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COVID-19 BULLETIN

No. 21

Pandemic-Induced School Closure and Inequalities in Homeschooling: Implications for the Long-run Human Capital Accumulation in Pakistan

The novel COVID-19 has created unprecedented effects on the world economy. Compared to the -0.01 per cent decline in the year on year real GDP growth during the global financial crisis 2008-09, the COVID-19 induced “Great Lockdown” put a dint of -3.0 per cent on the global economy (Währungsfonds, 2020). This makes the current pandemic the most devastating recession in world history after the Great Depression of the 1930s.

Apart from these physical impacts of the current pandemic, one can expect implications of COVID-19 on social and human capital accumulations in both advanced and developing world. Which will, in turn, affect the long-run growth trajectory of the world.

Literature shows us the sizeable impact each pandemic and epidemic, historically, had on human behaviour and human capital formation. For example, Percoco (2016) shows the negative impact of the 1918-19 Spanish Flu on human capital accumulation in the Italian regions. In a similar study, Archibong *et al.* (2020) show that the gender gap in education attainment widened because of the 1986 meningitis epidemic in Niger. Furthermore, Dauda (2018) shows that the HIV/AIDS epidemic negatively impacted human capital in 11 West African countries. Similarly, Aassve *et al.*, (2020), by originating lessons from 1918-19 Spanish Flu, discuss the possible effects COVID-19 on social capital and human behaviour.

This Bulletin contributes to this debate by exploring the consequences of the current pandemic-induced school closures on educational inequalities in Pakistan. The main objective is to inform policy arenas regarding the long-term impacts of COVID-19 on the already wrecked education sector and students’ learning outcomes in Pakistan. The Bulletin assesses these impacts by using the recently released 2018-19 Pakistan Social and Living Standards Measurement (PSLM) Survey data. By comparing the existing inequality among the students in access to various facilities required for homeschooling, we argue that COVID-19 induced school closures will have a long-run impact on human capital formation in Pakistan.

According to the Annual Status of Education Report (2018), Pakistan stood second in the world with about 20 million (or 17 per cent) out-of-school children aged 5-16. The Economic Survey 2018-2019 highlights that the total number of enrolled students in Pakistan is 53.03 million.¹ Out of these, three-fourth of the students are enrolled in government schools whereas the remaining one-fourth students are enrolled in non-state (20 per cent in private schools, 3 per cent in Madrassahs) institutions. A small minority, mainly from high-income families, are also studying in high-end, elite private schools.² Apparently, the pandemic-induced school closure has not impacted these elite institutions as they instantly started virtual classes for their students. These facts and figures depict the already skewed educational system in Pakistan.

PARENT’S EDUCATION AND POSSIBILITY OF HOMESCHOOLING

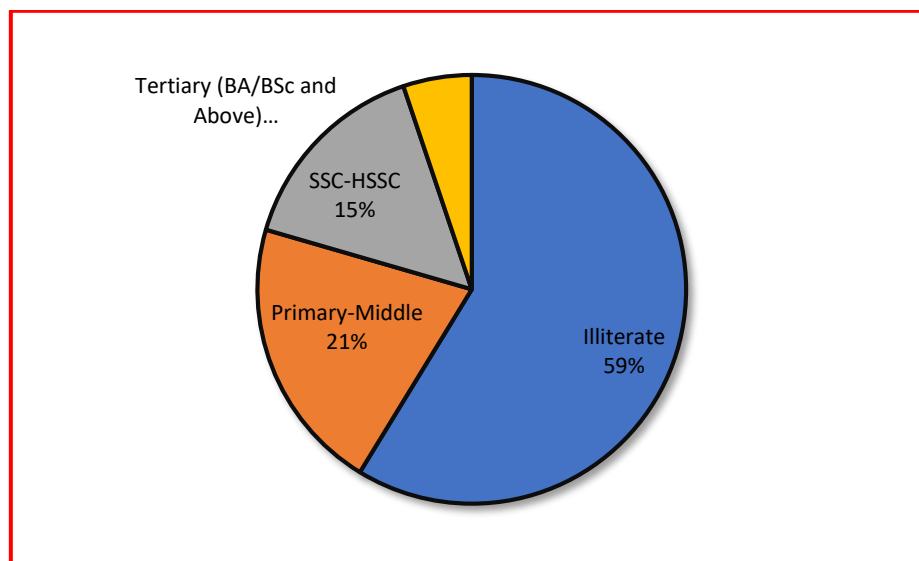
Since there is no physical access to schools, one feasible alternative could be studying at home from parents and elder siblings. Figures 1 and 2 show the education levels of both mothers and fathers to understand whether such alternative works for Pakistani students. Strikingly, 59 per cent of fathers and 75

¹ Thirteen million at pre-primary, 23.88 million at primary, 7.6 million at middle, 5.9 million at high and higher secondary, 0.48 million in degree colleges, 0.47 at technical and vocational training institutes and 1.57 million are enrolled in universities.

