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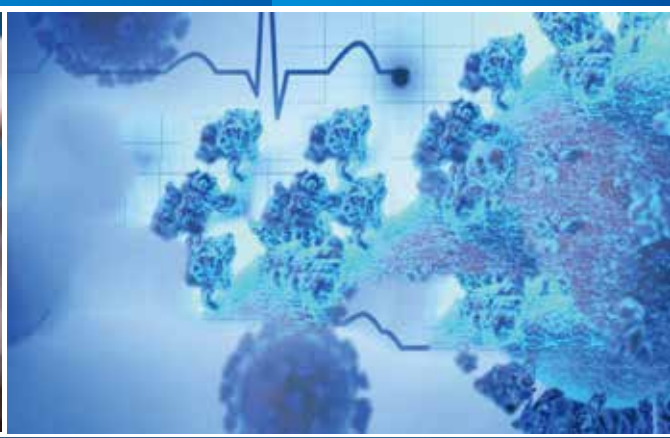

CTTN Joint Regional Project

COVID-INDUCED INEQUALITIES: EDUCATION, HEALTH SERVICES, DIGITAL ACCESS, AND FEMALE LABOR FORCE PARTICIPATION:

Case Studies from Azerbaijan, Kazakhstan, Pakistan, and Uzbekistan

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PREFACE

To foster knowledge generation, cooperation, and dissemination on crucial regional issues, the CAREC Institute (CI), through a consultative process, launched the CAREC Think Tank Network (CTTN) in 2017, bringing onboard leading think tanks from CAREC member countries. The core objective of the CTTN is to analyze and effectively provide innovative solutions for promoting economic cooperation through developing regional perspectives on emerging issues and challenges CAREC members are facing.

To this end, the CI designed a research grants program (RGP) in 2019 that supports research projects focusing on regional cooperation and integration among the CAREC Program's 11 member countries.[1] The RGP is designed to actively support scholars and researchers from CAREC Think Tanks Network (CTTN) members through research grants that add to the body of knowledge on regional cooperation in the CAREC region and strengthen the CTTN.

Under the CTTN, CI organized a virtual dialog in March 2021 to discuss the role of think tanks in times of crisis. One of the excellent suggestions CI received was shifting away from the traditional 'call for proposal' modality and establishing a regional expert group of think tanks to focus on some pressing regional issues that call for regional perspective and response. As a Secretariat to the CTTN, the CI initiated discussions with potential partners to implement this proposal. The proposal is aligned with the CI strategic priorities listed in the Strategy 2021-2025 to further develop and strengthen research activities within the CTTN members. As a first step, the CI initiated a pilot project involving four think tanks—one from Azerbaijan, Kazakhstan, Pakistan, and Uzbekistan. It aims at (a) further strengthening the CTTN; (b) helping to explore the same topic across the countries, which offers comparative analysis for selected CAREC countries; and (c) helping to focus research on a topic highly relevant for the CAREC region. Because of the administrative, coordination, capacity, and financial constraints, the research covered only four countries for the pilot round. In the following rounds, learning from the lessons during the pilot project, think tanks from other CAREC countries will be invited to join such projects.

The research on this first pilot project investigates COVID-19-induced inequalities in education, health, digital access, and female labor force participation. These topics are essentially related to human development and digitalization, which are in line with the CAREC 2030 strategy and are also reflected in other strategic documents of the CAREC program.[2] These topics are gaining traction in the development discourse, particularly for developing new metrics for human development in the post-COVID environment.

Although efforts were made to ensure each case study's cohesiveness, consistency, comparability, and high quality, the final report exhibits significant variations in analysis, currency of data, methodology, sequence, and approach. Such variations are anticipated considering the diverse country context and unavailability of the latest data and literature. In spite of the limitation because of the first undertaking of such a project, the joint report of the four think tanks provides valuable insights into the pre-existing inequalities and their amplification by the COVID pandemic. The report

[1] CAREC Program comprises Afghanistan, Azerbaijan, Georgia, Kazakhstan, Kyrgyz Republic, Mongolia, Pakistan, China, Tajikistan, Turkmenistan, and Uzbekistan.
[2] CAREC Gender Strategy 2030: Inclusion, Empowerment, and Resilience For All. January 2021. https://www.adb.org/sites/default/files/institutional-document/698316/carec-gender-strategy-2030.pdf

is expected to stir debate at policy level and blaze the trail for researchers for more in-depth research in the four areas—education, health, digital access, and female labor force participation.

The think tanks participating in the pilot project took responsibility for the quality and authenticity of data, analysis, conclusions, and policy recommendations. The CI intends to continue along this line, further strengthen ownership of joint projects by the think tanks and initiate similar projects in the future.

The CTTN report “COVID-Induced Inequalities: Education, Health Services, Digital Access, and Female Labor Force Participation” is a compendium of four research papers by prominent researchers from Azerbaijan, Kazakhstan, Pakistan, and Uzbekistan, focusing on some of the most important inequality issues caused by COVID-19 pandemic in the CAREC region.

Research projects in each of the four countries was carried out with financial and scientific support from the CAREC Institute. Members of the CTTN Grants Review Committee at the CAREC Institute -- Mr. Khalid Umar, Chief of the Strategic Planning Division, Dr. Hans Holzhacker, Chief Economist, and Dr. Qaisar Abbas, former Chief of Research Division, provided valuable comments and suggestions at various stages of these research projects.

CHAPTER 1. AZERBAIJAN CASE STUDY

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Abstract

The global pandemic has had an impact on economies across the globe, bringing severe repercussions on the respective countries, where Azerbaijan has been no exception. In containing the spread of the virus, even though Azerbaijan allocated the largest share of GDP to mitigate the consequences that emerged owing to the outbreak of COVID-19, the country was affected negatively during the crisis. The study shows the inequalities that arose in the background of the spread of COVID-19 in Azerbaijan. The main area of focus covers changes that occurred in education, health services, digital access, and female labor force participation in the country. Detailed analysis of the sectors revealed the state of the country's preparedness for a crisis. Response measures adopted by the government were aimed at economic recovery as well as supporting economic development in the post-pandemic period. In this regard, the effectiveness of the implemented measures is assessed from a long-term perspective. Furthermore, this research analyzes government policy measures and explores the state of the areas mentioned earlier.

Introduction

The economic recession followed by the outbreak and spread of COVID-19 in Azerbaijan has considerably weakened business activities and the development of economic sectors in the country. Taking into account Azerbaijan's dependency on oil,[3] the extent to which COVID-19 affected the economy becomes clear; it caused a fall in oil prices following the sharp decline of business activities and energy-intensive industries in buyer countries. However, there was a sudden upsurge in prices after the exacerbated tightness of the oil market in the Russia–Ukraine war, as countries tended to halt the further supply of energy from Russia. Despite being an energy-rich country, Azerbaijan at a later phase experienced higher import-oriented inflation owing to its reliance on imports (Mammadov 2022). However, at the beginning, the negative impact of the pandemic expanded beyond falling oil prices, resulting in increased unemployment and closed businesses. Along with the lockdown measures, COVID-19 hit all sectors of the economy to varying degrees; the hydrocarbon sector, tourism, SMEs, and education were among the most damaged areas.[4]

An analysis of the different sectors identified the existing gaps and challenges faced by health workers, students, and the economically active population.

The healthcare system proved resistant to the challenges and negative outcomes that rose in the backdrop of the spread of COVID-19 in the country. Preliminary assessment identified that one of the main challenges faced by the healthcare system in Azerbaijan was linked to rural areas where there was a lack of essential equipment and workforce. Government support and international initiatives aided this counteraction to the pandemic. The sustainable vaccination campaign demonstrated its effectiveness towards the virus and led to a decline in the number of infected

[3] https://doi.org/10.1016/j.resourpol.2017.10.006
[4] https://www.borgenmagazine.com/covid-19-in-azerbaijan/

people. Since the number of cases was moderated and slightly declined, several restrictions were removed, which paved the way for economic recovery. The research identified that the transition to online education was comparatively challenging owing to the absence of essential infrastructure and poor management of the shift. The majority of surveyed respondents favored traditional or face-to-face education; the same tendency was observed among teachers.

Although the government maintained the transition of learning from traditional to online, the full-scale implemented programs were insufficient.[5] Drawbacks and gaps were especially observed in rural areas where poor infrastructure and lack of knowledge complicated the switch to distance learning. An insufficiently innovative approach revealed a necessity for the revision of existing methodologies in the framework of education.

Innovation and digital access became priorities long before the pandemic heralded their fair evaluation and application. The shift to digital practices in Azerbaijan proved to be efficient since all government agencies and ministries started to apply e-services. Since 2016, a considerable transition observed in the country towards a more digital economy led the way for further change. The unexpected spread of COVID-19 in Azerbaijan brought about an immediate transition to digital services. Digitalization infiltrated to all areas of businesses and education, proving to be an effective measure against the spread of the virus since it minimized human contact.

Research provided more insight into the pros and cons of expanded digital services applied across the country, revealing a necessity for further measures aimed at the development of e-services.

While assessing gender balance in terms of the labor market in Azerbaijan, it became obvious that the COVID-19 crisis considerably exacerbated existing forms of discrepancy between men and women. Research revealed a high presence of female labor in the country's shadow economy, proving their vulnerability against the background of increasing workloads and income loss. A significant reduction in paid working hours was also observed. Even though the government and affiliated institutions provided assistance to the more vulnerable and to people in need, these programs proved not to be gender-sensitive. An assessment identified drawbacks not only in labor force participation but also in education, increased number of cases of domestic violence, and so on.

The overall assessment of the different sectors provided detailed insight into the main challenges and shortcomings that arose in the background of the COVID-19 spread in Azerbaijan, along with measures implemented to mitigate the impact of the crisis. Following the interviews with experts, it became clear that the pandemic had a destructive impact on education and gender disbalance, in particular. The recovery needs differ from sector to sector, which requires a detailed approach towards each area in order to investigate the existing gaps and challenges. The general principles cover basic service provision, the implementation of productive activities to support livelihoods and social protection, and capacity-building.

Research Questions

This study analyzes the recent socioeconomic challenges in Azerbaijan owing to the outbreak of the global pandemic. The research focuses on the impact of the pandemic on health, digital access,

[5] https://iwpr.net/global-voices/azerbaijans-children-let-down-online-learning

education, and female labor force participation. The specific objectives of this research explore the following areas:

a. What is the macroeconomic situation in Azerbaijan?
b. How does the pandemic affect health, education, digital access, and female labor force participation?
c. What impact does the pandemic bring to the specified sectors in terms of performance?
d. What kinds of government policy are adopted to contain the repercussions, and to what extend are they successful?

Literature Review

The economic and social impacts of COVID-19, along with policy responses to mitigate the outcome of the virus, differed from country to country. While assessing the situation in the countries of the Eastern Partnership (EaP) during the first phase of the pandemic, it became clear that the impact of COVID-19 on public health was limited compared to that on countries in Western Europe (OECD 2020). Taking this into consideration on a by country basis, several studies were conducted to access the impact of the pandemic on Azerbaijan. It is worth mentioning that Azerbaijan was the first country in the post-Soviet space to allocate the largest share of GDP to eliminate the challenges arising in the background of COVID-19 (CESD 2020). The emerging crisis launched an immediate necessity for response and preventive measures on behalf of the government, which resulted in mixed public opinion about the adopted measures (Aliyev 2021). The assistance provided covered the economy, social issues, education, social protection, and many other areas.

Some of the studies were devoted to analysis of the existing system and the measures adopted to indicate whether the country would succeed in crisis mitigation. The pandemic revealed the exacerbation of existing problems and provided an opportunity to seek alternative solutions (Valiyev & Valehli 2021). There was a particular focus on education during the pandemic. The largest share of findings indicates that the problems faced with the transition to online education were similar across the globe. The study conducted by Bunescu & Canham (2021) depicted the similarities and differences among EaP countries related to access to online and offline education. In Azerbaijan, the major challenge associated with distance learning referred to the lack of appropriate infrastructure, particularly in remote areas.

The healthcare system was among the sectors facing significant challenges owing to the pandemic. The healthcare system's resilience during COVID-19 was one of society's primary concerns. Several changes were made to the healthcare legislation in the country depicted in the study by Jafarova et al. 2021. Based on the fact that older people make up a considerable proportion of society in Azerbaijan, it goes without saying that COVID-19 posed a serious health risk for this category. The quality and accessibility of the healthcare system in the country differed from region to region, emerging in comparatively difficult situations for elderly people and their caregivers (IFRC 2020).

Concerning the vaccine used in the country, Azerbaijan started vaccinating its population with Chinese-made Sinovac in 2021 and was the first country in the South Caucasus region to launch the campaign. A comparative analysis of the vaccination rate among South Caucasus countries illustrates the variety in approach and public attitude towards vaccination campaigns (Heinrich-Böll-Stiftung 2021). Digitalization refers to one of the most crucial topics for both the Azerbaijani government and society since it plays a leading role in the development of the economy. An overview of the role of the digital economy in the country in the post-pandemic period was conducted by Guluzada 2020.

The research covered the process of transition from traditional approaches to modern developing concepts. The importance of digitalization and acceleration of its appliance as an innovative factor in the development of agriculture in Azerbaijan was shown in the study by Valiyev et al. 2022.

Certainly, gender inequalities, which existed long before the pandemic, were boosted by the challenges emerging during the pandemic. Several studies to access the impact of the pandemic on labor force composition in Azerbaijan were also conducted. A deep structured analysis of the gender gaps in Eurasia identified labor inequality in the country resulting in rising unemployment rates and pay cuts (OECD 2021).

Our study in the following sections emphasizes the analysis of education, health services, digital access, and female labor force participation following the COVID-induced inequalities. The results demonstrate that the negative impact in each sector is still not over. The prevailing circumstances lay down the foundation for adoption and the preparation for pandemics is ongoing. The study makes an attempt to elaborate on the situation, with specific new policies and commendable practices.

Methodology

To the best of our knowledge, we used multiple methods of data collection and analysis aligning the research standards and following the best practices of evidence-based public policy research. The current analysis employed primary data derived from our own empirical research as well as data from official sources referred to as secondary.

To assess the impact of COVID-19 on particular sectors of the Azerbaijani economy, this content analysis-based study used a methodology combining both qualitative and quantitative indicators. The study is based mainly on qualitative indicators. Nevertheless, quantitative indices, including data from various reports that addressed the topic, were used to add value to the qualitative analysis to produce a more valid and reliable estimation. The methodology of the research is based on questionnaires, focus group discussions (FGDs), in-depth interviews, analysis of media reports on COVID-19, data obtained from official statistical sources, and both national and international studies conducted on the topic.

Data Collection/Desk Research

The initial step covered data collection through which deep insight into the topic was gained. The information was gathered from national reports published by official governmental websites, including reports from the State Statistical Committee of the Republic of Azerbaijan, Ministry of Health, Ministry of Labor, and so on. Following data obtained from international reports, there is a need to specify major sources of reference, which include the World Health Organization (WHO), EU4Business, United Nations Population Fund (UNFPA), PricewaterhouseCoopers (PwC), United Nations Development Programme (UNDP), Asian Development Bank (ADB), and others.

Focus Group Discussions

A preliminary collection of data was used in the drafting of special question packages for the follow-up phases that included FGDs and in-depth interviews. FGDs with target groups were held in an interactive format to cover emerging gaps and answer additional questions. FGDs were based on structured open-ended questions and conducted with three groups. These target groups were

composed of experts in the fields of education, healthcare, and gender. The discussion format was based on identifying gaps and challenges faced by participants in their areas, along with the involved facilitator.

In-Depth Interviews

To fulfill the remaining gaps in the data collected via the two aforementioned techniques, a total of nine interviews were conducted with representatives of the Administration of the Regional Medical Divisions (TABIB), Ministry of Health, Ministry of Education, experts on gender, and different NGOs.

The Macroeconomic and Human Impact of COVID-19

Before the pandemic, Azerbaijan expected its third consecutive positive annual growth rate owing to the continuous economic recovery from the 2014 to 2015 oil crisis.[6] Over the first half of 2020, national output declined by 2.7 percent in real terms compared to the same period in 2019. The decline was associated with a downturn in the hydrocarbon (2.9 percent) and non-oil and gas sectors (2.5 percent). GDP per capita also witnessed a decline of 3.4 percent in the same period. Azerbaijan faced massive supply and demand-side shock, which contributed to the economic recession. The impact of the pandemic differed from sector to sector. For instance, in the transportation sector, cargo transport shrank by 14 percent. Retail trade turnover recorded a slight decline of 1.9 percent.

Following a preliminary assessment of damage during the crisis, it was estimated that Azerbaijan will witness a loss of around USD0.5 billion to USD0.8 billion. Additionally, there is a need to mention that the pandemic and quarantine measures subdued domestic demand, which retained the inflation level stable at 6.7 percent in 2021. Evaluation of the human impact of COVID-19 revealed that the crisis had direct health implications on many people predisposed to illnesses such as respiratory issues, cancer, or blood system-related problems. Aside from the economic consequences, some people experienced food insecurity, increased domestic violence, and psychological distress.[7]

Education

The National Strategy of Education Development led to significant progress in the education sector in Azerbaijan. Allocation for education from the state budget increased to 3.2 percent of GDP in 2020 exceeding 2 billion manat. As seen from Table 1, the school attendance rate in Azerbaijan is quite high. However, since the pandemic started to spread across the country, the nationwide quarantine that came into force in March 2020 resulted in the closure of all educational institutions, affecting more than 1.9 million children and young people. COVID-19 required an emergency transition from the face-to-face learning process to distance learning, which presented a number of challenges.

[6] https://dergipark.org.tr/en/pub/bilig/issue/42612/519424
[7] https://www.worlddata.info/asia/azerbaijan/inflation-rates.php#:~:text=For%202021%2C%20an%20inflation%20rate,at%20the%20beginning%20of%202022

Table 1-1. Number of students by type of education (at the beginning of the academic year)

	2019/2020	2020/2021
Students—total	2,033,877	2,078,353
General education institutions	1,617,138	1,657,685
Vocational education institutions	164,503	153,041
Specialized secondary education institutions	56,075	60,060
Higher institutions and doctorate study	196,161	207,567

Source: State Statistics Committee of the Republic of Azerbaijan 2022

Following the research conducted by Murshudova et al. 2021, it was revealed that around 76 percent of 1,200 higher education students were new to online learning, while only 24 percent followed distance learning before the pandemic. The largest share of respondents expressed their desire to continue the traditional form of education because of technical difficulties arising owing to online learning.

The statistics obtained from UNICEF's weekly assessment on children's access to education conducted in different districts of Azerbaijan revealed that 70 percent of schoolchildren were supported by some forms of remote education (vocational school, messaging), while about 93 percent received regular support from teachers. Just about 36 percent of preschool-age children were supported by home-based learning platforms (UNICEF, Global Education Crisis). Although 111 TVET (technical and vocational education and training) schools in the country switched to distance learning via TV and remote education platforms, remote education in these institutions was challenging owing to its focus on the appliance of practical skills.

According to statistics, children in poverty were affected comparatively more, given that their parents or caregivers were not able to provide them with the basic needs for distance learning.[8] The lack of appropriate infrastructure essential for online education in rural areas also played its role.[9] Therefore, the potential impact on poorer learners might lead to considerable learning losses. Additionally, it is worth mentioning that children with disabilities were also significantly affected.

Stable internet connections also played a significant role in distance learning. In Azerbaijan, good internet connection costs around AZN 20 (USD11.76) monthly, as well as the AZN 100 (USD58.82) charged for the internet router. Therefore, to avoid expenditure on the router, students preferred mainly to use mobile internet packages costing AZN 20 (USD11.76) per month. In this regard, the transition to online learning forced students to upgrade their mobile internet subscriptions more often, which automatically increased their spending ('Education in Azerbaijan during COVID-19,' EU report).

[8] https://stat.gov.az/source/system_nat_accounts/
[9] https://www.ohchr.org/sites/default/files/Documents/Events/GoodPracticesCoronavirus/azerbaijan

The study confirms[10] that neither educational institutions nor students were ready to transition to a digital system. Major challenges are reflected in poor infrastructure—including frequent electricity blackouts and comparatively high internet costs. It is clear that the regions faced a lack of appropriate infrastructure essential for distance learning, thus, there was a difference between large cities and regions in the process of transition to online education.

Government Response

The Government of Azerbaijan, in its turn, implemented several measures to address the challenges that emerged for education in the country. To ensure continuity of education, the Ministry of Education (MoE) launched a remote learning project on two national TV channels in March 2020, so more than 2,125 TV lessons were broadcasted nationwide between March and June 2020.

In the first week of September 2020, new curricula were approved by the MoE following the Resolution of the Cabinet of Ministers on the organization of learning during the quarantine regime. In line with the curricula, the activities of public education institutions in Baku, Absheron, and Sumgait were organized online twice a week, while in other cities and regions activities were organized three times a week.[11] The education system of Azerbaijan includes five days of training on a weekly basis with four to seven hours of lessons per class during the offline period.

Another significant contribution by the MoE was the launch of the Virtual School digital learning platform in cooperation with Microsoft Azerbaijan using the MS Teams platform. The platform has operated since September 2020 and is used not only for teaching online courses but also for hosting online events for teachers on upgrading their digital skills.[12] According to estimations, around 530,000 children are active users of this platform.[13]

The Ministry of Transportation, Communication and Higher Technologies signed an agreement with several mobile companies, ensuring the provision of internet access to about 40,000 schoolteachers.[14] The government also ensured that all teachers and other educational staff retained their salaries and other essential incentives during the quarantine period. The Korea International Cooperation Agency (KOICA) donated 875 tablets to Azerbaijan's Ministry of Education in the framework of a project titled 'The Technical Assistance (Grant) Project for Teachers' Capacity Building and Establishment of Educational Information System for the Ministry of Education of the Republic of Azerbaijan' to assist schools in Azerbaijan in response to the COVID-19 pandemic. This equipment will maintain continuous education and accelerate the digitalization of learning. The general level of productivity was satisfactory.[15]

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[10] https://www.ohchr.org/sites/default/files/Documents/Events/GoodPracticesCoronavirus/azerbaijan-submission-covid19.pdf

[11] https://www.etf.europa.eu/sites/default/files/document/Country%20Fiche%202020%20Azerbaijan%20-%20Education_%20Training%20and%20Employment%20Developments.pdf

[12] https://euneighbourseast.eu/news-and-stories/publications/the-impact-of-covid-19-on-access-to-online-and-offline-education-in-the-eap-countries/

[13] https://virtual.edu.az/

[14] https://azertag.az/en/xeber/KOICA_donates_Tablet_PC_to_support_Azerbaijans_education_sector_during_COVID_19_pandemic-2070320

[15] https://azertag.az/en/xeber/KOICA_donates_Tablet_PC_to_support_Azerbaijans_education_sector_during_COVID_19_pandemic-2070320

By September 2021, all educational institutions in Azerbaijan had switched to the previous regime, continuing traditional face-to-face education. The transition was supported by all essential measures, including vaccination of all working staff and students aged 18 and above. All students and teachers were obliged to proceed with vaccination and present digital certificates before entering the educational institution. UNICEF and WHO worked closely with the MoE and national health agencies, assisting them in the process of recovery.[16]

Recommendations

- Support development of innovative skills education programs and learning support solutions for young people along with employers and other social partners to ensure an adequate response to structural changes in the labor market as a result of the COVID-19 impact.
- With a specific focus on the most vulnerable children in selected communities, the promotion of the digital campaign for the provision of access to devices and connectivity is essential for learning.
- Develop mental health and psychological support services in educational institutions to ensure qualitative coping with stress and mental health issues among students.
- Since the pandemic broadened opportunities for innovation and acceleration of digitalization in education and the economy, the development of more flexible learning pathways to improve equitable access to higher learning is highly recommended.
- To support individual learners, there is a need for allocation of more investment in school and university information and communication technology (ICT) infrastructure (computers, access to online learning platforms, virtual learning environments, and so on).

Health Services

The state budget for healthcare increased significantly from 2006, reaching AZN 1.7 billion in 2020 (USD992 million)[17] accounting for 3.6 percent of total budget expenditure.[18] All specialized health facilities, general hospitals, and the largest share of hospital workers are mostly located in the capital city Baku.

Healthcare in Azerbaijan is provided by public and private healthcare institutions and regulated through the Ministry of Healthcare. Public hospitals are managed by the State, and medical care is offered free of charge for Azerbaijani residents.

Azerbaijan had over 790,820 confirmed cases of COVID-19 as of March 2022. Following the information provided by the Operational Headquarters under the Cabinet of Ministers, in terms of the geographic distribution of cases, the greatest share was concentrated in Baku, followed by Absheron, Aran, and Ganja-Gazakh. Women accounted for 54 percent of all cases of COVID-19 in the country, while men accounted for 46 percent. Following the distribution of cases by age group, young adults between 20 and 39 years of age represented 32 percent of all cases, people over the

[16] https://azerbaijan.un.org/en/142644-school-reopening-who-and-unicef-call-schools-remain-open-safer-measures
[17] https://www.stat.gov.az/source/healthcare/?lang=en
[18] https://e-qanun.az/framework/43943

age of 60 represented 22 percent, while children aged 0 to 19 years represented 11 percent. Undoubtedly, older people make up a steadily growing proportion of society, for whom the spread of COVID-19 imposed a serious health risk. An assessment of changes in older people's health and lifestyle during the pandemic depicted deterioration of their emotional wellbeing, levels of physical activity, along with their physical and mental health. More importantly, access to hospitals, emergency ambulances, and polyclinics declined considerably, which was felt in both rural and urban areas (Azerbaijan Red Crescent Society 2020).

The number of infection prevention and control (IPC) specialists was relatively limited by the time the pandemic started to spread in Azerbaijan. Doctors with other specializations were trained to establish proper IPC to manage COVID-19 cases. Table 1-2 depicts the composition of main indicators related to the healthcare system. Decrease in healthcare hospitals and healthcare staff is observed owing to the reforms conducted in the healthcare system as provided by the State Statistical Committee. The country faced a lack of personal protective equipment (PPE) such as masks in the early period of pandemic outbreak in 2020, stipulating the need to open new production plants to meet national needs. Thus, the local production of facemasks, along with disposable protective clothing, disinfectants, sanitizers, etc., was launched in Azerbaijan as the next step to fight the pandemic.

Table 1-2. Main indicators of healthcare

	2019	2020	2021
Physicians of all specializations (thousand)	32.5	31.8	31.8
Per 10,000 population	32.9	32.0	31.8
Paramedic staff (thousand)	54.0	55.7	54.8
Per 10,000 population	54.8	55.9	54.8
Number of hospitals	563	570	518

Source: State Statistics Committee of the Republic of Azerbaijan 2022

Government Response

To maintain the healthcare sector, the Government of Azerbaijan adopted support measures as part of its reponse to COVID. It included increased spending on public health, as Azerbaijan spent USD475 million out of a total of 28.5 billion manat budget expenditures to combat COVID-19 in 2021,[19] and the establishment of the Coronavirus Response Fund, which included contributions from the public and private sectors. Its main aim was to provide financial assistance to the country's response measures, and around USD12 million was allocated from the President's Contingency Fund.[20] The fund resources were spent on the fight against coronavirus, particularly for the development of special healthcare facilities, the advancement of the healthcare infrastructure and strengthening its logistics, rewards to healthcare workers, and the provision of financial support for them. For the efficient management of fund donations and the spending of the resources, a special treasury account was opened by the State Treasury Agency operating under the Ministry of Finance; spending of these resources was managed based on the income and expenditure estimate defined by the

[19] https://caspiannews.com/news-detail/azerbaijan-spends-475-million-to-combat-covid-19-in-2021-2022-5-26-0/
[20] ibid

Cabinet of Ministers.[21] The number of transfers to the fund consisted of AZN 20 million (USD11.76 million)—0.02% of GDP (CESD Press 2020).

Although there were already some modular hospitals in the country, the government allocated more than USD10 million to build ten new modular hospitals specifically for the treatment of COVID patients. Although the number of hospitals decreased owing to structural reforms in the healthcare system, within these reforms the hospitals were not related to the figures of those built to combat COVID-19. More than 30 laboratories were assigned to perform PCR tests.

Adopted measures included border closures; restrictions on domestic movements; a special quarantine regime applied across the country; closures of restaurants and other public facilities, airports, and transportation hubs. During a strict quarantine regime starting in June 2020 until July 2021,[22] people were obliged to stay at home, not leaving without an essential purpose (medical issues, grocery shopping). Permission to leave for work required special permission from the Cabinet of Ministers.

An escalation of the Nagorno-Karabakh conflict and the launch of large military operations in 2020 also challenged the health sector capacity and made Azerbaijan's COVID-19 more complex. Mass gatherings across the country worsened the pandemic situation, resulting in a significant daily increase in cases by thousands. After the end of an active military phase, Azerbaijan returned to the implementation of a special quarantine regime by the end of 2020 (Aliyev 2021).

TABIB, established by the State Agency on Mandatory Health Insurance, was in charge of providing essential information related to the spread of the coronavirus infection in the country. Via its app, e-Tabib, people can get the latest statistics related to the number of infected and vaccinated people.

Owing to the exchange of experience, local healthcare staff were able to benefit from the visit of 200 specialists from Türkiye, China, Italy, Cuba, and Russia.

Expressing its solidarity with States affected by the virus, the Government of Azerbaijan donated USD5 million to WHO. An additional USD5 million was donated by Azerbaijan in its capacity as current Chair of the Non-Aligned Movement (NAM) to WHO in order to support the most affected NAM countries.

