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Migration & Diversification of Rural Non-Farm Activities in Rural Areas : An Empirical Study of Selected Regions of Uttar Pradesh

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ABSTRACT: Migration can reshape rural livelihoods through labour mobility, remittance inflows, and changes in household economic activities. This study examines the diversification of non-farm activities among migration-affected rural households in selected regions of Uttar Pradesh. Primary data from 600 households, equally distributed between Eastern and Western Uttar Pradesh, were analysed using frequency distributions, a diversification ratio, binary logistic regression, and Pearson correlation. The findings indicate substantial participation in non-farm and allied activities, with an overall diversification ratio of 0.55. Western Uttar Pradesh records a higher average ratio (0.62) than Eastern Uttar Pradesh (0.48). Migration intensity, remittance income, and education show positive associations with diversification, while landholding size has a negative coefficient in the estimated model. The study concludes that migration is closely associated with the restructuring of rural livelihoods and recommends stronger support for rural enterprises, skills, finance, infrastructure, and productive use of remittances.

1. INTRODUCTION

Migration is an important socio-economic process that influences rural labour allocation, occupational choices, household income, and economic participation. In migration-affected households, remittance income and occupational adjustment may encourage movement beyond exclusive dependence on agriculture.

An important dimension of this transformation is participation in non-farm and allied activities such as dairy farming, petty trade, transportation, wage employment, and small rural enterprises. Remittances can strengthen household investment capacity and support diversified livelihood strategies.Against this background, the present study examines the diversification of non-agricultural practices among rural households in selected regions of Uttar Pradesh using frequency distribution, diversification ratio, binary logistic regression, and correlation analysis.

2. REVIEW OF RELATED LITERATURE

Existing research links migration with remittances, occupational mobility, rural livelihood diversification, and changes in agricultural labour use. The literature also shows that labour out migration can generate constraints for agriculture. Selected studies directly relevant to the present objective are summarized below.

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Table No.-1

Selected Literature on Migration and Rural Economic Diversification

Author(s)	Focus	Key finding
Lacroix (2011)	Migration, rural development	Migration/remittances can support rural livelihoods and food security.
FAO, IFAD & IOM (2018)	Migration and rural development	Alternative livelihoods can help households adapt to migration.
Nori & Farinella (2020)	Migration, agriculture and rural development	Migration can encourage livelihood diversification but may reduce farm labour.
Davis & Lopez-Carr (2014)	Migration, remittances and land use	Remittances influence household resource allocation and livelihood change.
Datta (2022)	Migration and development in Bihar	Migration is linked with income, employment, remittances and livelihood restructuring.
Kumar & Bhagat (2017)	Migration and income/workforce diversification	Migration can function as a livelihood diversification strategy in rural India.
Prasad (2017)	Migration and agricultural labour in Uttar Pradesh	Labour out-migration reduces farm labour and increases non-farm employment pressure.
Ren et al. (2023)	Migration and farm performance	Migration creates alternative income opportunities but can reduce farm labour efficiency.

(Source: Compiled by the authors from the reviewed literature**)**

The literature suggests a broad connection between migration and livelihood diversification, but household level evidence on the extent and determinants of non-farm diversification in rural Uttar Pradesh remains limited. The present study addresses this gap through descriptive and econometric analysis.

3. RESEARCH OBJECTIVE AND HYPOTHESIS OF THE STUDY

3.1 Research Objective

The main objective of the present research study is **"to find out the diversification of non-agricultural practices in the primary sector due to migration".** The objective seeks to examine the extent to which migration has contributed to the diversification of rural economic activities beyond traditional agriculture, with particular emphasis on **non-farm activities, income diversification, and remittance-supported economic practices**.

3.2 Hypothesis

To examine the above objective empirically, the following hypotheses are formulated:

Null Hypothesis (H_0): Migration and related socio-economic variables have no significant impact on diversification of non-farm activities among rural households.

Alternative Hypothesis (H_1): Migration and related socio-economic variables significantly influence on diversification of non-farm activities among rural households.

The hypotheses are examined through **Binary Logistic Regression Analysis**, where diversification of non-farm activities is treated as the in-dependent variable and migration intensity, remittance income, education level, and landholding size are considered dependent variables.

