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Resilience against the Pandemic: the Impact of COVID-19 on Migration and Household Welfare in Tajikistan

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Abstract

Tajikistan's economy hinges heavily on remittance inflows mainly from Russia that have exceeded a quarter of annual GDP in recent years. The COVID-19 pandemic is likely to have adverse effects on the economy through damage to migration and remittances. We use a unique monthly household panel dataset that covers the period both before and after the outbreak to examine the impacts of COVID-19 on a variety of household welfare outcomes. We provide several brand-new findings. First, the adverse effects of the pandemic were particularly pronounced in April and May in 2020 but gradually diminished afterward, with some indicators leveling out in autumn. Second, in contrast to expectation, the pandemic had a sharp but only transitory effect on the stock of migrants working abroad in the spring. Some expected migrants were forced to remain in their home country during the border closures, while some of the incumbent migrants expecting to return were not able to do so, and remained employed in their destination countries. Both departures and returns started to increase again from summer. Employment and remittances of the migrants quickly recovered to levels seen in previous years, after a sharp decline in April and May. Third, regression analyses reveal that both migration and remittances have helped to mitigate the negative economic outcomes at home during the "with-COVID-19" period, suggesting that they served as a form of insurance. Overall, the unfavorable effects of the COVID-19 pandemic were severe and temporary right after the outbreak, but households with migrants were more resilient against the pandemic.

Keywords: COVID-19; remittance; migration; Tajikistan; household welfare.
JEL Classification Codes: F22, F24, O12, O15

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1. Introduction

This study provides brand-new evidence on the impact of the Coronavirus disease 19 (COVID-19) pandemic on migration and household welfare in Tajikistan by using a unique high-frequency household panel dataset that covers the period both before and after the outbreak. By doing so, we aim to inform academics and policymakers on how the pandemic has affected households in a remittance-dependent country.

The COVID-19 pandemic has affected households all over the world in various ways. Adverse effects such as limited mobility and economic recession are not confined within national borders but are likely to spill over to other countries. If we limit our scope to developing countries, a major channel of international transmission of the pandemic is relevant to remittance inflows, since remittances sent by international migrants are now the largest source of external financing for developing countries, exceeding the amount of official development assistance (ODA) and foreign direct investment (FDI) (World Bank 2020a). The pandemic is potentially devastating to those countries because of economic downturns in destination countries, now under lockdown and suffering from oil price crashes, restrictions on remittances under stringent movement bans, and the cancelation of planned migration (IOM 2020). Indeed, remittance inflows to developing countries started to decline after the outbreak in several countries (Kikkawa et al. 2020). In April, the World Bank released a pessimistic estimate that remittances to low- and middle-income countries are projected to fall by 19.7% on average, with the largest at 27.5% in Europe and Central Asia by region (World Bank 2020b).[1]

In this study, we examine the case of Tajikistan. Tajikistan is one of the most remittance-dependent countries in the world in terms of remittance inflows relative to GDP, which were estimated to be 28.2% in 2019, making it the fifth-ranked country in the world. The country has expanded international migration and remittance inflows over the two decades since

[1] https://www.worldbank.org/en/news/press-release/2020/04/22/world-bank-predicts-sharpest-decline-of-remittances-in-recent-history.

the end of the civil war in 1998. Remittance inflows relative to GDP reached more than 40% in 2007 and have remained at a high level of more or less 30% to date, with a temporary decline occurring during the 2008 global financial crisis. They also declined under a series of exogenous adverse events in the mid-2010s, such as the economic downturn and tighter migration policy in Russia. In Tajikistan, more than 40% of households have at least one international migrant, and most migrants from Tajikistan are working-age young men residing in rural areas without a job before leaving the country (JICA Ogata Research Institute 2020; Shimizutani and Yamada 2020). Given the high prevalence of migration, a substantial decline in remittance inflows may be devastating to household welfare in Tajikistan if the COVID-19 pandemic has indeed caused damage to international migration and remittances.

The first case of the COVID-19 in Tajikistan was officially declared on April 30, much later than in other countries. In contrast to neighboring Kyrgyzstan and Uzbekistan, Tajikistan was reluctant to take strong measures to prevent the pandemic, imposing less strict restrictions on movement across international borders and lockdowns in cities. Tajikistan started to close its borders to neighboring countries in March, but schools resumed on April 1 after the spring holidays. In April, the government held a meeting on the pandemic and announced temporary restrictions on the entry and exit of all foreign citizens through all checkpoints at state borders. It was not until April 23 that Tajikistan started to take preventive measures to close schools, while professional sporting matches were held until the end of April.[2]

Even after the first case was confirmed at the end of April, Tajikistan did not impose a total lockdown but instead pursued a more relaxed approach. In May, a ban on mass events was introduced and all people were required to wear face masks outside their houses. The number of new confirmed cases grew, reaching 100 persons per day on May 14 and exceeding 200 persons per day from May 15 to 22 (Figure 1). The number of new confirmed cases declined to less than 100 persons per day from June and has remained lower than 50 persons per day to date with

[2] Reuters “Tajikistan closes schools, suspends food exports due to coronavirus” (April 25), https://uk.reuters.com/article/uk-health-coronavirus-tajikistan/tajikistan-closes-schools-suspends-food-exports-due-to-coronavirus-idUKKCN2270GL.

some fluctuations. At the end of November 2020, the cumulative number of confirmed cases is close to 12,000 and the number of deaths is 86, which is much smaller than other Central Asian countries.[3] Given these numbers, which are considered to have been underestimated,[4] the adverse effects of the COVID-19 pandemic seem to have been less serious in Tajikistan, and the country has largely succeeded in containing the pandemic compared with other countries.

However, this is not the end of the COVID-19 pandemic story in Tajikistan, since the main destination country of migrants is seriously affected. Tajik international migrants are highly concentrated in Russia because Tajikistan maintained close economic ties with Russia as a former Soviet Republic in Central Asia (JICA-RI 2020). In 2018, more than 90% of the Tajik migrants headed to Russia to work as marginal laborers in the construction and service sectors (Shimizutani and Yamada 2020),[5] suggesting that Tajik labor migrants are low-skilled workers vulnerable to changes in the Russian economy and migration policy. Indeed, remittance inflows to Tajikistan declined in the mid-2010s, because of a series of adverse events in Russia, such as stricter immigration policies effective in 2015, the oil price crash and economic recession after the 2014 Olympic Games, the annexation of Crimea, and large fluctuations in the exchange rate with the Russian ruble.

In Russia, the first case of the COVID-19 was confirmed on January 31, three months before Tajikistan. The number of confirmed cases started to increase beginning in March and the first death was reported in mid-March. The country closed its international borders to foreigners on March 18 and declared a period of no work to urge people to stay home until May 11, which was extended two times.[6] In contrast to Tajikistan, the Russian government has imposed a

[3] As of November 29, 2020, the cumulative number of confirmed cases (deaths) is 12,155 (86) in Tajikistan, 131,659 (1,990) in Kazakhstan, 72,870 (608) in Uzbekistan and 72,807 (1,271) in Kyrgyzstan.
[4] For example, Catherine Putz "Are There Really No COVID-19 Cases in Tajikistan?" *The Diplomat* https://thediplomat.com/2020/04/are-there-really-no-covid-19-cases-in-tajikistan.
[5] The jobs in the destination countries are often irrelevant to migrants' educational or professional backgrounds, and young people expecting to migrate are reluctant to take on professional education and choose instead to work at unskilled jobs in Russia. Such positions offer the opportunity to earn much more than they would as skilled workers in Tajikistan. This phenomenon is called the "forsaken schooling trap" (Abdulloev, Epstein, and Gang 2019; Abdulloev 2020).
[6] Radio Free Europe/Radio Liberty "Tajik Workers Face Dire Future As Russia Closes Borders Over

variety of strict measures such as closing public institutions and canceling events, as well as instituting lockdowns in many large cities. Under these circumstances, newspapers reported that many migrants expecting to depart for or return from their destination countries had been forced to stay.[7] Meanwhile, the number of new confirmed cases per day expanded rapidly to exceed 10,000 in the first half of May, with a gradually declining trend towards the end of August. However, following this, the number of confirmed cases started to grow much more quickly again, exceeding 10,000 per day at the beginning of October, and 20,000 in November. The cumulative number of confirmed cases reached one million on September 2, two million on November 20, and was 2,249,890 as of the end of November, ranked 4th in the world and 57.5 times more than Tajikistan. The number of deaths exceeded 10,000 on October 6 and totaled 12,155 at the end of November – 141 times more than Tajikistan.[8]

In this study, we provide brand-new evidence on the impact of the COVID-19 on migration and household welfare using a dataset covering both before and after the pandemic, up to November 2020. To our knowledge, there has been little research on the impact of the pandemic in the post-COVID period using a dataset collected both before and after the outbreak

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Coronavirus" (March 18), https://www.rferl.org/a/tajik-workers-face-dire-future-as-russia-closes-borders-over-coronavirus/30495815.html. The article reports that the high season for many Tajik migrants to depart for Russia is from late March to the end of April and "large crowds of people gathered near the main ticket office at Dushanbe's railway station on March 17, with people trying to get a refund for tickets they had bought in advance since now they are unable to enter Russia." Many migrants tried to use trains or buses for Russia that take several days of travel through Uzbekistan and Kazakhstan, but those countries also shut their borders.

[7] According to *Eurasianet*, "Russia's Interior Ministry told daily Moscow-based newspaper Komsomolskaya Pravda on April 3 that it is estimated there were still 507,000 Tajik nationals in the country. All routes home have been closed to them. The Tajik civilian aviation body on March 19 ruled that all air traffic would be suspended immediately as a protective measure. Trains were stopped too." ("Coronavirus Leaves Tajikistan's Labor Migrants High and Dry: Those who made it to Russia Before the Scale of the Crisis Became Evident are now Stranded" (April 20), https://eurasianet.org/coronavirus-leaves-tajikistans-labor-migrants-high-and-dry. The article also reports that Tajikistan's ambassador to Russia asked the heads of companies in Russia to refrain from laying off Tajik workers. According to Nikkei Asian Review, "Last year, there were around 500,000 Tajik migrants working in Russia, but many of them are now stuck in Tajikistan." https://asia.nikkei.com/Spotlight/Coronavirus/Tajikistan-finally-confronts-virus-as-Central-Asian-economies-reel

[8] The population is estimated to be 145.9 million in Russia and 9.5 million in Tajikistan in 2020 (U.N. data).

began.[9] Among the few papers related to international migration, Barker et al. (2020) used panel data in Bangladesh and Nepal to show a decline in earnings and a greater prevalence of food insecurity among households with migrants up to June, 2020. Mobarak, Mushfiq, and Vernot (2020) show a decline in labor supply in the village, labor migration, remittance earnings, and total incomes in rural Nepal in May 2020. Honorati, Yi, and Choi (2020) report that half of the Armenian workers expecting to migrate were not able to leave for Russia and lost their jobs because of the suspension of construction activities as of June, which would result in reduced remittances.[10] These papers commonly focused on the very early impact of COVID-19 in spring and found sharp and adverse effects on household income and food security. Building on those papers, we contribute to both policy debates and academic literature in the following ways.

First, our study is empowered by a unique high-frequency household panel dataset that covers the period both before and after the outbreak began. The distinct advantage of the dataset is the monthly collection of data, to cover the "with-COVID-19" period up to November 2020, which allows us to explore the impact of the COVID-19 on a variety of outcomes over a longer time-frame than previous studies. To our knowledge, little research examines the effect of the pandemic up to this autumn.

Second, we use a monthly household-level dataset in Tajikistan starting in 2015, which means we are able to detect any changes in seasonal patterns of a variety of outcomes caused by the new pandemic. The dataset contains a wide variety of variables related to household welfare, enabling us to explore comprehensive impacts of the pandemic at the household level, and the

[9] UNDP (2020) reports that the pandemic has negatively affected women's vulnerability and decreased income from self-employment, informal or migrant labor and non-registered jobs.

[10] Although not focusing on migration, Baker et al. (2020) and Chen, Qian, and Wen (2020) employed high-frequency data to examine the impact on household spending using a dataset covering the period after the outbreak. Kansiime et al. (2021) warned of a decline in earnings and increased food insecurity in Kenya and Uganda using data collected up to April. Amare et al. (2020) found greater food insecurity in Nigeria using data collected up to May. Murakami, Shimizutani, and Yamada (2020) used a pre-COVID dataset to estimate that remittance inflows will decrease by 14–20% due to the pandemic, and household spending per capita will decline by 1–2% in the Philippines.

high frequency improves the efficiency of econometric estimates by capturing larger variations in household behavior.

Third, our dataset is longitudinal, which allows us to take an empirical approach to establish a relationship between remittances and household welfare in a more rigorous way, since longitudinal data enables us to correct unobserved factors and address endogeneity using exogenous shocks to households.[11] Yang (2008) examined the effect of international remittances on households using the appreciation of the Philippine peso during the 1997 Asian financial crisis and found that remittances did not have a significant effect on household consumption but positive and a significant impact on capital accumulation, entrepreneurship, and educational spending. Since the outbreak of COVID-19 is exogenous to each household, we can overcome identification issues pointed to in the previous literature.

This paper proceeds as follows. Section 2 explains the dataset used in this study. Section 3 presents seasonal patterns of variables related to household welfare and compares them in regular years and 2020. Section 4 describes the impact of the COVID-19 pandemic on migration and remittance inflow. Section 5 examines the relationship between remittances and household welfare on a variety of measures. Section 6 provides some concluding comments and assesses approaches to future research.

2. Data description

We use monthly household-level panel data from the Listening to Tajikistan (L2TJK) survey. The first 30 rounds were compiled by the World Bank between May 2015 and November 2017 and the subsequent rounds have been financed jointly by the World Bank, UNICEF, and the

[11] There have been a variety of studies reporting the positive impact of remittances on household welfare in Vietnam (Amare and Hohfeld 2016; Cuong and Linh 2018), Pakistan (Javed, Awan, and Waqas 2017), Bangladesh (Wadood and Hossain 2017), Kenya (Jena 2018), Malawi (Kangmennaang, Bezner-Kerr, and Luginaah 2018). However, their empirical methodology is less rigorous, using cross-sectional data, and most of them employ the PSM (propensity score matching) method because of difficulty in finding valid instrumental variables for remittances. Amare and Hohfeld (2016) is an exception that employs a fixed effect estimation.

JICA Ogata Research Institute. All rounds of the survey are conducted by phone and cover a wide variety of variables, including migration, income and employment, and the wellbeing and life satisfaction of households. The 31st and subsequent rounds have added more questions related to migration and remittances, while the rounds from April 2020 and later included questions on the impact of the COVID-19 pandemic. The most recent survey month is November 2020, and the dataset thus covers more than half a year after the outbreak.

The sample of the survey is nationally representative 800 households that were randomly drawn from a nationally representative survey consisting of 3,000 households in the spring of 2015 conducted on a face-to-face basis. Households were interviewed at 10-day intervals, which changed to two-week intervals after the sixth round of the data collection, and one-month intervals since November 2015. Households who refused to participate were replaced with households from the same primary sampling unit (PSU). In each round, the respondents are asked to provide information on a variety of household characteristics and their perception of food security and economic well-being as well as migration and remittances. Note that most of the variables are collected at the household level, not at the individual level.

