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Occupational Diversification and Household Economic Development in Rural Areas of Rohtak District, Haryana

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ABSTRACT

Occupational diversification in rural Rohtak reflects a clear transition in household livelihood strategies, where dependence on agriculture is increasingly supplemented by non-farm and service-based activities. Primary survey evidence from 600 households shows that 60 percent of households have secondary income sources, indicating a strong shift toward multi-income structures. The overall income level, measured through the Approximate Monthly Income Index, stands at ₹14,825, while diversified households are about four times more likely to reach income levels above ₹20,000 compared to non-diversified households. Small landholdings, low farm returns and employment uncertainty continue to push households toward diversification, while urban proximity, education and emerging service opportunities act as strong pull factors. However, income gains remain uneven across social groups and locations. The transition improves household income, savings and resilience but a large segment continues to face instability, indicating that diversification is advancing faster than secure economic development.

Keywords: Occupational Diversification; Rural Economy; Household Income; Non-Farm Employment; Livelihood Strategies; Haryana; Economic Development

INTRODUCTION

Rural livelihoods in India are undergoing a structural transformation in which agriculture is no longer the sole foundation of household survival and income generation is increasingly distributed across multiple occupations. The rise of rural non-farm employment has emerged as a central feature of this transformation, with households combining agriculture, wage labour, services and small enterprise activities within a single livelihood system (Reddy 2014). This shift reflects a broader reorganization of rural labour where diversification functions not as a temporary adjustment but as a long-term response to changing economic conditions (Kumar 2011).

The concept of occupational diversification in the rural economy refers to the process by which households engage in multiple economic activities to stabilize income and reduce vulnerability. This includes participation in non-agricultural sectors such as construction, manufacturing, trade and services alongside farming (Saroj, 2022). The expansion of such activities is closely linked with structural changes in employment patterns, where non-farm work has gradually increased its share in rural employment over time (Pattayat, 2024). At the household level, diversification is often a combined outcome of necessity and opportunity, where labour shifts are shaped by both economic constraints and emerging alternatives (Jha, 2005).

A major factor driving diversification is the limited capacity of agriculture to absorb labour. Rural employment data indicates a decline in farm-sector jobs alongside a gradual increase in non-farm employment, though the latter has not always fully compensated for the loss of agricultural work (Pattayat, 2024). This imbalance creates a situation in which households must rely on additional income sources to maintain economic stability. The heterogeneity of the rural non-farm sector further allows households to enter various types of work, ranging from informal wage labour to self-employment and small-scale enterprises (Haggblade et al. 2010).

At the same time, occupational diversification is influenced by socio-economic factors such as education, caste and access to resources, which determine the type and quality of employment available to rural workers. The role of education is particularly significant, as higher educational attainment increases access to better-paying and more stable non-farm occupations (Rajak, 2025). Similarly, spatial factors such as proximity to urban centres and infrastructure

development enhance access to diversified employment opportunities, linking rural labour markets with broader economic systems (Pattayat 2024).

The concept of household economic development in the rural context is closely tied to this process of diversification. Economic development at the household level extends beyond income growth to include stability, resilience and improvement in living conditions. Diversified households are better positioned to manage income fluctuations, as they rely on multiple sources rather than a single occupation (Barrett et al. 2001). This multi-source income structure reduces vulnerability to shocks such as crop failure, price volatility and seasonal unemployment, thereby enhancing overall economic security.

Empirical evidence also indicates that diversification contributes significantly to income improvement and poverty reduction. Participation in rural non-farm employment has been associated with higher household income and increased consumption levels, demonstrating its role in enhancing economic well-being (Hashmi, 2025). At the same time, diversification creates opportunities for upward mobility by enabling households to invest in education, health and productive assets, thereby strengthening long-term development outcomes (Pal 2024).