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4. CONCEPTUAL/THEORETICAL FRAMEWORK

Migration influences rural households not only through the movement of labour but also through changes in **income sources, occupational choices, and livelihood strategies**. The reviewed literature indicates that migration and remittance inflows can encourage rural households to move beyond exclusive dependence on agriculture and adopt diversified economic activities.

Figure No.-1

Conceptual Framework of Migration and Rural Non-Farm Economic Diversification

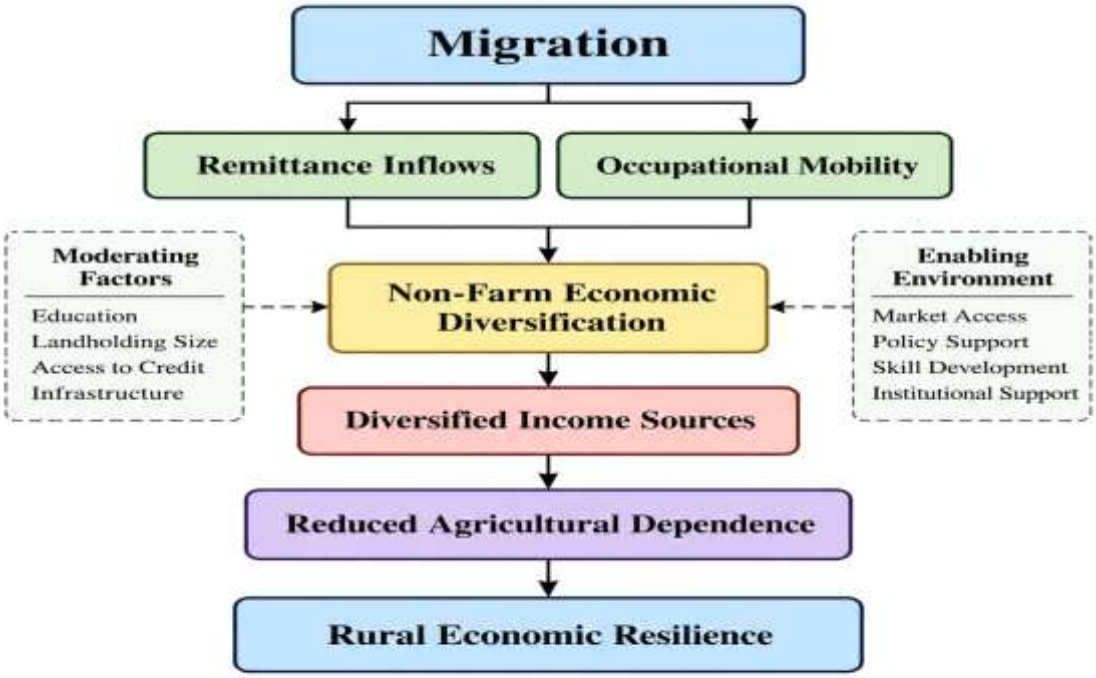

Figure 1. Conceptual Framework of Migration and Rural Non-Farm Economic Diversification

(Source: Developed by the authors based on the reviewed literature and analytical framework of the study**)**

In the context of rural Uttar Pradesh, migration may facilitate diversification through **remittance-supported investment and occupational mobility**. Rural households may utilize migration income in livestock activities, petty trade, transportation services, small enterprises, and other supplementary livelihood activities. Such diversification can contribute to multiple income sources and strengthen household economic resilience.

The present study therefore conceptualizes migration as an important factor associated with the transformation of rural livelihood structures. **Migration → Remittance and Occupational Adjustment → Non-Farm Economic Diversification → Multiple Income Sources → Reduced Dependence on Agriculture** represents the analytical pathway examined in the study. This framework is consistent with the study's focus on non-farm participation, diversification ratio, remittance utilization, and the relationship between migration intensity and livelihood diversification.

5. RESEARCH METHODOLOGY

The study follows an **empirical, quantitative, cross-sectional design** based on primary household survey data supported by secondary sources. The study covers selected migration-prone districts in **Eastern and Western Uttar Pradesh** and uses a **multistage sampling** approach combining purposive and simple random sampling.

