

ACADEMIC PAPER

COVID-19 lockdown and penalty of joblessness on income and remittances: A study of inter-state migrant labourers from Assam, India

Pradyut Guha | Bodrul Islam  | Md Aktar Hussain Department of Economics, Sikkim University,
Gangtok, India**Correspondence**Pradyut Guha, Department of Economics,
Sikkim University, Gangtok, Sikkim, India.
Email: pguha@cus.ac.in

Present study made an attempt to examine the penalty of joblessness following coronavirus induced lockdown on income and remittances of inter-state migrant labourers from Assam. The primary data for the study were collected through telephonic-based survey of 451 labourers during May–June 2020. The results of this study showed that, on an average, labourers in the study area remained jobless for nearly 2 months and incurred income loss of INR 28,955 thereby failed to send remittances towards their families by an amount of INR 12,215 during the reference period. As per the analysis of covariance the income loss and remittances unsent amount was higher amongst the elderly labourers engaged in professions which remained non-operational during lockdown period. Further, the additional days of joblessness increased their hardship in terms of income and remittances. With coronavirus being more than a health crisis, in short term it is necessary to minimise the loss of life, forwarding social and financial security for the families of migrant labourers and vulnerable sections for extended period of crisis, strategies for supporting agriculture and allied activities, promotion of small and medium-size enterprises, imparting skill training for the unemployed and reverse migrant labourers, financial assistance for self-employment may be helpful. Suitable coordination of monetary and fiscal policy would be helpful for reducing the unemployment heading from the recessionary trend of the economy in the long run.

1 | INTRODUCTION

Individual's willingness to live a better life and overcome hardship was associated with the decision to migrate throughout human history (United Nations, 2006). By reducing unemployment, poverty and earning foreign exchange through remittances migrant labourers contributed to the engine of growth in the countries of origin (Ahn, 2004) and growth and development of destination countries. It is estimated that there are 164 million migrant workers worldwide, comprising 4.7% of the total labour force of the world (ILO, 2020a). Across nations, India continued to be the largest country of origin of international migration with 17.5 million staying abroad (World Migration Report, 2020). The internal migration (inter and intra-state) in India increased from 314.5 million to 455.8 million in between 2001 and

2011 with the figure of migrant main workers rising up from 100.6 million in 2001 to 139.1 million in 2011 (Census of India, 2001, 2011). The Uttar Pradesh, Bihar, Jharkhand, Odisha, Madhya Pradesh, Rajasthan, Chhattisgarh, West Bengal and the north-eastern states are major sources of working-age Indian population who migrated to other Indian states in search of remunerative engagement (Singh, Patel, Chaudhary, & Mishra, 2020). Beside her global importance as a country of origin, the internal migration of labourers has played an important role in every sector of Indian economy, especially the informal sector and micro, small and medium enterprises (MSMEs). Nearly 20% of the Indian workforces are engaged in informal sector and MSMEs (Puri, 2020).

Though migrant labourers contribute substantially across sectors of the economy as invisible citizens but many of them are

underprivileged, especially low skilled labourers, enjoy only limited human and labour rights and face exploitative working conditions (Diop, 2010). Several researches in the past expressed the vulnerability of migrant labourers relative to local counterparts (Bustamante, 2011; Derose, Escarce, & Lurie, 2007; Mehra, 2017). The social insecurity and high deprivation from basic amenities is common amongst the migrant labourers (Bhagat, Reshmi, Sahoo, Roy, & Govil, 2020; Mukherjee, Paul, & Pathan, 2009) are often denied adequate healthcare, nutrition, housing and sanitation (Nair & Verma, 2020).

2 | BACKGROUND

In December 2019, a new virus known as the severe acute respiratory syndrome coronavirus 2 (COVID-19) was identified as the cause of a disease outbreak that originated in the Wuhan city of China (Coronavirus disease 2019, 2020). Though initially India had relatively less number of COVID-19 infected cases compared with UK and USA, but seen cases and death rate started rising dramatically since the end week of March 2020 especially in states like Maharashtra, Gujarat and Tamil Nadu. As on 26th August 2020 there were 32,34,474 coronavirus infected cases in India and 94,592 cases in Assam whilst the number of reported deaths was 59,449 and 260 respectively in India and Assam (Gol, 2020). To minimise the spread of transmission of the virus Indian government declared a nationwide full lockdown for 40 days in two phases during 25th March–3rd May, 2020 and partial lockdown for 28 days in two phases during 4th May–31st May, 2020. The prolonged period of lockdown paralysed the economy by fully or partially affecting the three sectors of economy viz. agriculture, industry and services. Consequently there was a fall in aggregate demand, affecting production process and labour market, trade and industry, supply chain, public health system and society at large. There was a massive disruption in offline and manual work and employment with the announcement of nationwide lockdown. Consequently tens of millions of migrant workers, forced to return home after losing their employment and income in their home countries (ILO, 2020a). The tragedy of migrant labourers marked by homelessness, hunger and unforeseen human miseries with continuation of nationwide lockdown (SWAN, 2020). During the initial phase of full lockdown, there was no access to ration from government outlets and non-payment of salary for more than 90% of migrant labourers in India (The Hindu, 2020). Millions of migrants and informal sector workers in India left jobless at the announcement of the lockdown, with enough savings possibly to feed themselves for a week or two at the most. Many of them did not have ration cards to access food aid (The Hindu, 2020) all of these prompted a mass exodus of people fleeing cities to go back to the villages on foot travelling hundreds of kilometres (The Times of India, 2020) and many more remain trapped in cities.

