

An Analysis of Recovery from Covid-19 Lockdown of Indian Internal Migrants: A Case Study of Smart Cities of Punjab State, India

Un análisis de la recuperación del confinamiento por la COVID-19 de los migrantes internos indios: un estudio de caso de las ciudades inteligentes del estado de Punjab, India

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Abstract

There is no denying that the COVID-19 pandemic has raved worldwide, and developing countries like India are no exception. Similarly, the same has disrupted global human mobility dynamics. In India, which has a sizeable number of migrants, the impact of COVID-19 has been more pronounced in the sub-section of 'migrant workers, particularly in socioeconomic and demographic terms. Thus, the present paper attempts to analyze the multifaceted impact of COVID-19 on Indian migrants' income, employment and consumption expenditure patterns. Moreover, the article also investigated some pulling and pushing forces responsible for post-lockdown internal migration in Indian Punjab. For empirical analysis, the study uses mainly primary data from 400 internal migrants collected from eight major cities of Punjab between May-November, 2022. The socioeconomic and demographic profile of migrants has been analyzed using chi-square and Mann-Whitney U test or Wilcoxon Rank-Sum Test. Major determinants responsible for migratory decisions have been discovered using the logistic regression model. The post-lock-down empirical results of internal migrations show that urban-urban movement was also one of the leading migration streams besides rural-urban migration. The recent internal migration trend in Punjab is basically from economically backward regions of India. Most migrants were male, young, educated/skilled, and from lower (SCs) and upper communities (GCs). More precisely, bigger household sizes, better employment/income opportunities, marriage, modernization and better education and hospitality facilities are the principal motivating/pulling reasons for migration. In contrast, loss of employment, poverty, low agricultural productivity, unequal distribution of land holdings, and monthly per capita expenditure are chief

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pushing factors for migratory force. Since the COVID-19 pandemic has affected internal migrants disproportionately, it needs to be given high priority with specific policy intervention.

Key Words: Internal Migration, Post-lockdown, COVID-19 Pandemic, Socioeconomic Conditions, Recovery, Reasons for Migration

RESUMEN

No se puede negar que la pandemia de COVID-19 ha hecho estragos en todo el mundo, y los países en desarrollo como India no son una excepción. Del mismo modo, lo mismo ha trastocado la dinámica global de la movilidad humana. En India, que tiene un número considerable de inmigrantes, el impacto de COVID-19 ha sido más pronunciado en la subsección de 'trabajadores inmigrantes, particularmente en términos socioeconómicos y demográficos. Por lo tanto, el presente documento intenta analizar el impacto multifacético de COVID-19 en los patrones de ingresos, empleo y gastos de consumo de los inmigrantes indios. Además, el artículo también investigó algunas fuerzas de atracción y empuje responsables de la migración interna posterior al confinamiento en el Punjab indio. Para el análisis empírico, el estudio utiliza principalmente datos primarios de 400 migrantes internos recopilados en ocho ciudades importantes de Punjab entre mayo y noviembre de 2022. El perfil socioeconómico y demográfico de los migrantes se analizó mediante chi-cuadrado y la prueba U de Mann-Whitney o Wilcoxon. Prueba de suma de rangos. Los principales determinantes responsables de las decisiones migratorias se han descubierto utilizando el modelo de regresión logística. Los resultados empíricos posteriores al cierre de las migraciones internas muestran que el movimiento urbano-urbano también fue una de las principales corrientes migratorias además de la migración rural-urbana. La reciente tendencia de migración interna en Punjab proviene básicamente de regiones económicamente atrasadas de la India. La mayoría de los migrantes eran hombres, jóvenes, educados/calificados y de comunidades bajas (SC) y altas (GC). Más precisamente, el tamaño más grande de los hogares, mejores oportunidades de empleo/ingresos, matrimonio, modernización y mejores instalaciones educativas y de hospitalidad son las principales razones que motivan/atraen la migración. Por el contrario, la pérdida de empleo, la pobreza, la baja productividad agrícola, la distribución desigual de la propiedad de la tierra y el gasto per cápita mensual son los principales factores que impulsan la fuerza migratoria. Dado que la pandemia de COVID-19 ha afectado a los migrantes internos de manera desproporcionada, se le debe dar alta prioridad con una intervención política específica.

Palabras Clave: Migración Interna, Posconfinamiento, Pandemia COVID-19, Condiciones Socioeconómicas, Recuperación, Motivos de la Migración

INTRODUCTION

Migration is generally defined as the movement of an individual or group of persons to a new place/region/state within the country (Internal Migration) or to a foreign country which is not his/her/their usual place of residence (International migration) either permanently or temporarily for getting better work/employment, attaining better educational opportunities, joining of new/old family obligations, forced or persecuted ones (International Organization of Migration, 2011 and United Nations, 2015). In other words, it is

the process of moving from one location to another to establish a permanent or semi-permanent habitation based on the predetermined goals of migrants to define the trends and patterns of migration.

