

# Measuring Intersectional Inequality in Education in Low- and Middle-Income Countries

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In recent years, it has become evident that not all people profit equally from the progress in human development (UNDP, 2019). In many cases, these disadvantages do not only occur for individuals, but for whole social groups, such as women or people belonging to particular ethnic groups. Moreover, if these disparities between social groups arise due to systematic inequality of opportunity, they might even be detrimental to economic growth (Ferreira et al., 2014; Marrero and Rodríguez, 2013). Therefore, the concept of horizontal inequality is increasingly being applied to measure inequalities between social groups such as gender or ethnicity (Mancini et al., 2008). At the same time, in recent years the concept of intersectionality has become increasingly popular in the social sciences. Intersectionality is that disparities run along the lines of combinations of social groups such as gender or ethnicity. Yet, the call that horizontal inequalities have to be studied from an intersectional perspective has largely been unanswered in the empirical literature.

To fill this gap, this paper introduces the concept of intersectionality in the measurement of horizontal inequality. In particular, we analyze intersectional inequality in educational attainment in low and middle-income countries across the world by combining gender and ethnicity to form intersecting groups. We analyze descriptively how educational attainment varies across different intersecting groups. First, we estimate horizontal inequalities between genders, ethnic groups and the combination thereof, using inequality ratios between the highest educated and lowest educated groups as an inequality measure. Second, we analyze the role of excess intersectionality, a novel measure to quantify in which contexts intersectionality is particularly pronounced. We estimate how much inequality would arise if gender inequality was the same across all ethnic groups to use as synthetic counterfactual to compare with the observed intersectional inequality. Third, we attempt to identify the main drivers of intersectional inequality. We use regression analysis to estimate the correlation between inequality measures and different covariates capturing group characteristics and the institutional and economic setting. To this end, we combine data from several rounds of the Demographic and Health Surveys (DHS) from 40 countries from 1992 to 2019, resulting in 1000591 individual observations. For the analysis, construct a large data set, splitting the data into three birth cohorts; before 1975, between 1975-1985, and after 1985. Compared to previous attempts to measure intersection inequality, e.g., by the World Inequality Database on Education (WIDE), this approach allows us to identify time trends for people who

went to school simultaneously, rather than comparing snapshots between different rounds of DHS. Further, we aggregate the data at the country-level to obtain estimates of intersectional inequality. Our main measure of inequality is the ratio between the group with the lowest and the group with the highest average education.

We find that intersectional inequality between ethnicity and gender differs significantly across countries and greater than non-intersectional inequality by ethnicity and gender separately. Intersectional inequality is mainly driven by ethnic inequality and less by gender inequality. Furthermore, intersectional inequality and horizontal inequality in education are highly associated with the general level of education. Countries with generally higher education attainment have lower group-based inequality by gender, ethnicity, and their intersection. Furthermore, the fraction of individuals with zero years of education plays a large role in determining the inequality measures.