With factories and workplaces shut down due to nationwide lockdown, millions of migrant workers had to deal with the loss of income, food shortages and uncertainty about their future (Abi-Habib &

Yasir, 2020; Slater & Masih, 2020). With no work and money, and lockdown restrictions hindering public transport, thousands of migrant workers were seen walking or bicycling hundreds of kilometres for returning back to their native villages, some with their families (Pandey, 2020; Rashid, Anand, & Mahale, 2020). Many were arrested for violating the lockdown, after being caught at inter-state borders, forests between states and even on boats to cross rivers (Babu, Saini, & Swaroop, 2020). Many migrants also died with reasons ranging from starvation, suicides, exhaustion, road and rail accidents, police brutality and denial of timely medical care.

As a rescue measure, towards the March end 2020, the Indian government passed sweeping order for no deduction of employees' wages and landlord seeking of rent during lockdown period, offered relief package which was essentially top up off food and cash transfers on existing programs (Ohri, 2020), arrangement of Shramik Special trains (Gunasekar, 2020), announcement of economic stimulus package of US \$260 billion for farmers and migrant labourers to large scale businesses (Raj, 2020), announcement of National Migrant Information System, opened thousands of quarantine centres to house migrant labourers, spending plan of US \$24 billion for the poor ensuring cash transfers and food security, launching of Garib Kalyan Rojgar Abhiyaan and announcement of Atmanirbhar Bharata Abhiyan.

3 | EARLY STUDIES

The poor and marginalised were the hardest hit by coronavirus because of their non-accessibility to the public healthcare system (Banik, Nag, Chowdhury, & Chatterjee, 2020). With 90% of Indian workers engaged, the informal sector is at risk of falling deeper into poverty with nationwide lockdown following COVID-19 pandemic (Sengupta & Jha, 2020). Suryahadi, Al Izzati, and Suryadarma (2020) predicted COVID-19 pandemic will push 1.3 millions of people in Indonesia into poverty, with the rate of poverty likely to reach 9.7% by the end of 2020. The worries of migrant workers in informal sector drawn attention of several scholars with no access to ration, stuck at destination without food and money, loss of wages, fear of getting infected and anxiety in Indian context (Bhagat et al., 2020; Kumar, Padhee, & Kumar, 2020) and in Venezuelan migrants faced with a collapsed health system at home (Daniels, 2020). Tedeschi (2020) noted that the pandemic brought severe suffering for those migrants who were looking for shelter and safety. The tragedy of migrant labourers as they are often stigmatised and unjustly blamed for the spread of disease (Lau et al., 2020); casual migrant workers death whilst asleep on railway tracks in India, the abandoned elderly in care homes of Spain (Maddrell, 2020). The announcement of lockdown towards the end of March 2020 triggered exodus and reverse migration of unskilled and semi-skilled labourers from major urban and cities who walk back to their villages without food and money (Dandekar & Ghai, 2020; Singh et al., 2020).

A group of researchers expressed worries about the job market and employment situation following COVID-19. Frightening projections being made about the number of jobs and related income losses

following the lockdown induced by the spread of coronavirus (Coibion, Gorodnichenko, & Weber, 2020; ILO, 2020b). Bell and Blanchflower (2020) mentioned the fall in the labour market in the wake of COVID-19 pandemic is 20 times faster and much deeper than the Great Recession. Projection of severe increase in unemployment being made for major economies of the world such as the USA, Canada (Béland, Brodeur, & Wright, 2020; Larue, 2020). Zhang, Diao, Chen, Robinson, and Fan (2020) reported employment in China likely to fall by 8.6 million following COVID-19 pandemic whilst India is likely to experience 23.4% increase in unemployment with urban unemployment likely to increase by 30.9% (Sreevatsan, 2020). During the period of lockdown the prevailing rate of unemployment increased threefolds in India and reached up to 26% and staff shortage was experienced even after unlock 1.0 in states which provided more than 50% of employment in India (Singh et al., 2020).

Sen (2020) reported income loss of casual workers and the self-employed in the informal sector, which likely to increase the inequality of income (Kramer & Kramer, 2020). ILO (2020b) reported labourers in the informal sector likely to be worst affected in terms of loss of employment and income following the COVID-19 lockdown. Bell and Blanchflower (2020) argued that a third of workers in Canada and the US reported to have lost half of their income due to the COVID-19 crisis, compared with a quarter in the UK and 45% in China.

No doubt there have been several scholarly attempts to study the economic disruption and challenges posed by COVID-19 pandemic across various sectors of the economy. However, studies' examining the consequences of joblessness in the wake of COVID-19 on income and remittance of inter-state migrant labourers is conspicuous by its absence. Under this backdrop present study was undertaken with the objective of studying the penalty of joblessness following coronavirus lockdown on income and remittances by selecting the inter-state migrant labourers from Assam.

