Trends in Micro Finance with SHG-Bank Linkage Model (SHG-BLM)in India during 2010-11 to 2015-16

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Abstract: The SHG- Bank Linkage Programmewas a proposed by the National Bank of Agriculture and Rural Development (NABARD) to solve failures of Indian government to reach the financial expanding to poor. In February 1992, the launching of pilot phase of the SHG- Bank Linkage Programme (SHG-BLP) could be considered as a landmark development in banking with the poor. In order to further promote this programme RBI issued instructions to banks in 1996 to cover SHG financing as a mainstream activity under their priority sector-lending portfolio. The SHG-BLM has emerged as a dominant model in terms of number of borrowers and loans outstanding. Due to widespread rural bank branch network, the SHG-BLM is very suitable to the Indian context. In this context, the present paper attempts to assess the situation of microfinance, through trend analysis of the following parameters: Saving Amount, Loan Amount and Outstanding Amount. To analyse the status of microfinance in India in terms of above indicators over the period 2010-11 to 2015-16, Compound Annual Growth Rates, Mean, Standard Deviation (SD), Coefficient of Variation (CV) and Instability Index are calculated.

I.   INTRODUCTION

According to Ghate (2007), India is home to the worldwide largest microfinance sector having grown rapidly in recent years. Two delivery models dominate the sector: The Microfinance Institution (MFI) model and the Self-Help Group (SHG) Bank Linkage Programme (SBLP). Both these models have contributed to the observed growth of the sector, but the SBLP is the more dominant model by far in terms of the number of borrowers and loans outstanding. The SBLP was a proposed by the National Bank of Agriculture and Rural Development (NABARD) to solve failures of Indian government to reach the financial expanding to poor. Their suggestion made in the early 1990s was to link formal credit sources with banks. A SHG is a homogeneous group of on average fifteen poor people that voluntarily form to save small amounts (Seibel and Dave 2002). Nabard's programme Linking Banks and Self-Help Groups aims at providing sustainable access to financial services to the rural poor, with a focus on those who had been considered unbankable (Dave and Seibel 2002).

In February 1992, the launching of pilot phase of the SHG- Bank Linkage Programme (SHG-BLP) could be considered as a landmark development in banking with the poor. In order to further promote this programme RBI issued instructions to banks in 1996 to cover SHG financing as a mainstream activity under their priority sector-lending portfolio. The programme acquired a national priority from 1999 through Government of India budget announcements. With the support from both the government and the Reserve Bank of India, NABARD successfully spearheaded the programme through partnership with various stakeholders in the formal and informal sector. Since the time of its origin, NABARD provides policy guidance, technical and promotional support mainly for capacity building of NGOs and SHGs (Singh, 2009).

SHG-Bank Linkage Model (SHG-BLM) is developed in India to provide microfinance with the help of vast rural network of the formal financial sector. In this model, the informal SHGs are credit linked with the formal financial institutions. The SHG-BLM has emerged as a dominant model in terms of number of borrowers and loans outstanding. Due to widespread rural bank branch network, the SHG-BLM is very suitable to the Indian context. The programme uses SHGs as an intermediation between the banks and the rural poor to help in reducing transaction costs for both the banks and the rural clients. In this context, the present paper attempts to assess the situation of microfinance, through trend analysis of the following parameters: Saving Amount, Loan Amount and Outstanding Amount.

II. REVIEW OF LITERATURE

Tsai(2004)explanation is banking authorities in India have attempted to limit most forms of informal finance by regulating them, banning them, and allowing certain types of microfinance institutions. Nonetheless, the intended clients of microfinance continue to draw on informal finance in both rural India. The persistence of informal finance may be traced to four complementary reasons—the limited supply of formal credit, limits in state capacity to implement its policies, the political and economic segmentation of local markets, and the institutional weaknesses of many microfinance programs. According to Satish (2005) a significant feature of microfinance in India is that it has been built upon the existing banking infrastructure. With the group acting as a collateral substitute, this model also overcomes the intractable problem of collateral provision by the poor. It has to be realised that microfinance is a means or an instrument for development, not an end in itself. To assess the extent to which Indian microfinance has been able to achieve the goal of poverty eradication.Dasgupta(2005) opinioned through Self-help group (SHG) credit that has been growing at the rate of 120 per cent per annum but growth in SHG credit has been uneven. The southern states are seen as SHG-developed states while Bihar and Madhya Pradesh are among those characterized as SHG-backward. But besides the SHG model in extending credit to weaker sections, other different models exist for extending microcredit to the poor and weaker sections.

