



Good Schools or Good Students? The Importance of Selectivity for School Rankings

Aedín Doris, Dónal O'Neill and Olive
Sweetman



This research is based on analysis of strictly controlled GUI Research Microdata provided by the Central Statistics Office (CSO). The CSO does not take any responsibility for the views expressed or the outputs generated from this research

11th Annual
Research
Conference
2019



Introduction

- Choosing a good school for their child is an important decision for parents.
- In making their choice, parents often consider outcomes such as the average exam performance of students in a school.
- However, when students non-randomly select into schools, such outcomes partly measure the prior ability or family background of the student body rather than the contribution or value-added of a given school.

- In this paper, using Junior Certificate results from the GUI, we provide estimates of value added for Irish second-level schools and examine the implications of this for school choice.

Previous Research

- Experimental approach – relies on exogenous variation in school choice generated by, for example, lotteries or boundary discontinuities.
- Regression approach – control for differences in student background characteristics across schools.

- We estimate the following regression

$$Y_i = \beta_0 + \beta_1 A_i + \beta_2 X_i + \sum_{s=1}^S \mu_s D_{is} + \varepsilon_i$$

Y_i is junior cert score (based on best 7 subjects).

A_i Prior Attainment

X_i Socioeconomic, family and other student characteristics

D_{is} dummy variable =1 if individual attends school s .

Controls

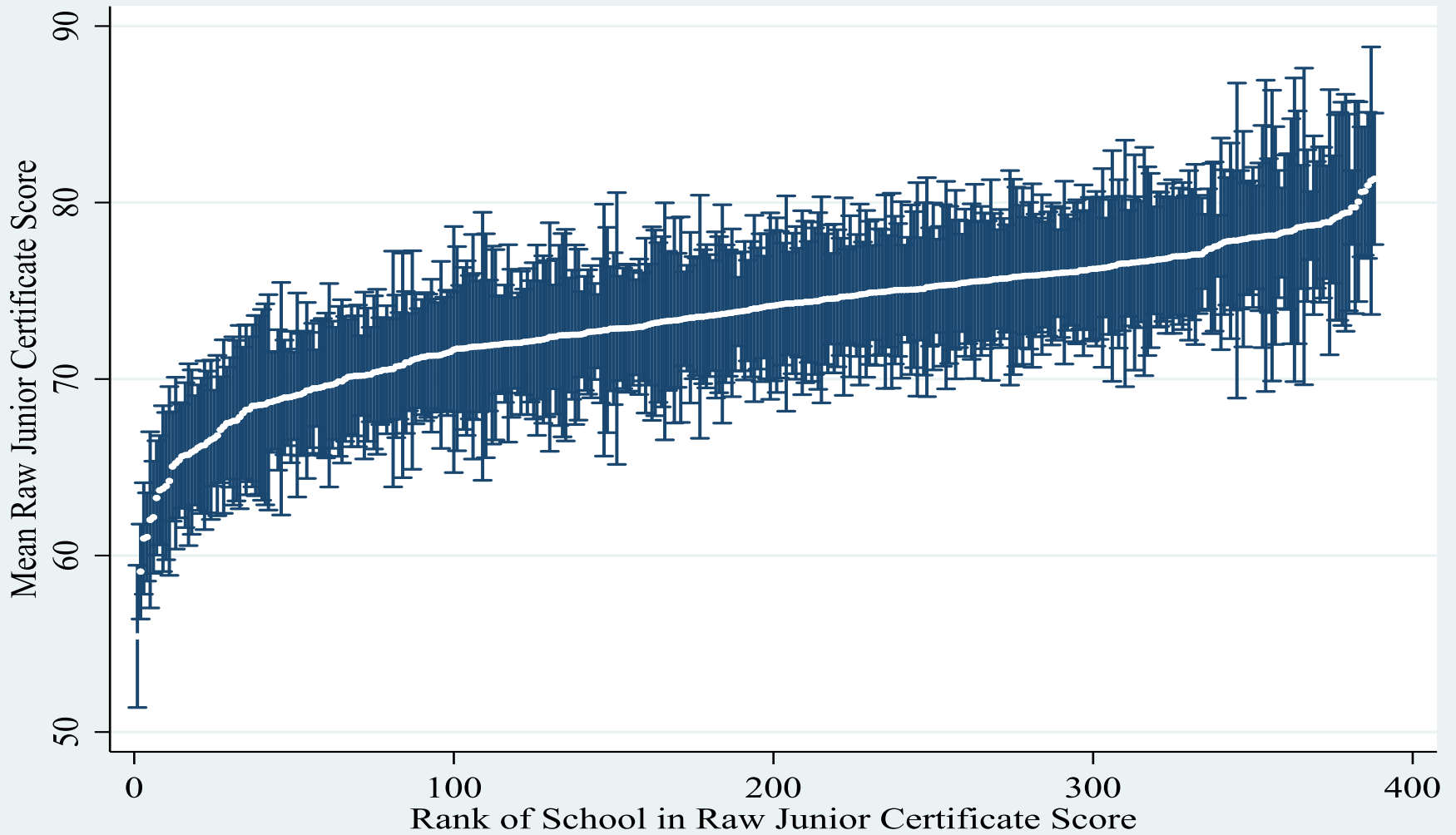
- **Prior Achievement:**
- Drumcondra Maths and Reading Scores from GUI at age 9.
- Information on the student's socio-economic development and behaviour -Strength and Difficulty Questionnaires (SDQ).

