

# Education for all, graduation for some?

## Intergenerational educational inequality in sub-Saharan Africa for birth cohorts 1974-2003: Trends and macro-level explanations

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### Extended abstract

#### **Introduction**

Trends in intergenerational educational inequality (IEI) have been studied extensively, albeit with a limited geographic scope and time coverage focusing mainly on cohorts born in the 20<sup>th</sup> century in industrialized and transition economies. Interest in these countries and cohorts has largely been driven by data availability and the fact that this is where and when educational expansion was taking place. As educational systems expand and more children from all social backgrounds enter classrooms, some of the most pertinent questions that are raised among social stratification researchers and policy-makers alike are whether inequality in education by parental socioeconomic status changes over time, and which macro-level factors explain between-country differences in levels and trends of inequality. We expand the geographic scope of this research to countries in Africa, a region which has seldom been object of inquiry in social stratification research and where educational expansion is currently taking place.

The aim of this article is twofold: first, we study inequality by social origin in children's chances to attain basic education in sub-Saharan Africa (SSA) and investigate trends over the last three decades; second, we explore the role of macro-level characteristics in explaining variation in levels of inequality between countries and cohorts. To our knowledge, no comparative sociological research on trends in IEI and its determinants has been carried out in SSA for cohorts born during the recent educational expansion. SSA offers an interesting case to test theories on trends in IEI during educational expansion and on the contextual factors explaining differences in levels of IEI. Moreover, it is timely from a policy perspective to assess whether countries in SSA that have officially committed to reduce inequalities of outcome and to ensure that all children complete basic education are moving towards meeting these goals.

#### **Background**

Previous research on change in the strength of IEI during educational expansion has generated a mixed set of findings, indicating that the direction of change (if any) is context-specific. In industrialized western economies, most recent research finds that influence of social origins on children's educational opportunities has declined, especially up until lower secondary level (Barone and Ruggera 2018; Breen et al. 2009), but in some cases increased at upper secondary and tertiary level (Bar Haim and Shavit 2013; Bloome, Dyer, and Zhou 2018). In Latin American countries for cohorts born during the economic downturn of the 1980s, intergenerational inequality is found to have reduced at primary school level and increased at secondary and postsecondary levels (Torche 2010). In some of the post-socialist countries, an

increase in educational differentials has been detected after transition to market economy (Iannelli 2002). In developing countries, comparative research on IEI is scarce and limited to the economics discipline with studies on elasticity between parents' and children's years of schooling (Azomahou and Yitbarek 2016; Hertz et al. 2007) and upward and downward mobility in primary school completion (Alesina et al., 2019). For countries in Africa included in these studies, findings suggest that social origin has been a persistently strong determinant of children's years of schooling over the last decades of the 20<sup>th</sup> century. In most countries in Africa, however, more recent cohorts ought to be studied to detect change (if any) since the most notable educational expansion has taken place only from 1990s onwards.

The question regarding factors explaining levels and trends of educational inequality is also open to much debate. Most of the studies analyzing trends in IEI have put forth contextual macro-level explanations to account for the identified differences in levels and trends of inequality of educational opportunities between countries and cohorts. The most commonly proposed macro-level explanations are economic development (Alesina et al. 2019; Doorn, Pop, and Wolbers 2011; Torche 2010), distribution of resources and living conditions (Barone and Ruggera 2018; Blossfeld and Shavit 1993; Breen et al. 2009), and educational institutions (Bernardi and Ballarino 2014; Chmielewski 2019; Pfeffer 2008). Although widely used to explain the observed levels and trends, these and other macro-level explanations have rarely been tested empirically in a comparative manner beyond the industrialized world.

