Dr. Amit Kumar
Assistant Professor,
Government College,
Jhandutta, Bilaspur,
Himachal Pradesh, India

Iqbal Khan
Research Scholars,
Department of Commerce,
Himachal Pradesh University,
Summer Hill, -5 Shimla,
Himachal Pradesh, India

Evaluating the impact of NRLM on Poverty alleviation in Himachal Pradesh: A factor analysis approach

Amit Kumar and Iqbal Khan

DOI : https://www.doi.org/10.33545/26175754.2025.v8.i2d.555

Abstract
The National Rural Livelihood Mission (NRLM), launched by the Government of India in 2011, is one of the most significant poverty alleviation initiatives aimed at empowering rural households through self-employment, skill development, and institutional support. In Himachal Pradesh, NRLM has played a crucial role in mobilizing rural communities, particularly women, into self-help groups (SHGs) and federations, thereby fostering financial inclusion and sustainable livelihoods. This paper examines the impact of NRLM on poverty alleviation in the state with the application of factor analysis as a statistical tool to identify the key determinants influencing its effectiveness. The study highlights factors such as access to credit, capacity building, income diversification, skill training, and social capital as vital components contributing to poverty reduction. By analyzing the underlying dimensions of program implementation, the research provides evidence of the mission's success in enhancing household income, improving decision-making power of women, and promoting social cohesion. At the same time, the study identifies challenges related to outreach, market linkages, and sustainability of enterprises. The findings emphasize the importance of strengthening institutional frameworks and policy support for maximizing NRLM's impact in Himachal Pradesh. Overall, the paper contributes valuable insights into the role of NRLM in achieving inclusive and sustainable rural development.

Keyword: National Rural Livelihood Mission (NRLM), poverty alleviation, factor analysis, rural poverty, socio-economic factor analysis approach

1. Introduction
Poverty alleviation has been a central concern of India's development agenda, with multiple schemes and programs designed to uplift marginalized communities. Among these, the National Rural Livelihood Mission (NRLM), launched in 2011, stands out as a transformative initiative aimed at reducing rural poverty through community mobilization, self-help groups (SHGs), financial inclusion, and sustainable livelihood promotion. By fostering entrepreneurship, skill development, and collective action, NRLM seeks to empower rural households, especially women, to achieve economic independence and social dignity. In Himachal Pradesh, where the majority of the population depends on agriculture and allied activities, NRLM has gained significant relevance. The state's unique socio-economic structure and geographical constraints make livelihood diversification and institutional support critical for poverty alleviation. NRLM interventions, through SHGs and federations, have created platforms for capacity building, access to credit, and collective enterprise, thereby generating new opportunities for income enhancement and social empowerment. This study evaluates the impact of NRLM in Himachal Pradesh by employing factor analysis to identify and assess the key determinants contributing to poverty reduction. The research aims to provide insights into how effectively NRLM schemes are addressing structural barriers of poverty and to suggest strategies for strengthening their outcomes in the state.

1.1 Review of Literature
Jagdeeshwari (2015) [1] found that NRLM had a greater effect on the participants' socioeconomic well-being through an investigation titled "Empowerment of SHG Women Members in Cuddlier District through Aajeevika-NRLM Programme by Mahalir Thittam."

Correspondence Author:
Dr. Amit Kumar
Assistant Professor,
Government College,
Jhandutta, Bilaspur,
Himachal Pradesh, India

The data that was included in the study originates from both primary and secondary sources. Throughout her research, she discovered that the poor have benefitted from NRLM because it has allowed them become more self-reliant and therefore feeling better regarding their financial future. Keshlata & Fatmi (2015) [2] attempted to prioritize MGNREGA implementation resources in the Sheopur district of Madhya Pradesh. The two different phrases that have been utilized to describe it are financial progress and development as well as physical progress. In comparison to other financial periods, there has also been a decrease in the number of person-days and jobs created for the Scheduled Tribes.In contrast with previous Financial Years, the quantity of social audits carried out, the total quantity of money available, and the total number spent all fell within the current Financial Years. Kaushal, and Balbir (2016) [3] According to report the percent of women participating in MGNREGA employment in India climbed to 50.24% in FY 2014-15 from 47.07% data FY 2012-13, while in H.P., the percentage of women earning jumped to 58.09% in FY 2014-15 from 56.58% in FY 2012-13. Thus, it can be said that women are growing more and more involved in both national and state levels of government, and they are sharing the financial load of caring care of loved ones with males. The authors proposed that increasing women's knowledge and presenting recipients with regular payments would help the current system succeed. Kumar (2016) [8] the study titled "Impact of Microcredit Dispensation on Economic Empowerment of Women in Kerala" investigated microcredit. It is found that, in Kerala, it has emerged as a vital strategy for eradicating poverty, empowering women, and enhancing rural communities. Women's economic circumstances significantly improved as a result of joining women's organizations and gaining access to microfinance. However, as this study demonstrates, the growing usage of microcredit for purposes other than earning revenue has sparked concerns about the potential long-term benefits to the economy that microcredit may offer. Sivasankari & Jayakumar (2016) [5] In an article titled "Role of NRLM in Poverty Alleviation and Women Empowerment," it pointed out how the National Rural Livelihood Mission (NRLM) helps eradicate poverty and empower women. The study came to the conclusion that the quantity of bank credit available to the rural poor continued to be rather low. Second, banks still see lending to disadvantaged rural areas as an uncertain investment. The reasons for this include limited outreach and coverage, as well as the absence of an efficient mechanism for the distribution of credit to the underprivileged. It is the responsibility of the National Rural Livelihoods Mission (NRLM) to increase the financial inclusion of the rural poor, especially women. It is vital that we protect women's ownership of India's development process through concrete efforts that are executed across all tiers to promote their holistic growth. Chatterji (2016) [7] presented statistics on the National Rural Livelihood Mission's (NRLM) most recent advancements in an article titled "Implementation of DAY-NRLM/Aajeevika: An Analysis. "The study makes use of secondary data. Pursuant to the research, DAY-NRLM has to be implemented fully since its coverage at the district, block, and gram panchayat levels is insufficient. Thus, it recommends that plenty of work be done in order to establish SHGs in rural India by

