Employment and Income pattern of farm households in Northeast India: Has COVID-19 lockdown hindered?

ABSTRACT

The COVID-19 pandemic hinders the livelihood of farm households in India. This study was conducted to measure the change in the employment and income patterns of farm households in the Imphal West district of Manipur state during the imposition of a nationwide lockdown in relation to the COVID-19 outbreak. A multistage sampling technique was used to select the districts, blocks, and villages. A simple random sampling technique without a replacement strategy was used to identify 109 farm households from two blocks in the Imphal West district of Manipur. Simple tabular analysis and statistical tests were used to examine the changes in the employment and income patterns of farm households in the Imphal West district. The study revealed that the majority of the sampled farm households (86.14%) got their employment in off-farm, non-farm, or both activities along with on-farm activities, and the rest of them (13.76%) specialized only in on-farm activities in the study area. The average number of human days employed on farms by sample households has significantly reduced from 121 to 110 human days. During the COVID-19 period, the average off-farm and non-farm employment decreased from 51 to 35 human days and from 170 to 107 human days, respectively. During COVID-19 lockdown, average yearly farm income reduced by 8.22 per cent. Similarly, the average off-farm and non-farm average income reduced by 21.67 per cent and 20.23 per cent, respectively and there was no employment was generated under Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA) during COVID-19 lockdown period. The employment from private jobs and businesses was primarily disrupted during lockdown. Hence, this study proposes that efforts should be made to encourage farm households to embrace diversified employment options by giving education on several different enterprises and connecting them with specific groups such as SHG, Join Liability Group, and Farmers' Club that will assist them in coping with future economic shocks.

Keywords: COVID-19, Lockdown, Income, Employment, Northeast, Manipur and farm households

INTRODUCTION

Agriculture is a fundamental component of daily life in India, where most of the population derives their income directly or indirectly from farm-related economic activities. It employs 54.6 per cent of the country's total labour force, since 70 per cent of rural households depend on agriculture for their primary source of income and 82 per cent of farmers are small and subsistence farmers. (FAO, 2022). Among Northeastern states of India, Manipur is considered an underprivileged state that relies only on agriculture and related activities for its primary source of income. It is lacking large industries that inhibit employment and income potential. Small, traditional-based enterprises are widespread in the state (Reimeingam, 2017). The major means of livelihood in Manipur are agricultural and allied activities, small scale enterprises, employment in government and private services and daily labour. Coronavirus disease (COVID-19) synthesised by the deadly virus SARS-CoV-2 resulted in negative repercussions and significant challenges for humankind. On 11 March 2020, the World Health Organization (WHO) proclaimed COVID-19 a pandemic since more than 14,000 deaths were documented and it rapidly infected more than 190 nations, adversely

impacting the lives and livelihoods of people worldwide (WHO, 2020). India reported its first incidence of infection on January 30, 2020. Due to extremely communicable nature of the disease, a nationwide lockdown was implemented on March 25, 2020 to prevent the spread of the COVID-19 pandemic. During the preceding several weeks, all necessary activities, educational institutions, and religious institutions of all religions across the nation were forbidden from operation (Ceballos *et al.*, 2020).

On March 24, 2020, Manipur was the first North-Eastern Indian state to confirm a coronavirus infection. As of 25th March 2020, the Ministry of Home Affairs (MHA) has implemented a countrywide lockdown in order to limit the spread of COVID-19. The agricultural sector was permitted to harvest crops during the first phase of the 21-day lockdown, which was imposed without exception. In the second phase of the lockdown, exemptions were offered to the agricultural activities, allowing farmers to proceed with their agricultural operations. The total number of COVID-19 cases in Manipur's valley districts from September 2021 to December 2021 is shown in Table 1. The number of positive cases was highest in Imphal West, followed by Imphal East, Thoubal, Bishnupur, Kakching, and Jiribam. COVID-19 has been confirmed in 43,485 of the 44,157 total positive cases reported in the district (as on 31 December 2021). Imphal West District was the worst-affected district in the state, with the highest number of COVID-19-related casualties. There have been 672 total deaths reported (as on 31 December 2021). To regulate and reduce the district's death rate, the administration of Imphal West and the state government have organised a huge vaccination campaign with the slogan "Get vaccinated and win a reward". Satysai and Ravi (2020) reported that the government of Manipur strictly executed a statewide lockdown period, which hindered rural farm households from engaging in normal farm activities. It had a significant impact on the farmer's income, employment pattern, and rural health care. During the COVID-19 lockdown, there were very few economic activities among rural farm households, which had a negative impact on rural livelihood. In light of the preceding information, the following conflict arises: what effect did the COVID-19 lockdown have over the employment and income patterns of rural households in Manipur?. To ascertain the answer to the issue stated above, particularly in the Imphal West district, research was designed and executed.

