

Developing and Validating a Scale to Measure Economic Advancement of SHG Member Beneficiaries of MEDP Intervention of NABARD

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Abstract- Purpose of the Study: Exclusion of women in development has created numerous adversities related to health, education, and income. In India, NABARD has instituted various empowerment programmes to benefit rural women members of SHGs for capacity building. The attempt of the paper is to develop a scale to measure the level of economic advancement achieved by women by participating in such programmes.

Design: An item pool was developed from literature, to be used for administration among rural women SHG members who have participated in the MEDP of NABARD. The data were subjected to Exploratory Factor Analysis, and assessment of reliability and validity.

Findings: The 31-item pool was reduced to 18-item scale, composed of six dimensions. The loadings were high, and cumulative variance, eigen values, and Cronbach's alpha computed were within acceptable levels.

Implications of the Study: The study adds to literature by proposing a comprehensive multi-dimensional scale to measure economic advancement of rural women achieved by rural women. The scale can be used by policy makers to understand how capacity building policies and interventions affect the target beneficiaries.

Originality of the Study: The study contributes to filling the gap in literature by proposing a new scale to measure economic advancement. A multi-dimensional scale has never been proposed in literature to examine economic advancement.

Key Words: Self Help Groups, Micro Enterprise Development Programme, Economic Advancement

I. INTRODUCTION

Evidence proves that economic development of any country is severely impeded by the gender disparities that exist denying equal opportunities for women in progress and wellbeing (UN, 2015). It is now accepted that ensuring gender equality and empowering women are important to achieve economic progress. The

sustainable development goals of the United Nations accept and proclaims that gender equality and women's empowerment is integral to the pursuance of sustainable development goals. The G20 recognised that financial inclusion is a key enabler for eradicating poverty. Financial inclusion of women is particularly important for ensuring gender equality and women's economic empowerment. With greater control over assets, women and their families can come out of poverty, and engage in economic activities (RBI, 2017). In India, with the view to ensure rural women progress, the National Bank for Agricultural and Rural Development (NABARD) played a pivotal role in the institution of Self-Help Groups of rural women, which was later linked to banks for savings and credit. Women members of SHGs who engaged in economic activities were further provided interventional measures to ensure skill development and sustainable livelihoods through programmes like Micro Enterprise Development Programme (MEDP) and Livelihood and Enterprise Development Programme (LEDP). By the end of March 2022, nearly 5.50 lakh SHG members were trained through nearly twenty thousand MEDPs since 2006, and more than 1.80 lakh SHG members were supported through more than 1600 LEDPs with grant of Rs.77 crore (NABARD, 2023).

II. THEORETICAL BACKGROUND

Self-Help Groups: SHGs function as mutual help groups, comprising of individuals who have come together to address social challenges faced and to improve their living conditions (Wann, 1995). The groups focus of savings and credit, manage economic activities at small scale, handle finances, and strive to achieve sustainable livelihoods (Steinberg, 1997). There are research evidences that support the positive impact of SHGs in the economic and social progress

of women. Swain and Wallentin (2012) found that SHG programmes and activities promote women empowerment. Women members help each other (Folgheraiter and Pasini, 2009) and trust the efficacy of collective action. SHGs have proven to be vital platforms for reducing the adversities of financial exclusion among rural women (Kabeer, 2005). These groups also serve as vehicles promoting women's empowerment (Aggarwal & Shamsi, 2022).

Micro Enterprise Development Programme (MEDP): NABARD launched MEDP in 2006, to support mature SHGs which already have access to finance from banks. The programme aims to foster entrepreneurship among rural women by providing skill development and capacity-building opportunities. The ultimate objective is to create sustainable livelihoods, empower rural women, and help them establish their own enterprises. Thus, MEDP supports micro-entrepreneurship through skill development. SHG members who pursue commercial activities through micro-enterprises, and suffering from some skill deficiencies are supported by the programme. The knowledge of women relating to enterprise management, rural market information etc. are enhanced. Thus, MEDP assists economically weaker sections of the society in starting small business (NABARD, 2016). Very little impact evaluation studies have been conducted to analyze the effectiveness of MEDP in empowering rural women. Women Empowerment: Rahman (2013) found that a society cannot prosper without access to economic resources, with power being given to individuals to control resources and ideologies. Empowerment of women means developing women as more knowledgeable and skilful individuals, who are economically independent, financially resilient, politically active, and capable of making decisions in matters that affect their life (Mamta, 2014). ICRW (2011; 2018) identified that discrimination against women is inefficient, since the population cannot realize the full potential of development. Hence, empowering women is vital to realising the rights of women and to achieve the larger development goals like poverty reduction, health and education. ICRW (2011; 2018) defined economic empowerment of women as composed of two aspects – (i) economic advancement, and (ii) power and agency.