Table 1 reports the summary statistics of the variables used in this study. All variables reported are binary. The first set of variables is related to households' migration status. On average, 29.8% of households have at least one migrant member in the survey month and 27.8% on average had received remittances in the month.[12] 12.6% of households answered that they have at least one migrant household member who currently has a job in the destination country. We include a wide range of outcomes related to household welfare in the analyses. They include food security, finance for basic needs, consumption, health and healthcare, and subjective perceptions of financial well-being and economic well-being, which are explained below.

[12] The survey only asks about the receipt of remittances in the previous 10 days, despite the frequency of interviews being about 1 month. We recovered information of the remittance receipts from the previous 1 month by imputation using the receipt in the previous 10 days and question asking whether the remittance increased or decreased compared to the previous month.

3. Seasonal patterns of household welfare

This section describes the impact of the COVID-19 pandemic on a variety of household welfare outcomes by comparing the seasonal patterns in between "regular" years without the pandemic and 2020 with the pandemic. We define "regular" years as the average of 2018 and 2019.[13] In all figures, we standardize the value of January as one and depict seasonal movements in subsequent months by contrasting households with migrants to households without migrants using weights to each household. Thus, each graph has four lines. We take three-month moving average for all series to make the seasonal pattern clear.

(1) Food security

The first two graphs report the proportion of households that were able to buy enough food for members for the previous ten days and that were not able to buy enough food for the children in the same period. We see a decline of the share of households able to buy enough food for members in a parallel way to April and the share recovered faster for households with migrants. This is also the case for the proportion of households unable to buy enough food for the children. The share increased for both households and peaked out earlier for migrant-sending households in April, with a faster decline for those households up to the level observed in regular years. In contrast, the proportion ceased to fall and leveled off in autumn at a higher level for households without migrants.[14]

(2) Finance for basic needs

The left-hand side graph shows the proportion of households financially unable to pay for utilities in the previous ten days. A rapid increase in 2020 is observed for both households with

[13] We limit the regular years to 2018 and 2019 because some variables have been collected only after the middle of 2017.

[14] The appendix figures and tables show the development of detailed food security measures under the COVID-19 pandemic. We see a similar pattern: food security worsened at the same pace or faster for households with migrants and recovered faster for them, while the current level is not worse in most cases.

and without migrants up to May. The right-hand side reports the share of households borrowing any money to pay for basic needs over the previous ten days increased in spring at a faster rate for households with migrants. At a glance, migrant-sending households were worse off than households without migrants, but we note that those households had fewer liquidity constraints and found it easier to borrow than non-migrant households. By autumn, the proportion was returning to the regular pattern in both households with and without migrants. The pattern of households toward borrowing is similar to that of households selling assets to pay for basic needs (not shown).

(3) Consumption

The left-hand side graph shows that the proportion of households who reduced consumption of food to pay for other needs over the previous ten days increased rapidly up to May for both households with and without migrants and then declined at a faster speed for households with migrants. The right-hand side reports that the share of households whose children ate less than three times on most days over the previous ten days increased faster for households with migrants and peaked out in June. However, the decline of the proportion was more gradual than in households that reduced food consumption, while the level relative to January has been higher. The proportion for households without migrants moved together with households with migrants. The proportion of households that reduced payments (medications, hospitalization, missed doctor's visits) for healthcare to pay for other needs over the previous ten days is not much different from regular years for both households with and without migrants (not shown).

(4) Health and healthcare

The left-hand side graph shows the proportion of households with any member who has been sick over the previous ten days and tracks the regular seasonal pattern in both migrant and non-migrant households. We do not see any different seasonal pattern in 2020 under the pandemic. This is the same for the proportion of households that reduced health expenditure as

depicted on the right-hand side. It shows a gradual decline in subsequent months for both households with and without migrants. At a glance, there is no serious effect from the COVID-19 pandemic on health status and use of health care and no distinction is observed between households with and without migrants.

(5) Financial Wellbeing

The proportion of households thinking that the current financial condition is worse than the previous month (left-hand side) started to expand rapidly in 2020, compared to a gradual decline month-by-month in regular years. The share increased three-fold in April relative to January for both households with and without migrants, but we observe the proportion peaked out in May for households with migrants earlier than households without migrants in June. We note that the proportion leveled off in October. On the other hand, the proportion of households expecting financial conditions to get worse in the next month (right-hand side) is higher for migrant households; the share peaks out in April for them and declines faster than non-migrant households. These observations suggest that, under the pandemic, the financial wellbeing of households with migrants at present got out of the worst earlier. They also had greater anxiety about the future at the onset but this pessimistic view was weak by early summer. However, we should pay attention to the cessation in decline in autumn.

(6) Economic wellbeing

The left-hand side graph shows the proportion of households that think the economic wellbeing of their household is poor, and the right-hand side graph depicts households that believe the current economic conditions in the city or area where they live are bad or very bad. For the perception of being poor, the share started to increase in households both with and without migrants, contrasting with the decline in regular years, while households with migrants peaked out earlier in April. We note that the conversion to the regular seasonal pattern stopped in autumn, and there is a surge in the proportion of households that think the area’s economic

condition is bad. The observed patterns are similar to those of other economic measures, including financial well-being, food security and consumption. The share of households that are unsatisfied with life increases with the COVID-19 pandemic, in contrast to regular years, as depicted in the third figure in the panel (6) of Figure 2. Similar to perceptions of economic conditions, the negative feeling peaks out around May. In contrast, the proportion of households that think now is a bad time to find a job in the city or area where they live today, the fourth figure, was getting worse up to the summer, but then peaked out.

(7) Employment

The left-hand side graph shows the proportion of households that did any paid work in the previous seven days. Reflecting the economic downturn during the pandemic, the proportion started to increase from April at a slower speed for households with migrants and was lower for households without migrants in spring. The proportion of households with migrants started to catch up to the regular pattern in autumn, while that for households without migrants bottomed out in May. The right-hand side graph shows the proportion of households that received a wage in the previous ten days. The proportion declined sharply for households with migrants and bottomed out in June. The proportion for households without migrants is not worse compared to regular years.

(8) Children

The two graphs show outcomes related to children. The left-hand side graph shows the proportion of households with any child who had been ill in the previous ten days. We see the same pattern in 2020 with the regular years in both migrant and non-migrant households, which have been lower than regular years sinceMay.[15] The right-hand side graph shows the proportion of households with any child who received skills development out of school. In regular years, the proportion

[15] The trend in the proportion of households that could pay for a child's medical care and households with any child who received any medical care is very similar to that of a child's sickness (not shown).

peaks out in February-March and follows a declining trend. In this year, the proportion started to increase rapidly for households with migrants. The proportion declined for households without migrants up to spring and recovered afterward.

Those simple calculations show that the impact of the COVID-19 pandemic was temporarily serious in terms of economic measures in March to May, but it seems that households with migrants emerged from their worst difficulties earlier and have been recovering to meet the regular seasonal pattern. Households without migrants are also returning to the regular pattern, but lagging behind households with migrants. On the other hand, we do not see any distinct difference in health status or medical care. We observe a severe drop in household welfare in spring, as the previous studies confirmed. What is newly found in this study is that household welfare measured in a variety of outcomes is now normalizing. These observations may be counterintuitive, since many of those expecting to migrate were forced to stay in their home country due to travel restrictions and border closures, which would be plausibly detrimental to remittance inflows this year.[16] In order to understand the mechanism, we examine the effect of the COVID-19 pandemic on migration and remittance in the next section.[17]

4. The effects of the COVID-19 pandemic on migration and remittances

This section examines the impact of the pandemic on migration and remittances. As described in the introduction, there have been many anecdotal episodes on the difficulty of expecting migrants to head for a destination, which is especially the case for mid-March, when Russia closed its international borders. We will review the status of international migration in our dataset below.

[16] Using the same dataset, World Bank (2020d) also points out that food security was worsening, following an unprecedented trend, in March and April, but that it would be somewhat eased later.

[17] In addition to the variables presented, the survey has questions related to children, such as whether they missed school due to financial reasons or whether children worked to help with household income. However, we dropped these outcomes from the analyses because there were very few cases that applied to such unfavorable conditions, making it difficult to properly analyze the trend.

The upper part of Figure 3 describes the stock, departure, and return of international migrants. The stock is defined as the (normalized) number of migrants as a proportion of the total population who are in the destination country in the month. The destination includes all countries, although most migrants are concentrated in Russia. Departure refers to the (normalized) number of migrants who have newly entered their destination countries in the month, and the return is the (normalized) number of migrants who have left their destination countries and returned to Tajikistan in the month. Both the departure and return also normalized as a ratio to total population. The stock in a month corresponds to the stock in the previous month, and adding the number of departures and subtracting the number of returns.

We observe a distinct seasonal pattern in the number of departures, returns and stock in regular years. The number of departures surpasses the number of returns in the first half of the year and the number of returns exceeds the number of departures in the second half. As a result, we see a seasonality to indicate that the stock of migrants in destination countries starts to increase in spring, stays high in summer, declines in autumn and reaches a low in winter. This pattern is obscured in 2018, which witnessed a large depreciation of the Russian ruble and a break in large-scale construction following the 2018 World Cup Soccer games, factors that hampered international migration.

We can see a different pattern in those numbers in 2020. The distinct feature of this year is that the numbers of both departures and returns are at a lower level compared to previous years. The number of departures declined in the first few months of 2020, contrasting to the regular increasing pattern observed in 2017 and 2019. The change in the trend is mostly a result of the border closures in mid-March 2020; many expecting migrants were forced to stay in the country because of the strict border closures and bans on international mobility. However, this is one side of a coin that captures inflow to the stock of migrants only. On the flip side, many migrants expecting to return to Tajikistan were not able to go back and were forced to stay in the destination countries, mostly in Russia, and thus the outflow of stock of migrants was also affected. Indeed, the number of returns also declined after the closure. The number of returns bottomed out in

spring and started to increase in subsequent months, and the number of departures that had lagged for a couple of months started to rebound in July.

The stock of Tajik migrants, which was high in 2019, has remained at a high level since the beginning of 2020. While both the numbers of departures and returns declined in 2020, the number of departures surpassed the number of returns in the first couple of months of 2020. As a result, we see a large stock of migrants in 2020 during the outbreak of the pandemic, despite the flow of migrants (i.e., the number of departures) being significantly reduced since April 2020. The large stock of migrants in 2020 might be counterintuitive but is well explained by the sharp decline in both numbers of departures and returns.

One might argue that, even if the stock of migrants was not seriously affected by the pandemic, there might be a portion of migrants who were unemployed in their destination countries due to the COVID-19 pandemic, because the economy of destination countries was also seriously affected. The lower part of Figure 3 describes the monthly employment rate of migrants and the monthly inflow of remittances, both of which are smoothed by taking a three-month moving average. The employment rate is defined as the proportion of migrants who were working in a survey month among the stock of migrants. The amount of remittances is calculated from survey responses asking how much remittances the household received in the previous ten days in Tajikistan somoni. The value is converted to a per household base dividing the total remittances by the number of households in the survey.

In regular years, the employment rate has been high and stable at around 80% to 90%. In 2020, we observe a sharp and large decline in the rate to a historically low level of around 30% in March and April, presumably because of the sharp economic downturn in Russia following the onset of the pandemic. However, we see a quick recovery of the employment rates of migrants from May, exceeding 80% in summer, which is by no means inferior to regular years. We see a large adverse shock on the employment rate caused by the pandemic in spring but the effect was only transitory.

The trend of the monthly remittance inflow is not much different from that of regular years, which fluctuates in a range between 7,000 to 9,000 somoni depending on the exchange rate and the seasonal change in the stock of migrants. In2020, we see a large downside shock, with the remittance inflow declining substantially along with the substantial reduction in the employment rate. This was the case up until April, but we observe a rapid recovery from May to reach the regular level.

In sum, the impact of the COVID-19 pandemic on migration and remittances is sharp but transitory from March to May. Starting with a higher level at the beginning of 2020, the stock of migrants did not undergo a large decline because both departures and returns were reduced by the border closure and travel restriction. We see a sharp and adverse impact of the pandemic on the employment rate of migrants to a historically low level, but the employment rate quickly recovered to the same level as regular years in summer. The amount of remittance inflows substantially declined in March and April but rapidly regained their regular level in summer.

Therefore, we see that the impact of the pandemic on migration and remittance inflows was sharply detrimental to households in spring, but the effect was transitory, which conforms to the World Bank's latest estimates on remittance inflow as of October (World Bank 2020c). They were revised upwardly compared with those as of April (World Bank 2020b) and less pessimistic. However, the stock of international migrants is likely to decline in 2020 for the first time in recent history.[18] Looking at Tajikistan, remittance inflows will decrease to 2,066 million dollars in 2020 from 2,322 million dollars in 2019, an 11% decline, and the remittance inflows relative to GDP in 2020 are estimated to be 26.2%, only 2% points lower than 28.2% in 2019.

5. Migration, remittance and household welfare after COVID-19

In this section, we examine the relationship between a variety of outcomes related to household welfare and household status of migration and remittance through the pandemic. The purpose of

[18] World Bank (2020c) reports that remittance flows to low and middle-income countries are projected to fall by 7% in 2020 (20 percent as of April) and by 8% in Central Asia.

regression analysis is to understand whether the households sending migrant and receiving remittances are better-off or not during the time of the COVID-19 pandemic. More precisely, we investigate whether there is any significant difference in the outcomes between households with migrants/remittances and those without them in the period after the onset of the COVID-19 pandemic.

5.1 Full sample analysis (monthly)

First, we conduct an analysis to see how the implications of migration and remittances differ across months after April 2020 compared to regular years. For this purpose, we estimate the following equation:

$$y_{jt} = \sum_{C \in \mathbb{C}} \beta_C^D (D_{jt} * C_t) + \sum_{C \in \mathbb{C}} \gamma_C C_t + \delta D_{jt} + \eta X_{jt} + Year_t + Month_t + \mu_j + \epsilon_{jt} \quad (1)$$

where y_{jt} is the outcome variable, D_{jt} is migration (or remittance) status of the household j in the month t. It takes 1 if the household j has a migrant member or receives remittances, and 0 otherwise. C_t indicates whether t is a specific month after the COVID-19 pandemic began where C is an element of the set $\mathbb{C}$ such that

$$C \in \{\mathbb{C}: APR20, MAY20, JUNE20, JULY20, AUG20, SEP20, OCT20, NOV20\}$$

For example, $APR20_t$ takes 1 if t is April 2020, and it takes 0 otherwise. γ_C captures overall impact specific to month C in 2020, conditional on the year trend and seasonality captured by the data before 2019. β_C^D then represents the differential impact of migration or remittances in the month of C since April 2020. D_{jt} is the migration (or remittance) status of the household j in the month t. X_{jt} is a vector of covariates that may affect the outcome variables.

