

Examining the Inter-Linkages of COVID-19, Agricultural Households and Nepal's Political Economy

Pankaj POKHREL

Research Officer at Inter-Disciplinary Analysts (IDA)

Shreezal G.C.

Research Associate at IDA. Correspondence: shreezalgc@gmail.com

Sudhindra SHARMA

Nepa School of Social Sciences and Humanities & Executive Director of IDA.

Abstract

This study investigates the economic repercussions of the COVID-19 pandemic on Nepal's political economy and household economies, focusing on the agricultural sector and remittance dynamics. The primary objective is twofold: first, to analyze the pandemic's impact on Nepal's broader economic landscape using secondary literature, and second, to examine the consequences of outmigration on household economies through primary panel data from 2017 and 2020 surveys. The methodology involves employing a mix of secondary literature analysis and primary panel data from five districts, using OLS and random effects models to evaluate the effects on agricultural yield. The results indicate that the agricultural output of migrant households did not significantly increase post-pandemic, while non-migrant households experienced a notable rise in average agricultural yield. This suggests the resilience of traditional agricultural and food systems during shocks. The study underscores the importance of policies encouraging migrant households to leverage remittances for agricultural productivity and emphasizes the need for long-term strategies to enhance overall economic resilience in the face of global crises.

Keywords: COVID-19, political economy, agriculture, remittance

JEL: Q12, Q18, D13, D16

1. INTRODUCTION

The aftermath of the pandemic on the global economy has been severe. The global economy shrunk by 3.1 percent in 2020 (IMF, 2022) resulting from both the demand- and supply- side shocks (World Bank, 2021). The supply side shocks were the result of reduced productivity, lockdowns, stoppage of businesses, and social distancing whereas layoffs, unemployment, reduced consumption and investment, and precautionary reserve on the other hand led to the demand-side shocks (Chudik et al, 2020). These have adversely affected the livelihood of the people –particularly, a

significant proportion of the population that belong to the lower income strata across the globe. Job losses and reduction in income have further exacerbated poverty and widened the inequality gap (IMF, 2022).

As vaccines against the corona virus started to become available, virus spread and health-related risks became gradually being contained. However, the trajectory of economy that was yet to come to normalcy and recover seems to have further worsened owing to the Ukraine-war-led disturbances in the global food and commodity supply-chains fueled by rising oil and gas prices. As a result, the global economy is expected to witness stagflation – sluggish growth and rising inflation – in the coming years (IMF, 2022). While every country was hard-hit by the pandemic, Emerging Markets and Developing Economies (EMDEs) have had a severe economic effect owing to global recession and slower recovery (World Bank, 2021). The governments had to re-route their priorities and areas of public investment. Most of the nations' globally have experienced a huge fiscal deficit and public debt due to a significant rise in public expenditure on health-related and livelihood-recovery-related programs (MOF, 2022).

Following global trend, Nepal has faced repeated shocks. After Nepal formally came out of the conflict in 2006, the fragile peace process lasted for almost a decade, with the country, however, unable to pass a constitution. Then a devastating earthquake hit in 2015, and though Nepal was able to pass a constitution hurriedly, it was contested by disaffected groups and Nepal had to face almost a year-long economic blockade. The earthquake of 2015 and economic blockade have had far-reaching consequences on the economy and livelihoods of the people, not to mention the countless lives that were lost during the earthquake. COVID-19 hit Nepal as it was just coming out of these twin shocks. COVID-19 has had and will continue to have unprecedented health, economic, and social impact in Nepal as it has globally. More than two years after the onset of the pandemic, the socio-economic disruptions caused by this global crisis have been exacerbated by the effects of Ukraine-Russia war. The low- and middle-income countries and poor, marginalized, and vulnerable groups of people are more susceptible to and likely to endure the long-term impacts of these crises. The situation in Nepal is more precarious in that the country that has already been battered by numerous shocks. With this context in mind the paper has two-fold objectives: first, examining the consequences of the pandemic on Nepal's political economy in general and in people's livelihoods in particular, and second, examining the consequences of out migration on the household economy including agriculture yield and remittance—especially in times of shocks.

