CHAPTER 17

THE EFFECT OF COVID-19 ON PRIMARY SCHOOL ENROLLMENTS: EVIDENCE FROM TURKEY

Elif ERBAY[1]

[1]Istanbul University, İstanbul, Turkiye
E-mail: elif.satilmis@istanbul.edu.tr

DOI: 10.26650/B/SS10.2023.001.17

ABSTRACT

The Covid-19 pandemic caused considerable changes in every division in life, including online learning integrated into the formal education system. Since it had been a new experience for students and teachers, most parents had expressed their concerns over the effectiveness of the learning process. Hence, both the direct impacts of the pandemic and policies adopted in this period have substantially changed educational outcomes. This study empirically analyzes how Covid-19 affected primary school enrollments in Turkey using administrative data. Estimated findings show that primary school enrollments decreased by 1.8% in the 2020/2021 academic year. The primary source of this decline is that 5-year-old children who would have gone to public schools in the absence of the pandemic did not attend school during the pandemic.

Keywords: Covid-19, Pandemic, School Choice, Enrollment, Turkey

1. Introduction

During the outbreak of the Covid-19 pandemic in Turkey in March 2020, the government introduced various social distancing measures to stop the rapid spread of the disease. These precautions were among the closures of schools, universities, and nonessential services. Face-to-face education was substituted with online education, in which courses were taught through television and online meeting platforms. A hybrid system, both online and face-to-face learning, was adopted in the 2020/2021 academic year, in which online education generally was provided. A sudden and unexpected change in the education model has brought a series of questions to the mind. Therefore, examining the effect of the pandemic on education is vital in coming up with precise answers to the questions. Furthermore, both qualitative and quantitative analysis is crucial to evaluate these impacts for future strategies and plans designed and implemented in this regard.

The net impact of the pandemic on primary school enrollment rate is ambiguous. On the one hand, some parents had not registered their children in the school since they were worried about the quality of education in the online learning system (Ali, Gulliver, Uppal, and Basir, 2021). Educational quality is one of the parents' concerns, yet not sending little boys and girls to school is another problem. One year gap at the early age of children can be irreplaceable since these ages are critical for cognitive and non-cognitive development. Previous literature about the effect of starting school at an early age is mixed. Several studies demonstrate that children with a higher school withdrawal age positively affect academic life and social relations compared to those starting early (Balestra, Eugster, and Liebert, 2020; Baber, 2016; Hanly et al., 2019). However, another line of studies states that children starting school at an early age perform better at language and mathematics than in non-cognitive skills (Cornelissen & Dustmann, 2019; Heckman, Pinto, and Savelyev, 2013). On the other hand, a few parents, particularly those working at home, perceived it as an opportunity since they could help with their children's homework and other issues related to the courses more easily (Kong, 2017). Data from the Ministry of National Education (MoNE) reveal that the primary school enrollment rate decreased only 0.08 percentage points (0.01%) in the 2020/2021 academic year compared with the 2019/2020 academic year.

The Covid-19 pandemic has affected education in various aspects. One point that needs more digging is whether there is a flight from public schools to private ones. Parents would have sent their children into private schools since the quality of education could be higher in these schools with smaller class sizes than in public schools. In this way, teachers can pay

more attention to each student. Nevertheless, many households had suffered severely from the adverse effects of the pandemic on labor market outcomes.

Additionally, uncertainty about the future made individuals cautious about spending money. Hence, parents would have preferred publicly provided education for their children instead of private schools charging yearly tuition fees. National data shows that the ratio of students enrolled in private schools to public schools decreased by 2.75% (0.15 percentage points) in 2020.

Early education stages, especially primary schools, significantly shape individuals' future academic and social lives. Thus, this study mainly focuses on the effect of the Covid-19 pandemic on primary school enrollments in Turkey using publicly available data from the National Educational Statistics. It presents the preliminary findings to understand the pandemic's impacts at the beginning and sheds light on essential and critical points to design future policies accordingly. The empirical analysis covers the period from 2012/2013 to 2020/2021 academic years by employing the event study approach, commonly used in this setting. In order to reveal the underlying mechanisms in primary school enrollments during the pandemic, separate estimations with different specifications, dependent variables, and subsamples are performed. Although there is a trivial change in the primary school enrollment rate (0.08 ppt), the estimated results show that the effect of the pandemic is significant when the common trend assumption is relaxed. Quantitatively, primary school enrollment decreased by 0.015 percentage points in the 2020/2021 academic year. It is mainly attributable to the decline in the 5-year-old children's enrollments. The findings show that 2 out of 5 children eligible for schooling did not start in September 2020. Moreover, the results present that the switch from public to private schools is beside the point. There was no substantial increase in the private school enrollment rates in the pandemic year.

