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EFFECTS AND DETERMINANTS OF DIVERSIFICATION OF LIVELIHOOD OPTIONS AMONGST AGRICULTURAL HOUSEHOLDS IN INDIA: ANDHRA PRADESH STATE LEVEL ANALYSIS

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ABSTRACT

The consequences and factors influencing livelihood diversification among agricultural households in Andhra Pradesh, India are examined in this study. With the help of primary research from the South Coastal region and data from the National Sample Survey Office's (NSSO) 72nd and 79th rounds (2014-15 and 2022-23), respectively, the analysis examines patterns of diversification, their effects on Poverty, Consumption, and Household Income, and also touches upon important influencing factors. The findings show that more than 85% of Andhra Pradesh households pursue several sources of income, with wage-and animal-farming combinations being typical. Diversification lowers the prevalence of poverty and greatly increases income by up to 84%, particularly into non-farm sectors. Household size, education, land ownership, access to technical assistance, and geographical characteristics such as debt (93% of households) are also determinants. The multinomial logit model emphasizes the benefits of institutional support and human capital. In order to increase resilience in an agrarian State, policy implications center on expanding non-farm opportunities and credit availability.

KEYWORDS: *Livelihood Diversification, Agricultural Households, Income Effects, Multinomial Logit,*

1. INTRODUCTION

More than 60% of the country's rural labor is employed in Andhra Pradesh, a major agricultural state in southern India that makes a substantial contribution to the country's output of rice, horticulture, and aquaculture. But due to issues including water shortages, land fragmentation, high levels of debt (93% of households), and climate vulnerabilities, agricultural households are now diversifying their sources of income beyond farming. In order to reduce risks and improve economic stability, livelihood diversification entails embracing a variety of revenue streams, such as wage work, animal husbandry, and non-farm enterprises.

Small and marginal farmers predominate in Andhra Pradesh (more than 80% own less than 2 hectares), and they face low farm revenues (more than 40% make less than Rs. 1,000 per month from farming). With non-farm activities contributing to higher total revenues (the national average is Rs. 10,695 per month, while regional variations exist), diversification serves as a tool for reducing poverty. **The objectives of this study are to:** (1) Map the scope and patterns of diversification; (2) Evaluate the impact on poverty, consumption, and income; and (3) Find out causes for diversification using econometric techniques. It draws attention to Andhra Pradesh's distinct situation, which includes a heavy reliance on surface irrigation and agro-climatic diversity, by utilizing NSSO data and regional research.

2. LITERATURE REVIEW

Many experts view livelihood diversification as a way for households to minimize risk and balance out their income by adding or alternating between sources of income from both farm and non-farm activities. Farming alone frequently cannot provide sufficient or steady earnings, according to traditional rural livelihoods research. As a result, households mix activities according to their possibilities, limits, and assets (human, social, financial, physical, and natural resources). Diversification by necessity (push variables like risk, shocks, and land scarcity) vs by choice (pull factors like lucrative possibilities and returns on talents) is a crucial difference in the literature.

Global Evidence and Mechanisms

According to cross-country syntheses, non-farm incomes frequently make up a sizeable portion of rural income and can lessen susceptibility to weather and price shocks. Education, market and infrastructural accessibility, financial capital, and local economic vibrancy are all constant determinants; on the other hand, social stratification and entrance obstacles restrict who can diversify and how far they can go up the value chain. Important studies on the rural non-farm economy (RNFE) emphasize on its contributions to employment, poverty alleviation, and growth that is geographically balanced, but they also caution that there are instances of low-productivity, distress-driven diversification.

One important thread is the ability to diversify: families with greater (and more adaptable) networks, liquidity, and human capital move into higher-return non-farm niches, where as households with less assets continue to engage in low-return casual wage jobs. This "capabilities vs. constraints" framework aids in the explanation of the diverse welfare effects of diversity across social groups and geographical locations.

India-Wide Patterns

Indian agricultural families are progressively combining farming with livestock, wage labor, and non-farm businesses, according to national surveys and policy evaluations. The mix of farm and non-farm receipts, debt, and service accessibility are all recorded in the Situation Assessment Surveys (SAS) conducted by the National Statistical Office. During two agricultural seasons, the 2018-19 SAS (NSS 77th, Report No. 587) surveyed, almost 58,000 rural families in about 5,940 villages. It offers State-disaggregated data on income composition and liabilities that are essential for researching diversification and its limitations. A baseline for changes over time is provided by previous rounds (NSS 72th, 2014-15).

The All-India Debt and Investment Survey (AIDIS, 77th round), which monitors assets and liabilities and provides information on the financial environment that influences diversification choices, is a relevant source of evidence. With Andhra Pradesh and Telangana frequently near the top of the league tables, several evaluations of this data highlight the consistently high rate of indebtedness among agricultural households. Such debt might limit access to higher-return activities by reducing liquidity and encourage people to diversify in response to distress.

