

Teacher gender and the gender gap in education

The case of Mozambique primary schools



In brief

- Mozambique is characterised by a substantial gender gap in education and male dominance in the teaching profession.
- This study investigates the relationship between the relative lack of female teachers and the gender gap in education across the universe of Mozambican schools. Using data from the annual school census (2004-2017), the authors document a small negative correlation between the share female teachers at a school and the gender gap in enrolment, both across schools and within schools over time.
- The findings suggest a small positive association between the share of female teachers and grade completion among both boys and girls. However, the authors caution against interpreting the findings causally and highlight the need for further research to establish the importance of female teachers.
- In light of recent evidence on the importance of female teachers in other countries, there are potential alternative approaches to addressing the relative lack of female teachers in schools: hiring additional female teachers; and redistributing female teachers from schools with many female teachers to schools with few.

This project was funded by IGC Mozambique

Overview

Recent studies show that teachers can have a large impact on the educational achievement of pupils with whom they share certain characteristics - such as gender¹. In light of this, we study the relationship between the gender gap in education and the relative lack of female teachers across the universe of Mozambican schools using data from the annual school census (2004 to 2017).

Teacher gender and the gender gap in education

Mozambique is characterised by a substantial gender gap in enrolment. Across all grades the male enrolment share exceeds the female enrolment share and at the end of primary school (grades 6 and 7) the gap between the two is especially large – nearly 20 percentage points. Interestingly, however, we do not find differences in grade completion between boys and girls conditional on enrolment (Figure 1).

The teacher workforce in Mozambique is predominantly male, with only about one third of teachers being female. This imbalance is less pronounced in the first phase of primary education where 36% of teachers are female, relative to 20% of female teachers in higher levels of education. Importantly, however, we find substantial variation in the share of female teachers across schools of the same education level.

Our analysis reveals a small positive correlation between the female enrolment share and the share of female teachers across schools. When we examine how changes in the share of female teachers within a school over time correlate with changes in female enrolment, we also find a positive relationship, but it is weak.² We caution against interpreting these correlations as causal, however, because changes in the share of female teachers and female school enrolment could also all be due to changes in other factors, such as local economic development³. To identify the causal effect of the share of female teachers on educational outcomes, additional experimental or quasi-experimental research would be required.

To provide suggestive evidence of underlying mechanisms, we investigate heterogeneity in the relationship between the teacher gender ratio and the gender gap in education. We find two pieces of evidence consistent with