However, the relationship between diversification and development is not uniform. While non-farm employment can increase income, it is often characterized by informality, low wages and lack of job security, which limits its long-term developmental impact. In many rural regions, diversification leads to a mixed outcome where households experience improved income but remain exposed to employment instability (Abraham 2023) . Furthermore, access to high-return non-farm opportunities is uneven, resulting in disparities across social groups and regions.

The interaction between occupational diversification and household economic development therefore produces a complex and layered rural economy. Agriculture continues to play a foundational role but it is increasingly complemented by non-farm activities that shape income patterns and employment structures. Households are not abandoning agriculture entirely; instead, they are reorganizing their labour to adapt to evolving economic conditions. This coexistence of traditional and modern occupations reflects both continuity and transformation within rural livelihoods.

REVIEW OF LITERATURE

Chen, Hou and Gong (2025), develop a rigorous spatio-temporal framework to examine how rural occupational structures evolve alongside residential patterns over time, using county-level data from 2008, 2015 and 2021. Employing spatial autocorrelation techniques and the geographical detector model, the study demonstrates that occupational change in rural regions is not uniform but exhibits clear spatial clustering and temporal progression. The composite occupational-residential efficiency index shows a steady upward trend, rising from 0.746 to 0.810 between 2008 and 2021, while simultaneously revealing a pronounced core-periphery pattern, with higher functional efficiency concentrated in central counties and lower levels in peripheral regions. Trade-off and synergy analysis indicates a gradual transition from occupational-residential mismatch toward stronger coordination, as average synergy values increased from 1.05 (2008-2015) to 3.10 (2015-2021). The driving-factor analysis highlights the growing influence of education, public services, industrial structure and tertiary-sector expansion, while the constraining role of natural factors weakens over time. By integrating spatial differentiation with long-term temporal dynamics, the study illustrates how rural occupational structures reorganize through uneven development trajectories shaped by policy intervention and economic restructuring.

Pal (2024), examines diversification of the rural economy and the narrowing of the rural-urban divide through a comparative study of Barddhaman city and four surrounding large villages (Galsi, Jaugram, Mandalgram and Kusumgram) in PurbaBarddhaman district, West Bengal. The study combines secondary data (Census of India 1991, 2001, 2011 and District Statistical Handbook) with primary survey data from 400 households, evenly divided between rural and urban areas. Census evidence shows a consistent decline in cultivators in rural areas (from 30.36% in 1991 to 21.31% in 2011) alongside a sharp rise in non-farm establishments, especially in rural locations. Field data reveal that most rural households are no longer solely dependent on agriculture, with widespread engagement in trade, salaried employment, self-employment and services. Statistical tests indicate that the rural-urban difference in non-farm employment is not significant, suggesting convergence in occupational structure. The Herfindahl-Hirschman Index confirms moderate diversification across villages, while income analysis shows a declining rural-urban income gap. The study identifies agricultural modernization, intergenerational occupational mobility, caste-based mobility and aspirations for social advancement as key drivers of this transformation, concluding that rural economies around Barddhaman increasingly resemble urban economies in occupational composition.

Eckert and Peters (2023),develop a spatial-structural framework to explain how sectoral reallocation and regional productivity dynamics jointly shape occupational and wage change. Using U.S. historical data for 1880-1920, the study documents a major transformation in occupational structure as the agricultural employment share declined from about 50% to 25%, alongside strong regional wage convergence. Empirically, regions with high initial agricultural

specialization were poorer in 1880 but experienced faster wage growth and sharper reductions in agricultural employment over time. Quantitative estimates show that the urban-rural wage gap narrowed by roughly 0.4 log points during this period. The authors demonstrate that this outcome cannot be explained by sectoral reallocation alone: without technological catch-up, agricultural regions would have faced declining relative wages. Model simulations indicate that rural areas enjoyed a productivity growth premium of around two percentage points per year, offsetting their exposure to the declining agricultural sector. The analysis highlights that occupational restructuring across space depends not only on shifts between sectors but also on uneven regional productivity growth, which critically mediates the spatial pattern of occupational change.

