



Educational achievement at schools: Assessing the effect of the civil conflict using a pseudo-panel of schools



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ABSTRACT

The purpose of this paper is to explore the relationship between civil conflict and educational achievement in Colombia through the use of pseudo-panel analysis. We construct a pseudo-panel of schools using the Colombian high school exit examination (Saber11) results from the years 2000, 2002, 2005 and 2007. The results obtained in this research provide evidence of the negative repercussions that a civil conflict can have on human capital accumulation at the school level. Results show a negative and significant relation between the intensity and presence of conflict and the levels of performance in the mathematics and language examinations.

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1. Introduction

Education plays a very important role on the wellbeing of individuals and the economic development of nations. Yet, the economic literature that studies education has not paid enough attention to the effects of civil conflict on educational achievement. The high prevalence of civil conflicts over the last decades justifies the need to get a better understanding of the relationship between civil conflict and educational outcomes. According to Fearon and Laitin (2014), “a surprisingly high percentage of independent states have experienced at least one civil war in the years since World War II—a bit more than two out of every five at the 1000 total deaths threshold”. These researchers further highlight

that “almost one in ten countries with a population of at least half a million in 2000 had civil war occurring in at least half of its years since 1945 or independence”. Understanding the relationship between civil conflict and academic achievement is indeed a key to the adequate design of policies geared towards those individuals who have been affected by violence. The purpose of this paper is to explore the relationship between civil conflict and educational achievement in Colombia through the use of pseudo-panel analysis.

The Colombian case is a particularly interesting case to study the relationship between civil conflict and educational achievement. Colombia has suffered decades of civil conflict affecting civilians directly and indirectly. The exclusion of dissident political forces from the *Frente Nacional*, an agreement to share control of the State signed by the two major political parties of Colombia, contributed to the emergence of guerrilla groups in the mid-1960s. In fact, the Colombian conflict is considered to be a long duration conflict with variable intensity.

Although there are no panel datasets available to study the educational achievement of students enrolled in the formal educational system, there is a very complete series of independent cross-sections managed by the Colombian Institute for the Evaluation of Education (ICFES). Due to the lack of longitudinal data, in this paper we construct a pseudo-panel of schools from the

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Saber11 examination cross-sectional data sets which contain the individual level results from the years 2000, 2002, 2005 and 2007. According to Deaton (1985), a pseudo-panel can be constructed in order to track 'cohorts', i.e. a group with fixed membership, just as if panel data were available. In this case, the individual results are grouped in school 'cohorts'.

This paper contributes to the literature by examining the effects of civil war on a very important indicator of social wellness: education. Researchers have not paid enough attention to a number of factors that could be affected negatively by a civil conflict (Benefeld and Tomlinson, 2005; Brück et al., 2010). One of these factors is educational achievement. There are a number of reasons for the limited availability of academic research in this topic. One possible reason is the lack of reliable data of the conflict and other control variables. We also believe that there is a tendency to underestimate the need for an academic analysis because of the general assumption that the negative effects of a civil conflict are "obvious". Such tendency is clearly limiting our understanding of the effects of civil conflict. Certainly this is problematic because educational outcomes are not only an end in themselves, but they are also closely related to other indicators of social wellbeing.

This paper differs significantly from previous efforts² because we construct a pseudo panel of schools in order to get a better understanding of the relationship between civil conflict and education. In fact, to the best of my knowledge this is the first effort to try to understand the relationship between conflict and achievement in standardized exams through the use of a pseudo panel of schools.

The rest of this paper is organized as follows: Section 2 presents a review of the literature; Section 3 presents a theoretical framework that serves as backbone for the econometric exercise; Section 4 describes the data and the variables that are being used in the construction of the pseudo panel; Section 5 describes the methodology employed for the analysis and discusses the specification of the model; Section 6 reports the main results; Section 7 presents a discussion of the results; and Section 8 presents conclusions and policy implications.

2. Literature review

Although few, there are some publications that have attempted to study and understand the relationship between civil conflict and education. However, the research efforts that have been done up to this date have mostly focused on the relationship between school enrolment, years of education, gender and civil conflict, but have not tried to understand the relationship between civil conflict and academic achievement measured by exit examinations.