International Support

In April 2020, the WHO Country Office (WCO) in Azerbaijan initiated the REACT-C19 project in order to share the expertise between healthcare workers and to use innovative solutions and digital platforms towards reshaping the hospital response to COVID-19. The project was implemented with the support of the Heydar Aliyev Foundation, the Ministry of Health, the State Agency on Mandatory Health Insurance, and TABIB.[23]

The European Union (EU) mobilized around EUR 2.5 billion to support EaP countries in tackling the COVID-19 crisis and socioeconomic recovery. Particularly, the EU mobilized a tailor-made COVID-19

[21] https://nk.gov.az/en/article/837/
[22] https://www.bbc.com/azeri/azerbaijan-53271725
[23] https://www.who.int/about/accountability/results/who-results-report-2020-mtr/country-story/2020/who-country-office-in-azerbaijan-supports-the-country-in-its-covid-19-response

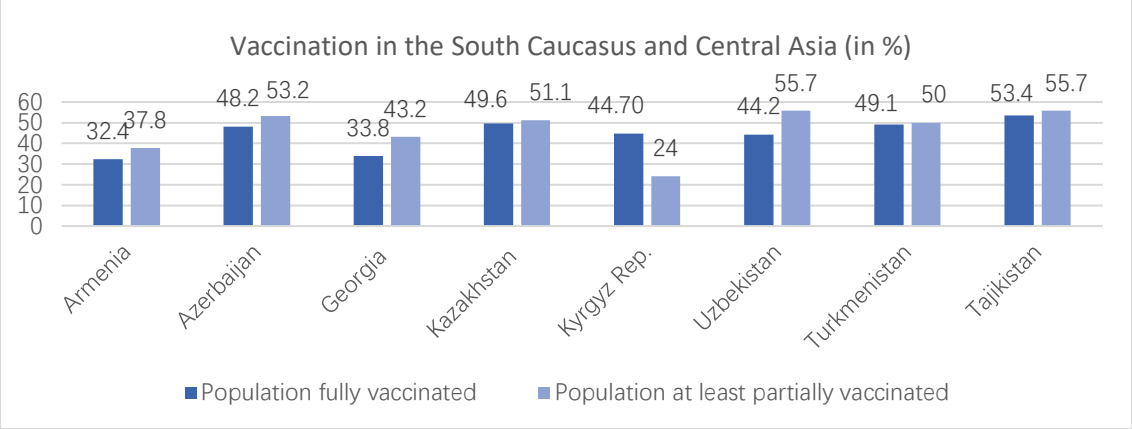
response package of about EUR 32 million to support the needs of and assist the country's public health system. Azerbaijan continues to receive vaccines via the COVAX Facility, supported by the Team of Europe,[24] which trained and supported more than 2,900 healthcare workers, 98 laboratory technicians, and 1,400 medical and nursing students by 2021. Moreover, vocational education schools in the Ganja, Mingachevir, Jalilabad, Gakh, and Ismailli regions purchased equipment to produce personal protection garments for medical staff. More than 1,600 doctors and nurses took part in basic life support and advanced life support training sessions.

Rural communities were among the vulnerable groups in the country since the pandemic started to spread in Azerbaijan. The Shamakhi region located in the east of the country benefited from the pilot PROACT care project implemented by WHO through the Universal Health Coverage (UHC) Partnership. The project focused on training health workers and empowering communities to ensure a more resilient and stronger health system. Azerbaijan is among 115 countries to which the UHC Partnership helps deliver WHO support and technical expertise. In the framework of the project, the WCO formed a coordination group in Azerbaijan, creating a network that included healthcare authorities, educational institutions, and local government representatives in the implementation district.[25]

Vaccination

Azerbaijan was the first country in the South Caucasus to launch a vaccination campaign (Figure 1-1). Vaccination started in January 2021 with the Chinese-made Sinovac vaccine. Later the Ministry of Health adopted the use of Oxford–AstraZeneca, the Russian-made Sputnik V, and Pfizer–BioNTech. Vaccines are provided to the population for free and voluntarily. The initial vaccination phase included people at risk, starting with health workers, people aged 65 and above, and law enforcement workers handling anti-epidemic measures. The second phase included people with chronic respiratory diseases, diabetes, and obesity; and people aged 50 and over.[26]

Figure 1-1. Vaccination percentages in the South Caucasus and Central Asia



Source: Reuters 2022

[24] https://ec.europa.eu/neighbourhood-enlargement/system/files/2021-12/09.12.2021-Azerbaijan_factograph.pdf
[25] https://www.uhcpartnership.net/story-azerbaijan/
[26] https://eu.boell.org/en/2021/06/14/covid-19-vaccine-access-south-caucasus-countries-armenia-azerbaijan-and-georgia

The surveys indicate that many people in Azerbaijan did not want to be vaccinated against COVID-19 since there is limited information about the possible side effects of the vaccines.[27] Following the survey conducted by the Center for Social Research in Baku, Absheron, and seven regions of Azerbaijan, 46.5 percent of people were afraid of possible side effects, 25.3 percent were unsure about the quality of the vaccines. However, the country reached around 47 percent of vaccination coverage with the COVID-19 vaccines by 2021 through the development of effective strategies. As of March 2022, the total number of people who received the second dose of vaccine was 4,805,594.[28] In a meantime, WHO will support Azerbaijan to achieve the vaccination target of 70 percent by mid-2022.

Recommendations

- The recovery of the health sector has to be built upon the medium- to longer-term capacities for health security, following the risk management approach while regaining progress toward universal health coverage.
- To control transmission and avoid compromised health system capacities, there is a need to ensure governance and coordination between the Ministry of Health, TABIB, and other major key partners of the health sector, as people need reassurance that the vaccination process is safe and beneficial.
- Regular consultation with international agencies specializing in health issues may develop an approach focused on the improvement of health services across the country.
- Regular update of guidelines and protocols both for epidemic control and for maintaining essential healthcare services is highly recommended as new evidence becomes available.
- As long as there is a risk of transmission, the insurance of infection prevention control, PPE, and adequate supply chain management is crucial.

Digital Access

ICT plays a leading role in the economic diversification of Azerbaijan. In order to develop the Azerbaijani IT market, the government launched education and e-government programs, expanded e-services, and increased the number of digital resources available to education in the country. Moreover, several technological parks were established in the country, offering tax breaks and exemptions that include profit, land, and property tax breaks for the companies. Successful collaboration between businesses and the Government of Azerbaijan was established through the appliance of e-governance. For instance, the State Tax Service has moved tax payments online, while the Customs Committee has introduced electronic application and payment services. Furthermore, mobile electronic signature technology (Asan Imza) enabled the use of mobile phones as electronic identity cards and a means of signing documents. The State Agency for Public Service and Social Innovations and its affiliated entity ASAN Service was established to organize services in a single place by applying new and innovative methods; it is one of the best examples of digital revolution in the country (Guluzada 2020). The development of modern innovations remains one of the main priorities of the 'Azerbaijan 2030: National Priorities' development strategy.

While assessing access to ICT, fixed telephone network services are provided by several operators such as Aztelekom LLC, Baku Telephone Communication (BTC) LLC, Ultel LLC, Az-Evro-Tel LLC, and

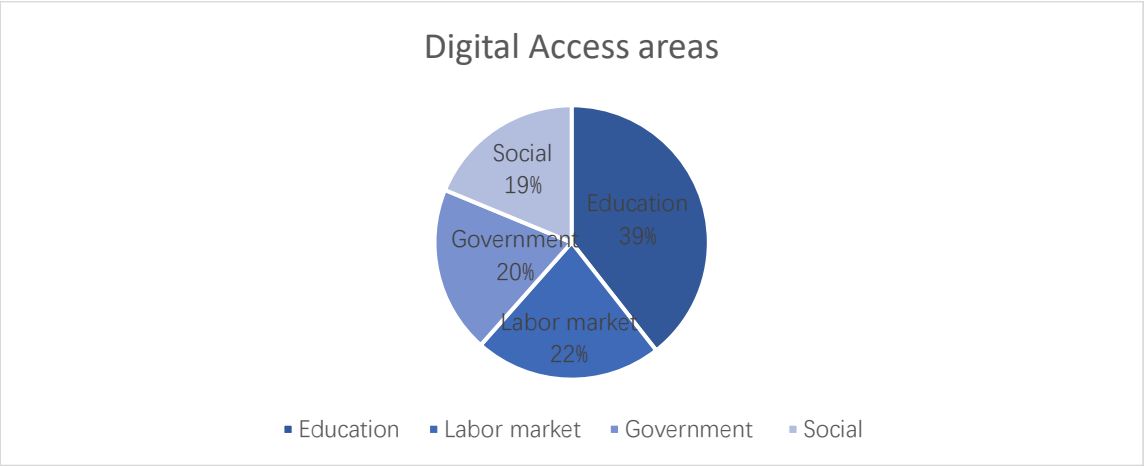
[27] https://stm.az/en/page/75/azerbaijanis-attitude-towards-the-covid-19-vaccination
[28] https://koronavirusinfo.az/az

Delta Telecom LTD LLC. When it comes to mobile, three private companies offer global systems for mobile (GSM), third generation (3G), and fourth generation (4G) mobile services. Even though there are more than 40 internet service providers (ISPs) in Azerbaijan, the two fixed-line operators—Aztelekom LLC and BTC LLC—control all last-mile wired access to homes; therefore, ISPs need to enter into agreements with them (Yoon 2019).

Developed digital services alleviated the process of transition to distance jobs and education during the spread of COVID-19 in Azerbaijan. As stated by the President of the Azerbaijan Internet Forum, the e-government sector was doing its best to prepare emergency IT solutions within a short period to ensure the sustainability of services. The number of internet users in Azerbaijan increased by 202,000 between 2020 and 2021, and the number of mobile connections rose by 92,000 during the same period.[29] This increase was attributed to the COVID-19 pandemic, following the immediate demand for online services in Azerbaijan. In 2020, ICT accounted for 2 percent of GDP. The biggest increase over the last ten years was observed in the use of websites and software development (Talibova 2021).

The shift to digital processes was observed in major sectors of the economy, including health, business, and education. Varying from sector to sector, the transition differed in its context. While in business communities digitalization brought more optimism and raised expectations about the further implementation of reforms related to remote work, education faced several shortcomings and the expansion of existing gaps. Although education required a more detailed approach during the transitional period, the process was not comparatively smooth since the lack of appropriate infrastructure appeared in many places across the country. Nevertheless, the statistics gained from surveys and consultations representative at national level with experts in the field of digital technology indicate that digital access increased in education (82 percent), in the labor market (46 percent), in government (41 percent), and socially (39 percent) (Figure 1-2). The lowest indicator, depicting social use, can be explained through the tendency of mostly the older population to use this service.

Figure 1-2. Percentage of digital access areas



Source: CESD, interview of experts, 2022

[29] https://datareportal.com/reports/digital-2021-azerbaijan

In business, companies have reshaped their approach, embracing the change in supply chain and risk management strategies as a result of the pandemic. CEOs in Azerbaijan are likely to increase digital transformation investments as a part of post-pandemic transformation planning. 60 percent of Azerbaijani CEOs plan double-digit investments in digital transformation, believing that this transition is essential (PwC 2021).

Government Response

As part of the COVID-19 response measures in the Republic of Azerbaijan, the authorities have implemented several containment measures based on digital solutions to prevent the spread of the disease. These measures included the launch of a one-stop digital platform, 'Stay Home' (www.evdeqal.az) by the Ministry of Transport, Communications, and High Technologies in cooperation with UNDP. The platform provided visitors with links to e-health, e-education, e-food, and e-delivery, offering numerous e-learning resources, including information on setting up and running digital businesses remotely. Another important measure was the launch of a new video-conferencing system (VCaaS) for the first time in Azerbaijan, based on AzCloud.

A special digital communication platform was established for the continuous support of the elderly population living alone, low-income, and other vulnerable families during the quarantine regime. Through this platform, volunteers were able to be in constant touch with these people and provide them with social assistance.[30]

Development Perspectives

Although the COVID-19 pandemic aggravated the vulnerability of poor households, driving an increase in unemployment, a decrease in wages, and a decline in remittances, the country can overcome these gaps in economic opportunity and access to services through technology and innovation; consequently, a 'smart village' approach to rural development can enable the country to improve economic opportunities, infrastructure, service, and governance. This approach may improve economic opportunities by enabling private sector investment in rural areas, improve access to services and infrastructure through digital and social innovation, and improve local governance through smarter communication and greater transparency (World Bank 2021). Recently, ICT infrastructure expanded in Azerbaijan, and the internet is widely used by the population. As stated by the Deputy Minister of Digital Development and Transport,[31] internet access will be available throughout the country by 2024.

Differing from sector to sector, the spread of digital infrastructure varies in its outcome. In a business environment, technology and innovative approach can be the main driving force in transforming the country's economy from resource- to knowledge-based. Concerning agriculture, digital technologies are the main contributor to the sector's development and increased productivity, innovation, and rural welfare.

[30] https://www.ohchr.org/sites/default/files/Documents/Events/GoodPracticesCoronavirus/azerbaijan-submission-covid19.pdf
[31] https://www.azernews.az/business/199912.html

Recommendations

- Strengthened innovation governance across sectors and facilitated synergy between policies are crucial. In this regard, the development of a unified state planning system in the ICT sector is necessary.
- Attracting more investment to Azerbaijan's ICT sector along with expanded cooperation with international donors is highly recommended for overcoming the early-stage financing gap and facilitating the growth of innovative projects and technological creativity.
- More systemic linkage of monitoring and evaluation of policy design, including government bodies responsible for innovation, is advisable.
- Increasing the number of small and medium-size enterprises in innovation activity via tax incentives and subsidies will accelerate the development of the digital environment across the country.
- The establishment of a united ecosystem, networking and clustering business incubators, accelerators, and other ecosystem actors is an important incentive for maintaining innovations in the country.

Female Labor Force Participation

As a result of the spread of COVID-19 across the countries, employees reported myriad pandemic-related challenges, starting from lack of opportunities and stagnation periods, to loss of connectivity and a sense of belonging with colleagues. While assessing the labor market, it is clear that women in emerging economies struggled comparatively more, reporting greater challenges than workers in developed economies (McKinsey & Company 2020). Even though Azerbaijan has an adequate legal basis for the promotion of gender equality and the empowerment of women, the negative outcome of the pandemic impacted the distribution of the labor force by gender. Taking into account that the country is equal in terms of gender distribution and able-bodied population, the inequality between women and men in their participation in economic activity and income distribution cannot be denied.

Women became more vulnerable since the spread of the pandemic owing to increased workloads and loss of income, exacerbated by a decrease in paid working hours. The transition to online work scattered working hours throughout the day, resulting in fewer days off, and putting women managing households in a truly desperate condition. Survey results indicated that State programs were not sufficiently competent to meet the needs of respondents in full. It was revealed that around 20 percent of women respondents faced challenges owing to location in remote areas, bureaucracy, or lack of awareness accessing social assistance for them or for a family member.

In 2020, the employment to population ratio in Azerbaijan accounted for 65.7 percent. In the same year, the female labor force 48.1 percent of the total labor force in the country. It is estimated that more than half of all women wage workers in the country are engaged in three sectors. The working age population data was reported to be at 44 percent.[32]

Following the data provided in a report published by the World Economic Forum (2020), COVID-19 had a major impact on the socioeconomic security and sources of livelihood for women and men in

[32] https://data.worldbank.org/indicator/SL.TLF.TOTL.FE.ZS?locations=AZ

Azerbaijan. Following restrictive measures to avert the spread of the disease, a lockdown period considerably slowed economic activity.

Statistics gained from the nationwide survey conducted by UN Women and UNFPA Azerbaijan indicated that women and men were not equally hit by job losses and reductions in paid working hours.[33] 24 percent of men lost their jobs compared to only 8 percent of women. In addition, comparing the indicators of self-employed women, it becomes clear that females who own and operate businesses were affected more by the pandemic compared to employed women, with indicators composed of 55 percent and 48 percent.

The transition to remote working also differed in its composition since more women (47 percent) than men (16 percent) reported home working. As a result of the shaken economic security of women, their share of unpaid care and domestic work increased. In this regard, 47 percent of women reported increased time spent on unpaid care work, while 46 percent of women reported increased time spent on unpaid domestic work. More women than men took fully paid leave from work, but they also surpassed men in being forced to take unpaid leave. This may be explained by women being predominantly employed in sectors shut down owing to the introduction of restrictive measures and lockdown, such as education and service provision.

Out of 198,305 individual women entrepreneurs and 659,739 women wage workers in the country, 243,930 work in the sectors most affected by COVID-19, classified as tertiary, service sector, and education. Thus, nearly one among three working women works in the areas most impacted by the pandemic.[34] Table 1-3 indicates the proportion of women working in these sectors. During the 2020 recession, female unemployment increased by 2.9 percent over male unemployment owing to their concentration in the pandemic-affected service sector; even the partial recovery period during a comparatively smooth 'special quarantine regime' retained a female unemployment rate considerably higher than that of men.

The vast majority of people at risk from the pandemic in Azerbaijan were women owing to their considerable share in service sector.

Table 1-3. Number of women working in areas most affected by the pandemic

Activity area	Wage workers	Private entrepreneurs	Total
Agriculture, forestry, and fishing	12,385	62,524	74,909
Trade; vehicle repair	72,852	45,852	118,704
Tourist accommodation and catering	8,244	6,350	14,594
Recreation, entertainment, and art	34,085	1,638	35,723
Total	127,566	116,364	243,930

Source: State Statistics Committee of the Republic of Azerbaijan 2020

[33] https://euneighbourseast.eu/wp-content/uploads/2021/07/factsheet-azerbaijan-fin-min.pdf
[34] https://www.stat.gov.az/source/gender/az/qk/004_7.xls

An additional crucial factor is informal employment. Certainly, informal workers were affected much more than those employed on a contractual basis. Since the restrictions that emerged with lockdown required special working permission, the number of contract workers increased, respectively. The issue of informal employment and the distribution of the female labor force in it was topical, especially in regions where women perform mostly in the service sector.

Azerbaijan is comparatively sensitive to the topic of the 'shadow economy.' Following the study conducted by the International Monetary Fund (IMF),[35] the shadow economy in Azerbaijan averaged about 54 percent over the past 20 years. Given that the pandemic exacerbated the situation, making it worse for both men and women, as workplaces were subject to closures and restrictions, it is hard not to conclude that the pandemic complicated the situation more for women since they already suffered more from unfair income distribution.

Government Response

Several social support programs were provided by the government during the spread of COVID-19 in the country. These programs included one-time targeted social assistance, food assistance, and assistance to individual entrepreneurs. Nevertheless, the assistance provided by the authorities was not specifically aimed at women.

A one-time targeted social assistance payment was composed of AZN 190 (USD111). In order to receive this package, an individual had to register as unemployed in a special employment subsystem.

The government announced support to the affected businesses and individuals to the amount of AZN 3.3 billion (USD1.94 billion), including partial coverage of salaries (AZN 215 million/USD126 million), support to micro-entrepreneurs (AZN 80 million/USD47 million), temporary public jobs (AZN 54 million/USD31 million), and subsistence and unemployment payments (AZN 230 million/USD135 million) along with tax reforms (CESD 2020).

Recommendations

- Ensure that the social protection plans and emerging economic schemes are gender-responsive, which includes equal access to any financial assistance provided by the government, employment allowance, unemployment insurance, and financial support to informal employment and small business enterprises operated by women.
- Implement measures and concrete steps such as social protection and formalization aimed at the reduction of women's participation and role in the shadow economy and informal labor market through formalization, awareness raising campaigns, and formal training.
- Ensure the provision of training and courses on financial literacy, business management, and entrepreneurship for women, especially in rural and remote areas.
- Revise the existing legal mechanisms to stimulate women's entrepreneurship with the aim of increasing their competitiveness in the labor market and reducing their economic dependence.

[35] https://www.imf.org/en/Publications/WP/Issues/2018/01/25/Shadow-Economies-Around-the-World-What-Did-We-Learn-Over-the-Last-20-Years-45583

Conclusion

Prior to the pandemic, Azerbaijan was on a path toward building a more resilient, sustainable, and diversified economy. Nevertheless, for over a year, the economy was considerably affected by both the spread of COVID-19 and falling oil prices. Aside from the macroeconomic effects, a significant human cost—including loss of income and a negative impact on the health and education of millions of people—accompanied the existing challenges. Nevertheless, the perception of a crisis can be seen as a potential for improvement and further development.

The study investigated the challenges and shortcomings brought about by the spread of COVID-19, estimating the potential impact of the crisis on the economy and livelihoods. Interviews with experts provided deeper insight into the current situation in different areas and sectors across the country. Following the data acquired through research, it became clear that the country was comparatively successful in crisis management owing to existing policies and legislations aimed at economic development. For instance, a reduced dependence on the hydrocarbon sector was a targeted priority of the government before the crisis emerged.

As mentioned earlier, the impact of the pandemic differed from sector to sector. However, the study revealed the common tendency of increased indicators related to digital technologies. Undeniably, digital transition played the main role during the pandemic since the major share of all activities was switched to a digital regime. In education, digital technology played an essential role owing to the transition of all educational institutions to distance learning. While educational institutions located in central areas of the country were able to manage the transition comparatively smoothly, the existing gaps and challenges in rural areas made the process complicated for both teachers and students.

In the business environment, the transition to digital processes was easier since a significant proportion of the workload was implemented in a digital regime before the pandemic. However, despite this positive tendency, the overall assessment of the labor market in Azerbaijan during COVID-19 identified negative trends. First and foremost, the distribution of the labor force by sex proved to be inequitable. Female labor force participation was considerably reduced owing to the outcomes of the virus; this was reflected in income, working hours, and legislation adopted as a part of the support measures provided by the authorities, which were not gender-sensitive.

Substantial changes in the healthcare system of Azerbaijan occurred during the pandemic. Even though numerous legislative measures were brought into force to ensure the correct operation of the insurance system, the transition period turned out to be difficult for both medical staff and society. Overall estimation illustrated that the coronavirus pandemic played a dual role in the national health insurance industry. On the one hand, the major share of public hospitals was assigned to treat infected patients, which complicated the process for people in need of other treatment and essential care. On the other, medical institutions began to develop more actively across the country. It included the improvement of qualifications of medical workers, the acquisition of positive experience with foreign colleagues, and other related factors.

An assessment of COVID-19 in Azerbaijan demonstrated the negative outcome of the crisis on particular sectors and different measures implemented towards its mitigation. The study revealed existing gaps and challenges along with the potential for further development. The recommendations provided will ensure sustainable recovery and development in education, healthcare, and labor composition.

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CHAPTER 2. KAZAKHSTAN CASE STUDY

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Abstract

The global pandemic caused COVID-19 to affect almost all spheres of the economy in Kazakhstan. The retail, aviation, oil and gas, mining, transportation, energy, and utility sectors were the most vulnerable to the pandemic. However, the paper investigates the inequalities induced by COVID-19 in education, health services, digital access and female employment. The study methodology is based on a descriptive statistical analysis of available indicators from the statistical collections of the Bureau of National Statistics of the Republic of Kazakhstan. The research findings confirm regional disparities in digital access, inequality in healthcare services, online education issues exacerbated by the digital divide, and COVID-induced differences in female employment.

Introduction

The COVID-19 pandemic led to a difficult socioeconomic situation in the global economy and in Kazakhstan. Governments had to respond quickly to the unexpected and challenging situation. Kazakhstan allocated about 8.3 percent of GDP (a total of about USB13 billion) to implement the countercyclical development package, including direct COVID-19 health policy response measures, social protection and employment recovery measures, and economic stimulus measures (ADB 2020). In 2020 the President of Kazakhstan signed the decrees 'On measures to ensure socioeconomic stability' and 'On further measures to stabilize the economy,' which led to increased financing of three major State development programs to support employment and business activity in response to the COVID-19 pandemic: Economy of Simple Things,[36] Business Development Roadmap 2020, and Employment Roadmap 2020.

Firstly, COVID-19 placed a heavy strain on the healthcare system. According to the Ministry of Healthcare, 6,500 people have died from coronavirus since the beginning of the pandemic—4,700 in 2020 and 1,800 in the first four months of 2021. The key challenges were a shortage of medical staff, which more than doubled from 10,000 to 23,000 from 2017 to 2021 (Tengrinews 2022), and uneven allocation of medical staff (83 percent working in urban areas and only 17 percent in rural areas).[37] To cope with the pandemic challenges, the national project 'Quality and affordable healthcare for every citizen' was developed for 2021 to 2025. 480 additional reception areas were created for general practitioners to reduce the burden on primary healthcare personnel.

The most challenging situation took place in another social sector—education. 191 countries have stopped traditional education at schools. Different types of distance learning have been explored: broadcasting lessons via TV channels, posting video tutorials on particular platforms, audio

[36] Economy of Simple Things, program designed to boost domestic production of goods and services used by consumers daily
[37] State Health Development Program of the Republic of Kazakhstan for 2020 to 2025

broadcasting lessons on the radio, via email, and so on. Each country tried and chose the most suitable option based on available access to the internet, technical infrastructure, and digital content. The vital challenges of online education in Kazakhstan were: poor access to mobile internet in rural areas (although 92.4 percent of households were declared by the authorities to have the internet); unequal access to electronic learning equipment; and poor digital skills among teachers and students, the provision of which requires a lot of extra-budgetary funding (Seilkhan et al. 2022, Bokayev B et al. 2021, Bektursynova & Sarsengaliyeva 2020).

According to the International Labour Organization (ILO), female employment worldwide declined by 4.2 percent in 2020 compared to the previous year, which is worse than the corresponding 3 percent decline in male employment. The first reason was that the pandemic had inflicted massive damage to sectors employing more women (retail stores, hospitality industry, and so on) according to UNCTAD (2020), KPMG (2020), and McKinsey (2020). Another reason is that mothers are more likely to exit the labor force market and become unemployed than fathers (Landivar et al. 2020). At the same time, men recovered their employment faster than women (Hoehn-Velasco et al. 2022). In Kazakhstan, women are mainly employed and run their own small businesses in the service sector (Kireyeva & Satybaldin 2019, Satpayeva et al. 2020), which was most vulnerable to the pandemic.

Those challenges in education, healthcare, and employment were exacerbated by digital inequality, a hidden form of social inequality (Beaunoyer & Guitton 2020; van Deursen 2020). The consequences of digital inequality are clear with 3.7 billion people—the majority of them women, and most in developing countries—still offline (UN 2021). The digital divide by age, between generations, and the digital geographic divide in internet use show a robust positive relationship with the changing incidence of COVID-19 cases (Borda 2022). Although 92.4 percent of households have access to the internet, the education system of Kazakhstan faces challenging problems in online education owing to poor access to mobile internet in rural areas, unequal access to electronic learning equipment, and poor digital skills.

Thus, the COVID-19 pandemic breached almost all spheres of human activity and has far-reaching consequences beyond the spread of the disease and the efforts of various countries to organize quarantine. In the media, the phenomenon of the impact of the disease on the life of society and its consequences is increasingly termed ‘coronacrisis.’

Compared to past global crises, the economic downturn caused by the coronacrisis was sudden and profound. Looking at quarterly data, global production fell about three times as much during the global financial crisis and twice as fast.

Research Questions

- This research aims to answer the following research questions that are topical for the economy and society of Kazakhstan and Central Asia:
- How did COVID-19 affect the quality of healthcare services in Kazakhstan?
- How did COVID-19 affect Kazakhstan's preschool, secondary school, and higher education?
- How did COVID-19 influence female labor force participation in Kazakhstan?
- How did COVID-19 affect digital access in Kazakhstan?

Research Methodology

The main study methods are descriptive statistical analysis. The information base of the study is indicators from the statistical collections of the Bureau of National Statistics of the Republic of Kazakhstan (Table 2-1).

Table 2-1. Indicators used in the study

№	Indicators	Unit of measurement	Period of study
	Health services		
1	Hospital beds by region	units	2015-2020*
2	Hospitals by region	units	2015-2020*
3	Secondary medical personnel by region	people	2015-2020*
	Female labor force participation		
4	Labour force participation rate	percent	2019-2021
5	*Number of employed people*	thousand people	2019-2021
6	Number of unemployed people	thousand people	2019-2021
7	Unemployment rate	percent	2019-2021
8	Average monthly salary	tenge	2019-2021
9	Employment shared by groups of economic activities	percent	2019-2021
	Education		
10	Learners of preschools by region and by gender	people	2018-2021
11	Students of secondary schools in urban and rural areas	people	2018-2021
12	Students of general education schools in urban and rural areas and by gender	people	2018-2021
13	Students of higher education organizations by gender	people	2018-2021
	Digital access		
14	ICT users by age group (16-24 years old and 25-74 years old)	percent	2010, 2019, 2021
15	ICT users by gender	percent	2010, 2019, 2021
16	Users of digital resources, including computers and the internet	percent	2010-2020

Literature Review

Health Services

The COVID-19 pandemic had a colossal impact on human society globally. In Kazakhstan, the coronavirus infection was classified as a socially significant disease. The difficult epidemiological situation of coronavirus infection in the world and the country requires actual measures to strengthen domestic healthcare.

The literature review of foreign and local scientific works shows further research regarding COVID-19 issues in Kazakhstan. Issanov et al. (2021) studied the attitude of females toward COVID-19

vaccination and evaluated COVID-19 vaccine hesitancy and the associated factors in Kazakhstan. Sarría-Santamera et al. (2020) offered to standardize policy-making procedures and improve network governance in Kazakhstan with the Chrodis Plus policy dialog method. Zhussupov et al. (2022) identified the possible causes of the COVID-19 outbreak and its development and found a failure in medical staff management. Yegorov et al. (2021) found that older age and male sex were other risk factors for the severity and mortality of COVID-19 in Kazakhstan. Maukayeva and Karimova (2020) concluded that in Kazakhstan the strict implication of respiratory infection control measurement in public and healthcare services was very important.

Female Labor Force Participation

Studies on the impact of the pandemic on women's employment and their position in the labor market in developed and developing countries have been carried out quite widely. So, in the United States, in the pandemic era, more significant increases in labor force exits were among women living with children under age six and among lower-earning women living with school-age children. It should be noted that Latinas and Black women also significantly increased labor force exits more than White women (Lim & Zabek 2021). In Japan, there were different effects of the COVID-19 shocks on the labor market. During the pandemic, contingent workers were hit harder than regular workers, younger workers than older workers, females than males, and workers engaged in social and non-flexible jobs than ordinary and flexible jobs. The most severely hurt by the pandemic has been a group of females, contingent, low-skilled workers engaged in social and non-flexible jobs and without a spouse of a different group (Kikuchi et al. 2020). COVID-19 had severe negative consequences on the labor supply in Mexico. In the first month of the pandemic, employment declined by 17 percentage points. During the pandemic, women experienced persistent employment losses. It should be noted that men recovered their employment faster than women (Hoehn-Velasco et al. 2022). In Spain, during the lockdown period, there were significant employment losses, especially in 'quarantined' and non-essential sectors that do not allow for remote work. Employment was mainly temporary and hit lower-educated workers particularly hard. At the same time, women were slightly more likely to lose their job than men. In the short term, the pandemic increased gender inequalities in paid and unpaid work (Farré et al. 2020).

According to Alshanskaya and Azatbek (2022), during the pandemic, Kazakhstan saw an increase in unemployment, a decrease in employment, a sectoral transformation of the labor market, and a slowdown in external and internal labor migration flows. At this time, the so-called 'contact' services sector, which, as a rule, was characterized by high labor intensity, relatively low wages, and a high share of informal employment and self-employment, suffered the most. Izguttieva et al. (2021) note that the quarantine in Kazakhstan made certain adjustments to the structure of employment in Kazakhstan. There was an increased number of technically unemployed, and the need for personnel (construction, transport, and industrial sectors) aggravated the problems of uneven labor resources at regional level. In Kazakhstan, with the onset of the coronavirus, both men and women have increased the burden of unpaid domestic work, however.