- **Background:**
- Gender
- Family equivalised income
- Parental education.
- Ethnic/cultural background of main carer
- Family structure

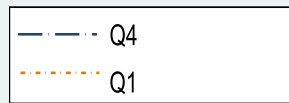
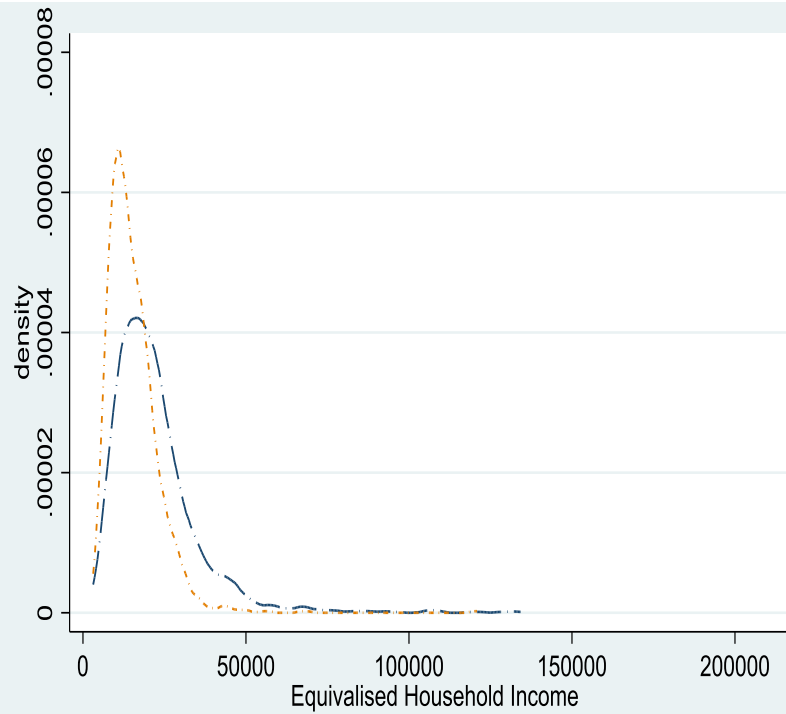
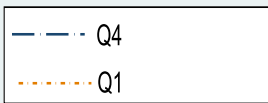
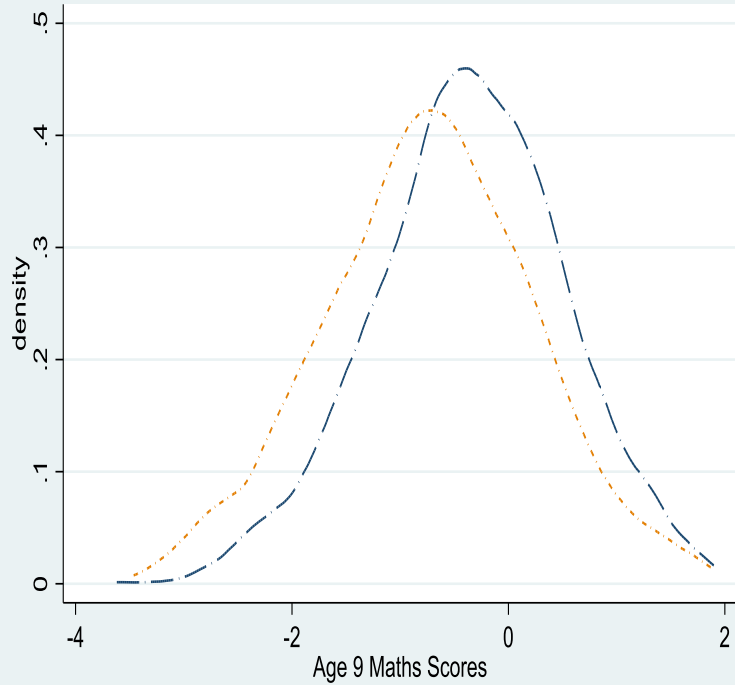
Sample