4 | STUDY AREA, DATA AND THE SAMPLE

Present study is based on primary data collected through telephonic-based survey of 451 labourers during May–June 2020. Restrictions on stepping out of residence and social distancing compulsion, transportation hindrances were the reason for using communication technology for data collection from the respondents. Our three member's surveyor team reached out to the labourers through telephone calls and entered data using Google forms. Data were collected from a sample of 451 respondents by randomly selecting labourers who migrated to various Indian states from Assam in order for gainful engagement in different sectors. The selection of Assam as the source state was purposive¹ and constrained by resource, time and prevailing situation. The number of inter-state migrant labourers is largest in Assam amongst north-eastern states with number of migrants was 496 thousands (Census Report, 2011). With the aim of the study is to examine the effect of COVID-19 lockdown on income and remittances of migrant labourers. The data collected for 451 labourers was

filtered for labourers who lost their income completely and those who failed to send remittances following the loss of employment and income in the wake of COVID-19 pandemic. Consequently, 399 labourers were shortlisted to suffer complete loss of income and 335's who failed to send their remittances. The summary statistics of the variables used in the study being reported in Table 1.

Refer to Table 1, taking the sample of 451 migrant labourers it can be seen that they are young adults with average age 25.73 years, mean years of schooling is 8.77 and average family size of 6.57 members (Table 1). Prior to the nationwide lockdown, the average monthly income of migrant labourers was INR 15,531.26. The gross income lost for a number of days without work of migrant labourer was INR 28,955.21 during the lockdown period. On average migrant labourers of the study area remained jobless for nearly 2 months (60.18 days). The migrant labourer remitted INR 6,401.55 on an average per month to their household before lockdown. The average amount of remittances not sent for the days of no employment and income was INR 12215.19. On an average migrant labourer received INR 2,241.24 as financial assistance from the different sources viz. NGO, government and private sources during the reference period. The respondents of the study are mostly unskilled workers including manual workers with 85.37% were engaged in professions which were mostly non-functional during lockdown (Table 1). Only 14.63% of labourers were engaged in professions such as security guard, pharmacy and grocery shop mostly that remained functional during the lockdown period. The percentage of labourers of Assam returning back from their workplace in other states following the lockdown in the wake of COVID-19 was 39.02%. Amongst the respondents who have returned back to Assam 68.18% were stigmatised as COVID-19 carriers. Based on the respondents working states, the place of work has been categorised into two heads, viz. most affected states including Maharashtra, Delhi, Tamil Nadu and Gujarat and rest of the states as less affected states. Nearly 62.97% of respondents were from most affected states whilst 37.03% were from less affected states.

5 | METHODOLOGY AND MODEL

The consequences of joblessness on income and remittances of inter-state migrant labourers of Assam have been examined using Analysis of Covariance. Two sets of equations have been fitted for the purpose with the first set of equations measured the effect on lost income is as in Equations (1) and (2);

$$\ln Y_i = \Psi_0 + \Psi_{1i} \ln Age_i + \Psi_{2i} \ln Ndwe_i + \Psi_{3i} Job Dummy_i + \Psi_{4i} Occupation Dummy_i + \eta_i \quad (1)$$

Where Y_i stands for total amount of income lost by i th labourer; Age_i stands for age of the i th labourer; $Ndwe_i$ stands for number of days without earnings by i th labourer; $Job Dummy$ is such that = 1 if the labourer was working, leave with pay, others = 0 if the labourer lost job, terminated, leave without pay, uncertain $Occupation Dummy$ is such that = 1 if the labourer engaged in a profession which remained

TABLE 1 Summary statistics

Variable	Sample (N = 451)			Sample (N = 399)			Sample (N = 335)		
	Mean	SD	Max	Mean	SD	Max	Mean	SD	Max
<i>Non-categorical variables</i>									
AGE	25.73	5.48	53	25.38	5.06	53	25.62	5.01	53
YOS	8.77	2.95	17	8.61	2.89	17	8.68	2.77	15
FS	6.57	1.87	12	6.58	1.87	12	6.62	1.92	12
EXP	34.44	36.37	504	32.42	35.03	504	33.73	37.02	504
IBL	15,531.26	4,952.12	50,000	15,191.98	4,733.51	50,000	15,421.79	4,756.15	50,000
ILW	28,955.21	15,932.63	116,666.7	32,728.82	12,774.92	116,666.7	32,734.73	13,489.44	116,666.7
NDWW	60.18	22.92	70	67.42	10.09	70	66.99	10.91	70
RBL	6,401.55	4,136.9	30,000	6,129.32	3,782.42	16,500	7,365.97	2,833.54	16,500
RUS	12,215.19	9,392.38	38,500	13,701.88	8,875.64	38,500	16,444.93	7,006.35	38,500
FHDL	2,241.24	1890.03	4,000	2,214.29	1890.38	4,000	2,262.09	1890.7	4,000
<i>Dummy variables</i>									
Variable	(N = 451) %			(N = 399) %			(N = 335) %		
SDLD	Yes		77.83	87.97		85.67			
	No		22.17	12.03		14.33			
PSOJ	Lost/terminated		17.74	20.05		20.30			
	Uncertain		34.59	39.11		36.12			
	On leave with pay		4.88	4.26		5.37			
	On leave without pay		25.28	28.57		29.25			
	Working		17.07	7.52		8.66			
	Others		0.44	0.50		0.30			
OCCU	Engaged in profession which remained non-functional during lockdown following COVID-19 pandemic ^a			85.37		88.06			
	Engaged in profession which remained functional during lockdown following COVID-19 pandemic ^b			14.63		11.94			
MBH	Yes		39.02	41.60		40.30			
	No		60.97	58.40		59.70			
SCC	Yes		68.18	27.82		27.46			
	No		22.16	10.28		10.15			
	No response		9.66	61.91		62.38			