2020, engaging all BPL households and all angles of poverty. Chatterjee (2016) [5] asserted in an article titled "Activities of Self-help Groups (SHGs) under NRLM (National Rural Livelihood Mission (NRLM) at Kolar District of Karnataka" that it is noticeable that the SHG conduct has improved the financial situation of several BPL households in Kolar district because credits were rightly used for activities that make income. Thus, it follows that BPL households' livelihood worries may be substantially resolved if every endeavor is well-designed and complemented with the infusion of microcredit. Mehak and Bijender (2016) [8] performed an investigation effort named "Progress towards Rural Up liftment in India by NRLM." The study states that its main objective is to assist all families living in poverty through offering them with chances to earn sustainable livelihood. It helps people escape free from poverty. In addition, the thinking and design of the NRLM integrate mobilization for social and financial inclusion, capacity building, and marketing services targeted at raising the incomes of people in need. The effective functioning of NRLM is said requires sensitive personnel, engaged support networks, and committed human resources. Bahuguna, Pandey & Sudan (2016) [9] revealed via an analysis that the MGNAREGA program has done a fantastic job of enhancing the socioeconomic situation of rural economies. They argue that in order to make the program more objective-specific, goal-focused, and translucent, its structure has to be altered. It is essential to raise understanding of new programs and initiatives among rural people and enhance the quality of training programs provided by MGNREGA personnel.

1.2 Need of the Study
Despite the implementation of various poverty alleviation programs in India, rural poverty continues to pose a major developmental challenge, particularly in hilly regions like Himachal Pradesh. The launch of the National Rural Livelihood Mission (NRLM) was a landmark step towards promoting self-reliance, financial inclusion, and sustainable livelihoods among the rural poor. While the mission has made notable progress, its impact varies across states and regions, making it essential to undertake state-specific studies. In the context of Himachal Pradesh, where economic opportunities are limited due to geographical constraints, NRLM interventions hold significant potential for transforming the rural economy. However, there is a lack of comprehensive studies evaluating the mission's effectiveness in this region using robust analytical tools. By applying factor analysis, this research seeks to identify the key determinants influencing poverty alleviation under NRLM and to examine their relative significance. The study is needed to bridge the research gap, provide empirical evidence on the outcomes of NRLM, and guide policymakers in strengthening livelihood strategies. It will also help in understanding the socio-economic benefits, challenges, and sustainability of SHGs and related initiatives, thereby contributing to more effective rural development planning in Himachal Pradesh.

1.3 Objective of the study
- To identify and analyze the key socio-economic factors influencing the effectiveness of NRLM schemes

through factor analysis.

- To assess the role of Self-Help Groups (SHGs) and federations under NRLM in enhancing income, financial inclusion, and women's empowerment.
- 8.2 Factors Impacting Poverty Alleviation through Government Initiatives like NRLM

The present analysis has been designed to examine the emerging factors that influence the effectiveness of poverty alleviation through government initiatives such as the National Rural Livelihoods Mission (NRLM). NRLM aims to enhance the livelihoods of the rural poor by promoting self-employment, skill development, financial inclusion, and the formation of self-help groups (SHGs). This study explores various factors that impact the success and sustainability of such programs, including the level of community participation, accessibility to financial services, quality and reach of skill training, market linkages, and the efficiency of local governance and implementation frameworks. Social factors such as gender inclusion, awareness among beneficiaries, and peer support within SHGs also significantly contribute to the program's

outcomes. Moreover, infrastructural constraints, timely credit delivery, and institutional support play a critical role in determining the impact of NRLM interventions. By analyzing these multidimensional factors, the study aims to provide valuable insights for policymakers and practitioners to strengthen and scale up poverty alleviation efforts through more inclusive and responsive strategies.

1.4 Instrument Reliability
When an individual variable or a combination of certain factors reveals the same result as the full questionnaire, it is assumed that the questionnaire is reliable. Cronbach's Alpha was used to measure the reliability and validity of the questionnaire. Cronbach's Alpha assesses the reliability of the various categories and consists of estimates of how much variance in the scores of various variables is due to change or random errors. The dependability, stability, predictability, internal consistency, and accuracy tests are also included in the reliability test.

