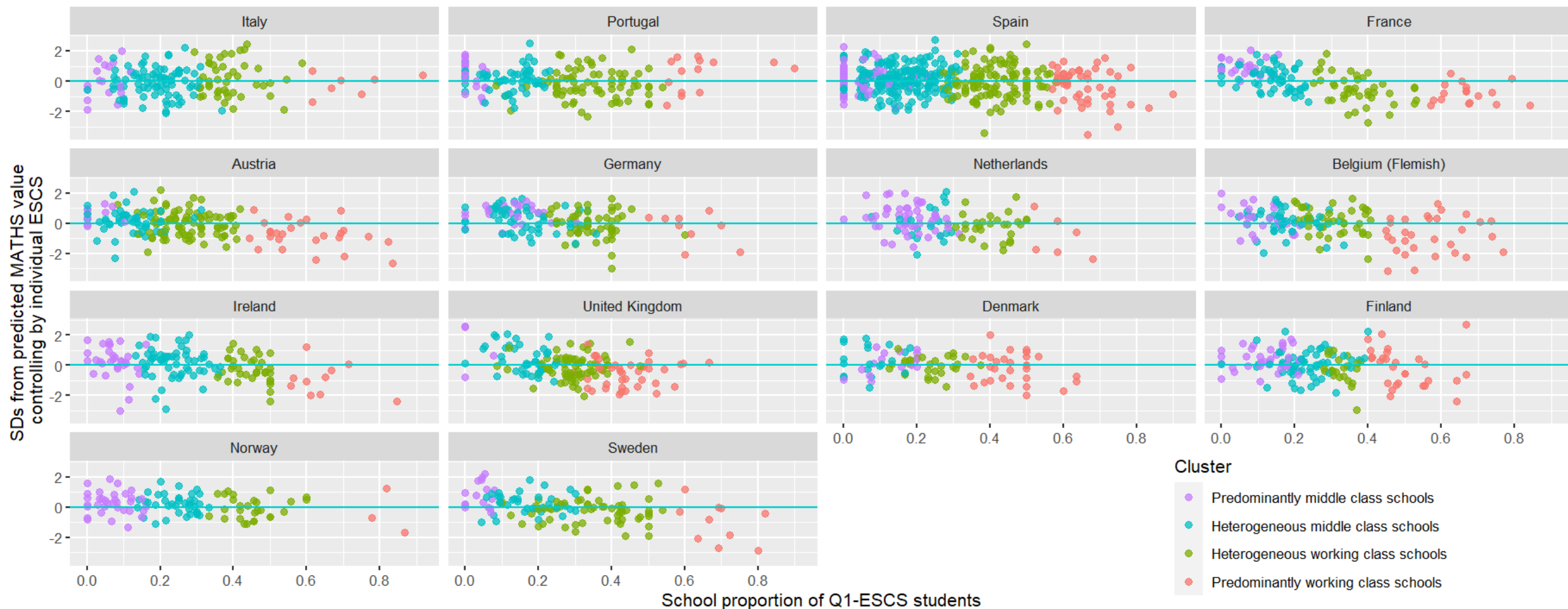
# Mean school residual from predicted MATHS value in function of individual ESCS, by school mean ESCS

