

International Journal of Agriculture Extension and Social Development

Volume 9; Issue 9; September 2026; Page No. 657-660

Received: 19-06-2026
Accepted: 23-07-2026

Indexed Journal
Peer Reviewed Journal

Extent of livelihood diversification among farmers: An empirical assessment

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DOI: <https://www.doi.org/10.33545/26180723.2026.v9.i9i.4250>

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Abstract

The increasing uncertainties associated with farm-based livelihoods have encouraged farmers to combine agriculture with diverse livelihood activities to strengthen their income and livelihood security. The present study was undertaken to assess the extent of livelihood diversification among farmers in Telangana state. An ex-post facto research design was adopted and 120 farmers engaged in on-farm and off-farm livelihood activities were selected through snowball sampling. Data were collected using a structured and pre-tested interview schedule and analyzed using frequency and percentage. The extent of livelihood diversification was assessed using the Simpson Diversification Index (SDI). The findings revealed that farming remained the dominant on-farm livelihood activity (100.00%), while livestock rearing (33.33%) and fodder cultivation (15.83%) were the major complementary activities. Among off-farm activities, retailing (35.00%), agricultural wage labour (23.33%) and input dealership (21.67%) were prominent. Farming combined with two additional livelihood activities was the most common pattern (43.33%), followed by farming combined with one additional activity (31.67%). The extent of livelihood diversification was predominantly medium (48.33%), followed by low (32.50%) and high (19.17%) levels. The findings indicated that farmers largely retained farming as their core livelihood while combining it with selected on-farm and off-farm activities. Strengthening access to skills, credit, markets, technical support and value-addition opportunities can further enhance sustainable livelihood diversification and farm household resilience.

Keywords: Livelihood diversification, farmers, on-farm activities, off-farm activities, Simpson diversification index, livelihood security.

1. Introduction

Agriculture and allied sectors play a vital role in sustaining rural livelihoods by providing employment, income and food security. However, rising production costs, shrinking landholdings, climate variability, labour constraints and fluctuating market conditions have increased uncertainty in farm-based livelihoods, particularly among small and marginal farmers. Dependence on agriculture alone is often insufficient to meet household livelihood requirements, encouraging rural households to engage in multiple income-generating activities to supplement farm income and strengthen livelihood security.

Livelihood diversification has emerged as an important strategy through which rural households combine different livelihood activities and income sources to sustain and improve their livelihoods. It involves the construction of a portfolio of activities that may include crop production, livestock and other allied agricultural enterprises, along with off-farm activities such as wage employment, processing, packaging, storage, retailing and transportation. Such diversification can reduce dependence on a single livelihood source, spread livelihood risks and provide households with alternative opportunities for income and employment (Ellis, 2000) [2].

In Telangana, agriculture continues to be an important source of livelihood for rural households, while changing economic conditions and emerging opportunities have encouraged farmers to combine agricultural activities with other livelihood pursuits. The livelihood portfolio of farmers therefore extends beyond primary crop production and may encompass a range of on-farm and off-farm activities. However, the nature and degree of diversification are not uniform across households and may vary according to their available resources, livelihood opportunities and socio-economic conditions. (Government of Telangana, 2022) [3]. The extent of livelihood diversification reflects the degree to which farmers participate in and depend upon multiple livelihood activities and income sources. Farmers may differ from predominantly agriculture-based livelihoods to highly diversified livelihood portfolios involving several complementary activities. Assessing this extent is important for understanding the prevailing livelihood structure of rural households, the degree of dependence on agriculture and the relative contribution of alternative livelihood activities to household income.

Although livelihood diversification is increasingly recognized as an important strategy for strengthening rural livelihoods, considerable variation exists in the extent of

diversification among households and across regions. Constraints related to infrastructure, technical support, market access, training, working capital and credit can further influence the ability of rural households to diversify effectively. Therefore, empirical assessment of the extent of livelihood diversification is essential for understanding the prevailing diversification patterns among farmers and for identifying the scope for strengthening livelihood opportunities.

Keeping these considerations in view, the present study entitled “Extent of Livelihood Diversification among Farmers: An Empirical Assessment” was undertaken to assess the extent of livelihood diversification among farmers.

2. Materials and Methods

The study was conducted in Telangana state using an ex-post facto research design to assess the extent of livelihood diversification among farmers. Telangana state was selected purposively, while Ranga Reddy and Vikarabad districts were selected through random sampling. From each selected district, three mandals and from each mandal, two villages were selected randomly, resulting in twelve villages. Ten farmers engaged in on-farm and off-farm livelihood activities were selected from each village, constituting a total sample of 120 respondents through snowball sampling. Data were collected using a structured and pre-tested interview schedule through the personal interview method.