Andhra Pradesh: State-Specific Evidence

In the literature on diversification, Andhra Pradesh has a lengthy empirical history. The ability of families to reallocate labor between farm and non-farm choices over time is shaped by caste-linked vocations, local institutions, and resource endowments, according to early field-based research in AP. These studies highlight how social stratification and asset asymmetries restrict access to the more lucrative non-farm sectors, even though many households want to have various sources of income.

The livelihood portfolios of 20 places were mapped using the Young Lives sentinel sites across AP, and further research revealed that multi-activity strategies were common, with variations by area and wealth level. While better-off families are more likely to access higher-return non-farm self-employment, marginal holders are more likely to mix livestock and wage labor. According to this line of study, which also connected diversification patterns to education, land size, metropolitan proximity, and loan availability.

Complementary macro background is provided by recent syntheses utilizing NSS 77th indicators: AP shows a high average amount of outstanding farm debt in addition to a high percentage of indebted agricultural families. The importance of non-farm profits for liquidity management is increased by this financial environment, but it may also restrict investment in capability-enhancing assets (e.g., equipment, skills) that are necessary to advance to higher non-farm sectors.

3. RESEARCH OBJECTIVES

Diversification of livelihoods among agricultural households in Andhra Pradesh, India is the main emphasis of the entire research. From descriptive analysis to evaluative and explanatory aims to policy-oriented insights, the objectives are organized in a hierarchical fashion.

1. To analyze the extent, patterns, and effects of livelihood diversification among agricultural households in Andhra Pradesh, with a focus on its impact on household income, consumption levels, and poverty reduction.
2. To identify and evaluate the key socio-economic, demographic, and institutional determinants influencing households' choices of diversified livelihood strategies using econometric approaches.

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4. DATA AND METHODOLOGY

4.1 Data Sources

Secondary data was drawn from NSSO 72th round (2014-15, n≈4,000 households in Andhra Pradesh) and 79th round (2022-23, n≈2,500), covering income sources, consumption, and demographics. Poverty uses State Rural Poverty Lines (Rs. 860/month in 2014-15, adjusted). Supplemented by a 2022-23 Primary Survey in Guntur (n=100) for South Coastal insights. Livelihood categories include: (1) Cultivation only ;(2)+Animal Farming; (3) + Wages; (4) + Non-Farm; (5) Multiple categories.

4.2 Methodology

Descriptive analysis was made and summarized the patterns of income (Rs./year), consumption, and poverty by category.

Diversification indices: Simpson Index (SID) = $1 - \Sigma(P_i^2)$, where P_i is income share; higher SID indicates diversity.

Multinomial logit model (MLM):

$$P(Y_i = j) = \exp(\beta_j X_i)/[1 + \Sigma^{j}_{k=1}\exp(\beta_j X_i)]$$

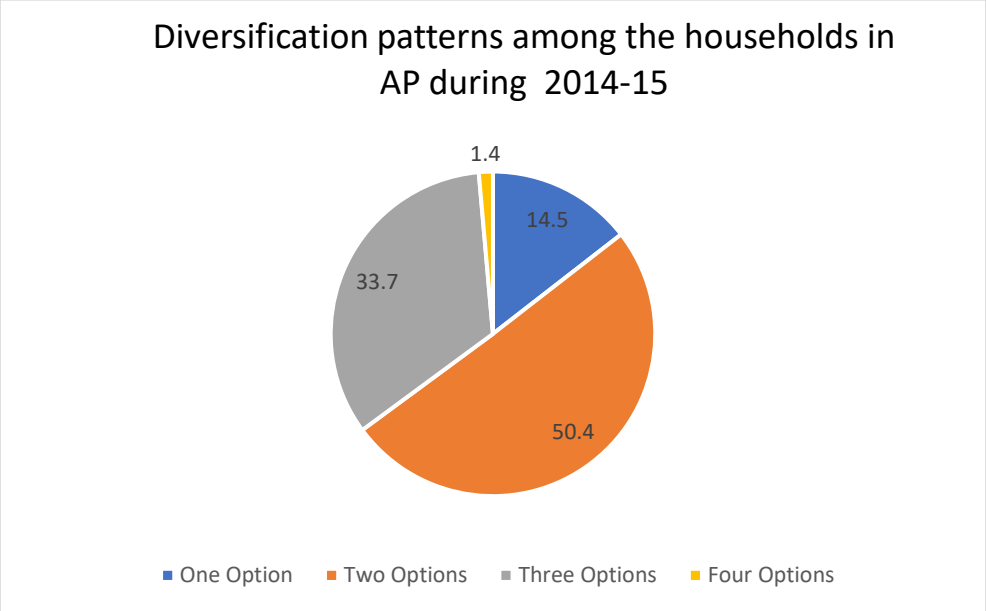
Y_i: Livelihood combination (base: cultivation);

X_i: Household size, head's age/education/gender, caste, land size, technical advice, income, regional dummies (Coastal/Rayalaseema/Telangana).

