

## Gender Gap and School Differential Effects in Mathematics in Chilean Primary Schools

### **Objectives or purpose**

Despite the systematic recognition of large gender gaps against girls in mathematics performance in Chile, the role of schools in explaining this gap has been comparatively unexplored. The research aims to examine the differential school effectiveness by pupils classified by gender among Chilean primary schools.

### **Perspective(s) or theoretical framework**

From a global standpoint there is pressing priority of reducing the gender gap in mathematics against girls in Chile, and this gap has been recognised by local researchers as an indicator where performance is lagging behind, much of the evidence comes from absolute gender gaps in performance. Although it is tempting to attribute gender gaps to schools, the limitation of gender gaps is that “they ignore the variation in gender differences across schools, thus overlooking the impact of school experiences on gender differences” (Ma, 2008, p.443). Furthermore, it is necessary to explore the role that schools play in the achievement gaps in Latin-America in general and Chile in specific.

### **Methods, techniques or modes of inquiry**

This paper uses Multilevel Modelling (MLM) to analyse a longitudinal dataset of the Chilean national learning outcome assessment system (SIMCE) in mathematics. Since 1988 the school external accountability system in Chile has been based on a measurement of students' performance through SIMCE: the national standardised achievement test.

### **Data Sources/evidence**

In order to reflect the hierarchical nature of the educational data, Multilevel modelling is used, with 163,044 students, nested within 3,355 schools, within 310 Municipalities to fit Raw, Contextualised Attainment and Value-Added models. A secondary data analysis is carried out of a sample of SIMCE mathematics.

### **Results and conclusions/points of view**

The results indicate a small but significant gender differential school effect in progress in Chilean primary schools. Moreover, differences in effectiveness played a significant role, as girls over performed boys in less effective schools, but the opposite was true in more effective schools.

### **Educational importance of this study for theory, practice, and/or policy**

The study provides evidence of a small school gender differential effect in student progress in mathematics in the Chilean educational system. Although this school differential effect is small, it is significant and relevant to consider, especially because previous research conducted elsewhere have not found statistically significant gender differential effects in primary schools (Goldstein et al., 1993; Kyriakides, 2004; Sammons et al., 1993; Strand, 2016), so school gender differentials are better understood as context specific. Another interesting insight, is that in Chilean primary schools that were low performing or not “adding value”, girls appeared to be doing better than boys, whilst in the schools that were better performing or “adding value”, the opposite was true. In other words, differences in schools in terms of effectiveness, played a significant role in the gender gap. Crucially, girls’ disadvantaged position in performance and progress in math is located at the top of the distribution. Future qualitative research oriented to explore the described differential effects could provide timely information to enhance teacher training programs and local policies oriented to promote gender equality in the Chilean educational system.

### **Connection to the conference theme**

Measuring and Evaluating School Change