The following section provides a general overview of the Turkish educational system and a summary of recent trends in enrollment. Section 3 introduces the data used in the analysis and the empirical methodology, Section 4 presents estimated results, and Section 5 concludes.

2. Overview of Turkish Education

2.1 Education System in Turkey

The Ministry of National Education (MoNE) is the governmental authority responsible for education administration in Turkey. It designs national curricula and educational materials for every level of schooling, ensures coordination between officials and third parties, and

invests in building and renovating schools and training centers. The Turkish education system is based on the 4+4+4 system introduced with "Primary Education Law No 6287[1]" in March 2012. Within the new system, compulsory schooling, divided into three levels, became 12 years. The first level is four years of primary school in which boys and girls acquire basic knowledge and skills. The second level is middle school, providing 4-year education as well, and the final level of compulsory education is high school, including general, technical, and vocational high schools. In addition to the multi-echelon education system, the schooling age in primary schools decreased from 6-age to 5.5-age with the new education policy. The importance of primary education is undeniable since it is a significant factor shaping the rest of students' academic and social lives. Boys and girls learn several concepts helping them live harmoniously together, how to read and write, and basic notions they use throughout their lives. Moreover, these ages are critical for social and emotional development and cognitive and intellectual improvement. Therefore, primary education is vital beyond imagination for little boys and girls.

During the outbreak of COVID-19, face-to-face education was interrupted in Turkey as in other countries, while online education has become a part of students', teachers', and parents' lives. Before the pandemic, students and teachers were familiar with information and communication technologies in Turkey (TALIS, 2018). Therefore, integrating online learning is not the central puzzle; it has some advantages in certain aspects, specifically providing agility and flexibility. However, a piece of studies asserts that the adverse effects outweigh the positive sides. Distant education would impede the right to education since students from the socio-economically disadvantaged background generally do not have access to the internet necessary for online learning. According to PISA data collected in 2018, 67% of students have a computer to use for schoolwork in Turkey, while this ratio is only 36% for students coming from the bottom quartile of the socioeconomic distribution. This situation deepens learning inequality between students, whose effects will be seen more clearly in the long run.

Furthermore, the parents' roles are pivotal in homeschooling since they can improve students' motivation and facilitate their learning process. Thus, their cooperation and engagement are critical for students' learning outcomes during the pandemic. Statistics from TURKSTAT display that in 2019, 4.2% of the population are illiterate, while 4.9% are literate but do not have a diploma. When considering the variation in the demographic structure across regions in Turkey, regional differences become more prominent and deepen the inequality. In this regard, TALIS's (2018) data shows that 7% of students report that the language used at

1 For detailed information, see https://www.tbmm.gov.tr/kanunlar/k6287.html

home often differs from the one used in school. Hence, it is evident that some students had not received enough support and had fallen behind their peers during the pandemic.

2.2 Recent Trends in Primary School Enrollments

Figure 1 displays the net school enrollment rate by age from the 2017/2018 to 2020/2021 academic year to grasp the recent trends in the enrollment rate of children in Turkey. The net enrollment rate is calculated by dividing the number of students at each age group enrolled in a specific education level by the population in that age group. It can be seen from the figure that while there is no visible change in the net enrollment rate of 6-year-old and 7-year-old children in these years, a dramatic decrease in the 5-year-olds' enrolment rate exists in the last academic year. Before the pandemic, the net enrollment rate among 5-year-old children was approximately 75%; however, it decreased by 58% in September 2020. On average, 95% of children aged six are enrolled in a school before 2020, while this fraction is 92% in the pandemic period. For 7-year-old children, the pandemic does not affect their net enrollment rate, remaining at around 99%.