5. DATA ANALYSIS AND MAJOR FINDINGS ARRIVED

5.1 Extent and Patterns of Diversification

Figure: 1 shows diversification patterns among the households during 2014-15.in Andhra Pradesh State.



During 2014-15, 14.5% of Andhra Pradesh households relied solely on cultivation, 50.4% on two options, 33.7% on three, and 1.4% on four options (Table1).

Category	Percentage of households
One Option	14.5
Two Options	50.4
Three Options	33.7
Four Options	1.4

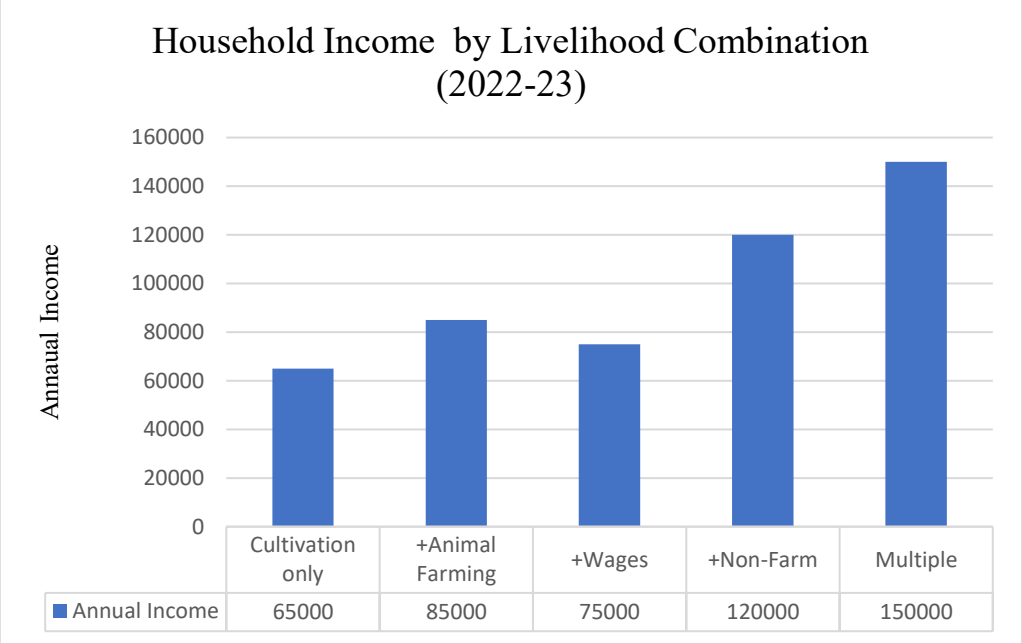
Source: NSSO 72th round (2014-15)

Common combination indicates: Cultivation + animal + wages (30%), cultivation + wages (27.9%). In South Coastal (2018-19),it is observed that marginal farmers had SID=0.45 (high diversity), large=0.55 (low). Non-farm adoption low (<10%), higher in Coastal regions.

5.2 Effects on Income, Consumption, and Poverty

Figure: 2 presents household income across livelihood combinations and Figure 3 highlights poverty incidence.

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It is observed from the table that the average annual income from Cultivation is only ~Rs. 65,000; with non-farm ~Rs. 120,000 (84% increase). In the state of AP, the marginal income from livestock in found as the Rs. 149,039/year (38%);While the income from cultivation is found as Rs. 761,150 (63%)and Consumption higher for diversified (Rs. 95,000 vs. 55,000).whereas, the Poverty incidence, indicates that income earned to the extent of 28.5% for cultivation only; 15.3% with non-farm. Further found that over 40% earn <Rs. 1,000 farm income, but diversification raised to total >Rs. 5,000.

