IMPACT OF COVID-19 ON HOUSEHOLD BUSINESS, EMPLOYMENT AND SCHOOL EDUCATION

Evidence from household survey in the CAREC countries

Chapter 2

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2.1 INTRODUCTION

Pictures from: https://rabbit.bigbigwork.com/home

The COVID-19 outbreak triggered one of the worst employment crises worldwide since the great depression[1]. Policy interventions such as lockdowns, 'social distancing,' travel restrictionss, and school closures and uncertainties in future economic outcomes have affected labor demand and supply. These negative effects manifested through several channels, including unemployment or reduction in working hours, decline in sales and income of household businesses, restricttion on commuting, need to stay at home to look after sick household members or children, higher commodity prices, and limited

[1] The earlier version of this paper was posted as ADBI Working Paper (Azhgaliyeva et al. 2022a).

availability of staple items (Morgan and Trinh 2021). The shocks are expected to increase poverty and widen inequality, especially in developing countries; the Central Asia Regional Economic Cooperation (CAREC) member countries — Afghanistan, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, the People's Republic of China (PRC), Tajikistan, Turkmenistan, and Uzbekistan — are no exceptions. Azhgaliyeva et al. (2022b) found that the pandemic brought a decline in household income as well as financial difficulties to households in these countries. In order to develop appropriate policy responses to the employment crises and other related challenges, it is necessary to understand the current employment and labor market situation from the viewpoint of a typical household. The Asian Development Bank Institute (ADBI) has been conducting household surveys in CAREC countries to better understand the impacts on vulnerable households as part of the Asian Development Bank's overall strategy to deal with the current crisis. Assessing the magnitude of these challenges and identifying the most vulnerable households are critical to deploying effective policy responses for the region's efficient recovery, economic development, and regional integration, in line with the CAREC Strategy 2030.

The contribution of this chapter is to provide empirical evidence on the impact of the COVID-19 crisis on employment, household business, and child education, which are not studied in Azhgaliyeva et al. (2022b), in the CAREC region. We use household data from computer-assisted telephone interviews (CATIs) carried out in ten CAREC countries: Afghanistan, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan. The surveys were conducted from mid May through to the end of August 2021. Representative samples of 1,000 households in each country were surveyed and asked about their socioeconomic conditions from June to December 2020. We compare employment and household business conditions as well as education in school in June 2020 and in December 2020 to see how households were affected by and able to cope with the COVID-19 pandemic.

2.2 LITERATURE REVIEW

2.2.1 Effects of the COVID-19 Pandemic on Household Business

A large body of studies also examined the effects of COVID-19 on firm activities (Adian et al. 2020; Apedo-Amah et al. 2020; Inoue and Todo 2020; Dai et al. 2021; Sonobe et al. 2021; Sun, Bao, and Lu 2021). There are several channels through which the pandemic affected firms; these include supply shocks, demand shocks, uncertainty, and credit crunch (Adian et al. 2020 and Apedo-Amah et al. 2020). Depending on the nature of the crises, the transmission may differ. For example, during the global financial crises, the main channel was access to finance; however, in contrast to previous crises, the most prominent feature of the COVID-19 pandemic is that firms were hit in all channels (Adian et al. 2020). Nonpharmaceutical measures such as stay-at-home orders or lockdown policies reduced the labor supply, since workers were forced to stay at home, and therefore supply chains were disrupted. Using structural econometric methods, Brinca, Duarte, and Castro (2020) decomposed changes in working hours into supply and demand shock contributions and found that the supply shock contributed more than the demand shock. Candia, Coibion, and Gorodnichenko (2020) suggest that some firms (and most households) formed aggregate inflation expectations during the pandemic, seeing it as a supply shock.

At the same time, firms were affected by the decline in demand, which comes from several sources: decline in income; increases in precautionary savings; and increases in unplanned expenditure. Morgan, Trinh, and Kim (2022) showed that in seven Association of Southeast Asian Nations (ASEAN) countries, more than 70 percent of households experienced a decline in income in the early phase of the pandemic and 45 percent of households experienced a decline in income in the second half of 2020 in comparison

to the first half of the year. Meanwhile, 32 percent of households in the ASEAN countries reported a decline in expenditure and a change in expenditure pattern, with a higher share of expenditure going on hygiene and healthcare products (Morgan, Trinh, and Kim 2022). From a firm's perspective, many business owners and managers of both public and small firms reported that the negative demand shock was their most pressing concern in the early phase of the pandemic (Bartik et al. 2020 and Hassan et al. 2020). Meyer, Prescott, and Sheng (2022) further find that firms are overwhelmingly worried about the decline in demand and sale revenues. In a survey of small US firms, Bartik et al. (2020) reports that, among small US firms, the reasons behind the temporary closure of firms are mainly demand shocks rather than supply shocks.

With regards to the COVID-19 pandemic, previous studies find that household businesses, which are mostly small, are more affected than larger firms. As Meyer, Prescott, and Sheng (2022) argued, in the early phase of the pandemic, demand shock, rather than supply shock, is the major channel through which the pandemic affects the operation of a firm, and demand shock is mostly attributed to nonpharmaceutical measures imposed by governments around the world. However, in contrast with the larger firms, many informal firms (and small and medium-size enterprises) are operating in sectors that are more prone to be affected by nonpharmaceutical measures, such as retail or transportation (Fairlie and Fossen 2022). Empirical evidence also shows that small firms tend to experience worse performance than that of larger firms. Using a dataset of 13 countries, Adian et al. (2020) show that small firms are 9 percent more likely to experience a fall in sales, while the figure for larger firms is only 8 percent. They are also less likely than larger firms to report increased sales. Sun et al. (2021) show that in the PRC small firms are also more likely to face weak market demand than larger firms. However, it should also be noted that, except for firms operating in industries that are experiencing a growth in demand — such as healthcare or home office equipment and digital firms — larger, more formal firms may also face the same problem since, in addition to a decline in domestic demand, these firms may be affected by a decline in foreign demand (Adian et al. 2020).

2.2.2 Effects of the COVID-19 Pandemic on Children's Education

The COVID-19 pandemic is profoundly transforming society, and such transformation often exacerbates social and economic inequalities in its wake (Engzella, Frey, and Verhagena 2021). To slow down and curb the spread of the virus, governments around the world have imposed a range of measures, including suspending in-person learning at schools. At the early stage of the pandemic, school closure was implemented in 188 countries, affecting some 95 percent of the world's student population (UNICEF 2020). In response, schools have moved to online learning.

School closures have devastating effects on education in many aspects. For the children, going to school is the best way to learn new skills and their ability (Burgess and Sievertsen 2020). Carlsson et al. (2015) show that students significantly raise their test scores by 1 percent of a standard deviation with just ten days of extra schooling. Similarly, Lavy (2015) reports that total weekly hours of instruction in language, mathematics, and science matter for improving test scores among children in advanced economies. In the context of the pandemic, Burgess and Sievertsen (2020) estimate that if a child experiences 12 weeks (60 school days) less schooling, this implies a loss of 6 percent of a standard deviation in the test score.

Not only is there a decrease in accumulating knowledge, but also the likelihood of school dropouts increases. Hallgarten (2020), based on an analysis of the educational impact of the Ebola outbreaks, shows that, during the COVID-19 pandemic, several factors would hinder children from continuing their education. These factors included (1) lack of quality education, (2) reduction in the availability of education services, (3) reduced access to education services, and (4) the lower utilization of schools (Hallgarten 2020). UNESCO (2020) estimates that 24 million children are at risk of not returning to school, resulting in

the same level of out-of-school children as in 2000, despite two decades of progress in educational access.

To sustain education, schools around the world started to offer classes using alternative means, such as online classes or classes through the television system. However, online classes or the distance learning approach have many disadvantages. Reimers (2022) argues that these alternative learning approaches only partially restore the opportunity to learn and the quality of instruction. This is partly because more than half of Mexican students find such learning activities (online classes or classes through the TV or radio programs) boring (Mejoredu 2020 as cited in Reimers 2022). Furthermore, many students find online classes challenging, since they do not receive adequate support and explanation from their teachers and feel confusion about the activities they are supposed to carry out (Reimers 2022).

The COVID-19 pandemic also further widened the educational gap across genders and groups of students for several reasons. First, many children do not have internet access, personal computers, TVs, or even a radio at home. For example, 43.6 percent of Mexican households did not have internet access during the pandemic (Reimers 2022). In sub-Saharan Africa, a full 80 percent of children lacked internet access at home. This figure was 49 percent in Asia and the Pacific, 39 percent in Latin America, and 34 percent in the Arab States, while it was only 14 percent in Western Europe and North America, and 20 percent in Eastern Europe and Central Asia (Giannini 2020). In ASEAN countries, Morgan and Trinh (2021) show that about 8 percent did not attend any online classes, 19 percent attended only a few, and 16 percent attended some but not all. Most children who do not have internet access are from poorer households (Morgan and Trinh 2021). Second, the pandemic caused household economic situations to worsen, especially among poorer households. Consequently, many children — especially girls and children from

low-income households and children with disabilities — have further engaged in at-home work to support their parents (Azevedo et al. 2022; Morgan, Trinh, and Kim 2022; Reimers 2022). This ultimately amplifies the effects of learning inequalities, which are rather high (UNESCO 2020).

This research is inspired by and closely related to studies by Azhgaliyeva et al. (2022b) and Morgan and Trinh (2021). This chapter uses the same household survey from ten CAREC member countries (excluding the PRC) as Azhgaliyeva et al. (2022b). While Azhgaliyeva et al. (2022b) assessed the impact on household income, expenditure, and financial difficulties, this chapter assesses the impact on households, employment and children's school education. The main contribution of this chapter is that it studies education and employment in the CAREC member countries (excluding PRC) during the COVID-19 pandemic.

Morgan and Trinh (2021) carried out CATIs on households in eight Southeast Asian countries, which include: Cambodia, the Lao People's Democratic Republic, Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam in 2020. A nearly identical survey questionnaire (with some modifications to facilitate understanding for households in the CAREC countries) was used for this study.

Morgan and Trinh (2021) examined the impacts of COVID-19 on employment in seven ASEAN countries. They found that 44.4 percent of employees lost their jobs (either temporarily and permanently) or experienced a workload cut. Notably, 73.5 percent of Filipino employees in their samples either lost their job or had to reduce their working hours. In Vietnam, Thailand, Myanmar, and Malaysia, the figures are high — from 45 percent to 50 percent. Interestingly, the proportion of employees in Indonesia who lost

their job and/or had their working time reduced is rather low, especially compared with the Philippines.

Morgan and Trinh (2021) examined the impacts of COVID-19 on children's education. They found that about 27 percent of children who stopped schooling could not fully participate in online learning programs because of weak/insufficient internet connections and/or a lack of digital devices. Two factors related to COVID-19 had a significant and negative impact on the intensity of online classes taken by children in an average household: (1) having at least one person who lost their job or had working hours reduced and (2) experiencing financial difficulties.

The recent book, COVID-19 Impacts and Policy Options: An Asian Perspective (Beirne, Morgan, and Sonobe 2021), provides important insights into the economic effects of the COVID-19 pandemic in Asian countries and some policy implications for supporting vulnerable households. However, evidence of the pandemic's impact in the CAREC region is scarce, making it difficult to draw up policy recommendations.

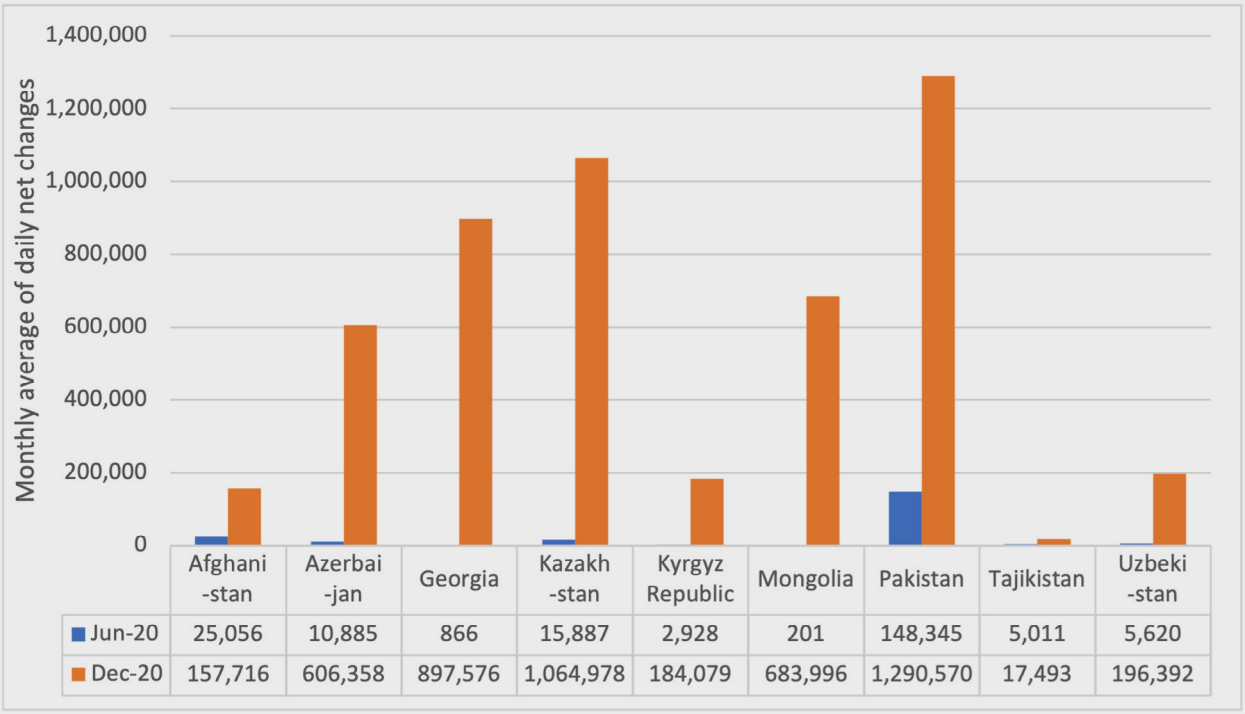
2.3 SPREAD OF COVID-19 AND GOVERNMENT RESPONSES

2.3.1 COVID-19 in CAREC

Figures 2.1-2.3 present the changes in the phase of the COVID-19 pandemic in nine CAREC countries (excluding the PRC and Turkmenistan). Each figure shows the monthly

average of daily net changes in confirmed cases of COVID-19 and deaths, respectively. However, data on COVID-19 cases and deaths is not available for Turkmenistan (Figure 2.2). Figures 2.1-2.2 demonstrate a large increase in COVID-19 confirmed cases and deaths from June 2020 to December 2020 in nine CAREC countries.