According to Hair *et al*., the accepted lower limit for internal reliability is 0.70; however, some researchers discovered that 0.60 is acceptable for factor analysis.

Table 1: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.829	.847	34

Table 1 summarizes Cronbach's Alpha for total dimensions. Overall, the results show that the questionnaire is reliable and valid. With a Cronbach's Alpha score of 0.829, the scale used in this study is thought to be reliable.

1.4.1 Kaiser-Meyer-Olkin Sampling Adequacy Measure and Bartlett's Sphericity Test
Prior to the extraction of the factors, several tests are used to assess the suitability of the data for factor analysis. These tests include KMO Measure of Sampling Adequacy and Bartlett's Test of Sphericity. KMO statistics measures sampling adequacy for each variable in the model and for the complete model. This test is a measure of the proportion

of variance among variables that might be common variance. The lower the proportion, the more suitable data is. The KMO index ranges from 0 to 1 with 0.50 considered suitable for factor analysis. Another test for the suitability of data is Bartlett's Test of Sphericity, which indicates whether a given correlation matrix is an identity matrix. The significance level gives the result of the test. Very small value (less than 0.05) indicates that there is probably a significant relationship among different variables. Values higher than about 0.10 indicate that the data is not suitable for factor analysis. This test is another indication of the strength of relationship among variables.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.816
Bartlett's Test of Sphericity	Approx. Chi-Square	4020.103
	Df	561
	Sig.	.000

It is analyzed in Table No. 2 that the KMO Measure is .816, which implies the adequacy of the samples and the factor analysis is appropriate for the data. As the Bartlett's Test of Sphericity is significant if its value is less than 0.05. In the above table it is .000 means the significance level is small enough to reject the null hypothesis and it also conclude the strength of the relationship among variables is strong.

1.4.2 Communalities
Communalities are the proportion of each variable's variance that can be explained by the principal components. It is also the sum of squared factor loadings. In a Principal Component Analysis, the initial value of the communality is

always one and the extraction value is the proportion of explained variance of each variable by the principal component. Variables with high extraction values are well represented in the common factor space while variables with low extraction values are not well suited for factor analysis.

Table 3: Communalities

Sr. No.	Statements	Initial	Extraction
1.	NRLM has empowered me socially through collective group activities and training.	1.000	.680
2.	Basic rural infrastructure such as roads or markets has improved due to NRLM convergence efforts.	1.000	.802
3.	NRLM has improved access to water, sanitation, or housing in my village.	1.000	.785
4.	The program has helped strengthen linkages to health and education services.	1.000	.759
5.	The program has enhanced transparency and accountability in local governance through SHG and VO involvement.	1.000	.710
6.	NRLM has increased my participation in village-level meetings and planning activities.	1.000	.752
7.	I now better understand how to access government schemes and entitlements due to NRLM awareness programs.	1.000	.684
8.	Women in my village have become more vocal and visible in community matters due to NRLM.	1.000	.840
9.	We are now able to save more regularly due to income earned from NRLM-supported activities.	1.000	.862
10.	My family's food security has improved as a result of NRLM interventions.	1.000	.822
11.	NRLM has helped increase my household income through income-generating activities.	1.000	.773
12.	Access to livelihood opportunities under NRLM has reduced our financial vulnerability.	1.000	.677
13.	I am financially more independent today because of NRLM's livelihood support.	1.000	.736
14.	NRLM has enabled me to start or expand a self-employment venture.	1.000	.709
15.	NRLM has increased the technical and practical skills among rural workers in my area.	1.000	.694
16.	NRLM has provided me or a family member with vocational or livelihood skill training.	1.000	.768
17.	The training under NRLM has helped improve my employability or productivity.	1.000	.761
18.	I now have better knowledge of enterprise management because of NRLM capacity-building programs.	1.000	.723
19.	Participation in NRLM self-help groups has improved my confidence and decision-making ability.	1.000	.505
20.	NRLM has enabled me to open and operate a savings account.	1.000	.760
21.	I have better access to credit and financial services because of NRLM.	1.000	.759
22.	The overall living conditions of our community have improved due to NRLM.	1.000	.586
23.	The program has enhanced the dignity and self-worth of poor rural families.	1.000	.663
24.	The program has strengthened rural family welfare through integrated support systems.	1.000	.662
25.	My family now has better access to health, education, and nutrition due to NRLM interventions.	1.000	.754
26.	NRLM initiatives have created a supportive environment for women, youth, and marginalized families.	1.000	.675
27.	The program has improved local enterprise development and market access.	1.000	.602
28.	NRLM has helped promote entrepreneurship through loans, grants, or training.	1.000	.752
29.	I have received support in connecting my products to markets under NRLM.	1.000	.580
30.	Household well-being has improved due to access to multiple services under NRLM.	1.000	.566
31.	NRLM has helped ensure that vulnerable groups such as SC/ST, minorities, and disabled persons are included in development activities.	1.000	.726
32.	My household is now more resilient to economic and health shocks because of NRLM support.	1.000	.621
33.	NRLM has helped address multiple aspects of rural poverty beyond just income.	1.000	.695
34.	NRLM has improved the overall quality of life for my household.	1.000	.727
	Extraction Method: Principal Component Analysis.		