Swain &Wallentin (2006) examined Microfinance programmes like the Self Help Bank Linkage Program in India have been increasingly promoted for their positive economic impact and the belief that they empower women. The elegance of the result lies in the fact that the group of SHG participants shows clear evidence of a significant and higher empowerment, while allowing for the possibility that some members might have been more empowered than others.Imaiet al (2010) found that loans for productive purposes were more important for poverty reduction in rural than in urban areas. However in urban areas, simple access to MFIs has larger average poverty-reducing effects than the access to loans from MFIs for productive purposes. This leads to exploring service delivery opportunities that provide an additional avenue to monitor the usage of loans to enhance the outreach. In Bateman (2012) view microcredit emerged in the 1970s as a mechanism whereby virtually all poor individuals could supposedly escape their poverty through self-help and individual entrepreneurship. Crucially, neoliberal policy-makers found the microcredit concept ideologically compelling, and the international development community soon began to provide massive support to establish and expand the microfinance movement.In fact, those rural communities most exposed to microcredit have been severely damaged in a number of ways, especially through sub-prime-style 'boom-to-bust' episodes. Mader(2013) explained reckless and unregulated growth of the Indian microfinance industry, concentrated on one state, created a drive for profitability at all costs (including human costs), and the industry's unwillingness to heed any warnings, even from well-intentioned insiders, sealed its fate. Thus, the commonly accepted story of a nefarious Andhra government preying on a healthy microfinance sector is dubious, at best.

Kumar (2014) analyzedSavings of SHGs with all the banks had increased by 25.4% as on 31st March 2013. It varies from as high of 33.2% with Commercial banks to as low as 5.4% with Co-operative banks. Commercial banks had lead in disbursement of loans to SHGs during 2012-2013 with 34.6% followed by Regional Rural Banks with a share of 11.9% and Co-operative banks with a share of 0.5%. Regional Rural Banks had the maximum share of outstanding bank loan to SHGs with a share of 22.1% followed by Co-operative banks with a share of 15.6% and commercial banks with a share of 3.2%. Inaganti&Kasturi (2015) studiedEfforts to alleviate poverty through microfinance institutions and self-help groups are hampered by increasing non-performing assets in the sector. According to NABARD's reports, the gross NPAs of commercial banks against SHGs were found to be 4.74 percent at the end of March 2011 increased to 6.83 percent by the end of March 2012. The gross NPAs of commercial banks against loans to MFIs were found at 2.17 percent by the end of March 2012 and that of regional rural banks were at 3.55 percent and that of cooperative banks at 2.19 percent. The aggregate gross NPAs in loans to MFIs was found at 2.22 percent. The trend in rising NPAs is equally affecting both the banks and non-banking microfinance institutions prompting a serious concern.Santosh et al (2016) examined in India microfinance operates through two main channels viz. a) SHG – Bank Linkage Programme (SHG-BLP) b) Microfinance Institutions (MFIs). The Self-Help Group (SHG) Bank Linkage Programme has during last two decades covered more than 10.01 crore Indian poor households, making it the largest community based microfinance programme in the world.

III. DATA AND METHODOLOGY

The study is mainly based on secondary data obtained from annual reports of NABARD on Status of Microfinance in India. . The time period we consider for this study is span of 6 years from 2010-11 to 2015-16. We calculated Compound Annual Growth Rates, Mean, Standard Deviation (SD), Coefficient of Variation (CV) and Instability for selected variables. It is the most common and widely used measure of central tendency or an average (Kothari, 2004). Standard Deviation of a set of scores is defined as the square root of the average of the squares of the deviation of each from the mean. Symbolically we can say that (Singh, 2006). The objective of

the F- test is to find out whether the estimates of variance for selected parameters differ significantly across the selected states and regions (Gupta, 2007). The Kruskal-Wallis test is a nonparametric (distribution free) test, and is used when the assumptions of ANOVA are not met. They both assess for significant differences on a continuous dependent variable by a grouping independent variable (Kanji, 2006). These two tests are employed in the study to test the statistical significance of variations across the selected regions and states.The coefficient of variation indicates the relative magnitude of the standard deviation as compared with the mean of the distribution as a percentage (Daniel et al, 2003). Instability is one of the important decision parameters in development dynamics(Krishan&Chanchal, 2014).