TABLE 1 (Continued)

Variable	Sample (N = 451)				Sample (N = 399)				Sample (N = 335)			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
POW	Most affected states ^c								60.90		60.90	
	Less affected states ^d								39.10		39.10	

Note: AGE stands for Age of the Labourer (Year); YOS stands for Years of Schooling of the Labourer (Year); FS stands for Family Size of the Labourer; EXP stands for Working Experience of the Labourer (Months); IBL stands for Income before Lockdown (INR); ILW stands for Gross Income Lost for number of days without work (INR); NDWW stands for Number of Days Without Work; RBL stands for Remittances sent before lockdown (INR); RUS stands for Remittances unspent during Lockdown; FHDL stands for Financial Help During Lockdown (INR); SDLD Stands for Salary Discontinued during Lockdown; PSOJ stands for Present Status of Job; OCCU stands for Occupation Dummy; MBH stands for Migrated Back to Home; SCC stands for Stigmatised as COVID-19 Carrier; POW Place of Work of the Labourer.

^aStands for profession such as Agro Wood factory; Car Workshop; Carpenter; Construction work; Driver; Guest House; Shopping mall; Mason work; Office boy; Restaurant; Service; Software Company; Tailor; Bakery; Private Company.
^bGrocery shop; pharmacy; security guard.
^cMaharashtra, Delhi, Tamil Nadu, Gujarat.
^dAndhra Pradesh, Arunachal Pradesh, Goa, Karnataka, Kerala, Tripura, Telangana, West Bengal, Nagaland, Mizoram.
 Source: Authors estimate based on field survey data.

non-functional during lockdown following COVID-19 (viz. agro wood factory, car workshop, carpenter, construction site, driver, guest house, mall, mason, office boy, service, software company, tailor, work in bakery, work in private company) = 0 if the labourer engaged in a profession which remained functional during lockdown following COVID-19 (viz. grocery shop, pharmacy, security guard).

$$\eta \text{ is error term } \sim \text{IIDN}(0, \sigma^2)$$

The interaction effect on income loss is estimated using Equation (2) as follows;

$$\ln Y_i = \Psi_0 + \Psi_{1i} \ln Age_i + \Psi_{2i} \ln Ndwe_i + \Psi_{3i} Job Dummy_i + \Psi_{4i} \ln Age_i * Occupation Dummy_i + \eta_i \tag{2}$$

Another set of equations being estimated for remittances unspent or lost as in Equations (3) and (4);

$$\ln Ru_i = \theta_0 + \theta_{1i} \ln Age_i + \theta_{2i} \ln Ndwe_i + \theta_{3i} Job Dummy_i + \theta_{4i} Occupation Dummy_i + \varepsilon_i \tag{3}$$

The interaction effect on remittances unspent is estimated using Equation (4) as follows;

$$\ln Ru_i = \theta_0 + \theta_{1i} \ln Age_i + \theta_{2i} \ln Ndwe_i + \theta_{3i} Job Dummy_i + \theta_{4i} \ln Age_i * Occupation Dummy_i + \varepsilon_i \tag{4}$$

where *Ru* stands for remittances unspent by *i*th labourer;

$$\varepsilon \text{ is error term } \sim \text{IIDN}(0, \sigma^2)$$

The fitted regression models are estimated using the OLS (ordinary least square) method and the results of regression estimate are reported in Table 2.

6 | RESULTS AND DISCUSSION

Refer to Table 2 reporting OLS estimate of the fitted regression models. There is absence of heteroscedasticity in the dataset across the four models as per the diagnostic test results of Bruesch-Pagan/Cook-Weisberg Test. There is also absence of multicollinearity amongst the independent variables in the fitted regression equations as per the mean value of VIF, Variance Inflation Factor. The estimated result of regression equation (1) shows that the income elasticity of labourer's age has been found to be positively significant with estimated coefficient as 0.58. Thus income loss was higher by 0.58 percentage points in case of the labourers, senior in age by 1 year. One plausible explanation of such a result may be due to the fact that the infection rate of coronavirus so far has been seen to be higher amongst the elderly and infant age groups as per the available statistics and medical reports across countries including India. Thus the elderly and senior aged labourers were removed from their service

immediately after the outbreak of the pandemic thereby suffered greater income loss to a wider extent. Contrasting findings reported in the works of (Adams-Prassl, Boneva, Golin, & Rauh, 2020; Bui, Button, & Picciotti, 2020; Coibion et al., 2020).