The initial and extraction values of all the derived variables have been presented in Table No. 8.2.3. It is observed from the analysis that all the identified variables have significant values and these variables have been found to be a part of further analysis.

1.4.3 Total Variance Explained
Total variance explained as we have to identify the minimum number of factors that would account for the maximum portion of variance of the original variables. Principal Component Analysis has been applied to reduce the number of factors with an Eigen Value greater than one and a cumulative percentage of variance explained being greater than 50 per cent is the criterion used in determining the number of factors.

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.669	22.555	22.555	7.669	22.555	22.555	5.169	15.204	15.204
2	5.677	16.696	39.251	5.677	16.696	39.251	3.129	9.203	24.406
3	2.942	8.652	47.903	2.942	8.652	47.903	3.107	9.138	33.544
4	1.615	4.750	52.653	1.615	4.750	52.653	3.086	9.077	42.621
5	1.523	4.480	57.132	1.523	4.480	57.132	2.403	7.068	49.689
6	1.413	4.156	61.289	1.413	4.156	61.289	2.013	5.920	55.609
7	1.191	3.502	64.791	1.191	3.502	64.791	1.963	5.774	61.383
8	1.085	3.191	67.982	1.085	3.191	67.982	1.941	5.709	67.092
9	1.055	3.103	71.085	1.055	3.103	71.085	1.357	3.992	71.085
10	.876	2.578	73.662						
11	.794	2.336	75.999						
12	.719	2.114	78.113						

13	.671	1.973	80.086					
14	.655	1.927	82.013					
15	.608	1.789	83.802					
16	.548	1.611	85.413					
17	.499	1.468	86.881					
18	.476	1.399	88.280					
19	.439	1.291	89.571					
20	.431	1.269	90.840					
21	.362	1.065	91.905					
22	.336	.989	92.894					
23	.330	.971	93.865					
24	.305	.898	94.763					
25	.287	.843	95.606					
26	.254	.746	96.352					
27	.223	.656	97.008					
28	.197	.580	97.588					
29	.178	.525	98.113					
30	.167	.490	98.603					
31	.148	.434	99.037					
32	.134	.394	99.431					
33	.122	.358	99.789					
34	.072	.211	100.000					
Extraction Method: Principal Component Analysis.								

In the present study an attempt has been made to analyze the significant factors which have been extracted from the thirty-four variables (Table No. 4). These factors are arranged in the descending order based on the most explained variance. Therefore, we take only those factors which explained the most of the variance in the given thirty-four variables. The first column gives the Initial Eigen value of all the variables whether they are significant or not. Total column shows the amount of variance of each variable. The next column gives the percentage of variance accounted for by each specific variable, in comparison to total variance in all the variables. The next column gives the percentage of variance of all the variables up to that point in the cumulative form. Extraction sums of squared loadings have been depicted in the next column of Total Variance Explained Table. These values are as same as the Initial Eigen values except factors that have Eigen values less than one. The column of extraction sums of squared loadings shows the Eigen values and percentage of variance prior to rotation. The next part of the table shows the rotation sums of squared loadings. This column shows the Eigen values and percentage of variance after rotation. The values of variance of different factors in extraction sums of squared loadings and rotated sums of squared loadings may differ but the cumulative percentage of variance of significant factors will be same always. Only those variables are selected as significant factors whose Eigen value is more than one and that explain a lot of variances. In our case nine factors have been derived from thirty-four variables, representing the impact of the National Rural Livelihood Mission in poverty alleviation, which accounts a cumulative variance of 71.085 per cent. Table No. 8.2.4 reveals that 1st factor is accounting for 22.555% of variance. 2nd factor accounts for 16.696%, 3rd factor for 8.652%, 4th factor for 4.750%, 5th factor for 4.480 %, 6th factor for 4.156 %, 7th factor for 3.502%, 8th factor for 3.191% and 9th factor for 3.103 % of variance. Rest of the variables has very low percentage of variance so they are insignificant for analysis.

