

Spatial and Gender Inequality in the Kenya Certificate of Primary Education Examination Results

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Abstract

Kenya's 8-4-4 system of education consists of 8 years of primary education, 4 years of secondary education, and 4 years of university education. The system was introduced in 1985 with the primary aim of better aligning Kenya's education system with its development aspirations. In particular, the system sought to reduce youth unemployment by offering them life skills training as well as technical and vocational skills. At the completion of 8 years of primary education, students take the national Kenya Certificate of Primary Education (KCPE) exam which tests students in five courses: English, Kiswahili, mathematics, science, and social studies and religious education (SSR). However, since the adoption of the 8-4-4 system, no comprehensive study of the spatial distribution of KCPE exam scores, especially by gender has been done. Thus, this study examines nationwide performance on the 2011 KCPE exam by gender using Geographic Information Systems (GIS) and spatial statistics. Examination scores derived from approximately 17,217 public primary schools and 630,625 students were used in the study. Point pattern analysis was subsequently used to extract useful information from the dataset. A hot spot and cold spot analysis was then performed to see if unusual concentrations of scores exist in space in terms of overall performance, performance by gender, and individual subject scores. Our results show an existence of significant variability in terms of overall performance, performance by gender, and individual subject scores; with males outperforming females in mathematics, science, and SSR. Additionally, we found that proximity to major road networks and urban centers positively influences student performance on the KCPE exam probably because these factors influence the availability of educational resources (such as books and teachers), mastery of English (the language of instruction), teacher supervision, and child teachability.

Keywords: Point pattern analysis, KCPE, Kenya Primary education, Spatial and gender inequality, GIS

Full text: <https://www.sciencedirect.com/science/article/abs/pii/S0143622815000892>