Women's Economic Advancement: Though empowerment of women includes the reach and

participation of women in social activities, and how the community responds to the problems faced by women, ICRW (2011; 2018) suggested that the economic advancement of women is composed of six components – productivity and skills, business practices, income, consumption smoothing, work environment, and prosperity. Productivity and skills are directly based on the educational level of rural women, with knowledge in business activities and having the necessary skills. Business practices refer to the ability of women to maintain error-free business records, and capability to manage investments in businesses. Income dimension refers to the extent to which women earn income or share of profits in business, and engages in savings. Consumption smoothing is the ability to get freedom from seasonal hunger, and having some financial safety to meet hazards in life. Work environment refers to the positive outlook of rural women regarding the working conditions and its quality. Prosperity is the ability to generate personal or family wealth, and have better quality of life.

III. OBJECTIVE OF THE STUDY

The attempt of the present study is to develop a comprehensive measurement scale to measure the level and nature of economic advancement enjoyed by rural women members of SHGs who are the beneficiaries of the intervention programmes implemented to empower rural women (eg. MEDP). The study adopted the definition of economic advancement suggested by the ICRW (2011; 2018). The six dimensions of the economic advancement indicators proposed by the ICRW (2011; 2018) is adapted in the study.

IV. METHODS

The attempt of the study is to examine if the six-component model proposed by the ICRW (2011; 2018) could capture the economic advancement of rural women members of SHGs. The outcome would be the development of a comprehensive scale to measure economic advancement. The initial item pool was developed based on ICRW (2011; 2018), Khan et al. (2020), Buvinic et al. (2020), Ferrant and Thim (2019), and Laszlo et al. (2020). The item pool had 31 items spread over the identified six components. This pool

was submitted to a three-member panel of experts comprised of two academicians and one banker to examine the face and content validity. Based on the consensus in opinion of the panel, two items were removed from the initial pool, retaining 29 items. All the items were anchored on a five-point Likert-type scale ranging from strongly disagree (1) to strongly agree (5). The refined item pool was administered on a purposively selected sample of 50 SHG members in Ernakulam district of Kerala. Only rural women SHG members who had undergone MEDP training programme of NABARD six months before were included in the survey.

Ernakulam district in Kerala is composed of 14 blocks, based on administrative division. Two blocks were randomly selected in the first stage. In the selected 2 blocks, there were 12 grama panchayats. It was decided to cover at least fifty percent of the panchayats. Hence, in the next stage, three each panchayat was randomly selected from the strata of two blocks. In the 3 panchayats in the first block, there were 49 villages, and in the other three panchayats in the second block, there were 48 villages. Thus, there were a total of 97 villages identified. In the next stage, three each village was selected from the three panchayats identified earlier from each of the two blocks. Hence, in this stage, 9 village each from the two blocks were selected randomly from the identified 97 villages comprised in the earlier selected six panchayats. Hence, 18 villages formed the finally selected villages. In these selected villages there were 125 SHGs in the first strata (block 1) and 121 SHGs in the second strata (Block 2), taking the total number of

SHG population to 246. In the block one (125 SHGs), there were a total of 1583 women SHG members, while in the block two (121 SHGs), there were 1465 women SHG members, taking the total women member population to 3048. Thirteen SHGs were randomly selected from the 125 groups in block one, and another 13 were selected from the 121 groups in block 2. The selected 26 groups had a membership of 351 women (175 from block 1 and 176 from block 2). This list of members formed the final sample frame from where the final 50 respondents would be selected. Each of the 26 groups were personal approached during their meetings, where to was possible to meet all the members. The purpose of the study was explained to them, and those members who have previously undergone MEDP training were identified. Among those members, the survey instrument was administered to those who were willing to participate in the survey. Forty-six questionnaires were returned as responded. The returned questionnaires were subjected to initial screening, then coded and entered into an MS Excel spreadsheet. Some missing entries were identified in the row-wise and column-wise examination, which were removed from the dataset. Univariate outliers were examined for extreme data values, using the computed Z-scores based on Polit and Beck (2010). Score outside ± 3.29 are treated as outliers based on Tabachnick & Fidell (2013). These responses were removed. A final data set of 40 responses were used for the final data analysis. The sample selection process is given in Table 1.