We include the incidence of disruption in the electricity and water supply services in the previous month because these can be a source of noise for the well-being of the household. $Year_t$ and $Month_t$ are the year and month fixed effect, respectively. μ_j is the household fixed effect, which addresses time-invariant characteristics of each household that can be correlated with both migration and remittance decisions as well as the outcomes. [19]

This empirical specification is designed to detect any significant changes in seasonality in 2020. Table 2 presents the estimation results. First, we observe overall negative shock on a variety of welfare outcomes of Tajik households since the COVID-19 pandemic started, which is shown by the coefficients on *APR20 – NOV20*. Column (1) shows that the probability of households being able to buy enough food has been significantly lower from August to November 2020.[20] The coefficients are positive and significant in Column (2), showing a significantly higher probability that households were not able to buy enough food for children. Under the "with-COVID-19" period since April 2020, households underwent significantly unfavorable conditions in them being unable to pay for utilities (Column (3)), increasing borrowing to meet daily needs (Column (4)), reducing food consumption (Column (5)), and increasing incidents where a child cannot eat three times a day (Column (6)). However, in most cases, we do not see significant coefficients in health and health care (Columns (7) and (8)) in most cases. The subjective perceptions of financial and economic wellbeing are also significantly worse, and are reported in Columns (9) to (14).[21]

Second, despite these overall negative impacts during the with-COVID-19 period, households with migrants are in general better-off for some outcomes. Households with migrants

[19] Household-level fixed effect estimations are implemented by a within-estimator by subtracting household-level means of all variables from each observation. While the dependent variables are binary we do not employ the methods for limited dependent variables such as logit and probit, since it is difficult to interpret the estimated coefficients of such non-linear models if the variable(s) of interest is the interaction term(s) like in our case (Ai and Norton 2003). In our linear probability model, we can interpret the coefficients as the mean difference of the outcome variable between the group whose interaction term is one and the group with zero, conditional on other covariates and fixed effects.

[20] The coefficients in April to June are positive and significant, which is reversed in the sub-sample analysis.

[21] The coefficients in Column (11) and (12) are contrasting to expectations, but they are reversed in the sub-sample analysis.

are less likely to fail in supplying enough food for family members and children in autumn (Columns (1) and (2)), paying for utilities in May and September to November (Column (3))[22] and reducing food consumption in November (Column (5)). They are also less likely to fail as households with migrants tend to be healthier (Column (7)) and were more likely to avoid reducing healthcare expenditure in some months (Column (8)). Furthermore, households with migrants are less pessimistic during this hard time. Compared to non-migrant households, migrant households are significantly less inclined to answer that the financial situation is becoming worse (Column (9), that they are poor (Column (11)), that the economy of the area they live will further deteriorate (Column (13)), and that area's job situation is bad (Column (14)).

This resilience of migrant households seems to stem from the remittances they continue receiving even after the COVID-19 severely hit Russia and the border closed in March. Table 3 reports the estimation results on the impact of remittances. We observe that coefficients on *APR20 – NOV20* in a variety of welfare outcomes in Columns (1) to (6) imply that these outcomes worsened during the months after April 2020. At the same time, the coefficients on the interaction term of remittances and months are negative and significant in Columns (3), (4), (6), (7) and (8), suggesting that the overall unfavorable shocks on these outcome variables are mitigated for households receiving remittances, compared to households not receiving remittances. The same argument applies to the subjective perception of financial and economic wellbeing in Columns (9) to (14). Compared to non-receiving households, remittance-receiving households during the time of COVID-19 are less pessimistic about current and future financial conditions (Columns (9)). They are less likely to think they are poor (Column (11)) and they are more optimistic about the economic and employment situation of their living area (Columns (13) and (14)). These results are consistent with UNDP (2020), showing that remittances continue to play a significant role in consumption.

[22] Due to the structural problems in the dataset, the observations in July and August are missing for the variables of columns (3) – (5).

5.2 Sub-sample analysis (monthly)

Next, we turn to the sub-sample analysis. The coefficients β_C^D in equation (1) are properly identified if the interaction term $(D_{jt} * C_t)$ is not correlated with the unobservable. This condition can be violated in several ways. First, the time-invariant characteristics of each household can be correlated with both migration and remittance decisions as well as the outcomes. This is addressed in equation (1) by introducing the household fixed effect, μ_j. The second threat is reverse causality. The key motivation for sending migrants is to improve household economic welfare in their home country through remittances. Hence, changes in migration status and remittances can be the consequences of household welfare outcomes. Lastly, there could be regional/industry-specific shocks that may simultaneously affect migration/remittance and household outcomes.

In order to address these identification concerns, we conduct a sub-sample analysis on a subset of the households that sent migrants in 2019, in addition to the introduction of household fixed effect. These households are more likely to rely on migration compared to those that have never sent migrants during the study period since 2015. Among those households dependent on migration and remittances, reverse causality and selection bias of estimation should be much less serious, because they should share similar unobserved characteristics affecting migration.

Table 4 and Table 5 report the estimation results. In general, the results are qualitatively identical with the full sample results, which is the case for both migration and remittances. More precisely, payment to utilities and whether a child cannot eat 3 times a day gain significance (columns (3) and (6)), implying that households with migrants and remittances were better-off during the "with-COVID-19" period for these aspects of economic outcome. In contrast, most of the coefficients in columns (1), (2), and (8) lose significance.

5.3 Overall effect under the "with-COVID-19" period

In addition to the monthly-base analysis, we examine the overall effect of the pandemic after the onset of the pandemic. We aim at identifying how households with migrant/remittances are

better-off or not throughout the with-COVID-19 period. For this purpose, we estimate the following equation:

$$y_{jt} = \beta(D_{jt} * COVID_t) + \gamma COVID_t + \delta D_{jt} + \eta X_{jt} + \ Year_t + Month_t + \mu_j + \epsilon_{jt} \quad (2)$$

where $COVID_t$ is a binary taking 1 if t is April 2020 or later. Since strict border controls were introduced in late March and the first case of COVID-19 was officially reported at the end of April in Tajikistan, we regard April as the month when Tajikistan went into the "with-COVID-19" period. X_{jt} is a vector of covariates that are likely to affect the outcome variables, including the incidence of disruption in the electricity and water supply services in the previous month. $Year_t$ and $Month_t$ are the year and month fixed effect and $\mu_j$is the household fixed effect. β is the coefficient of interest, which captures the impact of migration/remittances during the "with-COVID-19" period on the outcome variables.

Again, the coefficient β is properly identified if the interaction term $(D_{jt} * COVID_t)$ is not correlated with the unobservable. Thus, in addition to the sub-sample analysis, we also employ an instrumenting strategy as explained below. As seen in Section 4, migration flow has a clear seasonality in terms of the number of departures and returns. In fact, each migrant has his or her own seasonal pattern of migration; every year, they depart to the destination in the same period of a year, and they return as such. Therefore, the choice of whether or not to migrate/remit in the same month as the previous year is a good predictor of whether or not to migrate/remit this month. We thus pick $D_{j,t-12}$, the migration/remittance status 12 months before from t, as the candidate of the instrument for D_{jt}. Of course, previous migration/remittances experience can affect the current economic outcome, not through the current migration/remittances. This will fail the exclusion restriction and make $D_{j,t-12}$ invalid as the instrument. To address this concern, we need to include variable(s) related to past migration/remittance experiences as the covariates of

the estimation equation so that $D_{j,t-12}$ only captures the seasonality pattern of migration and remittances, apart from migration/emittance experiences. The estimation equation is

$$y_{jt} = \beta\left(D_{jt} * COVID_t\right) + \gamma COVID_t + \delta D_{jt} + \xi_1 P\_MR_{jt} + \xi_1 C\_MR_{jt} + \eta X_{jt} + \ Year_t + Month_t + \mu_j + \epsilon_{jt} \quad (3)$$

Where $(D_{jt} * COVID_t)$ and D_{jt} are the endogenous variables and instrumented by $(D_{j,t-12} * COVID_t)$, $D_{j,t-12}$, and the exchange rate between Tajikistan somoni and Russian rubles. P_MR_{jt} and C_MR_{jt} are the covariates to control for past migration/remittance experience. P_MR_{jt} is a binary variable indicating whether they had migration/remittances experiences in the preceding 12 months of t. C_MR_{jt} is the cumulative number of months in which j had migrant(s) or received remittances in the preceding 12 months of t. The notation for the remaining variables is identical in (2).

Table 6 summarizes the results. It stacks only the coefficient of interest, β, which is obtained by estimating equations (2) and (3). Panel I shows the results of the full sample analysis as a benchmark. Panel II presents the results of the subsample analysis and Panel III reports the results of 2SLS estimation using the instrumental variables. The results are naturally consistent with the analyses in the previous subsection. Panels I and II reveal that households with migrants or receiving remittances are better off during the "with-COVID-19" period in terms of fulfilling the payment needs for utilities (Column (3)), borrowing money for basic needs (Column (4)), feeding children three times a day (Column (6)), health and healthcare expenses (Columns (7) and (8)). They are also less pessimistic as shown in columns (9), (11), (13) and (14) of the panels I and II of Table 6. Panel III shows that migrants mitigated the propensity to reduce food consumption (Column (5)) and to have a sick household member (Column (7)), while remittance inflows eased feeding for children (Column (2)), utility payments (Column (3)), food consumption (Column (5)), and health (Column (7)).

6. Conclusion

This paper examines the impact of the COVID-19 pandemic on a variety of economic outcomes on household welfare by using a unique high-frequency household panel dataset that covers a period both before and after the outbreak. We provide brand-new evidence. First, the adverse effect of the pandemic was severe in April and May in 2020, but the magnitude of the adverse effect gradually diminished in subsequent months. Second, contrasting to expectation, the pandemic had a sharp but only transitory effect on the number of migrants temporarily staying abroad. A portion of expected migrants could not make their departure to the destination country (mainly the Russian Federation) under the border closures, while some of the migrants expecting to return were also stuck in the destination country. Third, despite a sharp decline in employment and the remittances of migrants in April and May, they quickly recovered. Regression analyses confirmed migration and remittances had eased the economic shock of the COVID-19 pandemic in terms of not only material well-being such as food, utilities, consumption, and health but also their views on their financial and economic situations. These findings show that the unfavorable effect of the COVID-19 pandemic was severe and temporary right after the outbreak, but households with migrants were more resilient against the pandemic, since migration and remittance served as a form of insurance.

While this study contributes to deepening our understanding of the short-term economic impacts of the COVID-19 pandemic, it is still too early to conclude what the mid- and long-term consequences may be. This paper shows that the impacts change over time and even flip within this short period of time. In addition, as Asian Development Bank (2020) describes, there are various anecdotal accounts suggesting that many migrants have been stranded at the airports or have been working under unfavorable hygienic condition without sufficient access to healthcare services in the destination countries. Some other migrants have trouble with sending remittances due to the lack of access to digital means for remittances. These potential cost and burden on migrants and their families during this COVID-19 time are not fully considered in this study.

We thus need to undertake further efforts to collect data over a longer period to understand the impacts of the pandemic more comprehensively.

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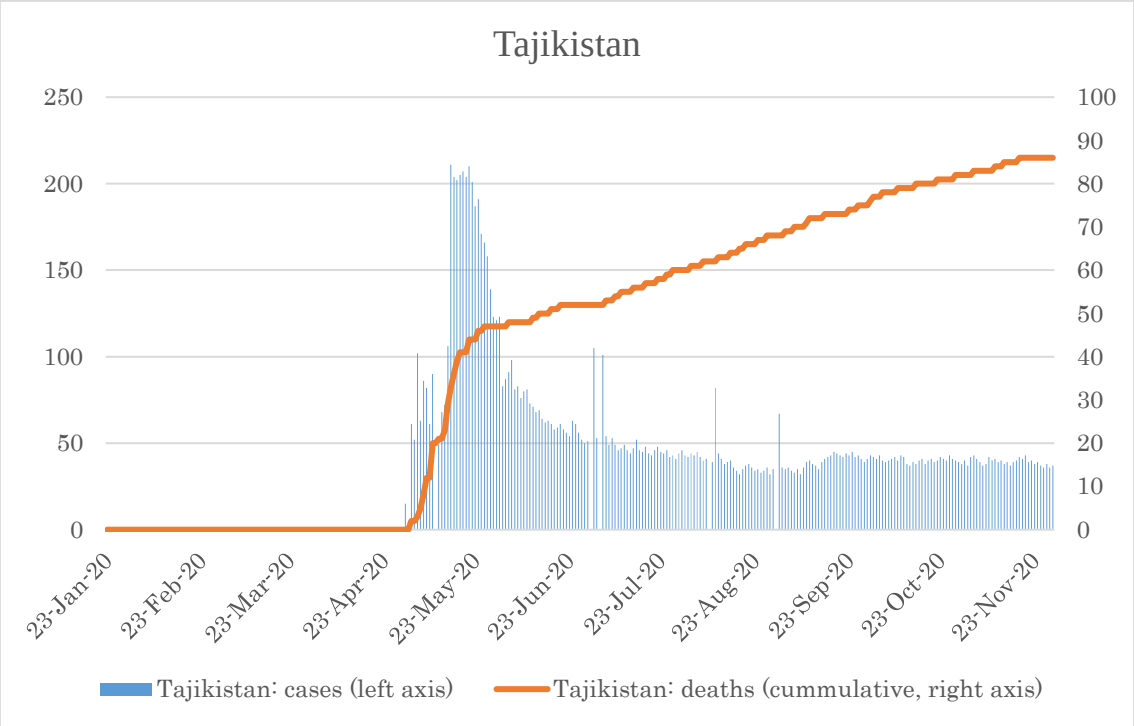
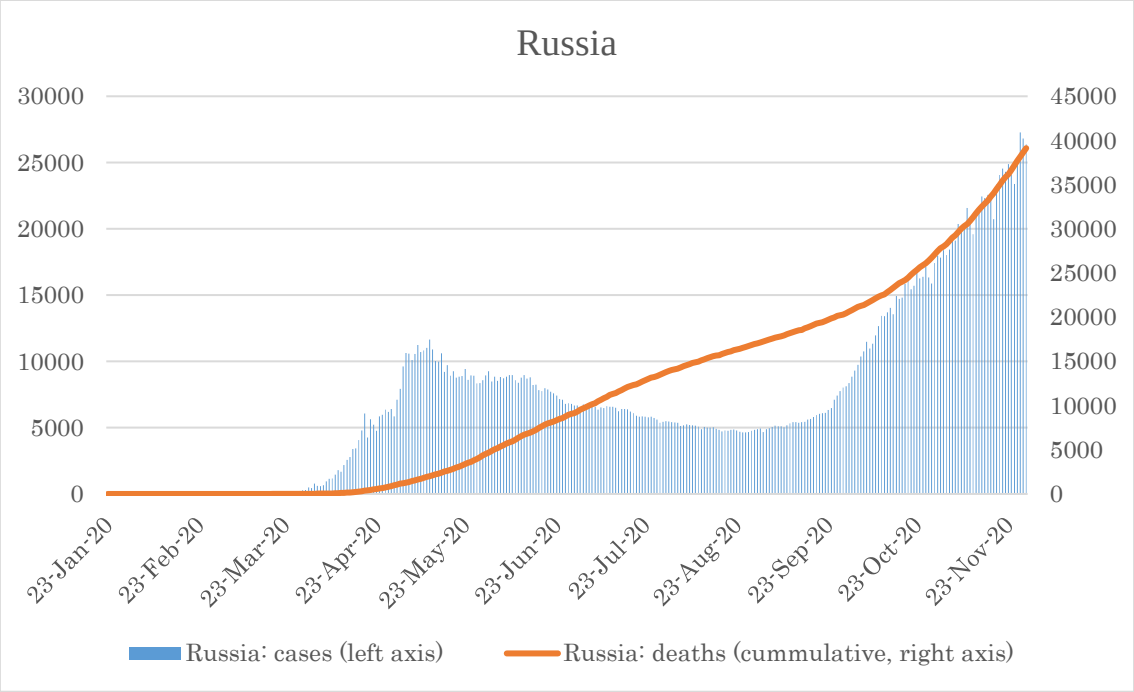
Figure 1: Number of newly confirmed cases and deaths in Tajikistan and Russia