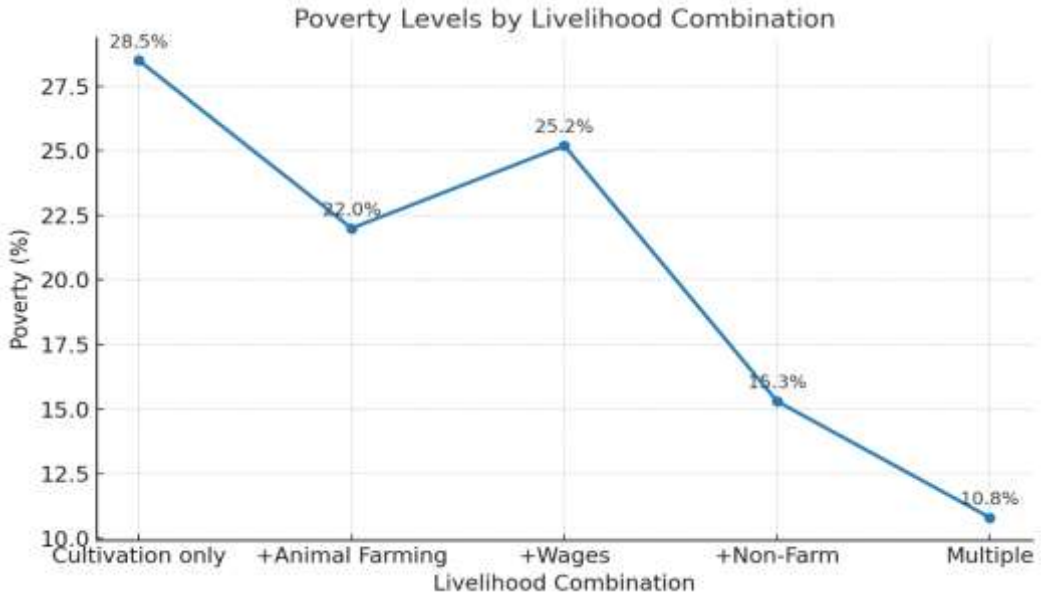
Table 2: Income by Combination (Rs./Year, 2018-19 Approx.)

Combination	Annual Income	Poverty (%)
Income exclusively from Cultivation	65000	28.5
Cultivation and Animal Farming activities	85000	22.0
Cultivation and income from agricultural Wages	75000	25.2
Cultivation and Non-Farm activities	120000	15.3
Income earned through Multiple activities	150000	10.8

Source: NSSO 77th round (2018-19).

Figure 3: Poverty incidence across livelihood combinations (2022–23). Diversification into non-farm and multiple options shows a sharp decline in poverty compared to the households depending on the cultivation-only.

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5.3 Determinants of Diversification

Multinomial logit model (MLM) results (odds ratios) shows that the household size (1.15-1.30), education (1.08-1.15), technical advice (1.30-1.40) positive for diversification. Dependents negative (0.42-0.51). In AP, operational holding +ve for cultivation (Rs. 137/hectare); animals +ve for livestock (Rs. 190/animal); education +ve for services.

Table 3: Key MLM Odds Ratios (vs. Cultivation Only)

Variable	+Animal/Wages	+Non-Farm	Multiple
Household Size	1.15**	1.25**	1.3**
Education (Tears)	1.08*	1.12**	1.15**
Land (Medium+)	1.2**	1.10*	1.25**
Technical Advice	1.3**	1.4**	1.35**

**p<0.01, *p<0.05. Caste (SC/ST) negative; Coastal dummy positive.

6. DISCUSSION

Based on the data and analysis there on led the following inferences and conclusions. Andhra Pradesh's resilience is increased by diversification, with non-farm sectors benefiting the majority of the households.. This is consistent with national patterns, but is exacerbated by high levels of debt. While non-farms are driven by pull forces like education and guidance, marginal farmers diversify more as a result of push factors like land constraint. Regional differences are found in higher coastal non-farm; reliant on Rayalaseema/Telangana agriculture. Disparities still exist even if 2023 indicates a minor increase in revenue (13% from crop division) over 2014.

7. CONCLUSION

As per the discussions and inferences drawn the following conclusion is emerged. In Andhra Pradesh, livelihood diversification is vital for economic upliftment, reducing poverty through non-farm integration. Policies should target education, credit, and infrastructure, especially for marginal farmers and backward regions, to foster sustainable growth.

8. POLICY IMPLICATIONS

The results are highly relevant to policy. In order to achieve greater income diversification advantages, programs must first give priority to the growth of non-farm sectors, such as small businesses, rural services, and agro-processing industries. Second, tailored lending programs offered by cooperative banks and NABARD should increase access for underserved populations, including Scheduled Castes and women farmers who experience structural exclusion. Third, improving vocational training and education in rural areas would produce the human capital required for transitions away from farms. Last but not least, crop insurance and climate-resilient infrastructure can shield people from shocks and lessen an excessive reliance on farming.

9. COMPARATIVE INSIGHTS

Comparing countries reveals comparable trends. Research from Southeast Asia and Sub-Saharan Africa shows that more than 40% of rural income comes from non-farm diversification. Despite being lower, India's numbers are increasing. Andhra Pradesh can speed up transformations by combining community-led institutions with state backing, according to lessons learned from Bangladesh's microfinance-driven diversification and China's township businesses.

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