An overview of various migration studies (Harris & Todaro, 1970; Chenery, 1975; Todaro, 1976; Oberai & Singh, 1983; Bhagat & Mohanty, 2008; Srivastava et al., 2020; Rajan et al., 2020) advocated that while, internal migration, plays a dominating role in the urban transformation of emerging markets and developing economies (EMDEs), at the same time it is also responsible for various challenges originate due to over urban population. Hence, Kuznets's theory (1966) of structural changes, which predicted a significant shift of rural labor to industrial sites located in or nearby urban settings, applied profoundly in India (Kuznets & Murphy, 1966).

Migration is an integral part of the Indian economy and constitutes a significant share of the country's GDP. As per the census of India (2011), every year, around 9 million people move from economically backward states (Uttar Pradesh, Bihar, Bengal and Assam.) to economically advanced states/UTs (New Delhi, Chandigarh, Maharashtra, Punjab and Haryana) of India in search of better employment, high wages and improved education. That is why India's internal migration pattern is mostly skewed (Acharya & Acharya, 2020). Similarly, The COVID-19-led migration is the second-largest mass migration in India's history after the partition, when 14 million people were displaced (Inamdar & Thusoo, 2020). Internal migrant workers who usually work in informal, low-skilled and arduous working conditions were found to be affected worse due to the COVID-19 pandemic outbreaks. Moreover, the stringent countrywide lockdown further aggravated their socioeconomic problems. Thus, the COVID-19 pandemic has been regarded as one of the greatest examples of the unpredictable factor that altered internal migration trends and patterns and devastated the livelihood of the people associated with it (Deshpande, 2020; Gopinath, 2020; Nayar, 2020). Recent studies have also predicted that the disproportionate effects of COVID-19 are not short-term; rather, these will have a long-term impact on unorganized sectors worldwide (Sengupta and Jha, 2020, Monitor ILO, 2020). The current projections revealed that around 1.7 million people returned to their origin from the total of 2.03 million enrolled industrial labourers in Punjab. Although the relaxation in Covid-19 restraints led 0.78 million workers to join back their jobs in urban areas and 0.41 million labourers in rural areas yet 0.83 million labourers are suffering an intense challenge in migrating due to the pandemic (ILO, 2020).

Since its beginning, this pandemic has created multiple impacts on the socioeconomic life of the people along with the political emergencies, which led the researchers to work on it from diverse facets. Developing countries, like India, which are generally not only over-populated and led mainly by the informal sector, have limited real-time data availability. Despite the constraints of the unavailability of internal migrant data and insufficient information, there is an increasing number of empirical studies proving that the informal sector was the most severely hit by the COVID-19 pandemic. Moreover, internal migrants, in particular, had to endure unimaginable suffering due to lockdown while returning to their native places. (Nayar, 2020 and Ray & Subramanian,2020).

Although the existing studies have provided some insights into the loss during the first and the second phases of COVID-19, however, since economic activities have resumed and the mobility restrictions have also been forsaken, it has been recorded that a large number of migrants has again started their journey towards economically advanced states in search of better employment and high wages. Thus, so far, just a few studies have tried to assess the Post-lockdown impact on the socioeconomic livelihoods of internal migrants. Various Studies

(Bertrand et al., 2020; Singh & Kumar, 2020) provided real-time insights into the spread of COVID-19 and policy responses in Punjab. However, these studies have analyzed socioeconomic circumstances along with income and employment changes during the lockdown in Punjab. On the contrary, the present study sheds light on post-lockdown trends and patterns of internal migrants. These are some missing aspects from the existing literature. Thus, to fill the research gap, the present study attempts to analyze the striking reasons for internal movements in Punjab in the post-lockdown period. The study is primarily a primary survey-based study conducted between May-November, 2022 from the eight major cities of Indian Punjab.

The paper has been essentially divided into five different sections. The significance of the study is explained in Part I, which also provides some background information about the state's prevalent internal migration. Part II discusses the enormous body of literature that is based on studies done by various economists, sociologists, geographers, etc. This section also entails significant research questions and objectives from the literature review. The study's methodology and data sources are covered in Part III, IV and V respectively. In Section VI, the socioeconomic and demographic features of internal migrants using the Pearson Chi-square test and the key trends and patterns of internal migration are illustrated with tables and graphs. In Section VII, various factors/determinants for internal migration have been estimated using the Logit Regression Model. Part VIII presents the summary, key findings, and public policy implications.

RESEARCH OBJECTIVES

Since migration is a multi-dimensional phenomenon, this study aims to analyze it with different and complementary perspectives so that it may add to the existing knowledge base that Indian planners and policymakers can use for the formulation of appropriate policies and measures to deal with the problems arising from such migration. The specific objectives of the study are as follows:

- i) To analyze the socioeconomic and demographic characteristics of internal migrants' flows and the reasons behind their migration during the post-lockdown period;
- ii) To examine the impact of COVID-19 on the socioeconomic livelihood of the internal migrants of Indian Punjab.
- iii) To suggest public policy changes required either to promote or to redirect such migration flows to benefit the overall development of future urban economies.