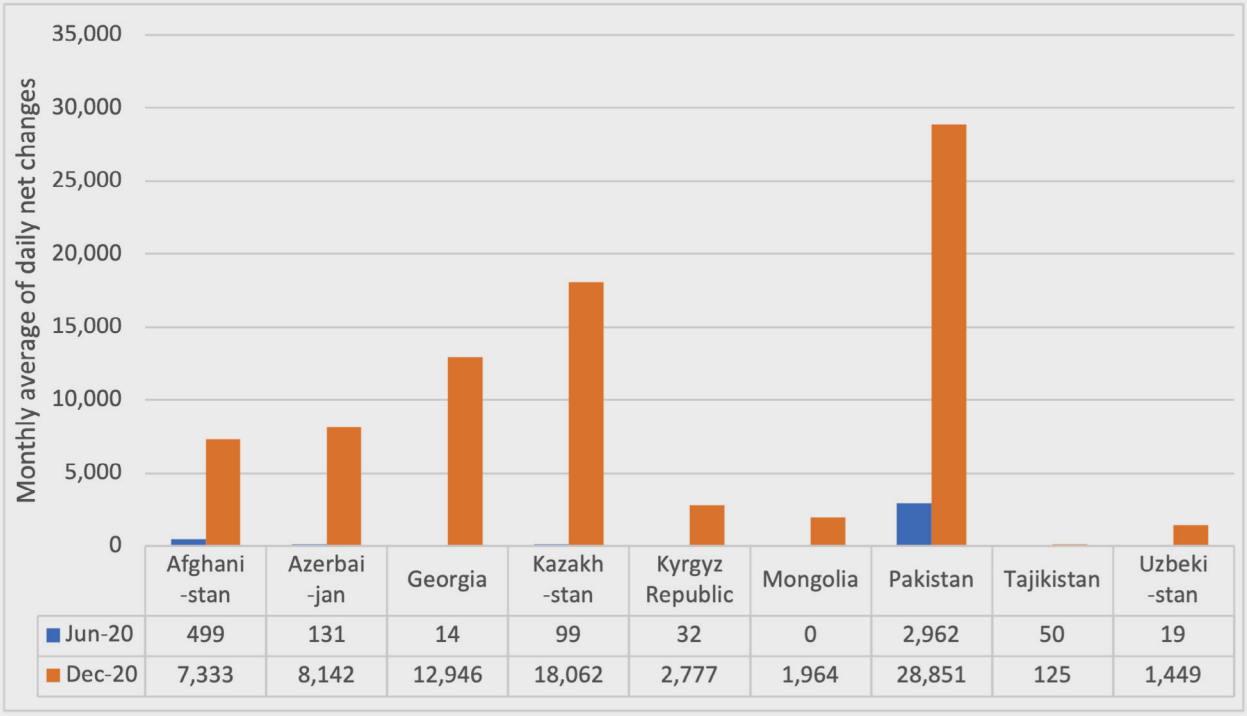
Figure 2.1. COVID-19 Cases (Daily Net Changes)



	Afghani -stan	Azerbai -jan	Georgia	Kazakh -stan	Kyrgyz Republic	Mongolia	Pakistan	Tajikistan	Uzbeki -stan
Jun-20	25,056	10,885	866	15,887	2,928	201	148,345	5,011	5,620
Dec-20	157,716	606,358	897,576	1,064,978	184,079	683,996	1,290,570	17,493	196,392

Source: Authors' own calculation using data from Hale et al. (2021).

Figure 2.2. COVID-19 Deaths (Daily Net Changes)



	Afghani -stan	Azerbai -jan	Georgia	Kazakh -stan	Kyrgyz Republic	Mongolia	Pakistan	Tajikistan	Uzbeki -stan
Jun-20	499	131	14	99	32	0	2,962	50	19
Dec-20	7,333	8,142	12,946	18,062	2,777	1,964	28,851	125	1,449

Source: Authors' own calculation using data from Hale et al. (2021)

2.3.2 Government Responses

The CAREC countries have implemented various measures, such as lockdowns, social distancing requirements, travel restrictions, school closures, and border closures; however, there is some variation by country in time of implementation, stringency, and duration of these policies. Figures 2.3-2.5 show intensity indices of the policy measures that the CAREC countries have adopted in response to the COVID-19 pandemic (Hale et al. 2021). Table 2.1 provides a description of selected indicators corresponding to each figure. These indicators are retrieved from the Oxford COVID-19 Government Response Tracker (OxCGRT) provided by the Blavatnik School of Government of the University of Oxford (2021). See Hale et al. (2021) for more details.

Table 2.1. Selected Indicators ofGovernment Response to theCOVID-19 Pandemic

Code	Indicator	Description
C1	School closing	Government requirements for school and university to close: 0 = no requirement; 1 = reduced number of individuals in a classroom (such as, hybrid in-person/online learning models); 2 = classes open for some groups (such as, exams for several days); and 3 = all classes closed.
C2	Workplace closing	Government requirements for workplace to close: 0 = no requirement; 1 = workplaces reopen under sanitation and social distancing requirements; 2 = some shops open for essential needs (such as, healthcare or groceries); and 3 = most shops closed.
C6	Stay-at-home requirements	Government requirements for people to stay at home: 0 = no requirement; 1 = clinically vulnerable groups of people strongly recommended or required to shield at home; 2 = curfews; and 3 = cannot leave the house for multiple days.

Note: more explanation of each indicator is provided in OxCGRT Coding Interpretation Guide

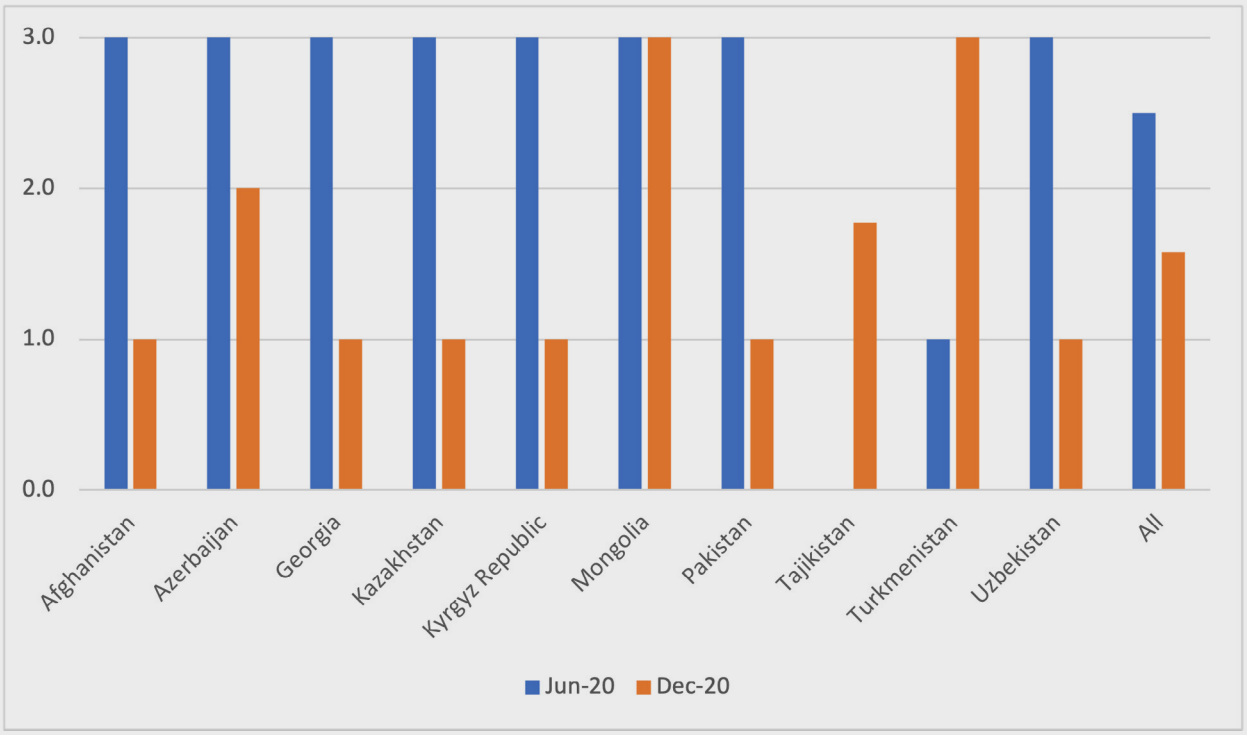
Source: Hale et al. (2021)

The monthly average index of school closure in ten CAREC countries is demonstrated in Figure 2.3, which shows that schools were closed in June 2020 (average monthly index C1 equals 3) in eight of the ten CAREC countries, excluding Tajikistan (C1 = 0) and Turkmenistan (C1 = 1). However, school closures were significantly relaxed by December 2020 (C1 = 1) in six of the ten CAREC countries. In December 2020, school closure remained high in Mongolia (C1 = 3), was only slightly relaxed in Azerbaijan (C1 = 2), and increased in Tajikistan (C1 = 1.8) and Turkmenistan (C1 = 3). On average, school closures reduced from 2.5 in June 2020 to 1.6 in December 2020.

Figure 2.4 demonstrates the monthly average index of workplace closure in ten CAREC countries. It demonstrates that the strictest workplace closure (C2 = 3) was in Afghanistan. Also, in most countries workplace closure did not change greatly from June 2020 to December 2020. On average, workplace closure was around 2 in June and December 2020.

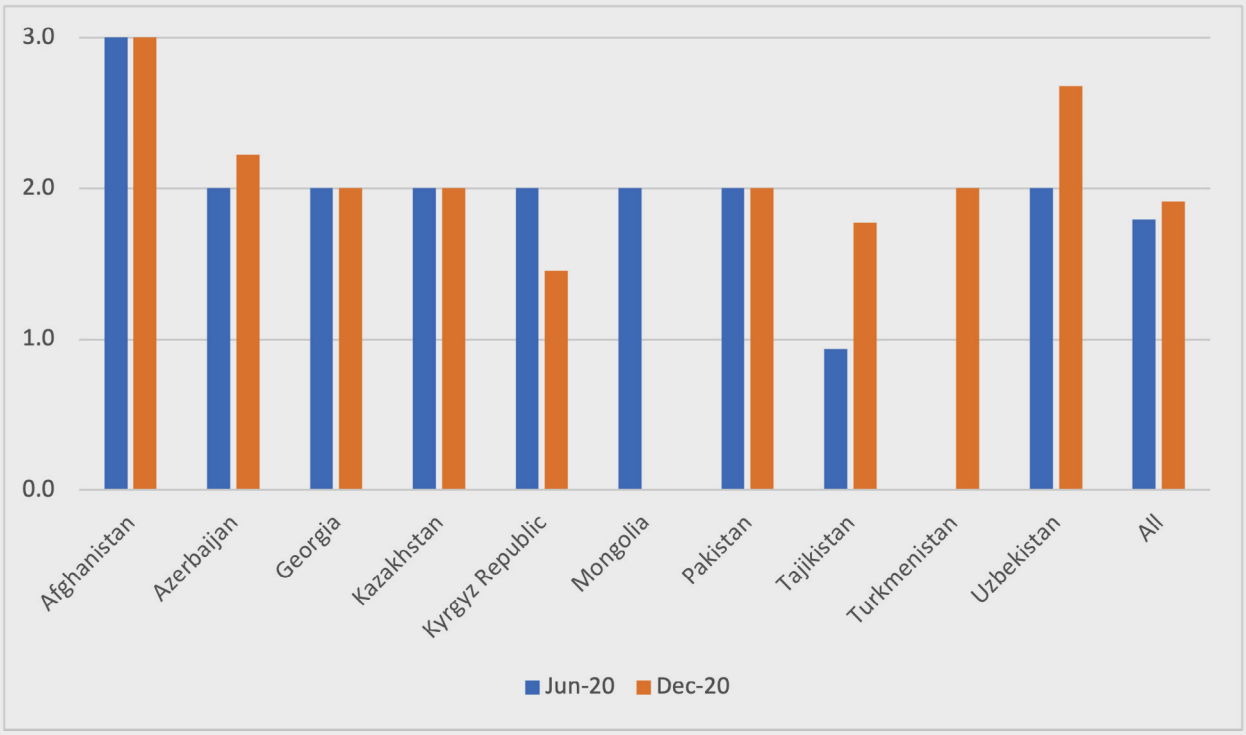
Figure 2.5 demonstrates the monthly average index of government stay-at-home requirements, which varied greatly across the 10 CAREC countries in June 2020 and December 2020. The strictest stay-at-home requirements were in Kazakhstan and Kyrgyzstan in December 2020. Requirements were relaxed in December 2020 compared to June 2020 in Afghanistan, Azerbaijan, Georgia, Pakistan, and Uzbekistan; they were more restricted in Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, and Turkmenistan.

Figure 2.3. Monthly Average Index of School Closures (C1)



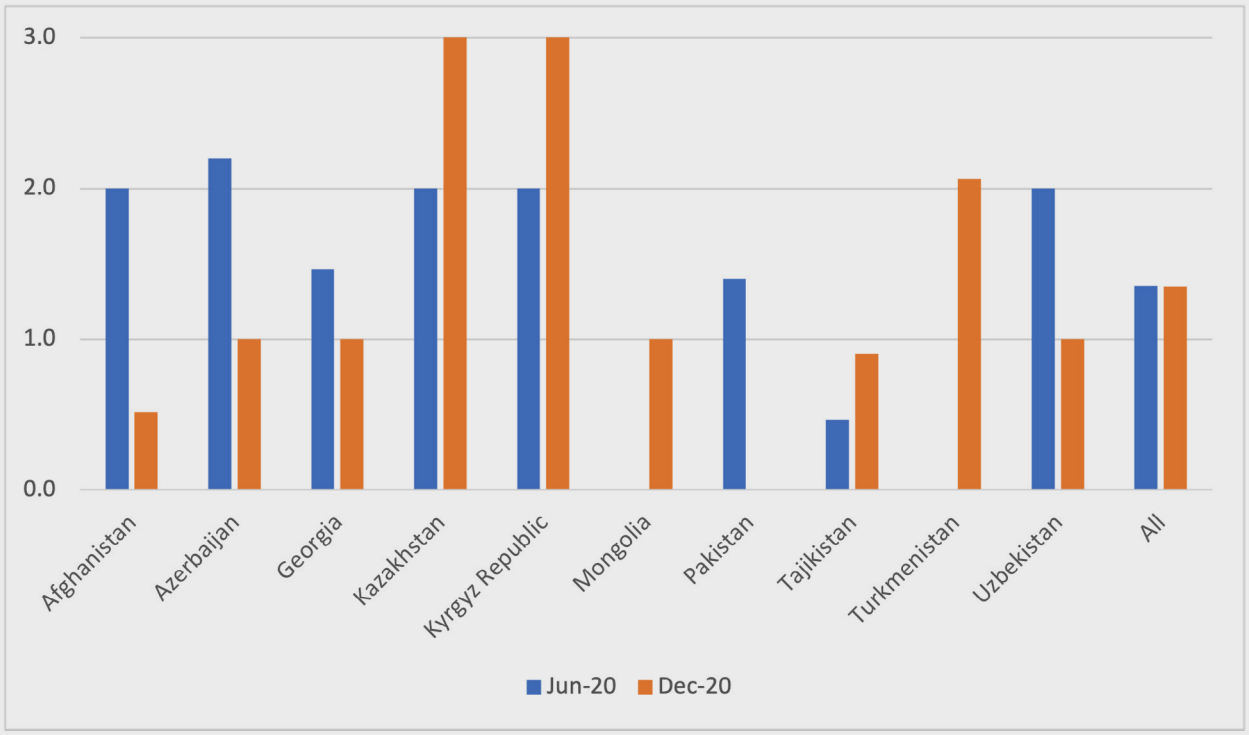
Source: Authors' own calculation using data from Hale et al. (2021)

Figure 2.4. Monthly Average Index of Workplace Closures (C2)



Source: Authors' own calculation using data from Hale et al. (2021)

Figure 2.5. Monthly Average Index of Stay-at-Home Requirements (C6)



Source: Authors' own calculation using data from Hale et al. (2021)

2.4 ADBI HOUSEHOLD SURVEY IN THE CAREC COUNTRIES

The household survey was conducted in ten out of the eleven CAREC member countries: Afghanistan, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan.