Table 1: Sampling Process and Sample Frame Identification

Block Selected	No. of Gram panchayats	No. of Gram panchayats selected for study	No. of villages in the selected Panchayats	No. of villages Selected	No. of SHGs in Selected Villages	No. of SHG Members	Sample SHGs Selected	Members in Sample SHGs
Block 1	6	3	18	3	37	423	4	53
			14	3	43	516	4	54
			17	3	45	644	5	68
Block 2	6	3	14	3	43	492	5	67
			19	3	46	586	5	66
			16	3	32	387	3	43
Total	12	6	98	18	246	3048	26	351

Source: Compilation based on the National Rural Livelihoods Mission Database

V. ANALYSIS AND RESULTS

A descriptive analysis of the 29 items was performed by computing the mean score and standard deviation. Extreme mean value scores (near to 1.0 or 5.0) and extremely low standard deviations (less than 1.0) were examined and found to be absent. Hence no data were removed.

The first analysis involved the performance of the Exploratory Factor Analysis. This is done to discover the underlying set of observed variables (items) and its corresponding latent factor structure.

EFA with Principal Component Analysis with Varimax rotation as performed based on Taherdoost, Sahibuddin, and Jalaliyoon (2014). Eigen values above 1.0 was used as the decision rule for retaining components based on Kaiser (1960) criterion. Cumulative percent of variance explained by each factor on the corresponding items was set at 60 percent based on Pett, Lackey, and Sullivan (2003).

Minimum factor loading for retaining items was set at 0.50, based on Burton and Mazerolle (2011). Table 2 gives the results of EFA.

Six factors were extracted: factor one (eigen value = 6.124; variance = 21.117%); factor two (eigen value = 5.247; variance = 18.093%); factor three (eigen value = 3.353; variance = 11.562%); factor four (eigen value = 2.924; variance = 10.083%); factor five (eigen value = 2.674; variance = 9.221%); and factor six (eigen value = 2.225; variance = 7.672%). The cumulative variance explained by all the factors was 77.748 percent. Since all the eigen values were above one, and cumulative variance explained was above 60 per cent, and since there was no large deterioration in variance explained in successive factors (eg. factor 5 explained 9.221 %, and factor 6 explained 7.672 %, which are close to each other), it was decided to retain all the six factors.

Table 2. Exploratory Factor Analysis (Total Variance Explained)

Factor	Initial Eigen Values			Rotation sums of squared loadings		
	Total	% Of Variance	Cum %	Total	% Of Variance	Cum %
1	6.523	22.493	22.493	6.124	21.117	21.117
2	5.325	18.362	40.855	5.247	18.093	39.210
3	3.447	11.886	52.741	3.353	11.562	50.772
4	2.758	9.510	62.252	2.924	10.083	60.855
5	2.471	8.521	70.772	2.674	9.221	70.076
6	2.023	6.976	77.748	2.225	7.672	77.748

Extraction Method: Principal Component Analysis
Source: Analysis Results

In the next stage, the rotated component matrix was examined to analyse the factor loadings. No decision was made to suppress low factor loadings. Table 3 gives the rotated component matrix. Out of the total 29 items, four items loaded on to the factor one (item loadings range 0.924 to 0.541), three items loaded on to the factor two (item loadings range 0.885 to 0.837), and four items loaded on to factor three (items loadings range 0.861 to 0.524). On factor four, three items loaded (items loadings range 0.857 to 0.817). Three each item loaded on to factor five (items loadings range 0.833 to 0.795) and factor six (item loadings range 0.804 to 0.764). There were nine items that did not have a loading above 0.50 with any factor. Hence, they were excluded from further examination. Thus, there were 20 items in the newly refined pool.

After the initial establishment of the factor structure scale, the items were ten examined for internal consistency reliability. Internal consistency reliability is the extent to which the manifest items measuring a latent construct are associated with all other items measuring that same construct. The scale reliability was assessed by computing Cronbach's alpha (Cronbach, 1951). Nunnally and Bernstein (1994) recommended alpha values above 0.70 as acceptable for reliability. The calculation was repeated by removing items one by one, and it was to stop repetition and removal when the highest value of alpha was achieved. Table 4 gives the results of reliability analysis. For the factor one, the alpha computed was 0.834 (with four items), which improved to the highest 0.851 (with three items). Hence it was decided to remove the one item (items 4). For the factor two, the

alpha computed was 0.817 with three items and no item was removed. For factor three, initial alpha value computed was 0.779 with four items, which improved to 0.794, with removal of one item (item 15). Hence, three items were decided to be retained. For factor four (three items, alpha value = 0.768), factor five (three items, alpha value = 0.801), and factor six (three items, alpha value = 0.754), removal of items resulted in the

deterioration of alpha values. Hence no item was removed. Moreover, Hair et al. (2014) recommended that there should be at least three items per latent construct. Since the final alpha values after removal of two items were all above the recommended levels (> 0.70), the scale was reduced to 18 items to achieve reliability.