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A total of **600 households were surveyed**, with 300 households from each region. The migrant household is the principal unit of analysis. Eligible households had at least one migrant member and were primarily dependent on agriculture and allied activities.

Table No.- 2

Distribution of Sample Households

Region	Districts	Households	Percentage
Eastern Uttar Pradesh	3	300	50.00
Western Uttar Pradesh	3	300	50.00
Total	**6**	**600**	**100.00**

(Source: Field Survey conducted by the authors**)**

The main analytical techniques used for this objective are **frequency distribution, diversification ratio analysis, binary logistic regression, and Pearson correlation analysis**. The regression model uses migration intensity, remittance income, education level, and landholding size as dependent variables.

6. RESULTS AND DISCUSSION

6.1 Distribution of Households by Non-Farm Economic Activities

The diversification of rural livelihoods under migration is reflected in the participation of households in a range of non-farm and allied economic activities. The findings show that **dairy farming** is the most prominent activity, accounting for **23.00 percent** of the surveyed households, followed by **petty trade and small shops (20.67 percent)** and **daily wage non-farm work (15.16 percent)**. Poultry farming, transportation services, handicrafts and cottage industries, and fisheries also constitute important supplementary activities.

The distribution indicates that migration-affected households are not confined to a single occupational source but increasingly combine agriculture with **non-farm activities**. Such participation reflects a gradual movement toward diversified livelihood structures and suggests that migration may facilitate occupational adjustment and reduce exclusive dependence on agriculture.

Table No.- 3

Distribution of Households by Non-Farm Economic Activities

Non-Farm Activity	Frequency	Percentage
Dairy Farming	138	23.00
Poultry Farming	76	12.67
Petty Trade and Small Shops	124	20.67
Transportation Services	63	10.50
Handicrafts and Cottage Industry	58	9.67
Daily Wage Non-Farm Work	91	15.16
Fisheries and Allied Activities	50	8.33
Total	**600**	**100.00**

(Source: Computed from Primary Household Survey Data**)**

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6.2 Distribution of Households by Number of Non-Farm Income Sources

The extent of diversification is further reflected in the number of non-farm income sources maintained by rural households. The findings reveal that **41.00 percent of households have two non-farm income sources**, while **19.84 percent have three sources**. A further 8.83 percent report more than three sources, whereas 30.33 percent depend on a single non-farm source.

Table No.-4

Distribution of Households by Number of Non-Farm Income Sources

Number of Income Sources	Frequency	Percentage
One Source	182	30.33
Two Sources	246	41.00
Three Sources	119	19.84
More than Three Sources	53	8.83
Total	**600**	**100.00**

(Source: Estimated from Household Survey Information**)**

The presence of multiple income sources indicates that migration-affected households increasingly adopt **diversified livelihood strategies**. Such diversification may provide greater income stability and reduce household vulnerability arising from exclusive dependence on agriculture.

6.3. Remittance Utilization and Non-Farm Economic Diversification

Remittance income represents an important financial channel through which migration can influence household livelihood strategies. The findings indicate that migration-affected households utilize remittances for both consumption and productive purposes. Among the surveyed households, **25.67 percent invested remittances in small businesses**, while **21.50 percent used them for livestock purchase**. Agricultural investment accounted for **19.50 percent**, whereas **23.00 percent** of households utilized remittances for household consumption and **10.33 percent** for savings and asset formation.

Table No.- 5

Utilization of Remittance Income in Non-Farm and Related Economic Activities

Utilization Category	Frequency	Percentage
Investment in Small Business	154	25.67
Purchase of Livestock	129	21.50
Agricultural Investment	117	19.50
Household Consumption	138	23.00
Savings and Asset Formation	62	10.33
Total	**600**	**100.00**

(Source: Computed by authors from Primary Survey Data**)**

The relatively substantial share of remittances devoted to **small business and livestock activities** indicates the importance of migration income in supporting diversified household economic practices. Productive utilization of remittances can facilitate participation in supplementary economic activities and strengthen the capacity of rural households to maintain multiple sources of income.