To address the first objective, the paper examines secondary literature—mainly published articles, reports brought out by the Nepal Government and studies undertaken by

multilateral and bilateral donor organizations. While for second objective, primary panel data generated by Nepa School of Social Sciences and Food and Agriculture Organization (FAO) from *Migration and Women's Empowerment in Agriculture, 2017* and *Migration, Social Protection Women's Work and Empowerment in Agriculture in the Time of COVID 19, 2020*. With a sample size of around 1,000 households spread equally across five districts of Nepal, namely Achham, Rolpa, Nawalparasi, Makwanpur and Jhapa, this has been a panel survey that examines the situation in these rural households both before the pandemic and during the pandemic. Based on these two objectives, the paper seeks to explain economic trends and extrapolate the new orders that could possibly prevail in the near future and in longer term.

2. DATA AND METHODS

The data and context

To address the second objective, a panel data set of 843 rural households of Nepal has been used. In 2017, Nepa School of Social Sciences and Humanities (Nepa School) Food and Agriculture Organization (FAO's) ESP conducted a study on *Migration and Women's Empowerment in Agriculture, 2017*. The study adopted a multi-stage probability sampling to reach out 1,002 households spread equally across five districts - Achham, Rolpa, Nawalparasi, Makwanpur, and Jhapa. Half of the households sampled for the survey had at least one migrant members. The survey in 2017 obtained the names and mobile phone numbers of the respondents. The survey administered household and WEAI questionnaires. WEAI is a standard tool designed to measure women's empowerment and inclusion in the agricultural sector (Sabina et al, 2012). The household questionnaire collected information of the household related to employment, migration, remittance, livestock, and agriculture, among others. In 2020 Nepa School and FAO's ESP conducted a follow-up survey *Migration, Social Protection Women's Work and Empowerment in Agriculture in the Time of COVID 19, 2020*. This was a phone survey and was underway between October 5 and 20, 2020. The households included in the original sample were re-interviewed by phone. The survey was able to reach 847 panel households.

Although the study was not designed to identify the effects of the pandemic per se especially compared to the pre-pandemic times, the second survey happened to fall at the time when the first wave of COVID 19 had hit the country. In this context, comparisons between two set of data – one collected before the pandemic in 2017 and the other after the first wave of the pandemic in 2020 – could be made to understand the effects the pandemic on the household and their livelihoods.

An attempt has been made to explore the consequences of outmigration in agriculture during the time of the pandemic. A comparison of agricultural yield of two set of rural households – migrants versus non migrants – has been made for two different period of times. One when the situation was normal (when there was no COVID 19 pandemic) and the other when the households experienced different shocks owing the pandemic. The analyses use 427 migrant households and 416 non-migrant households.

Variables

We consider average agricultural yield of households as the outcome variable. Different households produced varieties of agricultural produce. Therefore, average agricultural yield accounting for all the agricultural products produced by a household has been calculated to remove the problem of heterogeneity. The variables that are assumed to be constant across two time-frames i.e., during a normal period and during the period of the pandemic include socio-economic characteristics such as sex, zone and migration status. Additionally, major variables of interest – for instance, whether or not a household receives remittance, whether or not a household is involved in farming, whether or not a household is involved in livestock and whether or not the respondent is literate – are controlled for the analysis.

Empirical strategy

Using the panel dataset, we estimate the effects of COVID-19 and migration status of the households on agricultural yield using an OLS as well as random effects model. We, in particular, employ OLS technique to evaluate if the migration status explains the agriculture yield of the households over the period of time. This model allows us to calculate the difference between the agriculture yield of the migrant and non-migrant households before as well as after the COVID-19 period. Next, we employ a random effects model since we are interested in examining the effect of migration status on the agriculture yield where the migration status is a time-invariant characteristic of the household.

The model specifications are presented as follows:

$$Y_{it} = \beta_0 + \beta_1 M_i + \delta \tau + \delta_1 M_i \tau + \epsilon_{it} \quad (1)$$

$$Y_{it} = \alpha + \beta' X_{it} + \delta \tau + \delta_1 M_i \tau + u_i + \epsilon_{it} \quad (2)$$

Where, Y_{it} is the average agriculture yield of the household in kgs, M_i represents the migration status of the household, τ represents post COVID 19 period such that $\tau = 1$, u_i represents the household specific residual and ϵ represents the error term.

