

Income Contribution of the Non-Farm Sector in Rural Households of Leparada District, Arunachal Pradesh

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Abstract

Rural livelihoods in hilly and geographically isolated regions like Arunachal Pradesh are increasingly shaped by income diversification strategies beyond agriculture. This study examines the extent, structure, and determinants of non-farm income among rural households in Leparada district. Using primary data collected through household surveys and qualitative interviews, supported by secondary sources, the paper analyses how non-farm activities contribute to household income, livelihood security, and socio-economic transformation. The findings reveal that non-farm income constitutes a significant share of total household earnings, particularly for small and marginal farmers and land-poor households. Participation in non-farm activities improves income stability, reduces vulnerability to agricultural risks, and enhances access to education and health services. However, infrastructural constraints, skill shortages, limited market access, and institutional barriers restrict the expansion of the rural non-farm sector. The study argues that strengthening the non-farm economy is essential for inclusive rural development in Leparada district and similar frontier regions.

Keywords: Rural non-farm sector, income diversification, rural households, livelihood security, Leparada district, Arunachal Pradesh

1. Introduction

Agriculture has historically been the backbone of rural livelihoods in India. However, in recent decades, structural changes in the rural economy have led to increasing reliance on non-agricultural sources of income. The rural non-farm sector (RNFS)—which includes wage employment, self-employment, small trade, services, construction, transport, and cottage industries—has emerged as a critical component of household income strategies. In Arunachal Pradesh, agricultural practices are predominantly subsistence-oriented, characterized by small landholdings, low productivity, dependence on rainfall, and limited commercialization. Leparada district, carved out as a new administrative unit, exemplifies these challenges. The district is marked by difficult terrain, scattered settlements, and limited infrastructural development. While agriculture remains the primary occupation, it alone is insufficient to meet rising consumption needs, educational aspirations, and healthcare expenditures.

Against this backdrop, rural households increasingly engage in non-farm activities to supplement agricultural income. Despite its growing importance, empirical research on the

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contribution of the non-farm sector in Arunachal Pradesh—particularly at the district level—remains limited. This study attempts to bridge this gap by systematically analyzing the role of non-farm income in rural households of Leparada district.

2. Objectives of the Study

The specific objectives of the study are:

1. To estimate the contribution of non-farm income to total household income in rural Leparada.
2. To examine the nature and composition of non-farm activities undertaken by rural households.
3. To analyze socio-economic determinants influencing participation in non-farm employment.
4. To assess the impact of non-farm income on livelihood security and welfare.
5. To identify major challenges hindering the growth of the rural non-farm sector.

3. Review of Literature

The concept of income diversification has been widely discussed in development literature. Ellis (2000) argues that rural households diversify income sources to reduce risk and improve resilience. Reardon et al. (2006) emphasize that the non-farm sector contributes substantially to rural incomes in developing countries, accounting for nearly 40 percent of rural income globally.

In the Indian context, studies reveal that non-farm employment plays a crucial role in poverty reduction and income equality (Lanjouw & Shariff, 2004). Singh and Kaur (2017) note that households with access to education and infrastructure are more likely to benefit from high-return non-farm activities.

Research from northeastern India highlights unique constraints such as remoteness, weak market integration, and limited industrial base. However, emerging studies suggest that non-farm employment—especially wage labor and government-related services—has become an important livelihood source (Devi, 2019). Despite this, district-level studies in Arunachal Pradesh remain scarce, making localized empirical analysis both necessary and relevant.

4. Study Area: Leparada District

Leparada district is located in the central part of Arunachal Pradesh and is predominantly rural. The district is inhabited largely by indigenous tribal communities, with agriculture, animal husbandry, and forest-based activities forming the traditional livelihood base. Shifting cultivation and wet rice cultivation are common, but productivity remains low due to limited mechanization and infrastructural constraints.