A number of studies have analyzed the relationship between conflict, school enrolment and completion. For instance, Swee (2009) uses data on war casualties of the Bosnian War 1992–1995 at the municipality level to study the effects of civil war on schooling attainment. The author finds that individuals in the cohorts affected by war are less likely to complete secondary schooling, if they resided in municipalities that experienced higher levels of war intensity, but there are no significant effects of war on the completion of primary schooling. In another study, Akresh and de Walque (2008) examine the impact of the Rwandan genocide on children's human capital investment. The authors use two cross-sectional household surveys collected before and after the Rwandan genocide in order to examine how genocide affect children's school enrolment and the probability of completing a

particular grade (Akresh and de Walque, 2008). Akresh and de Walque (2008) find that children who had been exposed experienced a drop in educational achievement of almost one-half year of completed schooling, and are 15 percentage points less likely to complete third or fourth grade (Akresh and de Walque, 2008). In that sense the results obtained by Akresh and de Walque (2008) contradict the findings of Swee (2009). Supporting the results of Swee (2009), Bellows and Miguel (2006) find no significant effects of civil war on enrollment. These two researchers study the aftermath of the civil conflict in Sierra Leone that started in 1991 and lasted until 2002. The results obtained by Bellows and Miguel (2006) show that there is no evidence of persistent adverse effects of civil war violence on local institutions. On the other hand, the results obtained by Lai and Thyne (2007) support Akresh's and de Walque's (2008) findings. Lai and Thyne (2007) study the effects of civil wars and the post-civil war environment on education expenditure and enrolment. The results of this empirical research show evidence of the destructive effects of civil war on a system of education, exposed by the declines in expenditure and enrolment rates during periods of civil war (Lai and Thyne, 2007).

The studies by Swee (2009), Bellows and Miguel (2006), Lai and Thyne (2007), and Akresh and de Walque (2008) show that there is no consensus in the existing literature about the sign of the relationship between educational enrollment and civil conflict. These results could be indicative of the possibility that the characteristics and effects of a civil conflict vary from case to case. Such possibility justifies the need to carry out more research in order to better understand the relationship between education and civil conflict.

Other efforts, including those of Dabalen and Paul (2012), Bundervoet (2012) and Merrouche (2006), have attempted to explore the relationship between conflict and years of education. Dabalen and Paul (2012) estimate the causal effect of civil war on years of education in a cohort of students that were exposed to armed conflict in Cote d'Ivoire. The results robustly show that war has a detrimental impact on education. In line with Dabalen and Paul (2012), Bundervoet (2012) also studies the relationship between conflict and years of education. However, in this case the researcher examines the impact of, war induced, poor childhood health on educational attainment in early adolescence through the use of a panel of children from Burundi. The author finds that children that were malnourished at the baseline had on average less years of education than children who are their same age but were healthier at the baseline. Merrouche (2006) has also studied the relationship between conflict and years of education exploring a different identification strategy. This researcher uses instrumental variable regressions and a difference in differences approach to identify the effects of landmine contamination on years of schooling using data from Cambodia. This researcher found that exposure to landmines in Cambodia resulted in an average loss of 0.4 years of education. Although Merrouche (2006), Dabalen and Paul (2012) and Bundervoet (2012) use different empirical strategies, the results obtained lead to similar conclusions.

Some researchers, including Annan et al. (2011), Kecmanovic (2012), Valente (2011), Shemyakina (2011), and Justino (2011), have focused their work on the relationship between education, conflict and gender. Annan et al. (2011) study the gender-based impacts of civil war in Northern Uganda. These researchers find that abduction generates significant adverse effects in human capital for males, but not for females. Also for Uganda, Annan and Blattman (2010) find similar results for a group of children. According to these researchers, abducted male youth receive 0.75 fewer years of education. In the same line of analysis, Shemyakina (2011) studies the specific case of Tajikistan, a country that was involved in a civil war from 1992 to 1998. This researcher (2011) uses a difference in differences technique to determine

² Amongst those efforts we can highlight the work of Swee (2009), Akresh and de Walque (2008), Merrouche (2006), Lai and Thyne (2007), Shemyakina (2011), Dabalen and Paul (2012), Bundervoet (2012), and Bellows and Miguel (2006).

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