² Such as, Beaconhouse School System, Lahore Grammar School, Tameer-i-Wattan Public School, The City School, The Roots School, Abbottabad Public School, Army Public School, etc.

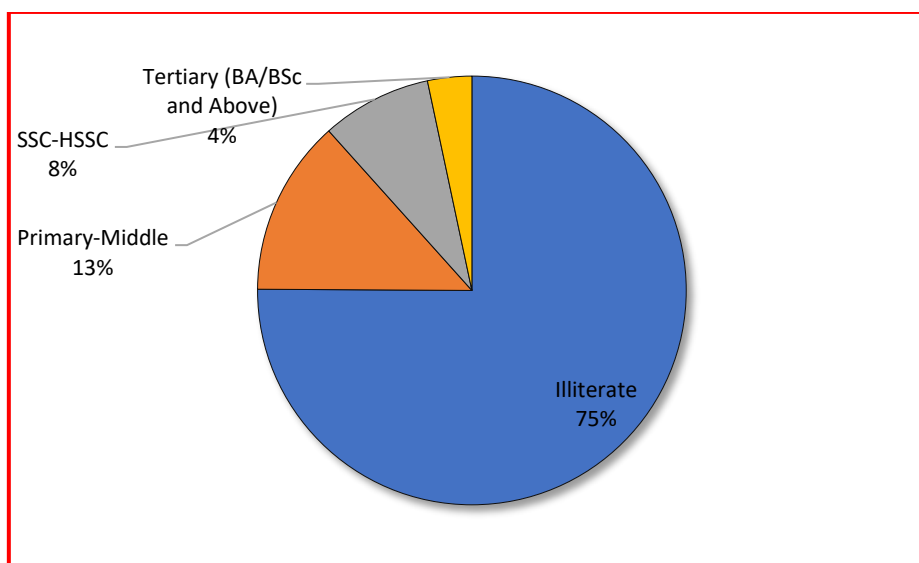
per cent of mothers are illiterate, thus, three-fourth of the students would not be able to gain much from their parents during the pandemic-induced school closures. Besides, only 5 per cent fathers and 4 per cent of mothers have a university degree.³

Figure 1: Students' Father Education Level



Source: Authors' Calculations using PSLM / HIES 2018-19.

Figure 2: Students' Mother Education-level



Source: Authors' Calculations Using PSLM / HIES 2018-19.

PREVAILING INEQUALITY IN ACCESS TO FACILITIES REQUIRED FOR HOMESCHOOLING

Besides studying from parents, students can exploit other options to study at home. For example, the government has launched an initiative named 'Teleschool' for students in grades 1-8 (primary and middle).⁴ This initiative addresses the school closures by imparting knowledge through Pakistan Television (PTV).⁴ Also, access to the internet and other electronic devices can help students pacing up with those who study in elite schools. Most of the colleges and universities are already exercising virtual teaching, so access to the internet and computer/laptop (or at least smartphones) is necessary for tertiary-level students.⁵ In this

³ In addition, most of these 5 per cent educated parents will also be working from home so they could be able to allocate less time for the children education.

⁴ <https://www.brecorder.com/2020/04/20/590852/teleschool-initiative-gets-tremendous-response/>

⁵ Access to electricity can also be a significant impediment. However, PSLM data shows that more than 95% students have household which have access to electricity.

regard, we use the 2018-19 PSLM data to show the inequalities among students in exploiting these possibilities.