Jayashree et al. (2022), examine spatio-temporal occupational restructuring in Karnataka using Census data from 1991 to 2011, focusing on the distribution of workers across primary, secondary and tertiary sectors. The study records a clear temporal decline in primary employment, which reduced from 75% in 1991 to 51% by 2011, while secondary-sector participation increased from 21% to 27% and tertiary employment expanded sharply from 4% to 22%. Spatially, district-level mapping reveals that agricultural dependence weakened unevenly, with urban-influenced districts showing faster transitions toward services, while interior districts retained higher primary-sector shares. Population growth slowed over time-from 21.12% (1991-2001) to 15.60% (2001-2011)-coinciding with shifts in workforce composition. The authors attribute these changes to expanding education access, urbanisation, industrial development and the growing dominance of service activities. Cartographic and statistical techniques (SPSS, Excel, GIS) are used to demonstrate how occupational change unfolds differently across space while following a common temporal direction. The analysis highlights that occupational restructuring is not uniform but shaped by regional development trajectories and socio-economic transformation.

SAMPLING

The present study is based on a multistage, stratified and proportionately allocated sampling design covering all five rural development blocks of Rohtak district, namely Lakhan Majra, Maham, Kalanaur, Rohtak and Sampla. The final survey size was 600 rural households/respondents. For block-wise and village-wise allocation, the worker population was used as the Measure of Size (MOS). The final sample was equally distributed across General, Scheduled Caste and Backward Class respondents, giving 200 respondents in each social category. The selected villages were Lakhan Majra, Bainsi, Sasrauli; Nindana, Maham, Shekhupur; Kahnaur, Kakrana, Taimurpur; Bahu Akberpur, Bahmanwas, Nasirpur; and Ismaila-11B, Morkheri, Kisranti.The adequacy of the district sample was checked through the Finite Population Correction (FPC) formula:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

where

1. n_0= initial sample size,
2. N= finite population size,
3. n= corrected sample size.

Substituting the values:

$$n = \frac{600}{1 + \frac{599}{43744}}$$
$$n = \frac{600}{1 + 0.0136933}$$
$$n = \frac{600}{1.0136933} = 591.895 \approx 592$$

Since the corrected size was extremely close to 600 and the multistage category-wise allocation required workable rounding, the final sample size was retained at 600.Block-wise sample allocation was made by:

$$n_i = \frac{N_i}{N} \times n$$

where

1. n_i= sample allotted to block i,
2. N_i= workers in block i,
3. N= district total workers,
4. n= total sample size.

Like for Rohtak block:

$$n_i = \frac{71257}{212681} \times 600 = 201.03 \approx 201$$

Similarly, the adopted block totals became 63, 162, 81, 201 and 93 for Lakhan Majra, Meham, Kalanaur, Rohtak and Sampla respectively. Each block total was then equally divided into three social categories:

$$n_{i,cat} = \frac{n_i}{3}$$

Thus Lakhan Majra contributed 21+21+21, Meham 54+54+54, Kalanaur 27+27+27, Rohtak 67+67+67 and Sampla 31+31+31.

Village-wise allocation within each block followed:

$$n_{ij} = \frac{W_{ij}}{\sum W_{sel}} \times n_{i,cat}$$

where

1. W_{ij} = workers in selected village j,
2. $\sum W_{sel}$ = total workers in the selected villages of that block,
3. $n_{i,cat}$ = category-wise block sample.