The survey was designed by ADBI and conducted by nine survey companies in the respective countries. It was implemented during May and July 2021, after which, there were pilot tests, and all the fieldworks were finished by the end of August 2021. See Azhgaliyeva et al. (2022b) for the distribution of the sample across provinces and household income groups as well as its allocation. Major characteristics of the survey are as follows:

- Computer-assisted telephone survey because of the COVID-19 pandemic
- Respondent was either household head or person who is knowledgeable in the household finance
- Length of interview was about 20 minutes (this was longer in some countries, partly owing to the screening questions)
- The questionnaire the following information :
    - Household characteristics, including gender, age, and education level of household head, number of household members, number in employment and in school, urban versus rural residence, and household income, including monthly amount and source(s) of income

• Changes in household income, employment, working hours , and household business condition in December 2020 compared with the base period of June 2020

• School attendance including distance learning during June 2020 to December 2020 and, if not, main reasons for absence

• Whether the household experienced financial difficulties during June 2020 to December 2020 and, if so, its coping measures

2.5 COVID-19 IMPACTS ON EMPLOYMENT, HOUSEHEOLD BUSINESS, AND EDUCATION

2.5.1 Impact of the COVID-19 Pandemic on Employment

Figure 2.6 presents the distribution of household head employed sector in June 2020. Overall, 16 percent of households work in the agriculture/fishery sector, 11 percent in industry/manufacturing, 11 percent in construction, 14 percent in wholesale and retail, 7 percent in transport service, 2 percent in hospitality, 15 percent in public administration, 11 percent in health and education, 6 percent in personal services, and 6 percent in other services. The distribution of the employment sector varies by country. Most (nearly one third) work in the agriculture/fishery sector in Afghanistan (32 percent), Mongolia (32 percent), and in Pakistan (25 percent). Nearly one fifth in industry/manufacturing are in Kazakhstan and Turkmenistan. The most employed in construction are in Pakistan (18 percent), Tajikistan (18 percent), and Turkmenistan (17 percent). The highest share

of those working in wholesale and retail is in Turkmenistan (37 percent). The share of those working in hospitality (restaurants and hotels) is small in all countries (1 percent to 4 percent). The highest share (23 percent) of those working in public administration are in Azerbaijan, Kyrgyzstan, and Tajikistan. The highest shares of those working in healthcare and education are in Georgia (26 percent) and Kazakhstan (18 percent). The share of those working in personal services is not large; these are mainly in Kyrgyzstan (10 percent), Pakistan (10 percent), and Uzbekistan (9 percent).

Figure 2.7 shows the proportion of household members with a decline in working hours in December 2020 in comparison to June 2020. On average, 24 percent of employees in our sample experienced either losing their job (temporarily or permanently) or a workload cut in December 2020 in comparison with June 2020. Notably, 67 percent of employees in Pakistan in our sample had either lost their jobs or had to reduce their working time. This high figure is comparable with the 73.5 percent of Filipino employees who lost their jobs or had to reduce their working time in June 2020 (Morgan and Trinh 2021). In five countries, Azerbaijan, Afghanistan, Mongolia, Turkmenistan, and Georgia, the figures were high — in the range of 25 percent to 39 percent. In the remaining four countries in our sample — Kyrgyzstan, Kazakhstan, Tajikistan, and Uzbekistan — the share of employees who had either lost their job or experienced a workload cut was relatively low (5 percent to 7 percent).

Compared to Morgan and Trinh (2021), the overall share of those who either lost jobs or had reduced working time is lower in our sample of 10 CAREC member countries (excluding the PRC) in December 2020 compared to June 2020 than that of the Southeast Asian countries in June 2020 compared to before COVID. We cannot say whether employment in the CAREC countries was less affected or not, owing to the difference in timeframe. To compare the impact across the two regions we need use the same time period.

Figure 2.6. Employment Distribution, June 2020 (Percentage of Households)

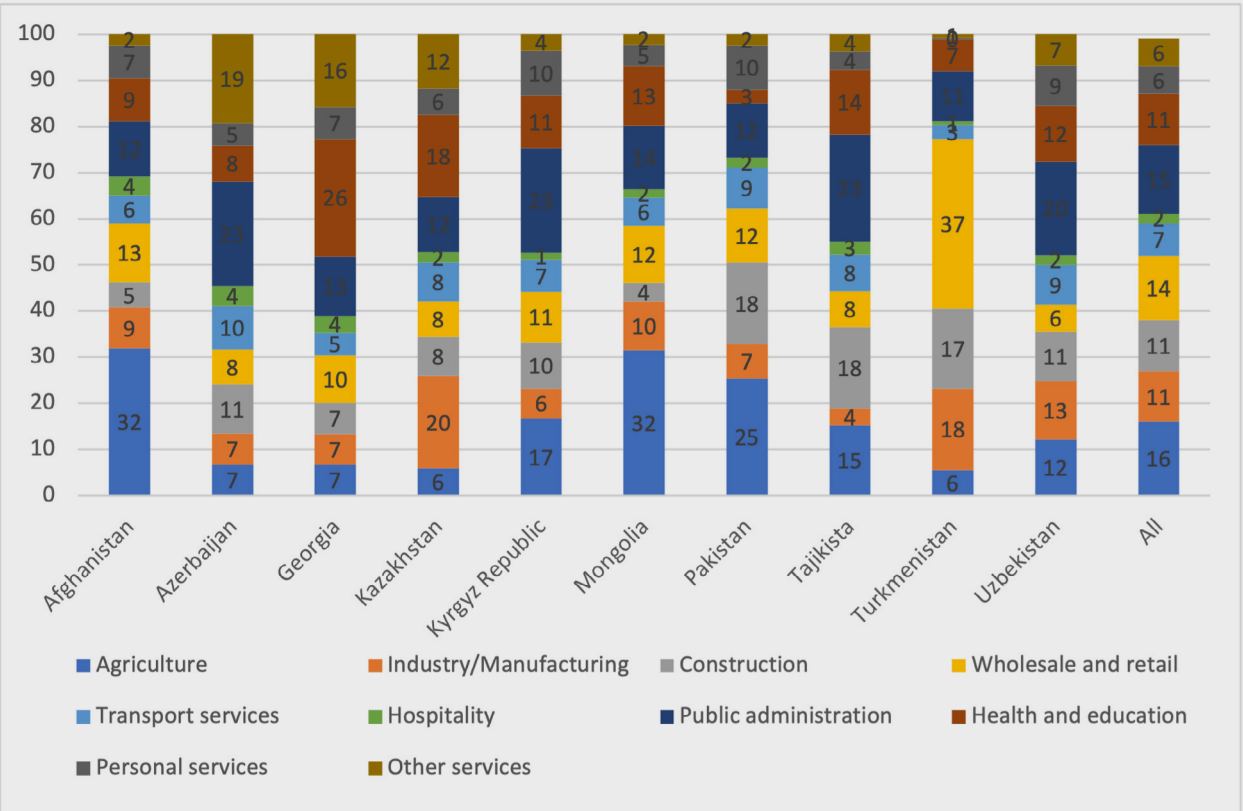
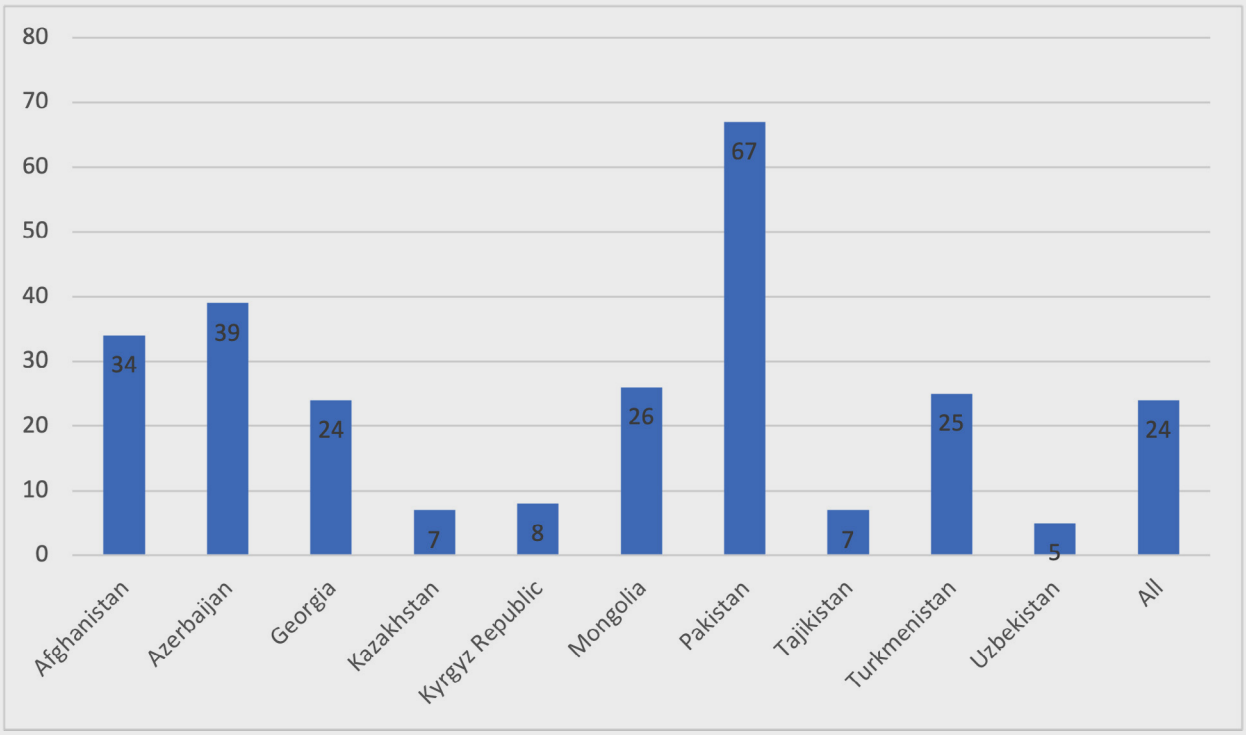


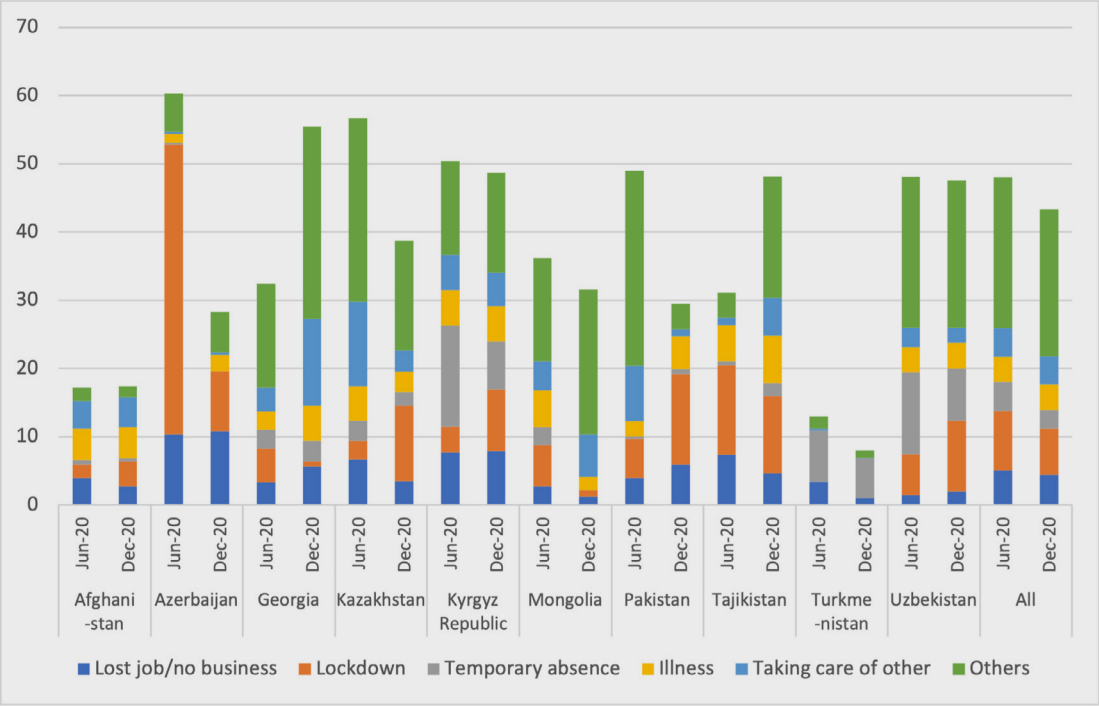
Figure 2.7. Households with Job Losses or Reduced Workload (Percentage of Households)



The reasons for the household head not working in December 2020 and June 2020 are demonstrated in Figure 2.8. Among all households, 5 percent and 4 percent had a household head who had lost their job or had no business owing to the COVID-19 pandemic in June and December 2020, respectively. Others could not go to work owing to one of the following reasons: 9 percent and 7 percent were in a lockdown area; 4 percent and 3 percent were temporarily absent from work; 4 percent were absent owing to illness; and 4 percent were taking care of others.