Table 1 provides results for students' access to different facilities that are necessary for study from home. The results indicate that 55 per cent of the students would be able to take advantage of the recently launched government's 'Teleschool' initiative which is imparting knowledge through Pakistan Television (PTV).⁶ Similarly, only 39 per cent of the students have household access to the internet connection. In other words, two-thirds of the students would not be able to attend their online classes from their homes. It is worth noting that only one-tenth of the students enjoy access to computers at home, while 8.8 per cent have access to laptops. These numbers seriously skew the educational attainment from home. Likewise, two more gadgets which can be used for homeschooling are tablet and mobile phone. Table 1 shows that only 2.25 per cent of the students in Pakistan have the luxury to own a tablet while on the other hand, 97 per cent of students have household access to mobile. Only 21 per cent of students have a personal phone and 12.6 per cent of them have are smartphones.

Table 1: Students with Household Access to Various Facilities

Per centage of Students with Household Access to:					
Television	Internet	Computer	Laptop	Tablet	Mobile
55.12	38.95	10.37	8.78	2.25	96.98

Notes: These results are based on 40,047 students with "currently enrolled" status.

Source: Authors' Calculations using PSLM / HIES 2018-19.

Table 2 distributes students' access to different facilities across gender and various education levels. Contrary to the general perception, our analysis using PSLM data shows that female students at all levels enjoy relatively higher or equitable access to facilities such as TV, Internet, and electronic gadgets. However, these figures should not be taken at face value because male and female siblings can be accessing these gadgets in the same household. If this is the case, then a possible mechanism through which inequality might increase can be the intra-household disparity in access to these facilities. For example, the male child can get preference in accessing computer/laptop or other learning devices present in the house. Overall, we cannot comprehend the true impact of the pandemic-induced school closure on gender inequality in human capital accumulation across Pakistan.

Table 2: Students with Household Access to Various Facilities across Gender (%)

	Male	Female	All
Primary and Middle			
TV	50.28	56.69	53.08
Internet	31.95	35.44	33.47
Computer	7.02	8.14	7.51
Laptop	5.29	5.92	5.56
Tablet	1.52	2.15	1.80
Matric and Intermediate			
TV	57.97	69.97	62.81
Internet	52.69	54.37	53.37
Computer	17.56	19.25	18.24
Laptop	15.15	15.95	15.47
Tablet	2.92	3.83	3.29
Tertiary			
TV	58.10	68.89	62.83
Internet	82.37	79.59	81.15
Computer	30.71	31.83	31.20
Laptop	40.76	38.52	39.78
Tablet	5.59	7.17	6.28

Source: Authors' Calculations using PSLM / HIES 2018-19.

⁶ <https://www.brecorder.com/2020/04/20/590852/teleschool-initiative-gets-tremendous-response/>

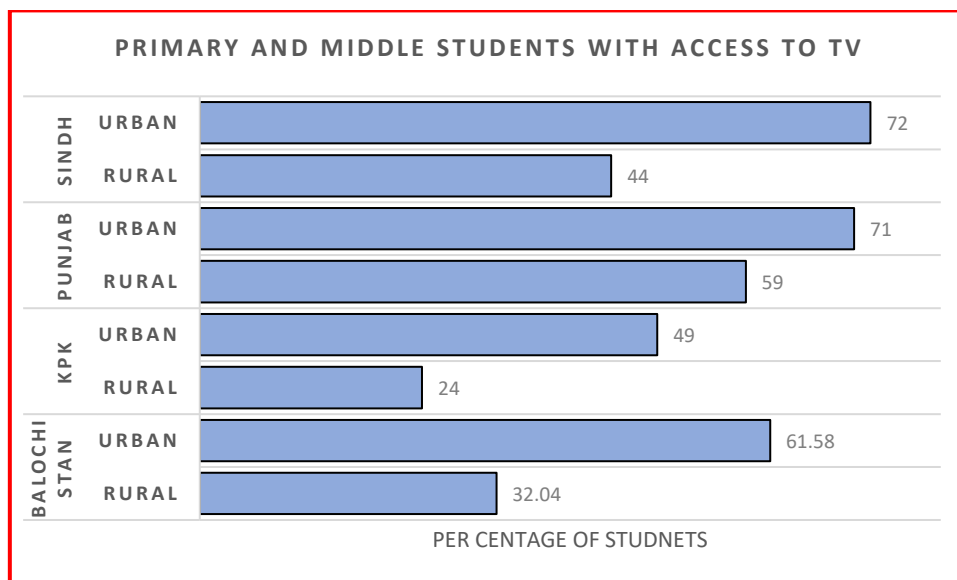
At the tertiary level, 81 per cent of the students have access to the internet in contrast to the overall access of 39 per cent.⁷ This finding is important since most of the university students require internet facility to attend their online classes.⁸ In addition, access to computer and laptop are also higher for the students studying at tertiary level. One-third of the students have computers at their home while 40% of the students have access to the laptop. These facilities would be helpful for students in completing assignments that cannot be done on cellphones. The PSLM data also substantiate this argument by demonstrating that about one-half of the students use computers at their education place. Access to computers and laptops among tertiary level students is strikingly higher as compared to national averages, but still half of the students would not be able to perform their assignments with ease. Subsequently, this inequality has consequences for the student's competitiveness in the future job market.

