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Financial Inclusion through SHG-BLP: A Case Study of SKDRDP and NGVCT in India

Niranjan Shetty* and Prakash Pinto**

This paper unleashes the level of financial inclusion achieved through SHG-BLP. Level of financial inclusion is measured using leading indicators highlighted in the literature. Study confined to the SHG members of two leading NGOs of D.K. District of Karnataka State in India. A total of 766 SHG members spread in 5 taluks of the district have been interviewed using a structured schedule. Analysis has been undertaken covering 3 research objectives and 7 hypotheses. Research data has been validated using appropriate parametric and non-parametric statistical tests such as t-test and Wilcoxon Signed Ranks test. Study covers the financial inclusion permeated by the linked banks from April 2006 to March 2013. Substantial financial inclusion indicators have shown an unfavourable indication for the existence of financial inclusion in the pre SHG-BLP period and a highly favourable indication for the existence of financial inclusion in the post SHG-BLP. This finding clearly implies that SHG-BLP is highly successful in extending greater financial inclusion in the district. Few indicators of financial inclusion have also shown an absolute zero or weak existence of financial inclusion even after SHG-BLP. However, the size of such unfavourable indication is absolutely negligible as compared to the total size of indicators.

Field of Research: Banking

1. Introduction

Linking a designated bank branch to the Self Help Group (SHG) is referred to as SHG-Bank Linkage Programme (BLP). Financial Inclusion (FI) on the other hand indicates the reach of banking services to the weaker sections. Three questions are raised in this research relating to financial inclusion. It includes; what is the level of financial inclusion measured in terms of Financial Inclusion Indicators (FIIs)? What is the change in the significance level of FIIs? And, what is the change in the components of financial services offered? Answers are elicited for three questions in the pre and post SHG-BLP periods. Hence the purpose of this research is to find the level of financial inclusion permeated through SHG-BLP in the light of above three questions. Research aims to ascertain whether or not financial inclusion is achieved as a result of SHG-BLP. The study finds a very weak financial inclusion in the pre SHG-BLP period and a very strong financial inclusion in the post SHG-BLP period. Significance attached to this study lies in its nature of measuring financial inclusion using leading indicators that have been well recognised by the definitions of FI by various competent authorities in India and abroad. The findings of this research happen to be different from those analysed in the earlier studies. The 'affordability indicator' has been found to be inexistence or weak even after SHG-BLP; though overall FI found to be higher in the post SHG-BLP.

* Niranjan Shetty, Lecturer, Dept. of Professional Studies, College of Banking and Financial Studies, Muscat, Sultanate of Oman, niranjankaidel@gmail.com
** Dr. Prakash Pinto, Professor and Dean,Department of Business Administration, St. Joseph Engineering College, Vamanjoor, Mangalore- 575028, Karnataka, India, prakashpinto74@gmail.com

Secondly, there found to be no change in the significance level of FIIs in the pre and post SHG-BLP; still FI found to be robust in the post SHG-BLP. Thirdly, Even though there found to be considerable increase in the financial services availed by the SHG members in the post SHG-BLP period, some products were not availed at all by the SHG members and SHG members were not even aware of such financial products. These are the three major contributions of this research work to the existing body of knowledge in financial inclusion. The paper first discusses the available literature on FI and the gap for present research, then goes for formulation of appropriate hypotheses to validate the set objectives, in the third section, it explains the methodology used for the study and in the fourth section it discusses the empirical results. Finally, the paper places the findings and conclusion of the research.

2. Literature Review

Rangappa, Bai Renuka & Sandesh A.L. (2008) through a multistage stratified random sampling method proved that the SHG-Bank linkage programme has increased the flow of institutional credit to landless and marginal farm households and discouraged non-institutional borrowing through the thrift creation. The chi-square ($\chi 2$) results lead to the conclusion that the SHG-Bank linkage programme increased the degree of financial inclusion. APMAS (2007) in a multi stage random sampling from different categories, such as SHGs, Banks, NGOs, Federations and MFIs assessed the impact of SHG-BLP on SHG's members. Study identified the critical factors blocking the financial inclusion process at different categories. The major obstacles identified for the smooth financial inclusion enumerated in the research are, transfer of bank manager, complex withdrawal procedures for the members, problems within the group and within the family of the group members, poor/partial knowledge etc.