Table 1. COVID-19 cases in valley districts of Manipur in 2021

Valley districts	Up-to September	October	November	December	Total
Imphal East	26671	727	390	166	27954
Imphal West	41535	1564	766	292	44157
Thoubal	9323	119	5	49	9496
Bishnupur	9006	149	47	39	9241
Jiribam	1015	7	0	6	1028
Kakching	6349	50	39	15	6453

***(Source:** GoM, 2022)*

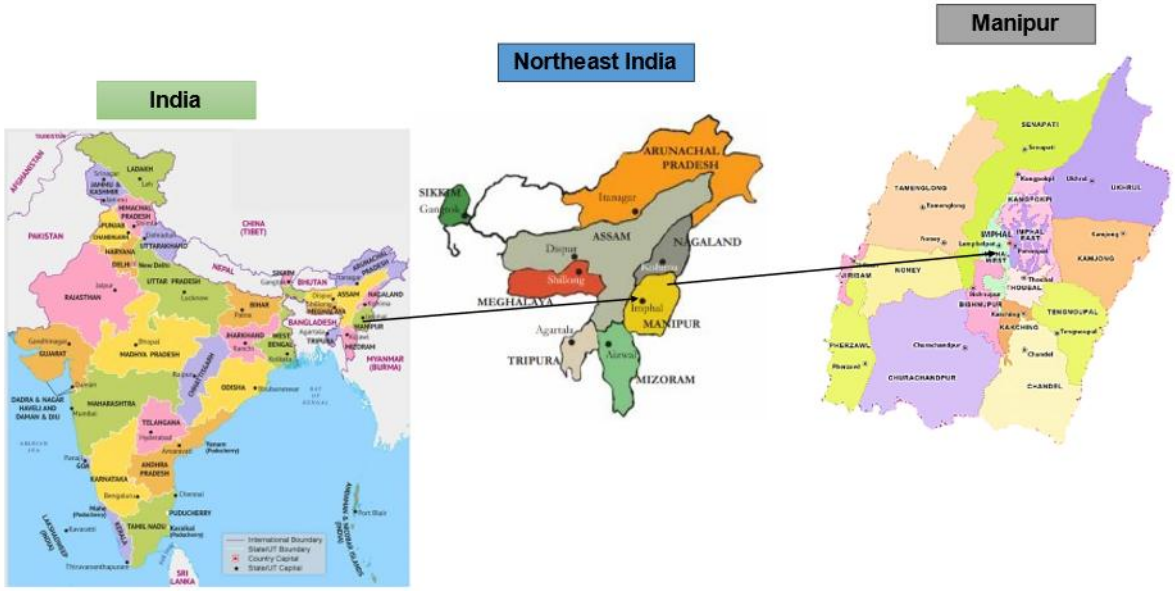
1. MATERIALS AND METHODS

2.1 DESCRIPTION OF STUDY AREA

Manipur was selected purposefully from out seven Northeastern Indian states since was the first one to report an occurrence of COVID-19 infection. It was one of the states in the North Eastern Region (NER), the state has 70.79 per cent of the rural population in the total population According to NSS 68th round, 38.80 per cent of the total rural population of the state i.e., 7.45 lakhs people were under Below Poverty Line (BPL) in 2010 – 2011 (Chauhan *et al*., 2016). It is one of the smallest states in India and is located at 24.66^{o}N and 93.60^{o}E with Imphal as its capital.