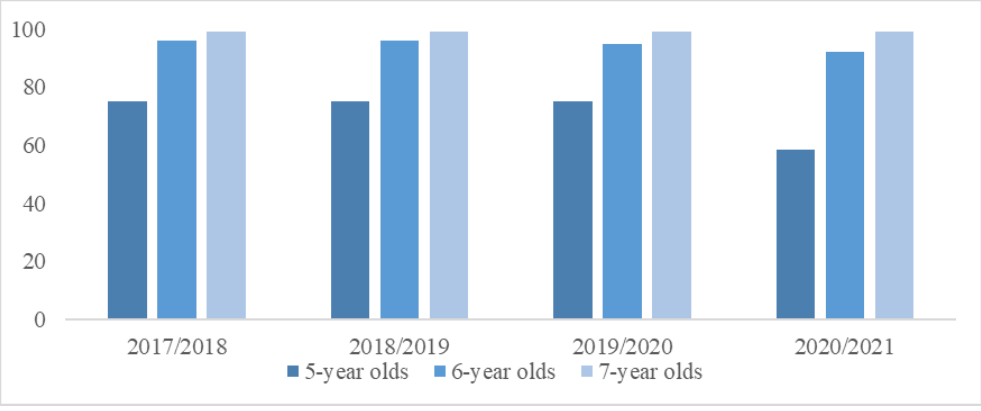

Figure 1: Net School Enrollment Rate by Ages
Note: Data source is National Education Statistics from the MoNE.

3. Data and Econometric Analysis

3.1 Data

This study uses province-level administrative data from the National Education Statistics published by the MoNE. The data covers the 2012/2013 to 2020/2021 academic years, and 2012/2013 was chosen as a starting year since the new education reform began to be implemented. The sample includes boys and girls enrolled in primary schools.

The main dependent variable, primary school enrollment rate, is the number of students enrolled in a primary school divided by the population aged 5-9. Each age group's primary

school enrollment rate is the share of enrolled children at a specified age among all primary school enrollments. In addition to those, to capture the "flight" effect, I calculated the number of students enrolled in public/private primary schools divided by the population aged 5-9. The analysis also includes related province-level data - the number of students per school/teacher/classroom (both public and private), the logarithm of investment made in education per student, and household size – as control variables. The data source of all variables but the household size is National Education Statistics, and household size is provided from the TURKSTAT website.

Table 1. Summary Statistics

	Mean	**St. dev.**	**Min.**	**Max.**	**# of obs.**
Dependent variables					
The primary school enrollment rate	0.83	0.08	0.49	1.40	729
The primary school enrollment rate of 5-year-olds	0.04	0.03	0.00	0.11	729
The primary school enrollment rate of 6-year-olds	0.23	0.01	0.19	0.31	729
The primary school enrollment rate of 7-year-olds	0.24	0.02	0.19	0.29	729
The public primary school enrollment rate	0.80	0.08	0.48	1.39	729
The private primary school enrollment rate	0.02	0.02	0.00	0.08	729
Control variables					
The number of students per school (public)	175.09	101.19	53.03	801.55	729
The number of students per school (private)	139.79	44.31	23.33	341.50	710
The number of students per teacher (public)	16.78	3.41	10.72	34.13	729
The number of students per teacher (private)	9.43	3.40	0.00	55.00	704
The number of students per classroom (public)	18.98	5.79	9.91	55.64	729
The number of students per classroom (private)	11.42	11.76	0.00	212.00	680
Investment in education per student (log)	9.15	0.99	5.24	11.45	729
Household size	3.65	0.93	2.61	7.89	729

Notes: The table shows the descriptive statistics (mean, standard deviation, minimum, and maximum) of dependent and control variables used in the empirical analysis. Data cover 81 provinces over the years 2012 to 2020. The data source is National Education Statistics and the TURKSTAT.

Table 1 displays the province-level descriptive statistics of each variable used in the empirical model from 2012/2013 to 2020/2021. The primary school enrollment rate is approximately 83% in the specified time horizon. The fraction of 5, 6, and 7-year-old students enrolled in a primary school is 4%, 23%, and 24%, respectively. While most children are

enrolled in public schools, the percentage of students attending private schools is around 2%. There exist, on average, 175 and 140 students in each public and private school. As expected, public schools have more students per teacher and classroom. There are 17 and 19 students per teacher and classroom in public schools, and these figures are 9 and 11 students in private schools. The logarithm of educational investment per student is 9.15, and the average household size is 3.6.