Like for Sampla block is:

$$n_{i,cat} = 93/3 = 31$$

Selected villages and workers:

$$\text{Ismaila-11B} = 2591, \text{Morkheri} = 1441, \text{Kisranti} = 660$$

$$\sum W_{sel} = 2591 + 1441 + 660 = 4692$$

$$n_{\text{Ismaila-11B}} = \frac{2591}{4692} \times 31 = 17.12 \approx 17$$

$$n_{\text{Morkheri}} = \frac{1441}{4692} \times 31 = 9.52 \approx 10$$

$$n_{\text{Kisranti}} = \frac{660}{4692} \times 31 = 4.36 \approx 4$$

Within each selected village, households were listed category-wise and selected through stratified systematic sampling. The sampling interval was:

$$k = \frac{H_{j,cat}}{n_{j,cat}}$$

where $H_{j,cat}$ is the listed households in the relevant category and $n_{j,cat}$ is the required sample from that category.

Table 1: Sample Distribution by C. D. block, Selected Village and Social Category

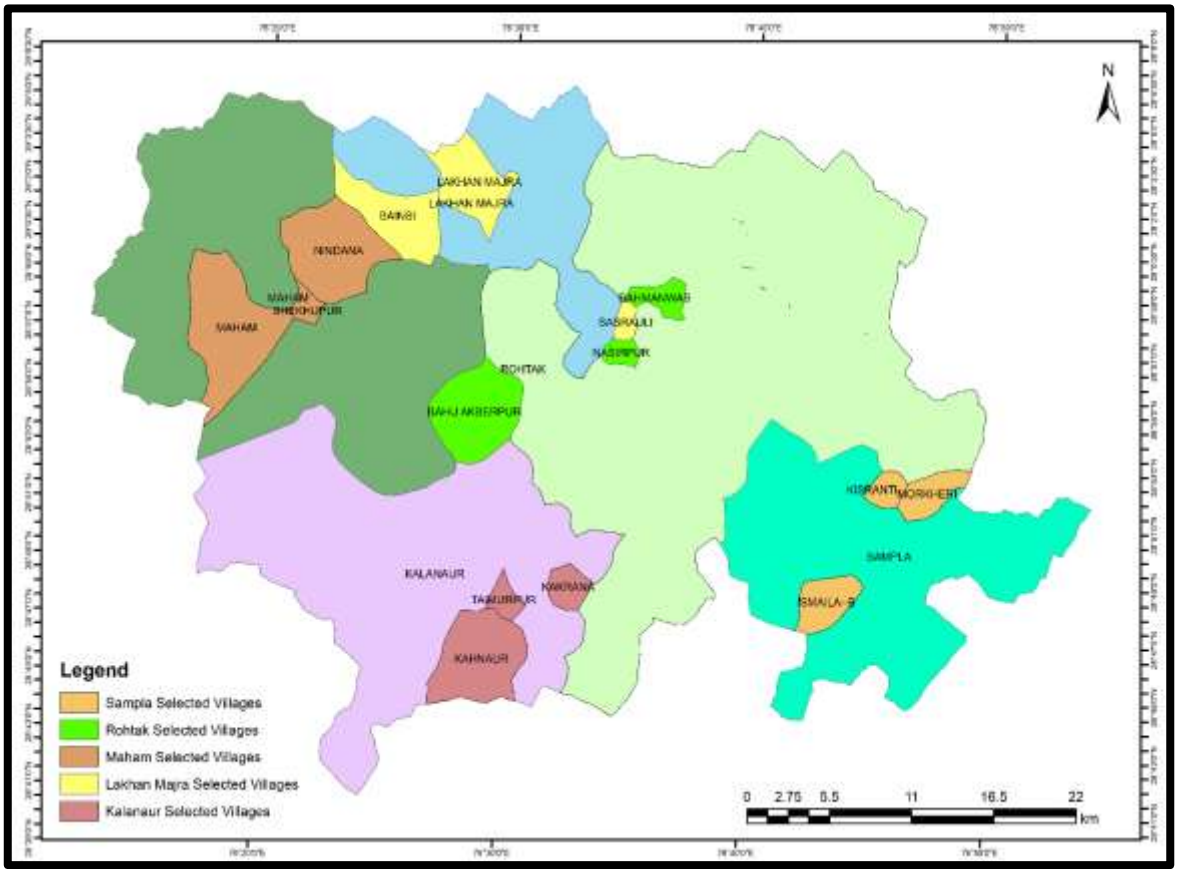
C. D. Block	Selected village	General	SC	BC	Total
Lakhan Majra	Lakhan Majra	13	13	13	39
Lakhan Majra	Bainsi	7	7	7	21
Lakhan Majra	Sasrauli	1	1	1	3
Maham	Nindana	38	38	38	114
Maham	Maham	15	15	15	45
Maham	Shekhupur	1	1	1	3
Kalanaur	Kahnaur	19	19	19	57
Kalanaur	Kakrana	7	7	7	21
Kalanaur	Taimurpur	1	1	1	3
Rohtak	Bahu Akberpur	50	50	50	150
Rohtak	Bahmanwas	16	16	16	48
Rohtak	Nasirpur	1	1	1	3
Sampla	Ismaila-11B	17	17	17	51
Sampla	Morkheri	10	10	10	30
Sampla	Kisranti	4	4	4	12
Total	15 villages	200	200	200	600