MATERIAL AND METHODS

To understand the disproportionate impacts of the COVID-19 outbreak on the livelihood of internal migrants of Punjab, the study uses a multi-stage stratified random sampling technique and purposive sampling technique were used to achieve specific research objectives. For example, a multi-stage stratified random sampling technique was used to choose wards/blocks and households, considering certain strata. On the other hand, the purposive technique was used to select the research region. Further, within each urban stratum, internal migrant households were selected randomly and collaborated with a sampling frame prepared from mapping and listing households in primary migrant destination places. In the present study, for research design and methodology, a total of eight cities of Punjab, Ludhiana, Bathinda, Jalandhar, Patiala (Class-I cities/towns having

more than one lakh population) and Kharar, Suman, Gurdaspur and Tarn Taran (Class-II cities/towns having more than 50 thousand but less than one lakh population) were selected for the study.

Categorization of Sampled Internal Migrants' Households: Finally, a total of 432 internal migrant's households of Indian Punjab were approached with a questionnaire-cum-schedule for collecting the primary information. Further, all these migrants working/employed in the informal sector were divided into two broad categories by type of employment, i.e., self-employed and salary/wage earner. Out of these 400 migrant households, 200 migrants (50 per cent) were classified as a migrant who was working as self-employed such as rickshaw pullers, Auto Driver, Taxi Driver Street Vendors etc. (Self Employed), whereas 200 migrants (50 per cent) were those migrants who were earning salary or income from an employer often monthly or quarterly (Salary/Wage Earners). Further, within the broad occupation category, a wide variety of occupations of self-employed migrants and salary/wage earner migrants were found to work in various professions. The data in Table 1 revealed that among the self-employed migrants, street vending occupation cornered a maximum share (15 per cent), whereas, in the case of salaried/wage earner migrants, construction workers formed a leading share (17 per cent). Similarly, cobbler and tailoring/stitching (5 per cent) and Professionals (5 per cent) constitute a minor percentage share the self-employed migrants and salaried/wage earner migrants, respectively.

Table 1: Occupational Distribution of Internal Migrants of Punjab

Occupational Distribution of Internal Migrants of Punjab					
Self Employed Migrant	Number	%	Salary/Wage Earner Migrant	Number	%
Street Vending	30	15.00	Construction Workers	34	17.00
Own Auto Rickshaw	13	6.50	Factory Workers	29	14.50
Own Cycle Rickshaw	12	6.00	Domestic Workers (Maids, etc.)	18	9.00
Own Business/Shopkeepers	15	7.50	Hotel-cum-Restaurant Workers	16	8.00
Own Taxi Operators	10	5.00	Helpers/Attendants	19	9.50
Professionals (Lawyers, Doctors, etc.)	11	5.50	Office Worker (Typist, Data Entry Operator, etc.)	18	9.00
Independent Mechanics	13	6.50	Loaders/De-loaders	12	6.00
Loading/Re-Loading Work	11	5.50	Salesman at Shops	15	7.50
Hair Cutting/Making Services	11	5.50	Repair Shop Workers	14	7.00
Tailoring/Stitching	10	5.00	Transport Worker	15	7.50
Own Construction Work	22	11.00	Professionals (Doctors, teachers, etc.)	10	5.00
Office Work (Typist, Operator, etc.)	17	8.50	Total	200	100.00
Cobblers	10	5.00			
Cleaning/Sweeping, etc.	15	7.50			
Total	200	100.00			

Source: Primary Survey, 2022.

Table 2 presents the distribution of internal migrants by location of their present work. Among the 400 sampled internal migrants, most migrants were found as self-employed as street vendors, small factory units/workshops/shop/dhaba owners, followed by salary/wage earners at the time of their migration. This supports the widespread belief that self-employment and salary/wage earners were the primary reasons behind the rising numbers of internal migration in the state. The Chi-square value ($\chi^2 = 21.011$ and $p\text{-value} = 0.000$) was found to be significant at a 1 per cent level, indicating a difference in the number of people in various workplaces among self-employed migrants and salaried/wage-earner migrants.

Similarly, the income level was grouped into six categories starting from 5000, 5001 – 10000, 10001 – 15000, 15001 – 25000, 25001 – 45000, 45001 and above. The monthly income of self-employed and salaried/wage earners show a significant difference. Only 9.50 per cent of self-employed migrant's income ranges between 15001 to 45000+, and 91.50 per cent of them goes from 5000 to 15000. While in the case of salaried/wage earners, 51.50 per cent ranges from 5000 to 15000, and the remaining 48.50 per cent goes from 15001-45000+. Surprisingly, there is a tremendous difference in the migrant's income in the fifth and sixth income categories (Above 45000). For instance, only 0.50 self-employed migrants earn more than 45000, while at the same time, four per cent of salaried/wage earners make more than 45000. The Chi-square test was done to statistically prove the difference in the monthly income of self-employed migrants and salaried/wage-earner migrants. χ^2 value 98.7145 and P- value 0.000 was found to be significant at 1 per cent, indicating a difference in the income distribution among self-employed migrants and salaried/wage-earning migrants.