- We restrict our sample to exclude schools with fewer than five study children.
- We also exclude the very small number of schools in the sample that solely cater for students with special needs or did not provide a valid school type code.
- Deis schools are under-represented in our sample and non-fee paying secondary schools are over represented.

School Mean Raw Junior Certificate Scores



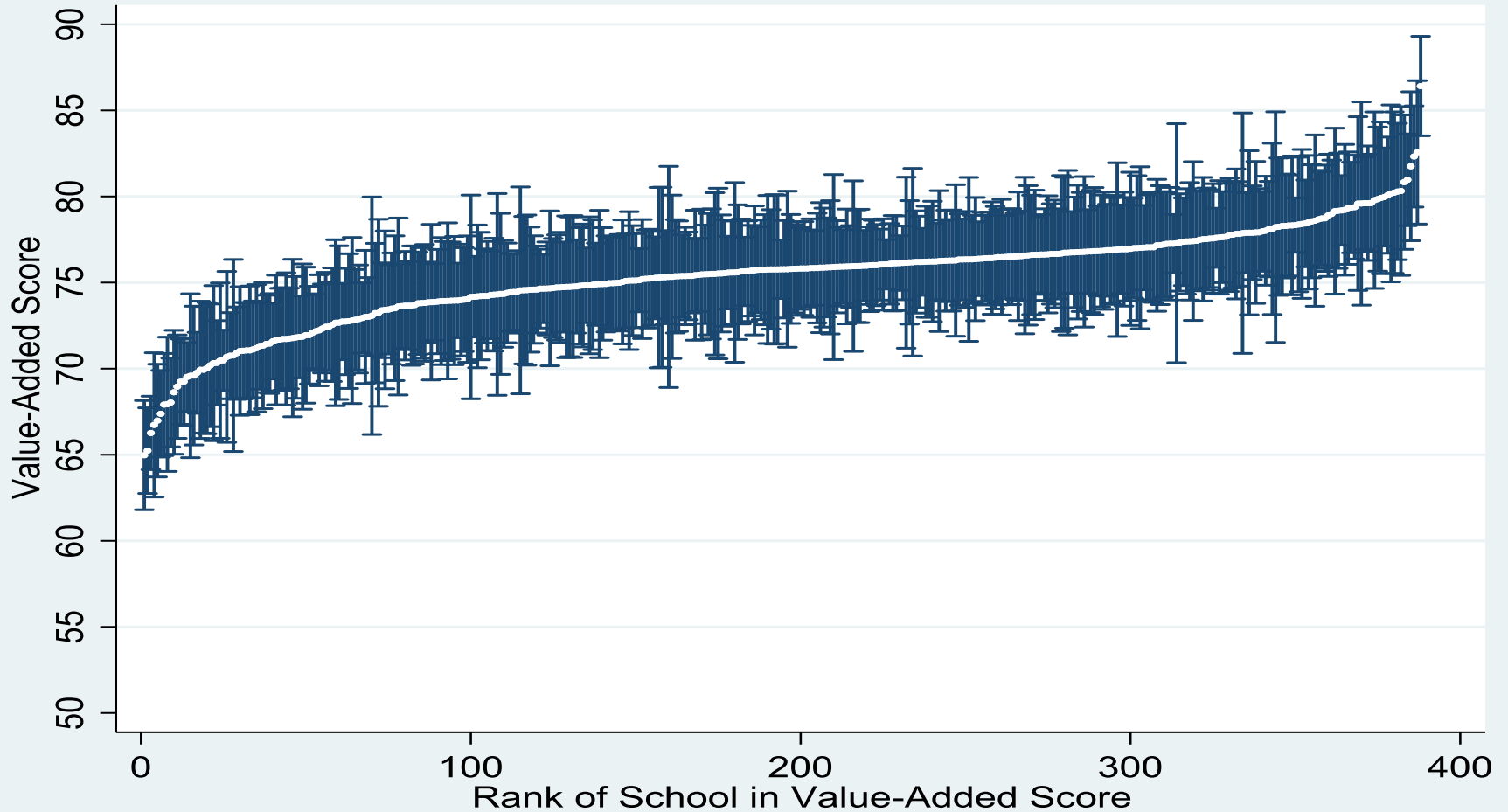
Distribution of Age 9 Maths scores and family income in the bottom and top quartile of secondary schools (based on Junior Cert Scores)