(Fig.1.) The State is divided into 16 districts out of which 6 districts (Bishnupur, Imphal East, Imphal West, Jiribam, Kakching and Thoubal) lie in the valley region and the remaining 10 districts (Chandel, Churachandpur, Kangpokpi, Kamjong, Noney, Pherzawl, Senapati, Tamemglong, Ukhrul and Tengnoupal) lie in the hill region (GoM, 2021).

Fig. 1. Schematic representation of Northeast India and Manipur state map



2.2 SAMPLING TECHNIQUES

The present study was conducted in the Imphal West district of Manipur as the district recorded the highest number of COVID-19 positive cases in the state (Table 1). Using a multistage sampling technique, the districts, blocks, and villages were purposefully selected. There were four blocks in the district, two of which, Patsoi and Hiyangthang, were selected based on their greater agricultural significance. Then, two villages of Patsoi block, i.e., Heigrujam and Sangaithel, and two villages of Hiyanthang block, i.e., Langthabal and Mutum Phibou, were selected on the basis of agricultural importance in consultation with ATMA (Agricultural Technology Management Agency) technical staff in the Imphal West district agriculture office. A list of farmers was prepared constitute as sampling frame, in that 10% of sample size of total 109 farmers were chosen randomly from the four villages; two villages from each selected block by simple random sampling technique. In the last stage, the sampling frame was prepared that contains a list of all farm households holding acreage in each of the four selected villages. About 10 per cent of the sampled households were chosen at randomly from each by using lottery method. Thus, 28 farmers from Heigrujam, followed by 31 farmers in Sangaithel, 19 farmers in Langthabal, and 30 farmers in Mutum Phibou thus constitute as a total of 109 farm households were drawn from the Imphal West district by using simple random sampling without replacement method.

2.3 DATA COLLECTION AND METHODOLOGY

Primary data were collected from the sample farm households through primary survey by using pre-tested and well-structured schedule. The data was collected for three periods i.e., Before COVID-19, During COVID -19 and present time. The period before COVID-19 and during COVID-19 were collected from the respondents by personal recall method (Hoinville, 1980). The timeline for the three periods were given in the Table 2.

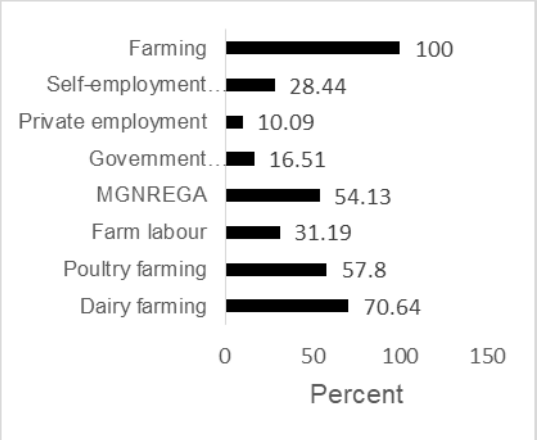
Table 2. Timeline of data collection in the study area

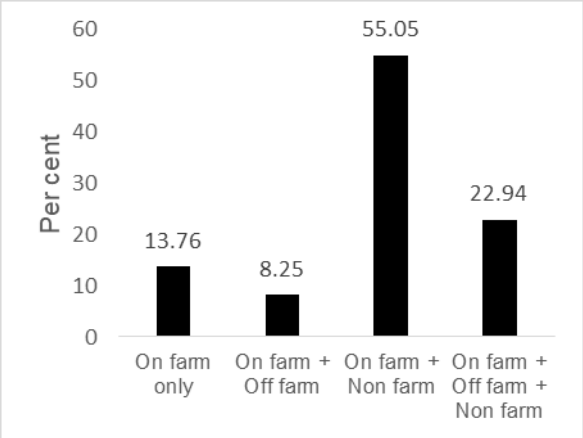
Sl. No	Period	Timeline
1	Before COVID -19	Time period of the days before 25 March 2020
2	During COVID-19	Time period of the days from 25 March 2020 to 31 October 2021
3	Present time	Current period i.e., time period of the days after 01 November 2021