The district has witnessed gradual exposure to road connectivity, education, and government employment schemes, which has opened avenues for non-farm employment. Understanding income diversification patterns in this socio-cultural and geographical context is essential for effective rural development planning.

5. Data and Methodology

5.1 Research Design

The study adopts a mixed-methods approach, combining quantitative and qualitative techniques to capture both measurable income patterns and contextual insights.

5.2 Data Sources

- **Primary Data:** Collected from 100 rural households across selected villages using structured questionnaires.
- **Qualitative Data:** Key informant interviews with village elders, self-help group members, local entrepreneurs, and officials.
- **Secondary Data:** Census reports, district statistical handbooks, government publications, and previous studies.

5.3 Analytical Tools

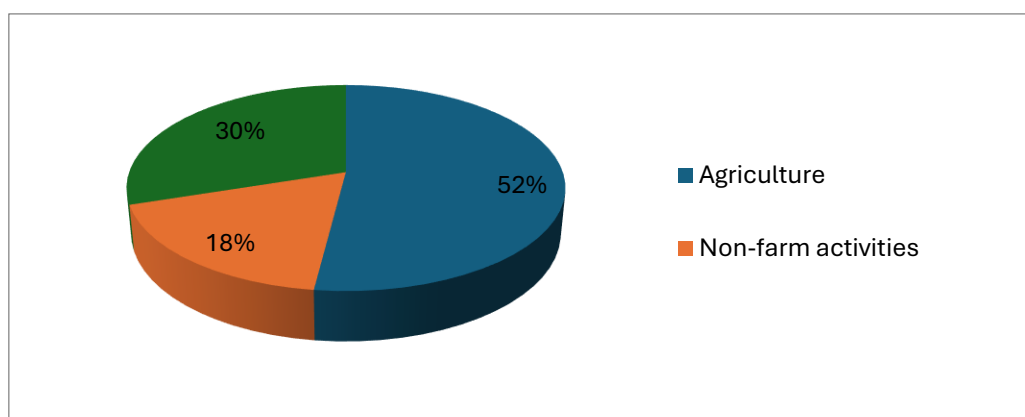
- Descriptive statistics for income composition.
- Income share analysis to measure non-farm contribution.
- Thematic analysis for qualitative responses.

6. Results and Analysis

6.1 Composition of Household Income

The analysis reveals that agriculture continues to be the primary occupation for the majority of rural households in Leparada district. However, its contribution to total household income has been steadily declining due to low productivity, small landholdings, and high dependence on climatic conditions. Agricultural income remains largely seasonal and uncertain, which limits its capacity to meet growing household consumption needs.

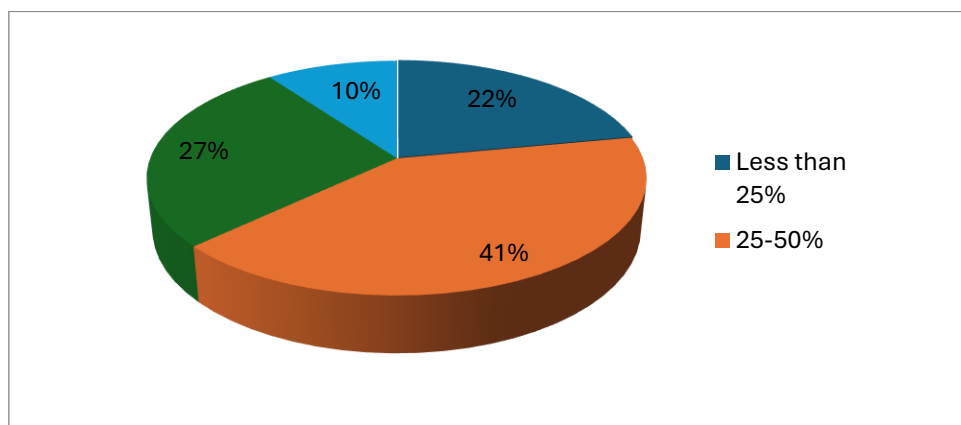
What is the primary source of income for your household?