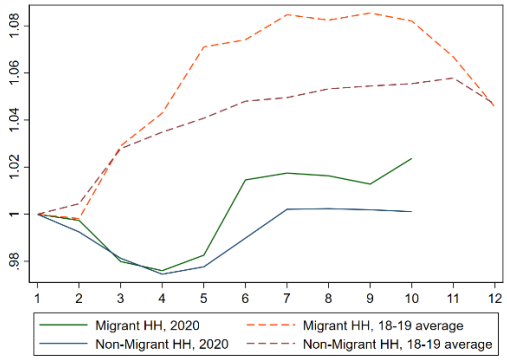
Source: Novel Coronavirus (COVID-19) Case Data

https://data.humdata.org/dataset/novel-coronavirus-2019-ncov-cases

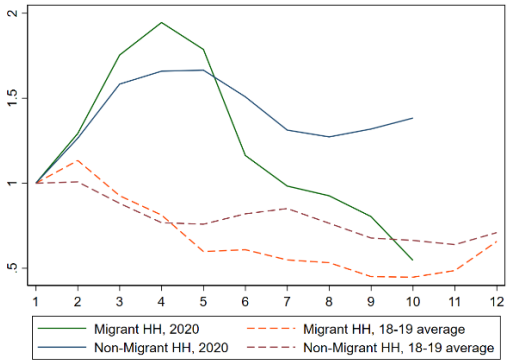
Figure 2: Seasonal patterns of variables related to household welfare

(1) Food security

Able to buy enough food

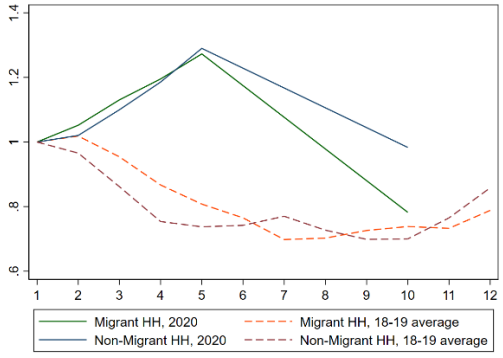


Not able to buy enough food for children

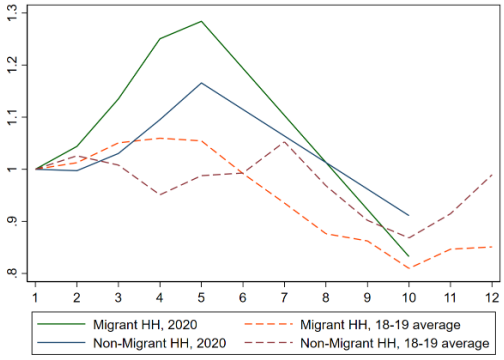


(2) Finance for basic needs

Unable to pay for utilities

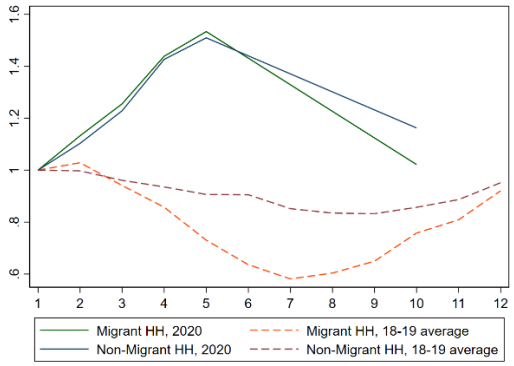


Borrowed money for basic needs

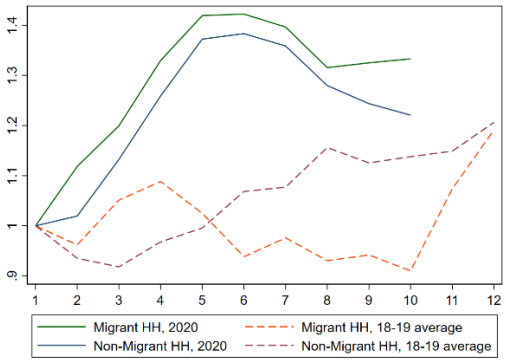


(3) Consumption

Reduced Food Consumption

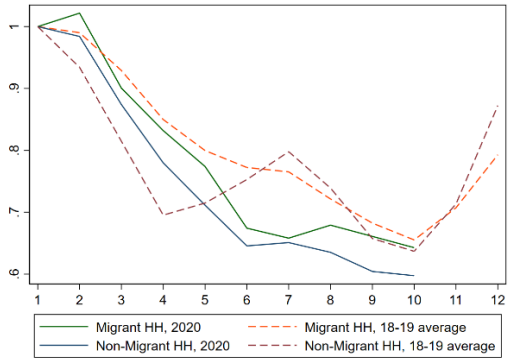


Children ate less than 3 times a day

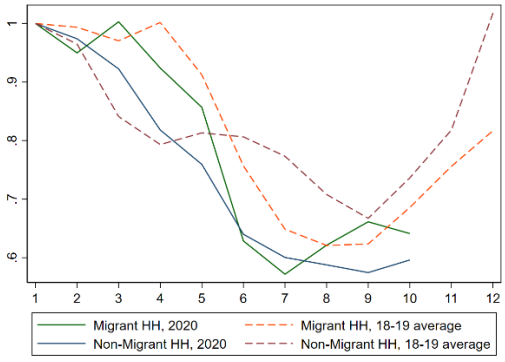


(4) Health

Any member has been sick

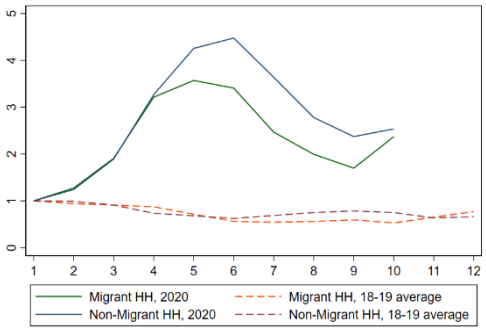


Reduced health expenditure

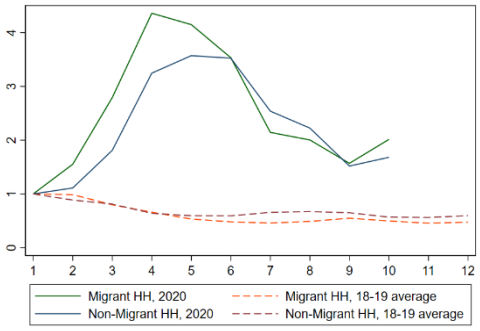


(5) Financial wellbeing

Financial condition is worse

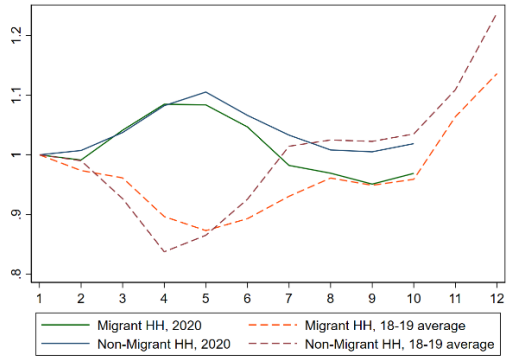


Financial condition will become worse

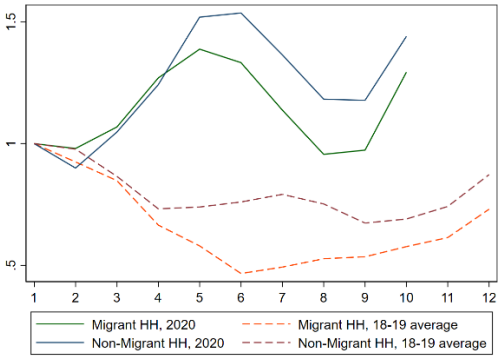


(6) Economic wellbeing

Perceive own household as poor

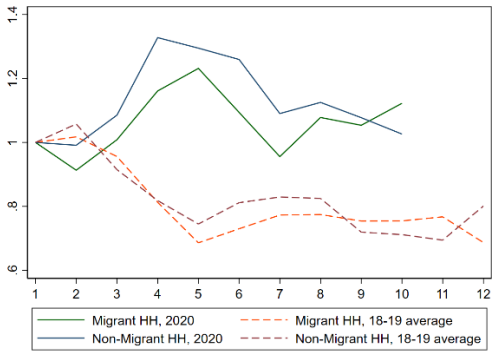


Area's economic condition is bad

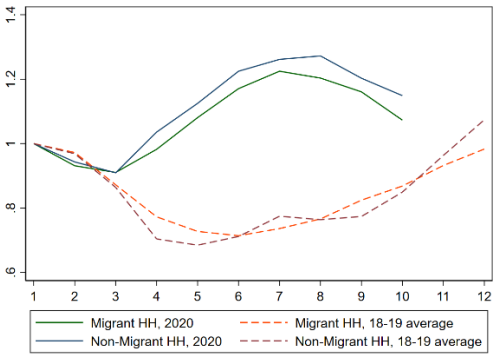


Economic well-being (continued)