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6.4. Diversification Ratio Analysis

The diversification ratio was employed to assess the extent to which migration-affected rural households have diversified their livelihood sources beyond agriculture. The ratio measures the contribution of **non-farm income to total household income**, with higher values indicating greater livelihood diversification and lower values reflecting continued dependence on agriculture.

Table No.- 6

Distribution of Respondent Households by Diversification Ratio

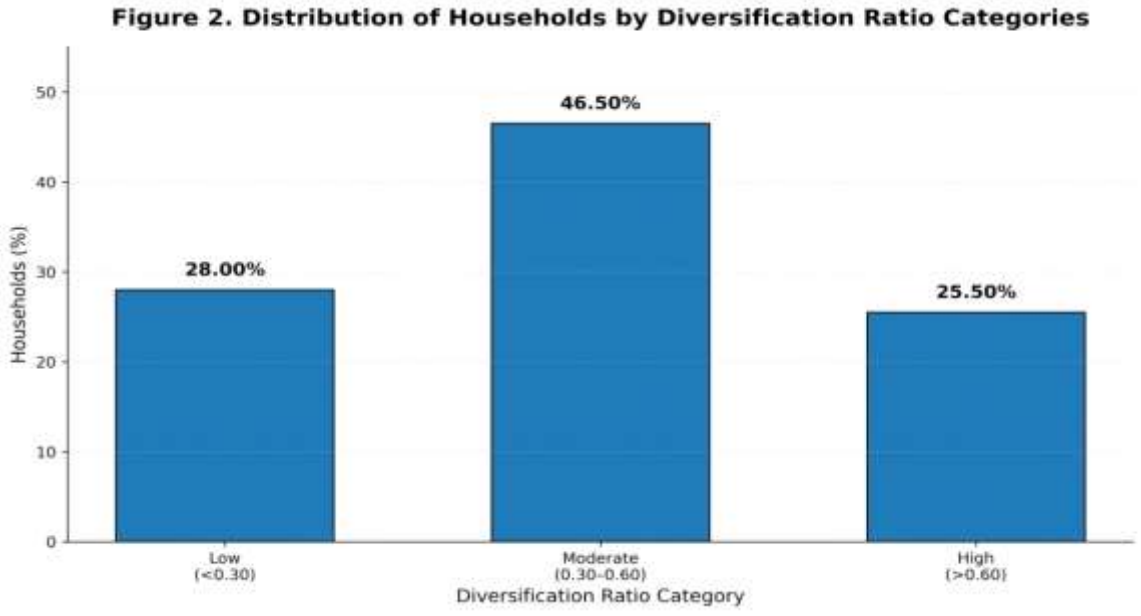
Diversification Category	Frequency	Percentage
Low Diversification	168	28.00
Moderate Diversification	279	46.50
High Diversification	153	25.50
Total	**600**	**100.00**

(Source: Estimated from Household Income and Occupational Data**)**

Figure 2 shows that **moderate diversification** represents the largest share of respondent households at **46.50 percent**, followed by low diversification at **28.00 percent** and high diversification at **25.50 percent**. The distribution indicates that a considerable proportion of migration-affected households have adopted a **moderately diversified livelihood structure**, suggesting a gradual shift beyond exclusive dependence on agriculture.

Figure No.-2

Distribution of Households by Diversification Ratio Categories



(Source: Prepared by the Researcher based on Estimated Diversification Ratios**)**

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6.4.1. Regional Diversification Ratio