The extent of livelihood diversification was operationally defined as the degree to which respondents engaged in a combination of on-farm and off-farm livelihood activities to generate income and strengthen their livelihoods. It was measured using the Simpson Diversification Index (SDI), which considers the number of income-generating activities and the distribution of income among those activities. The index was calculated as $SDI = 1 - \sum P_i^2$, where P_i represents the proportion of income from the i th livelihood source. The SDI ranges from 0 to 1, with 0 indicating complete specialization and values closer to 1 indicating higher diversification. Respondents were classified into low, medium and high levels of livelihood diversification using the exclusive class interval technique. Frequency and percentage were used to analyze and present the distribution of respondents across the different levels of livelihood diversification.

3. Results and Discussion

The extent of livelihood diversification among the respondents was assessed to understand the pattern and degree of participation in multiple livelihood activities. The assessment considered the on-farm and off-farm livelihood activities pursued by the respondents, the number of activities combined by them and the distribution of income across different livelihood sources. The extent of livelihood diversification was measured using the Simpson Diversification Index (SDI), based on which respondents were classified into low, medium and high levels of livelihood diversification. The findings obtained from the analysis are presented and discussed in the following sections.

3.1 On-farm diversified activities pursued by the respondents

The distribution of respondents according to the on-farm

diversified activities pursued is presented in Table 1. The findings revealed that farming was the most widely pursued on-farm activity, with all the respondents (100.00%) engaged in it. This was followed by livestock rearing (33.33%) and fodder cultivation (15.83%). Among the specialised enterprises, poultry (9.17%) was followed by vermicompost production (2.50%), apiculture (1.67%) and sericulture (0.83%).

The predominance of farming indicated that agriculture remained the major component of the livelihood portfolio of the respondents. Livestock and fodder cultivation also formed important complementary activities, reflecting the integration of different enterprises within the farm system. In contrast, specialised enterprises such as poultry, vermicompost production, apiculture and sericulture were adopted by relatively fewer respondents. Thus, the on-farm diversification pattern was largely centred around farming and allied activities, with limited participation in specialised enterprises. These findings are in accordance with the results of Nirmala *et al.* (2024)^[5] and Pathak and Amardeep (2024)^[7].

Table 1: Distribution of respondents according to the on-farm diversified activities adopted (n = 120)

S. No.	On-farm diversified activity	Frequency (f)	Percentage (%)
1	Farming	120	100.00
2	Livestock	40	33.33
3	Poultry	11	9.17
4	Apiculture	2	1.67
5	Sericulture	1	0.83
6	Vermicompost	3	2.50
7	Fodder cultivation	19	15.83

3.2 Off-farm diversified activities pursued by the respondents

The distribution of respondents according to the off-farm diversified activities pursued is presented in Table 2. The findings indicated that retailing was the most widely adopted off-farm livelihood activity (35.00%), followed by agricultural wage labour (23.33%) and input dealership (21.67%). Processing was reported by (15.00%) of the respondents, while transportation (13.33%) and packaging (10.00%) accounted for a considerable proportion. Custom hiring of farm machinery was reported by (6.67%) of the respondents. Relatively fewer respondents were engaged in storage (3.33%), basket weaving (1.67%) and Ayurvedic products (0.83%).

The predominance of retailing, agricultural wage labour and input dealership indicated that respondents' off-farm diversification was largely oriented towards income-generating opportunities that could be pursued alongside farming. The presence of processing, packaging and transportation further reflected diversification beyond primary agricultural production into activities associated with the handling and movement of agricultural produce. The relatively limited participation in specialised activities suggested that off-farm diversification was selective rather than widespread across all available opportunities. This pattern indicates that respondents tended to adopt a few feasible off-farm options as complementary sources of livelihood rather than developing highly varied off-farm portfolios. These findings are in accordance with the results

of Alhassan *et al.* (2025)^[1] and Nirmala *et al.* (2024)^[5].