The reasons for household heads not working vary by country. The share of household heads who lost their jobs or had no business owing to the COVID-19 pandemic was highest in Azerbaijan (10 percent to 11 percent). The share of those missing work owing to lockdown reduced from 9 percent in June 2020 to 7 percent in December 2020. The difference was particularly large in Azerbaijan (from 42 percent to 9 percent). The share not working owing to taking care of others was high in Kazakhstan in June 2020 (12 percent) but reduced to 3 percent in December 2020. However, in Georgia it was the opposite, with the share of household heads not working owing to taking care of family members increasing from 4 percent in June 2020 to 13 percent in December 2020. Such large changes could be associated with the lockdown of schools or online education for small children.

Figure 2.8. Households with Job Losses or Reduced Workload
(Percentage of Households)



We examine the factors relating to the impact of the COVID-19 pandemic on employment (such as, losing a job during June to December 2020). Because the job loss is a binary variable, we employ a probit model and estimate the following equation:

$$JobLoss_i = \alpha_0 + \alpha_1 HH_i + \alpha_2 COVID_i + \in_i \quad (1)$$

where $JobLoss_i$ is a dummy variable that takes the value of 1 if household *i* lost their job during June to December 2020 and 0 if otherwise; HH_i is a set of household characteristics which includes the household head's gender, education, age, income source, and location (that is, rural vs. urban areas); $COVID_i$ indicates whether the household was located in a lockdown area (dummy); and $\in_i$ is an error term. Unlike Morgan and Trinh (2021) and Azhgaliyeva et al. (2022b), we excluded a socioeconomic or income class variable owing to a concern about reverse causality: For instance, those households whose head lost their job may fall into the lower income class. We estimate the above equation for pooled data on ten countries (with the country dummy being controled) and separately for each country except for Afghanistan because only 2.6 percent of household heads lost their job there during June to December 2020. The household head in the age bracket of '60 or above' is excluded from the regression because typically people in that wage range have already retired and their employment status remained the same during the pandemic.

Table 2.2 shows the estimation results. The first column reports the results for pooled data and the subsequent columns present results for each CAREC country. The estimated marginal effects are reported in Table A1 in the Appendix. The results suggest that female household heads are less likely to experience job loss than their male counterparts: the likelihood of a female household head losing their job is 4.2 percentage points (pp) lower than for male household heads. Nevertheless, the results vary across countries. For example, we observed a negative and significant relationship in only two countries (Kyrgyzstan and Uzbekistan), while there is a positive and significant relationship in Pakistan.

On average, education level was negatively associated with the likelihood of losing a job. A household head with a college diploma has a lower probability of experiencing job loss by 3.4 pp than those who have a qualification lower than a high school diploma

(that is, secondary school and below). No significant difference was found for high school graduates. This result is consistent with the finding in Azhgaliyeva et al. (2022b), which showed that low-educated workers in CAREC countries were more likely to experience an income decline during the pandemic. The same is also observed in Kyrgyzstan, and both college and high school graduates had a lower probability of losing their job in Georgia and Uzbekistan. With the findings in Azhgaliyeva et al. (2022b), we may conclude that low-educated workers were especially affected by the pandemic.

Regarding age group, the results show that younger household heads were more likely to lose their job during the pandemic. On average those in their 20s, 30s, and 40s had a higher probability of job loss by 3.0 pp, 2.6 pp, and 2.2 pp, respectively, compared to those in their 50s. A report from the ILO and ADB (2020) shows that youth employment is hit hardest by the pandemic in the Asia and the Pacific region and stresses the necessity of adopting large-scale, targeted policy responses. Our finding provides similar results from the CAREC countries, with some differences among countries. For example, those in their 20s were severely affected in Kazakhstan, while middle-age groups (that is, 30s and 40s) were more affected in Mongolia and Tajikistan.

Source of income has a significant relationship with impact on employment. Results suggest that households with income from household business or self-employment were more likely to lose their jobs than households that did not have such income. This pattern is also observed in Azerbaijan and Mongolia. Meanwhile, households depending on wage income were less likely to lose their jobs, which is also observed in Azerbaijan, Kyrgyzstan, and Tajikistan. However, the significant and positive relationship is observed in Mongolia and Pakistan. These findings indicate that — while there are some notable differences across the CAREC countries — on average, employment in household business is more reversely affected by the pandemic than is that of wage labor. These implications further motivate study of the household business impacts in the following subsection.
We also find that being located in a lockdown area increased the likelihood of job loss,

but this significant and negative employment impact was found only in Azerbaijan. Households in rural areas were also less likely to lose their jobs. The significant relationship is also observed in Kazakhstan, Kyrgyzstan, and Pakistan.

Table 2.2. Factors Determining the Probability of Job Loss during the COVID-19 Pandemic

VARIABLES	All	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan
Job loss (mean)	0.132	0.468	0.084	0.076	0.156
	(1)	(2)	(3)	(4)	(5)
Household head female	-0.400***	-0.403	0.004	-0.195	-1.116***
	(0.101)	(0.269)	(0.287)	(0.279)	(0.305)
Household head education					
• High school graduate	-0.104	1.049	-0.628*	-0.347	-0.295
	(0.120)	(1.361)	(0.363)	(0.802)	(0.295)
• College graduate	-0.323***	1.080	-1.047***	-0.321	-0.908***
	(0.123)	(1.355)	(0.340)	(0.780)	(0.310)
Age group (base: 50-59)					
• 20-29	0.291**	0.211	0.125	0.887**	0.464
	(0.122)	(0.325)	(0.537)	(0.427)	(0.313)
• 30-39	0.257***	-0.119	0.281	0.316	0.011
	(0.095)	(0.233)	(0.362)	(0.409)	(0.246)

• 40–49	0.221**	0.290	0.077	0.137	-0.782***
	(0.095)	(0.241)	(0.333)	(0.426)	(0.281)
Income source					
• Agriculture	-0.105	-0.005	0.016	0.572	0.062
	(0.084)	(0.245)	(0.360)	(0.363)	(0.216)
• Household business	0.915***	2.699***	-0.305	-0.373	-0.085
	(0.079)	(0.192)	(0.444)	(0.633)	(0.215)
• Wage/salary	-0.394***	-0.895***	-0.017	0.032	-0.343*
	(0.080)	(0.239)	(0.324)	(0.409)	(0.207)
Rural	0.003	-0.125	-0.134	0.540*	0.394*
	(0.080)	(0.227)	(0.330)	(0.287)	(0.232)
Located in lockdown area	0.194**	1.794***	0.347	0.155	-0.395
	(0.098)	(0.380)	(0.278)	(0.326)	(0.241)
Constant	-3.817***	-3.462**	-1.725***	-2.815***	-0.697*
	(0.268)	(1.419)	(0.420)	(0.877)	(0.381)
Observations	7653	900	621	819	824

VARIABLES	Mongolia	Pakistan	Tajikistan	Turkmenistan	Uzbekistan
Job loss (mean)		0.051	0.134	0.113	0.119
	(6)	(7)	(8)	(9)	(10)
Household head female	-0.195	0.885**	-0.433	-0.039	-1.214**
	(0.301)	(0.451)	(0.303)	(0.398)	(0.476)
Household head education					
• ·High school graduate	-0.108	-0.157	0.814*	-0.171	-0.732*
	(0.292)	(0.389)	(0.416)	(0.363)	(0.437)
• ·College graduate	-0.508	-0.176	0.028	-0.078	-0.763*
	(0.328)	(0.515)	(0.444)	(0.350)	(0.399)
Age group (base: 50-59)					
• ·20-29	0.375	-0.178	0.391	-0.431	0.260
	(0.514)	(0.633)	(0.397)	(0.406)	(0.373)
• ·30-39	0.806**	0.368	0.499	0.085	0.195
	(0.324)	(0.470)	(0.309)	(0.309)	(0.284)
• ·40-49	0.656**	0.444	0.778***	-0.232	0.151
	(0.312)	(0.450)	(0.288)	(0.345)	(0.282)
Income source					
• ·Agriculture	-1.186***	0.316	0.371	-0.129	0.002
	(0.458)	(0.358)	(0.232)	(0.234)	(0.248)
• ·Household business	1.424***	0.296	-0.038	-0.028	-0.289

	(0.260)	(0.513)	(0.281)	(0.256)	(0.325)
• ·Wage/salary	0.593**	1.021**	-0.637***	0.477	-0.449**
	(0.278)	(0.448)	(0.226)	(0.487)	(0.228)
Rural	-0.420	0.891**	-0.015	-0.146	0.134
	(0.320)	(0.423)	(0.256)	(0.229)	(0.229)
Located in lockdown area		0.305	-0.084		-0.433
		(0.622)	(0.218)		(0.355)
Constant	-2.665***	-5.091***	-2.281***	-2.164***	-0.872*
	(0.416)	(0.846)	(0.538)	(0.612)	(0.461)
Observations	725	826	728	783	795

from the separate regression because only 2.63 percent of household heads experienced job loss during June to December 2020.

2.5.2 Impact of the COVID-19 Pandemic on Household Business

Figure 2.9 demonstrates the share of households that operated a business or worked on a farm at any point in 2020; on average, this figure was 26 percent. However, this result varies by country. Countries with the smallest share of household business include Kyrgyzstan (10 percent), Tajikistan (13 percent), and Kazakhstan (14 percent). Azerbaijan has the largest share of household businesses (58 percent).

Figure 2.9. Share of Households that Operate a Business or Work on a Farm (Percentage of Households)

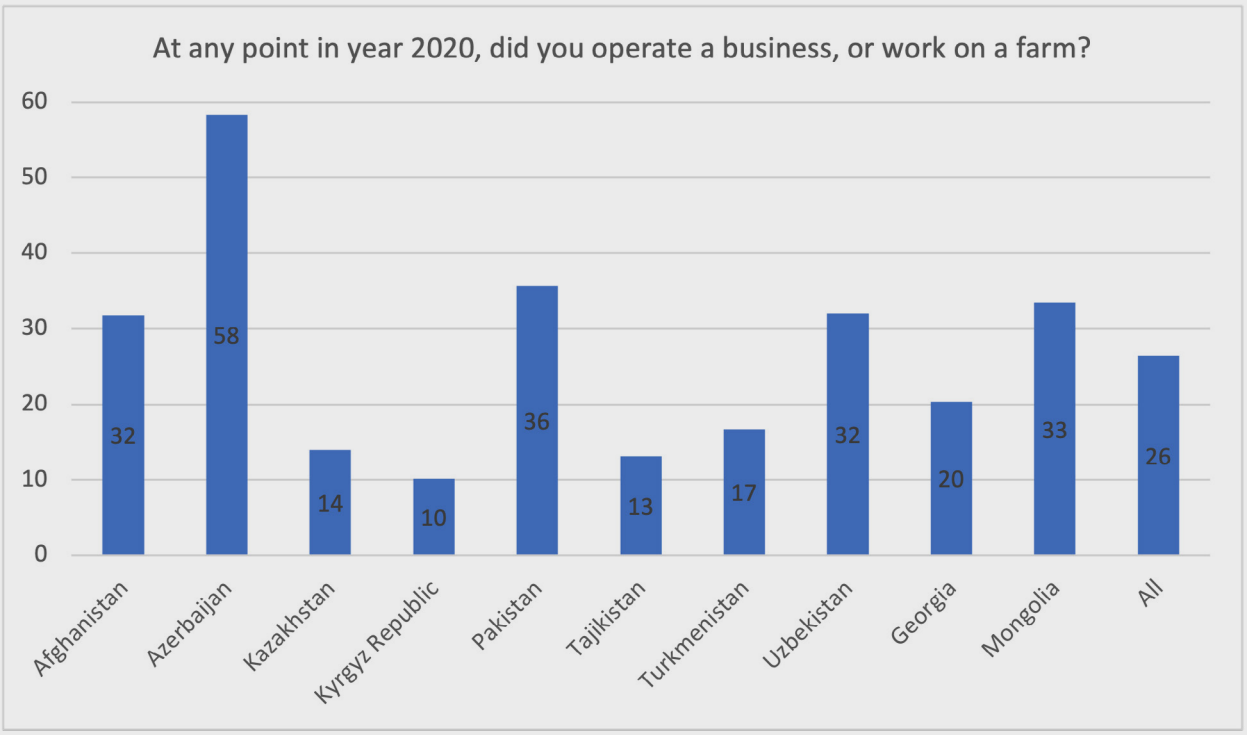


Figure 2.10 demonstrates sectors of household business. Overall, most household business is in agriculture (33 percent) and retail and wholesale (23 percent). On average, household business in agriculture is 33 percent, in industry is 8 percent, in construction is 9 percent, in wholesale and retail is 23 percent, in transport is 7 percent, in hospitality (restaurants and hotels) is 5 percent, in health and education is 4 percent, in personal services is 7 percent, and in other services is 5 percent; however, sectors vary by country. Household business in agriculture is mainly in Pakistan (55 percent), Mongolia (53 percent), Turkmenistan (46 percent), Georgia (40 percent), Uzbekistan (37 percent), Afghanistan (31 percent), and Kazakhstan (30 percent). Household business in industry is mainly in Afghanistan (21 percent). Household business in construction is mainly in Uzbekistan 27 percent. Household business in retail and wholesale is well represented in all countries from 16 percent to 39 percent. Household business in transport is mainly in Tajikistan (14 percent). Household business in hospitality is mainly in Tajikistan (17 percent). Household business in health and education is mainly in Azerbaijan (13 percent). Household business in personal services is mainly in Tajikistan (11 percent), Azerbaijan (10 percent), and Georgia (10 percent).

Figure 2.11 demonstrates the status of household businesses at the time of interview (May to August 2021). Overall, over three quarters of household businesses (76 percent) remained open in May to August 2021. The remaining 24 percent were closed, of which 17 percent were closed temporarily and 7 percent were closed permanently.