3.2 Empirical Methodology

This study examines the impact of Covid-19 on the primary school enrollment rate of students and whether there exists a switch from public schools to private schools. To identify those, the event study design is employed as previous studies related to the effects of the pandemic on several issues (Asik & Nas Ozen, 2021; Demirel-Derebasoglu & Okten, 2022). The primary specification used in the econometric analysis is

$$y_{pt} = \alpha + \sum_{t \neq 2019} \beta_t \mu_t + \gamma X_{py} + \mu_p + (\mu_r \times \mu_t) + \epsilon_{py}$$

p, t, and r index provinces, year, and NUTS2 regions, respectively. y indicates the primary school enrolment rate varies according to the school type and age of the students. X is province-level control variables, including the number of students per school, teacher, and classroom in public and private schools, the logarithm of investment in education per student, and household size. μ_t is a vector of year dummies where 2019 is omitted. μ_p refers to province fixed effects, and $\mu_r \times \mu_t$ is NUTS2-year interactions used to relax the common trend assumptions.

4. Results

The coefficient of β_{2020} is the key variable of interest, capturing the mean difference in the dependent variable between the pandemic year 2020 (2020/2021 academic year) and the pre-pandemic year 2019 (2019/2020). Thus, we can interpret the coefficient as the effect of the pandemic and related policies implemented in this period. Moreover, the primary identification assumption is that trends in the enrollment rates of students would be similar, conditional on province fixed effects and a set of covariates, in the absence of the pandemic.

Table 2 presents the estimates of the effect of the pandemic on the primary school enrollment rates. Each column includes additional control variables. The preferred specification is the model in column (4) since it relaxes the common trend assumptions, allowing varying trends across regions over time.

The findings in Table 2 indicate that due to the pandemic, primary school enrollment

decreased by 1.8% (0.015 percentage points). When the analysis is conducted according to different age groups to understand the main driver of this decline, it is seen that parents had not put their 5-year-old children down for school. While there is no statistically significant change in the enrollment trend of 6 and 7-year-old children, children aged five decreased their primary school enrollment by 40% (0.014 percentage points).

Table 2. The impact of the pandemic on the primary school enrollment rates

	(1)	(2)	(3)	(4)	Mean
Enrollment rate	0.000	-0.006	-0.010*	-0.015*	0.827
	(0.008)	(0.004)	(0.005)	(0.006)	
The enrollment rate of 5-year-olds	-0.006***	-0.006***	-0.007***	-0.014***	0.035
	(0.002)	(0.001)	(0.002)	(0.002)	
The enrollment rate of 6-year-olds	0.000	0.000	-0.003***	0.000	0.228
	(0.002)	(0.001)	(0.001)	(0.001)	
Enrollment rate of 7-year-olds	0.000	0.000	0.000	0.000	0.243
	(0.001)	(0.001)	(0.001)	(0.001)	
N	729	675	675	675	
Controls for					
Province fixed effects	Yes	Yes	Yes	Yes	
Educational resources	No	Yes	Yes	Yes	
Investment and household size	No	No	Yes	Yes	
NUTS-2 linear time trends	No	No	No	Yes	

Notes: The dependent variables are the number of students attaining primary schools divided by the population of age 5-9 and the share of 5-year-old, 6-year-old, and 7-year-old students among all primary school attendees in each province. Each column includes different control variables. Standard errors, given in parentheses, are clustered at the province-year level. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Table 3 shows the pandemic's impact on public and private school enrollment rates. The primary reason for this analysis is to explore whether a switch exists between public and private schools. This transition is essential for gaining parents' perspectives that there is a decline in the quality of publicly provided education. The estimated results show that private school enrollment rates did not change significantly during the pandemic; however, public school enrollments decreased by 1.7% (i.e., 0.014 percentage points).

Table 3. The impact of the pandemic on the public and private school enrollment rates

	(1)	(2)	(3)	(4)	Mean
The public school enrollment rate	0.000	-0.005	-0.011**	-0.014**	0.803
	(0.008)	(0.004)	(0.005)	(0.006)	
The private school enrollment rate	-0.001	-0.001	0.002	-0.001	0.024
	(0.001)	(0.001)	(0.001)	(0.001)	
N	729	675	675	675	
Controls for					
Province fixed effects	Yes	Yes	Yes	Yes	
Educational resources	No	Yes	Yes	Yes	
Investment and household size	No	No	Yes	Yes	
NUTS-2 linear time trends	No	No	No	Yes	

Notes: The dependent variables are the number of students enrolled in public and private primary schools divided by the population aged 5-9 in each province. Each column includes different control variables. Standard errors, given in parentheses, are clustered at the province-year level. *, **, and *** indicate significance at the 10%, 5% and 1% levels, respectively.