1.4.4 Scree Plot
The scree plot shows the Eigen values of all the variables in descending order whether they are significant or not. This method is used in Principal Component Analysis and Factor Analysis to graphically show those components that explains most of the variability in all the variables. This analysis has been applied in order to identify the factors to be considered for the purpose of our study by looking for a "big gap" or an "elbow" on scree plot. In our study the factor analysis has been conducted on thirty four different variables related to National Rural Livelihood Mission in poverty alleviation. Above scree plot shows that nine factors out of those thirty four variables explain most of the variability because the graphical line becomes more straightens after 9th factor. Remaining of the variables that makes the almost straight line explains a very small portion of the variability and hence they are insignificant.
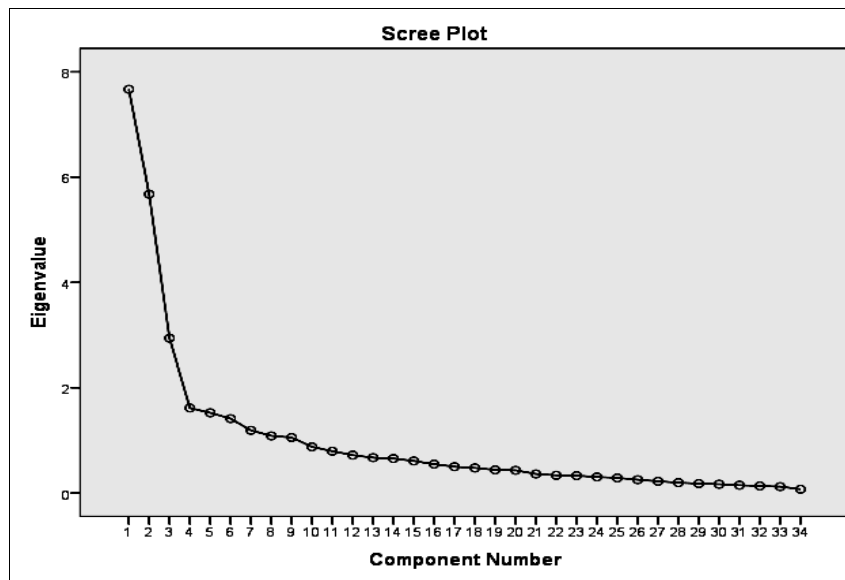
1.4.5 Rotated Component Matrix

Rotated Component Matrix which has been applied in our study clubs the different variables under prime nine factors which adjudge the impact of the National Rural Livelihood Mission in poverty alleviation of the study area. All of these nine extracted factors have significant factor loadings. Table 8.2.6 shows the factor loading for each variable on the extracted factor after rotation. The goal of rotation is to attain an optimal simple structure which attempts to have each variable load on as few factors as possible, but maximize the number of high loadings on each variable. Each loading factor represents the partial correlation between the variable and the rotated factor. These correlations can help us to interpret the extracted factors. As each factor have either large or small loadings of any particular variable. So, to identify each variable with a single factor having a high factor loading, varimax rotation has been used.

Table 5: Rotated Component Matrix[a]

	Component								
	1	2	3	4	5	6	7	8	9
NRLM has improved the overall quality of life for my household.	.821	.011	.128	.060	-.054	-.134	.066	.058	-.057
My family now has better access to health, education, and nutrition due to NRLM interventions.	.811	.041	-.123	-.013	.102	.071	.216	-.128	.009
NRLM has helped address multiple aspects of rural poverty beyond just income.	.774	.034	.142	-.043	-.023	-.007	-.053	.263	-.032
The program has strengthened rural family welfare through integrated support systems.	.719	.030	-.068	-.061	.026	.076	.187	-.155	.266
Household well-being has improved due to access to multiple services under NRLM.	.695	.022	.023	.006	-.115	-.054	.032	-.249	-.048
NRLM initiatives have created a supportive environment for women, youth, and marginalized families.	.668	-.058	-.178	-.138	.082	.027	.391	.117	.018
The program has enhanced the dignity and self-worth of poor rural families.	.655	.075	-.176	.081	.125	-.014	.228	-.085	.339
My household is now more resilient to economic and health shocks because of NRLM support.	.645	-.080	-.135	-.007	-.075	-.045	-.340	.237	.019
The overall living conditions of our community have improved due to NRLM.	.606	.160	.008	-.010	.200	-.056	.210	.023	.325
NRLM has enabled me to open and operate a savings account.	.027	.860	.026	.014	-.028	.084	.038	.011	.094
I have better access to credit and financial services because of NRLM.	-.063	.815	.067	.078	-.079	.076	.052	.004	.254
Participation in NRLM self-help groups has improved my confidence and decision-making ability.	.103	.664	-.036	-.047	-.083	-.085	.004	-.142	-.126
NRLM has empowered me socially through collective group activities and training.	-.115	-.610	.240	.084	.442	.103	.083	.068	.109
Women in my village have become more vocal and visible in community matters due to NRLM.	-.020	.537	.526	.435	.137	.243	-.014	.062	-.062
NRLM has helped increase my household income through income-generating activities.	-.099	.162	.805	.077	.244	.094	.009	.122	-.005
My family's food security has improved as a result of NRLM interventions.	.009	-	.799	.288	.188	.201	-	.048	.021