In this context, income from non-farm activities has emerged as a crucial supplement to agricultural earnings. Rural households increasingly rely on non-farm sources to stabilize income flows throughout the year. For many marginal and landless households, non-farm

income has become the dominant component of household earnings, reflecting a gradual shift away from exclusive dependence on agriculture. This trend indicates an ongoing transformation in rural livelihood strategies, where income diversification is used as a mechanism to manage risk and improve economic security.

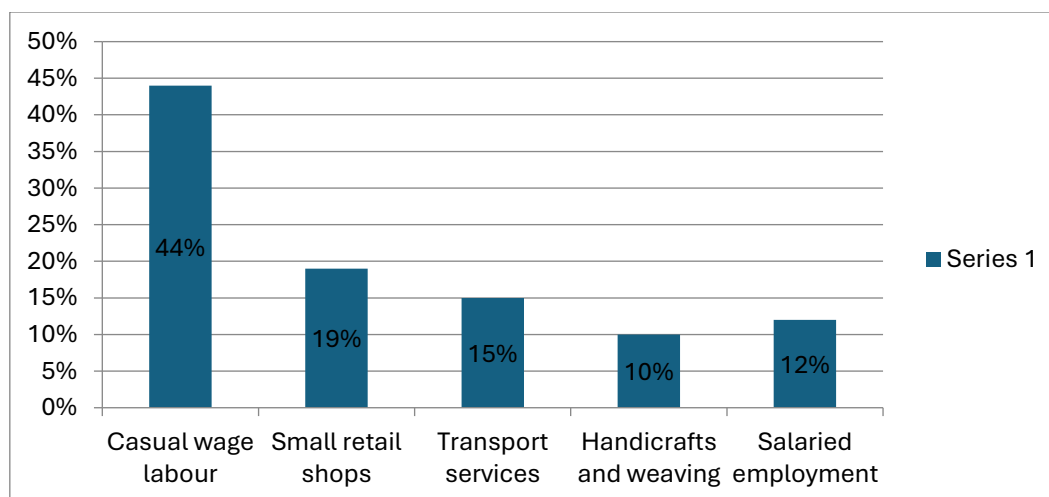
What proportion of your household's total income comes from non-farm activities?



The growing importance of non-farm income also highlights structural changes in the rural economy of Leparada district, influenced by expanding connectivity, exposure to government employment schemes, and changing aspirations among rural youth.

6.2 Types of Non-Farm Activities

Which non-farm activities does your household engage in?



Rural households in Leparada district engage in a wide range of non-farm activities that vary in terms of skill requirements, income stability, and capital intensity. Casual wage labor remains the most common form of non-farm employment, particularly in construction, road maintenance, and public works. Such activities provide immediate cash income but are characterized by irregular employment, low wages, and limited upward mobility.

Small retail trade and petty businesses constitute another significant category of non-farm activity. These include village-level shops, food stalls, and informal vending, which generate

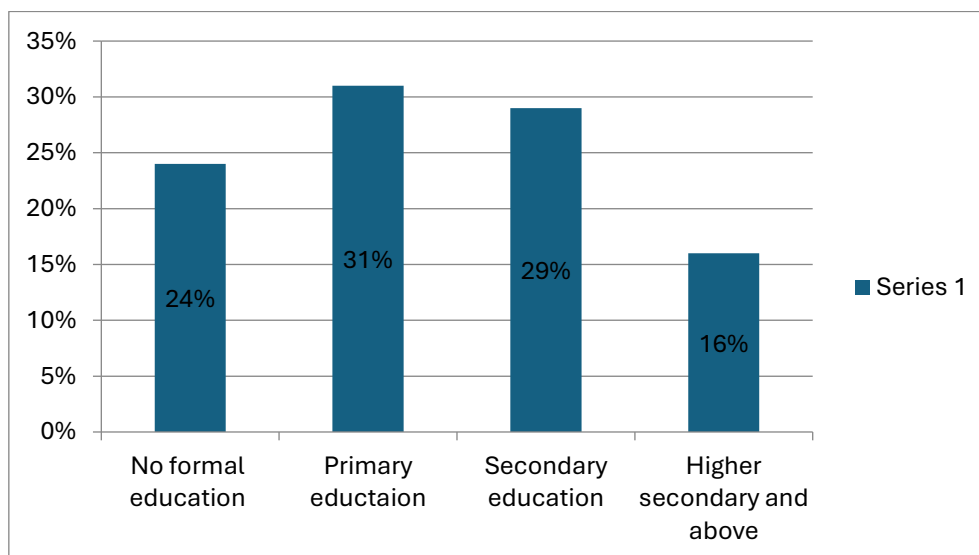
relatively stable income streams. However, the scale of operation and profitability of these enterprises are constrained by limited market size and purchasing power within rural areas.