Unsatisfactory for life

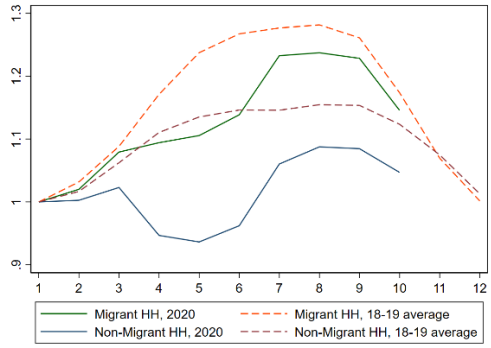


Area's job situation is bad

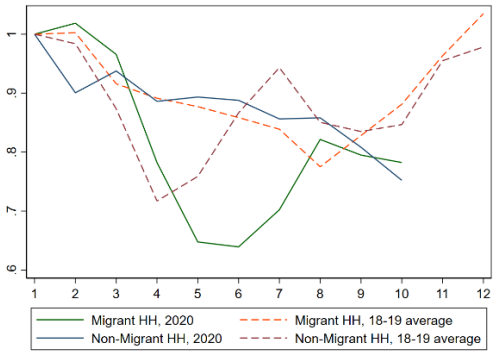


(7) Employment

Did any paid work

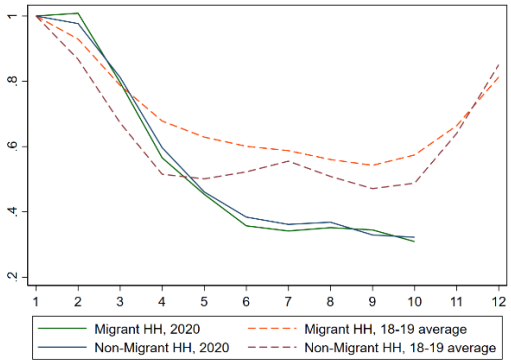


Received wage

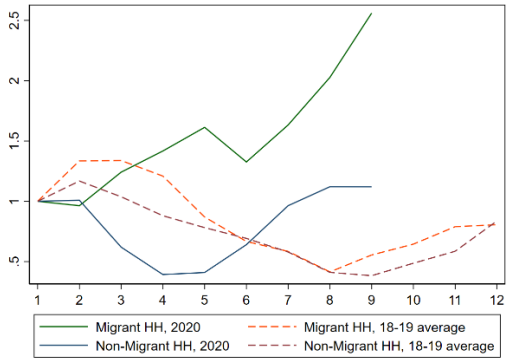


(8) Child

Child has been sick

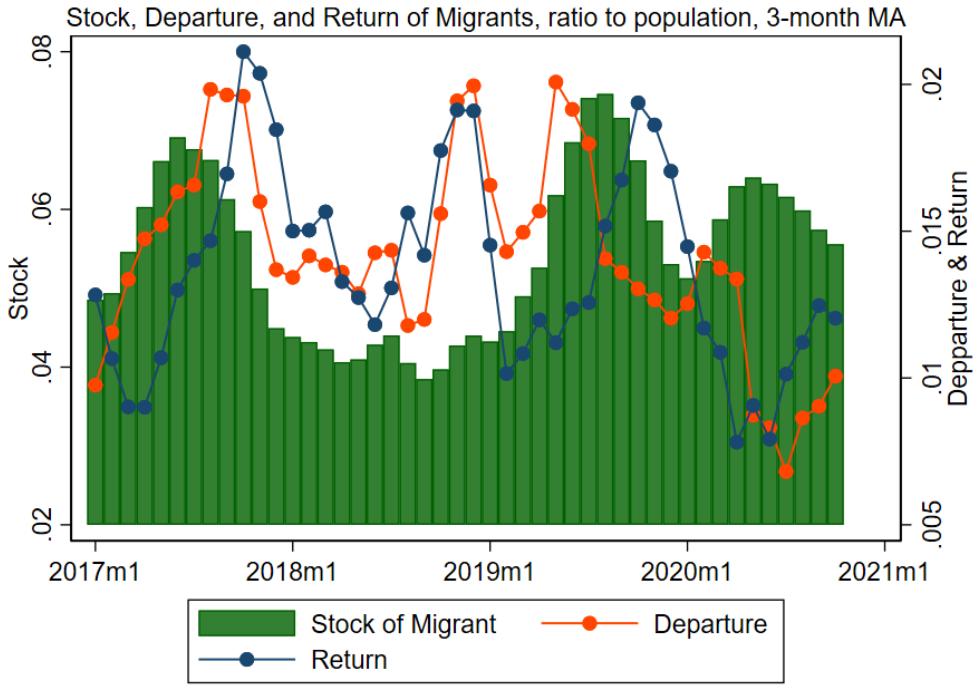


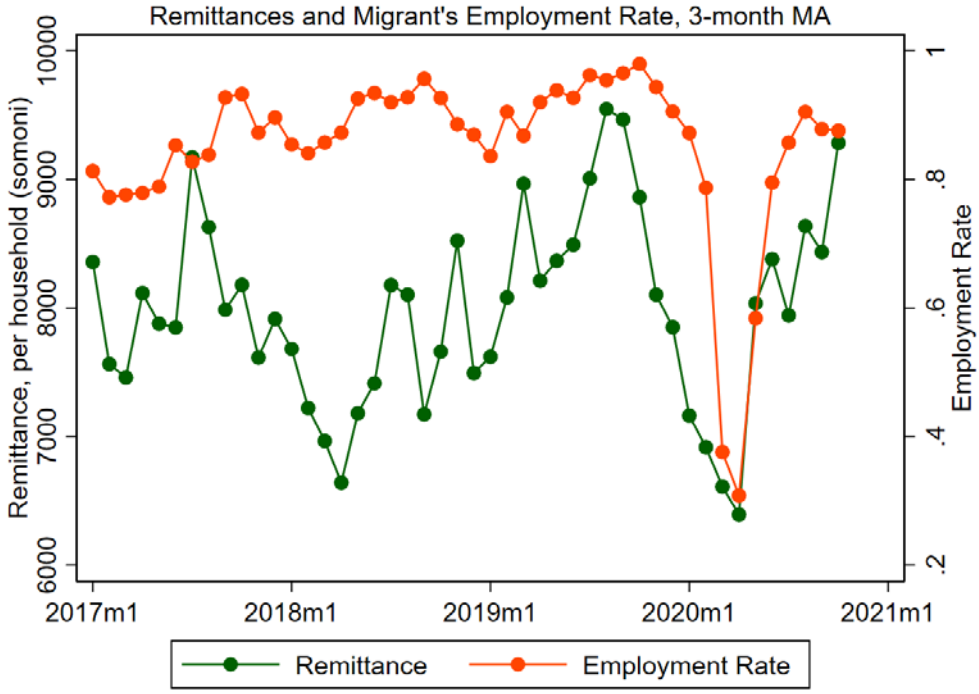
Child got skill development



Source: Authors

Figure 3: The impact of the COVID 19 on migration and remittances





Source: Authors

Table 1: Summary statistics

VARIABLES	(1) N	(2) mean	(3) sd
Migration Variables			
Household has migrant member in this month	70,783	0.298	0.457
Household received some amount of remittance in this month	70,783	0.278	0.448
Migrant member is currently working in the destination country	58,346	0.126	0.332
Economic Outcome Variables			
(1) Food Security			
Able to buy enough food for members for the past month	70,783	0.826	0.379
Not able to buy enough food for the children in the household	60,336	0.0706	0.256
(2) Finance for basic needs			
Financially unable to pay for utilities for the past month?	68,380	0.295	0.456
Borrowed any money over the previous month to pay for basic needs?	68,380	0.262	0.440
(3) Consumption			
Reduced Food consumption past month	68,380	0.337	0.473
Child ate less than 3 times a day	60,336	0.167	0.373
(4) Health and medical care			
Any household member been sick	70,783	0.431	0.495
Reduced healthcare expenditure	70,783	0.289	0.453
(5) Subjective Financial well-being			
Thinking current financial condition is worse compared with previous month	70,783	0.135	0.342
Expecting financial situation to get worse in the next month	70,783	0.0885	0.284
(6) Subjective Economic well-being			
Perceives own household as poor	62,923	0.359	0.480
Unsatisfied with life	62,923	0.0959	0.294
Perceives living area's economic condition is bad	62,923	0.168	0.374
Area's job situation is bad	62,923	0.451	0.498
(7) Employment			
Did work for pay in previous 7 days	70,783	0.783	0.412
Received wage in previous 10 days	70,783	0.136	0.343
(8) Child			
Child has been ill	60,336	0.201	0.401
Child received skills' development	52,581	0.0501	0.218

Source: Authors

Table 2: Impact of migration on household welfare during the with-COVID-19' period (Full Sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Food Security		Finance for Basic Needs		Consumption		Healthcare	
VARIABLES	Able to buy enough food	Not able to buy enough food for children	Financially unable to pay for utilities	Borrowed money for basic needs	Reduced food consumption	Child ate less than 3 times a day	Any household member been sick	Reduced healthcare expenditure
Migrants X APR2020	-0.0104	0.0262	-0.0139	-0.00115	0.00157	-0.0262	-0.0362	-0.0226
	(0.0268)	(0.0178)	(0.0246)	(0.0243)	(0.0282)	(0.0275)	(0.0272)	(0.0511)
Migrants X MAY2020	-0.0297	-0.00853	-0.0498**	-0.00780	-0.0131	-0.0418	-0.0316	-0.0303
	(0.0260)	(0.0145)	(0.0245)	(0.0251)	(0.0278)	(0.0273)	(0.0270)	(0.0505)
Migrants X JUN2020	-0.00464	-0.0174	-0.0288	-0.0252	0.00265	0.0155	-0.0372	-0.0658
	(0.0268)	(0.0132)	(0.0261)	(0.0256)	(0.0282)	(0.0292)	(0.0267)	(0.0546)
Migrants X JUL2020	-0.0392	-0.0170				-0.0192	-0.0663***	-0.105**
	(0.0262)	(0.0122)				(0.0278)	(0.0256)	(0.0528)
Migrants X AUG2020	-0.00284	-0.00312				-0.0124	-0.0563**	0.0249
	(0.0273)	(0.0138)				(0.0280)	(0.0269)	(0.0515)
Migrants X SEP2020	-0.0522*	-0.0154	-0.0454**	-0.0331	0.00588	0.0175	-0.0341	-0.0140
	(0.0268)	(0.0121)	(0.0230)	(0.0225)	(0.0263)	(0.0281)	(0.0263)	(0.0553)
Migrants X OCT2020	-0.0515*	-0.0157	-0.0623***	-0.0743***	-0.0310	0.0305	-0.0699***	-0.00481
	(0.0265)	(0.0114)	(0.0210)	(0.0229)	(0.0258)	(0.0291)	(0.0257)	(0.0663)
Migrants X NOV2020	-0.0412	-0.0292**	-0.0514**	-0.0353	-0.0555**	0.0164	-0.0525*	-0.0428
	(0.0262)	(0.0117)	(0.0240)	(0.0238)	(0.0269)	(0.0288)	(0.0274)	(0.0658)
APR2020	0.115***	0.0398***	0.0619***	0.0319**	0.106***	0.0590***	0.00146	0.00637
	(0.0157)	(0.0112)	(0.0163)	(0.0157)	(0.0173)	(0.0186)	(0.0180)	(0.0339)
MAY2020	0.0984***	0.0375***	0.102***	0.0698***	0.141***	0.0980***	-0.00105	-0.00320
	(0.0155)	(0.0107)	(0.0158)	(0.0153)	(0.0169)	(0.0182)	(0.0188)	(0.0326)
JUN2020	0.0337**	0.0261**	0.131***	0.0817***	0.110***	0.0823***	-0.0416**	-0.00320
	(0.0161)	(0.0104)	(0.0168)	(0.0164)	(0.0181)	(0.0185)	(0.0182)	(0.0371)
JUL2020	0.00502	0.0402***				0.0440**	-0.0269	0.0121
	(0.0156)	(0.0104)				(0.0175)	(0.0182)	(0.0394)
AUG2020	-0.0901***	0.0305***				0.0498***	-0.00771	-0.0141
	(0.0164)	(0.01000)				(0.0175)	(0.0184)	(0.0323)
SEP2020	-0.0678***	0.0347***	0.0933***	0.0201	0.0262	0.0196	-0.00439	0.00275
	(0.0161)	(0.00952)	(0.0156)	(0.0152)	(0.0165)	(0.0176)	(0.0178)	(0.0364)
OCT2020	-0.0647***	0.0477***	0.0764***	0.0493***	0.0549***	0.0192	-0.00599	0.0221
	(0.0164)	(0.00936)	(0.0158)	(0.0160)	(0.0163)	(0.0177)	(0.0182)	(0.0419)
NOV2020	-0.0657***	0.0151*	0.0709***	0.0269*	0.0678***	0.00532	-0.0479**	0.0713*
	(0.0156)	(0.00915)	(0.0160)	(0.0157)	(0.0166)	(0.0169)	(0.0188)	(0.0373)
Observations	70,598	55,256	68,195	68,195	68,195	55,256	70,598	30,272

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, migration status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1.

Table 2: Impact of migration on household welfare during the with-COVID-19 period (Full Sample, continued)

	(9)	(10)	(11)	(12)	(13)	(14)
	Perception of financial and economic situation of household and living area					
VARIABLES	Current financial condition is worse than before	Expecting financial condition gets worse	Perceives own household as poor	Own life perceived as unsatisfactory	Perceives area's economic condition as bad	Perceives area's job situation as bad
Migrants X APR2020	-0.00115	0.00813	-0.0326	-0.0160	-0.0214	-0.0328
	(0.0211)	(0.0174)	(0.0257)	(0.0132)	(0.0208)	(0.0285)
Migrants X MAY2020	-0.0379	-0.0147	-0.0191	-0.0174	-0.0271	-0.0710**
	(0.0236)	(0.0188)	(0.0258)	(0.0152)	(0.0230)	(0.0286)
Migrants X JUN2020	-0.0587***	-0.0115	-0.0502**	0.0117	-0.0521**	-0.0128
	(0.0217)	(0.0123)	(0.0254)	(0.0128)	(0.0223)	(0.0297)
Migrants X JUL2020	-0.0433**	-0.0173	-0.0224	-0.0192	-0.0457**	-0.0199
	(0.0209)	(0.0145)	(0.0253)	(0.0130)	(0.0201)	(0.0286)
Migrants X AUG2020	-0.0429**	-0.0156	-0.0526**	-0.00178	-0.00423	-0.0328
	(0.0172)	(0.0121)	(0.0255)	(0.0136)	(0.0193)	(0.0283)
Migrants X SEP2020	-0.0137	0.00234	-0.0321	0.0129	-0.0440**	-0.0599*
	(0.0166)	(0.0104)	(0.0275)	(0.0128)	(0.0174)	(0.0307)
Migrants X OCT2020	-0.0129	0.00965	-0.0587**	-0.00822	-0.0259	0.0130
	(0.0172)	(0.0112)	(0.0273)	(0.0130)	(0.0211)	(0.0300)
Migrants X NOV2020	0.0112	-0.00489	-0.0591**	0.00636	0.00371	-0.0555*
	(0.0228)	(0.0159)	(0.0279)	(0.0141)	(0.0254)	(0.0305)
APR2020	0.107***	0.0724***	-0.0157	-0.00397	0.0122	0.0185
	(0.0139)	(0.0113)	(0.0172)	(0.0104)	(0.0148)	(0.0185)
MAY2020	0.174***	0.0715***	0.0118	0.0283**	0.0834***	0.184***
	(0.0159)	(0.0125)	(0.0161)	(0.0113)	(0.0147)	(0.0180)
JUN2020	0.134***	-0.0110	-0.0246	-0.0193**	0.0790***	0.123***
	(0.0158)	(0.00951)	(0.0169)	(0.00963)	(0.0147)	(0.0187)
JUL2020	0.139***	0.0374***	-0.0574***	-0.00562	0.0489***	0.172***
	(0.0146)	(0.0110)	(0.0169)	(0.0107)	(0.0141)	(0.0195)
AUG2020	0.155***	0.0818***	-0.0696***	-0.00441	0.00915	0.190***
	(0.0131)	(0.00924)	(0.0167)	(0.00995)	(0.0126)	(0.0186)
SEP2020	0.132***	0.0698***	-0.0649***	-0.0108	0.0173	0.136***
	(0.0116)	(0.00770)	(0.0169)	(0.00891)	(0.0131)	(0.0199)
OCT2020	0.140***	0.0657***	-0.0272	0.00750	0.0812***	0.0706***
	(0.0121)	(0.00747)	(0.0177)	(0.00999)	(0.0139)	(0.0196)
NOV2020	0.175***	0.0864***	-0.0388**	-0.0132	0.0791***	-0.00552
	(0.0137)	(0.0101)	(0.0175)	(0.0103)	(0.0145)	(0.0178)
Observations	70,598	70,598	62,772	62,772	62,772	62,772

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, migration status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1

Table 3: Impact of remittances on household welfare during the with-COVID-19 period (Full Sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Food Security		Finance for Basic Needs		Consumption		Healthcare	
VARIABLES	Able to buy enough food	Not able to buy enough food for children	Financially unable to pay for utilities	Borrowed money for basic needs	Reduced food consumption	Child ate less than 3 times a day	Any household member been sick	Reduced healthcare expenditure
Monthly remittance X APR2020	-0.0370	0.0329	-0.0711**	-0.0452	0.0934***	-0.0496	-0.0458	-0.120**
	(0.0250)	(0.0232)	(0.0289)	(0.0287)	(0.0347)	(0.0314)	(0.0338)	(0.0561)
Monthly remittance X MAY2020	0.0128	-0.0101	-0.102***	-0.0491*	-0.00538	-0.0698**	-0.0566*	-0.0906
	(0.0190)	(0.0167)	(0.0269)	(0.0281)	(0.0311)	(0.0293)	(0.0312)	(0.0569)
Monthly remittance X JUN2020	0.00370	-0.0184	-0.0847***	-0.0840***	-0.00331	-0.0238	-0.0275	-0.125**
	(0.0168)	(0.0140)	(0.0274)	(0.0262)	(0.0299)	(0.0306)	(0.0289)	(0.0540)
Monthly remittance X JUL2020	0.00202	-0.00850				-0.0787***	-0.0683***	-0.119**
	(0.0148)	(0.0126)				(0.0277)	(0.0262)	(0.0517)
Monthly remittance X AUG2020	-0.00683	-0.00494				-0.0492*	-0.0681**	-0.0528
	(0.0164)	(0.0137)				(0.0279)	(0.0271)	(0.0515)
Monthly remittance X SEP2020	0.00358	-0.0181	-0.0453**	-0.0349	0.00225	0.00280	-0.0397	-0.0416
	(0.0156)	(0.0117)	(0.0229)	(0.0224)	(0.0261)	(0.0281)	(0.0261)	(0.0557)
Monthly remittance X OCT2020	-0.0245	-0.0140	-0.0688***	-0.0690***	-0.0196	0.0169	-0.0796***	-0.0250
	(0.0160)	(0.0116)	(0.0208)	(0.0230)	(0.0262)	(0.0292)	(0.0258)	(0.0671)
Monthly remittance X NOV2020	0.0104	-0.0280**	-0.0628***	-0.0418*	-0.0552**	0.0131	-0.0530*	-0.0231
	(0.0149)	(0.0117)	(0.0239)	(0.0238)	(0.0269)	(0.0290)	(0.0275)	(0.0663)
APR2020	-0.0498***	0.0428***	0.0741***	0.0424***	0.0885***	0.0548***	0.00674	0.0222
	(0.0120)	(0.0104)	(0.0153)	(0.0147)	(0.0161)	(0.0172)	(0.0169)	(0.0313)
MAY2020	-0.0529***	0.0367***	0.110***	0.0794***	0.137***	0.0962***	0.00678	0.00576
	(0.0115)	(0.0101)	(0.0150)	(0.0145)	(0.0159)	(0.0171)	(0.0182)	(0.0304)
JUN2020	-0.0368***	0.0250**	0.143***	0.0951***	0.111***	0.0913***	-0.0436**	0.00779
	(0.0114)	(0.0102)	(0.0164)	(0.0158)	(0.0177)	(0.0179)	(0.0176)	(0.0361)
JUL2020	-0.0700***	0.0370***				0.0601***	-0.0286	0.0113
	(0.0114)	(0.0102)				(0.0172)	(0.0180)	(0.0384)
AUG2020	-0.0510***	0.0309***				0.0602***	-0.00460	0.00920
	(0.0115)	(0.0100)				(0.0173)	(0.0183)	(0.0319)
SEP2020	-0.0392***	0.0353***	0.0927***	0.0204	0.0273*	0.0241	-0.00272	0.0104
	(0.0115)	(0.00960)	(0.0156)	(0.0152)	(0.0165)	(0.0175)	(0.0178)	(0.0359)
OCT2020	-0.0326***	0.0469***	0.0775***	0.0468***	0.0511***	0.0232	-0.00348	0.0268
	(0.0108)	(0.00929)	(0.0158)	(0.0159)	(0.0162)	(0.0176)	(0.0181)	(0.0412)
NOV2020	-0.0450***	0.0143	0.0732***	0.0282*	0.0668***	0.00626	-0.0482**	0.0646*
	(0.0111)	(0.00922)	(0.0160)	(0.0156)	(0.0166)	(0.0168)	(0.0188)	(0.0373)
Observations	70,598	55,256	68,195	68,195	68,195	55,256	70,598	30,272

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, Migration Status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. This table reports the sub-sample analyses only with households that sent migrants in 2019. *** p<0.01, ** p<0.05, * p<0.1.