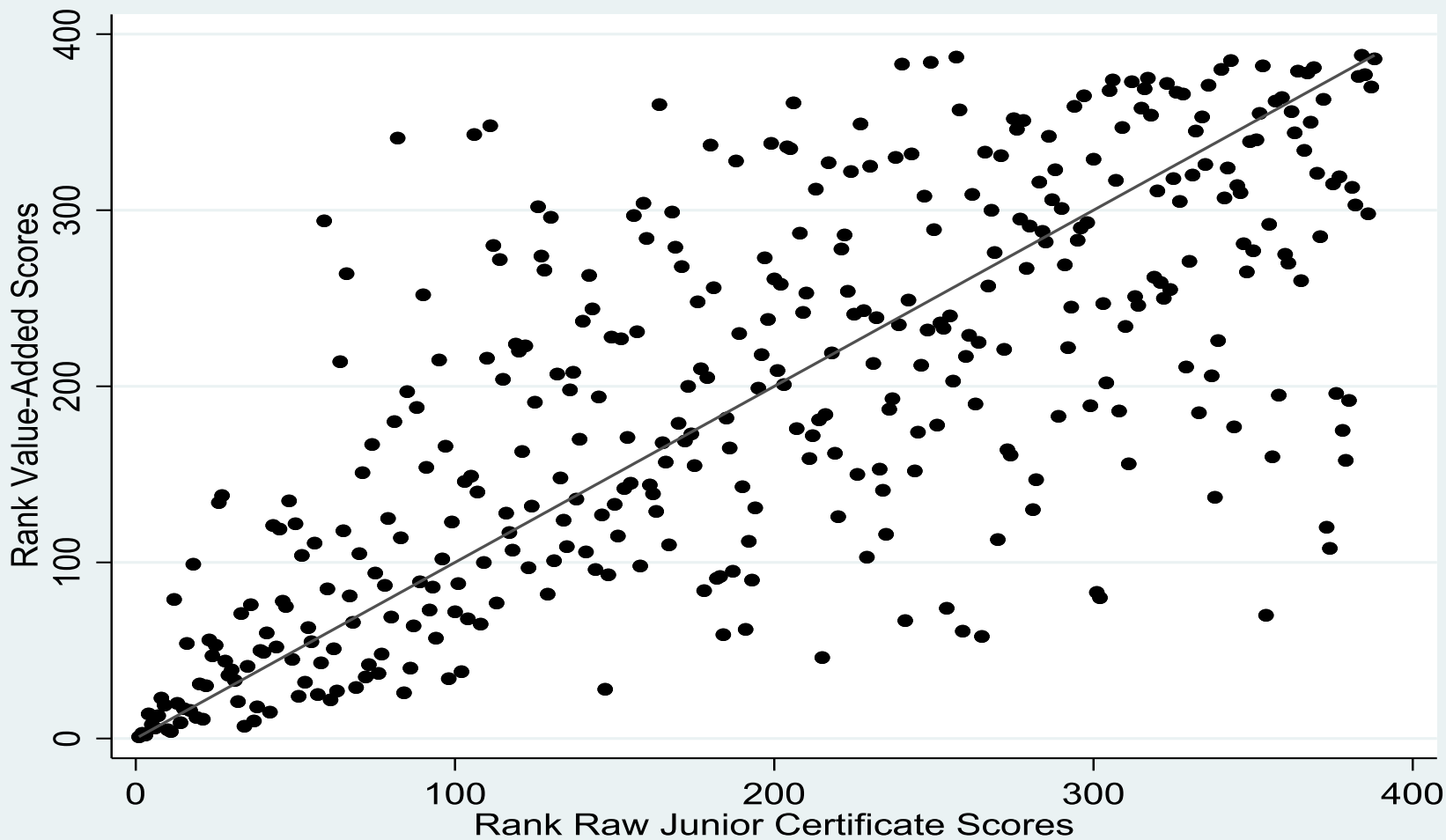
Value Added Regressions: Dependent Variable is Junior Cert Score (school fixed effects included)