Source: Computed by the Research Scholar with the help of Data Collected from the Primary Survey

STUDY AREA

The study is confined to the rural areas of Rohtak district, Haryana, located in the south-eastern part of the state, about 70 km north-west of Delhi, between 28°40′–29°05′ N latitude and 76°13′–76°51′ E longitude. The district covers about 1,745 sq. km and forms part of the alluvial plains of North India. Administratively, the rural study area comprises five blocks-Rohtak, Kalanaur, Maham, Sampla and Lakhan Majra-and approximately 136 inhabited villages. Its mixed character of fertile agriculture, urban proximity, growing service opportunities and emerging non-farm linkages makes it suitable for examining the relationship between occupational diversification and household economic development.The selected villages represent different locational situations within the rural district. Bahu Akberpur and Bahmanwas lie in a stronger Rohtak city influence zone, Ismaila-11B and Morkheri show corridor-linked economic exposure, Maham and Kahnaur function as important local rural centres, while Sasrauli and Taimurpur represent more agriculture-retaining village situations. This internal variation is important because household economic gains from occupational change are not spatially uniform across the district.

Map 1: *Location of 05 Rural C. D. Blocks and the 15 Selected VillagesRohtak district*



Source: Prepared by the Research Scholar with the help of Arc GIS

RESEARCH METHODOLOGY

The present paper is descriptive and analytical in nature. It uses the same primary survey base of 600 rural households. To find out the relative income level of the sample, the paper uses the Approximate Monthly Income Index (AMI):

$$AMI = \frac{\sum f_i m_i}{N}$$

Where,

1. f_i= households in income class i,
2. m_i= midpoint of income class i,
3. N= total households.

The class midpoints used in the study are:0, 2500, 7500, 15000, 35000, 60000

For the classes No direct income, Less than ₹5,000, ₹5,000–₹10,000, ₹10,001–₹20,000, ₹20,001–₹50,000 and above ₹50,000 respectively.

The overall AMI was computed as:

$$AMI = \frac{(37 \times 0) + (96 \times 2500) + (180 \times 7500) + (162 \times 15000) + (105 \times 35000) + (20 \times 60000)}{600}$$

$$AMI = \frac{0 + 240000 + 1350000 + 2430000 + 3675000 + 1200000}{600}$$

$$AMI = \frac{8895000}{600} = 14825$$

Thus, the overall Approximate Monthly Income Index for the sample is ₹14,825.To assess diversification, the following measures were used:

$$SIPR = \frac{H_s}{N} \times 100$$

where H_s= households reporting secondary income.

$$WSR = \frac{MW}{MW + MaW} \times 100$$

where MW= Main Workers and MaW= Marginal Workers.

$$IDR = \frac{H_d}{N} \times 100$$

where H_d= households with secondary income or diversified income structure.

$$HEIR = \frac{B + MB}{N} \times 100$$

Where,B= households reporting "better" economic condition and MB= households reporting "much better" economic condition.