Farm household members were identified based on their activity of employment and categorised into on-farm employment, off-farm employment and non-farm employment. On-farm employment includes farming, dairy farming and poultry whereas Off-farm employment typically refers to farming activities on other farmers which includes agricultural labour, MGNREGA and Non-farm employment refers to the non-agricultural source of employment which includes the government jobs, private jobs and business. The employment of farm households was recorded as days/year/household (Sharma *et al.*, 2017) and the corresponding income of farm households was recorded as gross income/year/household (Birthal *et al.*, 2014). The data collected from the farm households for three periods were analysed and the changes observed during three periods were summarised by using the tabular method.

2. RESULTS AND DISCUSSION

The farm households in the study area were engaged in different on-farm, off-farm and non-farm activities which are exhibited in the Fig. 2.





a) Employment activities **b) Employment combination**

(Note: The activities are mutually inclusive)

Fig. 2. Employment details of sample farm households

All the respondents were in crop farming, followed by dairy farming (70.64%) and poultry rearing (57.80%). About 13.76 per cent of them were specialized in farming. Baby (2005) also reported that 13.00 per cent of small farmers followed agriculture as only livelihood option in the state of Kerala.

One of the largest work guarantee programmes in the world, the Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA) was launched in 2005 with the primary objective of guaranteeing 100 days of employment per financial year for adult members of any rural household willing to perform public work-related unskilled manual labour. MGNERGA provided employment to 54.13 per cent of them whereas, 31.19 per cent worked as farm labour and 28.44 per cent were self-employed (business) in the study area. About 16.51 and 10.09 per cent of the respondents reported that they had job in government (Govt.) and private organizations, respectively. However, households also were engaged in many different activities in both non-farm and off farm for their livelihood security. Majority of them (86.24%) got their employment in off-farm or non-farm activities also along with on-farm activities. The reasons for which households diversify occupations are various. Ibekwe *et al.* (2010) reported that farm households were pushed to diversify their activities to non-farm and off farm to cope with external shocks to their farming activities.

Majority of households (55.05%) engaged in non-farm activities along with on farm activities in the study area. This may be due to the fact that they have better access to financial and human resources like skill and education which are needed to diversify towards non-farm activities (Varshney *et al*., 2021). About 24.94 per cent of sample households have highly diversified employment which included on farm, off farm and non-farm activities, followed by 8.25 per cent of sample households engaged in off farm activities along with on farm activities.

Employment pattern indicates the amount of time that the household spend on each livelihood activities, whereas income pattern of households gives an indication about the economic status of the households and also shows, the various sources of income and the proportion of income accrued to the households. The employment pattern and the income of their livelihood activities performed by the farm households on three periods are depicted in the Table 3.

Table 3. Employment and income pattern of sample farm households in the study area