Reading Score (age 9)	2.09*** (0.11)
Maths score (age 9)	1.44*** (0.12)
SDQ Score	-0.25*** (0.02)
Attention Span – medium	0.78*** (0.29)
Attention Span – high	2.61*** (0.29)
Male	-0.44** (0.23)
Main carer -Irish	-0.58* (0.33)
Family Equivalised Income/1000	0.05*** (0.009)
Parent Degree or Higher	1.59*** (0.19)
Father Not Present in Household	-1.33*** (0.20)
N	4577

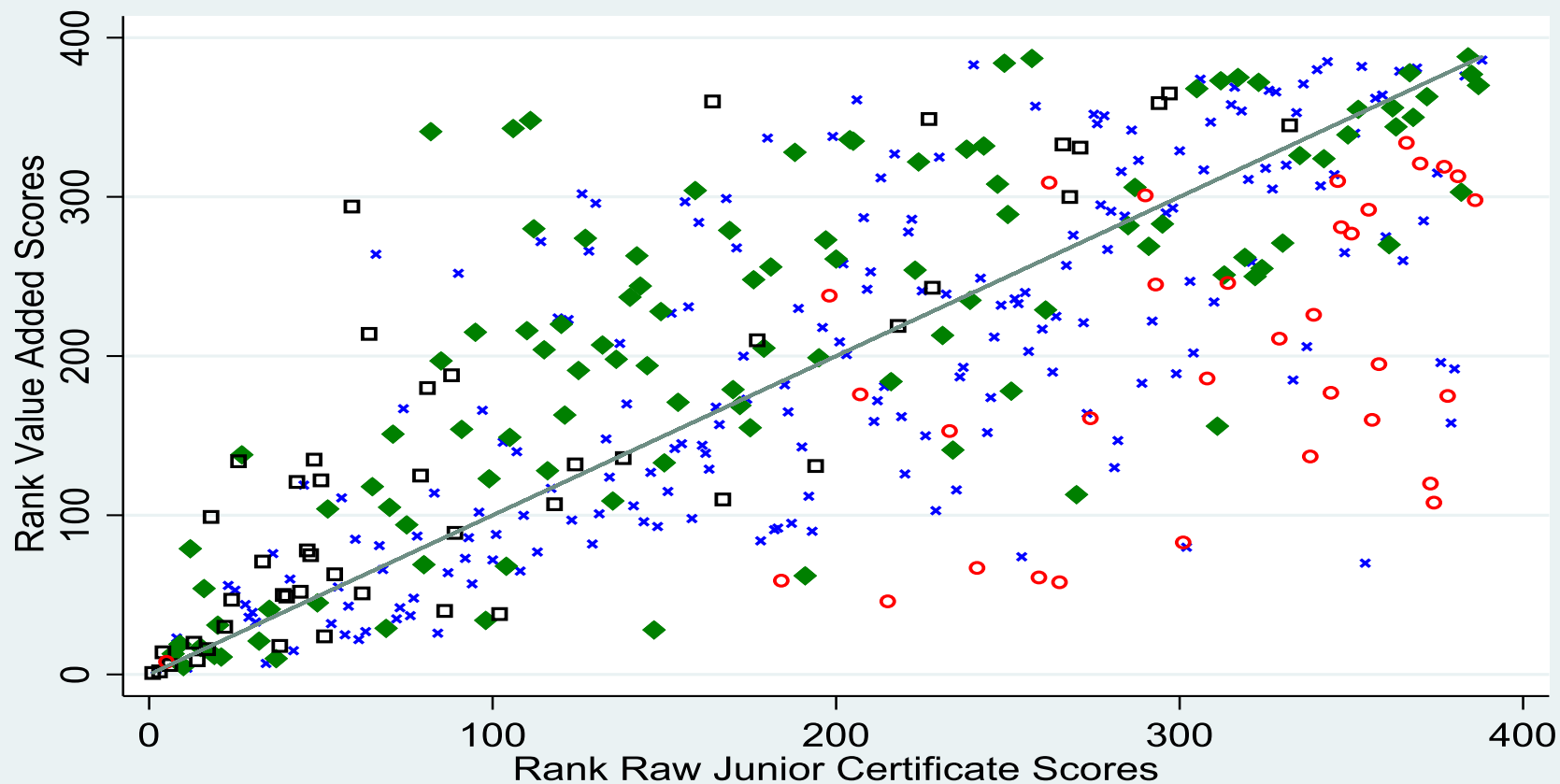
School Mean Value-Added Score



Comparison of Raw Rank and Value-Added Rank.