n = 2177 schools; 59,605 students

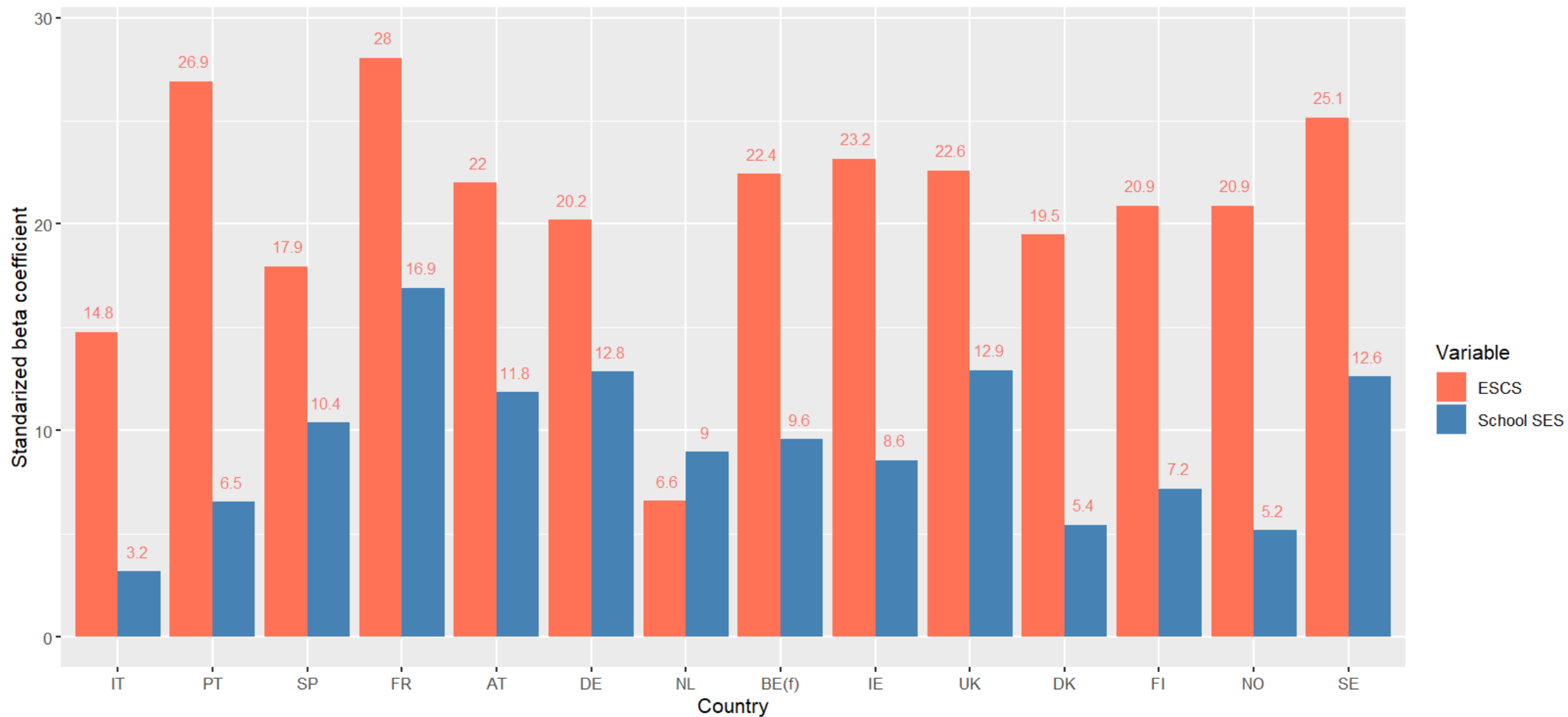


# Mean school residual from predicted MATHS value in function of individual ESCS, by proportion of Q1-ESCS students

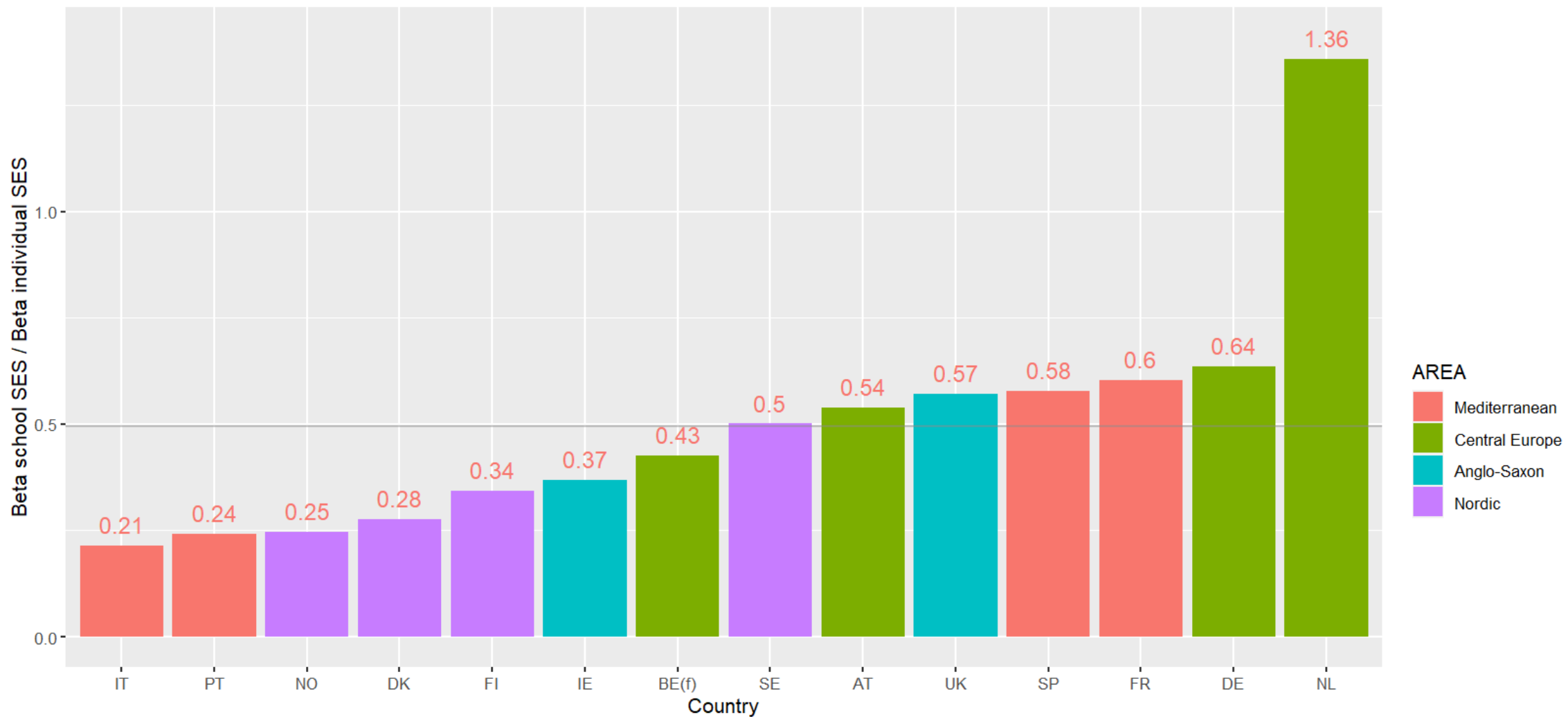