Worked calculations are:

$$SIPR = \frac{360}{600} \times 100 = 60.00$$
$$WSR = \frac{342}{342 + 138} \times 100 = 71.25$$
$$IDR = \frac{360}{600} \times 100 = 60.00$$
$$HEIR = \frac{210 + 126}{600} \times 100 = 56.00$$

These indices are used in the results section to interpret how diversification is associated with household economic development.

RESULTS AND DISCUSSION

The results show that occupational diversification in rural Rohtak has a clear economic significance but the gains are not uniform across all households. In the distribution of monthly income from primary occupation, 37 households (6.17%) reported no direct income, 96 households (16.00%) earned less than ₹5,000, 180 households (30.00%) earned ₹5,000–₹10,000, 162 households (27.00%) earned ₹10,001–₹20,000, 105 households (17.50%) earned ₹20,001–₹50,000 and only 20 households (3.33%) crossed ₹50,000. Thus, households at or below ₹10,000 per month account for:

$$\frac{37 + 96 + 180}{600} \times 100 = 52.17$$

while households above ₹20,000 account for:

$$\frac{105 + 20}{600} \times 100 = 20.83$$

This shows that the rural economy is still weighted toward lower and lower-middle income bands, yet a distinct higher-income segment has emerged.

Secondary income is not marginal but central to household development. Out of 600 households, 360 households (60.00%) reported some secondary income, while 240 had none. The developmental effect of this diversification is very clear in the combined-income comparison. Among diversified households, 159 out of 360 households fell in the combined-income group above ₹20,000, which equals 44.17 percent. Among non-diversified households, only 27 out of 240 households reached that level, i.e. 11.25 percent. This means that diversified households are about four times more likely to enter the higher combined-income range than non-diversified households. Occupational diversification, therefore, is not simply a coping device; it is one of the strongest direct channels of household income improvement in the study area.

The quality of work also matters. Main Workers constitute 57.00 percent of respondents, while Marginal Workers account for 23.00 percent, giving a Worker Security Ratio of 71.25. The worker-category income table shows that main workers are concentrated more strongly in the middle and high income classes, whereas marginal workers remain overwhelmingly trapped in low income. This means that occupational change contributes to development only when it results in more regular and secure work rather than merely shifting households from one insecure activity to another.

Income differentials by broad occupational group confirm the same pattern. The Approximate Monthly Income Index is only ₹11,553 for farm-based occupations and ₹11,350 for non-farm labour and unskilled work but it rises to ₹21,750 for business, self-employment and skilled trades and reaches ₹29,278 for salaried and service-linked occupations. In other words, the developmental value of occupational diversification depends heavily on where households diversify. A shift from cultivation to insecure labour may reduce agrarian dependence but the strongest gains occur when diversification leads to skilled, business or salaried service work.

Table 2: ***Indicators of Occupational Diversification and Income Profile***

Dimension	Indicator	Frequency / Value	Percentage / Index
Primary income	No direct income / not applicable	37	6.17
Primary income	Less than ₹5,000	96	16.00
Primary income	₹5,000–₹10,000	180	30.00
Primary income	₹10,001–₹20,000	162	27.00
Primary income	₹20,001–₹50,000	105	17.50
Primary income	Above ₹50,000	20	3.33
Secondary income	Households with secondary income	360	60.00
Secondary income	No secondary income	240	40.00
Worker security	Main Workers	342	57.00
Worker security	Marginal Workers	138	23.00
Worker security	Other Workers	78	13.00
Worker security	None of these	42	7.00
Income index	Overall AMI	₹14,825	-
Worker security index	WSR	71.25	-
Diversification index	IDR / SIPR	60.00	-
Diversified households	Above ₹20,000 combined income	159 out of 360	44.17
Non-diversified households	Above ₹20,000 combined income	27 out of 240	11.25