Table 3: Impact of remittances on household welfare during the with-COVID-19 period (Full Sample, continued)

	(9)	(10)	(11)	(12)	(13)	(14)
	Perception of financial and economic situation of household and living area					
VARIABLES	Current financial condition is worse than before	Expecting financial condition gets worse	Perceives own household as poor	Own life perceived as unsatisfactory	Perceives area's economic condition is bad	Perceives area's job situation is bad
Monthly remittance X APR2020	-0.00817	0.0472**	-0.0883***	-0.0116	-0.0388	-0.100***
	(0.0247)	(0.0234)	(0.0297)	(0.0151)	(0.0245)	(0.0341)
Monthly remittance X MAY2020	-0.0854***	0.00958	-0.0706**	-0.0309**	-0.0883***	-0.168***
	(0.0251)	(0.0221)	(0.0293)	(0.0156)	(0.0230)	(0.0323)
Monthly remittance X JUN2020	-0.0971***	-0.00754	-0.0708**	0.00729	-0.122***	-0.127***
	(0.0211)	(0.0133)	(0.0275)	(0.0134)	(0.0203)	(0.0325)
Monthly remittance X JUL2020	-0.0622***	-0.0398***	-0.0358	-0.0176	-0.0727***	-0.0498*
	(0.0205)	(0.0132)	(0.0259)	(0.0130)	(0.0193)	(0.0297)
Monthly remittance X AUG2020	-0.0501***	-0.00704	-0.0641**	-0.00469	-0.0280	-0.0401
	(0.0165)	(0.0121)	(0.0258)	(0.0134)	(0.0187)	(0.0291)
Monthly remittance X SEP2020	-0.00574	0.00770	-0.0440	0.0163	-0.0458***	-0.0717**
	(0.0166)	(0.0101)	(0.0275)	(0.0129)	(0.0172)	(0.0308)
Monthly remittance X OCT2020	-0.00694	0.0187	-0.0652**	-0.00919	-0.0432**	-0.00878
	(0.0173)	(0.0115)	(0.0278)	(0.0130)	(0.0208)	(0.0303)
Monthly remittance X NOV2020	0.00235	0.00860	-0.0717**	6.04e-05	-0.0241	-0.0806***
	(0.0226)	(0.0162)	(0.0284)	(0.0137)	(0.0252)	(0.0310)
APR2020	0.105***	0.0645***	-0.00871	-0.00857	0.0118	0.0314*
	(0.0129)	(0.0101)	(0.0160)	(0.00960)	(0.0136)	(0.0168)
MAY2020	0.177***	0.0631***	0.0218	0.0283***	0.0933***	0.201***
	(0.0150)	(0.0116)	(0.0153)	(0.0107)	(0.0142)	(0.0168)
JUN2020	0.137***	-0.0140	-0.0232	-0.0179*	0.0919***	0.152***
	(0.0152)	(0.00902)	(0.0162)	(0.00914)	(0.0145)	(0.0177)
JUL2020	0.142***	0.0430***	-0.0546***	-0.00692	0.0549***	0.180***
	(0.0145)	(0.0111)	(0.0165)	(0.0104)	(0.0141)	(0.0189)
AUG2020	0.156***	0.0784***	-0.0674***	-0.00380	0.0159	0.192***
	(0.0130)	(0.00908)	(0.0165)	(0.00988)	(0.0125)	(0.0183)
SEP2020	0.129***	0.0679***	-0.0618***	-0.0119	0.0173	0.139***
	(0.0115)	(0.00772)	(0.0168)	(0.00886)	(0.0130)	(0.0198)
OCT2020	0.137***	0.0629***	-0.0262	0.00747	0.0857***	0.0774***
	(0.0121)	(0.00735)	(0.0175)	(0.00992)	(0.0138)	(0.0193)
NOV2020	0.177***	0.0823***	-0.0363**	-0.0115	0.0868***	0.000759
	(0.0137)	(0.00992)	(0.0173)	(0.0103)	(0.0144)	(0.0176)
Observations	70,598	70,598	62,772	62,772	62,772	62,772

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, Migration Status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator, with household-level means of dependent and independent variables are subtracted from each observation. This table reports the sub-sample analyses only with households that sent migrants in 2019. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Impact of migration on household welfare during the with-COVID-19 period (sub-sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Food Security		Finance for Basic Needs		Consumption		Healthcare	
VARIABLES	Able to buy enough food	Not able to buy enough food for children	Financially unable to pay for utilities	Borrowed money for basic needs	Reduced food consumption	Child ate less than 3 times a day	Any household member been sick	Reduced healthcare expenditure
Migrants X APR2020	-0.0317	0.0416*	-0.00125	-0.00711	0.00908	-0.0816**	-0.0224	-0.0139
	(0.0250)	(0.0212)	(0.0327)	(0.0333)	(0.0385)	(0.0386)	(0.0371)	(0.0738)
Migrants X MAY2020	0.00112	0.00624	-0.0650*	-0.00768	0.00433	-0.0904**	-0.0293	-0.0191
	(0.0221)	(0.0176)	(0.0333)	(0.0347)	(0.0384)	(0.0384)	(0.0378)	(0.0695)
Migrants X JUN2020	-0.0309	0.0103	-0.0819**	-0.0431	0.0187	-0.0186	-0.0254	-0.0702
	(0.0197)	(0.0163)	(0.0365)	(0.0358)	(0.0380)	(0.0401)	(0.0354)	(0.0803)
Migrants X JUL2020	0.00108	-0.0114				-0.0689*	-0.0817**	-0.0440
	(0.0206)	(0.0168)				(0.0383)	(0.0351)	(0.0786)
Migrants X AUG2020	-0.00176	-0.0192				-0.0587	-0.0540	0.0138
	(0.0224)	(0.0187)				(0.0377)	(0.0365)	(0.0706)
Migrants X SEP2020	-0.00959	-0.0225	-0.0419	-0.00524	0.0535	0.0168	-0.0531	-0.0294
	(0.0210)	(0.0169)	(0.0306)	(0.0284)	(0.0335)	(0.0366)	(0.0349)	(0.0743)
Migrants X OCT2020	-0.0329*	-0.0145	-0.0682**	-0.0634**	0.00119	0.00484	-0.0777**	0.0115
	(0.0192)	(0.0136)	(0.0295)	(0.0316)	(0.0343)	(0.0383)	(0.0343)	(0.0953)
Migrants X NOV2020	-0.00186	-0.0221	-0.0130	-0.0140	0.00819	0.00452	-0.0796**	-0.0755
	(0.0177)	(0.0143)	(0.0308)	(0.0317)	(0.0355)	(0.0373)	(0.0365)	(0.0846)
APR2020	-0.0532**	0.0330*	0.0596**	0.0572**	0.116***	0.102***	0.00424	-0.0395
	(0.0209)	(0.0174)	(0.0283)	(0.0282)	(0.0313)	(0.0338)	(0.0324)	(0.0664)
MAY2020	-0.0495**	0.0310*	0.119***	0.0864***	0.146***	0.147***	0.0211	0.0277
	(0.0203)	(0.0160)	(0.0292)	(0.0274)	(0.0307)	(0.0318)	(0.0339)	(0.0566)
JUN2020	-0.0196	0.0107	0.200***	0.113***	0.128***	0.0982***	-0.0483	0.0319
	(0.0182)	(0.0151)	(0.0316)	(0.0302)	(0.0312)	(0.0324)	(0.0296)	(0.0682)
JUL2020	-0.0798***	0.0443***				0.0797***	-0.0228	-0.00488
	(0.0192)	(0.0166)				(0.0308)	(0.0317)	(0.0715)
AUG2020	-0.0739***	0.0577***				0.0634**	0.00589	0.0313
	(0.0198)	(0.0175)				(0.0308)	(0.0323)	(0.0594)
SEP2020	-0.0525***	0.0448***	0.112***	0.00837	-0.00488	0.0162	0.0243	0.0229
	(0.0192)	(0.0167)	(0.0270)	(0.0242)	(0.0272)	(0.0292)	(0.0295)	(0.0604)
OCT2020	-0.0364**	0.0515***	0.0925***	0.0654**	0.0478*	0.0418	0.0172	0.00469
	(0.0180)	(0.0145)	(0.0274)	(0.0281)	(0.0275)	(0.0297)	(0.0306)	(0.0792)
NOV2020	-0.0357**	0.0199	0.0386	0.0376	0.0146	-0.00984	-0.0207	0.122*
	(0.0164)	(0.0133)	(0.0266)	(0.0266)	(0.0284)	(0.0287)	(0.0319)	(0.0632)
Observations	30,664	25,699	29,502	29,502	29,502	25,699	30,664	12,922

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, Migration Status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1.

Table 4: Impact of migration on household welfare during the with-COVID-19 period (sub-sample, continued)

	(9)	(10)	(11)	(12)	(13)	(14)
	Perception of financial and economic situation of household and living area					
VARIABLES	Current financial condition is worse than before	Expecting financial condition gets worse	Perceives own household as poor	Own life perceived as unsatisfactory	Perceives area's economic condition as bad	Perceives area's job situation as bad
Migrants X APR2020	-0.00362	0.00369	-0.0934***	-0.00676	-0.00705	-0.0820**
	(0.0287)	(0.0231)	(0.0357)	(0.0179)	(0.0288)	(0.0383)
Migrants X MAY2020	-0.0221	0.0135	-0.0509	-0.000892	-0.0258	-0.108***
	(0.0327)	(0.0237)	(0.0348)	(0.0207)	(0.0308)	(0.0390)
Migrants X JUN2020	-0.0494	0.00388	-0.0820**	0.0224	-0.0503	-0.0659*
	(0.0302)	(0.0157)	(0.0351)	(0.0165)	(0.0308)	(0.0391)
Migrants X JUL2020	-0.0404	-0.0231	-0.0547	-0.0255	-0.0640**	-0.0758*
	(0.0302)	(0.0217)	(0.0340)	(0.0188)	(0.0291)	(0.0390)
Migrants X AUG2020	-0.0539**	-0.0129	-0.100***	-0.00142	-0.0202	-0.0942**
	(0.0254)	(0.0172)	(0.0346)	(0.0192)	(0.0264)	(0.0372)
Migrants X SEP2020	-0.00521	0.0135	-0.127***	0.0236	-0.0604**	-0.0947**
	(0.0214)	(0.0123)	(0.0368)	(0.0154)	(0.0251)	(0.0417)
Migrants X OCT2020	-0.0264	0.0116	-0.0863**	-0.0275	-0.0544*	-0.0109
	(0.0237)	(0.0157)	(0.0363)	(0.0196)	(0.0291)	(0.0401)
Migrants X NOV2020	0.0696**	0.0239	-0.112***	0.0361**	-0.0169	-0.126***
	(0.0285)	(0.0193)	(0.0368)	(0.0171)	(0.0341)	(0.0399)
APR2020	0.102***	0.0670***	0.0679**	0.00139	0.00937	0.0814**
	(0.0246)	(0.0193)	(0.0310)	(0.0161)	(0.0262)	(0.0326)
MAY2020	0.167***	0.0431**	0.0886***	0.0254	0.111***	0.238***
	(0.0278)	(0.0199)	(0.0294)	(0.0185)	(0.0260)	(0.0327)
JUN2020	0.127***	-0.0141	0.0470	-0.0192	0.0880***	0.187***
	(0.0269)	(0.0141)	(0.0305)	(0.0148)	(0.0260)	(0.0321)
JUL2020	0.165***	0.0526***	-0.0104	0.00963	0.0919***	0.247***
	(0.0260)	(0.0199)	(0.0298)	(0.0186)	(0.0264)	(0.0331)
AUG2020	0.154***	0.0671***	0.00454	-0.00157	0.0431**	0.252***
	(0.0233)	(0.0161)	(0.0302)	(0.0172)	(0.0218)	(0.0315)
SEP2020	0.107***	0.0436***	0.0360	-0.0113	0.0366	0.166***
	(0.0182)	(0.0112)	(0.0299)	(0.0137)	(0.0243)	(0.0351)
OCT2020	0.129***	0.0554***	0.0198	0.0319*	0.130***	0.0991***
	(0.0207)	(0.0135)	(0.0306)	(0.0192)	(0.0250)	(0.0339)
NOV2020	0.123***	0.0579***	0.0168	-0.0260*	0.107***	0.0482
	(0.0214)	(0.0150)	(0.0303)	(0.0153)	(0.0261)	(0.0313)
Observations	30,664	30,664	28,306	28,306	28,306	28,306

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, migration status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1