Ellis Karen (2007) found that for developing countries, liberalising the financial sector may be a good way to stimulate greater dynamism, innovation and competitive pressure. But to promote financial inclusion, by itself it is not enough. Bansal Hema (2000) through a research paper, attempted to review the performance of the SBLP in different states of India across three major institutions. They are commercial banks, cooperatives and the RRBs. The study throws vital insights about the leading NGOs with major credit linkages in some of the Indian states. Out of the three major lending rural institutions, the commercial banks and RRBs were more forthcoming in lending to SHGs. Kumar Pankaj & Golait Ramesh (2009) observed that the present distribution of the SBLP is distorted against the poorer regions of the country. Less than one-fifth of total loans to SHGs went into the Eastern and Central Regions taken together. But they accounted for more than three-fifth of the total poor in India. Kumar Anuj & Gupta Himanshu (2008) in their recent research found that the regulatory bodies have taken financial inclusion as priorities of the country and hence it is in the top agenda. Panigyrakis George G., Theodoridis Prokopis K. & Veloutsou Cleopatra A. (2002) investigated the financial needs and the views on ATM usage of a sample of 359 people living in remote Greek islands who have never experienced financial inclusion. The views of inhabitants who have always lived in the area and are exposed to this situation are contrasted with the views of those who have lived for a part of their lives in other regions. The results show that they all express some dissatisfaction about the financial services provided.

Knight Tonya, Hossain Farhad & Rees Christopher J. (2009) posit that central banks and the banking sector, in general, can promote good and inclusive financial governance in developing countries by adopting microfinance practice and by integrating pro-poor policies into their banking systems. Dichter Thomas W. (2007) opine that history shows clearly the formal credit access was a product of economic growth and not a driver of it; most businesses in the past began (and still begin today) with informal financing rather than formal, and the demand for access to formal financial services was based on the powerful combination of thrift (savings) and the use of those savings as the basis for consumption and not for enterprise investment. French Shaun and Leyshon Andrew (2004) argue in their research that the potential impacts of the internet and e-commerce upon retail financial services are non-trivial, and they are consistent with the individualization of risk and reward that have characterized wider processes of financial inclusion and exclusion over the past decade or so.

The past empirical studies focus on the permeation of FI using stratified random sampling methods, where they noticed several observations relating to FI. Studies show that non-institutional flow has reduced and institutional flow has increased, various challenges are found in extending the FI, need for liberalisation of financial sector, the role of central, commercial and RRBs, SHG-BLP is distorted against poor, role of regulatory bodies in considering FI on priority basis, remote residents have different experience in availing the financial services, and the role of internet, mobile phones and e-commerce in FI etc.

However, the past studies does not identify specific FIIs mentioned in the literature that hindered the extension of FI, the significance of FIIs and the components of various financial products offered by linked banks. The present study unleashes the break-up of specific FII's contribution towards achieving greater financial inclusion, its relative significance and the break-up of various components of financial services availed by the SHG members separately in the pre, and post SHG-BLP periods. The 5 major FIIs, the change in the significance level of 7 FIIs and 9 different components of financial services offered by the linked banks are identified in the present study using disproportionate stratified random sampling method, and no emphasis was given on the same by past studies. The indicators used in the present study are widely used in the FI literature available worldwide and the hypotheses tailored to catch these indicators are shown in section 3. The scope for the present study emerged as a result of this gap found in the past empirical analyses.

3. Research Hypotheses

To validate the research objectives, seven hypotheses have been formulated. The first five hypotheses have been formulated to validate first objective and all the 5 FIIs required for first objective have been tested using one hypothesis each. The last two hypotheses have been formulated to validate objective 2 and 3 respectively.

(1) **H_0:** There is no difference between the level of savings before and after SHGBLP.

(2) **H_0:** There is no difference between the level of credit before and after SHGBLP.

(3) **H_0:** There is no difference in suitability of financial products before and after SHG-BLP.