3. RESULTS AND DISCUSSION

Nepal's Political Economy and COVID 19

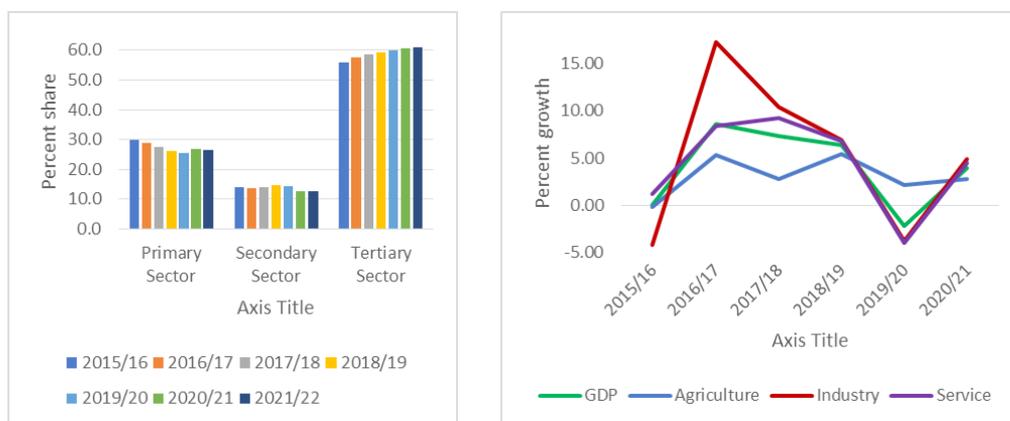
Based on the international Standard Industrial Classification (ISIC) system, the Nepali economy is divided into primary, secondary, and tertiary sectors which is broadly equivalent to agriculture, industrial, and service sectors. The prevalence of agriculture in the Nepali economy has been gradually declining over the years. However, it still accounts for around one-fourth share (26.4 %) of the economy and is the major source of income and livelihood for around three-fifths (60.4%) of the population. Around one-fifth (20%) of the country's employment is generated through the agriculture sector (CBS, 2021). The agriculture sector in Nepal is largely of a subsistence nature and mostly dependent on monsoon rains for irrigation. The sector already constrained by low productivity and shortages of labors due to migration of working age population faced consequences of the measures imposed to contain the spread of the virus. Nepal's agriculture is characterized by the simultaneous existence of two agricultural systems – subsistence and commercial (Adhikari et al, 2021). Studies show that the pandemic had a limited impact in subsistence agriculture. Commercial agriculture, however, was hard hit owing to less resilient marketing practices – limited supply-chain and distribution networks, limited market access, and dependency on India for agricultural inputs (like seeds, fertilizers and pesticides). The farmers not being able to sell their produce (crop, livestock, and poultry) on one hand and not being able to purchase agri-inputs on the other had to incur a significant loss. Consequently, the availability of food was affected. The loss of income and livelihood added to the people's woe by affecting their access to quality and nutritious food. Availability of and access to food have had a bearing on the country's food security (Adhikari et al, 2021).

The industrial sector contribution to the national economy has been fairly low during the past several years. The sector accounts for around one-eighth (12.5 %) of the national economy. The pandemic has affected the industries in both the demand and supply sides (OECD, 2020). The supply side was constrained by the shortages of labor forces and unavailability of the necessary raw materials required for the industry. The demand side was affected by a decline in demand for goods of the products and loss of revenue. As a result, the industrial sector in Nepal experienced a negative growth of 3.76 percent in the year 2019/20 (MOF, 2021). The prevalence of service sector in the Nepali economy has been growing since the last decade. The sector now comprises around three-fifths (61.1%) of the economy. The dominance of service sector owes to the increased consumption of financial and insurance intermediaries, transportation, education, among others. The service sector also experienced a negative growth of 3.97 % as a consequence of the pandemic. While the government aims to achieve ambitious

economic growth each year, the targets are hardly ever met. Subsistence agriculture, less developed manufacturing/industry sector, inefficient markets and supply chains, structural bottlenecks, and presence of dualistic economy (formal versus informal) are assumed to be some of the factors that have impeded economic growth in the country. Moreover, the negative shocks of earthquake, economic blockade, covid pandemic, and Ukraine war have time and again left the poor vulnerable to shocks and repeatedly battered the economy.