	1	2	3	4	5	6	7	8	9
		.124					.083		
We are now able to save more regularly due to income earned from NRLM-supported activities.	-.011	-.399	.707	.375	.186	.164	-.011	.033	-.007
Access to livelihood opportunities under NRLM has reduced our financial vulnerability.	-.021	.045	.487	.218	.105	.477	-.038	.385	-.037
NRLM has provided me or a family member with vocational or livelihood skill training.	.018	-.037	.105	.848	-.007	.103	.046	.007	-.150
The training under NRLM has helped improve my employability or productivity.	-.026	.024	.337	.764	.153	.127	-.065	.122	.069
I now have better knowledge of enterprise management because of NRLM capacity-building programs.	-.005	.057	.367	.656	.171	.099	.072	.328	-.055
NRLM has increased the technical and practical skills among rural workers in my area.	-.055	.049	.027	.636	.166	.483	-.070	.116	.069
NRLM has improved access to water, sanitation, or housing in my village.	.011	-.170	.286	.087	.810	.032	.068	.039	.060
The program has helped strengthen linkages to health and education services.	.075	-.046	.111	.096	.705	.296	-.016	.215	-.313
Basic rural infrastructure such as roads or markets has improved due to NRLM convergence efforts.	.030	-.424	.233	.220	.705	-.061	.028	-.004	.131
NRLM has enabled me to start or expand a self-employment venture.	.007	-.050	.141	.184	.055	.803	-.005	-.062	.017
I am financially more independent today because of NRLM's livelihood support.	-.088	.050	.332	.206	.095	.677	.019	.313	.081
NRLM has helped promote entrepreneurship through loans, grants, or training.	.344	.035	.031	-.018	-.006	.021	.793	.035	.025
I have received support in connecting my products to markets under NRLM.	.102	-.012	-.081	.061	.088	-.079	.738	.022	.010
The program has improved local enterprise development and market access.	.526	.054	.053	-.069	-.129	.112	.527	.087	-.026
NRLM has increased my participation in village-level meetings and planning activities.	.084	-.126	.125	.151	.094	.080	.073	.818	.038
I now better understand how to access government schemes and entitlements due to NRLM awareness programs.	-.169	-.328	.064	.472	.034	.047	.090	.544	.118
The program has enhanced transparency and accountability in local governance through SHG and VO involvement.	.021	.109	.186	.186	.400	.279	-.038	.478	-.401
NRLM has helped ensure that vulnerable groups such as SC/ST, minorities, and disabled persons are included in development activities.	.281	.105	.044	-.051	-.034	.102	-.024	.075	.783
Extraction Method: Principal Component Analysis.									
Rotation Method: Varimax with Kaiser Normalization.									
a. Rotation converged in 9 iterations.									

In the further analysis an attempt has been made to explain those 9 factors which have been emerged as significant contributors in our study.

Factor 1: Integrated Rural Development & Household Well-being

The data highlights the positive impact of the National Rural Livelihoods Mission (NRLM) on various aspects of rural life. The first and most significant area is the improvement in the overall quality of life and access to essential services. With a high factor loading of (.821), many respondents strongly agreed that NRLM has helped improve their family's standard of living. Better access to healthcare, education, and nutrition (.811), along with support for multiple aspects of rural poverty (.774), and strengthened rural family welfare systems (.719), show how NRLM has gone beyond financial aid to support overall well-being. The analysis highlights how NRLM has improved access to various government and social services (.695), and created a supportive environment for women, youth, and marginalized groups (.668), making the development process more inclusive. Furthermore, study reflects on personal dignity, resilience, and improved community living. Many felt their dignity and self-worth have increased (.655), they are more resilient to economic and health challenges (.645), and their overall community living conditions have improved (.606). Since all factor loadings are well above 0.50, these findings clearly show that NRLM has made a strong and meaningful contribution to both individual and community-level development in rural areas.

Factor 2: Financial Inclusion and Social Empowerment

The data highlights the positive influence of NRLM on rural women's empowerment. The strongest impact has been seen in financial inclusion, as many respondents reported being able to open and operate savings accounts because of NRLM (.860), and gaining better access to credit and financial services (.815). Additionally, participation in NRLM self-help groups has enhanced their confidence and decision-making ability (.664), and has empowered them socially through group activities and training (.610). Moreover, NRLM has also played a role in increasing women's visibility and vocal participation in community matters (.537). These figures collectively suggest that NRLM has significantly contributed to improving financial access, personal confidence, social participation, and community engagement among rural women.

Factor 3: Household Income, Food Security & Savings
The data clearly shows that NRLM has significantly improved the financial condition of rural households. Most notably, it has helped increase household income through income-generating activities (.805), and improved family food security as a result of its interventions (.799). Additionally, families are now able to save more regularly due to the income earned from NRLM-supported activities (.707). Although to a slightly lesser extent, access to livelihood opportunities under NRLM has also reduced financial vulnerability (.487). Overall, NRLM has played a strong role in enhancing household income, food security, and financial stability for rural families.

Factor 4: Skill Development and Rural Workforce Productivity
The findings indicate that NRLM has made a strong contribution to enhancing vocational skills and employability in rural areas. A significant number of respondents shared that either they or their family members received vocational or livelihood skill training through NRLM (.848), and this training improved their productivity or employability (.764). Furthermore, many participants now possess better knowledge of enterprise management thanks to NRLM's capacity-building efforts (.656). Additionally, NRLM has also helped improve the technical and practical skills of rural workers in the area (.636). Overall, these results show that NRLM is effectively building human capital and preparing rural individuals for better economic opportunities.

Factor 5: Infrastructure & Basic Services Access
The data highlights that NRLM has positively influenced rural infrastructure and essential services in villages. A majority of respondents noted that the program has improved access to water, sanitation, or housing in their village (.810), which shows a strong impact. Additionally, NRLM has strengthened connections to crucial health and education services (.705), and has contributed to the development of basic rural infrastructure like roads and markets through its convergence efforts (.705). These findings suggest that beyond income and empowerment, NRLM has played a vital role in improving the overall living conditions and access to essential amenities in rural areas.