Figure 2.10. Household Business Sectors

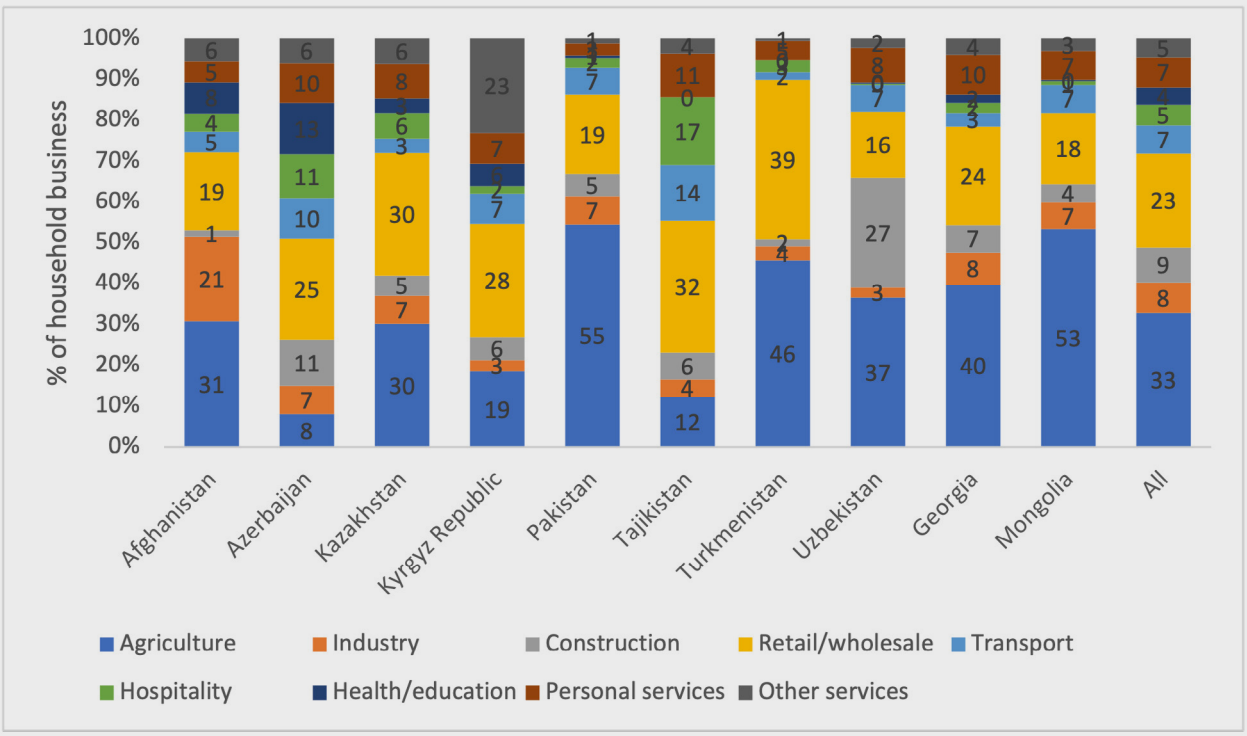


Figure 2.11. Business Status at Time of Interview (May-Aug 2021)

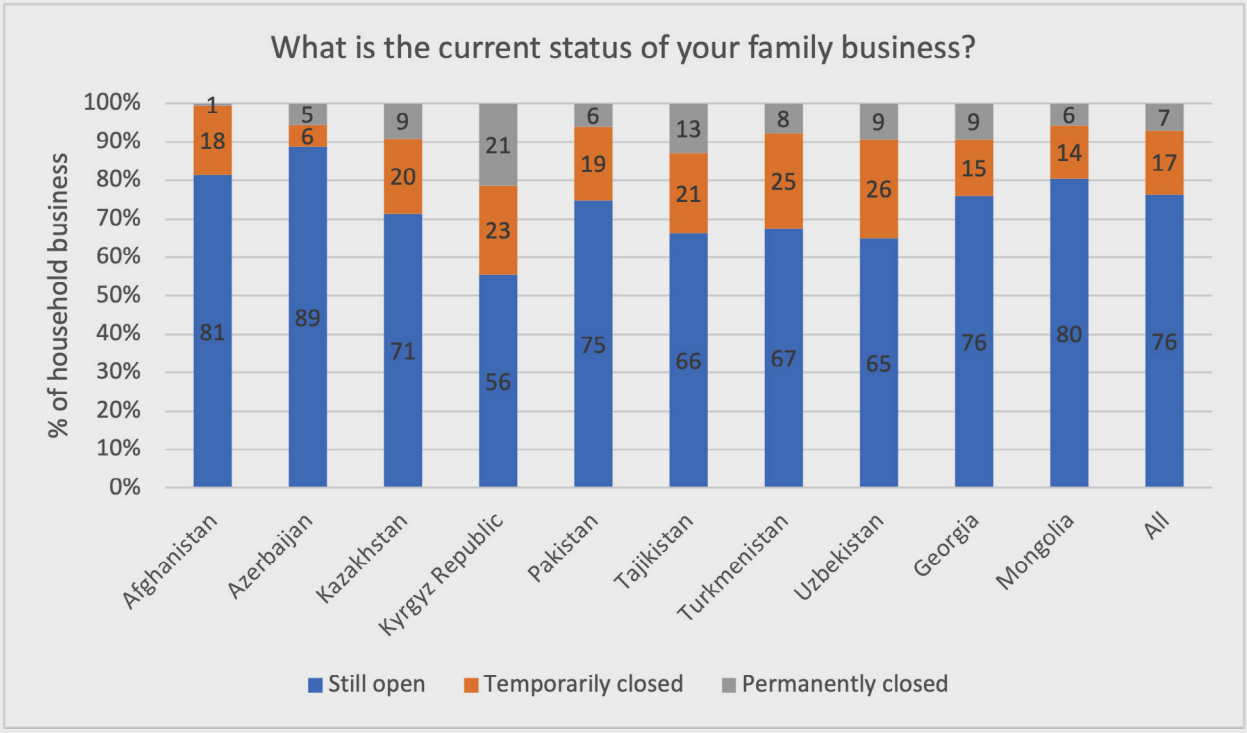


Figure 2.12 demonstrates change in income from household businesses since the beginning of 2020. Overall, most household businesses (41 percent) had lower income, 32 percent had the same income, 14 percent had no income, and 12 percent had a higher income. Income change varies by country. The highest share of household business with lower income was reported in Tajikistan (76 percent), while for the rest of the countries the share of household business with lower income varies from 27 percent to 50 percent. The highest shares of household business without income are reported in Uzbekistan (28 percent), Kyrgyzstan (22 percent), and Mongolia (20 percent). For the rest of the countries this figure varies from 6 percent to 16 percent. Household business with no income change (the same income) were reported mainly in Afghanistan (54 percent), Pakistan (44 percent), and Georgia (42 percent). For the rest of the countries this figure varies from 13 percent to 34 percent. The highest shares of household business with income increases were reported in Georgia (25 percent), Azerbaijan (23 percent), and Turkmenistan (18 percent). The lowest shares of household business with an income increase were reported in Afghanistan (1 percent), Mongolia (2 percent), Uzbekistan (3 percent), and Tajikistan (4 percent).

Figure 2.12. Change of Income from Family Business from the Beginning of 2020

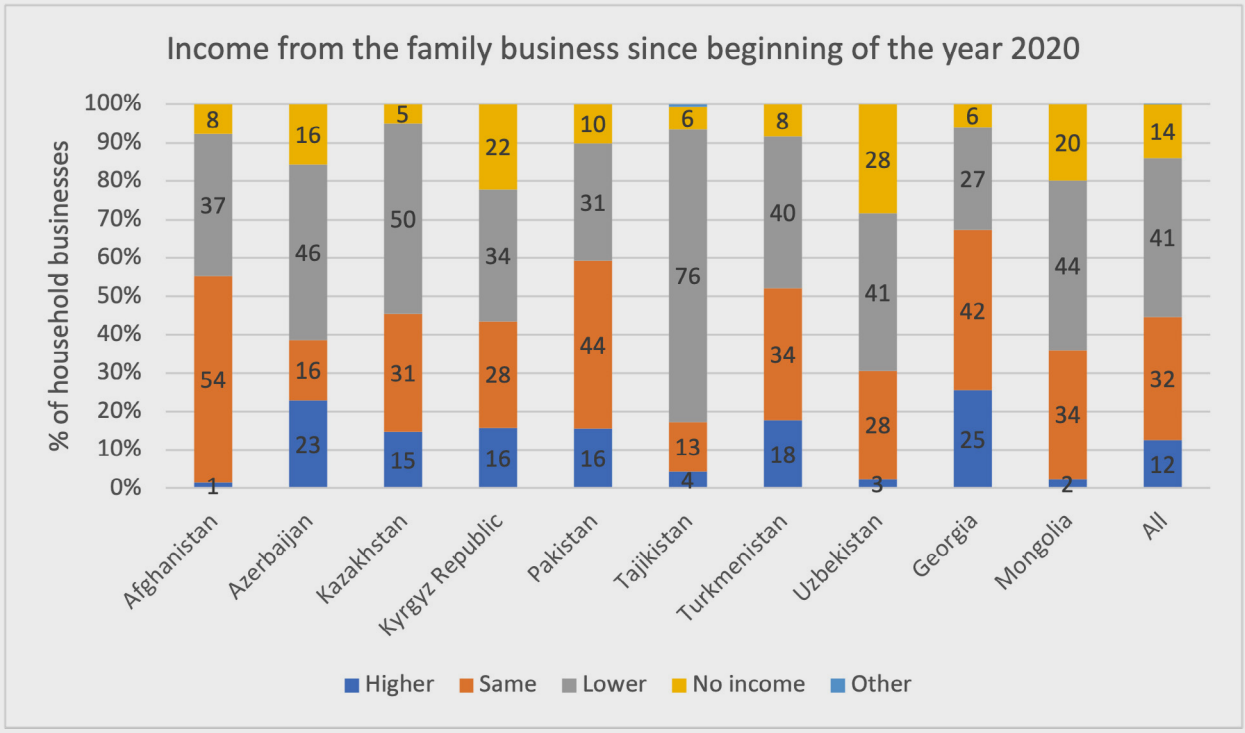


Figure 2.13 provides reported reasons for an income decline in household business. Overall, as reported, household income decline was owing to: no/fewer customers (52 percent), temporary closure owing to restrictions (30 percent), no/fewer suppliers (11 percent), and seasonal closure (7 percent). Overall, the major reported reason for household business income reduction was no/fewer customers (52 percent) and temporary closure owing to restrictions (30 percent). No or fewer customers was the major reported reason for household business income reduction in all countries (44 percent to 61 percent), except for Kazakhstan where the major reported reason for household business income decline was reported as temporary closure owing to restrictions (51 percent). Countries with the largest share of household income decline owing to temporary closure because of restrictions include Kazakhstan (51 percent), Mongolia (40 percent), and Azerbaijan (30 percent). Household business with a decline in income owing to no/fewer suppliers were mainly in Uzbekistan (24 percent), Azerbaijan (22 percent), Turkmenistan (15 percent), Kyrgyzstan (11 percent), and Pakistan (10 percent). Household business with income decline owing to seasonal closure were mainly in Georgia (32 percent), Pakistan (27 percent), Uzbekistan (18 percent), Kyrgyzstan (15 percent), and Turkmenistan (14 percent).

Figure 2.14 demonstrates the following measures taken by households to adjust ways of doing business: started or increased using a phone call/sms (20 percent), started or increased using internet/social media (15 percent), switched product (16 percent), reduced operating hours (11 percent), reduced number of workers (15 percent), reduced price/offer promotion (13 percent), and provided home delivery (10 percent).

Figure 2.13. Reasons for Reduction in Household Business Income

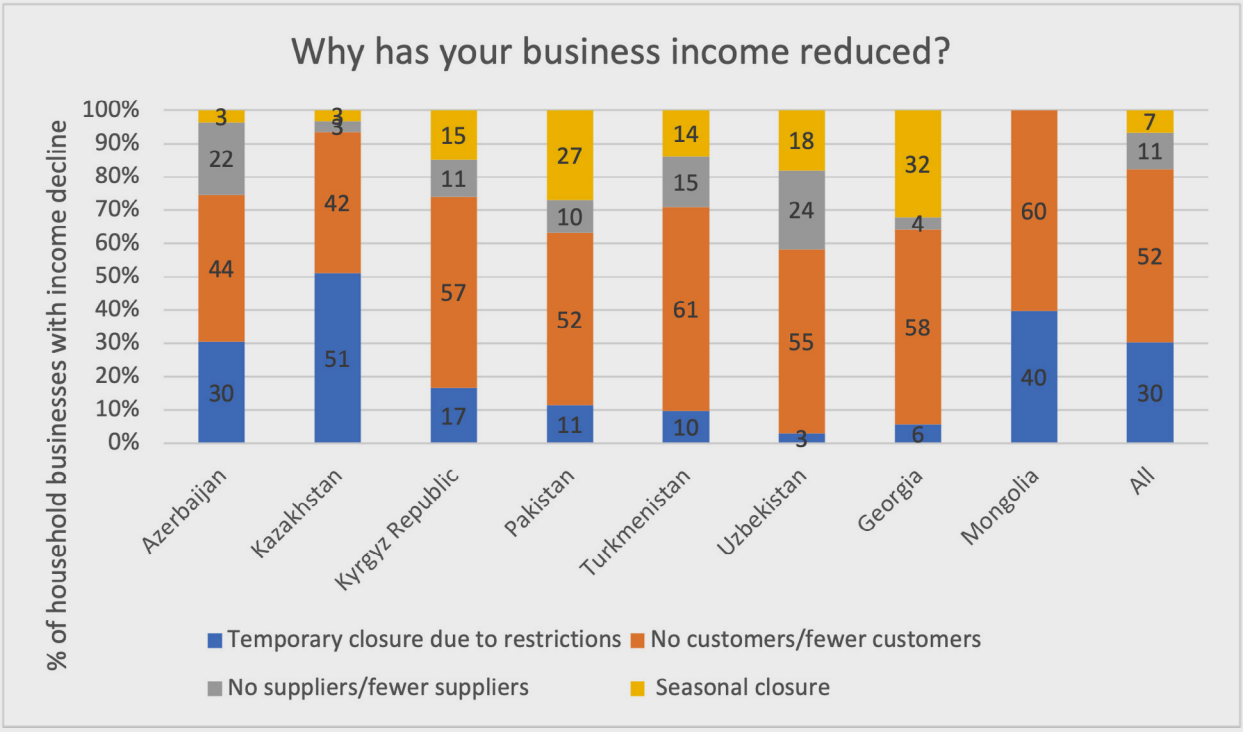
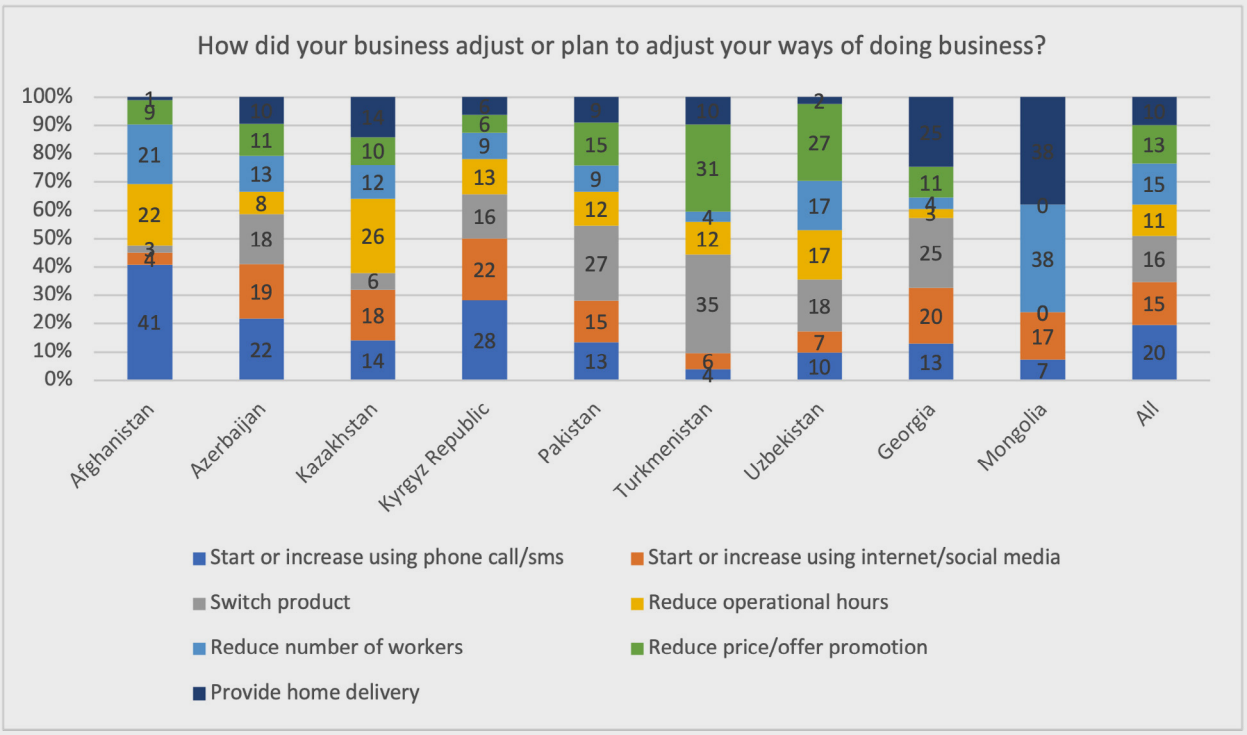


