
(In)Equality in children's access to technological resources in Spain during the lockdown

Executive summary

January 2022

Research project framework: "Nuevas dinámicas del mercado laboral tras el confinamiento en Andalucía: el empleo del futuro post COVID19 y respuesta a nuevos confinamientos." Ref.: CV20-3547.

Funding institutions: "Junta de Andalucía, subvención en régimen de concurrencia no competitiva a Agentes Públicos del Sistema Andaluz del Conocimiento, para proyectos de investigación sobre el SARS-COV-2 y la enfermedad COVID-19, Cofinanciación FEDER - Programa Operativo FEDER 2014-2020"

*Note: This document is a brief and non-technical executive summary of the academic working paper, where further details on the analysis and technical aspects are developed in depth.

Key findings

- The evolution of children's access and use of ICT resources presents an upward trend.
- The importance of the level of education of children's reference adults is more relevant after COVID-19 where all the schools were closed and the quality and quantity of parental time devoted to children's education is keystone in children's academic performance.
- Private schools adapt faster the online teaching as they have more technological devices and less students enrolled which makes education more feasible to be performed online.

Principales resultados

- La evolución del acceso y uso de los recursos TIC por parte de los niños presenta una tendencia al alza.
- La importancia del nivel educativo de los adultos de referencia en el hogar es más relevante después de la pandemia, donde todas las escuelas fueron cerradas y la calidad y cantidad de tiempo de los padres dedicado a la educación de los niños es clave en el rendimiento académico de los estos.
- Los colegios privados se adaptan más rápidamente a la enseñanza online ya que tienen más dispositivos tecnológicos y menos alumnos matriculados lo que hace más factible que la enseñanza se realice online.

Recommendations

- Ensure that all the children have the same opportunity to access to ICT resources allocated to academic purposes.
- Offer tutoring to those parents with low educational level to increase and improve the academic help they offer to their children.

Recomendaciones

- Garantizar que todos los niños tengan la misma oportunidad de acceder a los recursos TIC destinados a fines académicos.
- Ofrecer tutorías a aquellos padres con bajo nivel educativo para aumentar y mejorar la ayuda académica que ofrecen a sus hijos.

School closures and learning losses

Children's computer and Internet use has followed an upward trend during the last decades. The literature related to education tries to disentangle if the expansion of both, computers and Internet, used by children in schools, has a positive effect on their educational achievement. Before the outbreak of Corona, online learning resources did not have an important role in education, neither at home nor at schools. However, in 2019 there were still large differences in access to the internet by socioeconomic status. For instance, whereas the 99% of households in the fourth income quartile had internet access in Spain in 2019, just 78% of households in the bottom income quartile had.

During the first wave of COVID-19 most developed countries closed schools for about 5 months as one of the non-pharmaceutical interventions used to control the spread of the virus. Many scholars raised concerns related to the potential learning loss for children. Recently, evidence has built highlighting that students either lost or made no progress during lockdown. More importantly, losses were larger for children from less advantaged backgrounds.

During lockdowns, education needs to be performed online. As the closure of schools disrupted during the usual school calendar cycle and this could not be anticipated, families had to adapt their actual digital resources to the new home-learning process. For online education to be successful, three main factors emerge: access to ITC tools, parental support, and schools support. Access to the internet and availability to a computer are the most obvious pre-requisites for online education. It has been already documented pre-COVID differences in access to internet by family socioeconomic status. Parent's socioeconomic characteristics play a role in the provision of computers and Internet connection, and in the ability to adapt to the new environment by acquiring ICT tools as needed.

The suspension of face-to-face instruction in schools during the pandemic also led to an increase in the importance quality and quantity of parental time devoted to children's education. Since online education became an imperfect substitute for in-person learning parents had to compensate through their abilities, capabilities, and efforts some of the inputs provided by the teachers. Low-educated parents may not be equally able to help their children with online tasks compared to higher educated parents. Also, low educated parents may face worse working conditions and may have faced difficulties to work from home, especially if they worked in manual occupations that cannot be performed online.

Inequality in children's access and use of ICT resources

As we can observe in Figure 1, inequality in children's access and use arises when we compare children with high educated (university studies) reference adults¹ with those with those whose reference adults are lower educated.

The study in which this report is based documents whether inequalities in the use of internet and computers arose between children from more and less advantaged backgrounds during the lockdown in Spain. With that aim we compare the use of internet, mobile phones, and computers before and after the lockdown between children from higher educated and less than higher educated families in a difference in differences strategy using longitudinal data from the Spanish Community Survey on ICT Usage in Households.

The main source of data for our study is the Spanish Survey on Equipment and Use of Information and Communication Technology in Households, which is collected and made publicly yearly available by the Spanish Statistical Bureau (hereafter INE, by its Spanish initials). The statistical operation follows the methodological recommendations of the Statistical Office of the European Union (Eurostat), allowing comparisons between Spain and other countries and satisfying the re-

¹We refer as reference adult to the survey respondent whether they are or not parents of the child for whom information is being reported.