IS THERE A HETEROGENEITY IN ACCESS TO FACILITIES ACROSS PROVINCES?

Besides the overall differences in access to facilities, one can also be interested to comprehend the intra-provinces' disparities among students and its implications for human capital formation. In this regard, we provide evidence for provincial variation in access to various facilities that can be used for homeschooling.

Figure 3 depicts across provinces' variation in students with household access to television. It shows that more than two-thirds of the primary and middle students from urban areas of Sindh and Punjab have access to television at home. Thus, these students would have disproportionate access to the 'Teleschool' initiative compared to students from rural Baluchistan and Khyber Pakhtunkhwa. Figure 4 also shows access to the internet among university students across provinces. More than 75 per cent of university students from urban Sindh and KP enjoy access to the internet while the number is slightly below 70 per cent for urban Punjab. However, only 24, 32, and 44 per cent of university students from rural KP, rural Baluchistan, and rural Sindh, respectively, would be able to attend their online university classes from home.

Figure 3: Student's Access to TV across Provinces

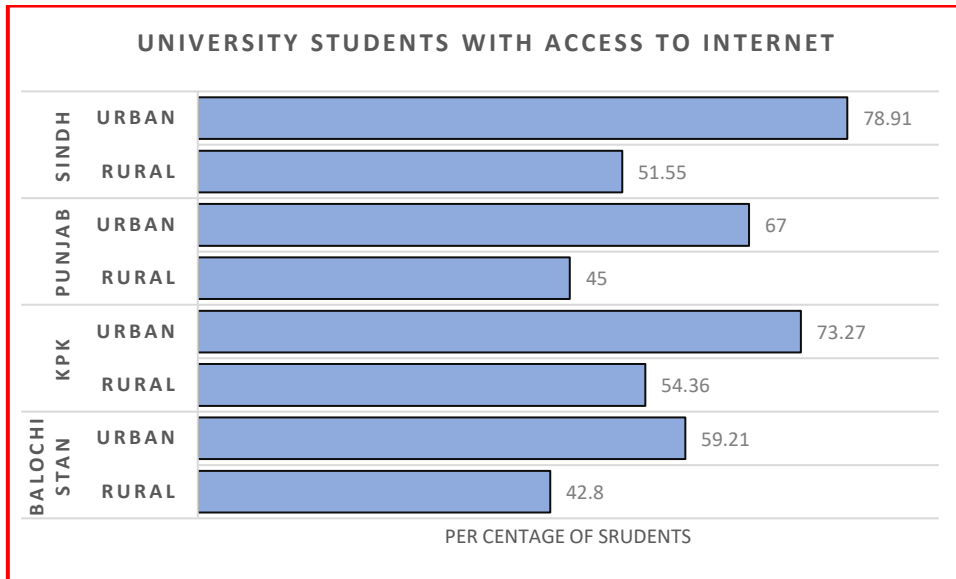


Source: Author's Calculations Using PSLM / HIES 2018-19.

⁷ Out of 40,047 currently enrolled students in PSLM 2018-19, 1,878 (4.69%) study at tertiary (university) level.