n = 2177 schools; 59,605 students



Relative impact of school SES and individual SES on student MATHS achievement

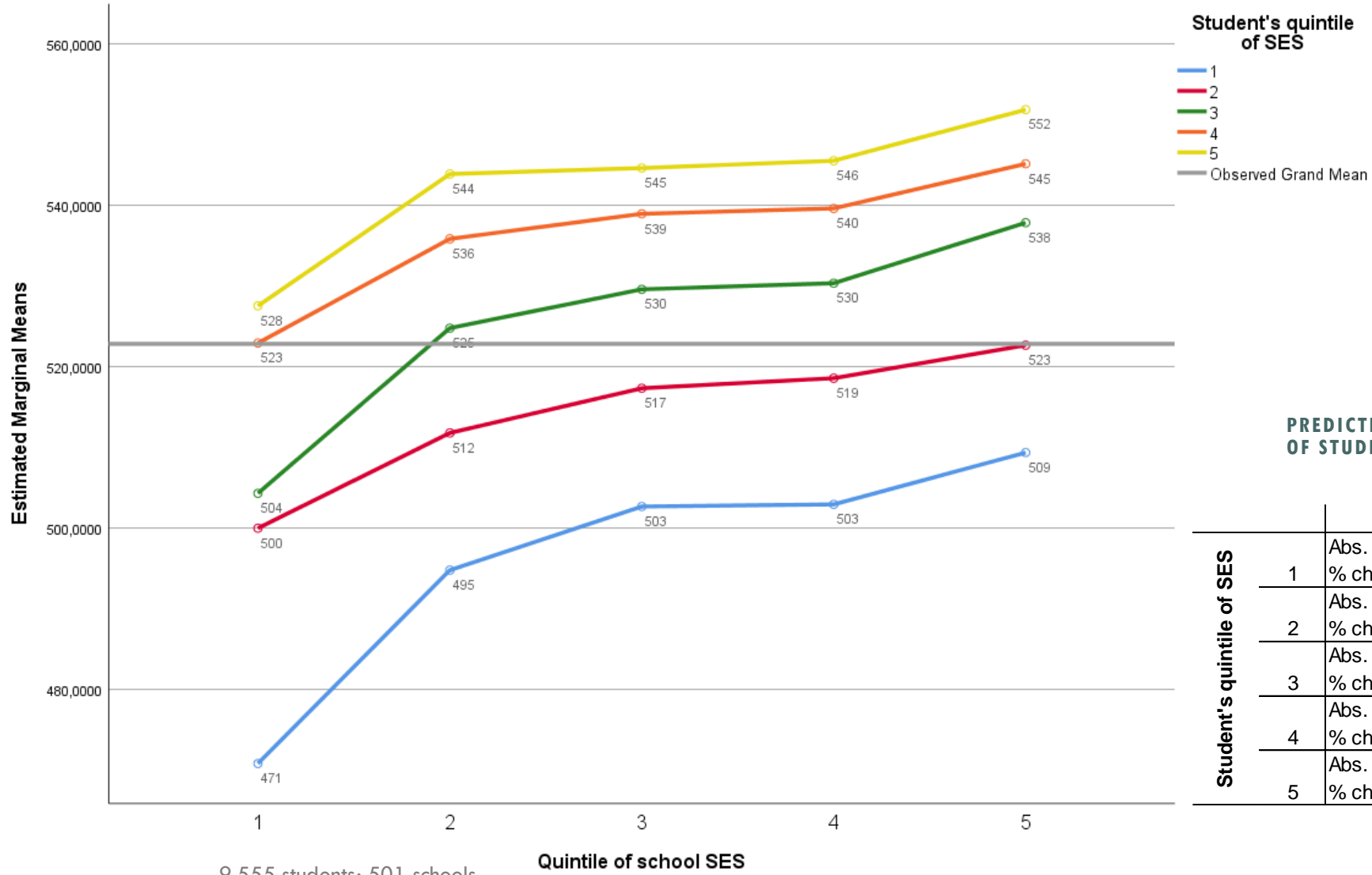


Relative size of school SES impact on student