Table No.-7

Regional Comparison of Diversification Ratio

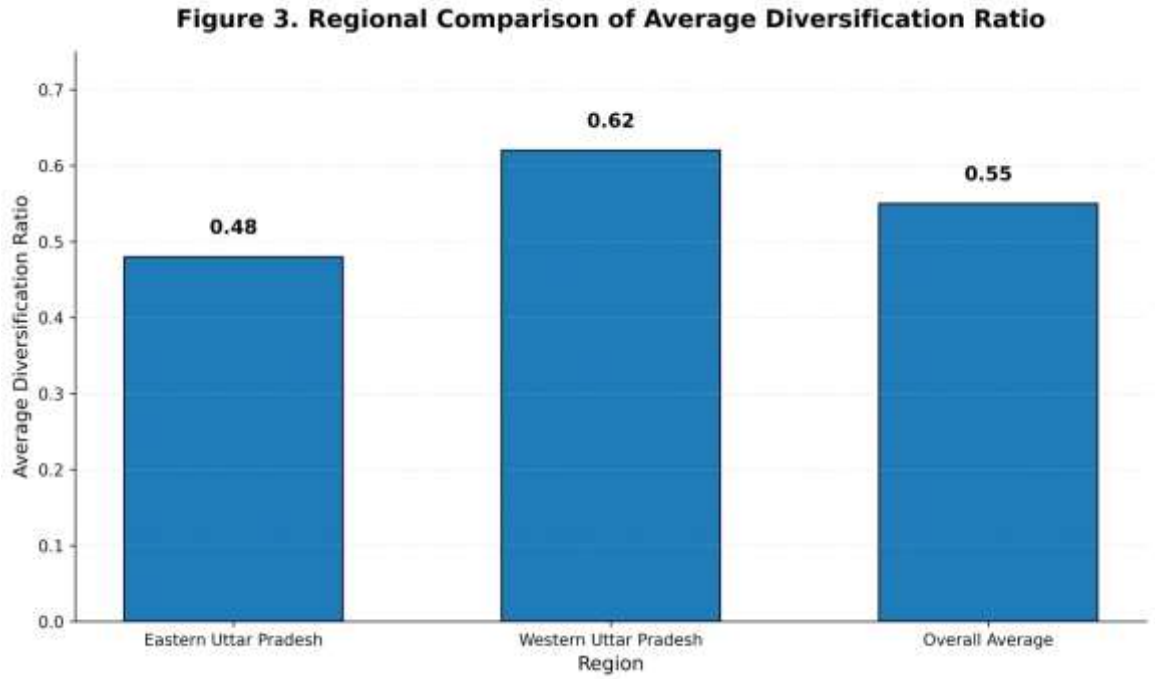
Region	Average Diversification Ratio	Interpretation
Eastern Uttar Pradesh	0.48	Moderate Diversification
Western Uttar Pradesh	0.62	High Diversification
Overall Average	**0.55**	**Moderate Diversification**

(Source: Calculated by the authors using Survey-Based Income Data**)**

The regional analysis reveals noticeable variation in livelihood diversification between the two study regions. **Western Uttar Pradesh records a higher average diversification ratio of 0.62**, classified as high diversification, whereas **Eastern Uttar Pradesh records 0.48**, indicating moderate diversification. The overall average diversification ratio is **0.55**, representing a moderate level of diversification among the surveyed households.

Figure No.-3

Regional Comparison of Average Diversification Ratio



(Source: Calculated by the Researcher using Survey-Based Income Data**)**

6.5. Binary Logistic Regression Analysis

Binary logistic regression was employed to examine the influence of **migration intensity and selected socio-economic variables on the probability of non-farm livelihood diversification** among rural households. Since the dependent variable is binary, the model estimates the likelihood that a household participates in diversified non-farm economic activities. Migration intensity, remittance income, education level, and landholding size were considered explanatory variables.

The regression results indicate that **migration intensity has a positive and statistically significant relationship** with non-farm diversification. The coefficient of migration intensity is **1.146**, with an odds ratio of **3.146 ($p < 0.001$)**, indicating a

substantially higher likelihood of diversification with increasing migration intensity. Remittance income also has a positive and significant coefficient of **0.824**, with an odds ratio of **2.279 (p = 0.001)**. Education level shows a positive and significant association, while landholding size has a negative coefficient.

Table No.- 8

Binary Logistic Regression Results for Non-Farm Diversification

Variables	Coefficient	Std. Error	Wald Statistic	Odds Ratio	p-value
Intercept	-1.284	0.312	16.93		0.000
MigrationIntensity	1.146	0.248	21.34	3.146	0.000
RemittanceIncome	0.824	0.219	14.15	2.279	0.001
EducationLevel	0.531	0.176	9.11	1.701	0.003
LandholdingSize	-0.287	0.142	4.08	0.751	0.041
R^2	**0.582**				
Log-Likehood	**-214.73**				
Chi-Square Stastistics	**89.52**				
Prob (Chi- Square)	**0.0000**				

(Source: Estimated by the authors using primary household survey data**)**

The model demonstrates significant explanatory strength, with a **Nagelkerke R^2 of 0.582**, indicating that approximately **58.2 percent** of the variation in non-farm diversification is explained by the variables included in the model. The overall Chi-Square statistic of **89.52 (p < 0.001)** further indicates that the model is statistically significant.