Transport-related activities, such as auto-rickshaw and two-wheeler taxi services, have gained prominence with gradual improvements in road infrastructure. These activities offer comparatively higher returns but require initial capital investment, restricting participation to households with better financial resources.

Handicrafts and weaving continue to serve as supplementary income sources, particularly for women. While these activities contribute to household income and preserve cultural traditions, their economic potential remains underexploited due to weak market linkages and inadequate institutional support.

Salaried employment and remittances represent the most secure and high-return segment of the non-farm sector. Access to such opportunities is closely linked to educational attainment and social networks, leading to unequal participation across households.

What is the highest educational level of the household head?

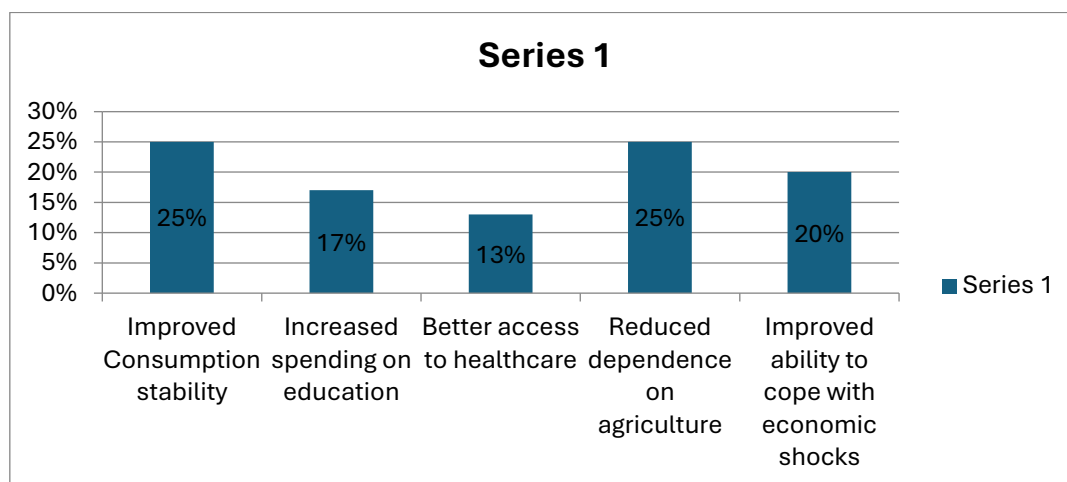


Education-based inequality is clearly reflected in the pattern of participation within the rural non-farm sector. Households with lower levels of education are predominantly concentrated in low-return and irregular forms of non-farm employment, particularly casual wage labour and public works. In contrast, households where the head possesses secondary or higher levels of education show greater access to relatively stable and higher-return activities such as salaried employment, transport services, and small business operations. This differentiation indicates that education functions as a critical enabling factor in determining the quality, security, and returns of non-farm employment. Rather than providing uniform opportunities, the rural non-farm sector in Leparada district exhibits internal stratification, where educational attainment shapes entry into more remunerative activities. Consequently, while non-farm income contributes to overall livelihood diversification, unequal access to education reinforces disparities in income and employment outcomes among rural households.