Education

The education issue during COVID was investigated by quite a large number of researchers around the world. There are studies of education in different countries (Ferdig et al. 2020, Kesim 2021) and specific country case studies (Soetan & Coker 2018, Vanichvatana 2020, Okay 2021, Algamdi et al. 2020, Seilkhan et al. 2022).

Ultimately, the transition to distance learning affected 200 million students worldwide. Dhawan et al. (2020) believe there has been a worldwide transition from traditional to online education. Liguori and Winkler (2020) argue that the pandemic has forced educational institutions to adapt quickly to online teaching and learning methods. Another negative side is for residents of rural areas, where access to the internet is limited owing to the remoteness of the geographic location (Nashruddin et al. 2020).

Many scientists discuss the relationship between online learning and student perception of educational material. Azzi et al. (2019) and Alawamleh et al. (2020) argue that online learning negatively affects mental health, the relationship between a teacher and a student, and also negatively affects the quality of life and academic performance of students.

Digital Access

Access to digital tools can be different owing to various factors (social, economic, cultural, mental, and so on). They give rise to digital inequalities exacerbated by the COVID-19 pandemic (Beaunoyer & Guitton 2020). Several scientists associate the digital divide concept with digital inequality, especially in developing countries (Hawash & Lang 2019). Thus, researchers analyze ICT and their components as economic development factors (Papaioannou et al. 2007). An empirical analysis based on a sample of developed and developing countries revealed that the positive effect of ICT growth took place in both types of country. In turn, Johnson identified the relationship between GDP, the internet, human capital, and the development of the internet as an essential basis for economic growth (Johnson 2016). Further, Hawash and Lang determined, based on panel data on 76 developing countries from 1991 to 2014, that the digital divide has a bearing on economic growth rates.

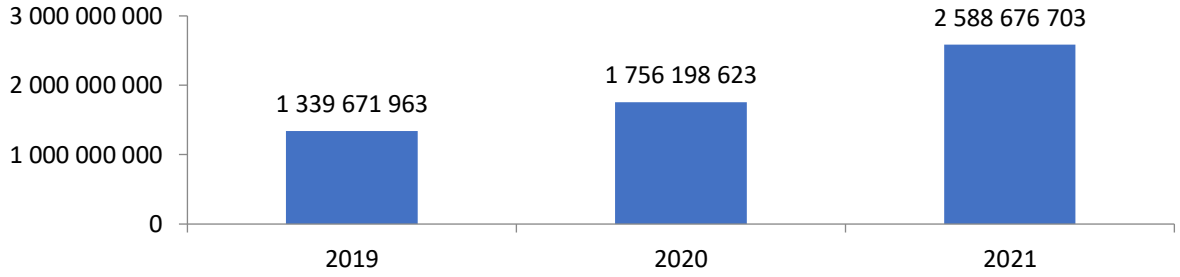
The problem of digital inequality is global, multidimensional, and complex. Nevertheless, advances in digital technology should not be taken for granted, and their application varies depending on different features. This fact is proved by many works and reports of international organizations (including the ILO, OECD, UN, and World Bank).

COVID-Induced Inequalities in Healthcare Services

COVID-19 exposed all the weaknesses of the national healthcare system. Hospital administration and medical staff did the impossible during the pandemic outbreak. The government authorities mobilized all available resources to improve health services. To ensure the availability of primary health care, 44 outpatient care facilities were built and opened in 2020, including 30 facilities in rural areas.

Figure 2-1 shows a two-fold (193 percent) increase in the volume of all health services in 2020-2021. In 2020 the health services growth rate was 131 percent.

Figure 2-1. Health service volume in Kazakhstan, 2019-2021 (tenge)



Source: On the volume of services provided in the field of healthcare and the provision of social services (https://stat.gov.kz/official/industry/63/statistic/5)

According to the Presidential Address to the people of Kazakhstan, dated 1 September 2020, approaches to the organization of primary medical care were revised, and measures were taken to revive medical transport for remote rural areas. The format of medical care was also revised. Thus, the provision of advisory services through the national telemedicine network, to which 259 healthcare organizations are connected, actively began to develop. The republican clinics started to consult the regional hospitals through this network (primeminster.kz 2020). Also, the telemedicine center was established in Almaty to consult and monitor patients with probable and confirmed cases of COVID-19. Also, one of this center's essential functions is monitoring patient compliance with the quarantine regime. The center staff regularly conduct video calls to patients who receive treatment at outpatient level. This ensures that this category of patient does not leave their home and receives all necessary treatment at home (*Kazakhstan Today* 2020).

The statistical analysis of the available data on health services through observing the changes in the number of hospitals, hospital beds, and medical staff by regions has shown the following:

Hospitals. Table A1-1 shows that, before the pandemic, hospitals decreased annually by 3 percent to 7 percent. The total rate of decline from 2015 to 2019 was 17 percent. The highest rate of decline is observed in Turkestan—the most densely populated region. These significant slowdowns can be explained by the more than 50 percent wear of hospitals in Kazakhstan because many facilities were built more than 30 years ago. Since the Republic's independence, hospital numbers have decreased from 1,805 to 749, or more than 2.4 times. The number of hospital beds declined from 230,000 in 1991 to 96,300 in 2019. Moreover, inpatient care has been streamlined towards outpatient care and other healthcare options. Hospitals were built less frequently than polyclinics. In 2015 to 2019, only 19 hospitals were built. The government has been building less since 2011. From 2015 to 2019, eight regions were without a hospital (inbusiness.kz 2020). The growth of hospitals occurred only in the most significant cities—Astana (116 percent) and Almaty (121 percent).

In 2020 when the pandemic started, the situation started improving almost everywhere except for Turkestan and Kyzylorda. Since 2015 the number of hospitals in the Turkestan region—the largest and the most densely populated region of Kazakhstan—has declined by 80 percent. Kyzylorda is an environmentally unfavorable place to live as it borders Baikonur city, where the cosmodrome is situated; the number of hospitals in Kyzylorda declined by 34 percent. A slight decline is observed in the East Kazakhstan (2 percent) region and Almaty city (1 percent). In 2020, 16 prefabricated infectious diseases hospitals were built in the Republic, and three were reconstructed by reprofiling.

Hospital Beds. The total number of hospital beds in Kazakhstan decreased from 2015 to 2019 by 6 percent (Table A1-2). With the introduction of the Unified National Health System at hospital level,

the State obligatory medical care funds were consolidated at the Republican budget level, and the principle 'the money follows the patient' was introduced. This contributed to the intensification of the use of hospital resources and the development of hospital-replacing technologies, so compared to 2010, the duration of the average hospital stay decreased by 27 percent, and the number of patients treated in a day increased by 23.5 percent.[38]

Again, the highest decline was found in the Turkestan region (-30 percent). In 2019, the total number of beds in Kazakhstan was 96,286 units. In 2020, compared to 2019, this number increased by 31,178 units (or 32 percent). In 2020 with the pandemic outbreak, the change was positive except for the largest city of Kazakhstan—Almaty city (-11 percent). The highest growth was found in the Atyrau region, Astana city, Pavlodar region, Shymkent city and Kyzylorda region. In 2021, there was a reserve of 51,126 beds to provide medical care to COVID patients and 100 mobile medical complexes were delivered to the regions.

Medical Staff. The secondary medical personnel (nurses) include 'persons who have received special education and appropriate qualifications in secondary medical educational institutions and are admitted to medical activities.'

The number of nurses in the Republic is gradually increasing. The total growth rate in 2015 to 2019 was 10 percent. However, this positive trend is not observed in all regions. The Turkestan region faced a negative change (-20 percent), as well as North Kazakhstan (-7 percent) and Almaty (-6 percent). The government needs to pay special attention to these regions (Table A1-3). In 2020 the growth shortfall was recovered owing to the pandemic. The highest growth in numbers of nurses was reached in Shymkent city (10.2 percent) and Atyrau region (6.7 percent). The main reason for the shortage in secondary medical personnel is a high turnover, the imperfection of the wage system, low motivation, legal insecurity, and insufficient social support. Nurses leave medical organizations and the industry because of the lack of opportunities for professional growth and further development. The migration of medical workers leads to an imbalance of doctors and nurses across the regions and between urban and rural areas. University graduates do not wish to work in small towns and villages.[39]

As for the doctors, there is an imbalance between urban and rural areas. According to data reflected in the State Program of Healthcare Development of the Republic of Kazakhstan for 2020 to 2025, 83 percent of doctors work in the city and only 17 percent in rural areas.

Kazakhstan also lags behind the leading countries in providing the population with medical personnel. Thus, according to official statistics for 2020, in Kazakhstan, there were 40.5 doctors and 95.5 nurses per 10,000 population or 4 doctors and 9.5 nurses per 1,000 population, while in developed countries such as Japan, Australia, and New Zealand there were around 12 nurses per 1,000 population (OECD 2020).

[38] Health Development Program Republic of Kazakhstan 'Densaulyk' for 2016-2019

[39] http://www.rcrz.kz/index.php/ru/2017-03-12-10-50-44/smi-o-nas/2028-v-kazakhstane-ne-khvataet-12-tysyach-medrabotnikov-v-chjom-prichina-defitsita-kadrov

In Almaty, in 2020, this rate for doctors was 25.1, and 78.3 for nurses.[40] Therefore, there is an acute shortage of doctors and nurses in healthcare institutions, especially in rural areas. Owing to the shortage of doctors and the excess of the normatively approved time for patient care in polyclinics, long patient queues force patients to turn to private clinics. Not everyone receives guaranteed free medical care under Mandatory Social Health Insurance (MSHI); the unemployed and the self-employed remain behind.

The quality of medical services to the population remains still low. According to the results of research by the Ministry of Health in 2019, patient satisfaction with the quality of medical services in Kazakhstan was only 48 percent (primeminister.kz 2020)

Access to medicines for remote rural settlements remains unresolved. Currently, there is a situation where remote rural areas have almost lost the opportunity to receive medical care at their place of residence. The reason is that no retail pharmacy wishes to work in rural areas owing to zero or low profitability (Utegenova 2014).

COVID-Induced Inequalities in Female Labor Force Participation

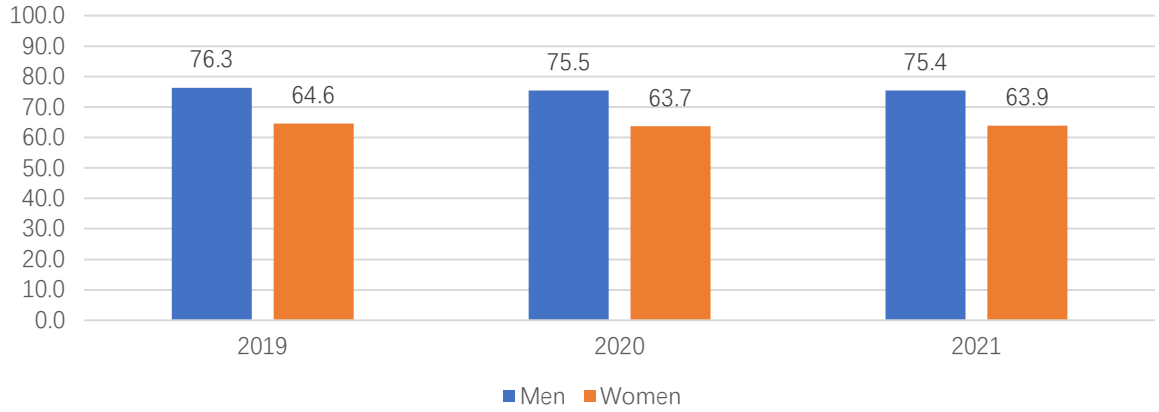
Kazakhstan is pursuing an active policy to expand economic opportunities for women in the field of employment: accession to the UN CEDAW (1998) and six ILO conventions (2000); the concept of gender policy (2003); strategy for gender equality for 2006-2016 (2005); Law 'On State guarantees of equal rights and equal opportunities for women and men' (2009); the concept of family and gender policy until 2030 (2016); State program for the development of productive employment and mass entrepreneurship for 2017-2021 'Enbek' (2018).

During the pandemic, business support measures comprised tax incentives, protection of borrowers from financial institutions, and support for citizens losing their jobs owing to the pandemic. In 2020, the following presidential decrees were approved: 'On measures to ensure socioeconomic stability,' 'On further measures to stabilize the economy,' and the 'Employment Roadmap for 2020-2021.' In particular, measures were taken to support small and medium-size businesses, including temporary exemption from income tax and social payments (social tax and insurance); to ensure employment of the population, including through the implementation of infrastructure projects; bonuses were assigned to the wages of medical workers and social payments amounting to 42,500 tenge for citizens; lost income owing to the pandemic; the provision of food baskets and hygiene products for low-income families; and measures to suspend payments on loans to individuals and legal entities for 90 days and refinance enterprises under the internal refinancing program of banks or national programs of concessional lending.

In Kazakhstan, women's labor force participation rates are lower than men's. In 2021, this figure stood at 63.9 percent, while the male labor force participation rate froze at 75.4 percent. The difference in the level of this indicator between women and men throughout the whole period made up about 11.7 percent. Compared to 2019, female labor force participation decreased by 0.7 percentage points, while males decreased by 0.9 points (Figure 2-2).

[40] https://www.stat.gov.kz/official/industry/63/statistic/7

Figure 2-2. Labor force participation rates in Kazakhstan, 2019-2021 (percent)



Source: Main labor market indicators in terms of gender, 2019-2021 (https://stat.gov.kz/api/getFile/?docId=ESTAT099070&lang=ru)

In 2021, 8.8 million people were employed in the economy of Kazakhstan, of which 4.6 million were men and 4.3 million were women. In 2020, the number of employed people decreased, especially among females. Compared to 2019, in 2020, the number of employed men decreased by 15,900 people (0.4 percent) and women by 32,900 people (0.8 percent). In 2021 the number of employed exceeded the prepandemic figure for both women (6,700 people, 0.2 percent) and men (19,600 people, 0.4 percent).

In 2021 the number of female employees exceeded the prepandemic figure and amounted to 3.3 million; the number of male employees amounted to 3.4 million—that is, it increased compared to 2020, but did not reach prepandemic levels. Compared to 2019, in 2020, the number of female employees increased by 43,800, while the number of self-employed decreased by 76,800. It should be noted that the situation for men in the labor market of Kazakhstan during the pandemic was different: the number of employees decreased by 38,800, while the number of self-employed increased by 22,900. The increase in the number of self-employed may be owing to the lack of bureaucracy and the ease of obtaining the status of self-employed, the absence of taxes and social contributions, replaced by a single social payment (monthly calculation index for urban residents and 0.5 monthly calculation index for rural residents), as well as the targeting of anti-crisis measures to support small and medium-size businesses.

While the number of self-employed women declined during the pandemic, it increased among men. At the same time, it should be noted that there are more self-employed women and men in rural areas—31.0 percent and 32.9 percent respectively, against 14.5 percent and 14.9 percent in urban areas. Thus, compared to 2019, in 2021 the number of self-employed women decreased by 5.1 percent, and the number of self-employed men increased by 4.4 percent (Figure 2-3). This is mainly because self-employed women are more likely than men to be represented in the service sector, which was hit hardest during the pandemic.

Figure 2-3. Number of employed people in Kazakhstan, 2019-2021 (by thousand people)

Source: Main labor market indicators regarding gender, 2001-2021

In 2020, compared to 2019, the unemployment rate in Kazakhstan increased slightly, by 0.1 percentage points, for both women and men. During the pandemic, the unemployment rate increased significantly among the population of preretirement age (50 to 59 years) from 0.7 percent to 1.2 percent. At the same time, a decrease in the unemployment rate is observed in women aged 15 to 19 (by 1.5 percentage points) and 45 to 49 years (by 0.9 percentage points). However, it should be noted that in Kazakhstan, women's unemployment rate is higher than men's; in 2021, these figures were 5.5 percent and 4.2 percent, respectively (Table 2-2).

Table 2-2. Unemployment in Kazakhstan, 2019-2021

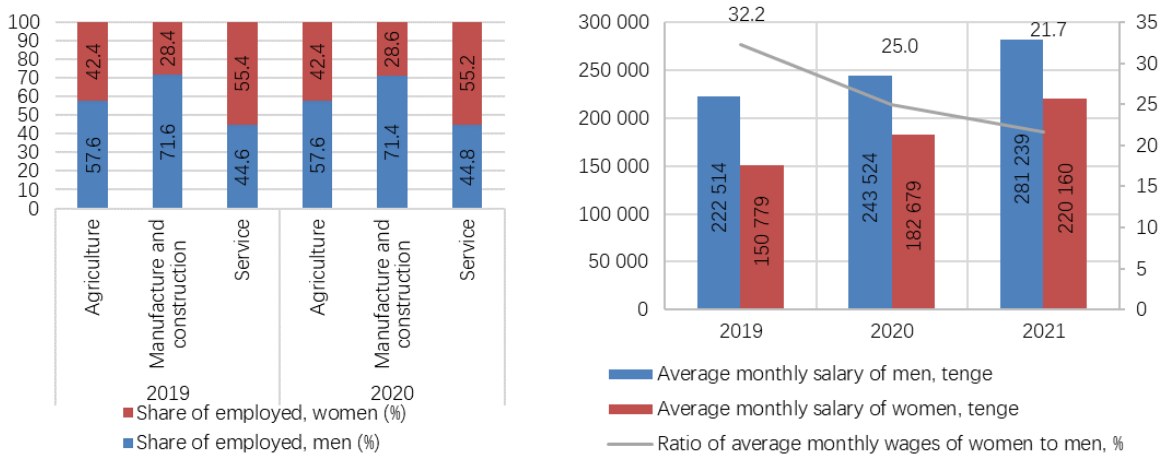
Indicator	2019			2020			2021		
	Total	Men	Women	Total	Men	Women	Total	Men	Women
Unemployed population, thousands of people	440.7	204.3	236.3	448.8	209.6	239.2	449.6	201.7	247.9
Unemployment rate, percent	4.8	4.3	5.3	4.9	4.4	5.4	4.9	4.2	5.5
Youth unemployment rate, percent	3.6	3.2	4.0	3.8	3.4	4.2	3.7	3.3	4.3
Long-term unemployment rate, percent	2.2	1.7	2.6	2.2	1.7	2.7	2.1	1.6	2.6

Source: Main labor market indicators regarding gender, 2001-2021

During the pandemic, the number of unemployed people increased by 9,000. In 2021 the number of unemployed women was 247,900, which increased by 11,600 people or 4.9 percent compared to 2019. The number of unemployed men in 2020 also increased by 5,300, but in 2021 this indicator was lower than at prepandemic level. It should be noted that those not part of the labor force increased by 159,300, from 3.9 million in 2019 to 4.1 million in 2021—that is, by 4.0 percent.

The labor market in Kazakhstan is characterized by the gender segregation of labor and gender wage discrimination (Figure 2-4).

Figure 2-4. Gender segregation of labor and gender wage gap in Kazakhstan, 2019-2021



Source: Gender wage gap, 2014-2020 (https://gender.stat.gov.kz/page/frontend/download?hash=f060803e9753b7ee243d0b361cca98b1&lang=ru)
Employment share by groups of economic activity, disaggregated by gender, 2001-2020 (https://gender.stat.gov.kz/page/frontend/download?hash=98d767f9ba60474f98f59d54f1b61ae0&lang=ru)

In Kazakhstan, there is a difference in wages between men and women. In 2020, the gender wage gap amounted to 25 percent and in 2021 to 21.7 percent, which is the minimum for the entire study period. It should be noted that this reduction, which is quite significant, occurred during the pandemic. Thus, during the pandemic, women's wages increased by 46.0 percent, while men's wages increased by 26.4 percent. In some regions of Kazakhstan, particularly Almaty, North Kazakhstan, Zhambyl, and Turkestan, women are paid on an almost equal footing with men. So, in 2021, the gender wage gap in North Kazakhstan and Turkestan regions was 0.2 percent and 4.8 percent, and in Almaty and Zhambyl regions the average salary of women was more than that of men by 3.5 percent and 0.2 percent, respectively. These regions are characterized by the dominance of agriculture in the region's economy and the lowest wages in the country, which can lead to a low and/or negative gender pay gap (Nikolayev et al. 2017).

Kazakhstani women's wages are lower than the average monthly nominal wage in the country (2019—186,815 tenge, 2020—213,003 tenge, 2021—250,311 tenge). However, it should be noted that the wage growth rate for women is significantly higher than that for men during the pandemic. Compared to 2019, women's wages increased by 21.16 percent and amounted to 182,679 tenge, while men's wages increased by only 9.44 percent, amounting to 243,524 tenge. This can be explained by the fact that women predominate in the low-paid sectors of the economy of Kazakhstan (Aitenova 2020, Kaisar 2021). According to the ILO (2020), as a result of the COVID-19 crisis, in some countries, average wages increased, primarily artificially, reflecting the massive job loss of lower-paid workers. Thus, during a crisis, data on average wages can be highly distorted owing to drastic changes in the composition of the employed population—due to the so-called 'composition effect'—when it is mainly lower-paid people who lose their jobs, which is why the average wage of the remaining workers automatically increases.

Such wage inequality is associated with ethnic and cultural specifics and the predominance of 'male professions' in the western regions of Kazakhstan, which include mainly manufacturing professions, characterized by the presence of difficult and unhealthy working conditions where wages are correspondingly high (Kireyeva 2019). For example, regions such as Atyrau and Mangystau are oil and gas regions, male-dominated sectors. This leads to low wages and discrimination in employment.

So, Kazakhstani women have little presence in the manufacturing and construction sectors. At the same time, in the tertiary (service) sector, women slightly predominate, while men predominate in the agriculture sector. It should be noted that the share of women in these sectors is decreasing compared to 2015, against a slight increase (1.5 points) in the industrial sector.

Thus, the labor market in Kazakhstan is characterized by gender segregation and wage discrimination. At the same time, gender segregation in the regions is significant. Overall, employment among women during the pandemic has declined compared to employment among men. Women are concentrated mainly in low-paid sectors, which entails many redundancies. In addition, this has affected the availability of the female labor force; women's labor has become more accessible, thereby cheap. However, an analysis of statistical data shows that, despite these factors, the impact of the pandemic on employment was not devastating for the labor market, including for women. According to the data for 2021, it can be seen that the situation in the labor market is improving. The 2021 data shows a recovery of pre-pandemic indicators.

COVID-Induced Inequalities in Education

Preschool Education. During the COVID-19 pandemic, the top priority for the ministries of education of all countries was developing alternative educational solutions, which mainly concerned distance-learning measures for schoolchildren and students. The organization of distance education and preschool learners has faded into the background. Parents of preschool learners were offered unique digital learning resources that allow preschoolers to develop even in such exceptional conditions. Measures were also taken to organize duty groups with a small number of children.

In 2018, there were 880,896 children in preschool, and 922,400 in 2021. In 2020, compared to 2019, there was a decrease of 7,200 children. As we know, many preschools were closed then and admission for the new school year did not occur; the decrease in the number of children in 2020 was because of the quarantine. According to Table A2-1, in 2020, there was a negative trend in the number of children in preschool. In 2020, the number of girls decreased by 3,872 (0.9 percent); in the same year, the number of boys also decreased by 3,346 (0.7 percent). In 2021, the situation improved, and the number of children in preschools increased by 37,300. The regional situation shows that in 2020, regions (Turkestan, Almaty region, and Shymkent) with a larger population than others show a positive trend, and regions (Almaty, Pavlodar region, and so on) with developed educational infrastructure show a negative trend.

Based on statistical data, it can be concluded that preschool education almost stopped during the pandemic. In this situation, not only children suffered but also parents who had to give up work and stay at home. This significantly worsened the economic situation of many families.

Secondary Education. The number of schoolchildren in urban areas (82 percent) is 4.6 times greater than in rural areas (18 percent). The quality of education also differs in favor of urban schools (Nurbayev 2021). In 2019, before the pandemic, the number of schoolchildren increased by 16,800, of which only 18 percent live in urban areas (Table 2A-2). In 2020, when the pandemic was gaining momentum, the number of schoolchildren decreased by 7,985, of which only 813 were from urban schools.

In 2021, the total number of schoolchildren had continued to slow and decreased by 27,752—about 20 percent—of which 97 percent were from rural schools. This was owing to many factors, one of

which is a weak internet connection. Many rural residents do not have internet access or the opportunity to purchase gadgets for online classes.

In urban schools in 2019, the number of girls was 916,173 and boys 952,899 (Table 2A-3). In 2019, the number of girls in rural schools was 718,874 and boys was 749,837. Compared to 2020, the number of schoolchildren in secondary schools was increasing. According to the statistics, in 2021, the number of male schoolchildren is greater by 4 percent (or 72,837 kids) than the number of female schoolchildren.

Higher Education. In 2018, the number of higher education students was 542,458; in 2019, it grew by 11.4 percent. Starting from 2020, there is a negative trend; in 2021, the number of students has decreased by 28,834 from 2019 (Table 2A-4). There may be various reasons for this, such as the closure of borders with other states, the financial instability of the economy and residents of the country, and so on.

The number of female students in 2019 was 321,643; in 2021, this number decreased by 12,643. The number of male students in 2019 amounted to 282,702; in 2021, it decreased by 16,191. In Kazakhstan, although a higher number of boys graduate from school, the proportional number of male students is fewer. This means that males prefer not to go into higher education.

Since 2019, the number of students has increased in Almaty, Astana (former Nursultan), Akmola, East Kazakhstan, Kyzylorda, and Almaty regions. The regions that suffered from losing students were Mangystau (lost 35 percent of students), Shymkent (lost 23 percent), West Kazakhstan (lost 15 percent), Atyrau (lost 11 percent), Zhambyl (lost 11 percent), and Aktobe (lost 10 percent).

In any event, the introduction of online education to colleges and universities during the pandemic was more accessible than in schools. The universities already had some experience in distance-teaching technologies owing to mass open online courses, academic mobility programs, and programs for disadvantaged students.

COVID-Induced Inequalities in Digital Access

Today, ICT drives development in many areas of the economy. The positive impact of ICT on regional economic development is evident. Nevertheless, it is essential to investigate the gender gap in access and connectivity to ICT (Table A3-1). According to the data, there is clearly a small gap between ICT users in the context of gender in almost all regions of Kazakhstan. Data analysis has shown that women seem less likely to use ICT (computers, mobile phones, tablets, and so on) than men, and they have an insufficient level of digital skills or interest owing to lower income. Thus, the most significant gap in 2010 was recorded in the following regions: Almaty city, Atyrau, West Kazakhstan, and Almaty regions. In 2021, the highest indicators were identified only in the Almaty and West Kazakhstan regions. In turn, Astana city and Pavlodar region showed the smallest gap in 2010. Further, in 2021, the gap shrank there. However, Astana city, and Karaganda and Kostanay regions had the highest gaps, where women were higher ICT users than men. Generally speaking, there are various reasons affecting the type of access to ICT—economic (lack of funds), cultural (insufficient participation of women in decision-making), and time constraints owing to their responsibilities in the family.

Table 2-3 presents a comparative analysis of ICT users by age group in the regions of Kazakhstan. In 2019 and 2021, the highest number of ICT users from 16 to 24 years old was recorded in Mangystau,

Zhambyl, Kyzylorda, and Turkestan regions. The highest number of ICT users aged between 25 and 74 in 2021 were in Almaty city, North Kazakhstan, and East Kazakhstan and Kostanay regions. It is worth noting that the same regions have low rates of 16 to 24 year old ICT users.

Table 2-3. ICT users by age group in 2010, 2019, and 2021 (percentage)

Region	2010		2019		2021	
	16-24 years	25-74 years	16-24 years	25-74 years	16-24 years	25-74 years
Akmola	28.1	71.8	30.5	69.5	31.3	68.7
Aktobe	34.3	65.7	33.0	67.0	33.3	66.7
Almaty	23.2	76.8	33.8	66.2	36.9	63.1
Atyrau	23.1	76.9	36.7	63.3	38.5	61.5
West Kazakhstan	51.8	48.3	32.0	68.0	30.5	69.5
Zhambyl	26.1	73.8	39.0	61.0	40.5	59.5
Karaganda	21.6	78.4	30.9	69.1	31.4	68.6
Kostanay	23.5	76.5	28.3	71.7	28.6	71.4
Kyzylorda	35.0	65.1	39.7	60.3	40.1	59.9
Mangystau	17.2	82.8	38.6	61.4	40.2	59.8
Turkestan	43.3	56.7	44.6	55.4	44.5	55.5
Pavlodar	25.0	74.9	28.1	71.9	29.8	70.2
North Kazakhstan	24.0	76.1	28.2	71.8	29.5	70.5
East Kazakhstan	24.5	75.6	29.6	70.4	29.6	70.4
Astana city	47.0	53.0	32.3	67.7	30.3	69.7
Almaty city	9.8	90.3	29.4	70.6	29.2	70.8

Source: Bureau of National Statistics (2021). Statistical database of the Republic of Kazakhstan (https://stat.gov.kz/official)

Thus, from 2010 to 2021, there was constant growth in ICT in Kazakhstan. In addition, the pandemic has also contributed to the growth of ICT and the digital transformation of society. Over the past ten years, the digital infrastructure, the level of development of the internet, the spread of mobile devices, and so on, have all changed. It can be expected that the demand for digital solutions will increase in the future, while the impact of the pandemic on the development of ICT will have a positive effect.

Further, the dynamics of the user share of digital resources, including computers and the internet, are presented in Table 3A-2. The population's involvement in the digital environment is primarily determined by the level of development of digital skills—the ability to use computers, tablets, smartphones, various software tools, search for necessary information on the web, and so on. The level of digital skills is growing in almost all regions.

The indicator of user share from 2018 to 2019 demonstrates favorable rates in almost all regions except Zhambyl, and Almaty and Karaganda regions, where growth was negative until 2020—the outbreak of COVID-19. In 2020, growth was highest in Karaganda (55.1 percent), Almaty (31.1 percent), Zhambyl (26.5 percent) and Atyrau (17.4 percent). However, this growth slowed in 2020 in Astana (-11.6 percent) and Almaty (-8.3 percent) cities mostly and to a lesser extent in Akmola (-3 percent) and West Kazakhstan (-2.6 percent).

Currently, digital technologies represent one of the main engines of growth and technological development. The analysis shows that digitalization did not occur at the same time in different regions of Kazakhstan. In this connection, there is a gap in the degree of digitalization and, as a result, increased dependence of developed regions on backward ones.