Table 2: Distribution of Internal Migrants of Punjab by Economic Variables

Economic Variables	Self Employed Migrants		Salaried/Wage Earners		Total	
Post-Lockdown Occupation Distribution						
Factory/Workshop/ Showroom/Shop	49	24.50	58	29.00	107	26.75
Hotel/Restaurant/Dhaba	15	7.50	16	8.00	31	7.75
Office/Department of Institution	28	14.00	43	21.50	71	17.75
Own Home/Residential Space	21	10.50	37	18.50	58	14.50
Public Open Space* (road, street, etc.)	87	43.50	46	23.00	133	33.25
Total	200	100	200	100.00	400	100.00
Pearson $\chi^2 = 21.011$ $P \leq 0.000$ *** Significant						
Post lockdown Monthly income (in Rs.)						
Up to 5000	40	20.00	2	1.00	42	10.50
5001-10000	111	55.50	67	33.50	178	44.50
10001-15000	30	15.00	34	17.00	64	16.00
15001-25000	12	6.00	47	23.50	59	14.75
25001-45000	6	3.00	42	21.00	48	12.00
45000+	1	0.50	8	4.00	9	2.25
Total	200	100.00	200	100.00	400	100.00
Pearson $\chi^2 = 98.7145$ $P \leq 0.000$, *** Significant						

Source: Calculated by Author with Primary data, 2022. Note*** $p < .01$, ** $p < .05$, * $p < .1$

Post-Lockdown Internal Migration in Punjab: Average Monthly Income Earnings: The study found fifteen specified works in the case of self-employed migrants and twelve different selected works in the case of salaried-wage earners, which migrants were engaged in before the lockdown, during the lockdown and after the lockdown. The income in February 2020 is considered income before the lockdown, the income in June 2020 is taken as the lockdown effect, and the income in April 2021 is regarded as the post-lockdown effect. A 'Pre-during-lockdown variance assessment in average income/earnings found that in the case of self-employed, the maximum decline was faced by cobblers and own auto rickshaw workers, which was around 70 per cent. In contrast, the minimum deterioration in income was experienced by professionals such as doctors and lawyers, which was about 23 per cent only. On the other hand, in the case of salary/wage earners, mechanics or repair shops faced the highest decline in monthly earnings (60 per cent). In contrast, the minimum reduction was experienced by helpers and attendants, around 17.58 per cent (Table 3).

Table 3: Occupational Distribution of Self-Employed Migrants of Punjab

Nature of Employment	Average Monthly Income Pre-lockdown)	Average Monthly Income During lockdown)	Average Monthly Income Post-lockdown)	Absolute Change (Pre-During lockdown)	Percentage Change (Pre-During lockdown)	Absolute Change (Post-Pre lockdown)	Percentage Change (Post-Pre lockdown)
Street Vending	4612	2108	8723	-2504	-54.29	4111	47.94
Own Auto Rickshaw	6526	3678	17877	-2848	-43.64	11351	63.66
Own Cycle Rickshaw	4211	1178	7886	-3033	-72.03	3675	46.90
Own Business/Shopkeepers	12774	4589	23313	-8185	-64.08	10539	45.71
Own Taxi Operators	7646	3336	28647	-4310	-56.37	21001	73.23
Professionals (Lawyers, Doctors, etc.)	38563	29658	47625	-8905	-23.09	9062	19.09
Independent Mechanics	12787	5133	18865	-7654	-59.86	6078	32.36
Loading/Re-Loading Work	8256	2793	11235	-5463	-66.17	2979	26.82
Hair Cutting/Making Services	3189	1593	8900	-1596	-50.05	5711	64.35
Tailoring/Stitching	4555	1839	14730	-2716	-59.63	10175	69.11
Own Construction Work	5667	2399	13478	-3268	-57.67	7811	57.58
Office Work (Typist, Operator, etc.)	6833	3421	17896	-3412	-49.93	11063	63.27
Cobblers	5080	1245	7000	-3835	-75.49	1920	27.97
Cleaning/Sweeping, etc.	3765	2700	11863	-1065	-28.29	8098	68.80
Miscellaneous	4933	1756	12801	-3177	-64.40	7868	62.17
Total	5245	2771	7896	-2474	-47.17	2651	33.41

Source: Calculated by Author with Primary data, 2022.

