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Do children spend too much time in schools? Evidence from a longer school year in Indonesia☆

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ABSTRACT

I examine the effects of a longer school year in Indonesia on grade repetition, educational attainment, employability, and earnings. I exploit an arbitrary rule that assigned students to a longer school year in Indonesia in 1978–1979, which fits a fuzzy regression discontinuity design. I find the longer school year decreases the probability of grade repetition and increases educational attainment; it also increases the probability of working in formal sectors and wages later in life. These results suggest the length of school years in Indonesia is not too long.

1. Introduction

Do children spend too much time in schools? What happens if governments extend term length: does a longer school year facilitate learning and improve employability later in life?

Governments seem to have different answers to the question of the optimal term length: it varies across countries. Children in East Asian countries, for example, spend 208 days in schools on average in an academic year, much longer than children in the US do, 180 days (Lee & Barro, 2001). Indonesian children are in schools for 240 days, Korean 220 days, South African 195–200 days, British 190 days, Singaporean 187 days.[1]

This up-to-sixty-day difference begs the question of whether children in East Asia, or in developing countries in general, spend too much time in schools—a legitimate concern because the quality of schools in many developing countries is poor and these schools' educational inputs such as teachers and books are often inadequate. Therefore, spending too much time in these lousy schools is possibly just a waste of time. On the other hand, educational attainment in developing countries is low so

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[1] The statistics of term length in Korea, UK, and South Africa are from INCA (2009); that of term length in Indonesia is from DPPJ (2012); that of term length in Singapore is from my own calculation based on MOE (2013).

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that requiring the children to stay in schools longer may help them to learn more. The flip question is whether children in developed countries like the US spend too little time in schools, which may be one of the reasons why American school children do not perform as good as Asian and European children in science and math (IEA, 2007)—a concern that has been debated in the US in the past few decades (DE, 1983, 1994).[2]

Early empirical works on term length do not find longer school years improve student performance. These papers exploit variations of term length across schools in the US (Grogger, 1996; Eide & Showalter, 1998); across US states (Card & Krueger, 1992; Rizzuto & Wachtel, 1980); and across countries (Lee & Barro, 2001; Wößmann, 2003). They use regression control strategy—ordinary least square or fixed-effect models. None of these papers uses exogenous variations to identify the effects of term length, however.[3]

Some recent studies such as Pischke (2007), Hansen (2008), and Fitzpatrick, Grissmer, and Hastedt (2011) exploit natural experiments to identify the effects of term length. Pischke (2007), for example, uses variations in term length induced by the West Germany short school years in 1966–1967. Using fixed-effect models to estimate the counterfactuals, he finds the short school years increase grade repetition, but they do not affect earnings later in life. Fitzpatrick et al. (2011) use variations in term length induced by the timing of assessment dates, while Hansen (2008) exploits state-mandated changes in assessment dates in Minnesota and weather-related school day cancellations in Colorado and Maryland. The last two papers find longer school days improve student performance.[4]

In this paper, I exploit an arbitrary rule that assigned students to a longer school year in Indonesia in 1978–1979 to identify the effects of spending more time in schools on educational and employment outcomes. Academic years in Indonesia used to start in January and to end in December the same year. In mid-1978, to synchronize academic years and government budget sessions, the then Indonesia's Minister of Education and Culture, Daoed Yusuf, decided to change the start of school year from the month of January to the month of July. To achieve this objective, he required schools in Indonesia to lengthen the 1978 academic year until June 1979. Children who were in schools in the 1978 academic year, therefore, did not complete their grades in December 1978, but rather they remained in the same grades for a six-month period until June 1979.[5]

Daoed Yusuf implemented this policy hastily. No curriculum changes were introduced; no major directives were issued. Teachers were not given new materials to be delivered in classrooms during the six-month extension; they were just asked to revise lessons covered in 1978. In fact, because of the haphazard implementation, parents associations and many education experts in Indonesia opposed this policy change. Nevertheless, Daoed Yusuf went ahead with this one-time term length extension so that, since 1979, academic years started in July and ended in June the following year.[6]

This longer school year fits a fuzzy regression discontinuity (RD) design: Most individuals who were born in 1972 or later did not experience the longer school year because they had not been in their schooling age when the government extended the length of the school year in 1978. Many individuals who were born in 1971 or earlier experienced the longer school year just because they were born one or a few years earlier and they were still in schools in 1978. This arbitrary assignment means that we can use the discontinuity in the probability of experiencing the longer school year between the 1971- and 1972 cohorts as an instrumental variable in a two-stage least square estimation of the effects of school term length on educational and labor outcomes.[7]

I find the longer school year decreases grade repetition and increases educational attainment: It increases educational attainment by 0.7–0.9 year—a large effect considering that the average educational attainment at the time is about nine years. It also increases the probability that an individual completed junior high and senior high schools by 15–18 and 21–29 percent, respectively.

The longer school year does not seem to increase employability, though there is some evidence that it increases the probability of working in formal sectors. The estimates of the latter are significant statistically if I define formality using information on the mode of payment or type of employers, but they are not if I use the information on whether jobs were under contracts or whether they were covered by pension plans.

The longer school year also increases earnings later in life. Using the basic specifications, I find the longer school year increases hourly wages by 13–17 percent on average—a large gain considering the increase in educational attainment is less than one year. Given that individuals who experienced the longer school year had also additional schooling of about six months, the 13–17 percent increase in wages translates into returns to education of about 8–15 percent.

I analyze the effects of the longer school year by gender because males and females possibly had different education and employment opportunities. I find the longer

[2] President Obama himself has mulled over the idea of extending the school year in the US (Boston Globe, 2010). In recent years, a number of states in the US such as Arkansas, New Mexico, Iowa, and New Jersey have also tried to lengthen the school year to at least 190 days (New York Times, 2012; Record, 2012). According to the National Center on Time and Learning, as cited by New York Times (2012), about 170 schools in the US have extended their school year to 190 days or longer.

[3] See also Patall, Cooper, and Allen (2010) for a survey of the literature on the length of school year in the field of educational psychology.

[4] See also Marcotte (2007), Sims (2008), Marcotte and Hemelt (2008), and Llach, Adrogué, and Gigaglia (2009).

[5] See MPKRI (1978).

[6] See, for example, Tempo (1978).

[7] Henceforth, I use "school term length" and "spending more time in schools" interchangeably. Because the government extended the length of school year haphazardly, the two terminologies are not identical. But, we can perhaps interpret the estimates in this paper as the lower bound of the effects of the longer school year: The estimates would have been larger if the government had planned and implemented the policy more carefully.