



Does learning in mother tongue matter? Evidence from a natural experiment in Ethiopia



Yared Seid

International Growth Center, LSE, Addis Ababa, Ethiopia

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ABSTRACT

This paper offers empirical evidence on whether learning in mother tongue improves educational outcomes in primary school. We exploit the variation in changes in medium of instruction across schools located in different districts in Ethiopia following the 1994 education reform. This reform has provided opportunity for states in Ethiopia to choose the medium of instruction in primary schools located within their jurisdictions. Since the reform has affected only schools in some districts, but not in others, we assign children into *treatment* and *control* groups depending on whether the medium of instruction in the districts in which children live has changed following the reform. Using data from the 2% public-use microdata samples of the 1994 and 2007 Ethiopian population censuses as pre- and post-reform data, respectively, we estimate difference-in-differences models. The results from our preferred specification suggest that the 1994 education reform has increased the probabilities of both enrollment in primary school and whether a child attends the “right” grade for her/his age, and the effects are relatively stronger for kids in rural areas. Falsification tests suggest that our results are not confounded by other factors. This evidence supports the argument that mother-tongue instruction improves educational outcomes in primary school.

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1. Introduction

After decades-long effort, developing countries have substantially increased their primary school enrollment rates. However, primary education in many developing countries continues to suffer from students’ poor performance, grade retention, and school dropout. Many factors contribute to students’ poor performance, among which, the effect of mother-tongue instruction has received limited attention. It is estimated that about 1.38 billion people in the world speak local languages that are not used for formal education, and an estimated 221 million school-age children in developing countries are speakers of these lesser known or unwritten languages (Dutcher, 2004).

Given that such a large number of school-age children speak languages that are not used as the medium of instruction in schools (and, hence, potentially attend primary schools where the medium of instruction is different from their mother tongue), it is surprising that the effect of mother-tongue instruction on performance at school has not yet been thoroughly investigated.

In multilingual countries where settlement is mixed and many language-minority individuals live within the boundaries of states where the official language is different from their mother tongue, many students are forced to learn in their second language in primary school. A large number of countries have taken steps to accommodate language-minority students by adopting mother-tongue instruction in primary school.

For instance, as a multilingual country, Ethiopia, which is also the focus of the present study, signed into law the

E-mail address: Y.Seid@lse.ac.uk

Education and Training Policy in 1994 (Ministry of Education, 1994). The policy document has primarily given discretion to state governments in Ethiopia¹ to choose the language of instruction in primary schools located in their jurisdictions. Following this discretion, many states in Ethiopia have adopted their respective official languages (and, at times, additional minority languages) as the medium of instruction in primary schools. As a result, the medium of instruction in primary schools in the country has increased from using Amharic² as the only medium of instruction in 1990 to about 25 languages in 2007 (Seidel & Moritz, 2007).

The literature on the role of the medium of instruction in educational outcomes in primary school is limited, and the majority of studies on the topic come from bilingual education literature. Moreover, findings from the limited studies on the topic are not conclusive. In Canada, for instance, it is found out that English-speaking students who were taught in French were not at a disadvantage compared to either their French-speaking peers or English-speaking students who were taught in English (Swain & Lapkin, 1982). In the US, on the other hand, it is documented that immigrant students who were taught in their native language performed significantly better than their English-taught peers (Willig, 1985). Similar findings where students who were taught in their second language perform poorly relative to those who were taught in their mother tongue are also documented elsewhere, including, for instance, in Latvia (Ivlevs & King, 2013), Hong Kong (Yip, Tsang, & Cheung, 2003), Cameroon (Gfeller & Robinson, 1998), Ghana (Collison, 1974), and other countries (see, e.g., Bamgbose, 1991; Trudell, 2005 and Mehrotra, 1998).