Similarly, the 'Pre-Post- lockdown' variance assessment in average income/earnings of migrant households showed (Table 4) that there were wide variations in the earnings of migrants by type of employment and occupation/work. During the post-lockdown, the income-earning differentials are higher than in the pre-lockdown phase. For instance, the highest percentage increase was recorded in the income of taxi operators (73.31 per cent); followed by tailoring/stitching and cleaning/Sweeping etc. (68 per cent); whereas the migrants working as professionals such as doctors or lawyers had minor income increment, which was around 19.03 per cent only. Likewise, in the case of salaried/wage earners, the maximum increment (70 per cent) was experienced by the salesman at the shop and transport workers, followed by construction workers, domestic workers, hotel/restaurant workers, and repair shop workers, around 60 per cent. On the contrary, the migrants with high skills, such as doctors and lawyers, faced the lowest increment, approximately 30 per cent.

Table 4: Occupational Distribution of Salary/Wage Earner Migrants of Punjab

Nature of Employment	Average	Average	Average	Absolute	Percentage	Absolute	Percentage
	Monthly Income Pre- lockdown (2018-19)	Monthly Income During lockdown (2020-21)	Monthly Income Post- lockdown (2022-23)	Change (Pre- During lockdown)	Change (Pre-During lockdown)	Change (Post-Pre lockdown)	Change (Post-Pre lockdown)
Construction Workers	4646	2526	12333	-2120	-45.63	7687	62.33
Factory Workers	6082	4066	11770	-2016	-33.15	5688	48.33
Domestic Workers (Maids, etc.)	2997	1523	9560	-1474	-49.18	6563	68.65
Hotel/Restaurant Workers	5432	3622	13750	-1810	-33.32	8318	60.49
Helpers/Attendants	5186	4278	12214	-908	-17.51	7028	57.54
Office Workers (Typists, Data Entry Operators, etc.)	8696	6089	17625	-2607	-29.98	8929	50.66
Loaders/De-loaders	5686	4217	13458	-1469	-25.84	7772	57.75
Salesman at Shops	6026	3985	26666	-2041	-33.87	20640	77.40
Repair Shop Workers	5853	2370	18968	-3483	-59.51	13115	69.14
Transport Workers	10675	7586	35896	-3089	-28.94	25221	70.26
Professionals (Doctors, teachers, etc.)	31929	25782	47625	-6147	-19.25	15696	32.96
Miscellaneous	6583	4863	14365	-1720	-26.13	7782	54.17
Total	5381	3684	14788	-1697	-31.54	9407	63.61

Source: Calculated by Author with Primary data, 2022.

Post-Lockdown Internal Migration in Punjab: Consumption Expenditure Estimation using Mann-Whitney U Test (Wilcoxon Rank-Sum Test): Undoubtedly, there are significant differences in the monthly income/salary earnings of both the occupations that are self-employed and salaried/wage earners, as shown in the table. Further, for more details, a Mann-Whitney U test (sometimes called the Wilcoxon rank-sum test) is used to compare the income earnings differences between both two sample groups (self-employed and salaried/wage earners) when

the sample distributions are not normally distributed. It is considered the nonparametric equivalent of the two-sample t-test.

Thus, the results of the Mann-Whitney U test suggest that if the monthly income of 400 internal migrants is compared (200 self-employed and 200 salaried/wage earners), the results showed the monthly income earnings difference between both the groups is significant as one per cent level of significance ($z = -10.091$, $p = 0.000$) at a significance level of 0.01. Based on these results, the null hypothesis (H_0): No significant difference in monthly income earnings of the internal migrants involved in two different occupation groups) can be rejected.

Table 5. Results of the Two-sample Wilcoxon Rank-Sum (Mann-Whitney) Test

Occupation	Observation	Rank Sum	Expected
Self Employed Migrants	200	28449	40100
Salary/Wage Earner Migrants	200	51751	40100
Combined	400	80200	80200

Source: Calculated by Author with Primary data, 2022.

Unadjusted variance 1336666.67

Adjustment for ties - 3612.53

adjusted variance 1333054.14

H_0 : Salary(Occupation= Self Employed Migrants) = Salary(Occupation= Salary/Wage Earner Migrants)

$z = -10.091$

Prob > Z

In the table 5, it has been observed that the individual's economic status is determined by nature, place and income from their occupation. The table indicates that although salaried/wage earners work in average and better working conditions, their income tends to be low compared to self-employed earners in the pre-lockdown phase. Still, during the lockdown and Post lockdown phases, the recent trends show that salaried/wage earners' income earnings were more significant than self-employed internal migrants. This may be because although most temporary salary/wage earners working in factories, offices or institutions were suspended from work during the pandemic lockdown, they received a specific monthly compensation.

Moreover, many offices or institution workers were found to be working online from their homes during the lockdown period. Whereas on the other hand, migrants involved in self-employed occupation were not able to run their businesses due to lockdown restrictions; at the same time, they were forced to pay for their rental spaces, which further led them to borrow from financial institutions, friends or relatives to pay for their dues. Regardless of the facts, the self-employed migrants involved in delivery services could still earn some amount from their daily work even during the lockdown since they provided home delivery to the population residing in urban regions, yet, they could not earn as they used to do before the COVID-19 phase.