6.5.1. Hypothesis Testing

The p-values for migration intensity, remittance income, education level, and landholding size are below the 5 percent significance level. Accordingly, **the null hypothesis is rejected and the alternative hypothesis is accepted**, indicating that migration and related socio-economic variables significantly influence non-farm diversification among the surveyed rural households.

6.6. Correlation Analysis

Pearson correlation analysis was employed to examine the relationship between **migration intensity** and selected indicators of non-farm livelihood diversification among the surveyed rural households. The analysis considers diversification ratio, remittance income, education level, and non-farm employment participation.

Table No.- 9

Correlation Matrix between Migration and Non-Farm Diversification Variables

Variables	Migration Intensity	Diversification Ratio	Remittance Income	Education Level	Non-Farm Employment
Migration Intensity	1.000	0.614	0.687	0.438	0.592
Diversification Ratio	0.614	1.000	0.521	0.446	0.673

Remittance Income	0.687	0.521	1.000	0.392	0.487
Education Level	0.438	0.446	0.392	1.000	0.563
Non-Farm Employment	0.592	0.673	0.487	0.563	1.000

(Source: Estimated by the authors using Primary Survey Data**)**

The results indicate that **migration intensity is positively associated with all selected indicators of non-farm diversification**. The strongest association is observed between migration intensity and remittance income (**r = 0.687**), followed by diversification ratio (**r = 0.614**) and non-farm employment (**r = 0.592**). Education level also shows a positive relationship with migration intensity (**r = 0.438**).

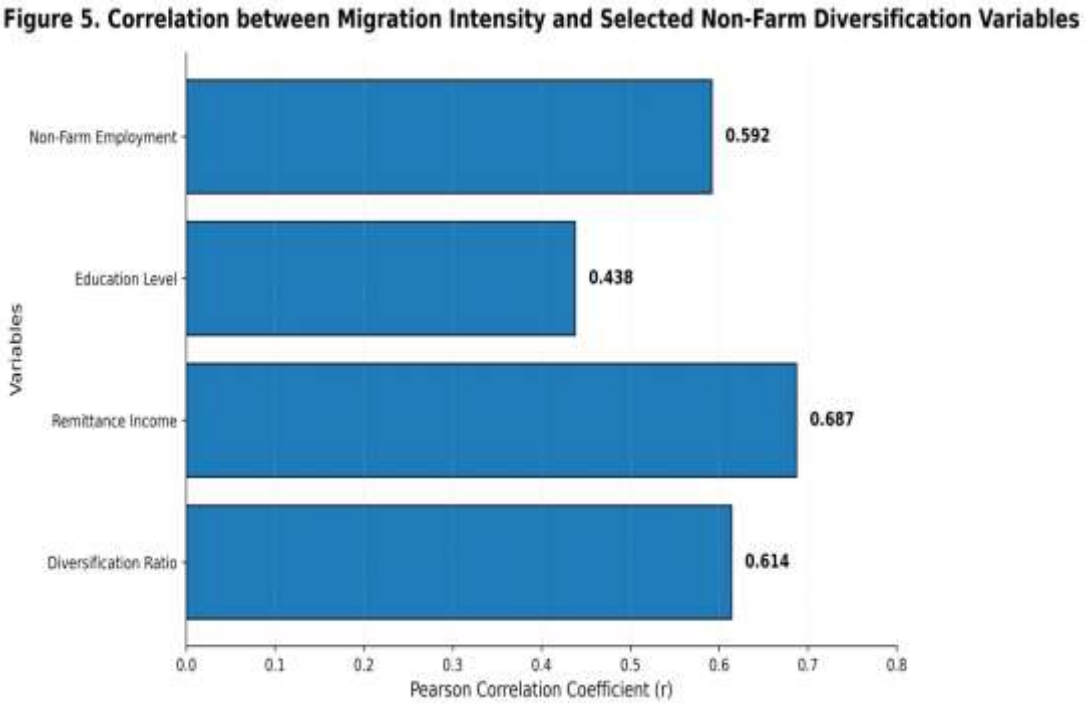
The positive correlation between migration intensity and diversification ratio suggests that households experiencing greater migration intensity tend to have more diversified livelihood structures. Similarly, the relationship with remittance income indicates the financial importance of migration in supporting household economic activities, while the positive association with non-farm employment reflects increasing occupational diversification.