Factor 6: Self-Employment and Financial Autonomy
The data shows that NRLM has played a key role in boosting self-reliance and entrepreneurship. Many beneficiaries shared that they were able to start or expand their own self-employment ventures due to NRLM's support (.803), and they now feel more financially independent (.677). These responses indicate that NRLM has been effective in encouraging livelihood development and helping individuals become economically self-sufficient.

Factor 7: Entrepreneurship & Market Development
The data shows that NRLM has been instrumental in promoting rural entrepreneurship. Many participants acknowledged that the program helped them start or strengthen their businesses through loans, grants, or training (.793). Additionally, they received support in marketing their products and connecting with buyers (.738), and there has been noticeable improvement in local enterprise development and market access due to NRLM (.527). These results suggest that NRLM is effectively nurturing small businesses and helping rural entrepreneurs reach wider markets.

Factor 8: Civic Participation and Governance
The data indicates that NRLM has significantly influenced the participation of individuals in village-level meetings and planning activities, as reflected by a high score of (.818). This suggests that the program has been successful in encouraging active community involvement. Additionally, a moderate score of (.544) shows that participants have improved their understanding of how to access government schemes and entitlements due to NRLM awareness programs. Lastly, the score of (.478) suggests a relatively lower, yet still positive, perception of the program's effectiveness in enhancing transparency and accountability in local governance through Self Help Groups (SHGs) and Village Organizations (VOs). Overall, the NRLM seems to be making a meaningful impact in promoting grassroots participation, awareness, and governance improvements.

Factor 9: Social Inclusion and Equity
This high score of (.783) suggests a strong positive impact of the National Rural Livelihoods Mission (NRLM) in promoting social inclusion. Respondents largely agree that NRLM has been effective in integrating marginalized and vulnerable communities—such as Scheduled Castes (SC), Scheduled Tribes (ST), minorities, and persons with disabilities—into local development activities. This reflects NRLM's success in advancing equity and inclusiveness within rural development programs.

1.4.6 Descriptive Statistics
In this part of the study the impact poverty alleviation through government scheme (NRLM) are identified by showing the value of sample mean and standard deviation of each variable.
- Following rules are applied to know the impact level of various variables.
- Mean values which are less than 1.5 shows that the variables have very low impact.
- Mean values which are from 1.5 to 2.5 shows that the variables have low impact.
- Mean values which are from 2.5 to 3.5 shows that the variables have moderate impact.
- Mean values which are from 3.5 to 4.5 shows that the variables have high impact.
- Mean values which are more than 4.5 shows that the Table

Table 6: variables have very high impact.

Sr. No.	Variables	Mean	Std. Deviation
1.	NRLM has empowered me socially through collective group activities and training.	3.4221	.99631
2.	Basic rural infrastructure such as roads or markets has improved due to NRLM convergence efforts.	3.2915	1.03742
3.	NRLM has improved access to water, sanitation, or housing in my village.	3.0704	1.04208
4.	The program has helped strengthen linkages to health and education services.	3.0653	1.09210
5.	The program has enhanced transparency and accountability in local governance through SHG and VO involvement.	2.9749	1.21205
6.	NRLM has increased my participation in village-level meetings and planning activities.	2.9447	1.15992
7.	I now better understand how to access government schemes and entitlements due to NRLM awareness programs.	3.0402	1.13636
8.	Women in my village have become more vocal and visible in community matters due to NRLM.	4.2764	1.20143
9.	We are now able to save more regularly due to income earned from NRLM-supported activities.	4.0352	1.12086
10.	My family's food security has improved as a result of NRLM interventions.	3.6181	1.10777
11.	NRLM has helped increase my household income through income-generating activities.	3.1206	1.28924
12.	Access to livelihood opportunities under NRLM has reduced our financial vulnerability.	3.3065	1.28767
13.	I am financially more independent today because of NRLM's livelihood support.	3.2513	1.33227
14.	NRLM has enabled me to start or expand a self-employment venture.	3.5377	1.78018
15.	NRLM has increased the technical and practical skills among rural workers in my area.	3.3668	1.34506
16.	NRLM has provided me or a family member with vocational or livelihood skill training.	3.1809	1.32857
17.	The training under NRLM has helped improve my employability or productivity.	3.3467	1.35415
18.	I now have better knowledge of enterprise management because of NRLM capacity-building programs.	3.2513	1.26618
19.	Participation in NRLM self-help groups has improved my confidence and decision-making ability.	2.3518	2.14779
20.	NRLM has enabled me to open and operate a savings account.	2.8643	1.34340
21.	I have better access to credit and financial services because of NRLM.	3.2060	1.07439
22.	The overall living conditions of our community have improved due to NRLM.	3.1658	1.26237
23.	The program has enhanced the dignity and self-worth of poor rural families.	3.3266	1.15856
24.	The program has strengthened rural family welfare through integrated support systems.	3.3116	1.21996
25.	My family now has better access to health, education, and nutrition due to NRLM interventions.	3.4523	1.28570
26.	NRLM initiatives have created a supportive environment for women, youth, and marginalized families.	3.1508	.88614
27.	The program has improved local enterprise development and market access.	3.7638	1.15448
28.	NRLM has helped promote entrepreneurship through loans, grants, or training.	2.7789	1.00572
29.	I have received support in connecting my products to markets under NRLM.	2.4020	1.00463
30.	Household well-being has improved due to access to multiple services under NRLM.	2.8643	1.24588
31.	NRLM has helped ensure that vulnerable groups such as SC/ST, minorities, and disabled persons are included in development activities.	2.6935	1.05002
32.	My household is now more resilient to economic and health shocks because of NRLM support.	2.9548	1.14723
33.	NRLM has helped address multiple aspects of rural poverty beyond just income.	3.1608	1.18674
34.	NRLM has improved the overall quality of life for my household.	3.1759	1.14778