Post-Lockdown Internal Migration in Punjab: Consumption Expenditure Preference Index Using Wilcoxon Signed Rank test

A preference index was framed to analyze the consumption expenditure priorities of various migrants. The top ten principal expenditure particulars included were; day-to-day expenditures, expenditures on education, health expenditure, entertainment expenses, shopping expenditure, purchase of durables, expenditures on rent or expenditure bills, repayment of loans and debts, and costs for saving and investment. Migrants in self-employed and salaried-wage earners occupations rank these items according to their preferences. These ranks were scored as follows: rank one is shown a score of 10, rank two is given a score of 9, and so on, rank ten is given a score of 1; if they have not ranked the item, it is given a score of zero. After providing the score average score was worked out, which was taken as the preference index. As the index is higher, the preference for that item will be more. So based on the preference index, they were ranked to identify which item they prioritized.

The results in table 6 represent that almost all the respondent's first five preferences were the basic needs of human beings; food, housing, education, health and clothes. For instance, ranked first was given to the daily expenses (Day-to-day expenditure) regardless of their occupation. Second preference was given to the repayment of debt/loans. Likewise, the third preference was for the repayment of rent/ bills. Forth, preference was given to the education expenditure in both occupations. Similarly, the least preference was given to the entertainment expenditure in the self-employed domain, whereas it was the purchase of durables for salaried/wage-earner migrants. Thus, the items the respondents rank higher in are education, health, house construction, clothes, debt repayments, etc.

Further, the significant results of The Wilcoxon Signed Rank test (z -value = 5.396; p -value = 0.000) show that the tendency to various expenditure items in both occupations was significantly different. Thus, the Null hypothesis (H_0) that there is no difference in consumption expenditure preferences of both professions is rejected. The results also acknowledge that the choices of the migrants are not identical but differ according to their needs.

Apart from the consumption expenditure, the economic status of the self-employed migrant and salaried/wage-earner migrant households was also calculated. Out of 400 internal migrants, overall, every migrant in both professions has had some savings in their bank accounts or cash in hand reserved for emergencies like nationwide lockdowns. Similarly, only 65 internal migrants (16.25 per cent) have invested some of their money in some assets. At the same time, 335 migrants (83.75 per cent) reported having no investment plan. Moreover, it was reported that out of 400 internal migrants, 225 internal migrants (56.25 per cent) were in debt.

Table 6: Distribution of Internal Migrants of Punjab by Consumption Expenditure Preference Index

Social-Economic Variables	Self Employed Migrants		Salaried/Wage Earners	
Mean	8978.8		12499.15	
Std. Deviation	464.0934		572.904	
t-value	4.7747		Significant at 0.05 level	
p-value	0.000			
Expenditure Priority	Rank %	Rank Score	Rank %	Rank Score
1. Day-to-Day Expenditure	23.54	10	23.62	10
2. Expenditure on Self/Children Education	7.01	7	10.01	7
3. Health Care/Medical Expenditure	5.94	5	4.98	4
4. Entertainment Expenditure	2.51	1	3.87	2
5. Shopping Expen. (Clothing/Bedding)	4.37	2	5.02	5
6. Purchase of Durables	4.69	4	3.85	1
7. House Rent and Other Bills	20.16	8	17.33	8
8. Loan/Debt Repayment	21.27	9	19.68	9
9. Saving/Investment	6.05	6	4.80	3
10. Miscellaneous	4.47	3	6.86	6
Total	100.00	55	100.00	55
Z-value = 5.396; p-value = 0.000				
Saving/Investment/Debt				
Savings	200	100.00	200	100.00
Investment	12	6.00	53	26.50
Pearson χ^2 value = 34.15 $P \leq 0.000$, *** Significant				
Debt/Loan	128	64.00	97	48.50
Pearson χ^2 value = 9.76 $P \geq 0.001$, s*** Significant				

Source: Calculated by Author with Primary data, 2022.

In contrast, 175 migrants (43.75 per cent) reported no debt or loan. The Pearson chi-square test was done to establish the above matter statistically. Thus the χ^2 results show the difference among self-employed and salaried/wage-earner migrants in the investment and debt/loan status was found significant at a 1 per cent significance level. Thus, it is clear from the survey data that respondents' status regarding investments and debt varied widely in both professions (Table 6).