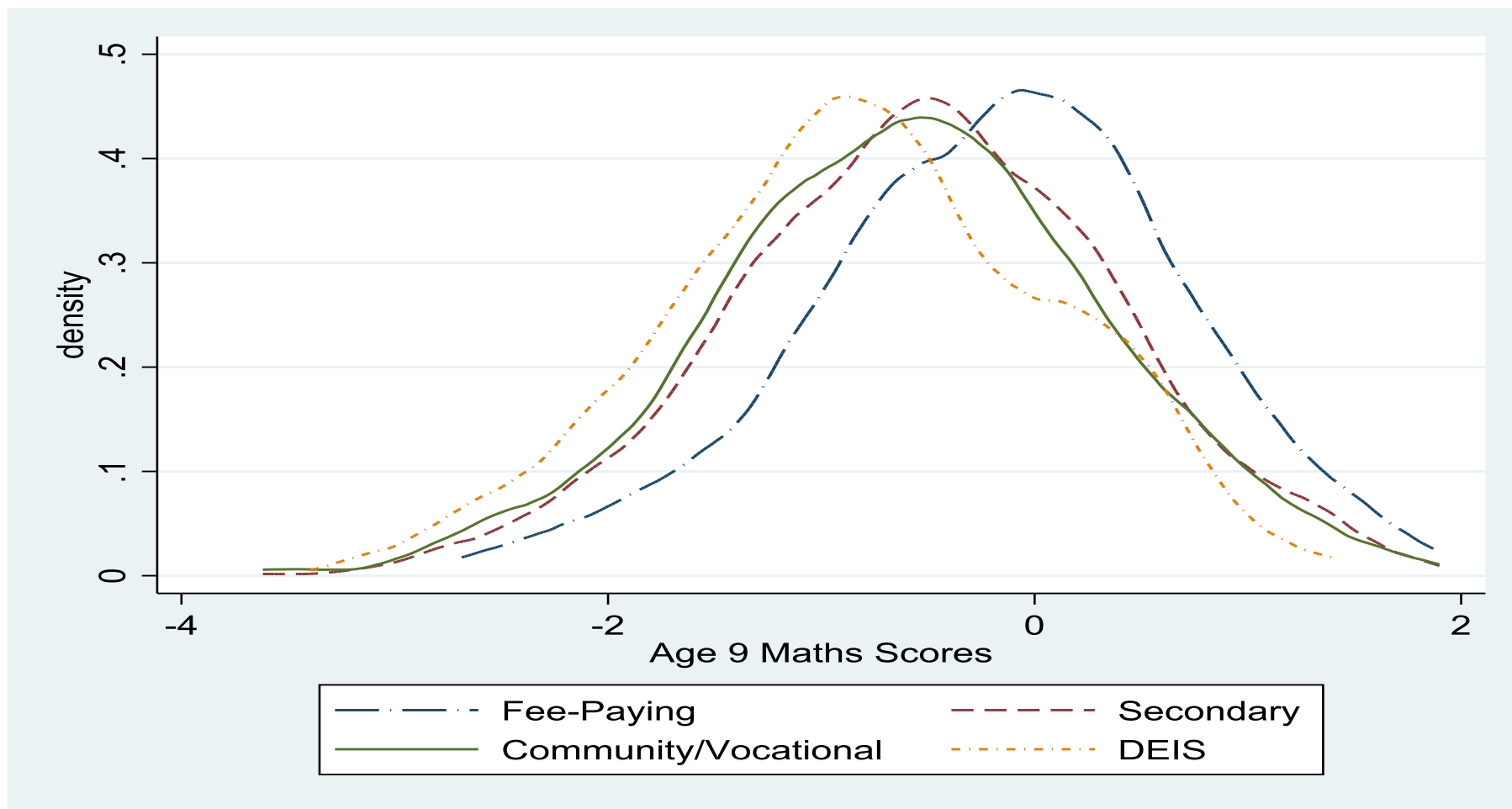


Raw and Value-Added Ranks by School Type



- | | |
|-------------|------------------------|
| × Secondary | ◆ Community/Vocational |
| □ DEIS | ○ Fee-Paying |