Source: Computed by the Research Scholar with the help of Data Collected from the Primary Survey

The gains from diversification are socially unequal. In the respondent-level primary income structure, the share of households above ₹20,000 is 33.00 percent among General-category respondents, 21.50 percent among Backward Class respondents but only 8.00 percent among Scheduled Caste respondents. Educational differentiation is even sharper: the upper-income share rises from only 2.38 percent among illiterate respondents to 41.67 percent among graduates and 66.67 percent among postgraduates.

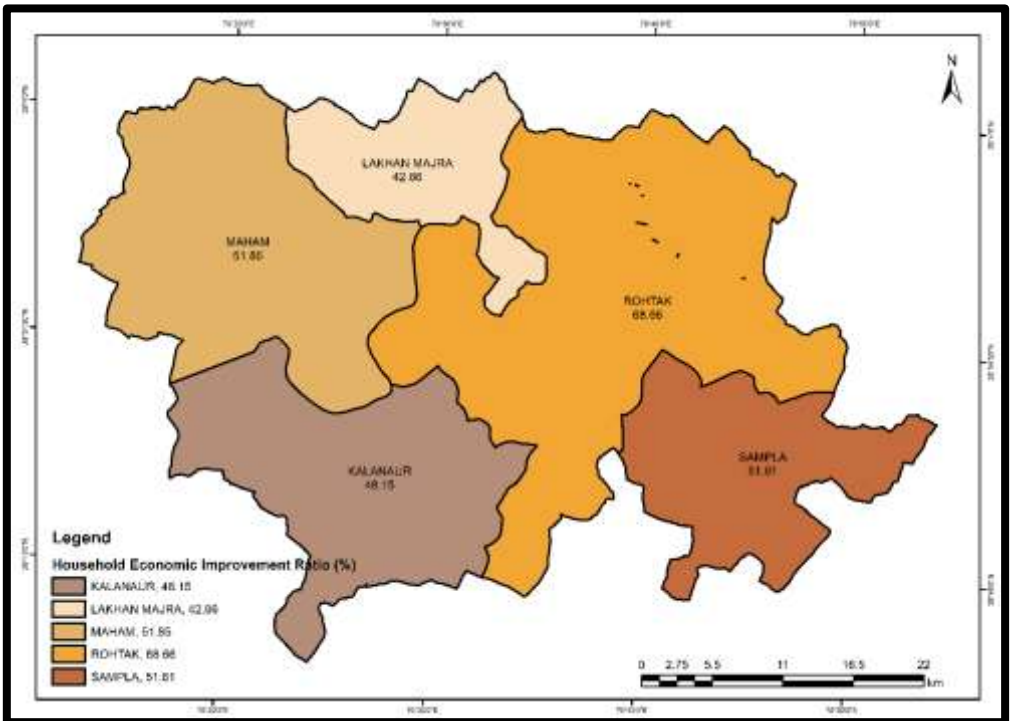
Table 3:*C. D. Block-wise Economic Profile*

C. D. Block	Approximate Monthly Income Index (₹)	Share above ₹20,000 in primary income (%)	Secondary Income Participation Rate (%)	Household Economic Improvement Ratio (%)	Remark
Lakhan Majra	9,921	9.52	57.14	42.86	Lower-income agriculture-retaining block
Maham	14,568	20.37	59.26	51.85	Mixed-income transition block
Kalanaur	13,735	17.28	55.56	48.15	Moderate diversified agrarian block
Rohtak	17,998	29.85	61.19	68.66	Highest income and improvement block
Sampla	12,688	12.90	64.52	51.61	Diversified commuting block
Overall	14,825	20.83	60.00	56.00	District sample average

Source: Computed by the Research Scholar with the help of Data Collected from the Primary Survey

Gender inequality also remains strong: the share above ₹20,000 is 28.10 percent among male respondents but only 3.93 percent among female respondents. Thus, occupational diversification does not automatically remove rural inequality; rather, its gains are filtered through education, caste location and gendered access to better occupations.