Conclusion

Health Services. The analysis shows a two-fold (193 percent) increase in the volume of all health services in 2020 to 2021. National and local authorities should pay special attention to the regions with severe hospital shortages. There is an acute shortage of doctors and nurses in healthcare institutions, especially in rural areas. The government needs to focus on these issues. The national program 'To the village with diploma' does not work well because living conditions are unfavorable throughout the whole of the countryside. The motivation stimuli to attract young specialists to rural areas should be reassessed. Improving the quality of medical services can be facilitated by the growth of healthcare financing, digitalization of the industry, use of modern medical equipment, increasing the prestige of the medical profession, and so on. It is necessary to continue the introduction of international standards to improve the quality of medical services and patient safety.

Female Labor Market Participation. The impact of the pandemic on employment and entrepreneurial activity was not devastating for the labor market. Nevertheless, female employment during the pandemic dropped significantly compared to male employment. There is a need to transition from a protective ideology about women to increase their competitiveness and salary in the labor market. In this regard, mechanisms should be developed to hold employers accountable for discriminatory acts against women, to provide women with employment in the industrial sector, and to improve women's entrepreneurial activity. Increased attention should be paid to increasing the employment of women in the high-tech sector of the economy, as well as the accelerated implementation of gender budgeting, and the development of a system of social support for motherhood (infrastructure, transfers, tax incentives for full-time employment, support for working parents, and so on).

Education. The following measures are recommended to improve the quality of education in Kazakhstan: developing the digital infrastructure (reliable proctoring systems, digital educational platforms, streaming connections); improving the digital skills of teachers at all levels of education; speeding up the internet to make it more accessible; updating the academic policy of universities, taking into account the possibility of achieving planned learning outcomes both by traditional methods and remotely; further liberalization and strengthening of academic independence to ensure individual, flexible study programs; and so on.

Digital Access. Based on the review, it can be noted that social distancing and other COVID-19 prevention measures were inevitable consequences of the onset of the pandemic. At the same time, the pandemic has given a certain impetus to the development and introduction of digital technologies, acting as a catalyst for many trends, such as access to ICT, digital literacy, and so on. The analysis showed that most of the regions of Kazakhstan have a high level of ICT development. Nevertheless, it is crucial to reduce digital gaps by age, sex, and geographic criteria to build an open information society.

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Appendix 1

Table A1-1. Number of hospital organizations by region in Kazakhstan for 2015-2020, year-end units

	2015	2016	2017	2018	2019	2015 to 2019 change rate (%)	2020	2019 to 2020 change rate (%)
Kazakhstan	901	877	853	788	749	**83**	773	**103**
Akmola	38	37	37	30	27	**71**	29	**107**
Aktobe	47	47	45	46	44	**94**	44	**100**
Almaty	86	87	85	83	79	**92**	82	**104**
Atyrau	36	35	29	28	28	**78**	29	**104**
West Kazakhstan	37	32	31	29	29	**78**	29	**100**
Jambyl	57	52	51	48	47	**82**	47	**100**
Karaganda	83	78	81	76	72	**87**	75	**104**
Kostanay	51	49	47	46	39	**76**	42	**108**
Kyzylorda	50	48	47	47	36	**72**	33	**92**
Mangistau	29	28	29	28	26	**90**	31	**119**
Pavlodar	42	42	38	36	35	**83**	36	**103**
North Kazakhstan	28	26	25	24	22	**79**	43	**195**
Turkestan	122	124	117	40	39	**32**	24	**62**
East Kazakhstan	88	81	80	80	62	**70**	61	**98**
Astana city	31	32	32	34	36	**116**	37	**103**
Almaty city	76	79	79	87	92	**121**	91	**99**
Shymkent city	-	-	-	26	36	**-**	40	**111**

Table A1-2. Number of hospital beds by region in Kazakhstan for 2015-2020, units

	2015	2016	2017	2018	2019	2015 to 2019 change rate (%)	2018 to 2019 change rate (%)	2020	2019 to 2020 change rate (%)
Kazakhstan	102,489	100,079	99,465	98,371	96,286	**94**	**98**	127,464	**132**
Akmola	4,807	4,782	4,629	4,591	4,445	**92**	**97**	5,192	**117**
Aktobe	4,399	4,344	4,261	4,294	4,166	**95**	**97**	5,376	**129**
Almaty	9,229	8,907	8,991	8,932	9,278	**101**	**104**	12,808	**138**
Atyrau	3,107	3,052	2,680	2,672	2,540	**82**	**95**	5,245	**206**
West Kazakhstan	4,239	3,914	3,871	3,842	3,700	**87**	**96**	4,552	**123**
Jambyl	5,897	5,658	5,701	5,536	5,338	**91**	**96**	6,207	**116**
Karaganda	9,985	9,375	9,420	9,306	9,187	**92**	**99**	11,712	**127**
Kostanay	5,042	4,822	4,778	4,805	4,696	**93**	**98**	6,058	**129**
Kyzylorda	5,241	4,650	4,593	4,532	4,361	**83**	**96**	6,399	**147**
Mangistau	2,837	2,772	2,765	2,688	2,725	**96**	**101**	3,411	**125**
Pavlodar	5,175	4,902	4,651	4,463	4,364	**84**	**98**	7,904	**181**
North Kazakhstan	3,900	3,847	3,672	3,565	3,448	**88**	**97**	4,265	**124**
Turkestan	12,852	12,701	12,699	9,313	9,022	**70**	**97**	11,195	**124**
East Kazakhstan	8,871	8,565	8,470	8,251	8,135	**92**	**99**	9,067	**111**
Astana city	6,369	6,777	6,804	6,690	6,516	**102**	**97**	12,222	**188**
Almaty city	10,539	11,011	11,480	11,495	10,763	**102**	**94**	9,556	**89**
Shymkent city	-	-	-	3,396	3,601		**106**	6,295	**175**

Table A1-3. Number of secondary medical personnel by region in Kazakhstan for 2015-2020, year end

	2015	2016	2017	2018	2019	2015 to 2019 change rate (%)	2018 to 2019 change rate (%)	2020	2019 to 2020 change rate (%)
Kazakhstan	163,937	170,819	175,246	175,705	179,837	**110**	**102**	185,757	**103**
Akmola	6,796	6,759	6,902	6,809	6,361	**94**	**93**	6,497	**102**
Aktobe	7,010	7,042	7,675	7,990	8,093	**115**	**101**	8,150	**101**
Almaty	13,564	14,089	14,822	14,961	15,534	**115**	**104**	16,276	**105**
Atyrau	5,074	5,211	5,520	5,600	5,733	**113**	**102**	6,117	**107**
West Kazakhstan	6,441	6,622	6,896	6,840	6,952	**108**	**102**	7,094	**102**
Jambyl	10,392	10,558	11,241	11,531	11,474	**110**	**99,5**	11,535	**100.5**
Karaganda	13,400	13,543	13,528	13,507	13,766	**103**	**102**	14,034	**102**
Kostanay	7,154	7,070	7,353	7,123	7,081	**99**	**99**	7,141	**101**
Kyzylorda	8,590	8,731	9,590	9,808	10,402	**121**	**106**	10,601	**102**
Mangistau	5,736	6,091	6,536	6,896	7,150	**125**	**104**	7,412	**104**
Pavlodar	6,979	6,928	7,116	7,077	7,002	**100**	**99**	7,174	**102**
North Kazakhstan	6,297	6,181	5,821	5,853	5,875	**93**	**100**	5,839	**99**
Turkestan	24,077	25,433	27,277	18,158	19,220	**80**	**106**	20,036	**104**
East Kazakhstan	14,523	14,601	14,686	14,574	14,965	**103**	**103**	15,707	**105**
Astana city	11,125	11,800	12,075	12,026	12,196	**110**	**101**	12,557	**103**
Almaty city	16,779	20,160	18,208	18,364	18,858	**112**	**103**	19,477	**10**
Shymkent city	-	-	-	8,588	9,175	-	**107**	10,110	**110**

Appendix 2

Table A2-1. Dynamics of preschool learners by region and gender

	Total				Girls				Boys			
	2018	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**
Republic of Kazakhstan	880,896	892,251	885,033	922,400	432,405	430,365	426,493	444,984	435,912	461,886	458,540	477,416
Akmola	35,942	34,908	32,957	35,519	17,574	16,882	15,930	17,160	18,782	18,026	17,027	18,359
Aktobe	48,525	44,643	42,926	43,129	23,463	21,405	20,695	20,841	27,684	23,238	22,231	22,288
Almaty	75,742	85,896	91,523	109,125	37,224	41,314	43,850	52,479	23,263	44,582	47,673	56,646
Atyrau	33,584	35,950	34,004	31,846	16,444	17,423	16,498	15,382	18,202	18,527	17,506	16,464
West Kazakhstan	30,369	30,640	30,463	32,179	14,847	14,689	14,564	15,464	14,905	15,951	15,899	16,715
Zhambyl	53,120	55,917	56,560	57,100	26,062	27,103	27,349	27,772	25,348	28,814	29,211	29,328
Karaganda	52,536	51,849	48,234	46,451	25,658	25,277	23,637	22,484	30,052	26,572	24,597	23,967
Kostanay	34,376	32,422	31,228	30,538	16,882	15,700	15,050	14,796	19,580	16,722	16,178	15,742
Kyzylorda	45,344	45,237	44,231	45,662	22,288	21,500	21,017	21,827	23,517	23,737	23,214	23,835
Mangystau	37,943	37,333	37,254	39,754	18,738	17,994	17,941	19,033	18,910	19,339	19,313	20,721
Pavlodar	39,011	36,210	33,456	34,101	18,937	17,523	16,227	16,534	22,477	18,687	17,229	17,567
North Kazakhstan	20,062	19,543	18,373	18,183	9,805	9,483	8,922	8,893	11,169	10,060	9,451	9,290
Turkestan*	142,133	144,163	152,173	158,594	70,643	69,572	73,331	76,446	65,687	74,591	78,842	82,148
East Kazakhstan	58,453	59,135	56,978	56,763	28,666	28,726	27,519	27,424	31,029	30,409	29,459	29,339
Nursultan (Astana) city	51,104	52,211	50,933	50,693	25,360	25,309	24,725	24,565	26,539	26,902	26,208	26,128
Almaty city	67,224	69,325	65,108	71,664	32,703	33,221	31,120	34,338	32,886	36,104	33,988	37,326
Shymkent city	55,428	56,869	58,632	61,099	27,111	27,244	28,118	29,546	25,882	29,625	30,514	31,553

* Until 2018 Turkestan was South-Kazakhstan region.

Table A2-2. Dynamics of student growth in secondary schools by type of locality

	Total				Urban				Rural			
	2018	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**
Republic of Kazakhstan	135,464	151,549	143,564	115,812	106,643	111,757	96,055	95,242	28,821	39,792	47,509	20,570
Akmola	3,557	3,948	4,516	3,452	1,936	2,480	2,134	1,387	1,621	1,468	2,382	2,065
Aktobe	7,575	8,725	7,844	7,122	16,492	9,598	6,762	6,743	-8,917	-873	1,082	379
Almaty	17,357	20,033	21,104	17,535	3,771	4,798	5,130	4,159	13,586	15,235	15,974	13,376
Atyrau	6,965	6,430	5,490	3,743	7,487	3,044	7,406	2,525	-522	3,386	-1,916	1,218
West Kazakhstan	4,144	4,368	3,944	2,699	3,919	3,545	2,647	2,716	225	823	1,297	-17
Zhambyl	8,300	6,880	9,571	3,335	4,652	4,979	4,154	3,314	3,648	1,901	5,417	21
Karaganda	4,899	6,989	5,735	1,917	4,819	6,879	4,776	2,213	80	110	959	-296
Kostanay	1,619	2,517	1,840	1,222	2,286	2,963	1,537	5,726	-667	-446	303	-4,504
Kyzylorda	6,057	8,439	7,758	5,466	3,664	4,932	4,272	3,472	2,393	3,507	3,486	1,994
Mangystau	11,130	10,346	8,725	8,021	5,744	5,218	4,246	5,636	5,386	5,128	4,479	2,385
Pavlodar	2,692	7,396	2,477	1,440	2,416	6,083	1,616	1,582	276	1,313	861	-142
North Kazakhstan	-301	1,127	1,335	382	616	1,028	855	802	-917	99	480	-420
Turkestan*	16,528	11,497	20,807	10,235	3,179	4,046	7,472	4,720	13,349	7,451	13,335	5,515
East Kazakhstan	2,039	3,510	5,209	1,895	2,759	2,820	5,839	2,899	-720	690	-630	-1,004
Nursultan city	16,192	17,362	12,415	17,605	16,192	17,362	12,415	17,605	0	0	0	0
Almaty city	14,062	18,783	11,723	16,163	14,062	18,783	11,723	16,163	0	0	0	0
Shymkent city	12,649	13,199	13,071	13,580	12,649	13,199	13,071	13,580	0	0	0	0

* Until 2018 Turkestan was South-Kazakhstan region.

Table A2-3. Dynamics of students in secondary education by type of locality and gender

	Urban, girls				Urban, boys				Rural, girls				Rural, boys			
	2018	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**
Republic of Kazakhstan	867,544	916,173	962,677	1,009,891	889,771	952,899	1,002,450	1,050,478	705,533	718,874	742,283	752,270	723,386	749,837	773,937	784,520
Akmola	27,617	28,874	29,817	30,389	28,558	29,781	30,972	31,787	33,205	33,659	34,860	35,743	34,481	35,495	36,676	37,858
Aktobe	49,103	53,632	56,720	60,020	50,777	55,846	59,520	62,963	21,849	21,165	21,858	22,041	23,063	22,874	23,263	23,459
Almaty	45,528	47,703	50,093	52,119	47,314	49,937	52,677	54,810	148,663	155,355	163,115	170,002	153,022	161,565	169,779	176,268
Atyrau	33,843	34,852	38,413	39,662	33,479	35,514	39,359	40,635	28,481	29,951	29,030	29,668	29,006	30,922	29,927	30,507
West Kazakhstan	28,479	30,094	31,278	32,707	29,157	31,087	32,550	33,837	22,891	23,075	23,670	23,636	23,815	24,454	25,156	25,173
Zhambyl	46,074	48,224	50,359	51,984	46,729	49,558	51,577	53,266	65,976	65,930	68,697	68,743	67,123	69,070	71,720	71,695
Karaganda	75,398	78,519	80,882	81,990	77,196	80,954	83,367	84,472	21,524	21,465	21,813	21,667	22,186	22,355	22,966	22,816
Kostanay	28,671	30,116	30,945	33,741	29,549	31,067	31,775	34,705	24,359	24,123	24,189	21,883	24,937	24,727	24,964	22,766
Kyzylorda	33,820	35,851	37,886	39,702	34,665	37,566	39,803	41,459	43,111	44,303	45,998	46,956	43,754	46,069	47,860	48,896
Mangystau	29,371	31,331	33,435	36,353	29,895	33,153	35,295	38,013	40,463	42,365	44,543	45,696	41,307	44,533	46,834	48,066
Pavlodar	34,955	37,923	38,620	39,367	35,962	39,077	39,996	40,831	15,930	16,435	16,828	16,793	16,787	17,595	18,063	17,956
North Kazakhstan	15,557	16,016	16,393	16,696	16,002	16,571	17,049	17,548	19,783	19,781	20,092	19,838	20,985	21,086	21,255	21,089
Turkestan*	51,514	52,944	56,567	58,676	52,561	55,177	59,026	61,637	181,335	183,095	189,898	192,404	183,700	189,391	195,923	198,932
East Kazakhstan	55,443	56,656	59,515	60,731	56,658	58,265	61,245	62,928	37,963	38,172	37,692	37,200	39,220	39,701	39,551	39,039
Nursultan city	81,611	89,473	95,637	104,894	83,540	93,040	99,291	107,639								
Almaty city	131,477	139,549	145,382	153,334	136,537	147,248	153,138	161,349								
Shymkent city	99,083	104,416	110,735	117,526	101,192	109,058	115,810	122,599								

* Until 2018 Turkestan was South-Kazakhstan region.

Table A2-4. Dynamics of students of higher education organizations

	Total				Woman				Man			
	2018	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**	**2018**	**2019**	**2020**	**2021**
Republic of Kazakhstan	542,458	604,345	576,557	575,511	292,231	321,643	306,799	309,000	250,227	282,702	269,758	266,511
Akmola	10,166	11,994	12,111	12,044	5,308	6,184	6,278	6,429	4,858	5,810	5,833	5,615
Aktobe	24,459	27,695	27,090	24,909	14,134	15,694	15,746	14,684	10,325	12,001	11,344	10,225
Almaty	10,410	11,201	10,753	11,572	5,604	6,008	5,925	6,326	4,806	5,193	4,828	5,246
Atyrau	13,186	13,177	12,407	11,775	6,502	6,371	5,975	5,850	6,684	6,806	6,432	5,925
West Kazakhstan	30,663	31,705	27,121	26,889	15,126	15,501	12,724	12,377	15,537	16,204	14,397	14,512
Zhambyl	22,665	25,103	24,953	22,443	11,796	13,033	12,686	11,632	10,869	12,070	12,267	10,811
Karaganda	44,549	43,462	41,650	41,163	22,998	22,758	22,149	21,921	21,551	20,704	19,501	19,242
Kostanay	21,169	21,542	19,574	18,352	11,549	11,414	10,313	9,711	9,620	10,128	9,261	8,641
Kyzylorda	10,660	11,411	11,169	12,524	5,526	5,884	5,851	6,578	5,134	5,527	5,318	5,946
Mangystau	6,215	10,036	7,574	6,553	3,221	5,194	3,782	3,388	2,994	4,842	3,792	3,165
Pavlodar	15,892	16,689	17,144	16,713	8,578	8,618	8,986	8,738	7,314	8,071	8,158	7,975
North Kazakhstan	7,530	7,799	8,016	7,338	3,921	4,031	4,097	3,627	3,609	3,768	3,919	3,711
Turkestan*	9,673	11,614	12,043	13,173	5,422	6,495	6,788	7,437	4,251	5,119	5,255	5,736
East Kazakhstan	32,129	31,560	32,104	32,211	17,377	17,277	18,103	18,325	14,752	14,283	14,001	13,886
Nursultan city	54,419	59,297	59,425	62,788	30,022	32,775	32,275	34,186	24,397	26,522	27,150	28,602
Almaty city	143,860	162,680	163,357	172,224	76,723	86,811	87,546	93,522	67,137	75,869	75,811	78,702
Shymkent city	84,813	107,380	90,066	82,840	48,424	57,595	47,575	44,269	36,389	49,785	42,491	38,571

* Until 2018 Turkestan was South-Kazakhstan region.

Appendix 3

Table A3-1. ICT users by gender for 2010, 2019, and 2021 (percentage)

Region	2010		2019		2021	
	Men	Women	Men	Women	Men	Women
Akmola	53.3	46.7	53.6	46.4	52.8	47.2
Aktobe	50.9	49.1	51.2	48.8	49.2	50.8
Almaty	55.1	44.9	55.4	44.6	54.3	45.7
Atyrau	57.1	42.9	57.5	42.5	49.1	50.9
West Kazakhstan	55.0	45.0	55.4	44.6	54.4	45.6
Zhambyl	53.6	46.4	54.0	46.0	52.3	47.7
Karaganda	45.3	54.7	45.7	54.3	43.4	56.6
Kostanay	44.8	55.2	45.2	54.8	43.1	56.9
Kyzylorda	53.6	46.4	53.9	46.1	49.2	50.8
Mangystau	47.8	52.2	48.2	51.8	51.2	48.8
Turkestan	54.2	45.8	54.6	45.4	52.2	47.8
Pavlodar	40.9	59.1	52.2	47.8	51.3	48.7
North Kazakhstan	52.2	47.8	52.4	47.6	52.5	47.5
East Kazakhstan	48.4	51.6	49.3	50.7	49.5	50.5
Astana city	32.5	67.5	44.1	55.9	43.2	56.8
Almaty city	56.5	43.5	51.1	48.9	51.3	48.7

Source: Bureau of National Statistics (2021). Statistical database of the Republic of Kazakhstan

Table A3-2. Users of digital resources, including computers and the internet for 2018-2020 (percentage)

	2018	Growth rate	2019	Growth rate	2020	Difference in growth rates
Akmola	70.7	108.1	76.4	105.1	80.3	-3.0
Aktobe	69.7	108.6	75.7	109.1	82.6	0.5
Almaty	74.6	93.4	69.7	124.5	86.8	**31.1**
Atyrau	70.5	102.8	72.5	120.3	87.2	**17.4**
West Kazakhstan	68.5	111.2	76.2	108.7	82.8	-2.6
Zhambyl	77.4	92.8	71.8	119.2	85.6	**26.5**
Karaganda	70.3	89.6	63	144.8	91.2	**55.1**
Kostanay	72.5	106.3	77.1	112.2	86.5	5.8
Kyzylorda	64.7	101.9	65.9	109.1	71.9	7.2
Mangystau	67.6	104.7	70.8	118.8	84.1	**14.1**
South Kazakhstan	77.4	104.5	80.9	105.8	85.6	1.3
Pavlodar	67.4	111.6	75.2	120.5	90.6	8.9
North Kazakhstan	83.7	100.6	84.2	103.3	87	2.7
East Kazakhstan	70.5	109.9	77.5	113.0	87.6	3.1
Astana city	78.6	113.7	89.4	102.1	91.3	-11.6
Almaty city	65.4	119.1	77.9	110.8	86.3	-8.3

Source: Bureau of National Statistics (2021). Statistical database of the Republic of Kazakhstan (https://stat.gov.kz/official)

CHAPTER 3. PAKISTAN CASE STUDY

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Abstract

The outbreak of COVID-19 has been widespread across the globe and is still affecting lives, especially in developing countries. Pakistan has been no exception. The outbreak of the pandemic in countries like Pakistan has presented a drastic challenge. The pandemic not only brought health risks, but has also affected sectors like education and employment. The spread of the virus poses a direct risk to life in countries where the health infrastructure is relatively less developed. Indirect challenges arise such as increased inequalities in the health, education, and job sectors along with the risk of gender inequality and the digital divide across different income groups and across provinces in Pakistan.

Policy analysts must confront this acute problem head on, as on the one hand they have to take measures to contain the spread of the virus but on the other hand these measures increase the intensity of problems of inequality and division in society across different sectors. It has been a debatable issue as to what extent the policy intervention should be made. Through interviews of policy experts and reviews of recent research, this research covers the policies taken by the Government of Pakistan along with exploring the direct and indirect impacts on the health, education, and job sectors with special focus on the digital divide and gender inequality.

Introduction

COVID-19 directly affects lives by posing serious challenges to health and medical services. It also has an indirect impact on the economic sector—causing a rise in inflation, the stagnation of the education system, and decreasing job security, among other factors (Aftab, Naveed, & Hanif 2021). Whenever a pandemic affects a country, it hits the poorer segment of the population relatively more severely. On the other hand, government measures could also intensify the impact of the pandemic on the low-income segment (Shahzad et al. 2021). The poor are more vulnerable to infection because of the low rate of following standard operating procedures (SOPs) and less information available on how to avoid disease.

In addition, COVID-19 has brought with it various kinds of inequality as it is more likely to affect the poorer segment of society than the privileged. The impact of the pandemic has recently been seen through various socioeconomic indicators both directly and indirectly, but this report assesses the impact on health, digital access, access to education, and labor force participation.

Labor markets around the world were disrupted during the pandemic as the lockdowns had a negative effect on economic activity. Its severe impact was seen in the labor market generally and—specifically—intensified the gender vulnerability of women in the labor force compared to men. This vulnerability can be seen in the type of work that women generally tend to do—that is, in the informal and rural sector. The pandemic contributed to the existing inequality between men and women in work force participation, while putting women at a further disadvantage (Tas et al. 2022).

Similarly, the digital divide in Pakistan exists because of infrastructure gaps and the rural–urban divide. Although the major cities have internet access, it is still a challenge in smaller cities and remote areas (Jamil 2021). The rural–urban divide exists because of poor network quality, limited

affordability, cultural barriers that restrict digital access, and device ownership and literacy (Mathrani, Savesh, & Umer 2021).

During the pandemic, marginalization in the education sector did not occur simply in terms of affordability of education. The percentage of girls out of school was higher than that of boys. Students from poor backgrounds experienced a higher rate of learning loss than students from wealthy backgrounds. The dropout ratio was higher for poor children and it was supplemented by the increase in learning inequality (Haider et al. 2021). The pandemic added to these factors, thereby contributing to the inequalities in the education system of Pakistan.

Most importantly, the health sector was severely affected during the pandemic; it was unable to respond adequately to the national crisis. However, the government has taken steps to address the problems faced by the health sector as well as trying to reduce the increasing health inequalities by providing health insurance, but more still needs to be done (Shaikh 2021). Even before the pandemic, Pakistan's health sector was not performing optimally as it showed growth in only three out of 14 SDG-3 indicators.

A lot more needs to be done in all these sectors with a special focus on reducing pre-pandemic and emerging economic and social inequalities.

Research Questions

This study deals with the recent socioeconomic challenges faced in Pakistan owing to the spread of coronavirus. The focus is on exploring the impact of the ongoing pandemic on the health and education sectors. Research is not limited to these sectors, but also deals with rising concerns about inequalities in access to digital services and in the female participation in the labor market. The specific objectives of this research are as follows:

a. What were the gaps in different sectors both pre- and post-COVID?
b. How did the pandemic affect service provider quality in health, education, digital access, and female labor force participation?
c. What impact did the pandemic have on performance quality in the selected areas?
d. What government policies were applied—and which have been successful—in tackling, diminishing, and controlling the negative impact of COVID-19 on these sectors?
e. Which policy recommendations and government interventions have been/should be adopted in these sectors to deal with the pandemic?

Research Methodology

Two-tier research methodology is used to answer the questions posed in this study. First, an extensive review of recent research in all four areas—health, education, digital access, and female labor force participation. Second, interviews of government representatives as well as field experts from the related sectors to come up with concrete policy recommendations and demonstrate the impact of the pandemic on selected sectors, including the rise in different types of inequality. For this purpose, a total of nine interviews were conducted with the involvement of field experts from all four sectors.

Review of Literature

The impact of COVID-19 has led to various inequalities as it affected an already vulnerable segment of society more acutely (Rasheed et al. 2021). In Pakistan, the outspread of pandemic is not limited to the health sector (Meo 2021) but infiltrates to other socioeconomic sectors such as access to digital services (Amin & Maqsood 2021), provision of education (Maqsood et al. 2021), and labor force participation (Mustafa et al. 2021).

It is apparent that, even in developed countries, the level of preparedness to tackle disasters has been minimal. Owing to limited resources and unequal access to vaccinations, each government has had to face and deal with the challenges that have put the lives of a huge population at risk; all governments without exception have felt this pressure. Where some decisions increased the severity of the situation, other measures helped to control it. Governments tried a variety of different measures to contain the virus as its nature and spread has not been the same everywhere.

The most important issues faced during the period are considered to be those of governance, finances, human resource capacity, supplies and logistics, lack of information, widespread misinformation, limited existing research, and inadequate service delivery. In these testing times, countries have witnessed their own limitations in the health sector (Shaikh 2021). In addition, countries around the globe welcome any available help from others in the form of vaccines, medical equipment, PPE, or technical advice to contain the spread of virus.

Education is the key contributor to human resource development as it improves productivity and innovation. Investing in human development through education is essential for the long-term sustainable growth of a country. The objective of the government in Pakistan has been to provide free and compulsory education for every citizen, but it remains an unfulfilled promise (Khan 2010). Since 2010, with the devolution of power to the provinces, education has also become the responsibility of provincial government. Its provision has become necessary for children aged between five and 16 years under Article 25-A of the Constitution of Pakistan; however, 44 percent of children from this age group are still out of school (Economic Survey of Pakistan 2021-2022).

The digital divide also exists within the home, as it is usually males who possess computers, laptops, tablets, and smartphones (Shahid & Arfeen 2021). The internet penetration rate is 87.2 percent in Europe as compared to Asia where it is only 55.1 percent (Internet World Stats 2021). According to the Digital Access Index of the International Telecommunication Union, Pakistan is among the countries with low access to the internet along with relatively high access prices.

The digital divide in Pakistan exists because of infrastructure gaps and the rural–urban divide. Although major cities have access to the internet, internet access in smaller cities and remote areas is still a challenge. The rural–urban divide exists owing to poor network quality; limited affordability; and cultural barriers that restrict digital access, device ownership, and literacy (Amin & Maqbool 2021).

Education

Around 1 billion children worldwide are expected to fall behind because of school closures during COVID-19. Although the impact of the pandemic outbreak was not the same for all countries, but no country has escaped the effects. Where it brings risk in the health sector, it also creates challenges in the education sector.

The effects of COVID-19 can be traced not only directly to the economic outlook of Pakistan, but also indirectly to other related socioeconomic sectors. One of these is Pakistan's education sector, which faces huge difficulties in performing smoothly. The sector was not operating well even before the pandemic, but school closures, the strict lockdown to prevent the spread of the virus, and the lack of human and technical resources pushed its performance down even further.[41] Where the pandemic brought issues that prevented the education sector from performing optimally, it also provided opportunities to learn and adopt new coping strategies in this sector. Tackling new problems also requires new solutions.

The education sector in developing countries—with limited budget and human resources—has been affected much more than in developed countries. The impact on the sector has not been the same in all countries because of their varying proneness to COVID-19. The response to the pandemic in terms of applying measures to contain the spread of the virus is a vital factor that affects the sector in different ways across the countries.

The State of the Education Sector in Pakistan

Over the years, Pakistan has witnessed significant progress in education in terms of enrollment, but still faces many challenges in delivering quality education. The growth rate of enrollment at various educational levels is shown in Table 3-1. The growth rate of enrollment in all sectors has been high but declined significantly owing to the pandemic (the growth rate of enrollment in universities and higher secondary schools dropped by 18 percent and 15 percent, respectively). The most affected segments are technical and vocational, pre-primary, and higher education (Economic Survey 2021-2022). The reason for the decline in the enrollment rate could be different. For technical and vocational training enrollment, the growth rate declined to zero during the pandemic; a possible reason is the financial stress that forced semi-skilled workers to continue working to earn a living instead of gaining skills (Economic Survey of Pakistan 2021-2022). Similarly, the pre-primary enrollment also decreased during the pandemic because parents could not afford the fees as they lacked a financial cushion (especially for private schools in the country).