These findings, however, should be treated carefully since most of them were conducted on a small number of classes, and hence findings could vary with class-specific factors. Besides, these studies, particularly those from bilingual education literature, did not convincingly disentangle the effect of mother-tongue instruction (on educational outcomes) from that of unobservable characteristics. In order to obtain results that document causal relationship and that can be generalized to wider contexts, it is important to mitigate biases from potential endogeneity. Natural experiments, which can be considered as exogenous source of variation, provide an opportunity to employ strong identification strategy and document causal relationships. In this paper, therefore, we employ the 1994 education reform in Ethiopia as a natural experiment in the identification strategy and explore the causal effect of mother-tongue instruction on the probabilities of both enrollment in primary school and whether a child attends the “right” grade for her/his age, conditional on enrollment in primary school.

The data used in this paper come from a 2% public-use microdata samples of the 1994 and 2007 Ethiopian

population censuses. Specifically, the study uses a subsample of children who live in Amhara state³ and its neighboring states of Afar and Tigray. This is mainly because Amhara state is the only state in Ethiopia where the 1994 education reform has resulted in differential impact on the change in the medium of instruction across primary schools located within the state’s boundary. More specifically, the 1994 education reform has resulted in a change in the medium of instruction in primary schools located in Awi, Oromiya, and Wag Hemra zones of Amhara state from Amharic to Awngi, Oromiffa, and Agew,⁴ respectively. Primary schools in other zones of Amhara state, on the other hand, have continued to use Amharic as their medium of instruction after the 1994 education reform.

The differential impact of the 1994 education reform on the change in the medium of instruction across primary schools located in different zones in Amhara state enables us to use a difference-in-differences approach as an identification strategy where we assign children in Awi, Oromiya, and Wag Hemra zones of Amhara state into *treatment* group and children in other zones of Amhara state into *control* group.

Similarly, the reform offers an opportunity to conduct between-states analysis since it has led to a change in the medium of instruction in primary schools in the neighboring states of Afar and Tigray from Amharic to Afarigna and Tigrigna,⁵ respectively. Thus, in the part of the analysis that exploits between-states variations, we assign children in the neighboring states of Afar and Tigray into *treatment* group and children in Amhara state (after dropping those in Awi, Oromiya, and Wag Hemra zones of Amhara state) into *control* group.

Using data from the 2% public-use microdata samples of the 1994 and 2007 Ethiopian population censuses as pre- and post-reform data, respectively, we estimate difference-in-differences models and examine the causal effect of mother-tongue instruction on the probabilities of both enrollment in primary school and whether a child attends the “right” grade for her/his age, conditional on enrollment. The results from our preferred specification suggest that the 1994 education reform in Ethiopia, which has led to a change in the medium of instruction in primary school to mother-tongue instruction, has increased the probability of enrollment in primary school by 7.4 percentage points in within-state analysis and by 1.9 and 2.6 percentage points

³ There are nine states and two chartered cities in Ethiopia. The 2007 Ethiopian population census shows that Amhara state is the second largest state in Ethiopia in terms of population size, with a total population of about 17 million and accounts for about 23% of the population in Ethiopia.

⁴ Agew, Awngi, and Oromiffa are the native languages of the people from Agew, Agew-Awi, and Ormo ethnic groups, respectively. Data from the 2007 Ethiopian population census reveal that about 62% of the population in Wag Hemra zone are native speakers of Agew language. Similarly, the proportion of population who are native speakers of Awngi in Awi zone, Oromiffa in Oromiya zone, and Amharic in the rest of the zones in Amhara state are 65, 82, and 97%, respectively.

⁵ Afarigna and Tigrigna are the native languages of the people from Afar and Tigre ethnic groups, respectively. Data from the 2007 Ethiopian population census reveal that the proportion of population who are native speakers of Afarigna in Afar state and Tigrigna in Tigray state are 90 and 95%, respectively.

¹ Ethiopia is a federal country with three levels of government: federal, state (or regional), and local. Zones are local governments that are equivalent to US counties.

² Amharic has been the only official language of the federal government of Ethiopia since the Ethiopian history has been recorded.

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