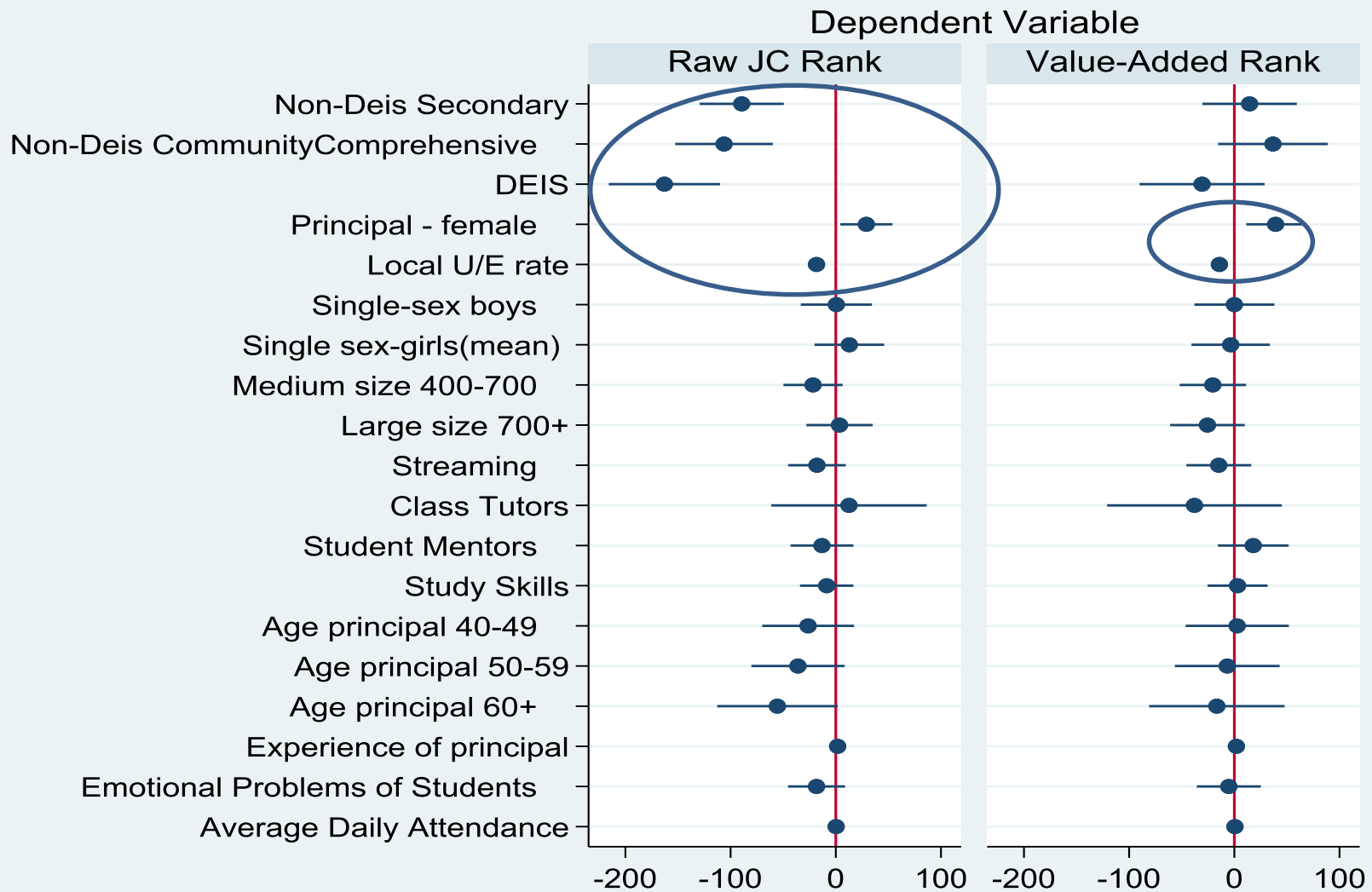
Prior Achievement by School Type: Age 9 math scores



Controls Used in Schools Regression

- School Type
- Single-sex
- Size
- Whether school streams
- Provision of Study Skills Programmes, school mentors and tutors
- Gender, age and experience of principal
- Daily attendance rate
- % of students with emotional problems
- Average unemployment rate based on students' detailed local area.

Determinants of School Raw and Value-Added Rank



School Choice: Simulation Exercise

- In order to examine the extent to which school choice matters for test scores, we carry out a counterfactual simulation where we reassign each student to the best value-added school accessible to that student.
- Because there is no information on the address of either the child or the school, we identify the second-level schools accessible to student i as the set of schools attended by any classmate of student i in their primary school.
- We then calculate the predicted score of each child using the child's own characteristics for both their own school and the best available school

- The results of our simulation indicate that the effect of each child attending the best available school is to raise average scores by 1.45 points or 0.28 standard deviations.
- This effect is substantial; equivalent to a one standard deviation increase in prior reading ability or having a parent with a university degree.

Conclusion

- We show that background characteristics are strongly correlated with academic achievement and vary substantially across schools. As a result, controlling for selection substantially changes the rankings of schools.
- In general the factors determining value added appear to be related to unobserved individual school practices, rather than systematic school policies.
- Reallocating students to schools based on value added could substantially boost student outcomes.