



ELSEVIER

Contents lists available at ScienceDirect

Economics of Education Review

journal homepage: www.elsevier.com/locate/econedurev

Until when does the effect of age on academic achievement persist? Evidence from Korean data[☆]

Kigon Nam^{*}

Department of Economics, Hanbat National University in Korea, Dukmyung-dong, Yuseong-gu, Daejeon 305-719, Republic of Korea

ARTICLE INFO

Article history:

Received 8 February 2013

Received in revised form 10 February 2014

Accepted 12 February 2014

Available online 20 February 2014

JEL classification:

I21

C26

Keywords:

School entry age

Relative age effect

Academic achievement

Instrument variable

ABSTRACT

According to an analysis of Korean student panel survey data, monthly differences in age had a significant influence on academic achievement until middle school (lower secondary education). However, this age effect did not persist when students graduated from high school (upper secondary education). Furthermore, some evidence is found that younger students, upon entering high school, were more likely to concentrate on academic studies, and less likely to experience minor distractions, thereby compensating for their poor academic achievement in middle school.

© 2014 Elsevier Ltd. All rights reserved.

1. Introduction

In most countries, elementary-school admission is determined by a single cut-off date. Therefore, even among children who enter elementary school in the same year, there will be an age difference of several months. Recent studies have found that monthly differences in age have a significant influence on academic achievement in middle school (lower secondary education), as well as in elementary school (Bedard & Dhuey, 2006; McEwan & Shapiro, 2008; Puhani & Weber, 2007; Robertson, 2011; Strøm, 2004). However, the analytical results of these studies are conflicting regarding whether such age effect persists throughout high school (upper secondary education), college, or even after a student enters the labor force.

Some studies have suggested that older students attain higher academic achievement than younger students, even in high school, and are more likely to graduate from high school and enter college. However, other studies have indicated that the effect of age either diminishes or disappears in high school and has little impact once the student enters the labor market (Black, Devereux, & Salvanes, 2011; Cascio & Schanzenbach, 2007; Dobkin & Ferreira, 2010; Fredriksson & Öckert, 2005; Kawaguchi, 2011; Mühlenweg & Puhani, 2010).

The aim of this study is to track how the effect of age on academic achievement changes as a student moves from middle school to high school. The experience in South Korea (hereinafter “Korea”) offers the following advantages in terms of analysis. First, in Korea, the age rule for elementary-school admission is so strict that essentially all children enter school on time, and almost all of them pass from one grade to the next on schedule. Therefore, same-age students are concentrated in one grade, so it is easier to isolate the pure effect of age on academic achievement. Second, whereas many countries have common examination results

[☆] I am grateful to Jungmin Lee, Hoyoung Oh and seminar participants at the Seoul Institute of Economic and Social Studies for useful comments and discussions.

^{*} Tel.: +82 42 821 1305; fax: +82 42 821 1298.

E-mail address: nkgon@hanbat.ac.kr

for middle-school students, most do not have such academic records for high-school students. However, in Korea, most students who want to attend university or college take a common examination known as the “College Scholastic Ability Test” (CSAT), which is overseen by the Korea Institute of Curriculum and Evaluation. Recently, CSAT scores have sometimes been disclosed as part of survey data, and can be used to accurately measure students’ academic achievement at the time of high-school graduation. Third, most existing studies that have analyzed the time-series trend in the effect of age on academic achievement have used cross-sectional data. However, in Korea, student panel data are surveyed frequently these days, and can be used to track changes in the academic achievement of the same student as she/he moves from middle school to high school.

In the present study, I used the Korean Education and Employment Panel (KEEP) data, surveyed by the Korea Research Institute for Vocational Education and Training, a government-funded research institute in Korea, to analyze how the effect of age on the academic achievement of third-year middle-school students in 2004 had changed when they graduated from high school in 2007. To support the analytical results of the study, additional data were analyzed, and the effects of age on students’ learning and lifestyles were also examined.