Higher education enrollment dropped and then returned to its pre-pandemic growth trajectory after the fourth wave of pandemic in Pakistan. The total enrollment figures show the same statistics as the overall enrollment rate fell to just 3.97 percent during the pandemic and then re-established its pre-pandemic trajectory.

Table 3-1. Enrollment rate (percentage change)

Years	Pre-primary	Primary	Middle	High	Higher secondary	Technical and vocational	University	Total
2017-2018	9.95	5.74	5.23	7.76	5.83	25.51	7.72	**7.11**
2018-2019	1.06	2.87	3.69	2.02	26.78	0.00	17.89	**3.97**
2019-2020	6.14	4.25	3.89	6.96	8.79	7.16	2.80	**4.92**
2020-2021	6.47	4.41	4.02	6.48	9.49	7.76	2.83	**5.17**

Source: Economic Survey of Pakistan 2021-2022

[41] How has COVID-19 affected children and teachers in non-State schools in Pakistan? Can be accessed at: https://www.opml.co.uk/blog/podcast-covid-affected-children-teachers-non-state-schools-pakistan

The literacy rate of Pakistan shows a similar picture and is therefore a helpful indication of the state of the education sector in a country. The literacy rate was also affected severely by the pandemic in the same way as the enrollment rate. The available data provides an opportunity to probe deeper into the education sector across rural/urban areas with a gender-specific lens.

The literacy rate in Pakistan across the provinces divided into rural/urban regions along with gender distribution is given in Table 3-2, which compares Pakistan's literacy rate before and after the fourth wave of COVID-19. The growth in the literacy rate was stagnant in all provinces across the country with one exception.

The statistics show that, owing to the outbreak of the pandemic in the country, all the provinces were affected equally—except for Khyber Pakhtunkhwa. Its overall literacy rate increased by around 3 percent (from 52.4 percent to 55.1 percent). The reason for Khyber Pakhtunkhwa's higher literacy rate, compared with the other provinces, is the educational reforms in the last few years that enabled the government to attract more students towards formal education from informal (that is, madrasas). These reforms included the establishment of the Education Sector Reform Unit (ESRU), the building of a Capacity Development Strategy (CDS), and the provision of free textbooks. The second significant reason behind the improvement in the literacy rate in Khyber Pakhtunkhwa could be the higher per capita expenditure as compared with other provinces.

The literacy rate has remained constant not only across the provinces but also across genders. The only significant increase was witnessed for Khyber Pakhtunkhwa and the factors were again similar to those discussed earlier.

Table 3-2. Literacy rate (percentage)

Province/area	2018-2019			2020-2021		
	Male	Female	Total	Male	Female	Total
Pakistan	**73.0**	**51.5**	**62.4**	**73.4**	**51.9**	**62.8**
Rural	67.1	40.4	**53.7**	67.2	40.8	**54.0**
Urban	82.2	69.7	**76.1**	83.5	70.8	**77.3**
Punjab	**74.3**	**58.1**	**66.1**	**74.2**	**58.4**	**66.3**
Rural	69.2	48.4	**58.5**	69.0	48.9	**58.8**
Urban	82.2	74.3	**78.3**	82.5	74.3	**78.5**
Sindh	**72.5**	**49.5**	**61.6**	**72.9**	**49.7**	**61.8**
Rural	60.0	26.5	**44.4**	58.8	26.8	**43.3**
Urban	82.8	67.7	**75.6**	85.2	69.9	**77.9**
Khyber Pakhtunkhwa	**70.1**	**35.5**	**52.4**	**72.8**	**37.4**	**55.1**
Rural	68.1	31.8	**49.4**	70.1	33.5	**51.7**
Urban	79.4	53.2	**66.2**	85.8	57.8	**72.3**
Balochistan	**70.7**	**32.7**	**53.9**	**69.4**	**36.8**	**54.5**
Rural	66.3	27.2	**49.1**	65.0	31.1	**49.5**
Urban	81.8	46.8	**66.4**	80.0	50.9	**66.8**

Source: Labour Force Survey 2020-2021, Pakistan Bureau of Statistics

When seen in isolation, the literacy rate does not provide a holistic picture of events in the education sector. It showcases only the results, but the factors that produce these results still need to be explored. For instance, one of the most important factors is the per capita expenditure across the provinces. It helps to unearth the reason why (if yes) any province outperforms another. Per capita expenditure on education is provided in Table 3-3.

Table 3-3. Expenditure on education (per capita)

Years	Province/area	Current expenditure	Development expenditure	Total expenditure
2018-2019	Punjab	3,085	295	3,380
	Sindh	3,211	191	3,402
	Khyber Pakhtunkhwa	4,342	662	5,004
	Balochistan	3,992	488	4,480
2019-2020	Punjab	3,068	322	3,390
	Sindh	3,452	114	3,566
	Khyber Pakhtunkhwa	5,333	607	5,940
	Balochistan	4,343	657	5,000
2020-2021	Punjab	3,202	300	3,502
	Sindh	3,843	237	4,080
	Khyber Pakhtunkhwa	6,168	930	7,098
	Balochistan	4,528	805	5,333

Source: Economics Survey of Pakistan 2020-2021 and Pakistan Bureau of Statistics Census 2017

As can be seen, for Khyber Pakhtunkhwa, the per capita current and development expenditure[42] remains highest across all the years. A higher budget allocation to education by the Khyber Pakhtunkhwa government, as compared with that of other provincial governments, helped them achieve a higher literacy rate (Tables 3-2 and 3-3). Per capital expenditure by Khyber Pakhtunkhwa was not only higher, but the gap with respect to the other provinces also increased over the years. With each passing year, per capita educational expenditure in Khyber Pakhtunkhwa has increased more than in all the other provinces, which is why the literacy rate remained constant in all other provinces but increased in Khyber Pakhtunkhwa, even during the pandemic. So, performance in education is directly linked with the allocation of resources to the education sector by the provinces.

The Education Sector during COVID-19

COVID-19 had a dreadful impact on all sectors across the world. It not only brought about job losses but also negatively impacted the education sector. The literacy rate in many countries has seen negative growth. To tackle the widespread virus, countries around the globe adopted different precautionary and reactionary measures in the education sector. The intensity of these measures kept changing over the different waves of the pandemic, depending on its severity.

Similar to measures in other socioeconomic sectors, the leading measure taken in the education sector was the closure of schools. Owing to the high concentration of students in classes and the poor enforcement of SOPs in the country, Pakistan along with other countries decided to close schools with each new wave of COVID-19. The intensity of these measures in terms of school closures is illustrated in Table 3-4.

Table 3-4. Measures in the education sector (school closure)

Month/year	Measure (school closure)	Countries/region
February 2020	Fully closed	Iran, PRC, and Mongolia
March 2020	Fully closed	169 countries (not including Pakistan)
April 2020	Fully closed	163 countries (not completely closed in Pakistan)

[42] Current expenditure is the expenses done within that specific year, whereas development expenditure is the expenses incurred to enhance economic development.

May 2020	Fully opened	125 countries (including Pakistan)
June 2020	Fully opened	85 countries (including Pakistan)
July to August 2020	Academic break	33 countries (closed) Other countries on academic break (including Pakistan)
September 2020	Fully opened	40 countries (Pakistan opens up educational institutions with alternative classes)
October 2020	Fully opened	29 countries with closures (Pakistan reopened)
November 2020	Fully opened	29 countries with closures (Pakistan reopened)
December 2020	Academic break	Most countries on academic break
January 2021	Fully closed	28 countries (Pakistan remained open)

Source: United Nations Educational, Scientific and Cultural Organization

The closure of the educational institutions brought dramatic change. The Government of Pakistan closed these institutions, as did many other countries. Pakistan closed the institutions—schools, colleges, and universities—for around four months. The time period of the closure of educational institutions in Pakistan also comprised two academic breaks during all four waves of COVID-19.

As a result of the worldwide school closures, it is evident that the students who fell behind came mostly from marginalized backgrounds because of their inability to pay private school fees and as they needed to work to earn for their families—especially children in government schools. The three-dimensional impact of poverty, gender, and location is evident in the education sector owing to the pandemic. The impact became even deadlier when all three of these factors were combined.

In addition, various challenges arose with adapting to digital education during the pandemic; these were interlinked but can be categorized by the people who faced them. Table 3-5 lists the challenges raised by the panelists from the education sector.[43]

Table 3-5. Challenges of online education faced during the pandemic

Students	**Teachers**	**Administration**
Lack of access to digital devices	Lack of technical skills to operate digital devices	Difficulty in monitoring classes
Poor internet access (mainly owing to high cost)	Lack of student interest	Providing technical support to students and teachers
Inability of students and parents to understand the online way of taking classes	Low student response rate	Arranging and monitoring examinations
Difficulty in time management	Overload and longer screen time	Managing on time evaluation of students
Excessive exposure to digital devices	Work–life balance	
Lack of self-motivation		
Difficulty in understanding		

Source: Interview by SDPI

[43] In the interview, one of the panelists was from the public sector, one was from a private university in Pakistan, and one was the head of the private school system in the country.

Marginalization in education does not happen only in terms of level of affordability. Out of school percentage of girls has been higher in Pakistan compared with percentage of boys (Nesbitt-Ahmed & Subrahmanian 2020).

At the outbreak of the pandemic, central and provincial governments started airing the curriculum through television, which was considered to be an effective strategy as more televisions are owned than radios and mobile phones.[44] However, this government effort could not eliminate the inequalities; only one out of five children from the poorest households has access to a television (PSLM 2019-2020).[45] Therefore, loss of learning owing to school closures was seen during the pandemic.

Learning losses are unequal among students as poor performing students (those from a poor background) fell behind, while high performing students (mostly those from relatively richer families) outperformed. On one hand, the dropout ratio was larger for poor children and this was intensified by the increase in learning inequality. These factors contribute to the existing inequalities in the education system. Learning losses varied across the provinces while simultaneously the policies that combated the pandemic differed across these provinces.

Policy Interventions in the Education Sector

Since the start of pandemic, the federal government quickly introduced the TeleSchool initiative for all students. The provinces have also taken initiatives—for example, Punjab introduced Taleem Ghar for students. Although student engagement and teacher capacity remain a challenge, it is still effective in countering the impact of the pandemic. In addition to government initiatives, private entrepreneurs also came up with applications and websites to improve easy digital access to all Pakistanis, including initiatives like Knowledge Platform, Sabaq.pk, Sabaq Muse, and Taleemabad.

The Ministry of Federal Education and Professional Training (MoFE&PT) piloted blended learning in 200 government schools to diagnose the challenges faced by teachers and students during the implementation of new ways of doing things.

One of the major interventions at federal level in the education sector was the Single National Curriculum (SNC). It is widely commended as it promises to reduce inequalities and bring Madrasas into the mainstream. Like every other initiative, the SNC was criticized because it could discourage critical thinking among students and focuses more on product instead of process. It faces the challenge of re-evaluating the hiring of new teachers, including the incentive structure, to attract university graduates to teach at secondary and tertiary level. It provides more opportunities to students who have been left behind, enabling them to catch up with the others.

Policy Recommendations

As the spread of the pandemic is now reducing, more efforts should be spent on widening the quality of education—especially to marginalized groups. Without boosting the marginalized segment

[44] Demographic and Health Survey of Pakistan. Can be accessed at: https://dhsprogram.com/pubs/pdf/FR354/FR354.pdf

[45] Pakistan Social and Living Measurement Survey 2019-2020. Can be accessed at: https://www.pbs.gov.pk/content/pakistan-social-and-living-standards-measurement#:~:text=PSLM%20Survey%20(2019%2D20),modules%20%22Migration%2C%20Disability%2C%20Information

of society, inclusive growth will be very difficult to achieve. Similarly, demand-side interventions are needed to reinstate dropouts, especially girls. Other demand-side measures include the provision of transport for girls in remote areas and a daily lunch program for improved student nutrition.

Another suggestion is to align a conditional cash transfer (CCT) with the enrollment of children in school for each household. This can be done by associating and expanding existing CCT programs with school enrollment depending on the budget available.

Similarly, more space is needed in the education sector to experiment with new ways of teaching for effective learning. The decentralization of decision-making to district level may help improve the education system further. Enhancing staff capacity for data collection of weak students will help to shrink the dropout ratio. Decentralization will also provide a competitive environment among the districts within each province and can help to gauge performance.

Health Sector

The health sector has been the key focus of government during the pandemic. On the one hand, it was severely affected, and its importance and capability to deal with COVID-19 has been crucial. COVID-19 has a connection with the earlier virus Severe Acute Respiratory Syndrome (SARS), but COVID-19 has a broad spectrum compared with SARS as it leads to about 80 percent of mild infections, 14 percent relatively severe illness, and almost 6 percent critical conditions in its patients. The pandemic brought with it huge challenges for the healthcare system around the globe (Zhu et al. 2020). In many countries, the provision of PPE has been a key issue; shortage of PPE and its lack of affordability served to intensify the pandemic outburst.

Supplies of PPE have been managed by urgently increasing production. But the issue came when most countries faced a severe need of other mechanical equipment such as ventilators, separate wards, and trained medical staff (Lancet 2020). Very few countries have enough provision to deal with the outburst. Even oxygen became scarce at the very peak of the pandemic, which significantly increased mortality.

State of the Health Sector in Pakistan

The health and wellbeing of the population are very much central to every government, especially after the outbreak of the pandemic. SDG-3 is dedicated to this sector while ensuring healthy lives and promoting wellbeing for all at all ages. The 'leaving no one behind' slogan displays an objective to improve the health service while reducing inequality within it.

In Pakistan, the government remains committed to improving health facilities by ensuring the provision of universal health coverage (UHC) for the population through Sehat Sahulat cards. Even in the face of COVID-19, Pakistan's health sector has witnessed considerable improvement in three different segments of the sector—maternal mortality rate, new HIV infections, and births attended by skilled health personnel. During the pandemic a negative trend is observed for subjective wellbeing in Pakistan, whereas all the other indicators either demonstrate a minor improvement or remain stagnant.[46]

[46] Pakistan SDG Status Report. Can be accessed at: https://sdg.iisd.org/commentary/guest-articles/measuring-progress-through-numbers-pakistans-first-sdg-status-report/

Table 3-6. Major health indicators of Pakistan

Indicator	2019	2020
Maternal mortality ratio (per 1,000 births)	189	186
Neonatal mortality rate (per 1,000 live births)	41.2	40.4
Mortality rate, infant (per 1,000 live births)	55.7	54.2
Under five mortality rate (per 1,000)	67.3	65.2
Incidence of HIV (per 1,000 uninfected population)	0.12	0.12
Life expectancy at birth, years	67.3	67.4
Births attended by skilled workers (percentage of total)	68.0	69.3
Contraceptive prevalence, any method (percentage of women aged 15-49)	34.0	33
Incidence of tuberculosis (per 100,000 people)	263	259

Source: Economic Survey of Pakistan 2020-2021

State of the Health Sector during COVID-19

During the fight to curtail and reduce the spread of the pandemic, the government focus on the health sector was significantly enhanced. Special initiatives were taken to address the outbreak of the virus. COVID-19 outbreaks in Pakistan led to more than 30,000 casualities up to February 2022. The provincial distribution of COVID-19 cases with its several categories is provided in Table 3-7. Although Punjab has the highest population, Sindh province witnessed the largest number of confirmed cases; this could be because the virus occurred initially in Sindh, where the cases were first confirmed. Similarly, the number of confirmed cases was very great in Islamabad (135,577), possibly owing to the high mobility of people in the city from other regions. In terms of the death rate, Punjab has the highest number.

Different provinces adopted different measures but most of these measures were jointly accepted under the National Command and Operation Center (NCOC).

Table 3-7. COVID-19 outlook in Pakistan (March 2020 to February 2022)

Province/region	Confirmed cases	Active cases	Deaths	Recoveries
Punjab	507,455	2,104	13,565	567,237
Sindh	577,897	2,553	8,107	491,786
Khyber Pakhtunkhwa	219,734	524	6,324	212,886
Balochistan	35,506	20	378	35,108
Islamabad	135,577	413	1,021	134,140
AJK	43,352	43	792	42,517
GB	11,752	15	191	11,546

Source: COVID-19 Portal, Government of Pakistan

Healthcare expenditure in Pakistan increased from 1 percent of GDP in 2018 to 2019 (421 billion rupees) to 1.2 percent GDP in 2020 to 2021 (657 billion rupees). This increase is also because of the purchase of the COVID-19 vaccination during these years. So, the development budget in the health sector remained stagnant over the past five years.

In terms of health inequalities, it is common for children from rural areas and low-income families to be underweight. Similarly, women from rural areas belonging to poor families are prone to undernutrition (Shahzad et al. 2021). Already vulnerable children and women are at higher risk, compared to men, of the spread of diseases such as COVID-19.

In addition, the health sector faced issues owing to a lack of coordination between the provinces, particularly during the testing times of floods and the spread of disease (especially dengue virus and diarrhea). After the devolution of power to the provinces, provincial governments in Pakistan now have access to funds, but the focus is still not on reducing health inequalities between the districts and across different income groups. Some measures—such as health insurance and health cards—are taken by the governments in Khyber Pakhtunkhwa and Punjab, but these initiatives have been compromised owing to political instability in recent years. Also, health surveys—that could highlight areas to focus on and the impact of flood-led disease among the population—are not administered in all provinces. The information systems of provincial health departments do not have the scope of those in the federal health system; therefore, provincial health departments are unable to provide timely policy responses whenever health situations arise.

Policy Intervention in the Health Sector

To reduce health inequality in Pakistan, the government introduced the Sehat Sahulat Program (SSP) with the involvement and support of provincial government. It was initially intended for families living below the poverty line. After its successful launch, its net has now been widened by increasing the slab. The country is trying to move towards a universal health insurance system so that the basic health facilities and emergency health needs of people could be met without spending a penny. As of March 2022, the program facilitates around 44.6 million families across Punjab, Khyber Pakhtunkhwa, Islamabad, Azad Jammu and Kashmir, Gilgit–Baltistan, and Sindh–Tharparkar. Table 3-8 shows the number of districts that benefited from the SSP.

Table 3-8. Provision of the Sehat Sahulat Program

Province	Number of districts	Number of families
Punjab	36	31,705,290
Khyber Pakhtunkhwa	35	9,353,009
Azad Jammu and Kashmir	10	1,341,888
Islamabad	-	249,177
Gilgit–Baltistan	10	363,692
Sindh	Tharparkar	313,436

Source: Economic Survey of Pakistan

To contain the spread of the virus, the Government of Pakistan also announced the Pakistan Preparedness and Response Plan (PPRP) (2021-2022). It is the second phase of PPRP; the first phase—worth USD595 million—was launched in 2020 to contain the virus. PPRP was developed by the Ministry of National Health Services Regulations and Coordination (MoNHSR&C). All the provincial health departments were involved in the development of this plan.

Similarly, the National Coordination Committee (NCC) was made operational by the National Command and Operation Centre (NCOC), which reports directly to the prime minister. The distribution of vaccines was dedicated to the National Disaster Management Authority (NDMA) as it already had the capacity and human resources to run the campaign. Federal and provincial governments also worked to enhance COVID-19 testing laboratories in the country. Capacity was increased from 100 tests per day (in February 2020) to 79,749 tests per day (in June 2021). This milestone of increasing capacity in such a short time was reached through public–private partnership. The government also subsidized testing in State hospitals as it is still essential for students and employees to be tested after semester breaks or whenever they feel unwell.

Another very constructive measure by NCOC was the smart lockdown put in place across the country. It has been effective to prevent the virus spreading beyond any specific street or town.

Smart lockdown was employed to keep the economy running so that no economic activity was disrupted; otherwise, it could have caused huge unemployment in the country. Such measures help control the spread of the virus on the one hand and support the economy on the other.

Policy Recommendations for the Health Sector

The outbreak of COVID-19 was controlled very effectively in Pakistan. The government was aware of the shortfalls in the health sector. There was a clear need to increase the existing human resource capacity, the medical equipment in hospitals, and the overall staff levels to meet the health demand.

Alongside these actions, there were some building blocks that required careful attention to update the health services. The foremost building block was the national governance system of hospitals that needed improvement. Since the devolution of power, policy, strategy, and planning were the responsibility of the provinces, while regulation and coordination formed the focus of federal government. A review of the reasons behind the process of devolution might engender a health model that is better at coping with pandemics such as COVID-19.

As per the National Institute of Health (NIH), financing is another building block in the health sector that is usually insufficient in Pakistan. The provision of a public–private partnership is inevitable now if the government intends to improve performance in the health sector. Financial resources are available with provincial governments, while the pressure to do what is needed in a timely manner always falls to the federal government. These regulatory issues should be resolved to achieve a better performance in the health sector. It will also be useful to track provincial performance.

Information systems is another area where much remains to be done. Initiatives such as telemedicine should be encouraged so that misinformation among the public can be avoided. Interprovincial harmony in Pakistan is inadequate; it needs to be enhanced so that any unforeseen challenges can be handled effectively in the future.

Digital Access

The adoption of ICT provided multiple advantages including greater access to information, decreased labor costs, and improved connectivity among people. However, the process of digitalization remains unequal throughout the world and this has created the digital divide—the gap among individuals, regions, and nations in terms of access to modern ICT.

Owing to socioeconomic conditions, families are not keen to invest in digital devices for women or allow them digital privacy (Amin & Maqbool 2021). Besides access, affordability is also a key challenge for many individuals. Recently people have been finding it difficult to manage their expenses on the internet after work and education have moved to online mode because of COVID-19.

The State of Digital Access

Digital access in Pakistan has increased during the last few years as the number of mobile phone subscribers and individuals using the internet increased significantly. This includes both male and female subscribers.

Table 3-9. Mobile subscribers by gender (million)

Gender	2017-2018	2018-2019	2019-2020	2020-2021
Male	79.0	83.7	106.7	144.5
Female	20.3	21.5	26.4	38.0

Source: Pakistan Telecommunication Authority

There were 79 million male mobile phone subscribers in 2017 to 2018; this figure increased by 83 percent to 144.5 million during 2020 to 2021. The number of female mobile subscribers increased from 20.3 million in 2017 to 2018 to 38 million during 2020 to 2021—an increase of 87 percent.

Table 3-10. Percentage of individuals with mobile ownership

Province and regions	Urban		Rural	
	Male	Female	Male	Female
Pakistan	71.22	38.08	61.08	17.36
Punjab	69.12	36.43	61.39	18.63
Sindh	75.03	44.43	57.6	8.97
Khyber Pakhtunkhwa	70.65	29.84	62.78	21.44
Balochistan	67.41	22.78	61.85	11.44

Source: Pakistan Social and Living Standards Measurement (PSLM) 2019-2020

The percentage of mobile ownership is higher among males across all regions compared to their female counterparts. In urban areas, Balochistan has the lowest female mobile ownership where only 22.78 percent of females own a mobile phone compared to 67.41 percent of males. As far as rural areas are concerned, only 8.97 percent of females in Sindh own a mobile phone compared to 57.6 percent of males in the same region. Overall, the percentage of mobile ownership is higher among males and females in urban areas compared to in rural areas, which clearly indicates the digital divide among the two regions.

Table 3-11. Percentage of individuals using the internet

Province and regions	Urban		Rural	
	Male	Female	Male	Female
Pakistan	36.71	24.17	15.98	7.20
Punjab	36.06	25.05	16.39	9.38
Sindh	38.97	26.77	12.06	3.11
Khyber Pakhtunkhwa	35.91	13.27	18.8	5.59
Balochistan	29.38	12.43	17.12	5.47

Source: Pakistan Social and Living Standards Measurement (PSLM) 2019-2020

According to GSMA statistics, the gender gap in internet users in Pakistan decreased from 49 percent in 2019 to 41 percent in 2020. PSLM (2020) indicates that around 43 million people in Pakistan use the internet for different purposes including Facebook, Skype, online shopping, education and research, and banking.

Table 3-12. Internet users by gender

Gender	Million	Percentage
Male	79	71%
Female	21	20%

Source: Pakistan Telecommunication Authority

The key reasons given by females for not using the internet include low level of literacy, lack of affordability, and lack of ICT-related skills (Shahid & Arfeen 2021). Cultural norms are also a key

factor, owing to which internet access is limited among females. However, according to the GSMA Intelligent Consumer Survey 2017-2019, Pakistan has one of the strongest growth rates in mobile internet awareness, particularly among females. This indicates that in the future internet use among females is expected to increase considerably, thereby decreasing the male–female digital divide.

Table 3-13. Frequency of internet use (percent)

Overall	Male	Female
At least once a day	47	43
At least once a week	11	14
At least once a month	2	2
When needed	39	40
Urban		
At least once a day	51	47
At least once a week	9	12
At least once a month	1	2
When needed	39	39
Rural		
At least once a day	42	34
At least once a week	15	19
At least once a month	3	4
When needed	4	41

Source: Pakistan Social and Living Standards Measurement (PSLM) 2019-2020

Table 3-13 indicates that people generally use the internet on daily basis. The frequency for male users is slightly higher (47 percent) compared with female users (43 percent) in terms of using the internet at least once a day. Frequency of internet use is higher in urban areas compared with rural areas.

Table 3-14. Percentage of households with computer/mobile/internet

Province and region	Computer/laptop/tablet	Mobile smartphone	Internet
Pakistan	11.75	93.15	32.77
Punjab	12.90	93.93	34.40
Sindh	10.18	90.85	31.92
Khyber Pakhtunkhwa	12.37	94.94	32.72
Balochistan	6.45	91.88	21.15

Source: Pakistan Social and Living Standards Measurement (PSLM) 2019-2020

Balochistan has the lowest percentage of households with computer or internet. Punjab has the highest percentage with computer and internet, while Khyber Pakhtunkhwa has the highest percentage of households with mobile smartphones. Device affordability is the key impediment to increasing the percentage of households having computer, mobile, and internet connectivity (Hina 2021). The Finance Act (Supplementary Act) increased the taxes on mobile connection and internet connectivity which will affect device affordability and internet access. Stakeholders raised concerns regarding the increase in taxation by pointing out that the Digital Pakistan vision cannot be achieved

using such measures and the government will not be able to minimize the digital divide among the regions (Hussein 2021).

Internet access for lower income households is affected by excessive taxation as it makes the services too expensive. This results in increasing the digital divide and excluding people from the digital network. Higher taxation such as custom duties, tax on mobile phone sets, and sales tax increase the price of devices and make it difficult for an ordinary person to purchase the same (GSMA 2020).

Digital Access during COVID-19

The Pakistan Telecommunication Authority (PTA) is focusing on reducing the digital divide in mobile and broadband access to facilitate inclusion and fairer access to services. A respondent pointed out that PTA plans to enhance the digital infrastructure and close the digital divide by increasing fixed broadband in 30 smaller cities. This initiative will reduce the digital divide in broadband in smaller cities through investment in the form of public–private partnership as well as developing the fiber optic infrastructure. The Ministry of Information Technology and Telecommunication (MoITT) initiated key measures to bridge the digital divide during the pandemic, particularly in rural areas where broadband access was limited. Financial incentives were provided to telecom operators through the Universal Service Fund (USF) to encourage companies to invest in unserved and underserved regions.

According to PTA there was an increase in internet use since lockdown came into effect in March 2021.[47] A respondent from MoITT highlighted that the ministry aimed to provide broadband and internet services across Pakistan—particularly during the pandemic. The government used mobile-based applications to provide updates about COVID-19. A member of PTA highlighted that SMS in local languages were sent to create awareness among the community regarding the pandemic. Telecom operators offered data allowances and discounted cellular and internet packages to assist customers.[48]

However, people living in remote areas had no internet connection, which restricted their access to vital information during the pandemic. People living in far off areas remain unable to access the information on time; even if there is internet access, it is much too costly for the average person. Many families migrated towards the big cities to get better internet access during the pandemic.[49]

Policy Interventions

Digital Pakistan Policy (2018) by MoITT aims to improve the quality of life and economic wellbeing of citizens through ensuring availability of accessible, affordable, reliable, universal, and high quality ICT services. The Government of Pakistan facilitates the IT industry with various sustainable development and accelerated digitization projects including research and innovation, subsidized bandwidth technology parks, and international certifications.

[47] Pakistan's internet use surges amid COVID-19 lockdown, Anadolu Agency, 16 April 2020, https://www.aa.com.tr/en/asia-pacific/pakistan-s-internet-use-surges-amid-covid-19-lockdown/1807118#
[48] Pakistan Telecommunication Authority, https://www.pta.gov.pk/en/media-center/single-media/pta-continues-to-support-efforts-to-contain-covid-19-260321
[49] 'Internet is a basic need that many in Pakistan cannot afford' *Digital Rights Monitor*, 8 February 2022, https://www.digitalrightsmonitor.pk/internet-is-a-basic-need-that-many-in-pakistan-cannot-afford/

The surge in demand for broadband services after COVID-19 and the reliance on wireless mobile broadband services increased demand for the availability of more spectrums to meet the connectivity requirements of the public in Pakistan. In this regard, MoITT issued a policy directive for the auction of the Next Generation Mobile Services (NGMS) spectrum in Pakistan to improve mobile broadband services.

MoITT initiated Pakistan Cloud First Policy to promote the digital transformation of the ICT landscape in Pakistan as well as improving efficiency and quality service delivery. One of the key objectives of this policy is to lower the cost of the ICT infrastructure by paying only for services used. In addition, MoITT established USF to provide high-speed mobile broadband services in remote regions (MoITT).[50] Fiber optic cable will be laid down in the remote regions of Khyber Pakhtunkhwa and Sindh to connect unserved tehsil headquarters, major towns, and tehsils.

Policy Recommendations

Promoting digital access is important to ensure that individuals are equipped with the skills and knowledge necessary for growth. The government should take measures to provide affordable technology devices including mobile phones to expand access to internet services and mobile phones. This also requires initiating programs related to digital literacy so that people can effectively engage with internet content. Moreover, the digital divide can be overcome to create awareness and promote mobile ownership among female users. Although MoITT has taken several measures to expand internet services in rural areas, more needs to be done to bridge the gap between rural and urban areas in terms of accessibility and affordability. Coordination between federal and provincial governments can reduce bureaucratic hurdles and create an efficient government structure that will spur the implementation process of related policies.

Barriers to laying down fiber optic cable should be removed as it is an important element of expanding the internet network. PTA should ensure that people living in rural areas receive uninterrupted and affordable access to the internet. The internet and related infrastructure can also be improved through public–private partnership. Awareness campaigns focusing on the significance of internet access by engaging related stakeholders can increase consumer interest in broadband services. In particular, these campaigns can target regions with low access to and availability of internet services. As mentioned earlier, the government should reduce taxes on mobile and internet services as recent taxation measures have made it unaffordable for the average consumer to access these services.