The income elasticity of demand for a number of days without any employment has been found to be positively significant with an estimated value of coefficient was 1.26. Hence, an additional day without any employment contributed towards an income loss of 1.26 percentage points amongst the labourers in the study area. There was a massive disruption in offline and manual work and employment with the announcement of nationwide lockdown. Thus an additional day of joblessness amongst the sampled migrant labourers in sectors affected by lockdown led to greater income loss. Yadav (2020) reported a mind-boggling rise in unemployment since India imposed a nationwide lockdown due to the coronavirus pandemic. The estimated coefficient of job dummy being negatively significant with estimated value of the coefficient is -0.40 which implies that income loss was lesser amongst those labourers either engaged in their work and those enjoying leave with pay during lockdown relative to those of labourers who were either terminated or opted for leave without pay. The estimated coefficient of occupational dummy being positively significant implies that the labourers engaged in profession which remained non-functional during lockdown following COVID-19 pandemic suffered greater income loss. As majority of the sampled labourers were engaged in occupation which remained non-functional during COVID-19 suffered income loss. Present findings are in line with Patel et al. (2020), Kapoor (2020) and Haley et al. (2020). The overall significance is established and the model seems to be moderately good fit in terms of value of adjusted R^2 . Again the estimated equation (2) shows similar sets of results for non-categorical factors like the previous model. The estimated coefficient of interaction effect shows income loss was higher by 0.3 percentage points amongst the senior age

group of labourers those who were engaged in professions which remained non-operational during lockdown following COVID-19 pandemic.

Refer to the estimated coefficient of remittances equation (3) and (4) as reported in Table 2 shows positive significant predictor of remittances unsent. Referring to estimated coefficient of equitation (3) it can be observed that the coefficient of age is positively significant with estimated value of coefficient is 0.59. Hence remittances unsent amount was greater by 0.59 percentage points amongst the labourer senior in age by an additional year. With the infection rate being higher amongst the elderly citizens urged the employer to release or terminate them from various occupations immediately after the notification about severity of the pandemic by WHO and the Indian government. Such loss of employment and income brought serious challenges for the elderly in remitting the money for their families thousands miles away. The estimated coefficient of number of days with no employment and income has been found to be positively significant with estimated value of coefficient 1.02. Hence, transferability of remittances by the migrant labourer reduced by 1.02 percentage points with an additional day of no employment and income. Begum, Farid, Barua, and Alam (2020); Diao and Mahrt (2020); and Karim, Islam, and Talukder (2020) came out with similar findings. Surprisingly the coefficient of job dummy has been found to be positively significant. Thus it implies that transferability capacity of remittances was lower by 3.38 percentage points amongst the working and labourers with pay leave which was relatively higher than the labourers who lost or terminated from their job following the lockdown. During the first and second phase of nationwide lockdown many offices of central and state government including financial institutions remained partially closed and there was even restriction on stepping outside the residence beside psychological fear of getting infected by the virus in case of contact with others. Thus it might be

TABLE 2 Regression results

Dependent variable	Model I		Model II	
	lnYI	lnYI	lnRu	lnRu
Bruesch-pagan/ Cook-Weisberg test	Chi ² (1) = 0.04 Prob > χ^2 = 0.83	Chi ² (1) = 0.06 Prob > χ^2 = 0.81	Chi ² (1) = 2.07 Prob > χ^2 = 0.15	Chi ² (1) = 1.62 Prob > χ^2 = 0.20
lnAge	0.58*** (0.08)	0.56*** (0.08)	0.59*** (0.13)	0.53*** (0.13)
lnNdwe	1.26*** (0.18)	1.26*** (0.08)	1.02*** (0.12)	1.02*** (0.12)
Job dummy	-0.40 *** (0.06)	-0.41 *** (0.06)	0.21** (0.09)	0.20** (0.09)
Occupation dummy	0.08* (0.05)		0.23*** (0.08)	
lnAge × Occupation Dummy		0.03* (0.02)		0.07*** (0.02)
Constant	3.12*** (0.43)	3.19*** (0.44)	3.17*** (0.67)	3.38*** (0.68)
Adjusted R ²	0.67	0.67	0.29	0.29
F	206.76***	206.67***	35.70***	35.57***
Mean VIF	1.40	1.42	1.39	1.41
N	399	399	335	335

Note: *** $p < .01$, ** $p < .05$, * $p < .10$; standard errors in parentheses. VIF stands for Variance Inflation Factor.

Source: Authors estimate based on Field Survey, 2020.

the reason making it difficult for the migrant labourers in sending or depositing remittance for their families at distance, even though either they were working or on pay leave. The occupational dummy being positively significant in the remittances equation implying that labourers engaged in profession which remained non-functional during lockdown faced greater difficulty in sending remittances compared with profession which was operational during the lockdown period. Sayeh and Chami (2020) pointed out that migrant labourers who lose their job are likely to decrease remittances to their families back home. The estimated results of equation (4) are contrasting in sign and significance level with the estimates arrived in equation (3). The estimated coefficient of interaction effect has been found to be positively significant with estimated coefficient value of 0.7. Thus, the remittances unsent amount was higher by 0.7 percentage points amongst the elderly labourers engaged in professions which remained non-operational during coronavirus lockdown.