Map 2:*C. D. Block-wise Household Economic Improvement Ratio (%)*



Source: Prepared by the Research Scholar with the help of Arc GIS

The block-wise profile reveals that the economic benefits of diversification are also spatially uneven. Rohtak block has the highest AMI (₹17,998), the highest share of respondents above ₹20,000 (29.85%) and the strongest Household Economic Improvement Ratio (68.66%). Sampla has the highest Secondary Income Participation Rate (64.52%), showing strong diversification but its gains remain more wage- and commuting-linked than Rohtak's. Lakhan Majra records the weakest economic position, with an AMI of only ₹9,921 and an HEIR of 42.86%. This means that spatial proximity to stronger non-farm and service-linked opportunities shapes not just occupational pattern but also the economic outcome of diversification.

Table 4: *Household Development Outcomes*

Development indicator	Response / Category	Frequency	Percentage
Change in total household income since 2014-15	Much higher + Somewhat higher	336	56.00
Saving capacity	Higher	210	35.00
Debt burden	Lower	186	31.00
Productive asset purchase	Agricultural asset	96	16.00
Productive asset purchase	Non-farm business asset	72	12.00
Productive asset purchase	Vehicle / transport asset	48	8.00
Productive asset purchase	Livestock asset	54	9.00
Productive asset purchase	No productive asset purchased	312	52.00
Housing condition	Improved significantly/slightly	318	53.00
Expenditure on children's education	Higher	294	49.00
Expenditure on health and medical care	Higher	246	41.00
Emergency financial capacity	Usually + Sometimes able without borrowing	390	65.00
Overall household economic condition	Better + Much better	336	56.00
Economic development type	Type I: Low-income agriculture-retaining	144	24.00
Economic development type	Type II: Diversified but insecure	186	31.00
Economic development type	Type III: Stable middle-income mixed	150	25.00
Economic development type	Type IV: Economically advancing service/business-linked	120	20.00

Source: Computed by the Research Scholar with the help of Data Collected from the Primary Survey

A total of 56.00 percent of households reported that their total household income is now either much higher or somewhat higher than in 2014-15. 35.00 percent reported improved saving capacity, 31.00 percent reported a reduced debt burden and 53.00 percent reported some improvement in housing condition. Nearly half the households (49.00 percent) increased expenditure on children's education, while 41.00 percent reported higher expenditure on health and medical care. Most importantly, 65.00 percent reported that they can usually or at least sometimes meet emergency expenses without borrowing. These results show that the developmental effect of occupational diversification is not restricted to earnings alone; it also extends to resilience, welfare expenditure and material living conditions.

At the same time, the development process remains incomplete. More than half the households (52.00 percent) did not purchase any productive asset despite income gains and the largest single development type in the sample is still "diversified but insecure households" (31.00 percent). This is a crucial result. It means that diversification has progressed faster than full economic consolidation. Many rural households now have multiple income sources but a substantial section remains located between survival diversification and stable advancement. Occupational change is therefore economically positive but not uniformly secure or equally beneficial.

CONCLUSION

Occupational diversification in rural Rohtak has become a central pathway for improving household economic conditions but its benefits are uneven and conditional. Households with multiple income sources show significantly higher income levels, better savings capacity and improved living standards. At the same time, a large share of households remains in low and insecure employment, especially where diversification leads to informal or low-paying work. Spatial variation and social differences further influence outcomes, with better results observed in areas closer to urban and service-linked opportunities. The overall pattern indicates that diversification strengthens rural economies, yet long-term development depends on expanding secure, skill-based and higher-income employment avenues

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