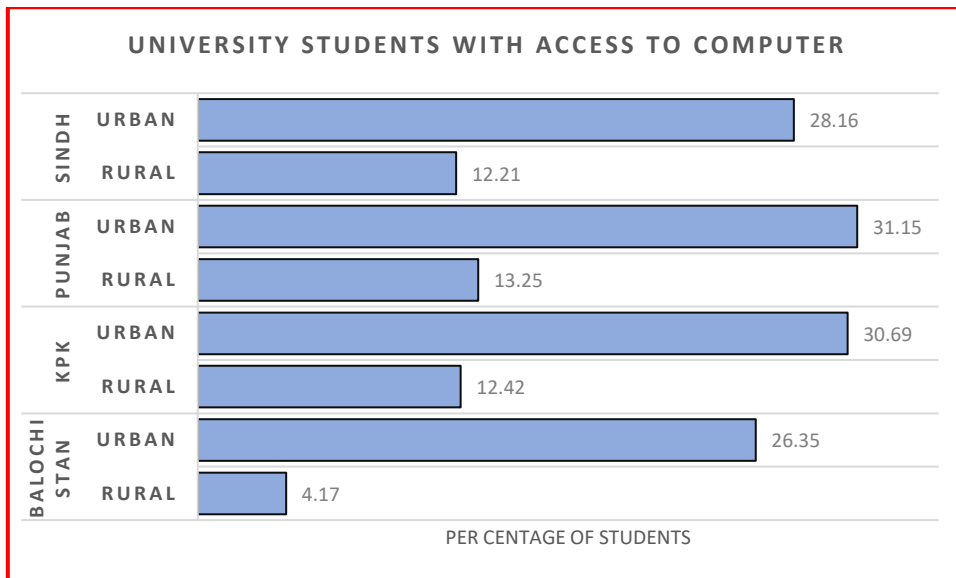
⁸ Most of the private universities offer online classes from March, 2020 while public universities and colleges went virtual from 1st of June.

Figure 4: Student's Access to the Internet across Provinces



Source: Author's Calculations Using PSLM / HIES 2018-19.

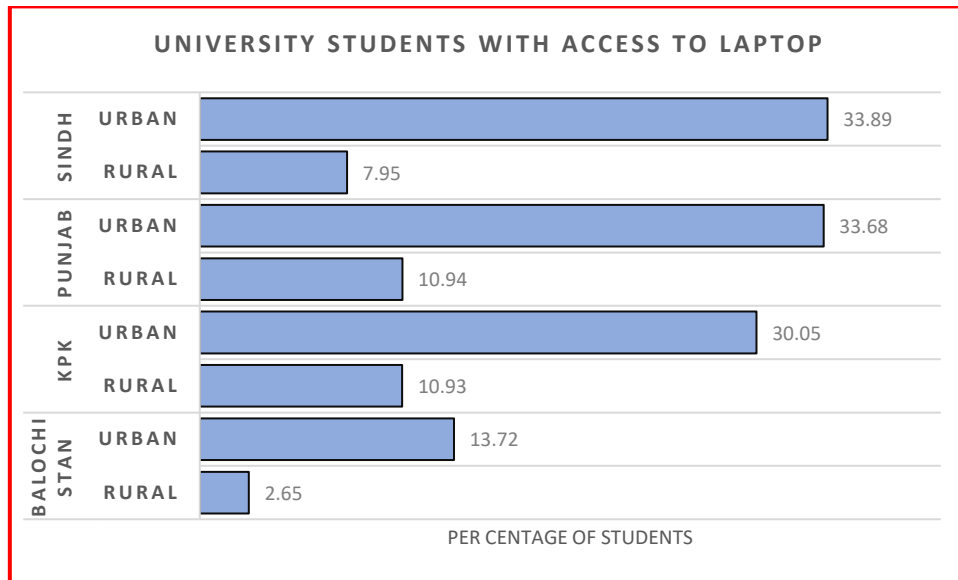
Figure 5: Student's Access to Computer across Provinces



Source: Author's Calculations Using PSLM / HIES 2018-19.