7 | CONCLUSION AND POLICY IMPLICATIONS

Using primary data of interstate migrant labourers of Assam, present study made an attempt to examine consequences of joblessness following lockdown insisted by COVID-19 pandemic on their income and remittances. Present findings show that additional days of unemployment during lockdown was directly associated with income loss amongst the labourers and was higher amongst the elderly and senior aged labourers engaged in profession which remained non-operational during lockdown following COVID-19 pandemic. However, the labourers who were either working or on pay leave suffered no income loss. The association of remittances unsent with employment status, age and nature of profession was contrasting with the relationship of these factors with income of sampled labourers in the study area. From the present findings we may conclude that income loss and remittances unsent amount was higher amongst the elderly labourers engaged in professions which remained non-operational during lockdown. The additional days of joblessness increased their hardship in terms of income and remittances.

Despite the existence of the Inter-State Migrant Workmen Act, 1979, there is no central registry of migrant workers in India. In view of the misery of the inter-state migrant labourers in the wake of COVID-19 several rescue initiatives have been taken by both central and state government, NGO and civil society. The government of Assam provided financial assistance of INR 2000 per month for three succeeding months from May 2020 to those migrants of Assam who were stranded in other states. The state government has also decided to issue job cards under MGNREGA to migrant workers, directed the skill development department to take steps for imparting training to reverse migrant labourers and to extend the easy accessibility of bank loans for engaging them in productive sectors. Though such measures were expected to reduce the plight of migrant labourers to some extent but faced criticism as it fell short of requirement and in some occasion could not reach the needy and vulnerable because of imperfections.

With coronavirus being more than a health crisis, in short term it is necessary to minimise the loss of life, forwarding social and financial security for the families of migrant labourers and vulnerable sections for extended period of crisis, strategies for supporting agriculture and allied activities, promotion of small and medium-size enterprises, imparting skill training for the unemployed and reverse migrant labourers, financial assistance for self-employment may be helpful. Suitable coordination of monetary and fiscal policy would be helpful for reducing the unemployment heading from the recessionary trend of the economy in the long run.

ORCID

Bodrul Islam  <https://orcid.org/0000-0002-9703-9758>

Md Aktar Hussain  <https://orcid.org/0000-0002-7210-7152>

ENDNOTE

¹ Pre-availability of contact numbers of the migrant labourers and their peer groups with the surveyor team; eased in collection of data and selection of the state purposively.

REFERENCES

- Abi-Habib, M., & Yasir, S. (2020, March 29). India's coronavirus lockdown leaves vast numbers stranded and hungry. *The New York Times*.
- Adams-Prassl, A., Boneva, T., Golin, M., & Rauh, C. (2020). Inequality in the impact of the coronavirus shock: New survey evidence for the UK. *Cambridge Working Papers in Economics*, 2023, 1–15.
- Ahn, P. S. (Ed.). (2004). *Migrant workers and human rights out-migration from South Asia*. New Delhi, India: International Labour Organization, Subregional Office for South Asia.
- Babu, V., Saini, S. & Swaroop, V. (2020, May 8). Across the country, migrants still forced to walk thousands of miles. *Hindustan Times*.
- Banik, A., Nag, T., Chowdhury, S. R., & Chatterjee, R. (2020). Why do COVID-19 fatality rates differ across countries? An explorative cross-country study based on select indicators. *Global Business Review*, 21(3), 607–625. <https://doi.org/10.1177/0972150920929897>
- Begum, M., Farid, M. S., Barua, S., & Alam, M. J. (2020). COVID-19 and Bangladesh: Socio-economic analysis towards the future correspondence. Retrieved from doi:10.20944/preprints202004.0458.v1.
- Béland, L. P., Brodeur, A., & Wright, T. (2020). *The short-term economic consequences of covid-19: Exposure to disease, remote work and government response*, Bonn, Germany: IZA discussion paper no. 13159. Institute of Labor Economics.
- Bell, D. N., & Blanchflower, D. G. (2020). US and UK labour markets before and during the Covid-19 crash. *National Institute Economic Review*, 252, 52–69.
- Bhagat, R. B., Reshmi, R. S., Sahoo, H., Roy, A. K., & Govil, D. (2020). The COVID-19, migration and livelihood in India. A Background Paper for Policy Makers, IIPS Analytical Series on COVID-19, No.13054.
- Bui, T. T. M., Button, P., & Picciotti, E. G. (2020). *Early evidence on the impact of COVID-19 and the recession on older workers*, Cambridge, MA: National Bureau of Economic Research Working paper, no. 27448.
- Bustamante, J. A. (2011). Extreme vulnerability of migrants: The cases of the United States and Mexico. *Migraciones Internacionales*, 6(1), 97–118.
- Coibion, O., Gorodnichenko, Y., & Weber, M. (2020). Labor markets during the COVID-19 Crisis: A Preliminary View. NBER Working Paper, no. 27017, Cambridge, MA. doi:10.3386/w27017.