Figure 2.14. Adjustment to the Way of Doing Business (Implemented or Planned)



Lastly, we investigate the impacts of the COVID-19 pandemic on the household business condition during the pandemic. We estimate the following equation in a probit model:

$$dHBI_i = = \beta_0 + \beta_1 HH_i + \beta_2 HHB_i + \beta_3 COVID + \in_i \quad (2)$$

where $dHBI_i$ is a dummy variable that takes the value of 1 if i's household business income has declined since the beginning of 2020 and 0 otherwise. HH_i is a set of household characteristics that may relate to the pandemic impacts on household business, including the gender, education, and financial literacy of the household head, measured by four quizzes to test their understanding of financial management. We also considered whether the household received government aid during the pandemic. HHB_i is a set of household business characteristics including the use of digital technology (dummy), business adjustment to the pandemic (dummy), business sector, and location (namely, rural versus urban areas). The estimation procedure is the same as for equation (1). The sample whose household business income is null is excluded from the regression.

Table 2.3 shows the estimation results. See Table A2 in the Appendix for the estimated marginal effects. Regarding the household characteristics, while there are no significant factors that relate to the probability of experiencing a decline in business income in the combined regression, country-specific regressions suggest some notable relationships. First, female-headed households in Mongolia and Tajikistan were more likely to experience a decline in household business income. Second, the education level of the household head was not significantly related to the decline in household business income except for in Pakistan. Here, college graduates had a lower probability of experiencing an income decline compared to those without a high school diploma. Third, financial literacy lowered the probability in most countries except for Tajikistan and Uzbekistan, while significant effect was found only in Georgia and Kyrgyzstan. Last,

receiving government aid had mixed results by country; in Tajikistan, this is related to a lower probability of declining business income while the situation is reversed in Pakistan. It is possible that government aid in Pakistan was provided for vulnerable sectors. In our data, only households engaging in retail; transportation services; restaurants, hotels, and cafes; and personal services sectors received government aid.

When it comes to household business characteristics, some interesting results are also found. The business adjustment to the pandemic (see Figure 2.14) significantly lowered the probability of a decline in household business income. On average, adjustment to the pandemic decreased the probability of a decline in business income by as much as 11.3 pp. This strong effect provides evidence for the need for institutional support for the household business adjustment to the pandemic. The significant and negative relationship is observed in Afghanistan and Azerbaijan. Use of digital technology is also associated with a lower probability of experiencing a decline in business income. The relationship is significant in Azerbaijan and Tajikistan, while in Kyrgyzstan it is associated with a higher probability of business income decline.

The business sector is an important determinant of the COVID-19 pandemic effects on household business. Compared to the agriculture and fishery sector, almost all sectors (except for health and education) were more affected by the pandemic. The impacts were the greatest in restaurants, hotels, and cafes (22.3 pp higher probability than agriculture and fishery), followed by construction (18.4 pp), personal services (14.8 pp), retail (14.4 pp), industry and manufacturing (14.1 pp), and transportation services (12.1 pp). Although the pandemic negatively affected household business in all sectors, there seem to be some differences in its magnitude and policy support may need to prioritize some sectors over others. Significant and similar sectoral differences in the impact of the pandemic are also observed in Azerbaijan, Kyrgyzstan, Mongolia, Pakistan, Tajikistan, and Uzbekistan.

As expected, households in lockdown area had a higher likelihood of experiencing a decline in income for household business. The positive and significant association of lockdown with the likelihood of income decline is observed in many countries, while the opposite relationship is observed in Afghanistan. Lastly, household business in rural areas was less likely to experience income decline, which may be because of the business sector popular in rural areas (namely, agriculture and fishery).

Table 2.3. Factors Determining the Probability of a Decline in Household Business Income during the COVID-19 Pandemic

Variables	All	Afghanistan	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan
Family business income decline (mean)	0.481	0.400	0.542	0.522	0.44	0.341
	(1)	(2)	(3)	(4)	(5)	(6)
Household head female	0.167		-0.177	-0.123	-0.165	0.134
	(0.139)		(0.351)	(0.441)	(0.621)	(0.347)
Household head education						
• High school graduate	0.164	-0.427	1.741	-0.110	1.310	0.258
	(0.145)	(0.357)	(12.912)	(0.596)	(11.416)	(0.507)
• College graduate	0.159	-0.398	1.678	0.015	1.362	0.484
	(0.150)	(0.386)	(12.912)	(0.488)	(11.416)	(0.496)
Household head financial	-0.027	-0.128	-0.081	-0.413**	-0.135	0.279**
	(0.045)	(0.153)	(0.096)	(0.198)	(0.270)	(0.141)
Received government aid	-0.018	-0.569	0.278	0.130	-0.190	-0.334
	(0.121)	(0.389)	(0.256)	(0.401)	(0.553)	(0.322)

Business sector (base: agriculture and fishery)						
• Industry and manufacturing	0.619*	-0.072	0.184	0.131		1.348***
	(0.180)	(0.429)	(0.527)	(0.933)		(0.465)
• Construction	0.809*		0.344	1.145	0.497	0.592
	(0.193)		(0.482)	(1.255)	(1.273)	(0.563)
• Retail	0.634*	0.248	0.053	-0.175	0.855	0.447
	(0.130)	(0.448)	(0.427)	(0.610)	(0.850)	(0.337)
• Transportation services	0.532*	0.508	0.150	-1.418	-1.440	0.236
	(0.191)	(0.677)	(0.486)	(1.163)	(1.344)	(0.503)
• Restaurants, hotels, and cafes	0.983***	1.143	1.183**	-0.076		0.723
	(0.248)	(0.802)	(0.570)	(0.998)		(0.810)
• Health and education	0.196	0.800	-0.197	-0.856	-0.742	
	(0.231)	(0.557)	(0.456)	(1.139)	(1.466)	
• Personal services	0.648*	0.492	0.356	0.002	0.995	
	(0.201)	(0.769)	(0.518)	(0.906)	(1.059)	
Rural		-1.395***	-0.114	-1.184**	-1.542**	0.302
	(0.100)	(0.345)	(0.218)	(0.585)	(0.726)	(0.303)
Located in lockdown area	0.413*	-1.811**	2.430***	0.889**	-0.384	0.310
	(0.141)	(0.833)	(0.515)	(0.417)	(0.636)	(0.304)
Constant	-0.503	3.728***	-17.054	0.641	-13.288	-1.891**
	(0.310)	(1.148)	(12.912)	(0.995)	(11.416)	(0.950)
Observations	2278	311	486	136	84	326

VARIABLES	Mongolia	Pakistan	Tajikistan	Turkmenistan	Uzbekistan
Family business income decline (mean)	0.550	0.809	0.432	0.572	0.286
	(7)	(8)	(9)	(10)	(11)
Household head female	0.855**	0.898	1.115**	0.215	-0.290
	(0.435)	(1.328)	(0.519)	(0.607)	(0.587)
Household head education					
• High school graduate	-0.469	0.486	0.767	0.325	0.021
	(0.319)	(0.648)	(0.772)	(0.457)	(0.389)
• College graduate	0.525	2.361**	0.372	0.212	
	(0.484)	(1.202)	(0.740)	(0.454)	
Household head financial literacy	-0.008	-0.209	0.173	-0.177	0.056
	(0.128)	(0.302)	(0.206)	(0.195)	(0.188)
Received government aid		1.838**	-2.602**		
		(0.857)	(1.177)		
Business adjustment	-0.542	-0.807	0.852	-0.054	-0.430
	(0.460)	(0.590)	(0.555)	(0.524)	(0.375)
Use of digital technology	-0.442	0.362	-1.342**	0.230	0.055
	(0.351)	(0.654)	(0.660)	(0.532)	(0.370)
Business sector (base: agriculture and fishery)					
• Industry and manufacturing	1.559**	0.798	3.065**		1.453**
	(0.629)	(1.175)	(1.274)		(0.608)

• Construction	2.825**	0.089		0.657*	-0.034
	(1.155)	(1.065)		(0.358)	(0.719)
• Retail	2.093***	3.272***	0.765*	0.353	0.565
	(0.505)	(1.123)	(0.407)	(0.393)	(0.435)
• Transportation services	2.137***	1.516		-0.192	0.335
	(0.702)	(1.003)		(0.547)	(0.907)
• Restaurants, hotels, and cafes		-0.063	4.545**		0.779
		(0.842)	(1.794)		(0.990)
• Health and education					
• Personal services	2.765***	0.378	0.930	-0.134	-0.293
	(0.861)	(1.117)	(0.846)	(0.518)	(0.702)
Rural	0.016	-1.235*	0.454	0.202	0.290
	(0.458)	(0.651)	(0.448)	(0.281)	(0.361)
Located in lockdown area		2.620**	0.691*		-0.149
		(1.172)	(0.379)		(0.458)
Constant	1.003	-0.897	-1.453	0.636	-1.060
	(1.064)	(1.804)	(1.131)	(1.079)	(0.964)
Observations	269	131	154	229	192

Note: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

2.5.3 Impact of the COVID-19 Pandemic on Education

Figure 2.15 provides the percentage of households having at least one schoolgoing child (girl/boy). In Uzbekistan every sample household reported having a schoolgoing child in the household, followed by Afghanistan (82.8 percent). In Pakistan, a high percentage of households reported the presence of a schoolgoing child (79.3 percent). In Turkmenistan only 37 percent of the total household sample reported the presence of a schoolgoing child in the family.

Figure 2.15. Ratio of Households with Schoolgoing Children

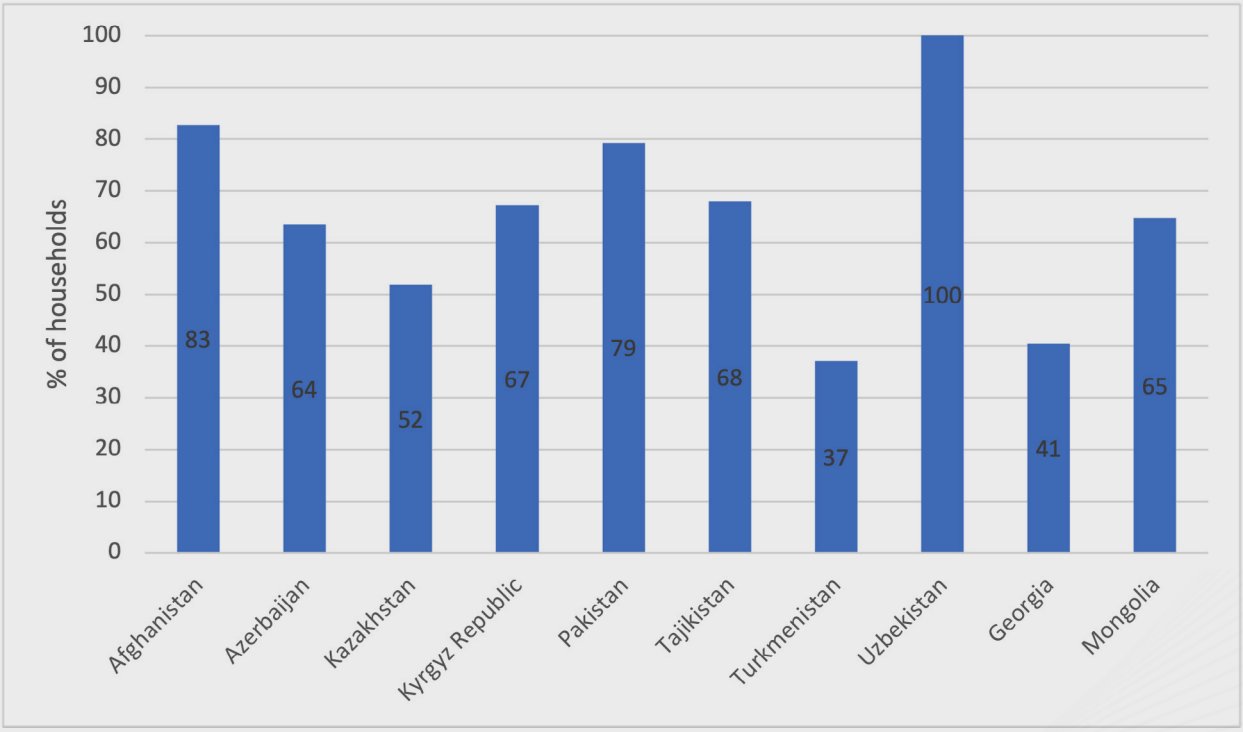


Figure 2.16 provides information on the status of online classes as reported by households with at least one child of schoolgoing age. Of households, 46.4 percent reported that schools were offering online classes for all the children in the household. Azerbaijan (93.4%), Georgia (91.6%), the Kyrgyz Republic (84.3%) and Kazakhstan (72.3%) reported a high percentage of schools offering online classes for their children. Surprisingly, in Turkmenistan no one reported the provision of online classes provided by the schools across the sample households. In Pakistan (74.8%), Afghanistan (63.5%), and Tajikistan (47.6%), a high proportion of households reported the unavailability of online classes for the participation of school-aged children in the household.