The figure in the left panel represents the contribution of agriculture, industry, and service sector in the Nepalese economy whereas the figure in the right panel depicts how the economic growth (across the sectors and overall) has fared over the past six years from 2015/16 to 2020/21. The growth of Gross Domestic Product (GDP) as well as sector growths are correlated with the recurrent shocks that have hit the country. Low and even negative growths have occurred during the time of shocks – one after the earthquake and subsequent trade disruptions with India (during FY 2015/16) and the other after the pandemic hit the country (during FY 2019/20).

Figure 1: Panel (i) Sector-wise share of the country’s GDP and Panel (ii) sector-wise GDP growth



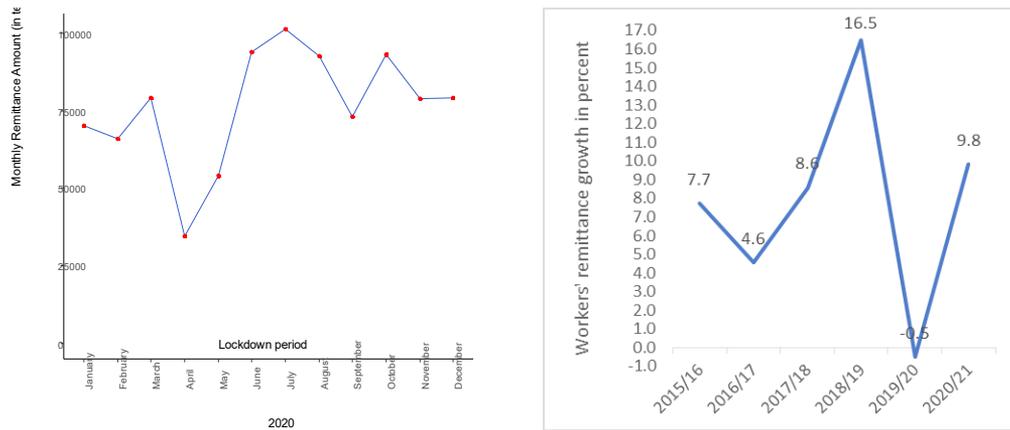
Source: CBS, 2021 NRB, 2022

The Nepalese external sector has been experiencing chronic pressure in the balance of trade over the past several years. The lockdown measures in the neighboring countries directly affected the trading pattern in Nepal. Except for the essential goods, there had been a decline in the import of other commodities. On the other hand, low external demand for Nepalese product and zero-foot flow of the tourist resulted in export

contraction. Total imports declined by around 16.82 percent and the total exports also declined by around 0.61 percent in FY 2019/20 (NRB, 2022). With international travel restrictions and fall in disposable income worldwide, tourism and tourism-related activities has been greatly affected by the pandemic. The number of tourist arrival declined to two hundred and thirty thousand tourists in 2020 compared to more than one million tourists in 2019 which was 81 percent reduction in the number of tourist arrivals (MOF, 2021).

Nepal is one of the largest remittance receiving countries in the world if one takes into account remittance as a share of the country's GDP. Remittance is therefore, an important component of the country's economy and has contributed significantly in increasing the purchasing power of people. The majority of Nepalese travel to India for work but in the recent years, the trend of migrating to Malaysia and Gulf countries for work has increased as well. The Department of foreign employment has issued labor permits to more than 4 million people in the last ten years, making labor migration pivotal in Nepalese economy (MoLESS, 2020). Nepal is heavily reliant on remittances for imports and external payments. The remittance growth for the past several years have led to increased consumption and increased imports. The impact of the pandemic on foreign employment was mainly seen among Nepalese migrant workers in India. Lockdown in India prompted many Nepalese migrant workers to return home due to the uncertainty and loss of jobs. However, the remittance inflow from the foreign countries (except India) was noteworthy in that there were no major changes during and after the first wave of the pandemic.