Category		Employment (human days/household/year)			't' values#	Income (₹/household/year)			't' values#
		Before COVID-19	During COVID-19	Present time		Before COVID-19	During COVID-19	Present time	
On farm activities	Farming	148.18 (30.97)	136.05 (35.97)	144.59 (30.85)	6.44***	63321.10 (26.72)	57316.70 (28.43)	59346.33 (25.83)	192.79***
	Dairy	104.61 (15.45)	84.52 (15.78)	101.88 (15.36)	30.02***	46206.67 (13.77)	44133.33 (15.46)	45929.33 (14.12)	4.37**
	Poultry	94.52 (11.42)	94.52 (14.44)	94.52 (11.66)	NS	6531.25 (1.59)	5269.68 (1.51)	7212.58 (1.81)	18.30***
	Average	121.13 (57.84)	109.61 (66.19)	118.71 (57.87)	13.80***	43660.17 (42.08)	40071.39 (45.40)	42006.83 (41.76)	23.40***
Off farm activities	Farm labour	51.32 (3.35)	35.17 (2.91)	47.06 (3.13)	10.83***	15397.06 (2.03)	14068.97 (2.18)	18823.53 (2.56)	6.75***
Non-farm activities	Govt. job	365.00 (12.59)	365.00 (15.94)	365.00 (12.86)	NS	390555.56 (27.21)	390555.56 (31.99)	390555.56 (28.07)	NS
	Private job	286.36 (6.04)	180.45 (4.81)	275.00 (5.92)	17.06***	174545.45 (7.44)	109163.64 (5.46)	167272.73 (7.35)	8.09***
	MGNERGA	52.12 (5.89)	0.00 (0.00)	52.74 (6.09)	NS	11315.00 (2.58)	0.00 (0.00)	11452.29 (2.69)	NS
	Business	240.32 (14.29)	135.06 (10.15)	232.90 (14.13)	18.73***	155483.87 (18.66)	106129.03 (14.97)	141935.48 (17.57)	14.91***
	Average	170.13 (38.81)	107.07 (30.90)	167.45 (39.00)	10.74***	121324.24 (55.89)	96813.45 (52.42)	117190.63 (55.68)	10.14***
Average		**129.73 (100.00)**	**102.56 (100.00)**	**127.08 (100.00)**	**13.07*** **	**64259.87 (100.00)**	**54668.96 (100.00)**	**62301.96 (100.00)**	**10.81*** **

Note: *Figures in the parentheses indicates the percentage to the total, *** and ** indicate significance at 1% and 5% respectively. # t values for mean difference between before and during COVID-19 period.*

The average on-farm employment of sample households was 121 human days with average farm income of ₹43660 per year which reduced to 110 human days of on-farm employment with average yearly farm income of ₹40071 during COVID-19 lockdown. At present the average on-farm employment was 119 human days with ₹42007 as yearly farm income. During COVID-19 period, the employment on crop farming and dairy has reduced (from 148.18 to 136.05 human days and from 104.61 to 84.52 human days, respectively); correspondingly, the annual income from crop farming and dairy had reduced by 9.48 and 4.49 per cent respectively, but now it has gradually improved to pre-COVID-19 period. The number of employment days on poultry was the same in all the three periods, but the annual income from poultry significantly decreased to ₹5270 during COVID-19 in comparison to pre-COVD-19 period (₹ 6531) which has increased further to ₹ 7213 at post-COVID-19 period.

The average farm labour employment was 51.32 human days with income of ₹15397.06 during pre-COVID-19 period which reduced to 35.17 human days with off-farm income of ₹14068.97 during COVID-19 period. At present, the off-farm employment has improved in the study area.

The average non-farm employment of sample households was 170.13 human days which significantly reduced to 107.07 human days during COVID-19 lockdown but now it has increased to 167.45 human days which was close to pre-COVID-19 period. Similarly, during COVID-19 lockdown the average income from non-farm employment significantly decreased from ₹121324 to ₹96813 (- 20.23%). At present, the average non-farm income was ₹117191. The average income from government job was ₹390556 which was not affected. No work under Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA) was available during COVID-19 lockdown period due to physical distance protocol in the study area. Therefore, the farmers had no income from Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA) during COVID-19 and now, it is 53 human days with ₹11452 which is marginally higher than the employment (52 human days) and income (₹11315) from Mahatma Gandhi National Rural Employment Guarantee Act (MGNERGA) in pre-COVID-19 period. It is clear from the Table 3. that COVID-19 lockdown disrupted the private jobs and businesses primarily.

The average private job and business employment has significantly decreased to 180 human days (- 36.98%) and 135 human days (- 43.80%) respectively; correspondingly, the average annual income from private job and business income also decreased significantly from ₹174545 to ₹109164 (- 37.46%) and from ₹155484 to ₹106129 (- 31.74%), respectively.

The overall average of employment was 127.71 human days in a year during pre-COVD-19 which has significantly decreased to 100.59 human days during COVID-19 and now it has improved to 125.19 human days at the time of data collection. Similarly, average annual income of sample farm households was ₹ 63772 in a year during pre-COVID-19 period which has significantly decreased to ₹ 53880 during COVID-19 and improved to ₹ 61546 at present. Desai *et al.* (2021) also showed that during COVID-19 lockdown, there was sharp decline in overall employment along with the changes in both wage employment and self-employment in areas surrounding Delhi.