6.3 Socio-Economic Impact of Non-Farm Income

Non-farm income has a significant positive impact on the socio-economic conditions of rural households in Leparada district. Households with diversified income sources experience greater stability in consumption, as non-farm earnings help smooth income fluctuations associated with agricultural cycles. This stability reduces dependence on borrowing and mitigates financial stress during lean agricultural seasons.

What changes have you observed after engaging in non-farm activities?



Increased non-farm income also enables households to allocate more resources toward education and healthcare. Regular cash flow enhances the ability of families to meet schooling expenses, access medical services, and invest in the long-term well-being of household members.

Furthermore, non-farm income enhances households' capacity to cope with economic and environmental shocks, such as crop failure or price volatility. By reducing excessive reliance on agriculture, income diversification strengthens overall livelihood resilience and contributes to improved living standards.

7. Key Findings

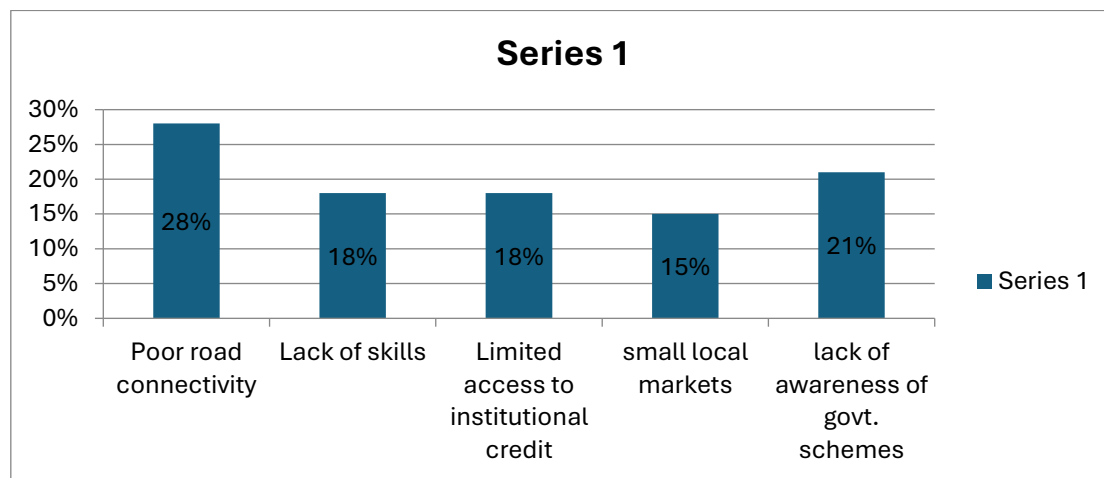
The study establishes that the non-farm sector plays a vital role in supporting rural livelihoods in Leparada district. It functions as a crucial supplementary income source, particularly for households with limited agricultural assets. Income diversification through non-farm activities enhances livelihood security by reducing vulnerability to agricultural risks and income instability.

The findings also indicate that access to education, infrastructure, and financial resources significantly influences the quality and returns of non-farm employment. Households with better access to these factors are more likely to engage in stable and higher-return non-farm activities. At the same time, disparities persist within the non-farm sector, with economically weaker households concentrated in low-paying and insecure forms of employment.

Overall, the non-farm sector contributes to income stability, poverty reduction, and improved welfare, while also reflecting emerging inequalities in rural economic opportunities.

8. Challenges in Non-Farm Sector Development

What are the major challenges your household faces in engaging in non-farm activities?



Despite its growing importance, the development of the rural non-farm sector in Leparada district is constrained by multiple challenges. Inadequate road connectivity and limited access to markets restrict the expansion of non-farm enterprises and increase transaction costs. Poor infrastructure reduces mobility and limits opportunities for employment and entrepreneurship.