- Coronavirus disease 2019 (COVID-19). (2020, March). Retrieved from <https://www.mayoclinic.org/diseases-conditions/coronavirus/symptoms-causes/syc-20479963>.
- Dandekar, A., & Ghai, R. (2020). Migration and reverse migration in the age of COVID-19. *Economic and Political Weekly*, 55(19), 28–31.
- Daniels, J. P. (2020). Venezuelan migrants “struggling to survive” amid COVID-19. *The Lancet*, 395, 1023. [https://doi.org/10.1016/S0140-6736\(20\)30718-2](https://doi.org/10.1016/S0140-6736(20)30718-2)
- Derose, K. P., Escarce, J. J., & Lurie, N. (2007). Immigrants and health care: Sources of vulnerability. *Health Affairs*, 26(5), 1258–1268.
- Diao, X., & Mahrt, K. (2020). *Assessing the impact on household incomes and poverty of declines in remittances due to COVID-19*, Myanmar: International Food Policy Research Institute.
- Diop, A. (2010). *International labour migration: A rights-based approach*. Geneva, Switzerland: International Labour Organization.
- Government of India (2020). COVID-19 dashboard. Retrieved from <https://www.mygov.in/covid-19>.
- Government of India, Census Reports, 2001. (2011). New Delhi, India: Office of the Registrar General and Census Commissioner, India.
- Gunasekar, A. (2020, April 30). Buses not feasible for moving migrants, states appeal to centre: Sources. NDTV Full Coverage Coronavirus. Retrieved from <https://www.ndtv.com/india-news/buses-not-feasible-for-moving-migrants-states-appeal-to-centre-sources-2221212>.
- Haley, E., Caxaj, S., George, G., Hennebry, J. L., Martell, E., & McLaughlin, J. (2020). Migrant farm workers face heightened vulnerabilities during COVID-19. *Journal of Agriculture, Food Systems and Community Development*, 9(3), 35–39. <https://doi.org/10.5304/jafscd.2020.093.016>
- International Labour Organisation (ILO). (2020a). ILO warns of COVID-19 migrant ‘crisis within a crisis’ Retrieved from https://www.ilo.org/global/about-the-ilo/newsroom/news/WCMS_748992/lang-en/index.htm.
- International Labour Organisation (ILO), (2020b). ILO monitor: COVID-19 and the world of work (2nd ed.). Updated estimates and analysis. Retrieved from https://www.ilo.org/wcmsp5/groups/public/-dgreports/-dcomm/documents/briefingnote/wcms_740877.pdf
- Kapoor, R. (2020). COVID-19 and the state of India’s labour market. ICRIER Policy Series, No. 18.
- Karim, M. R., Islam, M. T., & Talukder, B. (2020). COVID-19’s impacts on migrant workers from Bangladesh: In search of policy intervention. *World Development*, 136, 105123. <https://doi.org/10.1016/j.worlddev.2020.105123>
- Kramer, A., & Kramer, K. Z. (2020). The potential impact of the Covid-19 pandemic on occupational status, work from home, and occupational mobility. *Journal of Vocational Behavior*, 119, 103442. <https://doi.org/10.1016/j.jvb.2020.103442>
- Kumar, A., Padhee, A. K., & Kumar, S. (2020). How Indian agriculture should change after COVID-19. *Food Security*, 12, 837–840. <https://doi.org/10.1007/s12571-020-01063-6>
- Larue, B. (2020). Labour issues and COVID-19. *Canadian Journal of Agricultural Economics*, 68, 231–237. <https://doi.org/10.1111/cjag.12233>
- Lau, L. S., Samari, G., Moresky, R. T., Casey, S. E., Kachur, S. P., Roberts, L. F., & Zard, M. (2020). COVID-19 in humanitarian settings and lessons learned from past epidemics. *Nature Medicine*, 26(5), 640–648.
- Maddrell, A. (2020). Bereavement, grief, and consolation: Emotional-affective geographies of loss during COVID-19. *Dialogues in Human Geography*, 10(2), 107–111. <https://doi.org/10.1177/2043820620934947>
- Mehra, S. (2017). A financial analysis of Ludhiana’s migrant labour. *Social Change*, 47(1), 81–93.
- Mukherjee, P., Paul, G. D., & Pathan, J. I. (2009). Migrant workers in informal sector: A probe into working conditions. The Adecco-TISS Labour Market Research Initiative (ALTMRI), Discussion Paper Series, no. 9.
- Nair, S. & Verma, D (2020, May 19). A policy framework for India’s Covid-19 migration. Bloomberg Quint.
- Ohri, N. (2020). What India has released from its Rs 1.7 lakh crore relief package for the poor. *The Quint*, Retrieved from <https://www.bloombergquint.com/coronavirus-outbreak/what-india-has-released-from-its-rs-17-lakh-crore-relief-package-for-the-poor>.
- Pandey, V. (2020). *The Covid-19 migrants who never got home*, Delhi, India: BBC News.
- Patel, J. A., Nielsen, F., Badiani, A. A., Assi, S., Unadkat, V. A., Patel, B., ... Wardle, H. (2020). Poverty, inequality and COVID-19: The forgotten vulnerable. *Public Health*, 183, 110–111. <https://doi.org/10.1016/j.puhe.2020.05.006>