Table 3: Rotated Component Matrix

Items	Component					
	1	2	3	4	5	6
Item 1	0.924	0.318	-0.131	-0.153	-0.170	0.065
Item 2	0.901	0.205	0.303	0.026	-0.305	0.258
Item 3	0.851	0.070	-0.023	-0.042	-0.035	-0.133
Item 4	0.541	-0.069	0.258	-0.201	-0.274	-0.105
Item 5	0.020	0.138	0.057	-0.043	0.305	0.300
Item 6	0.042	-0.105	-0.086	0.048	0.113	0.045
Item 7	0.009	0.885	-0.265	-0.273	-0.091	0.215
Item 8	0.037	0.854	0.226	0.194	-0.191	0.225
Item 9	0.143	0.837	-0.091	0.224	0.082	0.125
Item 10	-0.082	0.020	0.084	0.073	-0.291	0.058
Item 11	0.134	0.301	-0.164	0.038	0.189	-0.279
Item 12	0.234	0.175	0.861	-0.322	0.310	0.081
Item 13	0.116	0.315	0.831	0.262	-0.183	-0.005
Item 14	-0.041	-0.039	0.807	0.289	0.305	0.024
Item 15	0.079	0.292	0.524	-0.228	0.061	-0.083
Item 16	-0.028	0.023	-0.165	0.272	-0.108	0.026
Item 17	0.030	-0.149	-0.213	-0.319	-0.117	-0.211
Item 18	0.011	0.061	-0.172	0.857	0.020	0.314
Item 19	0.188	0.176	-0.203	0.831	0.277	-0.282
Item 20	0.187	0.160	-0.300	0.817	0.231	-0.322
Item 21	-0.083	0.174	-0.279	-0.244	-0.224	0.038
Item 22	-0.077	0.008	0.026	0.024	0.833	-0.229
Item 23	-0.197	0.123	-0.061	0.103	0.814	0.135
Item 24	-0.256	-0.293	0.110	-0.064	0.795	-0.131
Item 25	-0.170	0.221	0.288	-0.107	-0.134	0.072
Item 26	-0.213	-0.234	-0.174	-0.124	0.290	0.804
Item 27	-0.141	0.097	0.223	-0.006	0.105	0.788
Item 28	0.013	0.311	0.199	0.297	-0.120	0.764
Item 29	-0.282	-0.242	0.111	0.244	-0.192	0.030

Extraction Method: Principal Component Analysis
Rotation Method: Varimax Rotation with Kaiser Normalization
Source: Analysis Results

Table 4: Scale Reliability (Cronbach's Alpha)

Components	Initial		Final after Item Deletion	
	Items	Alpha	Items	Alpha
Factor 1	4	0.834	3	0.851
Factor 2	3	0.817	3	0.817
Factor 3	4	0.779	3	0.794

Factor 4	3	0.768	3	0.768
Factor 5	3	0.801	3	0.801
Factor 6	3	0.754	3	0.754
TOTAL ITEMS	20	--	18	--
<i>Source: Analysis Results</i>				

The refined scale with 18 items was now examined for convergent validity. Exploratory Factor Analysis was repeated, but this time, with the refined scale with 18 items, compared to the previously used 29 items. The extraction method was Principal Components Analysis (PCA). The extraction was based on number of factors to be extracted fixed at one, with the decision to retain items based on Kaiser (1970) recommending eigen values above one for retaining the factor. The proportion of total variance explained by the factor in the items was fixed at above 50 percent based on Streiner (1994). Table 5 gives the results. For factor one, the Eigen value was 2.344, with 78.133 percent

variance in the items explained by the factor. For factor two, the Eigen value was 2.131, with 71.033 percent variance in the items explained by the factor. For factor three, the Eigen value was 1.875, with 62.500 percent variance in the items explained by the factor. Similarly, for factor four (eigen value = 1.990; variance explained = 66.333 %), factor five (eigen value = 2.067; variance explained = 68.900 %), and factor six (eigen value = 1.765; variance explained = 58.843 %) also, all eigen values were above one, and total variance explained was above 50 percent. Since the recommended criteria were met, the six factor 18-item scale achieved convergent validity.