Table 5: Impact of remittances on household welfare during the with-COVID-19 period (sub-sample)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Food Security		Finance for Basic Needs		Consumption		Healthcare	
VARIABLES	Able to buy enough food	Not able to buy enough food for children	Financially unable to pay for utilities	Borrowed money for basic needs	Reduced food consumption	Child ate less than 3 times a day	Any household member been sick	Reduced healthcare expenditure
Monthly remittance X APR2020	-0.0394	0.0372	-0.0733**	-0.0562*	0.104***	-0.0713*	-0.0311	-0.158**
	(0.0277)	(0.0253)	(0.0339)	(0.0337)	(0.0399)	(0.0372)	(0.0388)	(0.0653)
Monthly remittance X MAY2020	0.00112	-0.00467	-0.133***	-0.0716**	-0.0113	-0.103***	-0.0793**	-0.0991
	(0.0221)	(0.0189)	(0.0323)	(0.0344)	(0.0374)	(0.0362)	(0.0383)	(0.0695)
Monthly remittance X JUN2020	-0.0223	0.00345	-0.132***	-0.128***	-0.00630	-0.0499	-0.0320	-0.159**
	(0.0199)	(0.0167)	(0.0350)	(0.0337)	(0.0372)	(0.0388)	(0.0354)	(0.0746)
Monthly remittance X JUL2020	-0.0124	0.000267				-0.143***	-0.0771**	-0.0575
	(0.0195)	(0.0161)				(0.0368)	(0.0347)	(0.0743)
Monthly remittance X AUG2020	0.00950	-0.0230				-0.104***	-0.0773**	-0.111*
	(0.0221)	(0.0184)				(0.0368)	(0.0360)	(0.0677)
Monthly remittance X SEP2020	-0.00173	-0.0277*	-0.0381	-0.00642	0.0465	0.00311	-0.0598*	-0.0787
	(0.0207)	(0.0168)	(0.0301)	(0.0279)	(0.0334)	(0.0362)	(0.0344)	(0.0734)
Monthly remittance X OCT2020	-0.0362*	-0.0118	-0.0718**	-0.0481	0.0183	-0.0213	-0.0943***	-0.0243
	(0.0190)	(0.0133)	(0.0291)	(0.0311)	(0.0338)	(0.0380)	(0.0340)	(0.0928)
Monthly remittance X NOV2020	-0.0123	-0.0155	-0.0232	-0.0283	0.0140	0.0162	-0.0626*	-0.0168
	(0.0175)	(0.0141)	(0.0305)	(0.0314)	(0.0351)	(0.0370)	(0.0362)	(0.0851)
APR2020	-0.0542***	0.0459***	0.0892***	0.0754***	0.0842***	0.0681**	0.0179	0.0128
	(0.0175)	(0.0151)	(0.0243)	(0.0234)	(0.0259)	(0.0271)	(0.0266)	(0.0513)
MAY2020	-0.0457***	0.0364**	0.137***	0.113***	0.152***	0.129***	0.0465	0.0552
	(0.0177)	(0.0146)	(0.0254)	(0.0236)	(0.0261)	(0.0268)	(0.0304)	(0.0467)
JUN2020	-0.0255	0.0150	0.213***	0.146***	0.141***	0.107***	-0.0432	0.0663
	(0.0175)	(0.0151)	(0.0280)	(0.0270)	(0.0287)	(0.0296)	(0.0277)	(0.0619)
JUL2020	-0.0720***	0.0372**				0.113***	-0.0301	-0.00146
	(0.0178)	(0.0157)				(0.0290)	(0.0308)	(0.0667)
AUG2020	-0.0794***	0.0589***				0.0852***	0.0175	0.0993*
	(0.0204)	(0.0177)				(0.0297)	(0.0317)	(0.0560)
SEP2020	-0.0567***	0.0474***	0.109***	0.00842	-0.000685	0.0235	0.0270	0.0481
	(0.0195)	(0.0171)	(0.0267)	(0.0239)	(0.0271)	(0.0287)	(0.0292)	(0.0588)
OCT2020	-0.0351**	0.0496***	0.0922***	0.0554**	0.0385	0.0546*	0.0247	0.0223
	(0.0176)	(0.0142)	(0.0270)	(0.0275)	(0.0270)	(0.0293)	(0.0303)	(0.0750)
NOV2020	-0.0300*	0.0159	0.0428	0.0441*	0.0116	-0.0162	-0.0316	0.0890
	(0.0165)	(0.0134)	(0.0262)	(0.0263)	(0.0280)	(0.0285)	(0.0317)	(0.0638)
Observations	30,664	25,699	29,502	29,502	29,502	25,699	30,664	12,922

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, migration status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. This table reports the sub-sample analyses only with households that sent migrants in 2019.. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Impact of Remittance during COVID on Households' Economic Well-being (sub-sample, continued)

	(9)	(10)	(11)	(12)	(13)	(14)
	Perception of financial and economic situation of household and living area					
VARIABLES	Current financial condition is worse than before	Expecting financial condition gets worse	Perceives own household as poor	Own life perceived as unsatisfactory	Perceives area's economic condition as bad	Perceives area's job situation as bad
Monthly remittance X APR2020	-0.0157	0.0397	-0.129***	0.00342	-0.0151	-0.153***
	(0.0286)	(0.0250)	(0.0353)	(0.0170)	(0.0284)	(0.0390)
Monthly remittance X MAY2020	-0.101***	0.0276	-0.125***	-0.0233	-0.105***	-0.211***
	(0.0307)	(0.0242)	(0.0347)	(0.0191)	(0.0291)	(0.0382)
Monthly remittance X JUN2020	-0.102***	0.0106	-0.0982***	0.0119	-0.136***	-0.210***
	(0.0275)	(0.0155)	(0.0341)	(0.0161)	(0.0282)	(0.0384)
Monthly remittance X JUL2020	-0.0738**	-0.0579***	-0.0562*	-0.0216	-0.0985***	-0.114***
	(0.0292)	(0.0208)	(0.0331)	(0.0178)	(0.0276)	(0.0378)
Monthly remittance X AUG2020	-0.0733***	-0.00338	-0.116***	-0.00679	-0.0537**	-0.101***
	(0.0248)	(0.0167)	(0.0338)	(0.0190)	(0.0261)	(0.0366)
Monthly remittance X SEP2020	-0.00301	0.0143	-0.128***	0.0280*	-0.0629**	-0.102**
	(0.0215)	(0.0125)	(0.0363)	(0.0153)	(0.0250)	(0.0412)
Monthly remittance X OCT2020	-0.0173	0.0198	-0.0938***	-0.0288	-0.0825***	-0.0389
	(0.0234)	(0.0155)	(0.0358)	(0.0190)	(0.0285)	(0.0393)
Monthly remittance X NOV2020	0.0427	0.0347*	-0.119***	0.0290*	-0.0524	-0.154***
	(0.0287)	(0.0193)	(0.0363)	(0.0170)	(0.0337)	(0.0394)
APR2020	0.100***	0.0525***	0.0601**	-0.00729	0.00986	0.0955***
	(0.0199)	(0.0144)	(0.0254)	(0.0135)	(0.0208)	(0.0258)
MAY2020	0.190***	0.0378**	0.112***	0.0319*	0.137***	0.265***
	(0.0240)	(0.0167)	(0.0254)	(0.0168)	(0.0236)	(0.0269)
JUN2020	0.141***	-0.0184	0.0446*	-0.0130	0.120***	0.248***
	(0.0242)	(0.0124)	(0.0267)	(0.0134)	(0.0248)	(0.0276)
JUL2020	0.179***	0.0689***	-0.0136	0.00543	0.106***	0.263***
	(0.0253)	(0.0198)	(0.0279)	(0.0173)	(0.0259)	(0.0300)
AUG2020	0.162***	0.0606***	0.00866	0.000802	0.0603***	0.253***
	(0.0233)	(0.0154)	(0.0286)	(0.0170)	(0.0217)	(0.0297)
SEP2020	0.105***	0.0429***	0.0346	-0.0137	0.0368	0.168***
	(0.0183)	(0.0117)	(0.0293)	(0.0136)	(0.0243)	(0.0344)
OCT2020	0.122***	0.0509***	0.0211	0.0314*	0.142***	0.114***
	(0.0200)	(0.0130)	(0.0294)	(0.0186)	(0.0246)	(0.0324)
NOV2020	0.138***	0.0525***	0.0170	-0.0217	0.125***	0.0587*
	(0.0221)	(0.0144)	(0.0292)	(0.0154)	(0.0256)	(0.0302)
Observations	30,664	30,664	28,306	28,306	28,306	28,306

Source: Authors

Note: Standard errors are clustered at the level of household. Other explanatory variables not shown in this table are year dummy, month dummy, Migration Status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator, with household-level means of dependent and independent variables are subtracted from each observation. This table reports the sub-sample analyses only with households that sent migrants in 2019. Full sample results are available upon request. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Impact of migration/remittances on household welfare throughout the with-COVID-19 period

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Food Security		Finance for Basic Needs		Consumption		Healthcare	
VARIABLES	Able to buy enough food	Not able to buy enough food for children	Financially unable to pay for utilities	Borrowed money for basic needs	Reduced food consumption	Child ate less than 3 times a day	Any household member been sick	Reduced healthcare expenditure
I. Full Sample Analysis								
I.A: Migration								
(A) Migrants X COVID	8.06e-05	-0.00961	-0.0403***	-0.0275**	-0.0119	-0.00429	-0.0454***	-0.0321
	(0.00945)	(0.00720)	(0.0135)	(0.0139)	(0.0175)	(0.0158)	(0.0140)	(0.0263)
I.B: Remittance								
(B) Remittance X COVID	-0.00307	-0.0109	-0.0713***	-0.0563***	-0.00889	-0.0318**	-0.0551***	-0.0732***
	(0.00954)	(0.00736)	(0.0131)	(0.0136)	(0.0182)	(0.0150)	(0.0142)	(0.0248)
Observations	70,598	55,256	68,195	68,195	68,195	55,256	70,598	30,272
II. Sub-Sample Analysis (Only with HHs sending migrants in 2019)								
II.A: Migration								
(A) Migrants X COVID	-0.0126	-0.00408	-0.0433**	-0.0212	0.0198	-0.0370*	-0.0509***	-0.0303
	(0.0125)	(0.00916)	(0.0194)	(0.0195)	(0.0236)	(0.0215)	(0.0188)	(0.0370)
II.B: Remittance								
(B) Remittance X COVID	-0.0135	-0.00696	-0.0793***	-0.0615***	0.0129	-0.0626***	-0.0660***	-0.0856**
	(0.0116)	(0.00886)	(0.0173)	(0.0177)	(0.0223)	(0.0192)	(0.0180)	(0.0337)
Observations	30,664	25,699	29,502	29,502	29,502	25,699	30,664	12,922
III. Estimation with Instrumental Variables								
III.A: Migration								
(A) Migrants X COVID	0.0450	-0.0868	-0.0878	-0.0709	-0.158**	0.118	-0.213**	0.0545
	(0.0389)	(0.0543)	(0.0609)	(0.0514)	(0.0696)	(0.0970)	(0.103)	(0.0811)
III.B: Remittance								
(B) Remittance X COVID	0.0670	-0.122**	-0.173*	-0.115	-0.246**	0.169*	-0.324***	0.0612
	(0.0531)	(0.0497)	(0.0926)	(0.0837)	(0.103)	(0.0870)	(0.114)	(0.113)
Observations	43,341	39,216	41,268	41,268	41,268	39,216	43,341	16,412

Source: Authors

Note: Standard errors are clustered at the level of household. Only the coefficients on the interaction terms of Migration/Remittance and the After-COVID dummy are reported. Other explanatory variables are After COVID dummy, Migration/Remittance status, year dummy, month dummy, disruptions in electricity, and disruptions in water supply. Tables of full results are available upon request. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Impact of migration/remittances on household welfare throughout the with-COVID-19 period (continued)

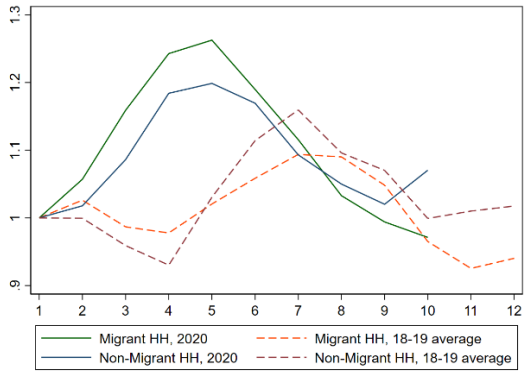
VARIABLES	(9) Current financial condition is worse than before	(10) Expecting financial condition gets worse	(11) Perceives own household as poor	(12) Own life perceived as unsatisfactory	(13) Perceives area's economic condition as bad	(14) Perceives area's job situation as bad
I. Full Sample Analysis						
I.A: Migration						
(A) Migrants X COVID	-0.0278***	-0.00774	-0.0408***	-0.00396	-0.0279**	-0.0306*
	(0.00999)	(0.00655)	(0.0144)	(0.00689)	(0.0123)	(0.0162)
I.B: Remittance						
(B) Remittance X COVID	-0.0396***	0.00179	-0.0670***	-0.00639	-0.0574***	-0.0712***
	(0.00956)	(0.00647)	(0.0143)	(0.00670)	(0.0113)	(0.0157)
Observations	70,598	55,256	62,772	62,772	62,772	62,772
II. Sub-Sample Analysis (Only with HHs sending migrants in 2019)						
II.A: Migration						
(A) Migrants X COVID	-0.0194	0.00238	-0.0861***	0.00260	-0.0382**	-0.0736***
	(0.0145)	(0.00883)	(0.0191)	(0.00893)	(0.0168)	(0.0219)
II.B: Remittance						
(B) Remittance X COVID	-0.0444***	0.00878	-0.113***	-0.00190	-0.0744***	-0.124***
	(0.0131)	(0.00848)	(0.0175)	(0.00814)	(0.0147)	(0.0197)
Observations	29,502	29,502	28,306	25,699	28,306	28,306
III. Estimation with Instrumental Variables						
III.A: Migration						
(A) Migrants X COVID	-0.0418	-0.0506*	0.130*	-0.00535	-0.00892	0.0238
	(0.0339)	(0.0277)	(0.0785)	(0.0276)	(0.0406)	(0.0520)
III.B: Remittance						
(B) Remittance X COVID	-0.0562	-0.0618*	0.180**	-0.00213	-0.0130	0.0322
	(0.0473)	(0.0361)	(0.0869)	(0.0411)	(0.0562)	(0.0740)
Observations	43,341	43,341	43,341	43,341	43,341	43,341

Source: Authors

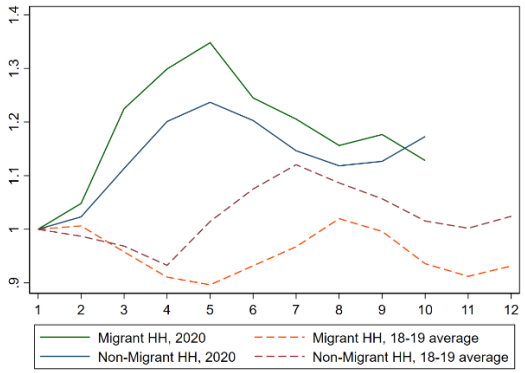
Note: Standard errors are clustered at the level of household. Only the coefficients on the interaction terms of Migration/Remittance and the After-COVID dummy are reported. Other explanatory variables are After COVID dummy, Migration/Remittance status, year dummy, month dummy, disruptions in electricity, and disruptions in water supply. Tables of full results are available upon request. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Figure 1: Food security measures under the pandemic

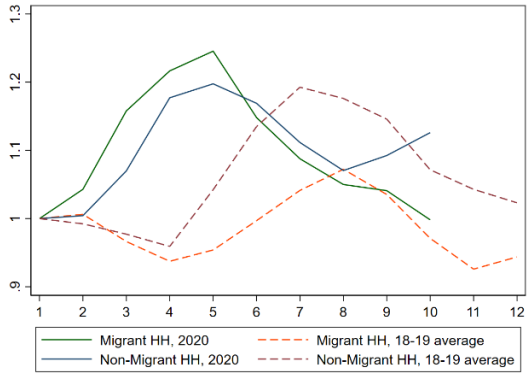
(1) Worried about enough food to eat



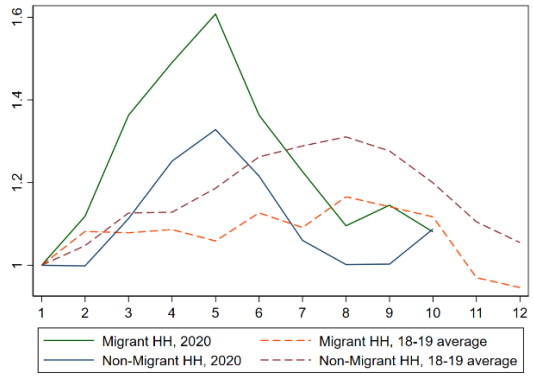
(2) Unable to eat healthy/nutritious food