Figure 2, Panel i, shows the monthly trend of remittance for the year 2020. The Government of Nepal imposed nation-wide lockdown on March 2020 due to which the remittance declined gradually in the month of April. However, the remittance picked up quickly after April and reached the highest point in the month of July. This is because a majority of migrant workers were still able to continue their jobs abroad and send the remittance amount to their family members back in Nepal through formal channels. As a result, the workers' remittance inflow, and contrary to expectations, shrunk only by 0.5 percent during the fiscal year 2019/20 (NRB, 2022) (see Figure 2, Panel ii).

Figure 2: Panel (i) Remittance Inflow in the year 2020; Panel (ii) Workers' remittance growth

Source: NRB, 2022

In addition to the economic contraction, the pandemic has made the families who fall in the lowest spectrum of the economic and social hierarchy more vulnerable. While everyone has been hard-hit by the pandemic, daily wage workers, families of migrant laborers and people from Dalit community faced food insecurity as a result of increased food prices, border closure, unemployment and the lack of savings for sustenance (World Bank, 2022). Singh et.al (2021) had conducted semi-structured interviews among 41 participants in Province 2. The site was selected to see the effect of the pandemic on migrant households as Province 2 has the highest proportion of labor migration in the country. It was found that daily wage workers were mostly affected from the pandemic due to the loss of job and opportunities. In addition to this, dalit workers working on daily wage were even more affected than non-dalit workers due to societal restrictions and financial constraints. According to the study, people in Province 2 were more vulnerable to food insecurity as the people from this province heavily relied on the Indian border for the purchase of goods and employment. These households are at further risk of falling back into poverty as the scope of job recovery for people who lost their job in the first wave of the pandemic was still very low.

The effects of the pandemic tend to have a lasting effect on hospitality sector globally. The employment held by Nepalese migrant workers in Dubai, Saudi Arabia, Malaysia and UAE decreased by 20 to 30 percent over the course of 2020 to 2021. One of the major reasons behind this was the layoff of workers in the hospitality sector. Female migrant workers faced greater risk of unemployment as the hospitality sector is largely dominated by female workforce. With little or no access to social protection in the

host country, workers, especially the ones without proper documentation were more susceptible to the effect of the pandemic (Rimal, 2021). The Government's policies to contain the spread of the pandemic had affected almost every sector of the national economy. The negative shocks of the pandemic still continue to affect the livelihood of the people. These effects could possibly prevail for longer periods in the form of limited livelihood opportunities, decrease in income, rising prices, and reduced consumption. The impacts of the pandemic are dependent on pre-existing socio-economic conditions and the extent to which the individuals' or families' livelihood are affected by the shocks induced by the pandemic. Thus, it is imperative to identify and target appropriate policies and program interventions to mitigate the shocks.

Descriptive Statistics of the Variables

Table 1 shows the descriptive statistics of migrant and non-migrant household respondents during the pre-covid period. A majority of respondents (82%) interviewed in migrant households were female whereas it was 43 percent for non-migrant household. This result is quite expected since a majority of the population who migrate to other countries for work are male. Around 64 percent of the respondents from non-migrant households reported themselves to be literate compared to 50 percent of the respondents that belonged to migrant households.

Table 1: Summary statistics

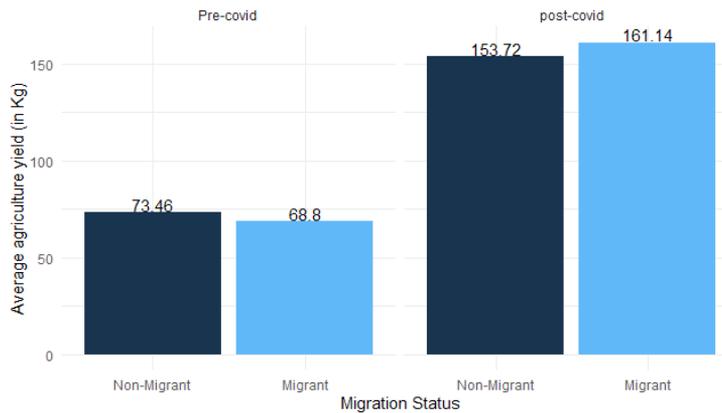
Variables	Migrant, N = 427	Non-Migrant, N = 416
Sex		
Male	77 (18%)	237 (57%)
Female	350 (82%)	179 (43%)
Literate	212 (50%)	266 (64%)
Farming	409 (96%)	387 (93%)
Remit	364 (85%)	17 (4.1%)
Livestock	386 (90%)	362 (87%)
Zone		
Mountain	0 (0%)	1 (0.2%)
Hill	267 (63%)	259 (62%)
Terai	160 (37%)	156 (38%)