(4) **H_0:** There is no difference in affordability of financial products before and after SHG-BLP.

(5) **H_0:** There is no difference in adequacy of financial products before and after SHG-BLP.

(6) **H_0:** There is no difference in the ranks given for financial inclusion indicators before and after SHG-BLP.

(7) **H_0:** There is no difference in financial products offered before and after SHG-BLP.

4. Methodology

4.1 Research Objectives

To deduce meaning full insight into the research and draw appropriate conclusions three objectives have been set.

1. To find the extent of FI as a result of SHG-BLP through selected FIIs.

2. To find changes in the relative significance of selected FIIs due to SHG-BLP.

3. To find the size and components of financial products offered due to SHG-BLP.

4.2 Sample Unit, Size and Techniques

Out of the total SHGs of Shree Kshetra Dharmasthala Rural Development Project (SKDRDP) and Navodaya Grama Vikasa Charitable Trust (NGVCT) scattered all over the district, selected SHGs are taken based on disproportionate stratified random sampling method. Since the population mean and standard deviation of the population is unknown, a pilot study is conducted. A sample, fair enough to represent the population is selected for pilot study. Based on the population mean and standard deviation reflected in the pilot study, sample size for the research study is determined. There are collectively 30388 SHGs with 312287 members under SKDRDP and NGVCT scattered in various centres of 5 taluks in the Dakshina Kannada District of Karnataka State, in India. A sample of 766 SHG members out of a total population of 312287 is selected. Further the sample of 766 SHG members is selected from a sample of 748 SHGs out of a total population of 30388 SHGs. The sample size is determined based on the formula, $s = X^2 N P (1 - P) \div d^2 (N - 1) + X^2 P (1 - P)$, (Robert V. Krejcie - University of Minnesota, Duluth and Daryle W. Morgan, - Texas A. & M. University, 1970).

4.3 Research Scope and Limitations

Research is confined to the SHG members of SKDRDP and NGVCT and their linked banks in D.K. District of Karnataka State in India. Study excludes the minor market share of the SHGs controlled by small NGOs and the state government sponsored Shri Shakthi SHGs operating in the district. It also excludes SHGs that are not linked to the banks, but actively present in the district and those SHGs operating outside D.K District. However, this limitation is not inherited to the paper, as the study confined to the SHGs of only two leading promoters in D.K. District. The sample size is determined based on Krejce and Morgan's method mentioned in section 4.2. The inherited demerit of this method may pass on to the paper. Members who availed financial services on or subsequent to 1st April, 2006 are only considered for the purpose of this study. However, the members might have joined prior or after 1st April, 2006 to their respective SHGs. But they should have necessarily availed all the financial services after 1st April, 2006.

5. Empirical Analysis and Results

5.1 Hypothesis 1

Hypothesis 1 is tested based on Wilcoxon Signed Ranks Test (Non Parametric). Table-1 and table-2 shows the measurement of FIIs in the pre and post SHG-BLP periods respectively.

Table 1: FIIs before SHG-BLP

#	Factors favourable to FIIs	# & %	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total
			1	2	3	4	5	
1	Savings	#	400	194	21	82	69	766
		%	52	25	3	11	9	100
2	Credit	#	407	207	14	72	66	766
		%	53	27	2	9	9	100
3	Suitability	#	405	301	12	23	25	766
		%	53	39	2	3	3	100
4	Affordability	#	455	232	22	31	26	766
		%	60	30	3	4	3	100
5	Adequacy	#	223	368	30	67	78	766
		%	18	14	49	7	12	100