3. CONCLUSION

The shocks and stress triggered by the COVID-19 pandemic, including the restrictions imposed on people's lives, are impacting the livelihood and food security of rural households, thus raising their food insecurity and susceptible to future shocks. The rural farm households studied in this paper found that the average on-farm employment of the sample households has reduced from 121 to 110 human days. Similarly, the average off-farm and non-farm employment also decreased from 51 to 35 human days and 170 to 107 human days, respectively during the COVID-19 period. Thus, the farm households in the Imphal West district of Manipur observed a change in their employment and income pattern during COVID-19 lockdown which resulted in the significant loss of their actual household's income. Hence. this study suggests that efforts should be directed to encourage farm households to

take up diversified employment options by providing training on different non-farm activities and connect them with special groups viz., SHG, Join Liability Group and Farmers' Club (Meher *et al*., 2021). This will help them to cope up with future livelihood shocks .

REFERENCES

1. Baby, S. Livelihood security of rural community: A critical analysis. Ph.D. Thesis, Submitted to Indian Agricultural Research Institute, (New Delhi) India; 2005.
2. Birthal, P.S., Negi, D.S., Jha, A.K., and Singh D. Income sources of farm households in India: Determinants, distributional consequences, and policy implications. Agric. Econ. Res. Rev. 2014;27(1):37-48.
3. Ceballos, F., Kannan, S., and Kramer, B. Impacts of a national lockdown on smallholder farmers' income and food security: Empirical evidence from two states in India. World Dev. doi: s105069.
4. Chauhan, R.K., Mohanty, S.K., Subramanian, S.V., Parida, J.K., and Padhi, B. Regional estimates of poverty and inequality in India during 1993–2012. Soc. Indicators Res. 2016;127(3): 1249-1296.
5. Desai, S., Deshmukh, N., and Pramanik, S. Precarity in a time of uncertainty: Gendered employment patterns during the COVID-19 lockdown in India. Fem. Econ. 2021;27(2):152-172.
6. FAO. India at a glance. FAO in India. https://www.fao.org/india/fao-in-india/india-at-a-glance/en/. Accessed 19 April 2022.
7. GoM. Economic Survey of Manipur 2020-21. Directorate of Economics and statistics, Government of Manipur, Lamphelpat; 2021.
8. Hoinville ,G. The recall method in social surveys. J. Royal Stat. Soc. 1980;29(2): 207-208.
9. Ibekwe, U.C., Eze, C.C., Onyemauwa, C.S., Henri, U.A., Korie, O.C., and Nwaiwu, I.U. Determinants of farm and off–farm income among farm households In South East Nigeria. Academia Arena. 2010;2(10):58-61.
10. Meher, M., Modak, S., Panda, S., and Purabi, S. Understanding pattern of socio-economics of SHG members engaged in horticulture enterprises in Sonepur district of Odisha. J. Pharm. Innov. 2021;10(7): 84-88.
11. Reimeingam, M. Shifting cultivation in Manipur: Land, labour and environment. J. Rural Dev. 2017; 36(1): 97-119.
12. Satysai, K.J.S. and Ravi, B. Rural Manipur in corona times. Manipur Regional Office, NABARD, Imphal; 2020.
13. Sharma, K., Sharma, R., Singh, K.P., and Dev, K. Income and employment pattern of rural households: A case study of high hill temperate zone households of Himachal Pradesh. J. Agric. Dev. Policy. 2017;27(2):29-36.
14. Varshney, D., Kumar, A., Mishra, A. K., Rashid, S., and Joshi, P. K. India's COVID-19 social assistance package and its impact on the agriculture sector. Agric. Syst.. 2021;189(1): 103049.
15. WHO. (2020). World Health Organization Director-General's opening remarks at the media briefing on COVID-19. https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid- 19---20-march-2020.Accessed 17 June 2023.