

Understanding the grade-differential in school size impact

To gain a deeper understanding of the grade-differential in school size impact, we compare second and fourth graders across several baseline characteristics. We show the results from this comparison in Table 1.

Table 1 about here.

As we ~~could~~ might expect, there is no difference between second and fourth graders at the school and locality levels. However, a few differences emerge between these students at the classroom and student levels. There is a higher proportion of female teachers in grade 2 than in grade 4. In addition, class size is greater for grade 2 than grade 4, ~~This is in line with the high levels of dropouts and repetition that characterized sub-Saharan Africa education systems~~ which we expected, because a number of students drop out from school during the primary grades. Weaker students, usually from low-income families, tend to drop out of school with time, leading to smaller classes size at later grades. ~~By this phenomenon~~ Thus, fourth graders are more homogeneous in terms of socioeconomic status than second graders, ~~a fact that~~ which our data confirm: the ~~rate~~ degree of homogeneity on the socioeconomic status index amounts at 0.58 for students in grade 2, but 0.64 for grade 4.

We also expected, from previous knowledge (PASEC, 2015), that women ~~be~~ are overrepresented ~~the early grades teaching staffing~~ as teachers of earlier grades. ~~The use of this strategy is to~~ This staffing strategy is intended to help students make the transition from home/pre-school to primary school, where people ~~with whom~~ they are unfamiliar are in charge of managing them. Presumably, in the Senegalese context, female parents/teachers are better than male ones at managing children at the start of primary school, and even if these new managers are less qualified, their social abilities match the requirement of these children. If these teachers are able to help new primary students cope with new and difficult situations, this

would help explain why we cannot see any effect for younger students. Yet, second graders consume fewer resources than fourth graders: their teachers are less qualified, and fewer mathematics textbooks are **available** per student.

To familiarise new primary school comers, **teachers of** early grades usually speak **students'** mother tongue, ~~a situation~~ **a phenomenon that** explains why the use of French as the teaching language is less frequent at grade 2. At the student and family levels, we expect second graders to be on average two years younger than fourth graders. We also expect them to be less involved in housework because they are younger, which ~~is the case from our data~~ **our data show is the case**. The unpredictable differences ~~refer to~~ **are based in** parents' literacy and education levels. Second graders have a slightly higher proportion of literate parents. **However**, for these students, a similar proportion of parents has no formal education, thus offsetting the proportion of literate parents.

An important distinction between the two cohorts of students is the length of exposure to school size. Older ~~ones~~ **students** spend, on average, two more years attending school than the youngest. ~~Under an assumption of additivity of the effects over time~~ **Assuming these effects are additive over time**, the cohort of second graders attending schools with 370–490 students encountered a total average gain of 0.131 standard deviations⁴ ~~of in~~ **test scores over the two years by third grade** compared to students attending another school. The cohort of fourth graders attending schools with 370–490 students experienced a total average gain of 0.459 standard deviations ~~over the two years~~ **in test scores by fifth grade** compared to students attending another school. Thus, the effect ~~much more tangible~~ **is greater** in the long term.

Commented [Author1]: "Supplied" replaced by "Available". Do you agree?

Commented [Editor2R1]: This is acceptable.

Commented [Author3]: Will "refer to" work here?

Commented [Editor4R3]: No, I would suggest "relate to" though.

Commented [Author5]: Is this correct?

Commented [Editor6R5]: With these changes, yes.