Source: Compiled by the researcher through primary research

It can be clearly seen in table-1 that values are aggressively concentrating on the left hand side of the table indicating a weak financial inclusion in the pre SHG-BLP. This is because; factors favourable to FIIs are either disagreed or strongly disagreed by majority respondents. On the other hand, in table-2 values are more aggressively concentrating on right hand side of the table indicating a strong financial inclusion in the post SHG-BLP. This is because; factors favourable to FIIs are either agreed or strongly agreed by majority respondents. The descriptive test statistics such as mean, standard deviation, minimum, maximum and percentiles is calculated for hypothesis 1. Since the objective 1 uses Liker Scale, non-parametric test statistic has been applied. Objective 1 identifies five important financial inclusion indicators used extensively in the literature. It includes savings, credit, suitability, affordability, and adequacy. These five indicators are represented in hypotheses 1 to 5 and pertinent research question 1. Wilcoxon Signed Ranks Test for paired statements of the respondents on savings indicators relating to hypothesis 1 is shown in table-3. It demonstrates the negative ranks, positive ranks and ties for each pair of statements as compared to pre and post SHG-BLP period. The positive ranks for all the 5 pairs of statements in the pre and post SHG-BLP period are far higher than the negative ranks indicating a greater financial inclusion due to SHG-BLP. The ties indicate that those respondents who were saving before SHG-BLP period have also continued to save even after SHG-BLP. Therefore ties will not contribute to have greater financial inclusion due to SHG-BLP. Similarly, Negative ranks are those respondents who have not saved after SHG-BLP period even though they were saving before SHG-BLP period. This segment of the respondents is set back to the achievement of greater financial inclusion. Conclusively, positive ranks represent those respondents who were not saving before SHG-BLP period, but saved after SHG-BLP. Hence, due to higher value of positive ranks; financial inclusion due to SHG-BLP is found to be robust. The test statistics for all pairs of statements on savings indicator required for hypothesis 1 in the pre and post SHG-BLP period is represented in table-4. It shows the Z value and the asymptotic significance for each pair of statements for proving hypothesis 1.

Table 2: FIIs after SHG-BLP

#	Factors favourable to FIIs	# & %	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	Total
			1	2	3	4	5	
1	Savings	#	0	2	14	129	621	766
		%	0	0.5	2	16.5	81	100
2	Credit	#	14	16	10	189	537	766
		%	2	2	1	25	70	100
3	Suitability	#	0	0	0	347	419	766
		%	0	0	0	45	55	100
4	Affordability	#	235	150	57	153	171	766
		%	30	20	8	20	22	100
5	Adequacy	#	3	4	3	263	493	766
		%	0.5	1	0.5	34	64	100

Source: Compiled by the researcher through primary research

5.2 Result for Hypothesis 1

The asymptotic significance for the respective Z values should be less than 5% (0.05%) for all the paired statements at 95% level of confidence to reject the null hypothesis. The asymptotic value is computer generated through SPSS statistical software, and hence it doesn't require to be compared with Z table values as in the traditional method. Since in hypothesis 1, asymptotic values for all 5 paired statements are 0 (Z values) and it is less than 0.05 at 95% level of confidence as shown in table-4, the null hypothesis **(H_0)** is rejected and the alternative hypothesis **(H_1)** is accepted. This implies that there is a difference in the level of savings indicators before and after SHG-BLP and as a result there found to be a financial inclusion. The research objective or question 1 intends to know the level of FI using 5 FIIs. The interpretation of hypothesis 1 answers the same for the first indicator, i.e. savings. It means that financial inclusion has taken place through SHG-BLP as far as savings indicator is concerned since hypothesis I is rejected. Similarly, the remaining hypotheses from 2 to 5 are tested to comply with research objective or question 1.

5.3 Hypotheses 2 to 5

The data that have been compiled for validating hypothesis 1 from table-1 to table-4 and descriptive statistics, such as mean, standard deviation, percentiles etc. have also been calculated for other FIIs, namely credit, suitability, affordability and adequacy and all the hypotheses from 2 to 5 are put on similar test. But due to vast calculations and space constraint only final interpretation is given. However, the data is retained by the researcher for reference.

