Regional inequalities and gender differences in academic achievement as a function of educational opportunities: Evidence from Ethiopia

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ABSTRACT

This study investigated regional and gender differences in academic achievement in Ethiopia, and examined whether these differences can be explained in terms of unequal educational opportunities (EO). Educational opportunity was operationalized in a broad sense based on a regional differentiation in terms of socio-economic and school environment factors. The study results are based on a multilevel analysis of the 2014 and 2015 national standardized exam for grade 12 students ($n = 194503$ and $n = 205719$). Whereas the Central (high EO) regions outperformed the other regions (Cohen's $d = 0.85$) as expected, there were some inconsistencies in the comparison between Established (mid EO) regions and Emerging (low EO) regions. Coincidentally, the two Emerging regions that were unexpectedly performing at the level of the Established regions were also the two regions in which there was no evidence for a gender gap in achievement. For other regions, including the Central regions, evidence for a gender gap sometimes as large as the regional gap was identified, with boys having on average higher scores than girls (Cohen's $d = [0.02, 0.92]$ with an average of 0.50). Plausible explanations and further policy recommendations are discussed.

1. Introduction

Recent studies by UNESCO (2015a, 2015b) indicate that sub-Saharan Africa continues to show good progress in education, yet wide disparities within each country are still holding back full achievement of the universal Education-For-All goals. In this study, we take a useful snapshot of the situation in Ethiopia to raise further awareness and set an agenda for further studies that could lead to policies and practices that can help drive improvement of educational attainment and national development in Ethiopia. The post-2015 education and development agenda stresses that the driving forces behind education and development frameworks should be 'elimination of poverty and eradication of inequalities' within and across countries, as well as providing universal and equitable access to quality education (Sayed et al., 2013).

Ethiopia has been focusing on improving students' learning outcomes and educational opportunities at all levels of the education sector (World Bank, 2005). Since the education system is seen as a means to enhance overall nation-building and achieve the national goal of eradicating poverty, it is essential that the education system actually offers equal opportunities and quality educational experiences that promote learning achievement. The Ethiopian government has expressed interest in creating better educational opportunities, with the expectation that doing so will enhance learning outcomes. In collaboration with the

World Bank, Ethiopia designed and implemented the General Education Quality Improvement Program (GEQIP). This program seeks to facilitate improvements in the quality of schooling on a national level and focus on equity and learning outcomes through investment in key inputs such as textbooks and infrastructure (MOE, 2008). This has led to an increase in the number of teachers, schools, as well as access to all levels of the education system in the country. However, many challenges still remain and substantial within-country differences and inequalities can be expected. For instance, lack of access to education and unequal educational opportunities continue to be an obstacle, especially for females and students in emerging regions in Ethiopia (e.g., regional case study, Gambella: Ketema et al., 2014; Tadesse et al., 2014).

The role of educational opportunities in regard to academic achievement has been documented in many studies (Eide and Showalter, 1998; Guiton and Oakes, 1995; Lacour and Tissington 2011; Moore et al., 2012; Rolleston et al., 2014). However, many of those earlier studies focused on Western countries and used an opportunities-to-learn curricular perspective. Yet, variation in educational opportunities and achievement is still a global concern and very limited studies have been conducted in the context of developing countries (UNESCO, 2004). Educational opportunity in this context refers to the extent to which students have equitable access to basic facilities that make up

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quality schools, and also the extent to which students encounter social and cultural barriers to proper schooling. It is a broad construct covering students' access to qualified teachers, a safe and clean school environment, textbooks and learning materials, and school-home-social conditions (Coleman 1968; Coleman et al., 1966; Stevens, 1996). Since the lack of equal educational opportunities is a major concern in developing nations, studies in such countries can provide vital contributions to the existing scientific evidence in the literature, which in turn can be used to inform local and international policies. This study explores whether inequalities in educational opportunities across different regions and groups in Ethiopia are reflected in differences in school achievement.

1.1. Structure of the Ethiopian education system

The current Ethiopian educational system was designed with the purpose of expanding the education sector, improving quality, and ensuring that educational content is harmonized with the country's development objectives. In line with the federal system, each of the regional states has their own regional educational bureaus. These Bureaus are responsible for the administration and management of general education, technical and vocational education, and teacher-training programs and institutions, while the federal Ministry of Education is responsible for higher education. The basic role of the Ministry of Education is to formulate policy and guidelines that are implemented by the different regional Bureaus or units. The general formal education structure includes pre-school education, primary and secondary education, technical-vocational education, and higher education.

Primary education covers 8 years (ages 6 to 14) and is divided into two 4-year cycles (grades 1 through 4; and grades 5 through 8). At the end of grade 4, students take the first national examination and must achieve a score of at least 50 percent in order to continue to grade 5. At the end of grade 8, students take the national Primary School Certificate examination. The next structure is 2 years of general secondary education (grades 9–10). At the end of this general secondary education (grade 10), students take the Ethiopian General Secondary Education Certificate/10th Grade National Examination. This standardized exam is administered nationally by the Ethiopian National Assessment and Examination agency. After having successfully completed this exam, students can either follow vocational training or attend the two general upper grades (the so-called "preparatory program"). Since 2001, the continued secondary education program consists of a 2-year period (grades 11 and 12) and is regarded as preparation for higher education. At the end of this phase, students take the Ethiopian University Entrance National Examination to obtain a university admission certificate. This entrance examination is a standardized exam administered nationally by the Ethiopian National Assessment and Examination Agency. The current study builds on national examination results of two student cohorts at the end of this preparatory program in grade 12.

Although the country has one general education policy, each regional state has a mandate to amend the components so as to fit into the local context. All regional education bureaus are expected to prepare their students for the national examination and they have the responsibility (in collaboration with the Ministry of Education) to facilitate the administration of the examinations each year. The national examinations have high stakes attached to them, and are used for selection, placement and certification.

1.2. Educational opportunity: disparities between regions

It is reasonable to assume that educational opportunity depends on the resourcefulness of a region or an institution, and that poorly resourced schools provide fewer learning opportunities to their students. In order for students to achieve better, they must have appropriate learning opportunities. Whenever different regions within a country have major economic differences, it is likely that students from economically less developed regions are more disadvantaged. Several studies across the globe have looked into differences in socioeconomic development level across regions as sources of variation in students' academic achievement (see e.g., Italy: Sibiano and Agasisti, 2013; Kenya: Amunga et al., 2010; Brazil: Ferrão, 2014; Czech Republic: Straková et al., 2006; China: Mok et al., 2009; Qian and Smyth, 2008; Nigeria: Ukiwo, 2007; Onwuameze, 2013) and the contribution of policy related practices to student learning outcomes in different regions (Belgium: Ning et al., 2016). The impact of regional inequality, social class and gender on educational outcome was significant even in a highly developed Western country as Canada (Edgerton et al., 2008).

Although Ethiopia is one of the largest sub-Saharan African countries and large within-country discrepancies can be expected, there is a lack of studies investigating the link between students' academic achievement and regional variations in educational opportunity and differences in socio-economic developments across regions in Ethiopia. Until 1992, the country was structured according to historical

Fig. 1. Regional states of Ethiopia.
Source: United Nations Office for the Coordination of Humanitarian Affairs (OCHA).