Skill constraints remain a major barrier, as limited access to vocational training and technical education confines many rural households to low-return non-farm activities. The absence of locally relevant skill development programs restricts upward mobility within the non-farm sector.

Access to institutional credit is another significant challenge. Many rural households lack collateral and formal financial inclusion, leading to dependence on informal sources of credit that hinder enterprise growth. Additionally, small and fragmented rural markets limit demand for goods and services, reducing profitability.

A lack of awareness regarding government schemes and institutional support further constrains participation in non-farm activities. Weak outreach mechanisms and administrative complexities prevent eligible households from fully utilizing available support systems.

These challenges collectively restrict the expansion, diversification, and sustainability of the rural non-farm sector, limiting its potential to drive inclusive rural development in Leparada district.

9. Policy Implications and Recommendations

The findings of this study carry important policy implications for rural development planning in Leparada district and similar regions of Arunachal Pradesh. Given the growing contribution of the non-farm sector to rural household incomes, policy interventions must move beyond an agriculture-centric approach and adopt a more integrated livelihood framework.

First, strengthening rural infrastructure, particularly road connectivity and market access, should be a priority. Improved transportation networks can reduce transaction costs, enhance

mobility, and enable rural producers and entrepreneurs to access larger markets for goods and services. Better infrastructure would directly support the expansion of trade, transport services, and small-scale enterprises.

Second, there is an urgent need to expand skill development and vocational training programs tailored to local needs. Skill enhancement in areas such as construction, transport services, repair work, handicrafts, and small business management can help rural youth transition from low-return casual wage labor to more stable and higher-income non-farm activities. Special emphasis should be placed on skill training for women to strengthen their participation in income-generating activities.

Third, access to institutional credit must be improved for rural households engaged in non-farm enterprises. Simplified loan procedures, micro-credit facilities, and support through self-help groups and cooperatives can enable households to invest in small businesses and scale existing activities. Strengthening financial inclusion would reduce dependence on informal credit sources and promote sustainable enterprise development.

Fourth, increased awareness and outreach of government schemes related to rural employment, entrepreneurship, and skill development are essential. Effective dissemination of information and simplified administrative processes can ensure that eligible households fully benefit from existing programs.

Finally, policies should aim at promoting local value chains and rural entrepreneurship, encouraging diversification within the non-farm sector. Supporting village-level enterprises, traditional crafts, and service-based activities can generate employment locally and reduce migration pressures.

Overall, a balanced policy approach that integrates agriculture with non-farm sector development is crucial for achieving inclusive and sustainable rural development in Leparada district.

10. Conclusion

This study examined the income contribution of the non-farm sector to rural households in Leparada district of Arunachal Pradesh, with a focus on income composition, types of non-farm activities, socio-economic impacts, and associated challenges. The findings clearly indicate that while agriculture remains an important livelihood source, it is no longer sufficient to sustain rural households on its own. Non-farm income has emerged as a vital component of household livelihoods, particularly for marginal and landless households.

The study demonstrates that income diversification through non-farm activities enhances livelihood security by reducing vulnerability to agricultural risks, stabilizing household consumption, and improving access to education and healthcare. Non-farm income also strengthens households' capacity to cope with economic and environmental shocks, thereby contributing to improved overall welfare.

However, the potential of the rural non-farm sector remains constrained by infrastructural deficiencies, skill gaps, limited access to credit, small market size, and inadequate institutional

support. These challenges result in unequal participation within the non-farm sector, with economically weaker households largely confined to low-return and insecure forms of employment.

In conclusion, the non-farm sector plays an increasingly important role in shaping rural livelihoods in Leparada district. Strengthening this sector through targeted policy interventions can significantly contribute to poverty reduction, employment generation, and sustainable rural development. Future research may focus on longitudinal analysis and comparative district-level studies to further understand the evolving dynamics of rural income diversification in Arunachal Pradesh.

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