5.4 Result for Hypotheses 2 to 5

Even in case of hypotheses 2, 3, 4 and 5 asymptotic values for all 5 paired statements found to be 0 (Z values) and these values are less than 0.05 at 95% level of confidence. Hence, all the null hypotheses **(H_0)** are rejected and the alternative hypotheses **(H_1)** are accepted. This implies that there is a difference in the level of credit, suitability, affordability and adequacy indicators of financial inclusion before and after SHG-BLP and as a result there found to be financial inclusion. The results of hypotheses 2 to 5 answers research objective or question 1 for the remaining 4 FIIs of FI. Since all the four null hypotheses have been rejected, it implies that there found to be greater FI as a result of SHG-BLP. The collective rejection of all 5 null hypotheses framed to suite the requirement of research objective or question 1, indicates a strong prevalence of financial inclusion as a result of SHG-BLP. Thus the objective 1 is completely answered. Conclusively, all the five FIIs supports strong existence of financial inclusion in the post SHG-BLP period rather than in the pre SHG-BLP period. In particular, there found to be a weak and robust financial inclusion respectively in the pre and post SHG-BLP period. Alternatively, it signifies a high level of financial inclusion as a result of SHG-BLP.

5.5 Hypothesis 6

Hypothesis 6 is validated based on ‘t’ test (Parametric) as the respondents are required to rank the relative significance of FIIs in the pre and post SHG-BLP periods. There are 8 indicators, 5 of which already mentioned in the preceding paragraphs under objective 1. The remaining indicators are awareness, accessibility and timeliness. Respondents have been asked to rank these 8 FIIs as to their relative significance in achieving greater financial inclusion in the pre and post SHG-BLP periods. The ranks given by the respondents for 8 FIIs in the pre and post SHG-BLP periods are shown in table-5. The sample test statistics required for testing hypothesis 6 is shown in table-6. The 8 indicators are represented in the form of pairs in table-6.

Table 3: Wilcoxon Signed Ranks relating to hypothesis 1 - Non Parametric				
		N	Mean Rank	Sum of Ranks
I have started to save after joining the SHG - Savings regularly even before joining SHG	Negative Ranks	26[a]	54.00	1404.00
	Positive Ranks	695[b]	372.48	258877.00
	Ties	45[c]		
	Total	766		
My savings in the SHG is regular - Savings regularly even before joining SHG	Negative Ranks	27[d]	53.50	1444.50
	Positive Ranks	693[e]	372.46	258115.50
	Ties	46[f]		
	Total	766		
I get periodic updating on my accumulated savings - Savings regularly even before joining SHG	Negative Ranks	138[g]	90.04	12426.00
	Positive Ranks	612[h]	439.87	269199.00
	Ties	16[i]		
	Total	766		
Savings provides me a reasonable assurance in times of emergency - Savings regularly even before joining SHG	Negative Ranks	33[j]	55.50	1831.50
	Positive Ranks	691[k]	377.16	260618.50
	Ties	42[l]		
	Total	766		
Amount that I am saving is not postponement of present consumption - Savings regularly even before joining SHG	Negative Ranks	33[m]	55.00	1815.00
	Positive Ranks	690[n]	376.68	259911.00
	Ties	43[o]		
	Total	766		

The values appearing in the column ‘significance’ in table-6 is the deciding factor for analysing the hypothesis. For 8 indicators’ ‘significance’ values works out to be less than 0.05 in 3 indicators and for remaining 5 indicators’ ‘significance’ values works out to be greater than 0.05. Where the ‘significance’ values are found to be lower than 0.05, the range of variation is just below 0.05 or it is very close to 0.05. Hence, while judging hypothesis, this factor should be kept in mind. The ‘significance’ value for testing the ranks given by the respondents in the pre and post SHG-BLP periods for relative importance of FIIs are 0.826, 0.011, 0.959, 0.008, 0.013, 0.700, 0.052 and 0.448 for savings, credit, awareness, suitability, affordability, accessibility, adequacy and timeliness respectively as given in table-6. The ‘significance’ value of all 8 FIIs is summated to judge the hypothesis. However, it should be noted that there are minor levels of changes in the ranks given by the SHG members for financial inclusion indicators before and after SHG-BLP. These indicators include credit, suitability and affordability. It implies that SHG members have perceived that the relative significance of these variables have changed before and after SHG-BLP.