MATHS achievement compared to individual ESCS





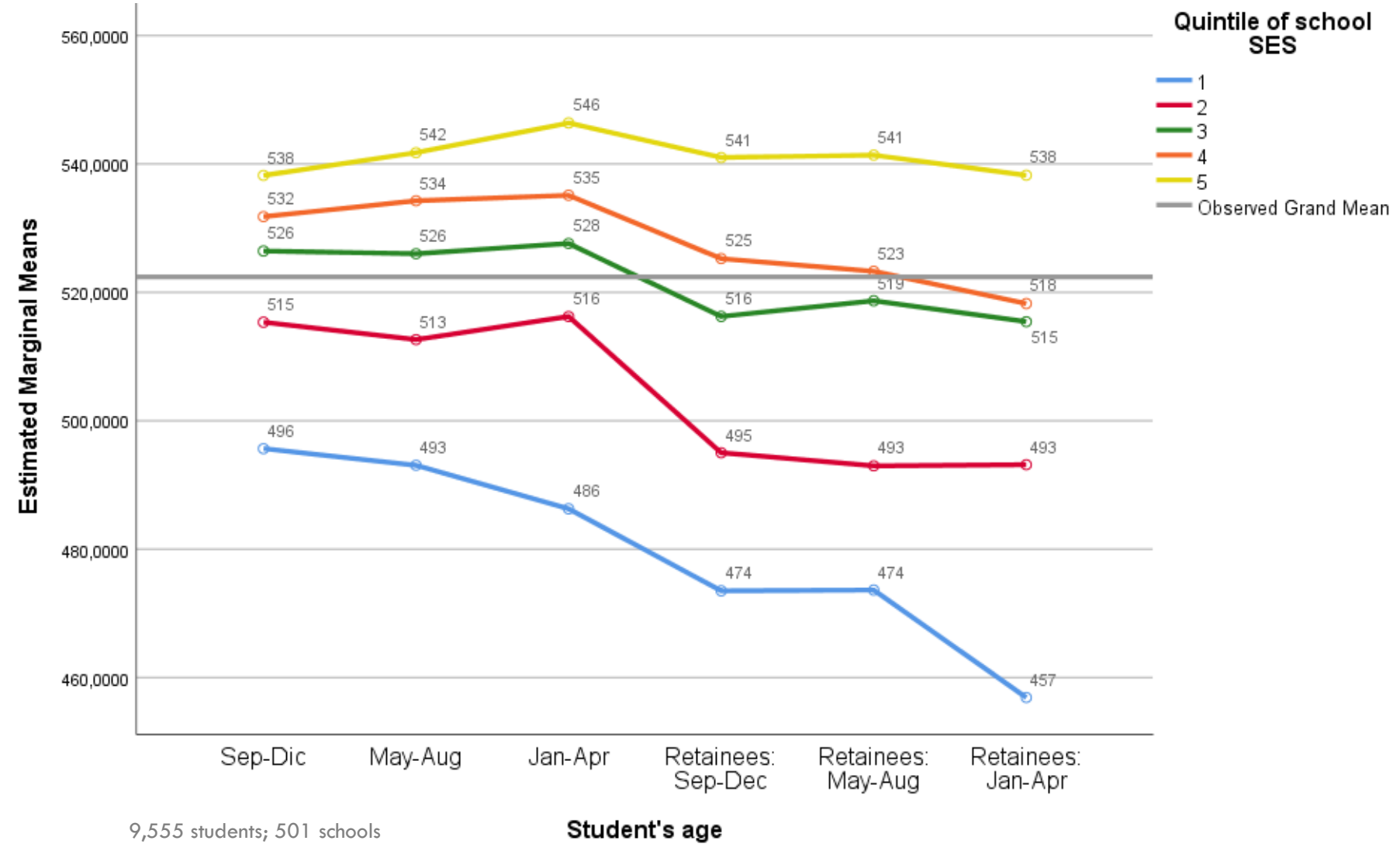
# ESTIMATED MARGINAL MEANS OF PREDICTED VALUES OF MATHS (from MLM regression), by school and student's quintile of SES in SPAIN