Source: Authors' calculation from FAO household data 2017 and 2020

The following bar chart shows the average agricultural yield of the migrant and non-migrant households for two different periods – before pandemic in 2017 and during

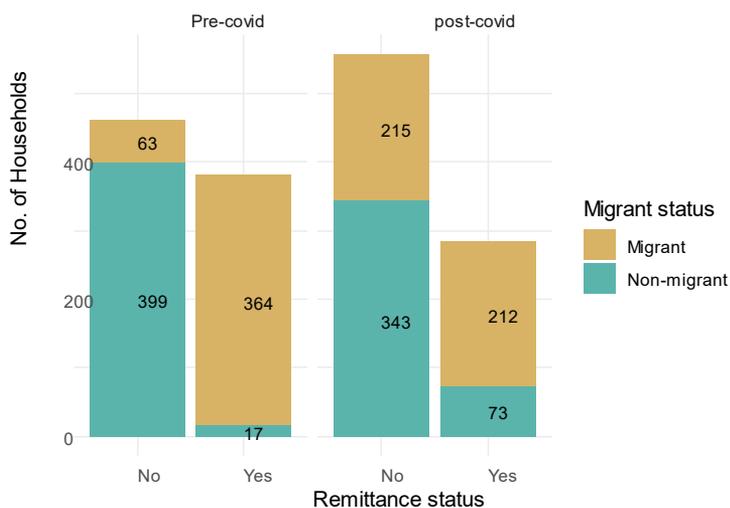
the pandemic in 2020. While the average agricultural yield of the households of both the groups was found to increase, such yield for non-migrant households increased 1.10 times (from 73.46 kg to 153.72 kg) compared to 1.34 times (from 68.8 kg to 161.14 kg) for migrant households.

Figure 3: Average agriculture production of migrant and non-migrant households



Source: FAO household data 2017 and 2020

Similarly, we also examine the remittance status of the migrant and non-migrant households for the period before the covid pandemic in 2017 and during the period of pandemic in 2020. While the share of households reported to have received remittance before the pandemic was 85.24 percent, this share of households decreased to 49.6 percent during the pandemic. A majority migrant households (364 HHs) reported that they received the remittance in the pre-covid period which decreased to 212 during the period of the covid pandemic. A slight increase in the share of remittance receiving non-migrant household in the post-covid period was also noticed (Figure 4).

Figure 4: Remittance status of the migrant and non-migrant households

Source: FAO household data 2017 and 2020

Based on the regression results, the following table (Table 2) shows the impacts that different variables of our interest had on the agricultural yield of the rural households. The results show that the migration-status of the households does not significantly affect their agricultural production for both the periods – before the pandemic and during the pandemic.

However, both the models are able to explain the agricultural yield in terms of two different time periods. It is seen that average agriculture yield increased during the period of the pandemic. The OLS model particularly reveals that the agricultural yield increased for the rural households during the period of the covid pandemic by 80.26 kg on average. After controlling for the other variables in the random effect model, the yield declined to 73.30 kg. The results also show that agricultural yield is positively affected by the households' owning livestock and being located in Terai regions.

The Hausman test shows that the random effects model is suitable since the error terms are not correlated with the regressors. The diagnostics analysis shows that the panel model is a good fit and explains the agriculture yield of the households.

Table 2: Post COVID-19 effect on agriculture yield

	Agriculture Yield	
	OLS (1)	Random effect panel (2)
Migrant (M)	-4.660 (20.277)	-17.769 (25.152)
Literate (Yes = 1)		0.447 (14.690)
Farming (Yes = 1)		-19.375 (31.724)
Remittance (Yes = 1)		14.946 (18.814)
Livestock (Yes = 1)		42.649* (24.235)
Hill		71.792 (70.586)
Terai		196.744*** (70.928)
Time (T)	80.263** (20.408)	73.303** (19.858)
Migrant \times Time ($M \times T$)	12.083 (28.675)	20.848 (28.524)
Constant	73.458** (14.431)	-65.003 (80.378)
Observations	1,686	1,686
R ²	0.021	0.065
Adjusted R ²	0.019	0.060
Residual Std. Error	294.334 (df = 1682)	
F Statistic	12.164***	116.439***
Hausman Test		0.2599
F- test		0.4723
LM test		0.317