Table 4: Paired sample test for hypothesis 1 - Non Parametric Test Statistics[a]					
	I have started to save after joining the SHG - Savings regularly even before joining SHG	My savings in the SHG is regular - Savings regularly even before joining SHG	I get periodic updating on my accumulated savings - Savings regularly even before joining SHG	Savings provides me a reasonable assurance in times of emergency - Savings regularly even before joining SHG	Amount that I am saving is not postponement of present consumption - Savings regularly even before joining SHG
Z	-23.585[b]	-23.531[b]	-22.211[b]	-23.426[b]	-23.394[b]
Asy. Sig. (2-tailed)	.000	.000	.000	.000	.000
a. Wilcoxon Signed Ranks Test				b. Based on negative ranks	
Source: compiled by the researcher through primary research					

5.6 Result for Hypothesis 6

As the 'significance' value of 5 FIIs is greater than 0.05 and the 'significance' value of remaining 3 FIIs is lower than 0.05 only to the negligible extent from 0.05, at 95% level of confidence the null hypothesis **(H_0)** is accepted and alternative hypothesis **(H_1)** is rejected. Therefore, it can conclusively be inferred that there is no difference between the level of ranks given for financial inclusion indicators before and after SHG-BLP. The research objective or question 2 intends to know the changes in the significance of 8 FIIs. The interpretation of hypothesis 6 answers the same for all 8 indicators. It means that there is no change in the significance of FIIs in the pre and post SHG-BLP periods as 5 out of 8 indicators show a significance values greater than 0.05 and hence the null hypothesis is accepted. Research objective 2 is thus complied by testing hypothesis 6.

5.7 Hypothesis 7

Hypothesis 7 is tested based on the data represented in table-7. It shows collective picture of the total financial products or services offered by the financial institutions/linked banks in the pre and post SHG-BLP periods. Table-7 shows a massive growth in financial products offered to the SHG members. Table-7 directly complies with the research objective 3. The level of financial inclusion achieved in terms of financial products offered in the pre SHG-BLP period stood just at 291 as against the massive size of 4937 products in the post SHG-BLP period. It means to say, a total of 766 respondents have availed just 291 financial products before joining the SHGs, whereas the same respondents have purchased an alarming size of 4,937 financial products after joining the SHGs. The hypothesis proves the spread of data in table-7 and validates the fact that FI occurred as a result of SHG-BLP.

Table 5: Relative significance of FIIs before and after SHG-BLP

		Before SHG-BLP									After SHG-BLP								
Rank	# & %	(a) Savings	(b) Credit	(c) Awareness	(d) Suitability	(e) Affordability	(f) Accessibility	(g) Adequacy	(h) Timeliness	Total	(a) Savings	(b) Credit	(c) Awareness	(d) Suitability	(e) Affordability	(f) Accessibility	(g) Adequacy	(h) Timeliness	Total
1	#	442	259	55	0	10	0	0	0	766	492	199	55	0	20	0	0	0	766
	%	58	34	7	0	1	0	0	0	100	64	26	7	0	3	0	0	0	100
2	#	222	442	50	0	52	0	0	0	766	152	430	93	10	42	0	39	0	766
	%	29	58	6	0	7	0	0	0	100	20	56	12	1	6	0	5	0	100
3	#	52	65	101	83	465	0	0	0	766	62	98	88	83	277	99	10	49	766
	%	7	8	13	11	61	0	0	0	100	8	13	12	11	36	13	1	6	100
4	#	50	0	125	197	52	201	42	99	766	40	0	96	339	91	148	52	0	766
	%	7	0	16	26	7	26	5	13	100	5	0	13	44	12	19	7	0	100
5	#	0	0	166	77	91	240	61	131	766	0	39	106	48	108	151	183	131	766
	%	0	0	22	10	12	31	8	17	100	0	5	14	6	14	20	24	17	100
6	#	0	0	70	73	10	88	241	284	766	20	0	119	53	99	88	119	268	766
	%	0	0	9	10	1	12	31	37	100	2	0	16	7	13	11	16	35	100
7	#	0	0	51	190	45	50	329	101	766	0	0	51	140	45	93	260	177	766
	%	0	0	7	25	6	6	43	13	100	0	0	7	18	6	12	34	23	100
8	#	0	0	148	146	41	187	93	151	766	0	0	158	93	84	187	103	141	766
	%	0	0	19	19	5	25	12	20	100	0	0	21	12	11	25	13	18	100