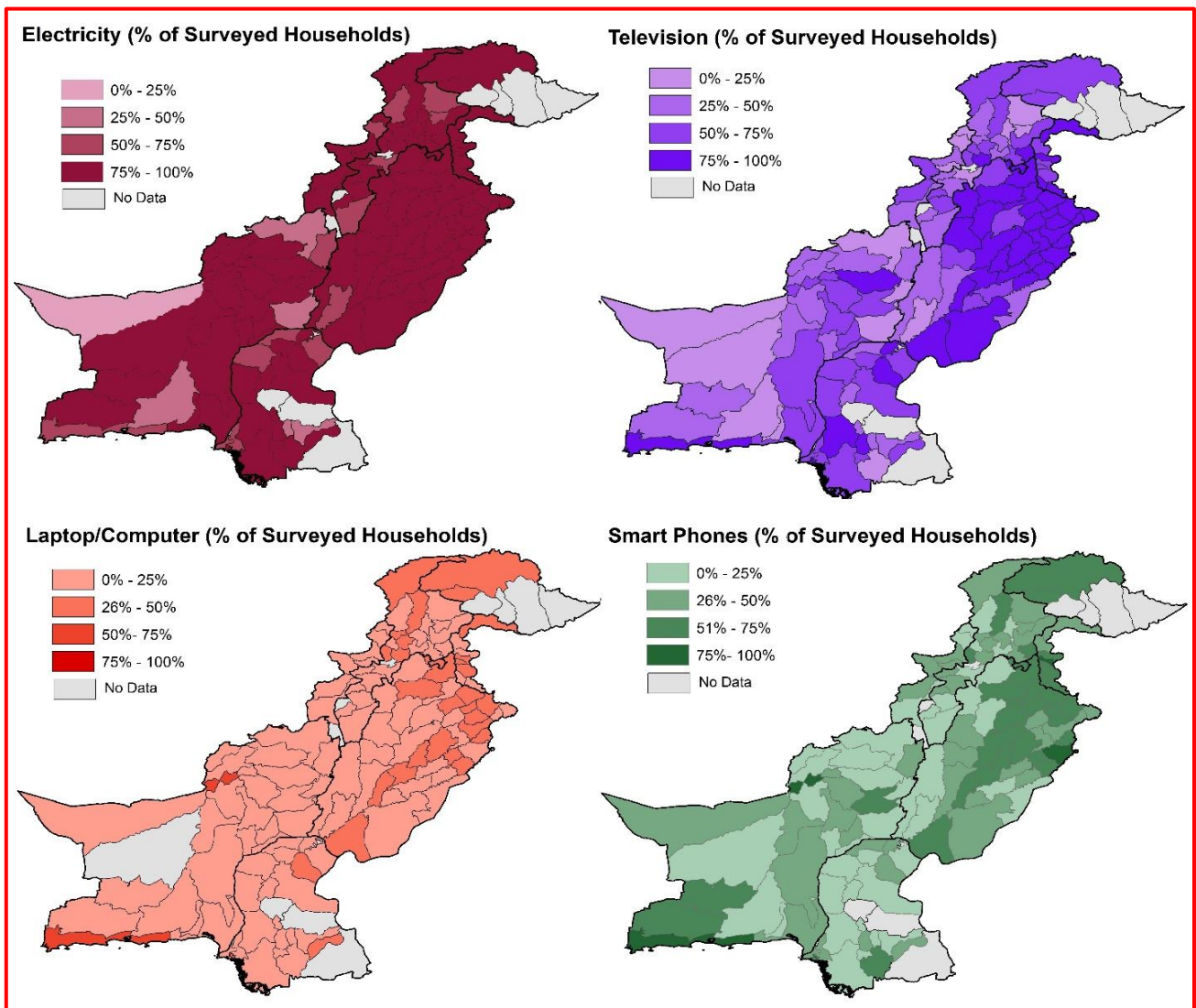
Figures 5 and 6 show striking differences in access to computers and laptops across provinces. On average, one-third of the university students from urban areas of Sindh, Punjab, and KP has access to computer and laptop, meaning, only they could perform their university assignments from home. On the other hand, students who belong to rural areas would not be able to do so which would lead to a skewed educational attainment with rural students being left behind.

Figure 6: Student's Access to Laptop across Provinces



Source: Author's Calculations Using PSLM / HIES 2018-19.