Female Labor Force Participation

Labor markets across the world were disrupted owing to the pandemic and, as lockdowns were put into place soon after, economic activity decreased considerably. This resulted in massive unemployment; international organizations such as Asian Development Bank (2020) and World Bank (2020) state that millions of jobs were lost, causing extreme poverty in low-income countries. The labor market was also disrupted in Pakistan as the unemployment rate rose sharply and mean income fell during the first wave of lockdown (Cheema & Rehman 2021).

[50] MoITT, https://moitt.gov.pk/NewsDetail/YmYyMmIzMTctMjMxNy00NzA0LWIzYTYtYWVkNDg4NGU3YzI5

Women in the Labor Market

As per Pakistan's labor policy (2010), the government aimed to provide equal employment opportunities for women to ensure that they have access to suitable jobs. The government allotted an overall quota for women in public sector employment, whereas the provinces have different quota levels. At federal level, the quota for women is 10 percent, whereas in Punjab, Sindh, and Khyber Pakhtunkhwa, the quota is 15 percent. These policies helped to increase the female participation rate in the labor market over the last five years.

Table 3-15. Female distribution by major industry division

Industry	2017-2018	2018-2019	2020-2021
Agriculture/forestry/hunting and fishing	67.2	69.8	67.9
Manufacturing	16.0	13.4	14.2
Construction	0.3	0.3	0.4
Wholesale and retail trade	1.5	1.2	1.2
Transport/storage and communication	0.2	0.1	0.2
Community/social and personal services	14.6	14.9	15.8
Others	0.2	0.3	0.3

Source: Pakistan Bureau of Statistics

Agriculture is the major industry for employment as 67.9 percent of females work in this sector (Table 3-15). After the agriculture sector, females are employed mainly in manufacturing as craft and trade-related workers, in education as professionals, and in human health and social work activities as technicians and associate professionals (Pakistan Bureau of Statistics).

Table 3-16. Female distribution by major occupation

Industry	2017-2018	2018-2019
Managers	0.5	0.5
Professionals	7.7	7.5
Technicians and associate professionals	1.8	1.6
Clerical support workers	0.1	0.2
Service and sales workers	2.7	2.1
Skilled agricultural, forestry and fishery workers	54.6	60.8
Craft and related trade workers	14.4	11.9
Plant/machine operators and assemblers	0.3	0.2
Elementary occupations	17.9	15.2

Source: Pakistan Bureau of Statistics

Table 3-16 shows the distribution by major occupation for females and it can be observed that most are skilled agricultural workers. After which, elementary occupations and craft and related trade are the major occupations for females in Pakistan.

Gender gaps and disparities

Not only do gender gaps in terms of participation rate and employment exist in Pakistan, but there are other disparities among males and females in terms of average monthly wage and employment opportunities.

Table 3-17. Employment and wage statistics

Description	Gender	2017-2018	2018-2019
Crude activity (participation) rates (percent)	Male	48.3	48.1
	Female	14.5	15.5
Unemployment rate (percent)	Male	5.1	5.9
	Female	8.3	10.0
Average monthly wages (PKR)	Male	19,943	22,172
	Female	11,884	15,461
Number of employed people (millions)	Male	48.17	49.33
	Female	13.54	14.7

Source: Pakistan Bureau of Statistics

Table 3-17 indicates that the labor force participation rate for males is higher compared to the rate for females. In 2018 to 2019, the participation rate for males was 48.1 percent while it was only 15.5 percent for females. As a result, the total number of employed males is more in number (49.33 million) compared to that of females (14.7 million) in 2018 to 2019. The gender gap also exists in average monthly wages as males earn more than females. The Global Gender Parity Report (2021) stated that women seeking jobs are mostly unable to find employment, or are paid around 34 percent less than men. The World Bank (2018) study mentions that the lower participation rate of females in Pakistan is for reasons including marriage, limited mobility, and safety and attitudes. ADB (2016) also reports that mobility is a key factor for female workers as they prefer to work at places near their homes. Moreover, household constraints such as the burden of household work and childcare also affect the female's decision to work outside the home. According to Pakistan's Demographic and Health Survey (2017-2018), the incidence of involuntary unemployment for females (8.3 percent) is also higher compared to that of males (5.1 percent).

Challenges during COVID-19

COVID-19 affected labor markets throughout the world as economic activities decreased considerably. Consequently, millions of workers faced negative effects in terms of job layoffs, decreased wages, and reduced working hours. Although both men and women faced employment losses, the pandemic generated a larger negative impact on women (Nieves et al. 2021).

A sudden shift in working patterns after the pandemic created challenges for many employment categories and affected their ability to earn a living—in particular, there were major issues for low-income households that rely on a daily wage and manual work (Ahmed 2021). Females faced a decrease in hourly wages since wage payments were reduced considerably after COVID-19. It was observed that around 75 percent of females changed jobs after the pandemic as they had to find a new job (Bari et al. 2020). During interview, female workers pointed out that they also faced the risk of becoming COVID-positive at the workplace—for this reason, many workers left their jobs and stayed at home. Women health workers faced numerous challenges including risk of infection compared to the rest of the population, owing to the absence of proper safety gear and health facilities (Tariq & Bibler 2020). The education sector was among those sectors severely affected by the pandemic. As it is a major sector for female employment, women faced reduced working hours, wage cuts, and permanent layoffs (Tas et al. 2021). It was also pointed out by female teachers that, during the first wave of COVID-19, their institutes initially forced them to take unpaid leave, laying them off afterwards without any warning or paying their dues.

There are around 12 million home-based workers in Pakistan, most of which are women who have marginal incomes and are not covered by social protection (UN 2020). Home-based workers pointed out that, during the first wave of the pandemic, there were very few economic opportunities.

Female home-based workers also stated that they have low income security and no social protection. Also, as most domestic and informal workers are not registered with the Social Welfare Department, they are unable to claim any relief from the government (Tariq & Bibler 2020). UNDP (2020) reported that the short- and long-term impact of COVID-19 on women in the informal sector would be disproportionate and different compared to that on their male counterparts.

Policy Recommendations

Considering the percentage of females in the total population, the female labor force participation rate in Pakistan is still low and needs to be increased. The government should devise policies to encourage females to work in sectors where female participation is still low. Flexible work schedules and gender-equal policies can be helpful in increasing the female labor force participation rate. The government can take measures through which demand for female workers in specific jobs can be promoted, such as in the textiles and apparel sector. By promoting female education, the participation rate can be increased, as ADB (2016) observed that females with a higher level of education tend to engage more in the labor force. On the demand side, policies can be targeted to increase labor demand in particular types of job in which women are more likely to work.

The government needs to increase the outreach of its social safety net programs, especially for the workforce in the informal sector. For this, improved data related to the workforce is required so that workers from the informal sector and home-based workers can be provided with targeted relief measures. Females should be provided with training programs to enable them to acquire skills with which they can engage in self-employment activities. The Ministry of Overseas Pakistanis and Human Resource Department (MOPHRD) can play a key role in this regard by devising women-specific training programs with the collaboration of related provincial authorities so that females from every region of Pakistan can be given equal opportunities. Access to finance for females who wish to establish micro-enterprises or engage in home-based working can ease their financial difficulties.

Conclusion

In response to the spread of COVID-19 in Pakistan, the government adopted the innovative policy of smart lockdown to contain the spread of the virus and tackle the situation while facing the constraints of limited resources. However, the impact of the pandemic was so intense that the provisions available in the health sector proved not to be enough. The government tried to contain the spread of the pandemic by taking policy measures, but they needed to ensure that these policy actions were balanced as they might increase the vulnerability of poor people and raise levels of inequality.

To overcome the challenges in the health sector, it was necessary to review the governance system of the health sector at large. Additionally, financing is another area in the health sector that is usually deficient in Pakistan. The provision of public–private partnership could help to bring rapid and sustainable improvement to the health sector. Experts highlight that the regulatory issues in the sector are another factor as financial resources are available within the provinces, but the pressure to take the necessary action rests ultimately with federal government. Information systems is a promising new area that has the potential to solve the capacity issues in the health sector. Initiatives such as Dawaai and telemedicine should be encouraged to avoid public misinformation. Interprovincial harmony should also be cultivated to improve sector efficiency.

Similarly, a number of policies need to be adopted in the education sector. For instance, demand-side policy measures are encouraged to motivate the enrollment of girls and students from poor families. Another way forward could be the CCT with the condition of enrolling children in school.

More space is needed in the education sector for new ways of teaching for effective learning and including emerging ways to enhance learning. The decentralization of education to district level is another step that could improve the performance of the education sector while increasing competition. The provinces should enlarge budget allocation while adopting consistent and sustainable education policies. Capacity building in education is an area that has long needed a focus. The implementation of the SNC may also prove to be effective in bringing students from an informal education system to a formal one.

It is important to pursue digital access programs related to digital literacy for the benefit of the population. Policy measures are needed to diminish the digital divide in society by increasing awareness and promoting mobile ownership among females. MoITT will take action to increase the provision of internet services in rural areas and a lot more remains to be done to bridge the gap between rural and urban populations in terms of accessibility and affordability. Enhanced coordination through digital utilization of digital platforms between federal and provincial governments can reduce bureaucratic hurdles and improve government efficiency.

Policy measures are needed to improve female workforce participation. Government support through fiscal incentives to informal and rural enterprises may improve female participation, which the pandemic has already impacted negatively. The ongoing economic crisis in the country is accelerating the rate of unemployment. Provincial governments should increase the outreach of social safety net programs, particularly for the workforce in the informal sector. More females should be given training to enable them to find jobs or be self-employed. The government can devise women-specific training in collaboration with the related provincial departments. Access to finance should be improved and specialized bank branches set up to support females who want to establish micro-enterprises or engage in working from home.

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CHAPTER 4. UZBEKISTAN CASE STUDY

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Abstract

The COVID-19 pandemic underscored and intensified the challenges of inequality in socioeconomic activities around the globe and brought them into sharper focus. Progress in fighting poverty has largely stalled. While, in many cases, the situation has worsened. Our paper examines the unequal impact of the COVID-19 pandemic across four sectors: education, digital access, labor force participation, and the health service. The paper reveals inconsistencies based on gender, location, and income level before, during, and after the pandemic. Despite a lack of realtime data on COVID-induced inequalities, we examine qualitative data collected from the 25 different government sectors in Uzbekistan. Our paper reviews the evidence to make the case that adapting to a new situation and preparing for future challenges is an ongoing process across different sectors. Adopting inclusiveness and building resilience for future crises, especially those affecting people living in poverty, requires concerted, future-focused efforts. These must go beyond strengthening existing approaches to adopting very different transformational policies and practices.

Introduction

The global COVID-19 pandemic, with its negative effect on the global economy, had a damaging impact on the socioeconomic status of people in Central Asian countries, including Uzbekistan. Starting in early March 2020, the economic crisis affected every industry system, including the national healthcare, education, employment, and IT sectors of most countries. In Uzbekistan, the most significant decline in economic activity during the quarantine period was in the first ten days of April 2020. The volume of trades on the commodity exchange fell by an average of 30 percent, while unemployment rose to 11 percent, and sales of some goods decreased by almost 80 percent (World Bank 2020). In these circumstances, Uzbekistan has been taking specific actions to mitigate the impact of the coronavirus pandemic and the global economic crisis. But the crisis did not affect all people equally.

Our study assumes differences based on gender, location, and income level. Inequality points more to quantitative evidence, while inequity often implies injustice in a more qualitative experiential form. The terms are used interchangeably, but both dimensions are expressed in the report. Our study focuses on the education, health service, digital access, and labor force participation sectors before, during, and 'after' the COVID-19 pandemic. We have learned that COVID-19 is not entirely over with its new strains and permutations. However, adapting to this unique situation and preparing for future pandemics is an ongoing process. The study outlines these and recommends broad and specific new policies and implementation practices. Again, we presume COVID-19-induced inequalities are being addressed in different ways. There are examples where, despite the challenges of the pandemic, desirable outcomes were realized in various sectors.

Methodology

We used multiple data collection methods, analysis, and presentation to best answer the research questions. We followed best practices for evidence-based public policy research. Although each

sector applied the methods flexibly, we were guided by the same approach. The current study involved primary and secondary data, which pointed to data sources for secondary data and sampling of individuals for interviews. During COVID, we presumed the lag time between collecting and reporting quantitative data was more significant owing to pressure on standard systems. Therefore, the rationale behind including the original qualitative data is that, through interviews, we obtained data directly from people with experience, varied perspectives, and knowledge informing their responses. These point to the most information-rich data sources allowing us to stratify public, private, and non-profit stakeholders while identifying group, community, and individual stakeholder levels.

Furthermore, we were able to ask additional questions guided by the responses. This data was collected from the study using semi-structured interviews. Each sector interview guide is found in Appendix A.

Qualitative design elements produced more nuanced and meaningful results to complement a desk review of secondary data presented in findings from narratives, tables, and figures. Secondary data was used to examine Uzbekistan's socioeconomic, administrative, and legal trends before, during, and 'after' COVID-19. For the quantitative data, we referred to the annual reports of the world and local organizations such as the World Bank, UNICEF, UNESCO, the United Nations, and UNICEF Uzbekistan.

This study identifies negative impacts and proposes policy and implementation recommendations relevant to women in the labor force. As per international standards of research ethics, the study was submitted for review by human subjects, and explanations were given on how we would preserve the anonymity of each participant and their specific organization/unit. Each interviewee submitted a consent form (Appendix B), freely agreeing to participate.

Education

Background

The education system of Uzbekistan had little to no experience in online teaching and learning before the COVID-19 pandemic. In all education sectors, classes were organized in traditional—that is, face-to-face—mode. Owing to the COVID-19 pandemic, the system was significantly affected. Nevertheless, these changes did not affect all people equally. In many cases, quality and accessibility dropped, while, concurrently, Uzbekistan strengthened its capacity to apply blended learning (creative on- and offline teaching and learning approaches). All educational establishments closed on 18 March 2020. More than 9,700 secondary schools, 1,500 secondary specialized and professional schools, and 98 higher educational institutions closed their doors to students in the country (UNICEF 2020). At first, the closure was to last only three weeks; however, it was prolonged until the end of the academic year owing to the unprecedented circumstances. Governmental organizations, policymakers, and ministries were obliged to search for alternatives to face-to-face education to support continuous learning. The Government of Uzbekistan responded quickly to the changes to ensure continuity of learning by promoting online learning and teaching and teleclasses held on TV channels.

Nevertheless, educational institutions were primarily not ready to adjust to the newly applied systems and platforms. To secure the health and ongoing education of pupils, the ministries of health and public education—in cooperation with different organizations—provided pupils, parents, teachers, and all staff of educational institutions with information and educational instructions and manuals. The ministry of higher education, as in many other countries, introduced its learning

management systems (LMS) to foster online education in synchronous and asynchronous modes (Alturki & Aldraiweesh 2021). Within the period of 2018 to 2021, the high enrollment rates were maintained at all education levels in Uzbekistan; no significant differences by gender were observed in enrollment (Kacapor-Dzihic, Schustereder, Amanov, & Majoor 2021).

Research Questions

This research identifies significant issues and challenges faced in the education sector owing to the pandemic, with recommendations to promote equity in primary, secondary, and tertiary education using the following research questions:

RQ1: What are the access and achievement gaps between students along the lines of gender, levels of education, urban–rural divide, and regions of Uzbekistan in COVID times compared to previous years?

RQ2: What quality differences are experienced in the education process across the country?

RQ3: What new challenges were brought by the COVID-19 pandemic, and how is the government addressing these challenges?

Literature Review

Owing to COVID-19 and the global closure of schools, many parts of the world experienced interrupted learning. The Secretary-General of the United Nations called it 'a generational catastrophe' that worsens longstanding inequalities (UN 2020). As a result of COVID-19, many countries, as well as Uzbekistan, experienced fundamental challenges in teaching and learning.

The World Bank Group (2018) reports that, before COVID-19, the Government of Uzbekistan approved a national development strategy for 2017 to 2021, which will have implications for educational reform in the country. The 'Strategy of Actions for Five Priority Development Directions of the Republic of Uzbekistan in 2017-2021,' along with various action plans, stressed the need to develop the education sector, which meant improving the quality and effectiveness of government services, increasing economic competitiveness, and improving youth policy.

With the decision to provide equal education during the COVID-19 pandemic, the government considered the best means of delivery. According to the World Bank (2020), connectivity was a problem in Uzbekistan because only 71 percent of the population used the internet by 2020, and nearly half the population lived in rural areas. According to a study by UNICEF (2020), during COVID-19, the key media channel to connect to the largest audience of the younger generation was television, since 98 percent of households in the country with children of school age owned a television (see Table 4-1).

Table 4-1. Access to online/digital resources and knowledge of using online resources

	Rural	Urban	Total
Households with television (ordinary or LCD)	98.4%	97.7%	98.1%
Households with smartphone	70.9%	83.5%	77.2%
Households with computer (desktop/laptop)	19.4%	39.3%	29.3%

Households with internet (mobile/landline)	30.2%	50.5%	40.2%
Schoolchildren with computer literacy	37.4%	47.6%	42.2%
Schoolchildren with digital literacy	29.6%	46.4%	37.6%

Source: UNICEF 2020

Also, 40 percent of schoolchildren were computer literate, and 37 percent had digital literacy. Of schoolchildren in rural areas, 30 percent were able to use digital devices (Sankar 2021). Those were the main reasons for delivering television classes for primary and secondary school pupils. These television classes were conducted for all grades (1-11) and broadcasted through four channels financially supported by the government. Pupils had equal opportunities to receive knowledge from the best teachers of Uzbekistan selected by the Ministry of Public Education. Every day pupils had four classes that lasted 15 to 20 minutes. Also, according to the Republican Education Centre (REC), 4,492 video lessons were produced by 25 May 2020 (see Table 4-2). Moreover, Sankar (2020) points out that the Ministry of Public Education, in cooperation with UNICEF, developed a digital learning platform, www.maktab.uz.

Table 4-2. Distance-learning program for general secondary education in Uzbekistan: video lessons produced and broadcast during the first phase (March to May 2020)

	Uzbek	**Russian**	**Karakalpak**	**All**
Number of video lessons planned	2,000	2,000	1,000	5,000
Number of video lessons broadcast (31 March to 25 May 2020)	1,950	1,948	594	4,492
Duration of video lessons planned (total in hours)	1,000	1,000	500	2,500
Total duration of broadcast lessons (in hours)	1,462	1,461	445	3,368
Number of educators trained to prepare video lessons	99	89	42	230

Source: UNICEF 2020

The available literature on the impact of pandemics on Uzbek education generally describes the circumstances in Uzbekistan. However, little research has been conducted to compare the levels of challenge across the regions, between genders, and among different layers of society. Thus, current research focuses mainly on comparing the elements mentioned earlier.

Methods and Data

The qualitative sample population is five persons (four males and one female) responsible for Uzbekistan's education sector. These leaders are involved at different levels. To collect data, we applied semi-structured interviews attached in Appendix 1. The rationale behind this method is that, through interviews, we could obtain reliable data directly from experienced people; furthermore, we were able to ask additional questions guided by the responses. Interview data is also more timely than secondary sources and provides data and interpretations of the effects. The interviewees were assured of their responses being confidential. The interviewees were asked to fill out the consent

form (Appendix 2), freely agreeing to their participation. Our interviewees were from the government ministry in the education sector, a governmental research institute, a public secondary school administrator in a region outside Tashkent city, private secondary school directors, and teachers at an academic lyceum.

Findings and Discussions

RQ1: What are the access and achievement gaps between students along the lines of gender, levels of education, urban–rural divide, and regions of Uzbekistan in COVID times compared to previous years?

According to RP1, before COVID-19 there were significant attempts at reform to modernize the infrastructure of the educational sector. He believes 2017 was a milestone in the sector's modernization owing to the national development strategy adopted that year. He pointed out a diversification of the offer in higher education, which reflected a noticeable increase in the number of international and private universities. Moreover, student enrollment in local universities doubled during this period. Obviously, all of these brought changes not only to the infrastructure of and access to education but also to the content of education. However, he emphasized that these changes focused more on quantity than education quality.

RP1 said that 'literally overnight, we had to move to online provision … and this was a very new experience for everyone' and pointed out that an unexpected change, such as the closure of all universities, caused a range of infrastructural and technical challenges. There was a scarcity of content for online teaching. Similarly, students were not ready to shift from conventional learning to online education.

RP1 and RP5 also mentioned that the unexpected lockdown brought several challenges to teachers and students' families. Since all teachers had to teach from their homes and residences, they had to deal simultaneously with their family obligations, which burdened the teaching staff. UNESCO (2020) confirms that, because of the pandemic lockdown, students found themselves in entirely different situations, not only in terms of their education but also in terms of their overall life. Increased stress, anxiety, and mental health concerns have resulted from restrictions on movement, disruption of routine, limitation of social interaction, and deprivation of traditional learning methods for learners worldwide.

RP2 and RP4 stated that in the period before COVID-19, the form of education was traditional, where students and teachers were engaged in live face-to-face sessions. However, teachers had more responsibility for providing education since many students lacked autonomy and the ability to study alone.

Gender-Related Issues

We also generated some data related to gender issues owing to COVID-19. Although most of the interviewees and sources highlight that Uzbekistan pays close attention to the balance of gender roles, we intended to explore the case related explicitly to the COVID-19 period.

Regarding gender-related issues, RP1 assumes that 'women and girls were hit harder by the pandemic from a social point of view' owing to traditional society duties such as household chores and family care. They had to continue teaching/studying and simultaneously fulfil their traditional family responsibilities.

RP2 mentioned that all government reforms aimed at providing equal opportunities for boys and girls to get a quality education. Nevertheless, RP3 stated that girls participated actively and performed well in the rural academic lyceum online classes; however, the number of girls who joined the sessions was fewer than the number of boys. Another interesting finding is that, as RP5 mentioned, male teachers achieved higher student attendance owing to the assumption that male teachers were stricter than female ones.

Issues in Different Education Levels

One of our aims was to explore the impact of the pandemic on different levels of education. RP1 believes that the challenges during COVID-19 were common for both secondary and higher education levels. RP2 and RP5 shared this opinion.

Urban–Rural Area Issues

As for issues related to urban–rural areas, RP1, RP4, and RP5 think that, like other developing nations, Uzbekistan also faces certain inequalities in terms of infrastructure—that is, what is available in larger cities may not be available in rural areas. For example, in most cases, rural areas suffer from a scarcity of devices such as computers and headphones needed for technology-driven classes. Above all, the lack of a reliable and speedy internet prevented teachers and learners from accessing quality education in rural areas. RP2 also stated that the lockdown period affected cities and regions differently. Many city schools had good internet access, whereas schools in remote villages were not equipped with computerized classes. Even some schools with computers had no access to the internet.

Another point that RP1 focused on is the capability of teaching staff in rural areas, as most teachers had little or no experience in online teaching. Nonetheless, RP3 complained about the low participation of the academic lyceum students, which constituted 60 percent monthly in rural areas. He believes that the reason for not attending online sessions was the involvement of students in household chores and manual agricultural work.

As RP2 stated, owing to the COVID-19 pandemic, they observed some loss in public education regarding specific subject-area leadership of some schools in different regions of the country. As he specified, before COVID-19, the regions Bukhara, Khorezm, and Navoi school pupils always led in the Republican Olympiads on maths, IT, and other exact sciences as their schools had a unique approach to teaching and learning. As for foreign languages, schools in the Fergana Valley and Samarkand regions took the lead. Regarding social sciences, Kashkadarya and Surkhandarya schools stood out. Nonetheless, during the pandemic period, the uniqueness of these regional schools disappeared to some extent, and all schools in the country were standardized.

RQ2: What quality differences are experienced in the education process across the country?

When the COVID-19 pandemic lockdown was announced, all schools, lyceums, colleges, and universities discontinued face-to-face teachings and switched to online and digital education, which brought various challenges to different levels of education.

P2 mentioned that the pandemic influenced all levels, from primary to tertiary, bringing difficulties for all educational institutions. P4 informed that, during the pandemic, private sectors suffered from a drop in the number of students—about 40 percent of parents transferred their children from private to public schools.

However, COVID-19 has also had a positive impact on education. As P2 stated, although the teachers' professional development curricula included ICT courses and had been taught since 1993, teachers struggled with these courses and were not proficient in the use of computers and other digital devices. Owing to the urgent need for online teaching, teachers' digital literacy rapidly increased and developed well within six months, enabling them to utilize computers and various internet sources, platforms, and education-related applications well. P5 also agreed that teachers started employing various digital tools to engage the classes more.

Curriculum Content

P2 stated that, even though most schools, lyceums, colleges and universities conducted classes on the numerous online platforms conveying the learning materials, some content was impossible to deliver. For instance, a professional development course on the psychology of management needed a live auditorium where professionals interact with each other and exchange ideas and understandings.

Digital Literacy

According to P2 and P5, many teachers were not prepared for this experience and were significantly challenged by technical and digital literacy. P2 said, 'There were even some teachers who were afraid of speaking in front of the camera. Some teachers even resigned from their jobs because they lacked confidence in their online performance.' As for students, as they had not developed the skills to use online tools, platforms, and even the internet, they faced obstacles in learning too.

RQ3: What new challenges were brought by the COVID-19 pandemic, and how is the government addressing the challenge?

Government Support

P1 believes that the overall response of the government to COVID-19 was effective. There were unprecedented steps to reduce the cost of internet connection, especially for university students. Furthermore, the government started to invest in strengthening the technical capabilities and LMS of educational institutions.

P2 stated that to tackle the issues of rural schools—which were without computers and internet access—the government opened a fund that aided public education financially and distributed innumerable computers to schools in remote locations. Also, free access to internet servers was provided with the support of MoITT.

Regarding the measures taken to solve gender inequality, P1 is convinced that there was a reinforced commitment by the government to provide girls and women with better access to education, notably higher education. He stressed that several decisions and resolutions provided more privileged access—namely, additional grants to young women who would like to study higher education at bachelor and postgraduate levels. He also referred to the president's recent resolution on providing free education for young women at postgraduate level.

P2 mentioned that to eradicate the factors hindering online teaching and monitoring and to support teachers in this unprecedented time of COVID-19, the government initiated the idea of interest-free credit from banks for teachers to purchase smartphones. As a result, a great number of teachers had connections with their pupils to promote online education. Another significant point that P2 pointed out was an extensive and long-lasting series of online Olympiads, essay contests, photo contests,

and an online contest called 'We are from Uzbekistan' among teachers and pupils of public education to win free computers, tablets, and smartwatches. As he explains, the primary purpose of the initiative was to provide more of the population with the technical tools to assist them in teaching and learning online as well as to promote online learning.

Recommendations

Based on the interview results, the following recommendations give further guidance on maintaining the quality and equality of education in different unforeseen circumstances:

- Effort and investment in technology-driven teaching and learning should be accelerated across the country with the focus on rural and financially disadvantaged areas. Technological skills of teachers and students should be enhanced.
- The Ministry of Higher Education s hould provide autonomy to universities to develop their internal quality assurance mechanisms.
- International experiences should be involved to strengthen effective online teaching techniques.
- Staff capabilities should be improved for online teaching by organizing regular teacher training programs.
- Only applicants with high intrinsic motivation to become teachers should be accepted to pedagogical universities. The reputation and salary of the teaching profession should be enhanced. Pedagogical universities should produce well-prepared quality teachers to apply their professional skills in difficult or unexpected circumstances.

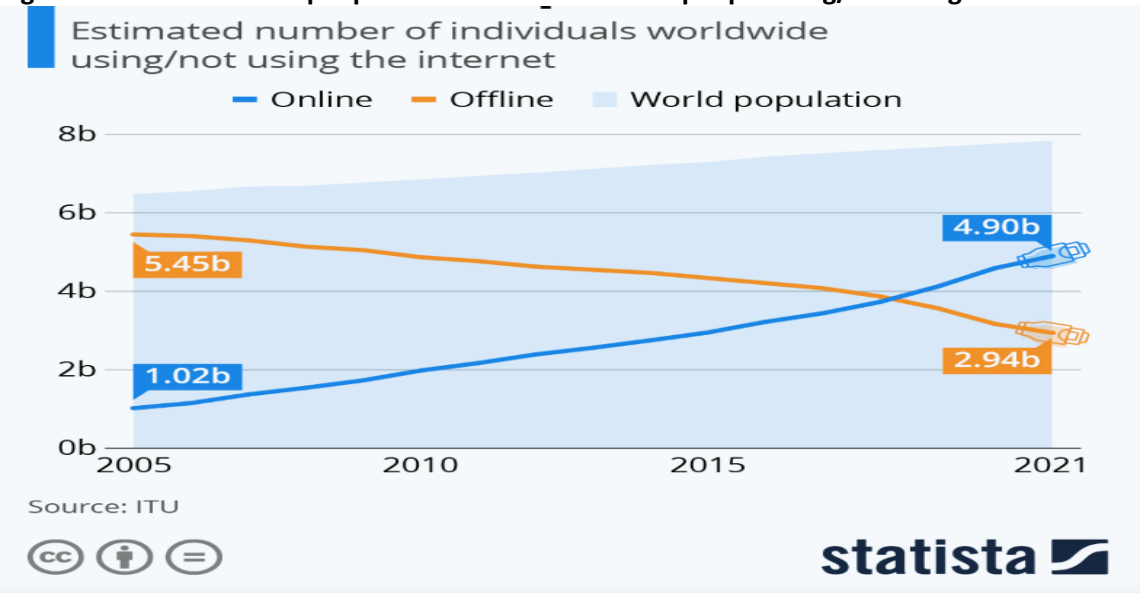
Digital Access

Background

The COVID-19 epidemic revealed deep-seated inequities among nations, from the most sophisticated to the economically impoverished. The pandemic frequently exacerbates socio-technical disparities, and various types of exclusion, marginalization, and vulnerability arise. Some are more visible than others, yet the excluded and vulnerable do not all have a voice. Many of these discrepancies are mediated by digital technology, partially owing to social distance and lockdowns that replace face-to-face encounters with digital interactions. Because of lockdowns and social distancing conventions, the pandemic has expedited the use of digital technology and apps. The association between social distancing measures and the growing use of the internet, electronic services, and digital gadgets is one of the repercussions of COVID-19. In response to the worldwide spread of COVID-19, WHO declared a public health emergency of international concern on 30 January 2020 and a pandemic on 11 March 2020.

According to the report published by the World Economic Forum and Boston and Consulting Group, 3 billion people worldwide are still offline; the pandemic has exposed and worsened digital inequality and the gaps in digital access (WEF 2022).