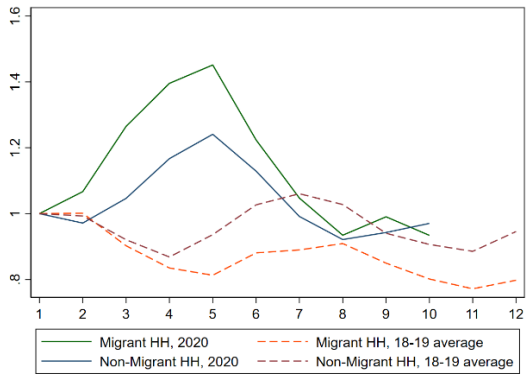
(3) Only a few kinds of food



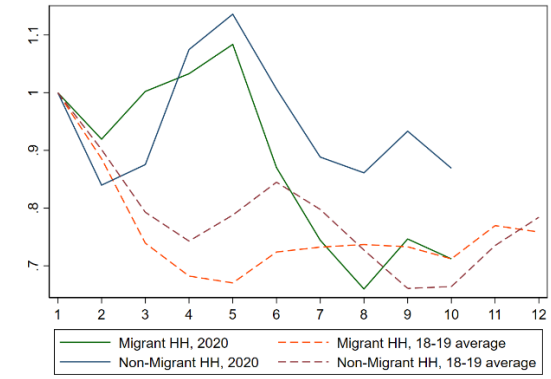
(4) Skip a meal



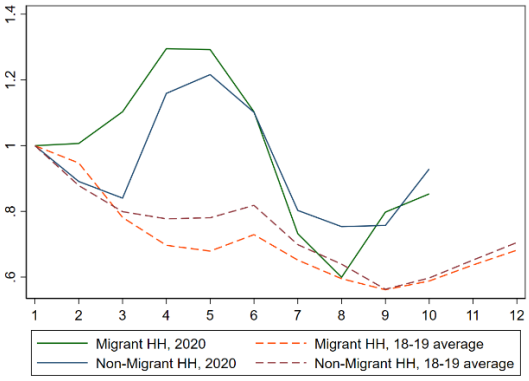
(5) Ate less



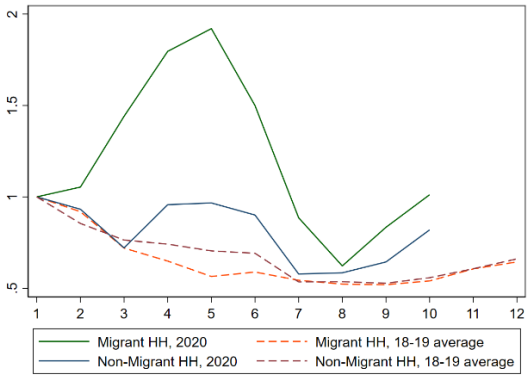
(6) Ran out of food



(7) Hungry



(8) Went without eating for a whole day



Source: Authors

Note: The questions are (1) Are you worried about being unable to have enough food to eat because of a lack of money or other resources? (2) Are you unable to eat healthy and nutritious food because of a lack of money or other resources? (3) Did you eat only a few kinds of food because of a lack of money or other resources? (4) Did you have to skip a meal because of a lack of money or other resources to get food? (5) Did you eat less than you thought you should because of a lack of money or other resource? (6) Did you run out of food because of a lack of money or other resources? (7) Were you hungry but did not eat because there was not enough money or resources for food? And (8) Did you go without eating for a whole day because of a lack of money or other resources?

Appendix Table A1: Impact of Migration during COVID on Food Security Measures (Full Sample)

VARIABLES	(1) Worried about enough food	(2) Unable to eat healthy/nutritious food	(3) Ate only a few kinds of food	(4) Skip a meal	(5) Ate less	(6) Ran out of food	(7) Hungry	(8) Without eating for a whole day
Migrants X APR2020	-0.0151	0.00857	0.0197	0.0244	0.000253	0.00910	4.94e-05	0.0214*
	(0.0263)	(0.0257)	(0.0261)	(0.0241)	(0.0232)	(0.0191)	(0.0133)	(0.0121)
Migrants X MAY2020	-0.0337	-0.0233	-0.0367	-0.0122	-0.0240	-0.0307*	-0.000957	0.00891
	(0.0258)	(0.0250)	(0.0254)	(0.0233)	(0.0224)	(0.0180)	(0.0139)	(0.0124)
Migrants X JUN2020	-0.00570	0.00578	-0.0225	0.00961	-0.0264	0.00702	0.00527	0.0155
	(0.0266)	(0.0264)	(0.0262)	(0.0236)	(0.0224)	(0.0165)	(0.0122)	(0.0109)
Migrants X JUL2020	-0.0411	-0.0269	-0.0310	-0.00800	-0.0231	-0.00949	-0.00313	0.00590
	(0.0260)	(0.0261)	(0.0259)	(0.0213)	(0.0201)	(0.0149)	(0.0107)	(0.00862)
Migrants X AUG2020	-0.0111	0.00995	-0.0215	0.0209	-0.0284	-0.0308*	-0.0121	-0.00361
	(0.0270)	(0.0261)	(0.0258)	(0.0229)	(0.0212)	(0.0167)	(0.0117)	(0.00954)
Migrants X SEP2020	-0.0594**	-0.0132	-0.0279	-0.0200	-0.0392*	-0.0144	-0.0102	-0.00155
	(0.0266)	(0.0257)	(0.0252)	(0.0217)	(0.0212)	(0.0172)	(0.0107)	(0.00922)
Migrants X OCT2020	-0.0567**	-0.0272	-0.0585**	-0.00212	-0.0192	-0.00978	0.0140	0.00571
	(0.0261)	(0.0259)	(0.0257)	(0.0230)	(0.0218)	(0.0171)	(0.0133)	(0.0107)
Migrants X NOV2020	-0.0486*	-0.0377	-0.0637**	-0.00942	-0.0259	-0.00943	-0.0153	-0.00196
	(0.0257)	(0.0259)	(0.0256)	(0.0230)	(0.0225)	(0.0166)	(0.0129)	(0.0112)
APR2020	0.0920***	0.0750***	0.0604***	0.0438***	0.0640***	0.0465***	0.0384***	0.0257***
	(0.0171)	(0.0175)	(0.0175)	(0.0165)	(0.0159)	(0.0126)	(0.0104)	(0.00906)
MAY2020	0.0607***	0.0655***	0.0560***	0.0527***	0.0847***	0.0391***	0.0302***	0.0178*
	(0.0174)	(0.0165)	(0.0175)	(0.0158)	(0.0160)	(0.0139)	(0.0108)	(0.00989)
JUN2020	-0.0225	0.0164	-0.0169	0.00876	0.0204	-0.00904	0.0148	0.0159*
	(0.0179)	(0.0177)	(0.0179)	(0.0162)	(0.0156)	(0.0131)	(0.00961)	(0.00902)
JUL2020	0.0294*	0.0282*	-0.0208	-0.0359**	-0.0454***	6.34e-05	0.0334***	0.0397***
	(0.0166)	(0.0170)	(0.0167)	(0.0157)	(0.0147)	(0.0123)	(0.00970)	(0.00862)
AUG2020	-0.0891***	-0.0495***	-0.0862***	-0.0443***	-0.0462***	-0.0104	0.0356***	0.0251***
	(0.0177)	(0.0167)	(0.0177)	(0.0153)	(0.0151)	(0.0126)	(0.00977)	(0.00877)
SEP2020	-0.0546***	-0.0299*	-0.0764***	-0.0390***	-0.0205	-0.0177	0.0271***	0.0207***
	(0.0174)	(0.0160)	(0.0165)	(0.0150)	(0.0144)	(0.0123)	(0.00889)	(0.00797)
OCT2020	-0.0355**	0.000351	-0.0321*	-0.0324**	0.000414	-0.00125	0.0306***	0.0315***
	(0.0177)	(0.0173)	(0.0171)	(0.0151)	(0.0151)	(0.0113)	(0.00913)	(0.00862)
NOV2020	-0.0437***	-0.0412**	-0.0580***	-0.0376**	-0.0395***	-0.0274**	0.0353***	0.0315***
	(0.0167)	(0.0165)	(0.0171)	(0.0150)	(0.0151)	(0.0118)	(0.00966)	(0.00867)
Observations	49,862	49,862	49,862	49,080	49,862	49,862	49,080	49,080

Source: Authors

Note: Standard errors are clustered at the level of household. The explanatory variables not shown in this table are year dummy, month dummy, migration status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table A2: Impact of Remittance during COVID on Food Security Measures (Full Sample)

VARIABLES	(1) Worried about enough food	(2) Unable to eat healthy/nutritious food	(3) Ate only a few kinds of food	(4) Skip a meal	(5) Ate less	(6) Ran out of food	(7) Hungry	(8) Without eating for a whole day
Monthly remittance X APR2020	-0.0597**	-0.0459	-0.0159	-0.0988***	-0.0971***	0.0551**	0.00209	0.0214
	(0.0299)	(0.0296)	(0.0304)	(0.0249)	(0.0249)	(0.0264)	(0.0163)	(0.0153)
Monthly remittance X MAY2020	-0.118***	-0.0939***	-0.101***	-0.109***	-0.109***	-0.00344	0.00158	0.0138
	(0.0287)	(0.0278)	(0.0282)	(0.0235)	(0.0228)	(0.0214)	(0.0160)	(0.0143)
Monthly remittance X JUN2020	-0.0705**	-0.0221	-0.0470*	-0.0557**	-0.0753***	0.0172	0.00737	0.0207*
	(0.0280)	(0.0281)	(0.0274)	(0.0238)	(0.0220)	(0.0185)	(0.0135)	(0.0125)
Monthly remittance X JUL2020	-0.0804***	-0.0461*	-0.0493*	-0.0455**	-0.0509***	-0.00450	0.000712	0.0112
	(0.0263)	(0.0263)	(0.0262)	(0.0205)	(0.0193)	(0.0155)	(0.0110)	(0.00876)
Monthly remittance X AUG2020	-0.0270	-0.00302	-0.0350	0.00247	-0.0457**	-0.0362**	-0.0133	-0.00513
	(0.0272)	(0.0262)	(0.0259)	(0.0228)	(0.0207)	(0.0167)	(0.0113)	(0.00895)
Monthly remittance X SEP2020	-0.0631**	-0.00939	-0.0228	-0.0216	-0.0363*	-0.0158	-0.0123	-0.00341
	(0.0264)	(0.0256)	(0.0251)	(0.0215)	(0.0209)	(0.0171)	(0.0104)	(0.00883)
Monthly remittance X OCT2020	-0.0595**	-0.0247	-0.0543**	-0.00662	-0.0142	-0.00592	0.0187	0.00977
	(0.0260)	(0.0260)	(0.0258)	(0.0228)	(0.0217)	(0.0175)	(0.0136)	(0.0109)
Monthly remittance X NOV2020	-0.0584**	-0.0402	-0.0651**	-0.0176	-0.0299	-0.00507	-0.0104	0.00339
	(0.0258)	(0.0260)	(0.0255)	(0.0229)	(0.0222)	(0.0170)	(0.0132)	(0.0114)
APR2020	0.101***	0.0871***	0.0711***	0.0683***	0.0815***	0.0418***	0.0393***	0.0298***
	(0.0160)	(0.0163)	(0.0163)	(0.0154)	(0.0148)	(0.0117)	(0.00989)	(0.00878)
MAY2020	0.0772***	0.0786***	0.0664***	0.0708***	0.0998***	0.0313**	0.0305***	0.0184*
	(0.0165)	(0.0159)	(0.0166)	(0.0150)	(0.0151)	(0.0129)	(0.0103)	(0.00949)
JUN2020	-0.00644	0.0232	-0.0131	0.0238	0.0291*	-0.00996	0.0152	0.0161*
	(0.0173)	(0.0170)	(0.0173)	(0.0157)	(0.0151)	(0.0126)	(0.00937)	(0.00880)
JUL2020	0.0389**	0.0320*	-0.0175	-0.0267*	-0.0395***	-0.00130	0.0323***	0.0384***
	(0.0162)	(0.0168)	(0.0165)	(0.0156)	(0.0145)	(0.0120)	(0.00949)	(0.00849)
AUG2020	-0.0850***	-0.0461***	-0.0833***	-0.0393***	-0.0427***	-0.00926	0.0358***	0.0254***
	(0.0174)	(0.0165)	(0.0175)	(0.0151)	(0.0149)	(0.0125)	(0.00971)	(0.00877)
SEP2020	-0.0544***	-0.0317**	-0.0786***	-0.0393***	-0.0224	-0.0173	0.0276***	0.0213***
	(0.0173)	(0.0159)	(0.0164)	(0.0149)	(0.0143)	(0.0122)	(0.00889)	(0.00800)
OCT2020	-0.0355**	-0.000880	-0.0343**	-0.0315**	-0.00157	-0.00234	0.0295***	0.0305***
	(0.0175)	(0.0170)	(0.0169)	(0.0149)	(0.0149)	(0.0112)	(0.00902)	(0.00854)
NOV2020	-0.0421**	-0.0416**	-0.0591***	-0.0361**	-0.0395***	-0.0287**	0.0338***	0.0300***
	(0.0165)	(0.0163)	(0.0169)	(0.0148)	(0.0149)	(0.0116)	(0.00955)	(0.00861)
Observations	49,862	49,862	49,862	49,080	49,862	49,862	49,080	49,080

Source: Authors

Note: Standard errors are clustered at the level of household. The explanatory variables not shown in this table are year dummy, month dummy, migration status, electricity outage, and water disruption. Household-level fixed effect estimation are implemented by a within-estimator to subtract household-level means of variables from each observation. *** p<0.01, ** p<0.05, * p<0.1.

Abstract (in Japanese)

要約

タジキスタンの経済は海外出稼ぎ労働者（主にロシアに滞在）からの送金に依存しており、近年ではGDPの25%を超える水準になっている。COVID-19のパンデミックは、移民及び送金を減少させることを通じて、タジキスタン経済に悪影響を与えていると思われる。本稿では、コロナ禍発生前から取得を続けている月次家計パネルデータを使って、コロナ禍の家計厚生への影響を様々な角度から検証している。以下の通り、いくつかの新しい知見を得た。第一に、パンデミックによる負の影響は、2020年の4月・5月に特に深刻だったが、その後徐々に緩和されてきた。いくつかの指標については、秋ごろに至って平準化した。第二に、パンデミックによる出稼ぎ者数（滞在中の人数）への影響は、予想に反し、春頃の大きいがごく一時的なものにとどまった。国境封鎖があったため、移民予定だった人々が渡航できなくなった一方、帰国予定だった人々も現地（主にロシア）にとどまり、仕事を続けていた。夏以降、出発と帰国が再開し回復傾向にある。移民の雇用と送金は、4月・5月に激減したがその後急速に例年の水準まで回復した。第三に、回帰分析によって、移民・送金によって、コロナ禍発生以降の家計へのネガティブな影響が緩和されており、移民・送金が保険としての役割を果たしていたことが示された。総じて、COVID-19による負の影響は、発生直後一時的に深刻なものとなったが、移民のいる家計の方がより耐性があったと考えられる。

キーワード:COVID-19、送金、移民、タジキスタン、家計の厚生

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