Table 2: Distribution of respondents according to the off-farm diversified activities adopted (n = 120)

S. No.	Off-farm diversified activity	Frequency (f)	Percentage (%)
1	Input dealership	26	21.67
2	Processing	18	15.00
3	Packaging	12	10.00
4	Storage	4	3.33
5	Transportation	16	13.33
6	Retailing	42	35.00
7	Ayurvedic products	1	0.83
8	Custom hiring of farm machinery	8	6.67
9	Agricultural wage labour	28	23.33
10	Basket weaving	2	1.67

3.3 Pattern of livelihood diversification based on number of activities

The findings presented in Table 3 revealed that the majority of the respondents were engaged in farming along with two additional livelihood activities (43.33%), followed by those who combined farming with one additional activity (31.67%). About one-fourth of the respondents were engaged in farming along with three additional activities (24.17%), whereas only a negligible proportion combined farming with four additional activities (0.83%).

The results indicated that diversification involving two or three additional livelihood activities was predominant among the respondents. The majority therefore maintained farming as the core livelihood activity while combining it with one or more additional activities. Only a very small proportion of respondents had a broader livelihood portfolio involving four additional activities. This pattern indicated that livelihood diversification among the respondents was generally concentrated around a limited number of livelihood activities. These findings are in accordance with the results of Kumari and Ramana Murthy (2024)^[4].

Table 3: Distribution of respondents according to the pattern of livelihood diversification based on number of activities (n = 120)

S. No.	Number of diversified activities adopted	Frequency (f)	Percentage (%)
1	Farming + one activity	38	31.67
2	Farming + two activities	52	43.33
3	Farming + three activities	29	24.17
4	Farming + four activities	1	0.83
	Total	120	100.00

3.4 Extent of livelihood diversification

The distribution of respondents according to the extent of livelihood diversification based on the Simpson Diversification Index (SDI) is presented in Table 4. The findings revealed that nearly half of the respondents belonged to the medium level of livelihood diversification (48.33%), followed by those with low diversification (32.50%) and high diversification (19.17%). Thus, the majority of the respondents were concentrated in the medium category, indicating a moderate extent of livelihood diversification among the farmers.

The predominance of the medium level may be attributed to the combination of farming with selected complementary livelihood activities observed among the respondents.

Farming remained the common base of the livelihood portfolio, while livestock, fodder cultivation and other allied activities contributed to on-farm diversification. Similarly, retailing, agricultural wage labour, input dealership, processing, transportation and packaging provided additional off-farm livelihood options. The combination of these activities indicates that respondents were not solely dependent on agriculture, while diversification had also not extended to a very broad range of livelihood sources for most farmers.

The observed pattern of livelihood diversification was also reflected in the number of activities pursued by the respondents. Most respondents combined farming with one or two additional activities, whereas only a small proportion reported a wider combination of activities. This suggests that diversification was generally incremental and complementary in nature, with farmers adding selected activities to their existing farming system. Such a pattern may enable households to supplement farm-based income while continuing to retain agriculture as an important livelihood base.

The presence of a considerable proportion of respondents in the low category indicated that livelihood sources remained relatively concentrated for a sizeable group of farmers. In contrast, the smaller proportion in the high category suggested that broader diversification of income sources was less common. The variation in the extent of diversification may be associated with differences in access to resources, skills, capital, markets and livelihood opportunities among farmers. The findings were in accordance with the results reported by Bhaskar Pal (2023)^[6] and Singh *et al.* (2023)^[9].

Table 4: Distribution of respondents according to the extent of livelihood diversification (n = 120)

S. No.	Category	Class interval/SDI range	Frequency (f)	Percentage (%)
1	Low	0.12 - 0.30	39	32.50
2	Medium	0.30 - 0.48	58	48.33
3	High	0.48 - 0.67	23	19.17
		Total	120	100.00

4. Conclusion

The study revealed that livelihood diversification among the respondents was characterised by the combination of farming with a range of on-farm and off-farm activities. Farming remained the predominant on-farm activity, with livestock and fodder cultivation as important complementary activities, while retailing, agricultural wage labour, input dealership, processing, transportation and packaging were the major off-farm activities. Most respondents combined farming with one or more additional livelihood activities, indicating that diversification was generally centred around farming as the major livelihood base.

The extent of livelihood diversification was predominantly medium, followed by low and high levels. This indicated that farmers generally supplemented their farming-based livelihoods with selected additional activities rather than maintaining highly diversified livelihood portfolios. The pattern highlights the importance of strengthening complementary livelihood opportunities that can provide additional income while supporting the existing farming system.

Overall, promoting access to skills, credit, markets, technical support and value-addition opportunities can enable farmers to diversify their livelihood portfolios more effectively. Such support can reduce dependence on limited livelihood sources, enhance income opportunities and contribute to more resilient and sustainable rural livelihoods.

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