1.5 Conclusion and Suggestions

The data collected from respondents gives us a clear picture of how the National Rural Livelihoods Mission (NRLM) has impacted people's lives across different areas. By analyzing the average responses (mean values), we can understand which aspects of NRLM are working well and where there might be a need for improvement.

Many respondents agreed that NRLM has helped them feel more socially empowered through group activities and training. With a mean score of 3.42, this indicates a moderate to high impact. People feel more confident and connected with others in their village because of the group-based model that NRLM promotes. Similarly, infrastructure like roads and markets has improved through convergence with other schemes, scoring 3.29. This suggests that development in the area has become more accessible due to NRLM-related projects. When it comes to access to basic needs like water, sanitation, and housing, the impact was seen as moderate (mean of 3.07). While progress has been made, there is still room for improvement. The program has also made it easier for villagers to connect with health and education services, as reflected by a score of 3.14. Transparency and accountability in local governance, including how decisions are made and funds are used, were

rated slightly lower (2.97), which indicates some dissatisfaction or lack of awareness among the people. An important point is that NRLM has encouraged greater participation in village-level meetings and planning (mean of 2.93). This is good because it shows people are getting involved in local decision-making. However, it's still on the lower side, which may mean some people are not yet fully engaged. One positive aspect is that respondents now have a better understanding of how to access government schemes and entitlements (score of 3.04), thanks to NRLM awareness efforts.

The strongest impact of NRLM was seen in the way women have become more vocal and visible in the community. This variable received the highest mean score of 4.27, which falls in the high impact category. This is a very positive sign and shows that NRLM has succeeded in empowering rural women. Similarly, people said they now feel more secure in their income through self-help group activities, scoring 4.04, another high rating. This shows that the program is helping people become financially stable. Respondents also noted that their family's food security has improved due to NRLM (mean of 3.61). People feel less worried about putting food on the table, which is a major benefit of livelihood support. Household income from income-generating activities under

NRLM has gone up, although this impact is moderate with a score of 3.12. While people are earning more, there may still be challenges in sustaining these incomes long-term. The data also tells us that access to job opportunities through NRLM has reduced financial stress to some extent (mean of 3.09), and many people now feel more financially independent (3.15). This shows that the program is helping people move toward self-reliance. NRLM has also helped many start their own small businesses or self-employment ventures (mean of 3.11), which is a sign of entrepreneurship development. In terms of technical and practical skills, NRLM is making progress (score of 3.13). Training in vocational skills for rural youth and women, provided either directly or indirectly by NRLM, has made a difference (3.12). However, some respondents feel that these opportunities could be expanded further. Employment and productivity have improved for many due to NRLM training, which had a score of 3.34. People have better knowledge about running a small business (mean of 2.51), although this is a bit low, suggesting a need for more focused training. When it comes to participation in SHGs boosting self-confidence and decision-making abilities, the impact was relatively low (2.41). This may point to a gap in group leadership or support structures. Opening savings accounts has become easier (3.14), and people also have better access to credit and financial services (3.65), which are both important for financial inclusion. Overall living conditions in communities have also shown some improvement (3.16), but the change is still moderate, indicating that more efforts may be needed in housing, sanitation, and overall quality of life. NRLM has also helped many families gain better access to health, education, and nutrition services (3.45), thanks to its partnerships with other schemes and government programs. There's also been a noticeable improvement in the support system for women, youth, and marginalized communities (3.15). These efforts show NRLM's holistic approach to livelihood development. Market access for local producers has improved, as shown by a mean of 3.76. However, support for entrepreneurship through loans or grants scored lower (2.77), and the ability to connect products to wider markets was also modest (2.42). These results suggest that while local marketing has improved, people still need help to scale up their businesses and sell outside the village. Another area where NRLM has made an impact is household well-being, including access to services (2.86), though this is also on the lower side. Inclusion of vulnerable groups like SCs, STs, minorities, and people with disabilities scored 2.69, which again suggests that while inclusion is happening, it is not yet strong or widespread. More work may be needed to reach the most disadvantaged populations effectively. The impact on people's ability to handle economic and health shocks is rated at 2.95, showing moderate resilience-building. Finally, the program's ability to address multiple aspects of rural poverty, not just income, was rated 3.17, and the overall quality of life was also rated the same.

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