- Puri, L. (2020, June 4). View: India should use migrant labour crisis to transform economy, society. *The Economic Times*.
- Raj, P. (2020, June 2). What does India’s economic stimulus offer to the poor?, IIM Bangalore. Retrieved from https://www.iimb.ac.in/turn_turn/what-does-india-economic-stimulus-offer-poor.php.
- Rashid, O., Anand, J. & Mahale, A. (2020). India coronavirus lockdown migrant workers and their long march to uncertainty. *The Hindu*.
- Sayeh, A., & Chami, R. (2020). Lifelines in danger. IMF.org. <https://www.imf.org/external/pubs/ft/fandd/2020/06/COVID19-pandemic-impact-on-remittance-flowssayeh.htm>.
- Sen, K. (2020). COVID-19 and socioeconomic impact in Asia: The case of India. *WIDER Background Note*, 1, 2020–2021.
- Sengupta, S., & Jha, M. K. (2020). Social policy, COVID-19 and impoverished migrants: Challenges and prospects in locked down India. *The International Journal of Community and Social Development*, 2 (2), 152–172.
- Singh, S. K., Patel, V., Chaudhary, A., & Mishra, N. (2020). Reverse migration of Labourers amidst COVID-19. *Economic and Political Weekly*, 55 (19), 28–31.
- Slater, J. & Masih, N. (2020, March 28). In India, the world’s biggest lockdown has forced migrants to walk hundreds of miles home. *The Washington Post*.
- Sreevatsan, A. (2020, April 7). Covid-19 lockdown impact: Unemployment rate rises to 23.4%. *Livemint*. Retrieved from <https://www.livemint.com/news/india/covid-19-lockdown-impact-unemployment-rate-rises-to-23-4-11586202041180.html>.
- Stranded Workers Action Network (SWAN) 3 Reports (2020, June 8). To leave or not to leave: lockdown, migrant workers and their journeys home. Retrieved from <https://watson.brown.edu/southasia/news/2020/leave-or-not-leave-third-report-swan-migrant-worker-crisis-and-their-journey-home>.
- Suryahadi, A., Al Izzati, R., & Suryadarma, D. (2020). Estimating the impact of covid-19 on poverty in Indonesia. *Bulletin of Indonesian Economic Studies*, 56(2), 175–192.
- Tedeschi, M. (2020). The body and the law across borders during the COVID-19 pandemic. *Dialogues in Human Geography*, 10, 178–181. <https://doi.org/10.1177/2043820620934234>
- The Hindu (2020, April 27). 96% of Migrant workers did not get ration from government, 90% did not receive wages during the lockdown. Retrieved from <https://www.thehindu.com/data/data-96-migrant-workers-did-not-get-rations-from-the-government-90-did-not-receive-wages-during-lockdown-survey/article31384413.ece>.
- The Times of India (2020, March 30). ‘We will starve here’: India’s poor flee cities in mass exodus. Retrieved from <https://timesofindia.indiatimes.com/india/we-will-starve-here-indias-poor-flee-cities-in-mass-exodus/articleshow/74886331.cms>.
- United Nations (2006). International migration and development. Report of the Secretary-General for the 60th Session of the UN General Assembly, May, A/60/871 (New York).
- World Migration Report. (2020). *UN migration*. Geneva, Switzerland: International Organization for Migration.
- Yadav, Y. (2020, August 16). India lost more jobs due to coronavirus lockdown than US did during Depression. *The Print*. Retrieved from <https://theprint.in/opinion/india-lost-more-jobs-due-to-coronavirus-lockdown-than-us-did-during-depression/397693/>.

Zhang, Y., Diao, X., Chen, K. Z., Robinson, S., & Fan, S. (2020). Impact of COVID-19 on China's macro economy and Agri-food system—an economy-wide multiplier model analysis. *China Agricultural Economic Review*, 12, 387–407. <https://doi.org/10.1108/CAER-04-2020-0063>

AUTHOR BIOGRAPHIES

Pradyut Guha is associated with teaching since 2003. He got nomination for UNCTAD-India Doctoral Fellowship (2008–2010), Inspired Teachers' Network (2015). He has worked on projects funded by RBI, IUCN and Sikkim University. His research interest includes Resource and Agricultural Economics, Labour Economics, Rural Development.

Bodrul Islam is a Research Scholar in the Department of Economics, Sikkim University. He received his Master and MPhil in Economics from Cotton University and Sikkim University respectively. His area of research interest are Agriculture economics, Labour economics, Development Economics.

Md Aktar Hussain is a Doctoral Fellow in the Department of Economics, Sikkim University. He has been awarded with best paper presentation award amongst scholars at 79th Annual Conference of Indian Society of Agricultural Economics. He received his Master and MPhil degree from Savitribai Phule Pune University. His area of research interest are Economics of Risk & Disaster, Agricultural Economics.

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