In the present analysis, I found that when student age increased by one month, their academic achievement displayed a significant tendency of increase by about 0.02 standard deviations (SD) in middle school. However, at the time of high-school graduation, no significant positive effect of age on the test scores was observed. This phenomenon was common and was confirmed by all the data analyzed in this study. This finding cannot be interpreted because younger students with poor academic performance in high school tended to voluntarily relinquish the idea of going to college, and so they were less likely to take the CSAT. Instead, there is some evidence that younger students were more likely to concentrate on academic activities over this period, and their chances of experiencing minor distractions tended to be small. These Korean data suggest that the significant positive effect of age on academic achievement disappears altogether before students enter higher education.

This paper consists of the following sections. Section 2 introduces the Korean education system and Section 3 explains the method used for the empirical analysis. Section 4 shows the analytical results for academic achievement and Section 5 examines the analytical results for learning and lifestyles. Finally, in Section 6, a summary of the analyses is provided.

2. The Korean education system

In Korea, the date upon which students can enter elementary school is March 1, which is the admission cut-off date. Only children who are at least six years old by this date are eligible to enter elementary school. Of course, it is possible to defer elementary-school entrance, even if a child is six years of age, if the parents request a deferral because of developmental delay or other special considerations. However, the proportion of such cases is very low.

The middle-school students included in the KEEP data, the main data used in this study, were born before March 1, 1990, and entered elementary school in 1996. According to the official statistics at that time, of the 650,743 children eligible to enter elementary school in 1996, 8050 were “over-age” children, representing a mere 1.2% of the total. The percentage of “under-age” children who entered elementary school before reaching the age of six years was also low. In fact, early entrance was legally impossible until 1995, and education reforms made it possible for under-age children to enter elementary school from 1996. However, such cases were very rare.¹

As shown Fig. 1, the Korean education system consists of six years of elementary school, three years of middle school, and three years of high school. Education is compulsory until middle school and then becomes optional from high school, but most Korean students continue their education through high school. Of the students who graduated from middle school in 2005, 99.7% entered high school in the next academic year. Furthermore, because there is no qualification examination when advancing to a higher grade, it is very rare that a student fails to advance or has to return because of failure, unless there is an unusual personal situation. An analysis of the statistics from 1996 for elementary school, 2002 for middle school, and 2005 for high school suggests that the rate of reentrance (readmission, transfer, or return) was 0.2–0.4% each year.

In Korea, education until middle school is equitable. A student is assigned to an elementary school or middle school in her/his neighborhood, regardless of her/his academic performance or ability, and all students are educated with the same curriculum. However, a differentiated educational tracking system is used at high school. The type of high school a student attends varies depending on the student’s talent or academic performance. High schools are divided into general high schools, which focus on academic education, vocational high schools, where vocational training is a priority, and others, such as high schools for the arts, and special purpose high schools. Of the high-school entrants in 2005, 69.2% entered general high schools, 28.3% entered vocational high schools, 1.1% advanced to high schools for the arts, and 1.4% entered special purpose high schools. Vocational high schools and other types of high schools select their students according to their respective admission policies. General high schools in small cities or rural areas also select their students independently. However, in large cities, students who enter general high schools are randomly assigned to a high school within the school district based on their place of residence under the “high-school equalization policy”.²

¹ According to the 1996 data, in the first year in which the admission of five-year-old children was allowed, the number of under-age entrants was only 5661, or 0.9% of the total number of eligible students. Thereafter, the number of five-year-old entrants increased slightly to 5790 in 1997, 7923 in 1998, and 8851 in 1999 (Maeil Business Daily, October 4, 1999).

² See Chung (1998), Kang, Park, and Lee (2007), and Kim, Lee, and Lee (2008) for more information on the Korean education system – in particular, the history and specific detailed characteristics of the high-school equalization policy.

Download English Version:

<https://daneshyari.com/en/article/354502>

Download Persian Version:

<https://daneshyari.com/article/354502>

[Daneshyari.com](https://daneshyari.com)