### **Theoretical framework**

For the formulation of our hypotheses, we rely on a theoretical framework that is built on two distinct perspectives regarding direction of change in inequality during educational expansion. On the one hand, modernization theory posits that as economies develop and education expands, differentials in access and motivation to attain formal education between social strata diminish and inequality in educational outcomes weakens (Treiman 1970). On the other hand, status maintenance theory suggests that there is no univocal unidirectional trend, and that changes in educational inequality can go in all directions depending on the institutional and demographic context in which schooling occurs (e.g. Mare 1981). According to the latter theoretical framework, more socioeconomically advantaged groups may preserve a comparative advantage also in the face of educational expansion (Boudon 1974; Breen and Goldthorpe 1997). Inequality by social origins may persist until educational attainment of a given level of education becomes saturated for the more privileged social class (Raftery and Hout 1993). Institutional bottlenecks and adaptation are additional mechanisms that have been discussed to explain why, when inequality declines at lower levels of education, it may shift upward to higher ones (Alon 2009; Fishkin 2014; Mare 1981; Torche 2010).

### **Context of sub-Saharan Africa**

The macro-level context in SSA has changed considerably since the 1990s in ways which suggest a decrease in inequality to access primary school. Many of the countries have experienced an increasing shift in the labour market from agriculture to manufacturing and services, growth in professional and managerial employment, increasing urbanization, and a steady increase of the annual GDP growth rates (Ajakaiye and Jerome 2014). Living conditions

have overall improved, fertility rates have slightly declined, and public spending on education has somewhat increased, in some cases coupled with school fee abolition reforms. These factors are expected to have led to an increase in supply and demand for schooling and a decrease in school costs, equalizing children's chances to enrol in school. Growing evidence, however, indicates that educational expansion has coincided with deteriorating teaching quality (Bhalotra, Harttgen, and Klasen 2015; Riddell 2003; Tomasevski 2006) and an increase of preschool and private school provision (UNESCO 2015:93–95). If these developments have negatively affected mainly lower-SES families while allowing children from more advantaged families to adapt to the new opportunities thereby increasing their probability to successfully progress in school or keeping it stable, we can expect an increase of inequality in grade progression and school completion.

## **Data, variables, methods**

### *Individual-level data*

We use data from a total of 153 Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS), nationally representative household surveys carried out between 1990 and 2017 in 40 countries in SSA. After excluding observations missing relevant information (5% of the original sample), our analytical sample size is 541,856 individuals aged 14-16. Children's educational opportunities are operationalised using two measures: primary school attendance and completion of six or more grades. School attendance is a binary variable equal to 1 if a child has attended school. Completion of basic education is operationalized as a binary variable of having completed six or more grades. The socio-economic status (SES) of a child's family is measured by parental education, operationalized as a binary variable with a value of 1 if at least one of the child's parents has completed six or more years of schooling. If parents have different levels of educational attainment, the dominance principle is followed selecting the highest. When parents' educational attainment is unavailable, household head's education is considered if the household head is child's relative. In our sample, 40% of all children aged 14-16 have parents or caretakers who have completed six or more grades.

### *Macro-level data*

Based on the theoretical framework, a set of indicators have been selected as proxies to the economic, social, demographic, and institutional context of the countries analysed. These indicators are used to study the extent to which macro-level characteristics explain country-cohort variation in IEI. Most aggregate data are retrieved from the World Bank database (World Bank 2019). Almost all the time-varying indicators are measured with a lag, expressed as an average of eight years before survey data was collected to reflect the time when children were of school age.

### *Research strategy*

To answer the first research question concerning the level and trends of IEI in sub-Saharan Africa, we study the association between caretakers' and children's educational status, introducing an interaction with cohort clusters. We fit an OLS regression model with children aged 14-16 as the unit of analysis using a pooled dataset from 153 DHS and MICS surveys carried out in 40 countries in the region between 1990 and 2017 amounting to 541,856 observations.