Source: Compiled by the researcher through primary research

Table 6: Paired sample test for hypothesis 6 - Parametric

		Paired Differences							
		Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference Lower	95% Confidence Interval of the Difference Upper	t	df	Sig. 2 tailed
Pair 1	Savings by the SHG members-Before SHG - Savings by the SHG members - After SHG	-.026	3.267	.117	-.256	.205	-.220	765	.826
Pair 2	Credit lent by the linked banks - Before SHG-Credit lent by the linked banks-After SHG	-.271	2.956	.106	-.479	-.063	-2.552	765	.011
Pair 3	Awareness of the products-Before SHG-Awareness of the products -After SHG	-.006	3.520	.126	-.255	.242	-.051	765	.959
Pair 4	Suitability of products -Before SHG-Suitability of products -After SHG	.582	6.075	.218	.154	1.010	2.667	765	.008
Pair 5	Affordability of the products-Before SHG-Affordability of the products-After SHG	-.703	7.904	.284	-1.261	-.146	-2.477	765	.013
Pair 6	Accessibility of the products-Before SHG-Accessibility of the products-After SHG	.076	5.502	.198	-.312	.464	.385	765	.700
Pair 7	Adequacy of the products-Before SHG-Adequacy of the products - After SHG	.486	6.948	.250	-.003	.976	1.949	765	.052
Pair 8	Timelines of the products-Before SHG-Timelines of the products-After SHG	-.138	5.062	.182	-.495	.219	-.759	765	.448

Source: Compiled by the researcher through primary research

Table 7: financial products/services offered before and after SHG-BLP			
#	Products/services or components	offered before the SHG-BLP	offered after the SHG-BLP
1	Transaction bank account products	113	766
2	Non-transaction bank account products	27	0
3	Instalment credit products	33	1325
4	Non-instalment credit products	68	451
5	Revolving credit products/credit cards	0	0
6	Insurance and pension products	19	1508
7	Transfer/remittances products	0	0
8	Advisory services	0	669
9	Modern links/services	31	218
Total number of financial products/service availed		**291**	**4937**
Source: Compiled by the researcher through primary research			

Therefore, the incremental growth in the financial products offered as a result of SHG-BLP is 4,646 products (4937-291). Taking the base 100, when compared the pre and post SHG-BLP period, growth in financial products is close to 17 times (16.96 = 4,937/291). In terms of percentage, the growth rate stands at 1,696.56% (4937*100/291). Among the various components of banking products offered by the linked banks in the post SHG-BLM period, the most aggressively sold products or services are insurance and pension in the first place (1508), instalment credit in the second place (1325), transaction bank account (specially the savings bank account) in the third place (766) and so on. It should be noted that the financial inclusion in the form of various components of financial products and services are much confined to traditional products rather than the modern services. Hence, services such as modern links, revolving credits and, transfers/remittances have completely ignored by the SHG members.

The reason is that SHG members are basically the rural mass who indulge in agricultural activities, minor self-employment engagements in the form of petty shops, tailoring shops, small hotels etc., and wage earning categories and hence modern services have not appealed them as much as that of traditional need for credit. Moreover, there is an evidence to believe that the modern services are not even demanded by a single member before joining the SHGs. Hence it indicates that SHG members have not yet realised the importance of these services in their SHG model. That is why the number of respondents who availed these modern services (including transfers, cards etc.) is filled with zeros across the components in table-6. Hypothesis 7 considers 9 components of financial products and it tests whether there is any difference in the level of financial products or services offered before and after SHG-BLP. The ‘t’ test statistics (parametric) for hypothesis 7 is shown in table-8. For ‘t’ test, summated values of products or services offered during pre and post SHG-BLP period are considered.