Table 5: Convergent Validity

Components	Items	Eigen Value	Variance Explained
Factor 1	3	2.344	78.133
Factor 2	3	2.131	71.033
Factor 3	3	1.875	62.500
Factor 4	3	1.990	66.333
Factor 5	3	2.067	68.900
Factor 6	3	1.765	58.843
<i>Source: Analysis Results</i>			

Table 6: Cross Loadings

Items	Factors					
	1	2	3	4	5	6
Item 1	--	0.072	-0.025	-0.124	0.171	0.295
Item 2	--	0.176	0.281	-0.281	-0.219	-0.281
Item 3	--	0.055	-0.129	-0.302	0.092	-0.298
Item 4	0.140	--	0.186	-0.193	-0.053	0.003
Item 5	-0.132	--	-0.123	-0.275	-0.079	0.291
Item 6	0.028	--	0.253	-0.254	0.037	0.184
Item 7	0.249	-0.017	--	0.202	-0.098	0.257
Item 8	0.112	0.151	--	0.133	0.121	-0.199
Item 9	-0.297	0.130	--	0.051	-0.075	0.172
Item 10	-0.269	-0.287	0.169	--	0.019	-0.091
Item 11	-0.198	0.144	0.118	--	0.154	-0.221
Item 12	0.105	0.097	-0.231	--	-0.196	-0.162
Item 13	-0.054	-0.100	0.237	-0.212	--	-0.013
Item 14	-0.201	0.274	-0.016	0.265	--	-0.096
Item 15	-0.049	0.096	0.030	-0.208	--	-0.113
Item 16	-0.303	0.191	-0.158	-0.244	-0.045	--
Item 17	-0.090	-0.133	0.156	0.107	-0.235	--

Item 18	-0.199	0.066	0.009	0.039	-0.205	--
<i>Extraction Method: Principal Component Analysis</i>						
<i>Source: Analysis Results</i>						

In the next stage, the scale was then subjected to the examination of discriminant validity, which was assessed by checking the inter-item cross-loadings. Bhattacharjee (2012) and Voorhees et al. (2016) recommended that when an item has factor loadings of 0.30 or less with the items of all other constructs (cross-loadings) other than the construct it is intended to measure, discriminant validity is achieved. Table 6 gives the details of cross loadings. The table results show that all the cross loadings are very low for all the 18 items. Hence discriminant validity of the scale was established.

VI. CONCLUSIONS

The extensive analysis including examination of reliability and validity confirmed that the 18-item scale is reliable and valid to measure the economic advancement of rural women members of SHGs who have undergone interventions for improving their skills (eg. MEDP) of NABARD. The scale was refined from an initially developed pool of thirty-one items, adapted from literature. The economic advancement scale is confirmed to be a multi-dimensional scale with six dimensions of advancement.

The items to measure the first dimension named Productivity and Skills are:

- Access to education and jobs
- Improved work skills
- Access to markets as supplier or buyer

The items to measure the second dimension named Business Practices are:

- Ability to Separately maintain personal and business expenses
- Ability to maintain official records
- Ability to Invest in business

The items to measure the third dimension named Consumption Smoothing are:

- Has savings, insurance, etc.
- Do not experience seasonal hunger
- Not forced to sell productive assets

The items to measure the fourth dimension named Work Environment are:

- Workplace is safe for women
- Women’s right for separate toilets
- Women’s right to equal working conditions
- Not forced to sell productive assets

The items to measure the fifth dimension named Prosperity are:

- Have individual and family wealth
- Own housing, properties, and assets
- Has better health and nutrition

The items to measure the sixth dimension named Income are:

- Has Income or share of profits
- Has individual and household savings
- Has Safe and secure savings

The productivity and skills dimension measures the improvement in the working skills and knowledge essential for their roles and responsibilities. The quality of their access to the markets as a buyer or supplier is also measured. Consumption smoothing is a very important dimension of economic advancement, with the women’s ability to free themselves and their family from the clutches of poverty and hunger that may arise, particularly in off-seasons with poor employment and income. This is also an indicator of the women’s capability to foresee hard days ahead and to save sufficiently for future exigencies. This a=savings also lets them liberated from the need to sell assets, particularly personal assets like gold, or family assets like cattle, in distress situations. Work environment measures a different dimension of women, having somewhat established as an entrepreneur or an employee, considering the women’s perspective of workplace, including its safety and quality, like women-specific toilets and restrooms. Prosperity is a holistic measure of economic advancement, with a certain level of wealth being generated from their job or business, directly benefitting their family also. The overall improvement

in quality is also demonstrated by their access to better health and nutrition.

This scale may be tolerably used in similar setting to measure rural women's progress towards a more sustainable economic wellbeing, with necessary adaptations to suit the local context of the study.

ACKNOWLEDGEMENT

This study was carried out as part of a Major Research Project funded by The Indian Council of Social Science Research (ICSSR), Ministry of Education, Government of India.

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