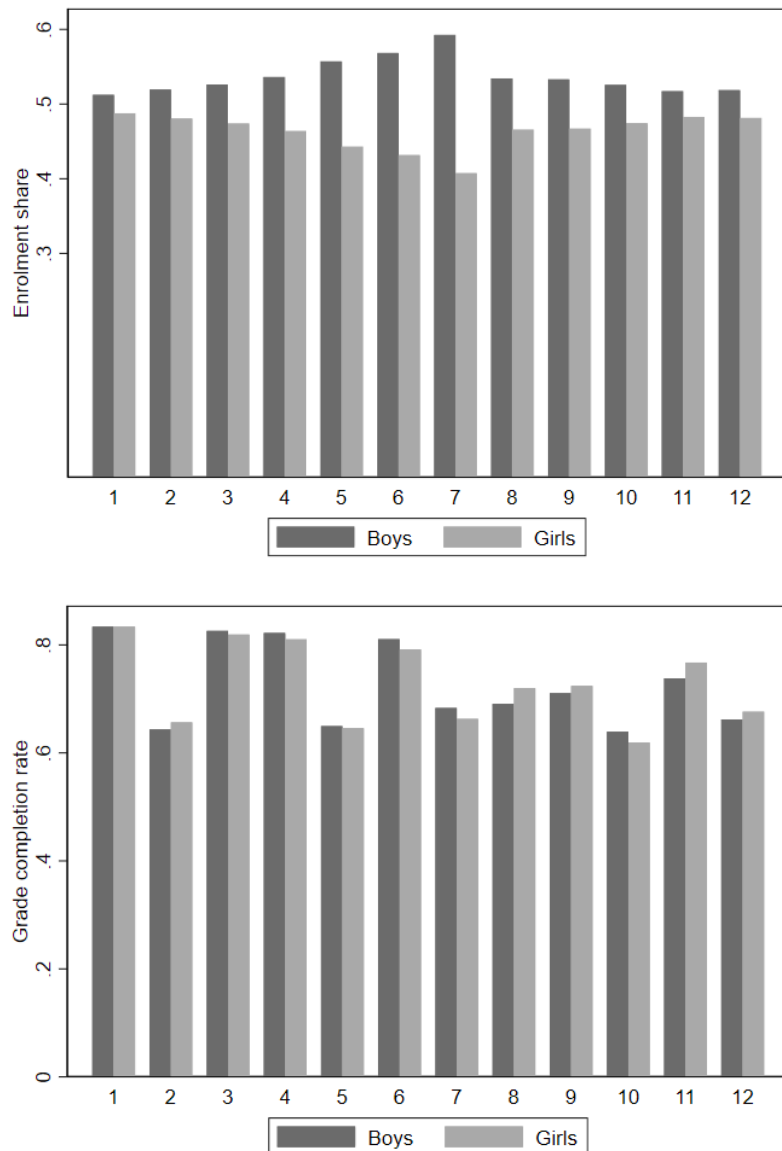
1. See Ketki Sheth and Karthik Muralidharan: "Bridging Education Gender Gaps in Developing Countries: The Role of Female Teachers", *Journal of Human Resources*, 2016, Vol. 51, No. 2, pp. 269-297.

2. A 10 percentage point increase in the share of female teachers in a school is associated with a 0.07 percentage point increase in the female enrolment share.

3. We control for changes in nighttime luminosity within a circle of 3km radius around schools, but there may be factors other than economic development as captured by nighttime luminosity that drive the observed correlation.

a “role model” channel, namely that exposure to female teachers acts as a signal of the returns to education for girls. First, the association between the share of female teachers and the gender gap in enrolment is weaker in more economically developed areas – which are likely to feature more female role models. Second, the association between the share of female teachers and the gender gap in enrolment is weaker in schools close to health facilities with a high share of female health workers.

Figure 1: Enrolment share and grade completion rate by grade and gender (2017)



Addressing the lack of female teachers

Interestingly, increases in the share of female teachers are associated (albeit weakly) with increases in grade completion among both boys and girls.⁴ This suggests that there may be benefits to increasing the share of female teachers, aside from helping to address the gender gap in education. Consequently, we examine different options to address the teacher gender gap: hiring additional female teachers, and reallocating current female teachers across schools between and within districts.

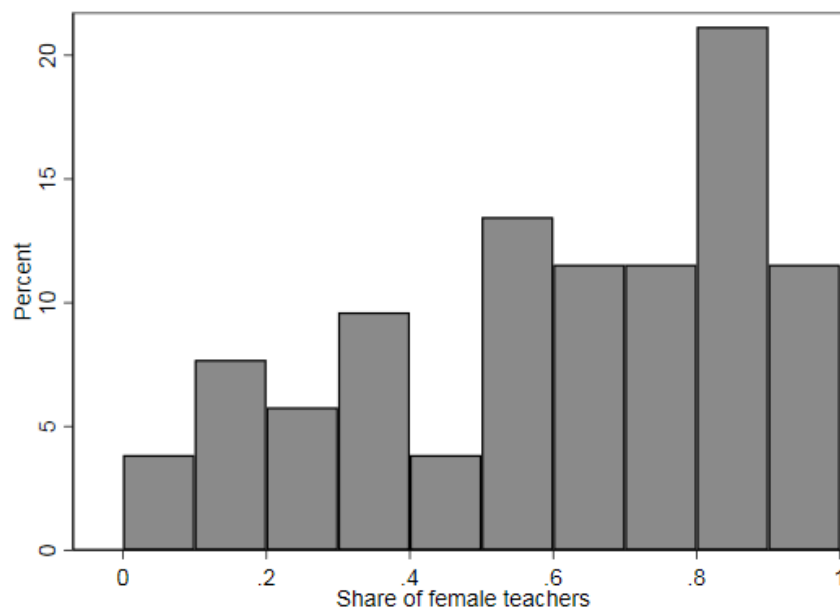
Based on data from the 2007 population census, we find that the lack of women qualified to teach is a major constraint to teacher recruitment policies aimed at increasing the overall supply of female teachers in Mozambique.