To answer the second research question regarding the role of macro-level factors in explaining country-cohort variation in the level of IEI, our research strategy entails two steps. In the first step, we calculate inequality coefficients at an individual level for each country and survey separately. We use an OLS regression model, measuring inequality in absolute terms as differences in probabilities to attend and complete school between children from higher and lower SES families. In the second step, we measure the gross association between the  $\beta_1$  coefficients extracted from the first step for each country and survey (153 in total) and each of the macro-level indicators. The second step equation takes the following form:

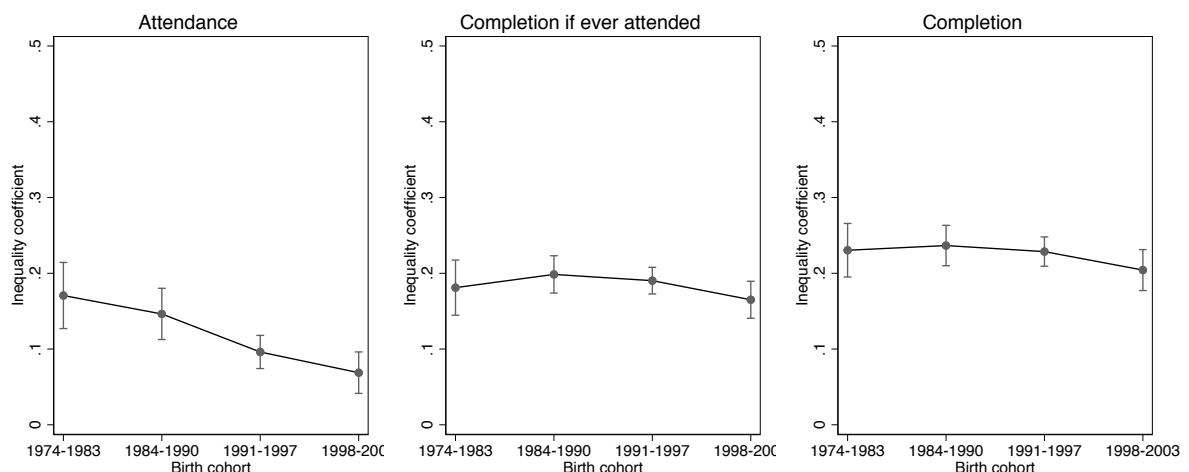
$$b_{ky} = \omega + \lambda_{ky}M_{ky} + \tau Y + \varepsilon_{cy} \quad (1)$$

where  $b_{ky}$  is the estimated educational inequality coefficient ( $\beta_1$ ) from the first step in country  $k$  and year  $y$ ;  $M_{ky}$  is the macro-level indicator under consideration;  $\lambda_{ky}$  is the coefficient of interest which is the expected variation in the inequality coefficient  $b_{ky}$ ;  $Y$  is the survey year, normalized to range between 0 and 27; and  $\varepsilon_{ky}$  is the error term.

## Findings

Findings are in line with status maintenance theory and show that educational expansion has not translated into more equal chances to attain basic education. While children's chances to attend school have almost equalized reaching a level close to saturation, inequality in completion of six or more grades among those attending has persisted. As a result, absolute inequality in school completion has declined only marginally and this decrease is not statistically significant. It should be noted however that children from all socioeconomic strata have benefitted from educational expansion since the probability to complete has increased considerably and at an equal pace for children from both, lower- and higher-SES families.

Figure 1: Trends in intergenerational educational inequality in SSA, birth cohorts 1974-2003



Effect of parents'/caretakers' SES from OLS regression models, with controls for child's gender, age, area of residence, and country fixed effects. Standard errors are clustered by country and survey year. Sample: children born between 1974 and 2003, surveyed at age 14-16. Weighted for household weights and the inverse of survey size. Data: pooled data from 153 DHS and MICS surveys from 1990 to 2017 in 40 countries in sub-Saharan Africa

We also study the role of macro-level characteristics and find no support for modernization theory as there is no observed association between economic development and educational

inequality coefficients. Living conditions, school costs, and private school availability, as expected, play a big role in stratification of educational opportunities, especially for school attendance, while school quality is a better predictor of levels of inequality in school completion. In line with our expectations, variation in the level of inequality to attend and complete school is also largely explained by historic institutional circumstances linked to the colonial history. This points at the importance of educational institutions in the stratification process of school attendance and completion in sub-Saharan Africa.

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