Figure 2.16. Provision of Online Classes

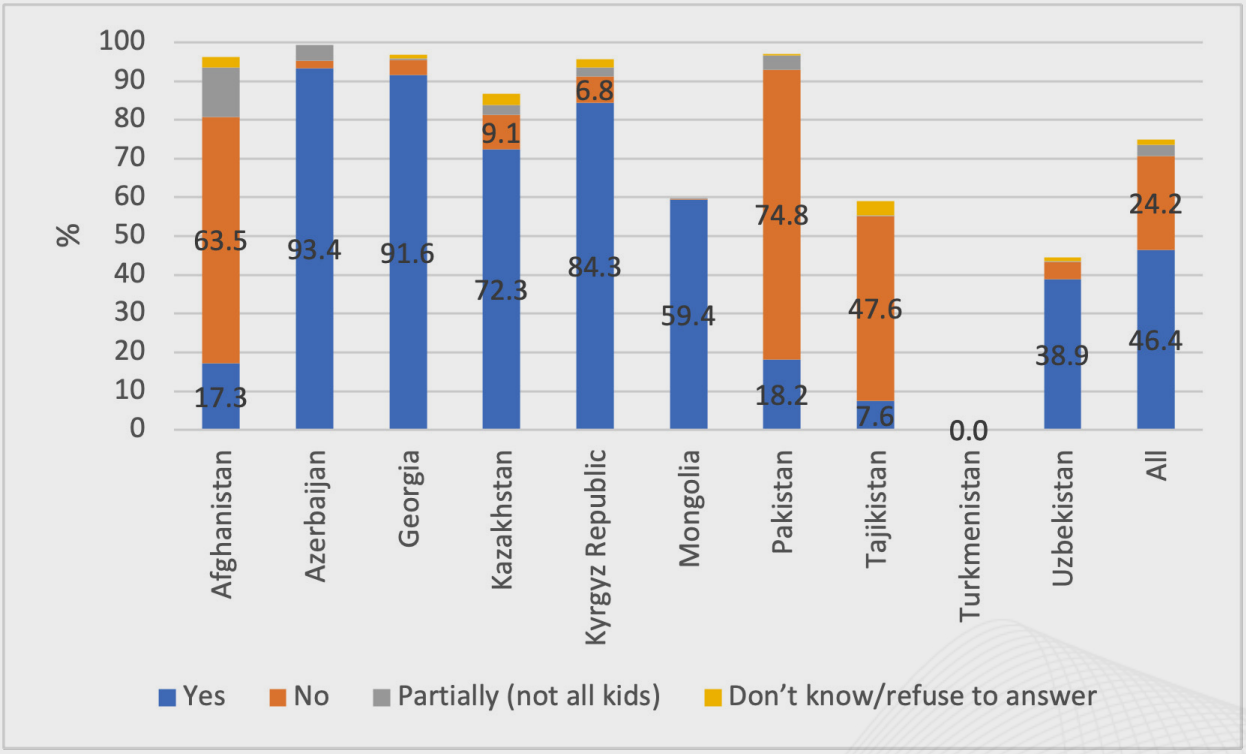


Figure 2.17 provides information on the percentage of households where children are attending online classes, if the schools are offering this. The region has an average of 84.4 percent of households reporting that their children are attending online classes. Countries such as Georgia (98.2 percent), Kazakhstan (94.2 percent), Uzbekistan (93.1 percent), and Azerbaijan (92.6 percent) reported a high rate of online class attendance, whereas Pakistan (33 percent), Tajikistan (32.1 percent), and Afghanistan (19.7 percent) reported a very high rate of absence from the online classes.

We further examine underlying factors associated with why some children could not fully take the online courses, based on child-level information. We estimate the following equation:

$$ONLCLS_i = \gamma_0 + \gamma_1 CH_{ij} + \gamma_2 HH_i + \gamma_3 COVID_i + \in_i \quad (3)$$

in which $ONLCLS_i$ is a dummy variable that takes the value of 1 when the children are attending all (most of) the classes and 0 if they do not take most of the classes. CH_i is a set of dummy variables related to child j of household *i*; it includes the gender of the child and his/her role in household chores, availability of computers, availability of internet and internet speed. HH_i is a set of household characteristics which includes average income; education, age, and gender of household head; household size (measured by the total number of household members); and the location of the household in a lockdown area. Because of the sample limitations, we estimate the above equation as a logit model for the pooled data of ten countries. The results of this regression analysis should be interpreted cautiously, because the sample used is limited to those children who study in schools that offer online classes.

Figure 2.17. Children Attending Online Classes

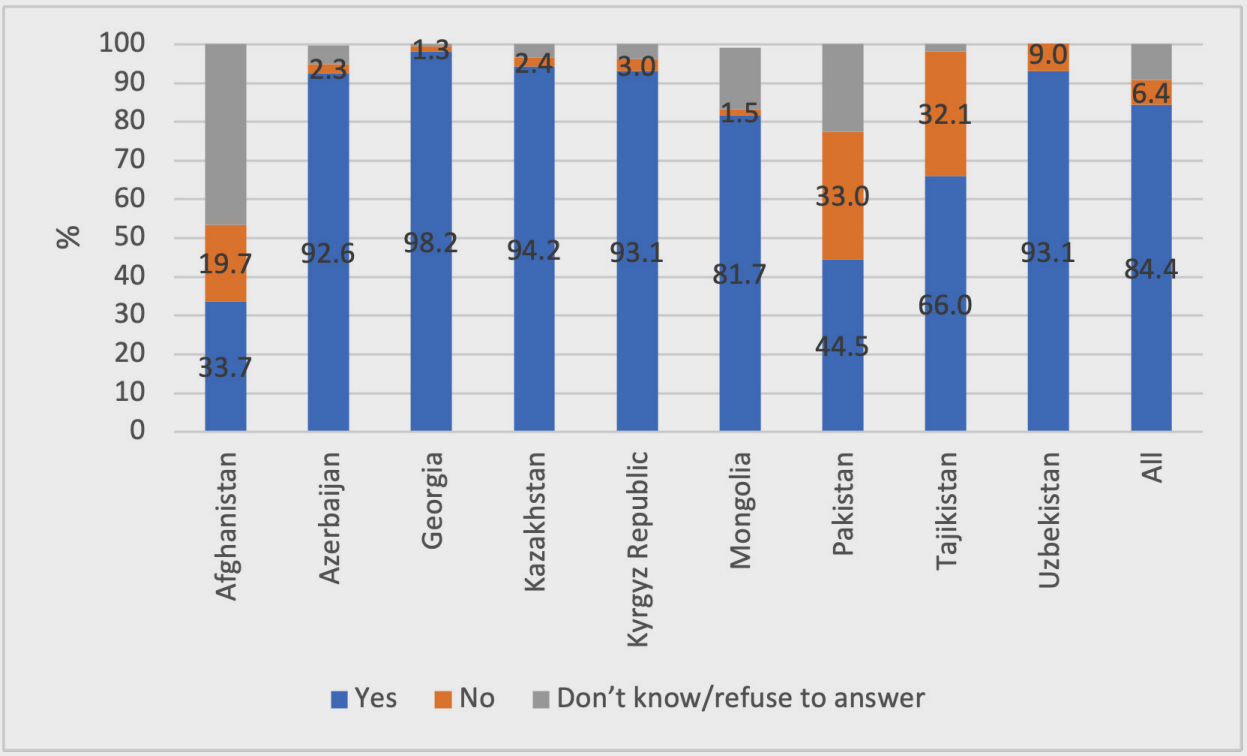


Table 2.4 presents the results for the determinants of the online course attendance. To begin with, household characteristics matter for the intensity of online class taking. Children from households whose head is well educated are more likely to take all online classes, which is consistent with the case in ASEAN (Morgan and Long 2021). The gender of the household head is uncorrelated with the intensity of the online class attendance of children; however, the age of the household head is related to the level of online course attendance. This is also consistent with the ASEAN countries (Morgan and Long 2021). Children in households whose heads are younger are less likely to take online courses; while older children are more likely to take online classes. This may be because the older the household head is (30 years to 49 years), the more resilient the household to external shocks and therefore children are given more educational resources. With regard to COVID-19-induced variables, living in a lockdown area has no significant impact on taking all online courses. Children engaged in household chores are less likely to attend all the online classes. As expected, children with no computer are less likely to attend the online classes; however, child gender does not have a significant impact on the figures.

Table 2.4. Factors Determining the Probability of Attending Online School during the COVID-19 Pandemic

Variables	(1)
Household head female	0.0373
	(0.250)
Child gender (female)	-0.0931
	(0.130)
Household head education	
• Secondary school graduate	0.381
	(0.372)
• High school graduate	0.374*
	(0.197)
• College graduate	-0.0207
	(0.143)
Household head age group (base: 60 or above)	
• 20-29	0.253
	(0.173)
• 30-39	0.424**
	(0.185)
• 40-49	0.739***
	(0.236)

• 50–59	0.0847
	(0.244)
Average household income, log	0.0112
	(0.0312)
Child engaging in household chores	-0.494***
	(0.166)
No computer	-0.674***
	(0.140)
No internet	0.171
	(0.153)
Slow internet	0.0298
	(0.158)
Located in lockdown area	-0.0987
	(0.136)
Constant	-0.208
	(0.405)

Note: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.

2.6 CONCLUDING REMARKS

The COVID-19 outbreak has heavily affected households in the CAREC member countries, Afghanistan, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, PRC, Tajikistan, Turkmenistan, and Uzbekistan. The COVID-19 crisis and the resulting falls in labor demand and supply owing both to policy interventions such as lockdowns, 'social distancing,' travel restrictions, and school closures and uncertainties regarding future economic outcomes are having a severe impact on employment and education in the CAREC member countries.

In order to better understand these impacts, ADBI has conducted CATIs with households in ten CAREC countries (excluding the PRC). This chapter estimates the impact of COVID-19 on employment, household business, and education in December 2020 compared with June 2020. The samples are representative of the income classes and the rural and urban population in each country.

While the findings are mostly consistent with results on ASEAN (Morgan and Trinh 2020), there is some variation owing to differences in economic structures. We provide results for all countries combined and for each country, finding some similarities and differences across the CAREC countries. The chapter presents several interesting results.

Firstly, 24 percent of employees in the sample experienced either losing their job (temporarily or permanently) or a workload cut in December 2020 compared to June 2020. This number varies greatly by country, from 5 percent (Uzbekistan) to 67 percent (Pakistan).

Secondly, overall, there is no major difference in the reasons why household heads did not work in December 2020 compared to June 2020; however, there are differences by country. The share of those missing work owing to lockdown reduced from 9 percent in June 2020 to 7 percent in December 2020. However, in Georgia, the share of household heads not working owing to taking care of family members increased from 4 percent in June 2020 to 13 percent in December 2020. Such large changes could be associated with the lockdown of schools or online education for small children.

Our econometric analysis suggests that many different factors are related to the likelihood of losing jobs during the pandemic. On average, less educated and younger household heads were more likely to experience job loss owing to the pandemic. Households with income from household businesses or self-employment tended to experience job loss, whereas those with income from wages were less likely to lose their job, while there are notable differences by country.

Thirdly, overall, 24 percent of households answered that their businesses were closed owing to the COVID-19 pandemic, of which 7 percent were closed permanently while 17 percent were closed temporarily. More than 40 percent of household businesses had lower income in December 2020 compared to June 2020. No/fewer customers (52 percent) and temporary closure owing to restrictions (30 percent) are two major reasons for the reduction in household business income.

Regarding the factors associated with the likelihood of experiencing a decline in household business income, business adjustment to the pandemic and the household business sector are key determinants. On average, households who adjusted their business model to the pandemic were 11.3 percent less likely to experience a decline in

business income compared to those who did not. Household business in some tourism-related sectors such as restaurants, hotels, and cafes were much more affected by the pandemic than others like agriculture and fishery.

Lastly, overall, only 49 percent of households with schoolgoing children in the family reported the provision of online classes offered by the schools. A large proportion of households in Pakistan (74.8 percent), Afghanistan (63.5 percent), and Tajikistan (47.6 percent) reported a lack of availability of online classes for schoolgoing children in the household. Children in many households in Afghanistan (33.7 percent), Pakistan (44.5 percent), and Tajikistan (66 percent) could not attend online classes even if their schools had adapted to online classes. Children with responsibility for household chores are less likely to attend all online classes. Also, the availability of computers for each child increases the chance of them attending online classes.

REFERENCES

Adian I, Doumbia D, Gregory N, Ragoussis A, Reddy A, and Timmis J, 2020. 'Small and Medium Enterprises in the Pandemic: Impact, Responses and the Role of Development Finance.' Washington, DC: World Bank Group. Available at https://openknowledge.worldbank.org/handle/10986/34552. Accessed 30 July 2022

Apedo-Amah M et al., 2020. 'Unmasking the Impact of COVID-19 on Businesses: Firm Level Evidence from Across the World.' Washington, DC: World Bank Group. Available at https://openknowledge.worldbank.org/handle/10986/34626. Accessed 30 July 2022

Azevedo JP et al., 2022. 'The State of the Global Education Crisis: A Path to Recovery' (English). Washington, DC: World Bank Group. Available at http://documents.worldbank.org/curated/en/416991638768297704/The-State-of-the-Global-Education-Crisis-A-Path-to-Recovery. Accessed 30 July 2022

Azhgaliyeva D, Mishra R, Long T, Morgan P, and Kodama W, 2022a. 'Impacts of COVID-19 on Households' Business, Employment and School Education: Evidence from Household Survey in CAREC Countries,' ADBI Working Paper 1335. Tokyo: Asian Development Bank Institute. Available: https://doi.org/10.56506/SPWH1535

Azhgaliyeva D, Mishra R, Long T, and Morgan P, 2022b. 'Impacts of COVID-19 on Households in CAREC Countries.' In *COVID-19 and Economic Recovery Potential in the CAREC Region*, Abdullaev I, Abbas Q, Azhgaliyeva D, Samad G, and Akhmedov S (Eds), CAREC Institute and ADBI

Bartik AW, Bertrand M, Cullen Z, Glaeser EL, and Luca M, 2020. 'The Impact of COVID-19 on Small Business Outcomes and Expectations,' *PNAS*, 117(30) 17656-17666

Beirne J, Morgan P, and Sonobe T, 2021. *COVID-19 Impacts and Policy Options: An Asian Perspective*, ADBI Press, https://www.adb.org/publications/covid-19-impacts-and-policy-options-asian-perspective

Blavatnik School of Government, 2021. *COVID-19 Government Response Tracker.* https://www.bsg.ox.ac.uk/research/research-projects/covid-19-government-response-tracker