5. Concluding Remarks

This study examines the pandemic's effect on children's primary enrollment rates in Turkey. For this purpose, the event study design is employed, using publicly available province-level administrative data from the 2012/2013 to 2020/2021 academic year.

The estimated findings reveal 0.015 percentage points, corresponding to a 1.8% decrease in primary school enrollment rates. This decline is essentially attributed to the reduction in the enrollment of 5-year-old children who would have been enrolled in public schools. There is no significant positive or negative change in the private school enrollment rate, which means we cannot observe students' transition from public to private schools. Additionally, one can deduce that parents had hesitated about sending little children into public schools during the pandemic. At the same time, parents were not concerned about registering their students in private schools.

References

Ali, S., Gulliver, S. R., Uppal, M. A., & Basir, M. (2021). Research investigating individual device preference and e-learning quality perception: Can a one-solution-fits-all e-learning solution work? *Heliyon*, *7*(6). doi:10.1016/j.heliyon.2021.e07343

Asik, G. A., & Nas Ozen, E. (2021). It takes a curfew: The effect of COVID-19 on female homicides. *Economics Letters*, *200*. doi:10.1016/j.econlet.2021.109761

Baber, M. A. (2016). Appropriate school starting age: A focus on the cognitive and social development of a child. *Journal of Education and Educational Development*, *3*(2), 277. doi:10.22555/joeed.v3i2.1065

Balestra, S., Eugster, B., & Liebert, H. (2018). The effect of school starting age on special needs incidence and child development into adolescence. *SSRN Electronic Journal*. doi:10.2139/ssrn.3130000

Cornelissen, T., & Dustmann, C. (2019). Early school exposure, test scores, and Non-cognitive outcomes. *American Economic Journal: Economic Policy*, *11*(2), 35-63. doi:10.1257/pol.20170641

Demirel-Derebasoglu, M., & Okten, C. (2022). Gendered impact of COVID-19 pandemic on transitioning from university to labor market: Evidence from Turkey. IZA Discussion Papers No. 15169

Grand National Assembly of Turkey. (2012). İlköğretim ve eğitim kanunu ile bazı kanunlarda değişiklik yapılmasına dair kanun. Retrieved from https://www.tbmm.gov.tr/kanunlar/k6287.html

Hanly, M., Edwards, B., Goldfeld, S., Craven, R. G., Mooney, J., Jorm, L., & Falster, K. (2019). School starting age and child development in a state-wide, population-level cohort of children in their first year of school in New South Wales, Australia. *Early Childhood Research Quarterly*, *48*, 325-340. doi:10.1016/j.ecresq.2019.01.008

Heckman, J., Pinto, R., & Savelyev, P. (2013). Understanding the mechanisms through which an influential early childhood program boosted adult outcomes. *American Economic Review, 103*(6), 2052–86.

Kong, S. (2017). Parents' perceptions of e-learning in school education: Implications for the partnership between schools and parents. *Technology, Pedagogy and Education*, *27*(1), 15-31. doi:10.1080/1475939x.2017.1317659

OECD (2019). *PISA 2018 Results. What School Life Means for Students' Lives.* Volume III. Paris: OECD Publishing. Retrieved from https://www.oecd-ilibrary.org/sites/acd78851-en/index.html?itemId=/content/publication/acd78851-en

OECD (2019). TALIS 2018 Results. Teachers and School Leaders as Lifelong Learners. Volume I. Paris: OECD Publishing. Retrieved from https://dx.doi.org/10.1787/1d0bc92a-en

The Ministry of National Education. (2022). Official Statistics. National Education Statistics. Retrieved from https://sgb.meb.gov.tr/www/resmi-istatistikler/icerik/64

Turkish Statistical Institute. (2019). Education, Culture, Sport and Tourism. National Education Statistics Database. Education Level by Provinces. Retrieved from https://biruni.tuik.gov.tr/medas/?kn=130&locale=en

Turkish Statistical Institute. (2022). Population and Demography. Address Based Population Registration System. Average Size of Households by Provinces. Retrieved from https://biruni.tuik.gov.tr/medas/?kn=95&locale=en