RESULTS AND DISCUSSIONS

Here, logistic regression has been used to identify the socioeconomic determinants of internal migration in the post-lockdown phase to learn who migrates and why. The dependent variable in logistic regression is binary or dichotomous, indicating that it only contains data that is classified as 1 (Ready to move, success, migrant, etc.) or 0 (not present) (Not ready to move, failure, non-migrant, etc.). Logistic regression generates the coefficients

(and its standard errors and significance levels) of a formula to predict a logit transformation of the probability of the presence of the characteristic of interest:

The logit model is defined as:

$$\begin{aligned}
 P_i &= E\left(y = \frac{1}{X_1}, X_2, \dots, X_k\right) \\
 &= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \\
 &\quad + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} \\
 &\quad + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15}
 \end{aligned} \tag{1}$$

Y=1 if at least one member of the household migrates during the year, and 0 otherwise

$$P_i = E\left(Y = \frac{1}{X_1}, X_2, \dots, X_{15}\right) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_{15} X_{15})}} \tag{2}$$

For ease of exposition, we can write the Equation (2) as

$$P_i = \frac{1}{1 + e^{-z_i}} = \frac{e^z}{1 + e^z} \tag{3}$$

Where

$$\begin{aligned}
 z_i &= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 \\
 &\quad + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} \\
 &\quad + \beta_{11} X_{11} + \beta_{12} X_{12} + \beta_{13} X_{13} + \beta_{14} X_{14} + \beta_{15} X_{15}
 \end{aligned}$$

Equation (3) represents the cumulative logistic distribution function. Here, our explanatory variable (X) is a household and individual character vector. In the individual character, gender, marital status, age at the time of migration, year of education, a decline in income, poverty or debt, low agriculture interest, better employment or income opportunities, marriage, better/advanced lifestyle, better education, monthly per capita consumption, per capita land holding, dependency ratio and household size have been taken as the explanatory variable. Among the household character, we include the (log) value of per capita land passed (in hectares), log per capita monthly consumption expenditure, size of the household, SC, ST, OBC and, lastly, the dependency ratio of the household (ratio of non-working members to a total member of the household).

The regression has been analyzed among the dependent and explanatory variables using the logit method. It has been assumed that the migrants with higher monthly per capita expenditure, more land holdings, and greater dependency ratio tend to migrate less than otherwise. On the other hand, the people finding it hard to get employment at their destination, earning low wages, struggling with debt trap or poverty are more inclined towards internal movement. In the present model male, married, moved due to a decline in income, moved due to poverty or debt, moved due to having a low agriculture interest, moved in search of better employment or income opportunities, moved to accompany spouse/marriage, moved in search of better/advance lifestyle, moved for better education, have been taken as one, otherwise zero.

The logistic regression result shows at the individual level, gender, marriage, age, year of education, move due to decline in income/poverty/debt/marriage, the search for better employment/income/education, and household size are significantly associated with internal migration. For example, the results show that males are

3.63 times more likely to migrate out than females. Married individuals are 1.82 times more likely to migrate than others. Internal migration is considered a male-dominated activity; younger people are more likely to migrate than older ones simply because they can work harder. In the study area, education is associated with internal migration in analysis, as migrants had significantly higher levels of education than non-migrants. From Table 12, we find a statistically significant relationship between years of formal education and internal migration.

As hypothesized, larger-sized households have a positive effect on raising migration. Since casual labour is the primary input in agriculture and allied production activities, many family members act as more working or earning hands. Thus, household size is hypothesized to determine migration positively in one or another ways. Results show that there is a positive association between migrations of household size. This positively affects the flow of migration from one place to other.

Ceteris paribus, the likelihood odd ratio discloses a negative association between monthly per capita consumption, per capita land holdings, dependency ratio, and lack of agriculture interest. Preferences for other occupations are 0.390 greater than choosing agriculture and allied activities. In household character, monthly per capita consumption expenditure, per capita landholding, and dependency ratio significantly affect internal migration. Land is one of the essential assets of people's livelihoods in native regions. Land ownership, in particular, is the basis of relative wealth comparisons between rural households and a source of rural employment. This asset is of specific interest to study the determinants of internal migration in this and other contexts.

The logistic regression analysis shows a significant negative relationship between land ownership and internal migration; the more land owned by a household, the less the household is likely to migrate. The scarcity of farmland is an essential factor in the out-migration of rural people seeking wages and related employment opportunities. About 93 per cent of migrant households have small landholding. Families having more land are 0.384 times less likely to migrate. In other words, an increase in (log) land by one unit decreases the probability of migration by a factor of 0.384 (Table 7).

Further, households with more per capita monthly consumption expenditures are less likely to migrate. The odds ratio in the model shows that other things remaining constant, an increase in (log) monthly per capita consumption expenditure by one unit decreases the probability of migration by a factor of 0.034. Similarly, it has been identified that the higher the dependency ratio, the more individual is 0.209 times less likely to migrate, ceteris paribus. This means an increase in the ratio of non-working family members to total family members in a household also decreases the relative likelihood of migration by nearly 0.209 times (Table 14). The study shows that the highest internal migration rates post-lockdown period are from households with no land or small landholdings with low agricultural potential.