Figure 4-1. Disconnected people—estimated number of people using/not using the internet



Another important challenge includes the availability of digital infrastructure to all stakeholders—the lack of access to network connections, devices, and software and applications. Perrin (2019) stated that nearly two billion people do not have a mobile phone, which is the easiest way to connect to the internet in emerging economies. Therefore, bridging the digital divide requires making the internet accessible to the poorest people. Cullen (2001) points out that, although conditions to ensure physical access to the internet are essential, they are not sufficient alone to achieve the 'full benefits' of digital technology (discussed in the next section). The essential lesson of this challenge is that, without proper education and skills training, the potential of digital technology cannot be fully tapped. Therefore, digital literacy is critical to enable citizens and companies to use the internet and foster a deeper integration of digital technologies into business and public services.

Research Questions

With the following questions, the paper identifies significant concerns and challenges in the socioeconomic sector in Uzbekistan as a result of the pandemic, with the goal of proposing some feasible solutions to remove digital inequality.

RQ1: What are the access and achievement gaps in digitalization among gender, age, urban and rural, and regional/provincial groups?

RQ2: What is the availability of digital infrastructure such as per capita cellular, broadband, desktop computer, and mobile internet services?

RQ3: How has the COVID-19 pandemic further exacerbated digital access challenges in the country?

RQ4: What policy interventions has the government undertaken to address the challenges, mainly focusing on digital strategy?

Literature Review

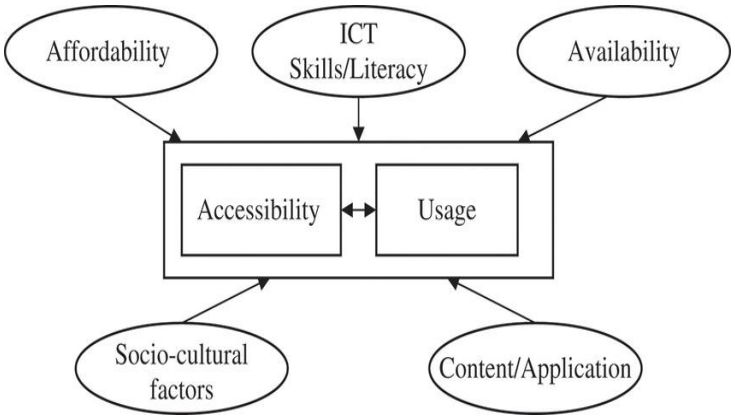
As a result of ICT policy changes made since the early 1990s, access to mobile services in low- and middle-income nations is rising, coupled with lowering prices and a robust internet environment

(Byrne & Corrado 2017). A closer look finds considerable differences not just in digital access but also in the ability of certain social groups to use new technical applications for socioeconomic growth. Many groups—including older persons, indigenous peoples, and women—continue to be disadvantaged in using ICT successfully to enhance their lives. The welfare gap between those with access to ICT and those without—particularly women—will deepen, thereby increasing global inequality if existing gender disparities in digital inclusion are not addressed.

Owing to the advancement of computers and IT, as well as their rapidly falling prices, the information society has become increasingly prevalent in recent decades. It has radically altered how individuals live, including how they receive information, connect with friends, engage with others, work, do business, and use their free time. Information is crucial in all types of society, but the number of individuals involved in generating, disseminating, and consuming it has never been higher. The growing economy in the information society is known as the knowledge economy because it relies on the generation and application of knowledge and information to generate wealth.

To understand the connection between accessibility and usage leading to digital inclusion, a framework is proposed to assist in filling the impending gaps.

Figure 4-2. Conceptual framework of digital inclusion



Source: Wong et al. 2022

The primary elements that influence accessibility and utilization are depicted in Figure 4-2. Affordability, ICT skills/literacy, availability of technology, the existence of apps and desired content, and other socio-cultural variables are examples of such issues. The purpose and comfort of utilizing technology-enabled services are increasingly influenced by the quality of technology—for example, having a broadband connection and increased processing power and storage capacity; this is incorporated within accessibility.

- Availability of infrastructure
- Cellular/mobile internet
- Broadband connectivity
- Desktop computer
- Digital obstacles
- Interventions in policy

Over the past few years, Uzbekistan has invested heavily in its technology ecosystem, driving the creation and delivery of IT products and services, including internet access, mobile communications, and other related areas. This framework is also approved by the interviewees, who accept that this knowledge of the gap is essential to identify the pain points.

Despite COVID-19 pushing internet adoption to the next level, at the start of 2022, 10.11 million people in Uzbekistan did not access the internet, suggesting that 29.6 percent of the population was still offline (DataReportal 2022). However, according to a Kepios investigation, the number of people using social media in Uzbekistan rose by 1.7 million between 2021 and 2022, showing a steep rise of about 30 percent in the urban population and 18 percent in the rural population. The findings of the report show that, at the start of 2022, Instagram's ad reach in Uzbekistan was comparable to 20.0 percent of the country's internet users (Kemp 2021).

Methods and Sample

The qualitative part is based on the responses from five participants working on various levels within the digital access sphere in Uzbekistan. Semi-structured interview questions were used (see Appendix 1). This method was chosen to gain information from people necessarily engaged in this topic. Participants fully agreed to participate and were informed about confidentiality; the consent forms were filled and signed. Our interviewee participants came from international cooperation, co-founders of an interactive language-learning platform, and head of IT sectors in Uzbekistan.

Findings and Discussions

RQ1: What are the access and achievement gaps in digitalization among gender, age, urban and rural, and regional/provincial groups?

Analysis of the semi-structured interviews indicates mixed results. RP1 reported that the female population enjoyed more digital access compared to male counterparts in the education sector, while RP5 reported the opposite, and RP3 did not see any difference between the two.

As an example, RP1 presented statistics regarding the gap in gender in terms of access to a massive open online course (MOOC) platform: 'from that, 24 percent are male and the remaining 75 percent are female. So, you can see that number is actually related to the number of women, female and male teachers, working at schools.'

On the contrary, RP5 put it: 'based on InBrain platform analytics, I can tell you that almost 65 percent of our users are male; the remaining users are female.'

It is difficult to explain this result, but it might be related to the fact that teaching at schools is mostly regarded as a female job in Uzbekistan. On the other hand, the observed difference in digitalization between urban and rural areas was noticeable. The majority of those (four out of five) who responded to this item felt that provincial groups experienced greater levels of inequality. For instance, RP5 mentioned differences in patterns of access to reliable internet connection, claiming that rural areas suffered from poor connection speed: 'For example, in urban areas these internet enabling devices are up to date, meaning better internet connection, while in rural areas these technologies may be old, meaning slower connection.'

RQ2: What is the availability of digital infrastructure such as per capita cellular, broadband, desktop computer, and mobile internet services?

Over half of those interviewed (three out of five) reported that most of the population of Uzbekistan own internet-enabled smartphones and gadgets while the availability of laptops is not scarce. For instance, in describing schoolteachers' access to laptops and mobile phones, RP1 referred to the following numbers: '40 percent might possess computers, but the remaining 60 percent don't. What we do know is that around 90 percent of teachers have mobile phones and smartphones.'

RP2 supported RP1 assumption about availability of laptops and said: 'In my opinion, access to laptops in rural areas should be less than in urban areas.'

Regarding this item, RP4 reported about the increase to mobile internet services: '… mobile internet providers are doing a good job because they have installed their technologies in many regional centers, rural and mountainous areas, and hills.'

RQ3: How has the COVID-19 pandemic further exacerbated digital access challenges in the country?

The COVID-19 epidemic hindered the digitization process in Uzbekistan and identified how society, government, and industry may employ digital technology to address issues that arose during and after the pandemic. The impact of ICT on our daily lives should not be underestimated. In Uzbekistan, this was felt even more acutely during the pandemic, with the Uzbek society unprepared to face the challenges of COVID-19—especially remote working and distance learning. During the pandemic, the need to develop a freelance culture and improve IT skills among the population became even more critical.

This study supports evidence from the observations given. While describing the challenges COVID-19 brought to Uzbekistan, RP2 reported that State-owned banks adapted to the pandemic: 'Previously, people used to visit banks for credit, but now they don't have to.'

Talking about this issue, another research participant (RP5) commented on how inappropriately or in a disorganized fashion that schools and higher education universities moved classes to online, for example, through Zoom: 'It was so poorly planned that it created a false impression about online education, which is that online education never works.'

Comparison of the current study findings with those of other studies confirms that Uzbekistan's rural areas were no exception. During the semi-structured interviews, RP1 described the connectivity challenges as follows: 'Especially in rural and mountainous areas, they had to go up to the hill or mountain to get a connection and then they made their phonecalls.'

According to Oleg Pekos, First Deputy Minister for the Development of ICT, the COVID-19 epidemic has wrecked the global economy and exposed fundamental vulnerabilities, which can be mitigated only by extending the reach of digital technology across all aspects of society (United Nations Uzbekistan 2022).

RQ4: What policy interventions has the government undertaken to address the challenges, mainly focusing on digital strategy?

Specific emphasis has been placed on resolving the issues mentioned in the national development strategy for 2017 to 2021 by mobilizing all the strengths and resources of the government and

society. To solve particular challenges, the Ministry of Innovative Development was founded in 2017. The Ministry will be the driving force behind the implementation of significant initiatives related to the national economy and Uzbek society in general (The Permanent Mission of the Republic of Uzbekistan to the United Nations 2018). Thus, based on the interviews with government agency representatives, the shift to digital technologies is a result of the Covid-19 pandemic. Following the supporting evidence, the government establishing a framework for e-government and digitally transforming public administration, UNDP collaborated to expand current digital services in response to the COVID-19 problems. It was vital to ensure continuous access to public services via digital means. New digital solutions, such as an automated system for applying and allocating social housing in Tashkent and modernizing the Ministry of Healthcare's database for easier access to digital public services for individuals with impairments, primarily target disadvantaged populations.

Our study supports evidence from the observations mentioned. It becomes clear that there have been numerous large-scale digitalization projects in the country in the spheres of banking, transportation, manufacturing, and others. RP2 provided some examples of these initiatives: 'Now, UzAuto has successfully finished implementing SAP. Or, take State-owned banks as an example: the banking sector is the major sector that moved fully to digital transformation.'

While, RP4 interviewee also commented: '… a good amount of content was developed in Uzbek by teachers who have good pedagogical knowledge.'

It is important to note that Uzbekistan's standing in the worldwide internet rankings has improved substantially in the last two years (Abidkhadjaev 2021). For example, the speed of fixed internet in Uzbekistan has more than tripled in the last two years (from 10.89 Mbit/s in January 2019 to 34.26 Mbit/s in January 2021). In January 2020, Uzbekistan was ranked 104th out of 180 countries in terms of fixed internet speed; in January 2021, it was ranked 94th (up 10 spots). Table 4-3 shows the country's ranking based on existing reports, with a lower ranking in the worldwide spectrum.

Table 4-3. Rank of Uzbekistan based on existing reports

UNCTAD B2 e-commerce rank (2020)	107 (94 in 2019)
ICT Development Index (IDI)-ITU (2017)	95/176
UNPAN E-Government Development Index (2020)	87/193
Inclusive Internet Index (3i)-EIU (2021)	76/120
Network Readiness Index (NRI)-(2020)	N/A
Proportion of internet users who shop online, in percent (2019)	6
UPU reliability score (2020)	19.67 (-8.39)

Source: UNCTAD, 2019; 2020; WEF, 2019; WIPO, 2021; UPU, 2020

Over 280 projects for regional digital transformation and sectors of the country's economy are called for in the 'Digital Uzbekistan 2030' policy, issued by presidential order on 5 October 2020. Furthermore, a comprehensive initiative called 'Digital Tashkent' is being executed, which includes the creation of a geoportal connected with over 40 different information systems (Government of Uzbekistan 2020). The digital revolution in banking will continue with automated management systems and financial technologies. More than USD600 million will be invested in agricultural digitalization to bring cutting-edge agricultural technology and innovative solutions to the market (Kutbitdinov & Ismailov 2021).

Recommendations

This section deals with specific recommendations based on the study's main findings from analysis of the in-depth interviews to accelerate digitalization and narrow the digital divide.

When examining the access gap in digitalization among gender, age, urban, and regional groups, this investigation has found that provincial areas of Uzbekistan experience noticeable inequality in digital access. For example, many regional communities struggle to have high-speed fixed internet services. Some reasonable ways in which the government could minimize inequality could be:

- To offer tax incentives for communication operators who prioritize the installation of new antennas or provide fiber cables to improve the broadband connection in the regions, especially those with rugged terrains like mountains and shadow locations.
- To offer tax or other financial incentives for local businesses and entrepreneurs to install WiFi antennas for free internet access in public places like bazaars and gas/petrol stations in provincial areas.

The research has also shown that the availability of desktop and laptop computers is insufficient, especially in the regions. This finding suggests several courses of action, including:

- Offering affordable loans/credits through State-owned banks for consumers in the regions to buy digital devices
- Providing tax incentives to firms that subsidize employees in their gadget purchases

Female Labor Force Participation

Background

Women's economic empowerment is vital not only for achieving gender-based equality (the fifth UN Sustainable Development Goal) but also for promoting inclusive economic growth and productive/decent work for all and reducing income inequality (Goal 10). The World Economic Forum's 2020 report on the Global Gender Gap Index indicates that globally 55 percent of women aged 14 to 64 are in the labor force compared to 78 percent of men of a similar age. Their representation at senior management positions in private and public sectors is 36 percent, while as leaders of companies it is 18.2 percent. The report also highlights that a 40 percent wage gap and a 50 percent income gap persist globally (WEF 2020).

Following the recommendations of the UN Human Rights Committee, Uzbekistan adopted a law on 'Guarantee of equal rights and opportunities for women and men' on 2 September 2019. This law was developed in accordance with the Decree of the President of the Republic of Uzbekistan #4235 from 7 March 2019, 'Measures for further support of labor rights guarantees for women and their entrepreneurial activities.' The main aim of this law was to provide a regulatory mechanism to ensure equal opportunities for men and women from all walks of life. Hence, Uzbekistan was the first country in Central Asia to join several international legal documents to protect women's rights and interests. In addition, among them are the United Nations Convention on the Elimination of all Forms of Discrimination against Women, the Convention on the Rights of Women, the Convention on Maternity, and the Beijing Platform and Action Plan adopted at the Fourth World Conference on Women. Adoption of the laws of the President of the Republic of Uzbekistan on 2 September 2019, 'On protection of women against slavery and violence.' These documents are the basis for developing essential government programs and strategies for regulating women's labor. As a result,

in 2020, Uzbekistan was the only country in Central Asia to report positive growth, rated 57th out of 188 countries, mainly because of women's high education levels and labor force participation rates.

However, by early 2020, Coronavirus Disease 2019 (COVID-19) brought a huge amount of challenges in the employment sector across the country. Following the first nationwide lockdown in March 2020, more than 18,000 interview surveys were conducted to monitor the economic implications of the pandemic (World Bank 2022). The loss of income from unemployment worsened the situation, especially for low-income households in rural and urban areas. The consequences of the COVID-19 pandemic on Uzbekistan's female labor force participation are poorly understood. Regarding knowledge from research, there are very few empirical studies on the effects of gender inequality in the employment sector. Therefore, our sector addresses the inequalities facing women in the workforce in conjunction with the inequalities in rural and urban areas in Uzbekistan. The study focuses on the rural–urban dynamics in the current/post COVID-19 setting using quantitative and qualitative data on female labor force participation in Uzbekistan (ILO 2021). The qualitative design produced more nuanced and meaningful results to complement a desk review of secondary data findings presented in narratives, tables, and figures. This study identifies the negative impacts and proposes policy and implementation recommendations relevant to women in the labor force in Uzbekistan.

Research Questions

RQ1: Analysis of female participation in the labor market (unemployment level, wage gap, and so on).

RQ2: What are the gender gaps and disparities in job losses in the labor markets and economic sectors triggered by the pandemic?

RQ3: What additional burden and challenges did the pandemic bring to women's roles as individual entrepreneurs and their participation in the micro, small, and medium-size enterprise sector, and how has the government responded with policy interventions?

RQ4: Policy recommendations and measures on expanding the role of women in the labor market, mitigating or reducing gender inequality and improving female labor force participation.

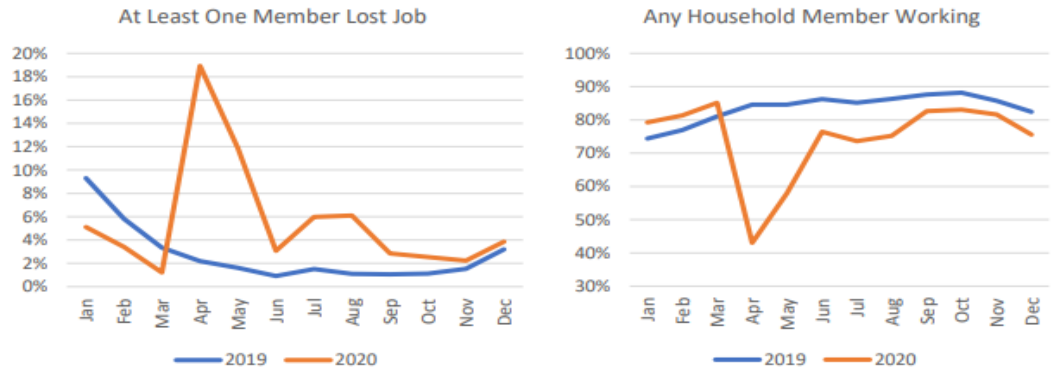
Literature Review

The outbreak of the COVID-19 pandemic threw millions of lives into turmoil. The ILO (2020) report shows that female employment worldwide declined by 4.2 percent, which is worse than the corresponding 3 percent decline in male employment compared to the previous years. In 2020 among the total labor force, only 38.8 percent were women. There are two key reasons women bore the brunt of the pandemic in 2020 to a greater degree than men. Firstly, some of the hardest-hit sectors owing to COVID-19 were those where the share of female employment relative to total employment is higher than that for men. Secondly, as people moved indoors to stay safe from the virus and many businesses turned to remote work, women generally took up a more significant share of household chores than men. In addition, childcare facilities—a critical enabler of mothers' careers—were barely available during that period, and with schools moving online, childcare duties fell predominantly on women.

Based on the report from the World Bank (2020), Uzbekistan began 2020 on a high note, with the labor market showing clear signs of strengthening over the previous year. However, the survey conducted by the World Bank (2020)—'Listening to the Citizens of Uzbekistan (L2CU)'—indicated

that fewer than half as many respondents reported anyone in their household working after lockdown began. As evidence, this led to a steep decline in labor income, which is the population's principal source of revenue. As migration abroad also halted abruptly, tens of thousands of families were left without the remittance income they typically relied upon. Although most of the initial work disruption proved to be temporary, the employment recovery later stalled below its previous trend, especially among the formerly self-employed. Moreover, government officials reported that, after an initially swift recovery during the summer, employment stalled below its previous trend, presenting that someone newly 'lost a job or stopped work' spiked to 19 percent of respondents in April and remained above 2019 levels for the rest of the year (see Figure 4-3).

Figure 4-3. Labor market report

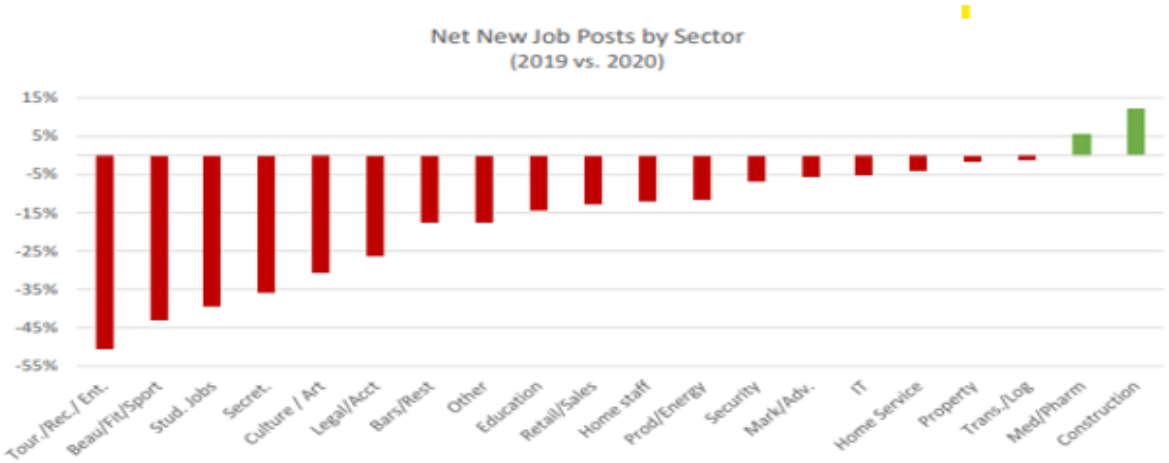


Source: World Bank (2020). Economic and Social Impacts on COVID-19. Worldbank.org, p.1 2019-2020

As long-lasting job losses were heavily concentrated among the self-employed, the share reporting any self-employment fell by 67 percent in April and remained down 20 percent in December compared to the year before. For most of the year, the decline in self-employment was more severe in urban than rural areas, although by December, they had converged. This decline could be owing to the significant difference in the number of households in rural areas compared to urban. In sharp contrast, wage employment recovered by June and remained stable for the rest of the year, falling by more than 25 percent in April. The share of respondents reporting that it was a bad time to find a job remained highly elevated throughout 2020, as did reports that it was a bad time to start a business.

Local residential community association leaders reported sharply increased concern about unemployment toward the end of 2020. The share that considers local unemployment a major or very serious problem rose from 11 percent in August 2020 to 24 percent in January 2021 (World Bank 2020), more than ten percentage points higher than the previous year. Work disruptions and job losses were concentrated in services, manufacturing, and informal activities, estimating changes around 5 percent to 12 percent. Disruptions in public works reported early in the pandemic fell to low levels by the end of the year, and mahalla leaders reported relatively few disruptions or losses in agriculture. The reason behind the minor disruptions in public works could be that government used resources from the agriculture sector to the maximum to increase yields as well as to create more jobs. The leaders of local mahallas (in terms of income and consumption per capita) consistently reported higher levels of concern about the economic impacts of COVID-19, potentially driven by the lower levels of disruption reported in rural labor markets.

Figure 4-4. Listening to the citizens of Uzbekistan



Source: World Bank.org 2020

On a positive note, women highlighted that the benefits of shifting to work-from-home opportunities during the pandemic gave them freedom to have a more flexible schedule and spend quality time with their children.

Following the challenges of the COVID-19 pandemic, the focus of the Uzbek government fell on measures of social support for the population. Firstly, Uzbekistan took action to prevent a loss of the population's income, sustain employment, and avoid unemployment. Convenient work schedules or home-based work was prioritized firstly for pregnant women, the elderly, and people with disabilities and chronic diseases, with their consent (Ministry of Employment and Labor Relations of the Republic of Uzbekistan 2020).

Secondly, the Sahovat va Kumak Foundation (Kindness and Support)—the initiative of the President of Uzbekistan, Shavkat Mirziyoev—was established to give financial support of USD1 billion to those in need during the quarantine and to temporarily unemployed citizens who lost their income, to supply everyday goods, medicines, and daily needs. The foundation and its territorial units were opened by order of the government, operating under the Mahalla Charitable Public Foundation, including special accounts opened in the respective banks of Uzbekistan.

Nevertheless, the Government of Uzbekistan made tremendous efforts to ensure gender equality and provide additional opportunities for women to enter and succeed in the labor market. To effectively realize the UN Sustainable Development Goals, the Cabinet of Ministers issued a Decree on Measures to Implement the National Goals and Objectives for Sustainable Development until 2030. In a framework of fulfillment of the Fifth Goal, 'Achieve gender equality and empower all women and girls,' the Government of Uzbekistan developed ten objectives.

In addition, Uzbekistan State statistics report that the percentage of women in the population in 2021 was almost 49.7 percent of the total permanent population of 35,581,105; the labor force participation rate in organizations and enterprises was only 11.1 percent and diminished by 0.6 percent in comparison to 2017 (Uzbekistan State Statistics Agency 2021). McKensey & Company (2017) stated that addressing the gaps in the female labor force has the potential to increase annual global GDP growth by up to USD12 trillion by 2025.

Methods and Sample

The study design used primary and secondary data on female labor force participation in Uzbekistan. The study's preliminary data was collected through in-depth interviews (see Appendix A) of key informants in the employment sector, from which we have conducted individual interviews visiting several rural and urban sites. These key informants were identified using stratified reference sampling. Our in-depth interview participants were selected from the Ministry of Economics and Reduction of Poverty, leadership, Ministry of Finance (leaders engaged in gender equity issues), HR director of private sector healthcare providers, local government executives, and private agriculture industry leaders in Uzbekistan. We reviewed documents such as presidential decrees and policies (including the Labor Code of Uzbekistan) for secondary data. We also had access to the 'Code of Business Conduct and Ethics' from private sector employers, including policies on gender equality in the workplace.

Findings and Discussions

Gendered gaps and disparities in job losses triggered by COVID-19:

> RP2: 'I would like to start with this, that in Uzbekistan we do not have a specific document on female discrimination; however, until today, our women have no issues on gender inequality as it is mentioned in our constitution and labor code, including the level of their compensation and wage; it remains the same for both genders. Also, women were the first who went to work from home with the start of the COVID-19 pandemic. This gave our women freedom and the opportunity to be closer to their family while having a job.'

Consistent with the report provided by the World Bank (2020), our in-depth interview responses confirm that, during COVID-19, industry related clinical diagnostic labs were seeking employees, especially female employees.

> RP4: 'The demand for lab tests and employees in the period of COVID-19 has increased. The additional number of newly trained employees at policlinics did not cause any job losses since there has been a staff shortage and demand for employees trained in modern lab diagnostics is still high.'

> RP5: 'Our company has job vacancies for women in the rural areas of the Samarkand region. Women have been involved in picking fruit—such as cherries—which would eventually be fast-frozen and exported. We also often recruited women, who were the only people earning an income during the pandemic.'

Government Actions: The Women's Committee of Uzbekistan (WCU) is the national mechanism for women's issues and the key voice in promoting gender equality. The deputy prime minister of WCU, Tanzila Narbayeva, stated in 2018 that WCU has a wide network of branches in every administrative territorial body—with a mandatory position of a deputy head on women's issues. The pre-pandemic decree of the President in February 2018 created conditions for further encouraging these activities, which allowed more creative yet systematic approaches to gender mainstreaming (ADB 2018). For urban women, the WCU identified the priority issues of 'employment, creation of new jobs, development of business and entrepreneurship skills.' For rural women, the key issues are insufficient social and municipal infrastructure and the need for family- and home-based business development (ADB 2018).

> RP2: 'I have to say that COVID-19 has changed our life dramatically, and most of these changes have been positive changes that we have had to deal with during and after the pandemic. The government has implemented new mechanisms and new opportunities for every sector to provide a flexible working schedule for their employees. This change has been reflected in industry hiring agencies and the recruiting section to conduct online (virtual) interviews. From my own experience, as a woman with two small children and a management role in the ministry sector, I went through some challenges. However, I managed to settle everything with a positive mindset as I have set my time management to a very tight schedule. I never face any financial costs or losses from pre-COVID-19 times and I am privileged to be a government employee.'

> RP5: 'District councils and State employment bureaus have been particularly helpful with information about the available candidates. Up-to-date information has been provided by them free of charge and there was therefore no need to use private recruitment agencies.'

> RP1: 'The Ministry of Labor and Social Protection, in cooperation with Tashkent City Council and Mahalla, has organized training for women and subsidized their startups.'

Recommendations

As of March 2020, of 34 million people, 17 million are women, nearly half of Uzbekistan's population. Employment and job creation have been a constant focus of the Government of Uzbekistan since 1991 with the establishment of WCU. Any legislative act does not limit women's participation in the labor market or entrepreneurial activity. The Development Strategy for 2017 to 2021 explicitly addresses employment for women and female graduates of vocational colleges. Although women comprise 49.6 percent of Uzbekistan's population, their share of informal employment (45.7 percent) is lower than that of men (54.3 percent).

Moreover, the labor market displays clear gender patterns. Women predominate in social sector jobs (education, healthcare, social services, accommodation, and catering). At the same time, men hold the advantage in numbers in technical and other more profitable fields (construction, industry, transport, communications, and IT). The limited number of local formal sector jobs and the lack of necessary education, qualifications, and skills make women in rural areas much less competitive in the labor market. They are more likely to work in family-based businesses such as farming or handicrafts, which have significant potential and are supported by the State because women spend about the same amount of time on unpaid domestic tasks that men spend in productive paid work.

In addition, our primary source data through our interviewed participants highlighted some improvements that could be implemented by the government:

> RP1: 'To reinforce to private companies the need to comply with the government's Labor Code of Uzbekistan when it comes to supporting maternity and paternity leave and compensation packages.'

> RP5: 'The use of dormitories has also been somewhat challenging as the living conditions and level of security was not adjusted to such a sudden high inflow of residents.'

Health Services

Background

Uzbekistan's healthcare sector before the COVID-19 pandemic could be characterized by continuously developing and enhancing infrastructure and management, with the burden of non-communicable diseases, cardiovascular diseases, stroke, diabetes, and cancer accounting for over 60 percent of all causes of death (Healthdata.org 2022).

For two years, during the COVID-19 pandemic, Uzbekistan has accumulated knowledge, experience, and evidence on how to combat COVID-19 itself and how to adjust the healthcare system better in the pandemic, including disease treatment, epidemiological measures to prevent the spread of infection, followed by availability of COVID-19 vaccines to prevent infection in the first place. At the very beginning of the pandemic, most countries experienced severe disruption and even collapsed their health systems (Unidas 2020). In order to fight the coronavirus, the Government, public health, and the healthcare sector had to make difficult choices to accommodate the growing burden of COVID-19 and postpone the health services that were available before the pandemic.

The Government of Uzbekistan was strongly committed and made continuous efforts to prioritize the lives of the population; the country passed through the pandemic with a minimum case fatality rate (Kim et al. 2020). In general, Uzbekistan was one of the first countries to introduce strict social distancing policies, lockdowns, border controls, and more than 10,000 extra beds. Moreover, the number of COVID-19 laboratories increased from three to more than 110, able to carry out more than 35,000 tests daily. International experts from Germany, South Korea, Turkey, and Russia were invited to exchange experiences, initial assessment, and local healthcare workers' support (Shadmanov et al. 2021). Managing COVID-19 patients in hospitals, distribution centers, and outpatient clinics including testing, examination, and medication was free of charge for patients and covered by the Government of Uzbekistan.