Figure 7: Access to Different Facilities at District-level in Pakistan



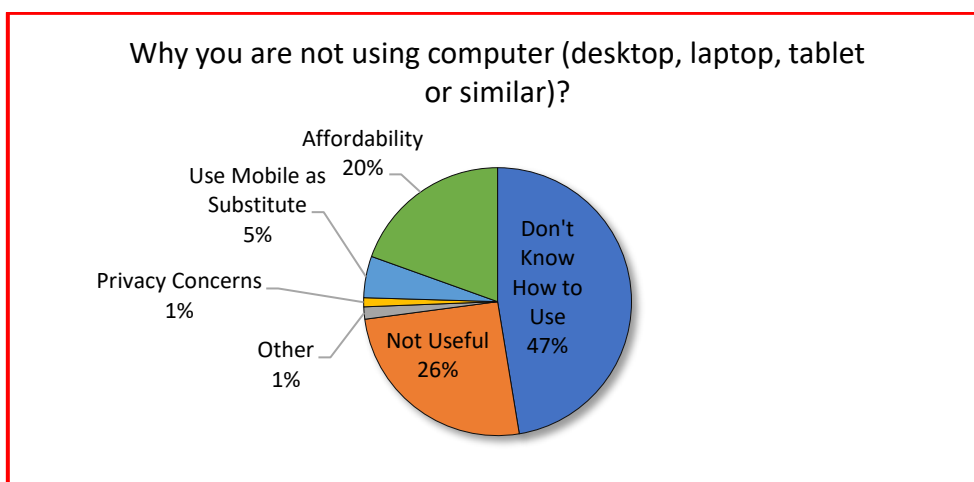
Source: Authors' Calculations using The Annual Status of Education Report (2019).

Finally, we use the Annual Status of Education Report (2019) data to present the geographical maps of Pakistan (see figure 7). These results also substantiate our findings from the PSLM data as very few districts lie in the range where 75-100 per cent of students have access to television, laptop/computer, and smartphones.

WHY STUDENTS DO NOT HAVE ACCESS TO THESE FACILITIES?

Finally, we explore why students do not have access to these facilities. Figure 8 shows the results of the question, “*Why you are not using a computer (desktop, laptop, tablet or similar)?*” asked from the students in the 2018-19 PSLM survey. The results show that only one-fifth of students report that they do not own these gadgets due to lack of affordability. Affordability is just a part, but not the whole answer to the question. Surprisingly, half of the students who do not own these gadgets reported that they do not know how to use them. Similarly, a quarter of the students did not find these gadgets useful in 2018-19.

Figure 8: Assess to Different Facilities at District Level in Pakistan



Source: Author's Calculations Using PSLM / HIES 2018-19.

IMPLICATIONS FOR HUMAN CAPITAL FORMATION AND JOB MARKET OUTCOMES

The above sections show striking inequalities across students at all levels of education. At the primary and middle level, students from government schools and low-end private schools can either be taught by their parents or can access *Teleschool* through television. We show that about two-thirds of the students have illiterate parents and half of the students do not have access to television. At the tertiary level, one-fifth of the students cannot access the internet to attend their virtual classes while two-third of the university students would fail to perform their assignments efficiently due to no computer/laptop facility available at home. Across provinces heterogeneity in incidence of inequality is also strikingly high. Now, the question is, will these inequalities have any impact on long-run human capital formation in Pakistan?

Zero learning during school closures would have negative effects on the human capital formation of students without access to television, internet and electronic gadgets. Moreover, for primary and middle students these inequalities also widen the grades' gap among students with and without these facilities. Similarly, university students without access to the internet and computer might have to freeze their semester or pay in terms of lower CGPA (low attendance and poor quality of assignments). In the long run, the impact of these disparities might translate into job market outcomes. Especially, students from the rural areas, who already lag in competing for high-end jobs, will find it more challenging to compete for these jobs in the future.

It is also necessary to note another reason for why a greater proportion of university students have access to computers/laptops. Intuitively, students belonging to high-income households are more likely to attain higher levels of education and these are the students who can afford modern means of communication

(e.g. laptop, computer, smartphone). Furthermore, we need to keep in mind that the government of Pakistan (and provincial governments) has been distributing laptops to university students in the past.

Policy focus, when it comes to education and human capital formation, should be on the lower levels, which has the majority of the students (22.9 million students are enrolled in schools). Another reason for the focus on lower levels is to retain the number of dropouts at these levels since already 20 million (or 17 per cent) of the children are out-of-school. That being said, we need to keep in mind the local and international disparities in the quality of education at lower levels in Pakistan.

The COVID-19 pandemic can expectedly have severe consequences for school going children which can deteriorate the quality and reduce the number of undergraduates and graduates in the future. On the other hand, income inequality, which leads to inequality of affordability of computers/laptops, would lead to the unequal formation of human capital. Government intervention is needed more than ever in the field of education to secure the basic right to education for the students in rural areas, and those belonging to lower-income strata.

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PIDE COVID-19 Bulletin is an initiative by the Institute in response to the current pandemic, which is bound to have serious consequences for the country, specifically for its economy. The Bulletin would carry research that would aid in an informed policymaking to tackle the issue.

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