Our analysis of the 2007 census also suggests that reallocating female teachers across districts may be a promising avenue to guarantee a minimum share of female teachers in all schools. A significant fraction of female teachers born in districts where the teacher workforce is predominantly male work outside their home district. Hence, incentivising those female teachers to return to their home districts could be a viable policy option to increase the share of female teachers in the districts where it is lowest.

Finally, we show that there is large variation in the share of female teachers across schools within districts (see Figure 2 for the example of the district Cidade de Tete). This implies that within district reallocation of female teachers could go a long way towards establishing a minimum share of female teachers in all schools. Simply hiring more female teachers at the district level, in contrast, could exacerbate imbalances in access to female teachers – if new female recruits disproportionately end up working at schools that already have relatively high shares of female teachers.

4. A 10 percentage point increase in the share of female teachers is associated with an increase in girls' grade completion by 0.13 percentage points and boys' grade completion by 0.08 percentage points.

Figure 2: Distribution of the share of female teachers across schools in the district of Cidade de Tete



Policy recommendations

The evidence presented in this report is consistent with the idea that lack of female teachers constrains educational outcomes of girls relative to those of boys. Higher shares of female teachers in schools are weakly correlated with higher enrolment shares of girls. Moreover, in line with existing evidence from India,⁵ grade completion of students of both genders is weakly positively correlated with the share of female teachers in a school, but more so for girls. Yet, the evidence gathered is weak. Therefore, we highlight the need for further investigation and propose three possible directions for future research:

1. Establishing a causal link

An ideal experiment would be to randomly vary the share of female teachers across schools and then compare the learning outcomes of boys and girls between schools with different levels of female teacher shares. A perhaps more feasible alternative experiment would be to randomly assign teachers and students to classes within schools, and compare the learning outcomes of girls and boys taught by female versus male teachers.

5. See Ketki Sheth and Karthik Muralidharan: "Bridging Education Gender Gaps in Developing Countries: The Role of Female Teachers", *Journal of Human Resources*, 2016, Vol. 51, No. 2, pp. 269-297.

2. Assessing the supply of female teachers

To better understand the challenges to the recruitment of additional female teachers, it would be useful to study the pool of young women who could become teachers. This would require careful examination of the share of girls who (i) leave school meeting the requirements to enter teacher training; (ii) choose to enrol in teacher training; (iii) complete teacher training and (iv) apply for teaching positions. Data from teacher training facilities as well as data from applications for teaching positions would be valuable sources of information for this investigation.

3. Evaluating the potential of within-district reallocation

To assess the feasibility of within-district reallocation of female teachers across schools, we propose a preference elicitation exercise among the current teacher workforce. Asking teachers which schools in the district they would prefer to work at would allow for an assessment of the limits of such a reallocation scheme. If all female teachers prefer to work in the same schools, distributing them evenly across all schools is likely to be met with resistance from those assigned to less popular schools. But if differences in location preferences are sufficiently large among female teachers, it may be possible to distribute them evenly without neglecting their personal preferences.

Studying teachers' location preferences would also be valuable to gain an understanding of which school characteristics make schools attractive to teachers. Thus, the knowledge generated through this research could also help develop policies to address imbalances in pupil-teacher ratios between schools which were documented in earlier IGC work.