6.6.1. Interpretation of Correlation Results

The correlation results provide evidence of a **positive relationship between migration and rural non-farm diversification**. However, correlation indicates association rather than causation. The findings therefore provide supporting evidence for the regression analysis used to examine the determinants of non-farm diversification.

Figure No.- 5

Correlation between Migration Intensity and Selected Non-Farm Diversification Variables



(Source: Prepared by the authors using Estimated Correlation Coefficients**)**

Figure No. 5 shows positive associations between **migration intensity** and all selected indicators of non-farm livelihood diversification. The strongest relationship is observed with **remittance income (r = 0.687)**, followed by **diversification**

ratio (r = 0.614) and **non-farm employment (r = 0.592)**, while education level shows a moderate positive association (**r = 0.438**). These results indicate that higher migration intensity is associated with greater remittance inflows and broader participation in diversified non-farm livelihood activities among the surveyed households.

7. KEY FINDINGS AND RECOMMENDATIONS

7.1 Key Findings

- **Migration and non-farm diversification:** Migration has contributed to the diversification of rural livelihoods beyond traditional agriculture through participation in dairy farming, petty trade, transportation, wage employment, poultry, fisheries, and other supplementary activities.

- **Multiple income sources:** A considerable proportion of surveyed households maintain multiple non-farm income sources, with **41.00 percent having two sources** and **19.84 percent having three sources**, indicating increasing livelihood diversification.

- **Diversification ratio: 46.50 percent** of households fall under moderate diversification and **25.50 percent** under high diversification, with an overall diversification ratio of **0.55**.

- **Regional variation:** Western Uttar Pradesh records a higher average diversification ratio (**0.62**) than Eastern Uttar Pradesh (**0.48**), indicating greater diversification in the western region.

- **Role of remittances:** Remittances are utilized for productive purposes including **small business investment (25.67 percent)** and **livestock purchase (21.50 percent)**, besides agricultural investment, consumption, and savings.

- **Regression evidence:** Migration intensity (**β = 1.146; OR = 3.146**), remittance income (**β = 0.824; OR = 2.279**), and education level (**β = 0.531; OR = 1.701**) show significant relationships with non-farm diversification, while landholding size has a negative coefficient (**β = −0.287**).

- **Correlation evidence:** Migration intensity is positively associated with diversification ratio (**r = 0.614**), remittance income (**r = 0.687**), education (**r = 0.438**), and non-farm employment (**r = 0.592**).

- **Hypothesis outcome:** The null hypothesis is rejected, indicating that migration and related socio-economic variables significantly influence non-farm livelihood diversification among the surveyed households.

7.2 Recommendations

- **Promote rural enterprises:** Small-scale rural enterprises, agro-processing units, and village-based industries should be encouraged to expand non-farm employment opportunities.

- **Strengthen skill development:** Vocational training should focus on transport services, digital activities, food processing, handicrafts, and rural entrepreneurship.

- **Improve financial access:** Migration-affected households should receive better access to microcredit, rural banking, and entrepreneurship support for productive investment.

- **Develop rural infrastructure:** Roads, electricity, transportation, digital connectivity, and market access should be improved to support non-farm economic activities.

- **Encourage productive remittance use:** Awareness and training programmes should promote investment of remittances in income-generating and entrepreneurial activities rather than relying mainly on consumption expenditure.

- **Support women and youth entrepreneurs:** Special assistance through subsidies, technical support, and market linkages should be provided to women and youth in migration-prone rural areas.

- **Reduce regional disparities:** Targeted development interventions should strengthen diversification opportunities in economically weaker rural regions where dependence on agriculture remains high.