Brinca PJ, Duarte B, and Castro MF, 2020. 'Is the COVID-19 Pandemic a Supply or a Demand Shock?' *Economic Synopses*, No. 31, 2020. https://research.stlouisfed.org/publications/economic-synopses/2020/05/20/is-the-covid-19-pandemic-a-supply-or-a-demand-shock

Burgess S and Sievertsen HH, 2020. 'Schools, Skills, and Learning: The Impact of COVID-19 on Education.' Available at https://voxeu.org/article/impact-covid-19-education. Accessed on 3 March 2022

Candia B, Coibion O, and Gorodnichenko Y, 2020. 'Communication and the Beliefs of Economic Agents.' NBER Working Paper, 27800. https://doi.org/10.3386/w27800

Carlsson M, Dahl GB, Öckert B, and Rooth DO, 2015. 'The Effect of Schooling on Cognitive Skills.' *Review of Economics and Statistics* 97(3): 533-547

Dai H et al., 'Behavioural nudges increase COVID-19 vaccinations.' *Nature* 597: 404-409

Engzella P, Frey A, and Verhagena M, 2021. 'Learning Loss Due to School Closures During the COVID-19 Pandemic.' *PNAS*, 118(17): e2022376118

Fairlie R and Fossen FM, 2022. 'The early impacts of the COVID-19 pandemic on business sales.' *Small Business Economics*, 58: 1853-1864

Giannini S, 2020. 'Distance Learning Denied. Over 500 Million of the World's Children and Youth Not Accessing Distance Learning Alternatives.'
From https://world-education-blog.org/2020/05/15/distance-learning-denied/
(accessed 5 March 2022)

Hale T et al, 2021. 'A Global Panel Database of Pandemic Policies (Oxford COVID-19 Government Response Tracker).' *Nature Human Behaviour* 5:529-538

Hallgarten J, 2020. 'Evidence on Efforts to Mitigate the Negative Educational Impact of Past Disease Outbreaks.' Institute of Development Studies. Reading, UK: Education Development Trust (Report 793)

Hassan TA, Hollander S, van Lent L, Schwedeler M, and Tahoun A, 2020. 'Firm-Level Exposure to Epidemic Diseases: COVID-19, SARS, and H1N1.' NBER Working Paper 26971. https://www.nber.org/papers/w26971

ILO and ADB, 2020. 'Tackling the COVID-19 Youth Employment Crisis in Asia and the Pacific.' https://www.adb.org/sites/default/files/publication/626046/covid-19-youth-employment-crisis-asia-pacific.pdf

Inoue H and Todo Y, 2020. 'The propagation of economic impacts through supply chains: The case of a mega-city lockdown to prevent the spread of COVID-19.' *PLoS ONE*, 15(9): e0239251

Lavy V, 2015. 'Do Differences in Schools' Instruction Time Explain International Achievement Gaps? Evidence from Developed and Developing Countries.' *The Economic Journal* 125(588): 397-424

Meyer BH, Prescott B, Sheng XS, 2022. 'The impact of the COVID-19 pandemic on business expectations.' *Int J Forecast*, 38(2): 529-544

Morgan PJ and Trinh QL, 2021. 'Impacts of COVID-19 on Households in ASEAN Countries and Their Implications for Human Capital Development.' ADBI Working Paper 1226. Tokyo: Asian Development Bank Institute.
https://www.adb.org/publications/impacts-covid-19-households-asean-countries

Morgan P, Trinh QL, and Kim KH, 2022. 'Impacts of COVID-19 on Households in ASEAN Countries and their Implications for Human Capital Development: Medium-run Impacts and the Role of Government Support.' ADBI Working Paper 1312. Tokyo: Asian Development Bank Institute. Available at
https://www.adb.org/publications/impacts-of-covid-19-on-households-in-asean-countries-and-their-implications-for-human-capital-development-medium-run-impacts-and-the-role-of-government-support

Reimers FM, 2022. 'Learning from a Pandemic. The Impact of COVID-19 on Education Around the World.' *In Primary and Secondary Education During Covid-19: Disruptions to Educational Opportunity During a Pandemic*, Ed. FM Reimers. Springer

Sonobe T, Takeda A, Yoshida S, and Truong HT, 2022. 'The Impacts of the COVID-19 Pandemic on Micro, Small, and Medium Enterprises in Asia and Their Digitalization Responses.' ADBI Working Paper 1241. Tokyo: Asian Development Bank Institute. Available: https://www.adb.org/sites/default/files/publication/692466/adbi-wp1241.pdf

SunY, Bao Q, and Lu Z, 2021. 'Coronavirus (Covid-19) outbreak, investor sentiment, and medical portfolio: Evidence from China, Hong Kong, Korea, Japan, and U.S.' *Pacific-Basin Finance Journal*, 65: 101463

UNESCO, 2020. '290 Million Students Out of School Due to COVID-19: UNESCO Releases First Global Numbers and Mobilizes Response.' 2020-03-12. Retrieved from https://web.archive.org/web/20200312190142/https:/en.unesco.org/news/290-million-students-out-school-due-covid-19-unesco-releases-first-global-numbers-and-mobilizes

UNICEF, 2020. 'Covid-19: Are Children to Continue Learning During School Closures? A Global of the Potential Reach of Remote Learning Policies Data from 100 Countries.' Available at https://www.unicef.org/brazil/media/10006/file/remote-learning-factsheet.pdf Accessed on 30 July 2020

APPENDIX

Table A1. Factors Determining the Probability of Job Loss during the COVID-19 Pandemic, Marginal Effect

VARIABLES	All	Afghanistan	Georgia	Kazakhstan	Kyrgyzstan
	(1)	(2)	(3)	(4)	(5)
Household head female	-0.042***	-0.055	0.000	-0.013	-0.146***
	(0.011)	(0.036)	(0.025)	(0.019)	(0.040)
Household head education					
• High school graduate	-0.011	0.142	-0.055*	-0.024	-0.039
	(0.013)	(0.185)	(0.032)	(0.055)	(0.039)
• College graduate	-0.034***	0.147	-0.092***	-0.022	-0.119***
	(0.013)	(0.184)	(0.030)	(0.053)	(0.040)
Age group (base: 50-59)					
• 20-29	0.030**	0.029	0.011	0.068**	0.075
	(0.013)	(0.044)	(0.048)	(0.033)	(0.052)
• 30-39	0.026***	-0.016	0.026	0.019	0.002
	(0.010)	(0.032)	(0.034)	(0.024)	(0.035)
• 40-49	0.022**	0.040	0.006	0.008	-0.090***
	(0.010)	(0.033)	(0.028)	(0.023)	(0.032)
Income source					
• Agriculture	-0.011	-0.001	0.001	0.039	0.008
	(0.009)	(0.033)	(0.032)	(0.025)	(0.028)

• Household business	0.097***	0.367***	-0.027	-0.026	-0.011
	(0.008)	(0.014)	(0.039)	(0.043)	(0.028)
• Wage/salary	-0.042***	-0.122***	-0.002	0.002	-0.045*
	(0.008)	(0.032)	(0.029)	(0.028)	(0.027)
Rural	0.020**	0.244***	0.031	0.011	-0.052*
	(0.010)	(0.050)	(0.025)	(0.022)	(0.031)
Located in lockdown area	0.000	-0.017	-0.012	0.037*	0.052*
	(0.008)	(0.031)	(0.029)	(0.020)	(0.030)
Observations	7653	900	621	819	824

VARIABLES	Mongolia	Pakistan	Tajikistan	Turkmenistan	Uzbekistan
	(6)	(7)	(8)	(9)	(10)
Household head female	-0.021	0.041*	-0.053	-0.004	-0.135**
	(0.033)	(0.021)	(0.037)	(0.040)	(0.053)
Household head education					
• High school graduate	-0.012	-0.007	0.100**	-0.017	-0.082*
	(0.032)	(0.018)	(0.051)	(0.036)	(0.049)
• College graduate	-0.055	-0.008	0.003	-0.008	-0.085*
	(0.035)	(0.024)	(0.054)	(0.035)	(0.044)
Age group (base: 50–59)					
• 20–29	0.033	-0.006	0.041	-0.039	0.029

	(0.049)	(0.021)	(0.044)	(0.036)	(0.043)
• 30–39	0.083**	0.016	0.054	0.009	0.021
	(0.033)	(0.020)	(0.033)	(0.034)	(0.031)
• 40–49	0.064**	0.020	0.093***	-0.023	0.016
	(0.029)	(0.020)	(0.033)	(0.034)	(0.030)
Income source					
• Agriculture	-0.129***	0.015	0.045	-0.013	0.000
	(0.050)	(0.017)	(0.028)	(0.023)	(0.028)
• Household business	0.154***	0.014	-0.005	-0.003	-0.032
	(0.027)	(0.024)	(0.034)	(0.025)	(0.036)
• Wage/salary	0.064**	0.047**	-0.078***	0.047	-0.050**
	(0.030)	(0.021)	(0.027)	(0.048)	(0.025)
Rural		0.014	-0.010		-0.048
		(0.029)	(0.027)		(0.040)
Located in lockdown area	-0.045	0.041**	-0.002	-0.015	0.015
	(0.035)	(0.020)	(0.031)	(0.023)	(0.026)
Observations	7653	777	900	621	819

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Samples whose household head *(HH)* age is 60 or above are excluded because most heads are retired. Afghanistan is included in the combined regression but excluded from the separate regression because only 2.63 percent of household heads experienced job loss during June to December 2020.

Table A2. Factors Determining the Probability of a Decline in Household Business Income during the COVID-19 Pandemic, Marginal Effect

VARIABLES	All	Afghanistan	Azerbaijan	Georgia	Kazakhstan	Kyrgyzstan
	(1)	(2)	(3)	(4)	(5)	(6)
Household head female	0.037		-0.038	-0.026	-0.049	0.033
	(0.031)		(0.075)	(0.094)	(0.117)	(0.072)
Household head education						
• High school graduate	0.037	-0.073	3.728	-0.024	2.528	0.056
	(0.032)	(0.060)	(276.510)	(0.128)	(198.037)	(0.106)
• College graduate	0.035	-0.065	3.594	0.003	2.631	0.100
	(0.033)	(0.064)	(276.510)	(0.104)	(198.037)	(0.103)
Household head financial literacy	-0.006	-0.021	-0.017	-0.088**	-0.042	0.059**
	(0.010)	(0.026)	(0.020)	(0.040)	(0.051)	(0.029)
Received government aid	-0.004	-0.095	0.059	0.028	-0.028	-0.067
	(0.027)	(0.065)	(0.055)	(0.086)	(0.105)	(0.067)
Business adjustment	-0.113***	-0.209***	-0.265***	-0.011	0.071	-0.071
	(0.025)	(0.068)	(0.056)	(0.109)	(0.128)	(0.066)
Use of digital technology	-0.009	-0.091	-0.282*	-0.027	-0.030	0.128**
	(0.027)	(0.069)	(0.168)	(0.102)	(0.165)	(0.063)
Business sector (base: agriculture and fishery)						
• Industry and manufacturing	0.141***	-0.012	0.041	0.028		0.305***

	(0.041)	(0.072)	(0.116)	(0.198)		(0.104)
• Construction	0.184***		0.076	0.219	0.110	0.128
	(0.044)		(0.106)	(0.214)	(0.281)	(0.128)
• Retail	0.144***	0.043	0.012	-0.038	0.186	0.095
	(0.029)	(0.078)	(0.095)	(0.130)	(0.187)	(0.073)
• Transportation services	0.121***	0.089	0.033	-0.289	-0.258	0.049
	(0.044)	(0.121)	(0.107)	(0.203)	(0.208)	(0.107)
• Restaurants, hotels, and cafes	0.223***	0.202	0.238**	-0.016		0.159
	(0.055)	(0.142)	(0.110)	(0.214)		(0.189)
• Health and education	0.044	0.141	-0.044	-0.182	-0.150	
	(0.052)	(0.099)	(0.101)	(0.230)	(0.277)	
• Personal services	0.148***	0.086	0.078	0.001	0.215	
	(0.046)	(0.137)	(0.113)	(0.194)	(0.223)	
Rural	0.092***	-0.304**	0.520***	0.190**	-0.062	0.079
	(0.031)	(0.137)	(0.101)	(0.084)	(0.117)	(0.062)
Located in lockdown area	-0.072***	-0.236***	-0.024	-0.253**	-0.288**	0.075
	(0.022)	(0.053)	(0.047)	(0.118)	(0.128)	(0.063)
Observations	2278	311	486	136	84	326

VARIABLES	Mongolia	Pakistan	Tajikistan	Turkmenistan	Uzbekistan
	(7)	(8)	(9)	(10)	(11)
Household head female	0.164**	0.105	0.213**	0.051	-0.055
	(0.081)	(0.155)	(0.097)	(0.144)	(0.113)
Household head education					
• High school graduate	-0.079	0.057	0.153	0.068	0.003
	(0.060)	(0.075)	(0.151)	(0.106)	(0.075)
• College graduate	0.112	0.277**	0.069	0.036	
	(0.091)	(0.133)	(0.146)	(0.106)	
Household head financial literacy	-0.001	-0.025	0.036	-0.045	0.011
	(0.024)	(0.035)	(0.041)	(0.046)	(0.036)
Received government aid		0.216**	-0.577**		
		(0.094)	(0.232)		
Business adjustment	-0.106	-0.095	0.178*	-0.006	-0.082
	(0.087)	(0.067)	(0.107)	(0.124)	(0.071)
Use of digital technology	-0.072	0.043	0.255**	0.052	0.010
	(0.066)	(0.077)	(0.124)	(0.126)	(0.071)
Business sector (base: agriculture and fishery)					
• Industry and manufacturing	0.352***	0.131	0.534***	0.000	0.325**

• Construction	(0.126)	(0.181)	(0.132)	(.)	(0.139)
	0.538***	0.016		0.156*	-0.006
• Retail	(0.121)	(0.189)		(0.083)	(0.124)
	0.447***	0.337***	0.153*	0.086	0.113
• Transportation services	(0.086)	(0.117)	(0.080)	(0.095)	(0.089)
	0.454***	0.222		-0.047	0.064
• Restaurants, hotels, and cafes	(0.112)	(0.140)		(0.134)	(0.183)
		-0.011	0.632***		0.162
• Health and education		(0.151)	(0.080)		(0.227)
• Personal services					
	0.532***	0.065	0.188	-0.033	-0.047
Rural	(0.098)	(0.190)	(0.175)	(0.128)	(0.107)
		0.308**	0.142**		-0.027
Located in lockdown area		(0.129)	(0.071)		(0.087)
	0.002	-0.145**	0.093	0.047	0.056
Observations	(0.086)	(0.072)	(0.087)	(0.066)	(0.069)
	269	131	154	229	192

Note: Standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1.