Our research aimed to identify gaps and inequalities in the health service sector during the COVID-19 and post-COVID-19 periods and propose policy recommendations for better preparedness for future pandemics.

Research Questions

RQ1: How has COVID-19 affected the country's access to and quality of health services?

RQ2: What are the pre-, during, and post-COVID-19 gaps in the access to health services for the population?

RQ3: Analyze public sector and decision-maker responses and interventions to provide equitable and quality healthcare services to address the challenges posed by the pandemic. Were the measures effective? What kind of difficulties/challenges were noted? And what possible solutions?

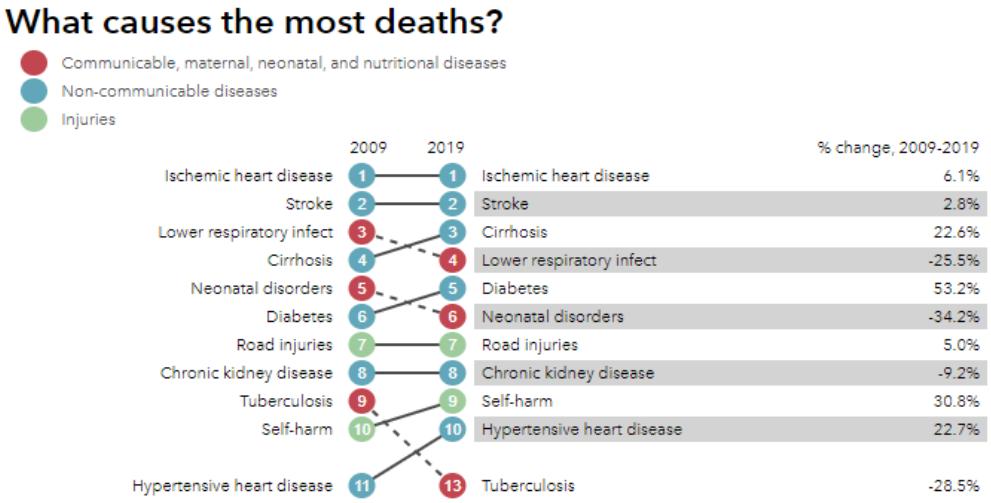
RQ4: Policy recommendations to improve the provision of health services to prepare better for future pandemics.

Literature Review

There were inequalities in access to primary healthcare in the population living in urban and rural areas (ADB, 2017). Inequalities in primary and secondary medical care were dependent primarily on

decreasing investment in the health sector—that is, from 6.8 percent of GDP in 1995 to 5.12 percent in 2005 and 5.9 percent in 2016, which is considerably lower than the WHO average of 8.3 percent (Ahmedov et al. 2014). However, in 2019 more than 12.1 trillion UZS were allocated in the health sector, which is 30 percent more than in 2018, and the government planned to increase it by 19.1 percent compound annual growth rate or 15.4 percent of GDP in 2019 (RB Asia 2019). Major health indicators for Uzbekistan before the COVID-19 pandemic are shown in Table 4-4. In addition, trends of all-cause mortality prior to the COVID-19 pandemic are shown in Figure 4-5.

Figure 4-5. Major causes of death in Uzbekistan



Source: Healthdata.org 2022

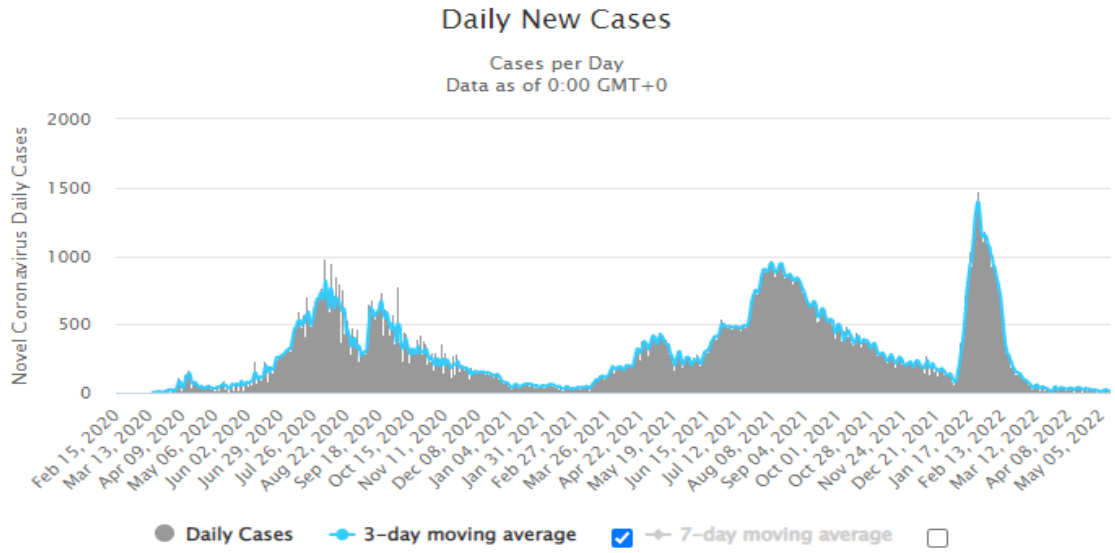
Table 4-4. Healthcare sector indicators, Uzbekistan, Ministry of Health

Healthcare indicators per end of the calendar year	2000	2005	2010	2015	2019
Number of hospitals	1,162	1,149	1,158	1,071	1,205
Number of hospital beds	138,600	142,400	139,600	129,700	153,400
Number of hospital beds per 10,000 population	55.9	54.1	47.9	41.1	45.2
Number of patients treated in hospital	3,514,000	4,075,000	4,996,000	5,294,000	6,154,000
Population per one hospital bed	179	185	209	243	221
Hospital beds for women and women in labor:					
All	26,200	22,700	19,900	17,600	17,300
Per 10,000 women (age 15-49 years old)	40.5	31	24	20.2	19.3
Number of outpatient clinics	4,847	5,507	5,993	6,220	5,955
Patient visits at outpatient clinics	391,500	401,700	422,500	407,000	468,600
Patient visits at outpatient clinics per 10,000 population	157.7	152.7	145.1	128.9	
Obstetric and gynecological exam rooms	2,074	2,370	2,857	2,752	1,900
Children's hospitals (departments)	2,519	2,417	2,341	1,997	2,058
Physicians of all specialties	81,500	76,500	79,900	83,400	91,900
Physicians of all specialties per 10,000 population	32.8	29.1	27.4	26.4	27.1
Population per one physician	304	344	356	379	369
Female physicians of all specialties	41,500	41,000	41,200	41,000	44,300
Female physicians (percentage)	51.2	53.6	51.6	51.6	48.2
Nurses	259,700	271,000	310,200	336,400	365,700
Nurses per 10,000 population	104.7	103	106.5	106.5	107.8
Population per one nurse	96	97	92	94	92.7

COVID-19 Pandemic in Uzbekistan

As of 2022, Uzbekistan has over 235,000 registered cases and over 1,600 COVID-19 deaths (Worldometer 2022a).
Figure 4-6 shows the course of the COVID-19 pandemic in Uzbekistan.

Figure 4-6. Daily new cases of CARS-Cov-2 confirmed infection in Uzbekistan since the start of COVID-19



After detecting the first COVID-19-positive case in Uzbekistan on 16 March 2020, the Government of Uzbekistan took severe measures to prevent the spread of the SARS-Cov-2 infection in the Republic. A special Republican commission was created to combat the spread of a new type of coronavirus in the country under the leadership of the prime minister following the Decree of the President of the Republic of Uzbekistan No. 5537. Before 1 June 2020, all patients with confirmed COVID-19 status based on the RT-PCR test were immediately admitted to hospital, regardless of symptoms. Since 1 June 2020, owing to the progressively increased number of infected COVID-19 patients and the overload of hospital beds allocated to treat severe COVID-19 cases, the management of patients was organized at the COVID-19 distribution centers, with mild cases at primary care level. The active surveillance and follow-up response system was established based in outpatient clinics to monitor patients' conditions daily until symptoms resolved for outpatients and within at least 30 days after dispatch from distribution centers or hospitals (Shalaeva et al. 2022).

More than 150 hospitals refurbished their beds from the communicable and non-communicable disease service delivery infrastructure with the necessary equipment and medicines to treat COVID-19 patients (Sputnik Uzbekistan 2020). It had a positive effect on decreasing mortality from COVID-19 disease, but had some negative impacts on other health service delivery, such as elected surgeries being postponed and vulnerable groups' specific needs being put on hold (Gazeta.uz 2020).

The new infectious diseases hospitals with approximately 4,000 beds (including labor and delivery unit and neonatal care) were built from scratch in the Zangiota district of the Tashkent region (Kun.uz 2021). The health authorities in Uzbekistan started a mass vaccination campaign against COVID-19 on 1 April 2021 in city regions and since 1 June 2021 in remote areas. According to the head of the Service for Sanitary and Epidemiological Welfare and Public Health, Bakhodir Yusupaliyev, in Uzbekistan, numbers of vaccinated people have reached 19.3 million, and there is a stock of 18.3 million doses of vaccines against the coronavirus (Ministry of Finance Media 2022).

The greatest challenge in the health sector was the continuation of essential health services for the population, particularly for the most vulnerable, such as women, children, migrants, the elderly, and the chronically ill. Ensuring appropriate support (protective, psychological, and financial) to frontline medical workers—over 80 percent of whom are women—will also be important in maintaining essential health services both during and after the pandemic. 'Much of the national health system in Uzbekistan has been preoccupied with preparing and treating COVID-19 patients, and therefore has reduced capacity to provide regular health services (elected surgeries have been postponed, immunization campaigns for children have been delayed, and vulnerable groups' specific needs have been neglected or put on hold)' (Consolidated Multilateral COVID-19 Socio-Economic Response and Recovery Offer to the Government of Uzbekistan, United Nations in Uzbekistan; COVID-19 Excess Mortality Collaborators 2022).

Another challenge was the need to strengthen surveillance systems. Thus, Uzbekistan's sanitary and epidemiological service does not have a unified system of electronic tracking of infectious diseases. Registers of HIV infection and tuberculosis patients exist separately and operate independently from each other and other electronic tracking systems. Electronic vaccination registration of the population against COVID-19 has been introduced into practice. However, it is fragmented and not aggregated with the register of patients with COVID-19.

The Joint External Examination (JEE) was conducted for the first time in Uzbekistan on 16 to 20 May 2022, identified the gaps and required resources, and made recommendations on strengthening the health system (Uzbekistan, Joint External Evaluation, WHO 2022).

Methods and Sample

The current research involved primary qualitative data from in-depth interviews with participants in various positions in the healthcare sector in Uzbekistan. Interview participants were specially selected considering their direct and essential relatedness to the research question and objectives. A total of ten respondents took part in the survey anonymously through live interviews. Interview questions were prepared beforehand based on the research questions.

Secondary data for further analysis was obtained from international organizations such as WHO, CDC, WB, and ADB, and peer-reviewed publications.

Findings and Discussions

RQ1: Access and quality of health services during COVID-19

Almost all respondents described challenges with access to healthcare during the peak of COVID-19. All respondents noted an overload of healthcare facilities, both public and private, during the waves of the COVID-19 course. Some healthcare facilities were reprofiled into COVID-19 hospitals, and services for all regular patients were transferred to nearby facilities (Sputnik Uzbekistan 2020). Demand for ambulance care increased significantly owing to the significant burden of COVID-19 patients who had to utilize the same services as those suffering from other emerging situations. Other additional responses were as follows:

> RP2: 'I have seen long lines at COVID-19 testing facilities with many seriously sick people, pregnant women, and elderly persons who had to take their PCR test.'

> RP8: 'At the peak of the pandemic, public laboratories were not prepared for large numbers of tests per day, and the patients had to wait for their test results for a couple of days, staying home.'

Seven respondents were optimistic, indicating that the measures Uzbekistan took to cope with the pandemic challenges were successful—for instance, strict quarantine; cross-border control; sanitary-epidemiologic surveillance; free-of-charge COVID-19 diagnostics and treatment for patients, both in-patient and outpatient; accessible vaccination for the adult population; opening distribution centers in Tashkent and at oblast level; free emergency services for transportation of COVID-19 patients.

Three respondents noted some challenges of the measures taken:

> RP2: 'At the very beginning of the pandemic, many primary care facilities were not technically ready to accommodate the tremendous flow of patients with respiratory infections, which meant that it was dangerous for pregnant women, children, the elderly, and patients with chronic diseases to utilize regular primary care.'

> RP7: 'The coronavirus pandemic has demonstrated the importance of global emergency preparedness. Country borders have to be better prepared for any health-related situations. Employees should also be well-trained and protected.'

> RP10: 'Public awareness to protect themselves and others is important. We should focus better on disease prevention and health protection.'

RQ2: What are the pre-, during, and post-COVID-19 gaps in accessing health services for the population?

In answering this question, the interviewers summarized the access to healthcare services of most respondents:

Pre-COVID-19 period:

- The amount of laboratory diagnostics tests was limited, especially cardio markers in rural areas.
- Owing to the prevalence of non-communicable diseases, there was a significant shortfall in ability to accommodate infectious diseases such as COVID-19, with limited resources for communicable diseases.
- Rural areas experienced challenges with access to healthcare services; if needed, patients had to spend out-of-pocket for travel and accommodation if more advanced treatment was required.
- Poor mental health services, gerontology, and rehabilitation.
- Preventive medicine as a discipline was underdeveloped.

During COVID-19 pandemic:

- High demand for COVID-19 tests, inflammation markers, cardiology, and diabetes-related test items.
- Not enough medical protective equipment at the very beginning of the pandemic.

- Infrastructure was not developed to separate infectious disease patients from non-communicable disease patients, children, elderly, or maternity at the beginning of the pandemic and was sorted further.
- Stored supplies of medication used to treat COVID-19 and associated complications was not enough for patients, and the drugs deficit significantly increased prices at the pharmacy.
- Shortage of patient monitoring equipment and ventilators; shortage of oxygenators was noted.
- Poorly trained personnel in terms of response to emergency situations and infectious disease management.

Post-COVID-19 period:

In reality, the COVID-19 pandemic is still not over as we experience new cycles, waves, and mutations of the SARS-Cov-2 virus. However, lessons have been learned for better preparedness for the next wave.

> RP1: 'The weakest sector in Uzbekistan is primary healthcare, polyclinics, and rural medical centers. They have a very heavy burden and bear responsibility for the health of the population.'

> RP2: 'The country was focused on the incidence of COVID-19. It was a challenging to treat chronic diseases, newborn and infant care, and care of the disabled and vulnerable groups of the population.'

RQ3: Did the public sector and decision-makers respond and intervene to provide equitable and quality healthcare?

In general, Uzbekistan successfully fought the consequences of the pandemic's negative impacts on the population and economy of the country. The government took a series of measures to support economic activity and people's wellbeing. The help packages were utilized in public health as the first step to control the spread of the virus among the population. Economic measures were also a priority in maintaining national business activity.

In addition to their positive comments, the respondents also mention some challenges to consider:

> RP2: 'In terms of public health measures, not all efforts were efficient in the beginning, as an insufficient number of beds were available, and many hospitals were reprofiled for the needs of the COVID-19 patients, reducing specialized healthcare assistance.'

> RP3: 'An insufficient number of test systems and laboratory equipment led to enormous delays in COVID-19 testing procedures.'

> RP7: 'Quarantine zones were established in the shortest period of time; the first was in Tashkent for 20,000 people with rooms equipped with the bare minimum. People with suspected risk of COVID-19 stayed there for 14 days under the supervision of doctors, with three meals a day until three COVID-19 tests were negative.'

> RP10: 'Strong monitoring of health-related emergencies is required to prevent the spread of infection from abroad within Uzbekistan.'

Recommendations

RQ4: Policy recommendations to improve the provision of health services to prepare better for future pandemics.

All participants highlighted the recommendations for better preparedness and access to health services:

> RP10: 'Improve sanitation and hygiene, water and food safety, and people's awareness of arising health issues.'
>
> RP1: 'Active surveillance of sufficient supply of essential medical drugs for chronic and other diseases, essential medical equipment for primary healthcare facilities and rural hospitals.'
>
> RP2: 'Working together with officials, economists, business, and finance to combat emergencies, helping each other.'
>
> RP3: 'We need to ensure that, regardless of health emergencies, everyone from low socioeconomic status and vulnerable groups—such as women, children, elderly with chronic diseases—have access to healthcare.'
>
> RP4: 'Training of healthcare personnel to deliver care in cities and remote areas.'
>
> RP1, RP2, and RP8 talked about the importance of e-health and telemedicine, especially in delivering care to remote areas.

The pandemic highlighted the importance of continued investment in strengthening the health system to be better prepared for the continued low transmission of the COVID-19 virus and future outbreaks.

The current research and findings are proposed for the following policy implementations and recommendations for further improvement:

- ✓ Develop a national strategy and action plan for improved preparedness for emergency situations, worldwide pandemics, and epidemics (Uzbekistan, Joint External Evaluation).
- ✓ Prioritize training and support of healthcare workers, including emergency preparedness.
- ✓ Establish effective response systems integrated into all directions of healthcare to increase confidence in health services.
- ✓ Implement a unified digital medical record system, through all directions of healthcare and public health.
- ✓ Increase public health sector finance by attracting private and foreign addressed investment.
- ✓ Enable equality of healthcare services in rural and remote areas.

Conclusion

Education: The COVID-19 pandemic has had an unprecedented effect on education, both in terms of its immediate and long-term impacts. In the short-term, the move to remote learning has created a new set of challenges for teachers and students alike, as they have had to adjust to the new normal of virtual instruction. In the long-term, the economic crisis caused by the pandemic may lead to

budget cuts that could lead to larger class sizes, fewer resources, and fewer extracurricular activities. Furthermore, there is the potential for the virus to disrupt the academic year or reduce the quality of learning, as well as the mental health of students and staff. All in all, the coronavirus pandemic has had a profound effect on education that is likely to continue for some time to come.

Digital Access: COVID-19 has had a tremendous impact on digital access, resulting in a widening of inequality among those who have access to technology and those who do not. As schools have moved to distance learning, students without access to computers and the internet have been left behind, unable to access the same educational opportunities as their peers. Furthermore, those with lower incomes have been unable to afford the cost of high-speed internet, or to purchase the necessary technology to keep up with the transition to a digital world. As a result, many people have been excluded from the benefits of the digital revolution, further exacerbating the existing digital divide. Fortunately, governments and organizations around the world have stepped in to try to bridge this digital gap, providing resources and access for those who would otherwise be left behind. However, much more needs to be done to ensure that everyone has access to the same digital opportunities and that the digital divide is not allowed to expand even further.

Labor force participation: COVID-19 has had a significant impact on the labor force, both in terms of the number of people employed and the rate of participation in the labor force. The pandemic has caused a steep decline in labor force participation, as many people opted to stay at home due to health and safety concerns. The effect has been felt most among those without a college degree, young people, and low-income workers. Furthermore, some sectors, such as hospitality and retail, have experienced even sharper declines in labor force participation due to the pandemic. Ultimately, the effect of COVID-19 on labor force participation is likely to be long-lasting and may require policy interventions in order to ensure that workers are able to return to work safely and sustainably. Moreover, the labor market displays clear gender patterns. Women predominate in social sector jobs (education, healthcare, social services, accommodation, and catering). At the same time, men hold the advantage in numbers in technical and other more profitable fields (construction, industry, transport, communications, and IT). The limited number of local formal sector jobs and the lack of necessary education, qualifications, and skills make women in rural areas much less competitive in the labor market. They are more likely to work in family-based businesses such as farming or handicrafts, which have significant potential and are supported by the State because women spend about the same amount of time on unpaid domestic tasks that men spend in productive paid work.

Health Services: COVID-19 has had a drastic effect on public health services, both in terms of the delivery of services and the resources needed to provide them. The lack of access to medical services and the surge in demand for medical care have put considerable strain on health care systems worldwide. The consequent overcrowding in hospitals, coupled with a lack of equipment and resources, has exacerbated the situation. Additionally, social distancing measures have limited in-person access to health services, leading to the widespread adoption of telemedicine and online services. This has enabled health services to remain accessible even during the pandemic, however, the lack of face-to-face contact has had a detrimental impact on those who rely upon it. Despite this, public health services have demonstrated an incredible capacity to adapt to the changing environment, and while the situation is still far from ideal, the public health sector has demonstrated its resilience in the face of adversity.

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Appendices

Appendix A: Semi-Structured Interview Questions

Education Sector

1. Describe what education was like before COVID.
2. In your position, what challenges did you face directly?
3. Describe the challenges COVID created for education (students, families, teachers, admin)? Did COVID effect primary, secondary, and higher education differently? In what ways?
4. Describe the different experiences in education between rural regions and cities during COVID?
    a. Quality of education? After COVID, what did it look like in schools (classrooms)?
        i. Challenges? Approaches to teaching and learning?
        ii. What did the government do? Was it (or is it) becoming effective?
        iii. Recommendations for the future?
    b. Access to education? After COVID, what specific differences did you see?
        i. Challenges? Face-to-face versus online? Use of technology?
        ii. What did the government do?
        iii. Recommendations for the future?
5. Describe the different experiences in education between women and men during COVID?
    a. Quality of education? After COVID, what did it look like in schools (classrooms)?
        i. Challenges?
        ii. What did the government do? Was it (or is it) becoming effective?
        iii. Recommendations for the future?
    b. Access to education? After COVID, what specific differences did you see?
        i. Challenges?
        ii. What did the government do? Was it (or is it) becoming effective?
        iii. Recommendations for the future?
6. Describe the different experiences in education in low-income versus working-class during COVID.
    a. Quality of education? After COVID, what did it look like in schools (classrooms)
        i. Challenges?
        ii. What did the government do? Was it (or is it) becoming effective?
        iii. Recommendations for the future?
    b. Access to education? After COVID, what specific differences did you see?
        i. Challenges?
        ii. What did the government do?
        iii. Recommendations for the future?
7. Is there anything else you'd like to share? Anything I forgot to ask?

Digital Access

1. Describe what digital access was like <u>before</u> COVID.
    a. What were some successes?
    b. What challenges was the country already facing?
2. In your position, what challenges did <u>you</u> face directly?
3. Describe the challenges COVID created for digital access.
    a. Were there setbacks (do fewer people have access)? How do we know this? What indicators are there?
    b. Is progress on the digitization strategy unaffected? How will the country catch up?

4. Describe the different experiences in digital access between rural regions and cities during COVID.
    a. During COVID, what specific differences did you see?
        i. Challenges? Internet access/mobile/household? Access to computers?
        ii. What regions were most affected?
        iii. What did the government/providers do? Models? Approaches? Was it (or is it) becoming effective?
        iv. Recommendations for the future?
5. Describe the different experiences in digital access between women and men during COVID?
    a. During COVID, what specific differences did you see?
        i. Challenges? Internet access/mobile/household? Access to computers?
        ii. What did the government/providers do? Was it (or is it) becoming effective?
        iii. Recommendations for the future?
6. Describe the different experiences in digital access in low-income versus working-class during COVID?
    a. During COVID, what specific differences did you see?
        i. Challenges? Internet access/mobile/household? Access to computers?
        ii. What did the government/providers do? Was it (or is it) becoming effective?
        iii. Recommendations for the future?
1. Is there anything else you'd like to share? Anything we forgot to include?

Labor Force Participation

1. Describe what women's employment was like before COVID.
2. What challenges did you face directly?
3. Describe the challenges COVID created for women's employment?
    a. Were there job losses? Temporary? Permanent?
    b. Did working from home change the situation?
    c. Did women's roles change? In what way?
2. Describe the different experiences in women's employment between rural regions and cities during COVID?
    a. Which regions did particularly well? What specifically made the difference?
    b. Quality of jobs for women?
        i. Challenges? What did these look like?
        ii. What did the government do? How effective was it?
        iii. Recommendations for the future?
    c. Access to employment?
        i. Challenges? After COVID, what changed?
        ii. What did the government do? How effective was it?
        iii. Recommendations for the future?
    d. Women's awareness?
        i. Challenges? After COVID began, were there any differences? What specific differences did you see?
        ii. What did the government do? How effective was it?
        iii. Recommendations for the future?
3. Describe the different experiences in employment between women and men during COVID?
    a. Quality of employment? After COVID, what did it look like in schools (classrooms)?
        i. Challenges?
        ii. What did the government do? How effective was it?
        iii. Recommendations for the future?
    b. Access to employment? After COVID, what specific differences did you see?

   i. Challenges?
   ii. What did the government do? How effective was it?
   iii. Recommendations for the future?
4. Describe the different experiences in women's employment in low-income versus working-class families during COVID.
   a. Quality of employment? During/after COVID, what did it look like? Types of work?
      i. Challenges?
      ii. What did the government do? How effective was it?
      iii. Recommendations for the future?
   b. Access to employment? After COVID, what specific differences did you see?
      i. Challenges?
      ii. What did the government do? How effective was it?
      iii. Recommendations for the future?
5. Is there anything else you'd like to share? Anything I forgot to ask?

Public Health Services

1. Describe what health services were like <u>before</u> COVID.
2. What challenges did <u>you</u> face directly?
3. Describe the challenges COVID created for health services (system, providers, families).
   a. What provision challenges arose in other health service areas? Other communicable and non-communicable diseases?
      i. Were budgets stretched or reallocated?
      ii. Human resources?
      iii. Government lockdowns and mask rules?
   b. Was the health system prepared? In what ways prepared? In what ways not prepared? Vaccination? Lockdowns?
4. Describe the different experiences in health services between rural regions and cities during COVID?
   a. Quality of health services? After COVID, what did it look like in clinics and hospitals?
      i. Challenges?
      ii. What did the government/providers do? Was it (or is it) becoming effective?
      iii. Recommendations for the future?
   b. Access to health services? After COVID, what specific differences did you see?
      i. Challenges? Provide services to normal load of communicable and NCDs?
      ii. What did the government/providers do? Was it (or is it) becoming effective?
      iii. Policy recommendations for the future?
5. Describe the different experiences in health services between women and men during COVID?
   a. Quality of health services? After COVID, what did it look like in in clinics and hospitals?
      i. Challenges?
      ii. What did the government/providers do? Was it (or is it) becoming effective?
      iii. Recommendations for the future?
   b. Access to health services? After COVID, what specific differences did you see?
      i. Challenges? Provide services to normal load of communicable and NCDs?
      ii. What did the government/providers do? Was it (or is it) becoming effective?
      iii. Recommendation for the future?
6. Describe the different experiences in health services in low-income versus working-class during COVID?
   a. Quality of health services? After COVID, what did it look like in in clinics and hospitals?
      i. Challenges?
      ii. What did the government/providers do? Was it (or is it) becoming effective?

   iii. Recommendations for the future?
   b. Access to health services? After COVID, what specific differences did you see?
      i. Challenges? Provide services to normal load of communicable and NCDs?
      ii. What did the government/providers do? Was it (or is it) becoming effective?
      iii. Recommendations for the future?
7. Did any dimension of healthcare services strengthen during the pandemic?
   a. Preparedness? Vaccination? Lockdowns?
8. Is there anything else you'd like to share? Anything I forgot to ask?

Appendix B: Consent Form

COVID-19-Induced Social Inequalities in Uzbekistan: Education, Digital Access, Labor Force Participation, and Health Services

Please check the box if you agree with the statement

1. I have been provided with sufficient information explaining what participation in this project involves. ☐
2. I have had a fair opportunity to ask questions and discuss my concerns about this project. ☐
3. I have received satisfactory answers to all questions I have asked. ☐
4. I have received enough information about the project to make a decision about my participation. ☐
5. I understand that I am free to withdraw my consent to participate in the research within two weeks without having to give a reason for withdrawing. ☐
6. I understand the nature and purpose of this project. These have been communicated to me on the information sheet accompanying this form. ☐
7. I understand that Westminster International University in Tashkent may use the data collected for this study in future research project(s) but that the conditions on this form under which I have provided the data will still apply. ☐
8. I understand the data I provide will be treated with the utmost confidentiality and that, on completion of the research project, my name or other identifying information will not be revealed in any presentation or publication of the research findings. ☐
9. I agree to Westminster International University in Tashkent keeping and processing the data that I provide during the course of this study and my consent is conditional upon the University complying with its duties and obligations under the Data Protection Act. ☐
10. I hereby fully and freely consent to my participation in this project. ☐

Participant's signature: _____ Date: _____

Participant's name: _____

Researcher's signature: _____ Date: _____

Researcher's name: _____

If you have any concerns related to your participation in this project please direct them to:
Principal Investigator and Project Manager: Nilufar Khakimova (PI)

CONCLUSION

The COVID-19 pandemic has affected social and economic life across the globe with varying degrees of intensity in regions and countries. The pandemic has slowed down progress in nearly all sectors of the economy. As some economists call it, the inequality virus has revealed existing inequalities and further amplified them in sectors such as health, education, digital access, and women's labor force participation. The case studies—Azerbaijan, Kazakhstan, Pakistan, and Uzbekistan—analyzed in this report indicate that in all countries the pandemic has severely affected people and communities already striving for economic progress, particularly rural households and women. The lower educational attainment because of the pandemic-induced lockdowns and limited access to technology might widen existing inequalities in the academic achievement of different income groups in the sample countries.

Similarly, women's participation in the workforce was already below a desirable level, particularly in Pakistan and Uzbekistan, and has been further aggravated as women were first to bear the brunt of layoffs in the wake of the pandemic or had to stay home to care for children and family. In most countries, the pandemic has exposed the shortcomings in the health sector's human, technical, and infrastructural capacity to fight epidemics of this massive scale and intensity. That leaves policymakers with the colossal task of charting a course that minimizes the impact of the pandemic on human lives and, at the same time, crafting policies that narrow the pervasive inequality gap across the sectors.

Adaptation to this new situation and preparedness for future challenges is an ongoing process and requires concerted, steadfast, and well-coordinated efforts. Government should increase the outreach and affordability of digital services and expand and deepen social safety programs to lean against the wind, particularly for the labor force in the informal sector. Efforts are needed to ensure that social protection programs and emerging economic schemes are gender-responsive and that the necessary training for women is delivered in financial literacy, business management, and entrepreneurship.

The pandemic transcends national and regional boundaries and is mainly beyond any country's or entity's technical, financial, or administrative capacity to fight it effectively. Therefore, a well thought out and coordinated regional response is required to share cross-border data, technical skills, and human and financial resources to minimize the impact on society and the economy. To this end, a regional intergovernmental mechanism is needed that can serve as an early warning system and facilitate coordination in case of health emergencies.

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