Table 7: Logistic Regression Result

Variables	Odds Ratio	St. Err.	Z	p-value	Sig
Gender	3.731	1.582	3.11	0.002	***
Married	2.269	0.922	2.01	0.044	**
Age	3.442	1.606	2.65	0.008	***
Year Education	0.423	0.205	1.77	0.076	*
Moved due Decline in Income	3.652	1.835	2.58	0.01	***
Moved due to Poverty/Debt	4.546	2.044	3.37	0.001	***
Moved Due to Marriage	0.129	0.059	4.52	0	***
In Search of Better Emp/Income	3.042	1.381	2.45	0.014	**
In Search of a Better/Advance Life Style	0.477	0.210	1.68	0.092	*
In Search of Children's Better Education	4.377	2.138	3.02	0.003	***
Household Size	2.515	1.256	1.85	0.065	*
Monthly Per Capita Consumption	0.043	0.023	-5.87	0.001	***
Per Capita Land Holdings	0.370	0.211	-1.74	0.082	*
Dependency Ratio	0.170	0.099	-3.04	0.002	***
Lack of Agri Interest	0.264	0.130	-2.71	0.007	***
Constant	2.310	2.962	0.65	0.514	

Number of observation	400	LR chi2(15)	361.65
Pseudo R2	0.6522	Prob > chi2	0.0000
Log-likelihood	-96.431991	Significance	*** p<.01, ** p<.05, * p<.1

Source: Calculated by Author with Primary data, 2022.

CONCLUSION

Undoubtedly, the COVID-19 pandemic has brought disproportionate socioeconomic and welfare impacts on the economy and residents' livelihoods, especially the internal migrants. With the imposition of the lockdown, all economic activities were also temporarily closed down. The internal migrants, who were solely dependent on the monthly wages, were hit the most adversely compared to other residents. It cannot be underestimated that these internal migrants were also found to be deprived of various social security schemes since they did not come through any registered employment agency; instead, they were either self-motivated or supported by their friends or relatives. That is why their harsh surviving conditions remained unnoticed during the lockdown period, and consequently, they endured unimagined socioeconomic and psychological problems due to a lack of proper records.

The field survey further revealed that the migrants who were predominantly male, young, educated, skilled and married people tended to migrate more intensively since they believed their education and skill

enabled them to explore better options and income. Moreover, the lack of employment opportunities in their native regions and high wage expectations in the urban areas often compels them to migrate with their family members. Similarly, most internal migrants were married men involved in migration, while the participation of women was negligible. Another distinguished fact observed was that these internal migrants primarily comprise those from socially and economically deprived backgrounds. On income and consumption patterns, it was identified that the monthly earnings and consumption patterns of self-employed migrants and salaried/wage-earner migrants differed on various levels. More precisely, the income and expenditure of salaries/wage earners were higher than that of self-employed. This difference may be because, during the lockdown period, salaried/wage earners could still work from home. So they are earning something compared to self-employed migrants, who could not work due to the stringent nationwide lockdown.

The empirical findings from the logistic regression model demonstrated that a decline in monthly income, poverty or debt, low agriculture productivity and lack of interest in allied agricultural activities, monthly per capita consumption, per capita land holding, dependency ratio and household size at native places were significant push factors for internal migration. At the same time, better employment or income opportunities, marriage, better/advanced lifestyle, better education and hospitality were chief pull factors responsible for the migration during the post-lock-down period. These findings indicate that the recently shifted migrants are from poor households involved in physically laborious jobs with unfavourable environmental conditions. Family members, mainly children and senior citizens accompanying their migrant parents, are found to be the most vulnerable and risk-prone from their education and health perspectives, respectively.

Now, as the restriction on movement is plummeting and the economic activities are recovering, most migrants from economically backward regions have found to shift towards urban areas. Though people have started their monthly earnings with the recovery of economic activities, they still have difficulty making ends meet due to the depletion of their reserve savings, unexpected expenditure and repaying their loans. Due to lenders' limited ability to extend credit, the currently available borrowing alternative is also under significant stress. It was further observed it could take a while for the income and employment of the residents to return to pre-pandemic levels in India due to several implicit and explicit factors; in such cases, it is suggested that the government must develop a thorough strategy to address the effects of COVID-19 on the socioeconomic livelihood of residents, including their job and income losses. The government should continue distributing free grains and other necessary non-food goods to provide a minimum food support system.

Moreover, the employment plans, such as the Mahatma Gandhi National Rural Employment Guarantee Scheme, with a job guarantee, should be implemented in urban regions since it was reported that employment or salary loss was more adversely affected in the metropolitan regions as compared to the rural areas. Thus, a comprehensive employment scheme in urban regions could help provide the residents with a minimum level of job security and monthly earnings at the destination. It is further suggested that various NGOs may also be employed at different levels to find COVID-19's most affected homes and support them with food and other essentials.

Lastly, a proper understanding of the magnitude and severity of the socioeconomic problems of internal migrants, particularly in the post-lockdown period and suggesting a robust policy framework for managing the state's immigration process is essential for mitigating the impacts of the COVID-19 pandemic. Since the effects of the COVID-19 outbreak on internal migration and migrants are extensive and yet to be analyzed, the suggestions mentioned above, if implemented effectively, could help to alleviate the adverse effects of the COVID-19 pandemic, particularly in the context of internal migration.

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