## PREDICTED CHANGE IN MATHS VALUE FOR EACH QUINTILE OF STUDENT'S SES BY QUINTILES OF SCHOOL SES

		School quintile of SES					
		1	2	3	4	5	
Student's quintile of SES	1	Abs. change	-	18,9	11,5	2,2	6,9
		% change	-	<b>4,0%</b>	<b>2,3%</b>	<b>0,4%</b>	<b>1,4%</b>
	2	Abs. change	-	10,8	8,1	2,5	0,4
		% change	-	<b>2,2%</b>	<b>1,6%</b>	<b>0,5%</b>	<b>0,1%</b>
	3	Abs. change	-	15,4	7,0	2,0	5,3
		% change	-	<b>3,0%</b>	<b>1,3%</b>	<b>0,4%</b>	<b>1,0%</b>
	4	Abs. change	-	12,0	4,4	3,7	2,1
		% change	-	<b>2,3%</b>	<b>0,8%</b>	<b>0,7%</b>	<b>0,4%</b>
	5	Abs. change	-	15,3	5,6	1,8	4,2
		% change	-	<b>2,9%</b>	<b>1,0%</b>	<b>0,3%</b>	<b>0,8%</b>

# ESTIMATED MARGINAL MEANS OF PREDICTED VALUES OF MATHS (from MLM regression), by students AGE and school SES quintiles in SPAIN



9,555 students; 501 schools

# DISCUSSION (1)

## *Effects of school segregation on inequalities between primary school students*

- **SEC effect:** different magnitudes across countries.
  - In Spain: +1sd in school SES ~ 10 point increase in individual MATHS achievement (moderate SEC effect)
- **Dissimilarity** in schooling of Q1-SES and Q4-SES (↑ Hutchens) ~ related to a higher performance of high SES students and stagnation of Q1-SES students.
- **Concentration** of low SES students ~ related to greater difficulties for schools to raise student achievement above the expected MATHS outcomes based on their individual SES.
  - High dispersion along all levels of enrollment of low-SES students
  - **50% onwards:** considerable fewer values above 1sd from the predicted value of MATHS.
  - First quintile of SES: higher differential SEC effect.

# DISCUSSION (2)

## *Possibilities of schools to tackle the effects of early school segregation*

Need for specific education policies aimed at schools affected by segregation processes to support school-based actions.

- Teaching experience: significant after controlling by compositional factors:
  - Suggests reducing the high rate of **teacher turnover** in segregated schools as a positive measure for improving the outcomes of these group of schools.
  - The same can be said for the number of students in the class.
- Significant cross-level interaction between school-SES & student's AGE:
  - Suggests grade retention may be burdening the possibilities of resilience in lower-SES schools.
  - Grade retention prevention policies**, especially in the lower grades of compulsory education: effective measure to mitigate SEC effects.

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