Table 8: Paired sample test for hypothesis 7 - Parametric								
	Paired Differences							
	Mean	Std. Dev.	Std. Error Mean	95% Confidence Interval of the Difference	95% Confidence Interval of the Difference	t	df	Sig. 2 tailed
				Lower	Upper			
Level of financial products or services offered before SHG-BLP - Level of financial products or services offered after SHG-BLP	-6.067	2.360	.085	-6.234	-5.899	-71.138	765	.000

5.8 Result for Hypothesis 7

Since the significance value of 't' test is 0 in table-8, and it is less than 0.05 at 95% level of confidence, the null hypothesis **(H_0)** is rejected and the alternative hypothesis **(H_1)** is accepted. This implies that there is a difference in the level of financial products and services offered before and after SHG-BLP indicating the existence of financial inclusion due SHG-BLP. This interpretation answers the research objective or question 3. There found to be a significance change in the financial services availed by the SHG members as a result of SHG-BLP. Since the null hypothesis framed to comply with objective 3 has been rejected; it implies that, due to SHG-BLP the level of financial services offered to the SHG members have increased considerably.

6. Findings

The major findings with reference to the three objectives set forth earlier are; firstly, the 5 major indicators of financial inclusion have received highly unfavourable and highly favourable responses in the pre and post SHG-BLP period respectively. This indicated the fact that financial inclusion were found to be very weak in the pre SHG-BLP period and very strong in the post SHG-BLP period thereby by emphasised the point that incremental FI is very high as a result SHG-BLP. Conclusively, incremental financial inclusion is found to be high due to SHG-BLP. This finding supports the earlier studies that accentuated the permeation of FI as a result of SHG-BLP. This is an additional supplement to the existing stock of knowledge but using specific FIIs mentioned in the literature worldwide and not based on the other methods of measurement used by earlier studies such as using multi stage stratified random sampling. Secondly, The 9 FIIs have not changed their significance in the pre and post SHG-BLP periods. The ranks given by the SHG members for 9 FIIs in the pre and post SHG-BLP period do not vary to a great extent. SHG members held that the FIIs more or less maintained the same level of significance in the pre and post SHG-BLP periods. Conclusively, FIIs were given consistent significance or ranks in two different periods. The earlier studies have not highlighted this point. They have only listed the supporting and blocking factors of financial inclusion as discussed in the literature. But this study went one step ahead and concludes that, all the FIIs equally play a major role in enhancing the FI and not any one or two. If this was not the case, the finding in this study would have shown a change in the significance level of at least some of FIIs if not all.

Thirdly, the size and components of financial products offered to the SHG members during pre SHG-BLP period were very weak. But financial services offered during the post SHG-BLP period were very massive. Conclusively, incremental financial inclusion is said to be high. Majority of the studies indicated the quantum of financial products offered to SHGs have increased as a result of SH-BLP, but have not identified which are those services or products. But this finding identified the selected products that have been offered to SHGs extensively and those products which were not offered and even unaware to the SHG members.

7. Conclusion

A substantial set of FIIs mentioned in the definition of FI have found to be very strong in the post SHG-BLP period when compared to pre SHG-BLP period. The quantum of financial services offered during post SHG-BLM period is massive as compared to pre SHG-BLP period. The study in summary accentuates the robust growth of financial inclusion due to SHG-BLP. However, the significance of the FIIs found to be unchanging from pre to post SHG-BLP period. This finding provides ample scope for the further study. It is quite surprising that though there found to be strong FI in the post SHG-BLP period, study reveals an absolute insignificance being attached to FIIs from pre to post SHG-BLP periods. The data has been collected through the primary research and directly from the SHG members. In addition to the primary data, qualitative data in terms of interviews have been supplemented to authenticate the findings of the primary data. Hence originality of the data is maintained. Since 100 percent FI is the major agenda in most of the countries for both fiscal and monetary authorities world over, this finding will have particular importance in policy making. To attain inclusive growth, financial inclusion is the way out and hence special focus needs to be given to this research finding. The prior studies have not measured the individual indicators and their significance in the manner the present study captured. Moreover, a comprehensive list of the financial services as listed in the definition of FI have been made in the present study but no such systematic attempt has been done in the earlier studies. In this respect, the present study stands different and contributory. The research can be taken ahead for determining the most important FIIs, for determining their relative significance in the order of a rank and for generating special strategies to avail financial services which SHG members have neither seen nor even aware of. The sample size determined based on the statistical formula to infer these implications on the population may be questioned if there is any inherited flaws in the formula itself and the generalisation of the results may be weakened.

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