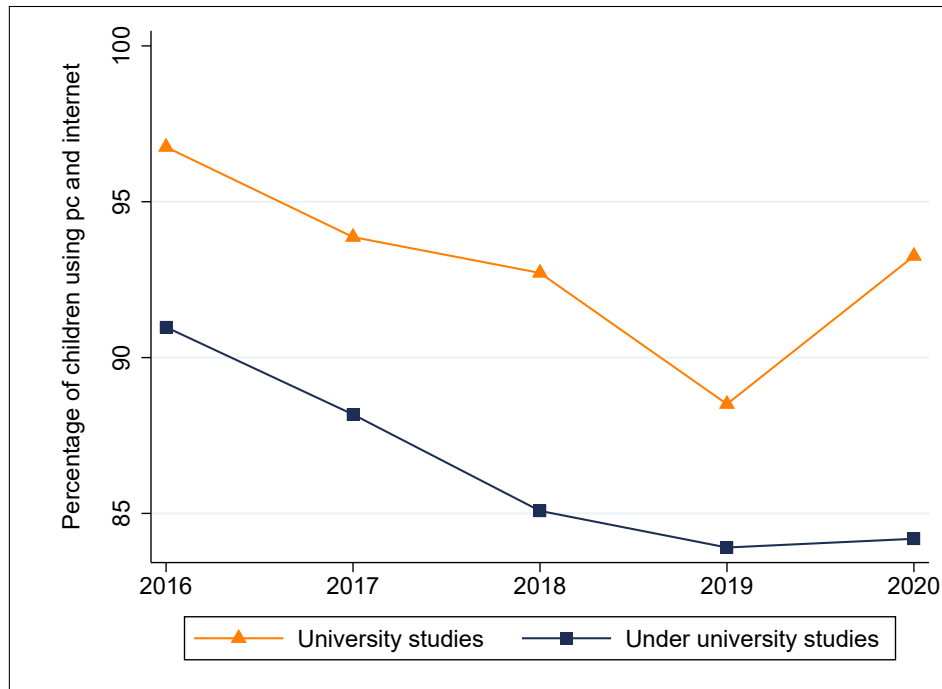


Figure 1: Inequality in children’s access and use of ICT resources depending on the education of the reference adult.

quirements of international organisations. The objective of the Information and Communication Technology (hereafter ICT) Survey is to obtain data on the development and evolution of the Information Society, which includes ICT household equipment (telephone, computer equipment, Internet access) and the use of the Internet and electronic commerce by residents of these homes. In order to analyze more aspects of the use of new technologies, the questionnaire is dynamic and includes new sections with different periodicity.

Furthermore, we complement the ICT survey with information of the Public Registry of Non- university Training Centres, dependant from the Spanish Ministry of Education and High Vocational Training² to control if the impact of the lockdown in the kid’s access and use of ICT resouces was affected by a different type of schooling, state and private, and, if that was the case, taking this into account to run the estimations, in order to account for a potential demand effect. As any other control variable, the type of schooling can not be related with the treatment status.

We analyze the mechanisms driving these differences in ICT use. We test whether differences in ICT access and availability, schooling resources and/or parental time constraints are behind the observed patterns of ICT use by children from different socioeconomic backgrounds. Using a triple differences strategy and longitudinal data from the Spanish Community Survey on ICT Usage in Households we test whether differences in ICT use after the lockdown are due to higher-educated families (a) having better access to ICT resources such as better internet connections or more computers and tablets and/or (b) living in provinces with more private schools that are more likely to offer daily online interactions with students.

As we can observe in Figure 2, differences among children who live in a region that is located above the median value of the students enrolled in private schools distribution are more than clear.

²More details:

<https://www.educacionyfp.gob.es/en/contenidos/centros-docentes/buscar-centro-no-universitario.html>

Implementing e-learning required a suitable facility like smart devices and good internet line just not to be interrupted during classes. Levels of technological resources at home are closely related to the socioeconomic status of the household, leaving families with lower incomes more likely to face obstacles in internet access and use. This aspect of the digital divide, often referred to as the “homework gap” (the gap between school-age children who have access to high-speed internet at home and those who don’t), has been exacerbated by the outbreak of the pandemic, as all the school-based instructional time was reduced to zero. This reduction in instructional time has been tested to have negative effects on education outcomes.

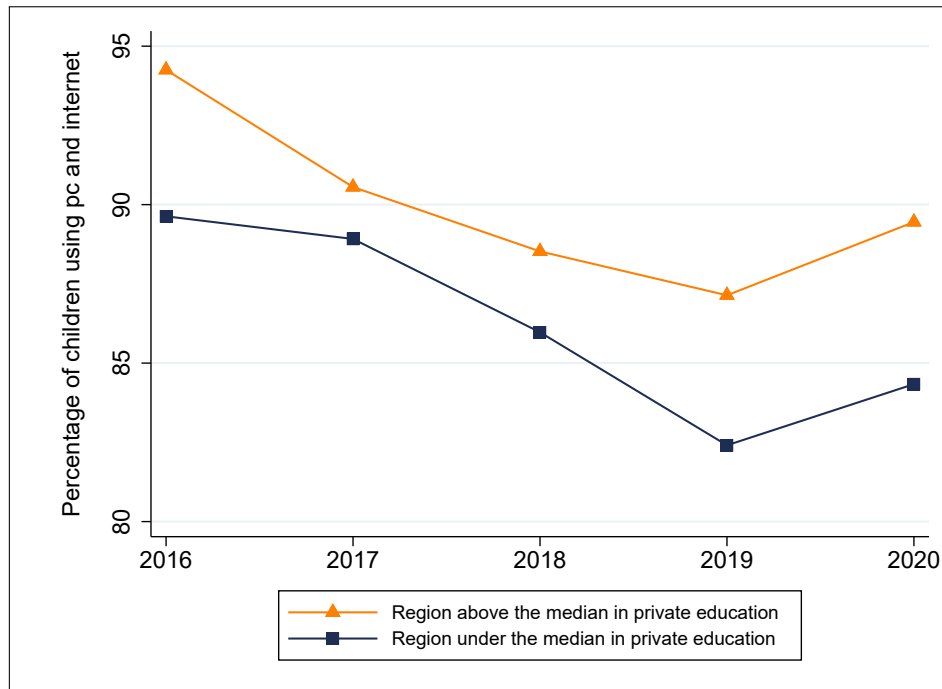


Figure 2: Living in a region with more students enrolled in private education, is related with higher level of children’s use and access of ICT resources?