8. CONCLUSION

The present study demonstrates that **migration is closely associated with rural non-farm economic diversification** in the selected regions of Uttar Pradesh. Migration-affected households increasingly participate in multiple non-farm and allied activities, while remittance income supports productive investments such as small business and livestock activities.

The diversification ratio, regression, and correlation results collectively indicate that migration intensity and remittance inflows are positively associated with non-farm economic diversification. The findings therefore suggest that migration contributes to the transformation of rural livelihood structures and can help reduce excessive dependence on agriculture.

REFERENCES

[1] Lacroix, T. (2011). Migration, rural development, poverty and food security: A comparative perspective.

[2] https://shs.hal.science/halshs-00921812

[3] Food and Agriculture Organization of the United Nations. (2018). The state of food and agriculture 2018: Migration, agriculture and rural development.

[4] https://doi.org/10.18356/6b6c004d-en

[5] Nori, M., & Farinella, D. (2020). Migration, agriculture and rural development: IMISCOE short reader. Springer Nature.

[6] https://library.oapen.org/handle/20.500.12657/39535

[7] Davis, J., & Lopez-Carr, D. (2014). Migration, remittances and smallholder decision-making: Implications for land use and livelihood change in Central America. Land Use Policy, 36, 319–329.

[8] https://doi.org/10.1016/j.landusepol.2013.09.001

[9] Datta, A. (2022). Migration and development in India: The Bihar experience. Taylor & Francis.

[10] https://doi.org/10.4324/9781003320487

[11] Kumar, N., &Bhagat, R. B. (2017). Interaction between migration and development: A study of income and workforce diversification in rural Bihar. Environment and Urbanization ASIA, 8(1), 120–136.

[12] https://doi.org/10.1177/0975425316683869

[13] Prasad, S. (2017). Shortages in agricultural labour market and changes in cropping pattern. In Changing contours of Indian agriculture: Investment, income and non-farm employment (pp. 181–204).

[14] Ren, G., Zhu, X., &Feng, S. (2023). The impact of migration on farm performance: Evidence from rice farmers in China. Agriculture, 13(3), 708.

[15] https://doi.org/10.3390/agriculture13030708

[16] Asefawu, G. S. (2022). Seasonal migration and household food security status in the drought-prone areas of Northeast Ethiopia. Environmental Challenges, 8, 100566.

[17] https://www.sciencedirect.com/science/article/pii/S2667010022001238

[18] Caulfield, M., Bouniol, J., Fonte, S. J., & Kessler, A. (2019). How rural out-migrations drive changes to farm and land management: A case study from the rural Andes. Land Use Policy, 81, 594–603.

[19] https://doi.org/10.1016/j.landusepol.2018.11.030

[20] Datta, A., & Mishra, S. K. (2011). Glimpses of women's lives in rural Bihar: Impact of male migration. The Indian Journal of Labour Economics, 54(3), 457–477.

[21] https://repub.eur.nl/pub/34865/metis_178663.pdf

[22] Food and Agriculture Organization of the United Nations, International Fund for Agricultural Development, & International Organization for Migration. (2018). The linkages between migration, agriculture, food security and rural development.

[23] https://www.fao.org/3/CA0922EN/ca0922en.pdf

[24] Pushpendra. (2018). Agrarian transition and migration in a village of Bihar. Journal of Migration Affairs, 1(1), 59–86.

[25] https://doi.org/10.36931/jma.2018.1.1.59-86

[26] Singh, R. (2018). Trends and patterns of male out-migration from rural Uttar Pradesh. Review of Rural Research, 3(1).

[27] https://www.researchgate.net/publication/329769459

Institutional / Website Sources

- https://www.fao.org/migration/en/
- https://www.fao.org/3/ca2077en/CA2077EN.pdf
- https://publications.iom.int/books/mainstreaming-migration-development-planning-handbook-policy-makers-and-practitioners
- https://publications.iom.int/books/integrating-migration-rural-development-interventions-interventions-toolkit-international
- https://publications.iom.int/books/handbook-develop-projects-remittances-good-practices-maximize-impact-remittances-development
- https://publications.iom.int/books/world-migration-report-2026-chapter-4