Note:

*p<0.1; **p<0.05; ***p<0.01

Source: Authors' Calculation from FAO household data 2017 and 2020

Discussions

Our results indicate that the agriculture output of the migrant households did not increase significantly even after the pandemic. This result is particularly important since there has been no significant change in the pattern of in-migration and out-migration even after the COVID 19 pandemic in Nepal. There are no notable changes in the remittance status of the households in our analysis since majority of Nepali migrant workers did not seem to lose their jobs at least in the initial wave of the pandemic. Moreover, the migrants sent their shares of earnings to their families using formal channels of remittances which did not cause much changes in the pattern of remittances which is similar to the findings of (ADB, 2020) or alike. Since 85% of the migrant households were found to be dependent on the remittance amount that their family members send them from abroad in our analysis, the trend is found to be unaffected even after COVID 19 pandemic for the migrant households. A study on impact of the pandemic on migrant worker and social safety also shows that a majority of the migrants (70%) got regular payments even during the COVID 19 pandemic (Khatiwada, 2020). In contrast, the status of domestic employment posed some concerns., An ILO report on labor market impact on Nepal (ILO, 2020) reported that 24.3% of female and 30.3% of the male workers were estimated to face job risks in Nepal.

Although agriculture is a primary sector in the case of Nepal, the productivity growth has been declining over the years. This decline could largely be attributed to a major share of the agriculture sector consisting of subsistence farming as has been discussed in (Magar et al., 2021). Similarly, international migration has not helped households to move from the subsistence farming to the commercial farming practices due to the emigration trend of labors. Findings of (Maharjan et al., 2012) also point that the households tend to shift away from the farming when they have the alternative source of income such as remittance. Migrant status of the households did not affect the agriculture yield in our analysis.

In case of non-migrant households, we found a significant increase in the average agriculture yield for the non-migrant households as compared to the pre-COVID period in 2017. Moreover, the yield has increased significantly for those households belonging to the Terai region since it is the most productive region of Nepal in terms of agriculture. With limited opportunities for livelihood in the rural areas, focus on agriculture with non-migrant households is very likely. Furthermore, the odds of having consistent (long-run) labor supply are high with the non-migrant households which may have ensured them to focus more on agriculture activities and planning.

While the increase in agricultural yield points to improved productivity, economic resilience, and enhanced food security within non-migrant households, the migrant-households have been unable to leverage resources (in the form of remittances) to enhance agricultural productivity.

4. CONCLUSIONS

The pandemic has had its effects on every sector of the economy and livelihoods of the people. With limited resources in the country, not-so-well functioning frameworks of the government, poorly developed market structures, limited provision of social security and safety nets, these types of shock tend to have severe effects especially in low-income countries like Nepal.

In this backdrop, this study pursues dual objectives – first, to investigate the impact of the pandemic on Nepal’s political economy and second, to examine the effects of out-migration on households’ economies during the time of external shocks like the Covid-19. While the findings on the political economy of Nepal entails comprehensive review and analysis of secondary data and literature, the examination of the impact of the pandemic on agricultural production and remittances of the migrant and non-migrant households utilizes the primary panel data of around 1,000 households from surveys conducted in 2017 and 2020 across five districts in Nepal.

This study shows that despite several factors that affected rural households during the time pandemic, rural agriculture and food system seems to be relatively less affected. Despite being constrained with labor shortages and lower productivity, traditional agriculture and food system can prove to be more resilient during the time of shocks. Protection of indigenous food system together with increased agricultural productivity may serve as a cushion to food security during the time of shock. It is also imperative to have favorable policies and strategic frameworks that encourages migrant households in leveraging remittances to enhance agricultural productivity.

From the perspective of broader political economy analysis, the policy makers should think of developing efficient market chains, strengthening the government’s institutional framework and expanding social safety-nets as a long-term plan. A short-to medium- term plan on livelihood recovery and resilience could be thought of to strengthen livelihood of the most affected group of people.

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