IV. RESULTS AND DISCUSSION

Microfinance Savings of SHGs with Banks:

Trends in the microfinance saving of regions in India during 2010-11 to 2015-16are presented in Table-1. As evident from the Tablethe regions wise distribution of microfinance saving SHGs are increasing during the study period and has varied considerably. SHGs are increased by 4.78 per cent in North Eastern Region, 1.80 per cent in Easter Region, 0.97 per cent in Western Region, 0.90 per cent in Northern Region, 0.61 per cent in Central Region and only 0.27 per cent in Southern Region. Among the six regions, North Eastern Region occupied first place with highest compound annual growth rate of SHGs followed by Easter Region, while Southern Region in last place with lowest compound annual growth rate of SHGs. Further, it also observed that in India microfinance saving SHGs increasing 0.96 per cent per year. During 2010-11 to 2015-16 growth in SHGs is stable in Southern Region with low level of coefficient of variation (2.72) and Instability (2.60) next Easter Region with coefficient of variation (5.91) and instability (5.91) while unstable in North Eastern Region with high level of coefficient of variation (12.39) and instability (10.59) followed by Central Region.To analyze Growth of saving by SHGs during 2010-11 to 2015-16 in six regions of India compound annual growth rate is taken for consideration. The maximum growth in saving amount is witnessed by Southern Region i.e., 15.16 per cent followed by Easter Region is 9.92 per cent, while minimum growth is recorded by Western Region. There is considerable growth observed in the savings of all regions of India. During 2010-11 to 2015-16 growth in saving amount is stable in Central Region with low level of coefficient of variation (15.85) and Instability (5.63) next Western Region with coefficient of variation (16.16) while unstable in North Eastern Region with high level of coefficient of variation (24.85) and instability (22.86) followed by Southern Region.

To test the statistical significance of differences across the regions regarding microfinance savings of SHGs with banks, parametric and nonparametric statistical tests are applied. Panel A and Panel B of Table–1(A) provide the results pertaining to these tests.Panel A of presents ANOVA results with the null hypothesis that the average amount of saving is the same across the regions. The null hypothesis is rejected in case of number of SHGs and saving amount of SHGs because of the calculated F- value is significant at 1% level. Hence, it can be conclude that the average saving amount of SHGs is significantly differs across the regions. Panel B of presents Kruskal Wallis Test results with the null hypothesis that the distribution of savingamountis the same across the regions. The null hypothesis is rejected in case of number of SHGs and saving amount of SHGs because of the calculated test value is significant at 1% level. Hence, it can be conclude that the distribution of saving amount is significantly differs across the regions.

From above analysis it can be found that there is positive trend in growth of SHGs those saving and the amount is saved by SHGs in all regions of India during the 2010-11 to 2015-16. The growth in number of SHGs is more stable compared to growth in amount is saved by SHGs.The distribution of saving amount is significantly differs across the regions.

	Table - 1: Progress under Microfinance Savings of SHGs with Banks Region wise during 2010-11 to 2015-16							
	Statistics	**Northern Region**	**North Eastern Region**	**Easter Region**	**Central Region**	**Western Region**	**Southern Region**	**Grand Total**
Number of SHGs	Mean	379079	349242	1552989	770039	964195	3612757	7628302
	S.D	18575	43265	91844	60134	64701	98174	266181
	CV	4.90	12.39	5.91	7.81	6.71	2.72	3.49
	CAGR	0.90	4.78	1.80	0.61	0.97	0.27	0.96
	Instability	4.85	10.59	5.87	7.39	6.69	2.60	3.32
Amount in lakh Rupees	Mean	30759	14382	165205	71608	91249	567354	940560
	S.D	7644	2446	56240	11349	14743	190873	270605
	CV	24.85	17.01	34.04	15.85	16.16	33.64	28.77
	CAGR	5.39	6.41	9.92	5.69	4.13	15.16	11.79
	Instability	22.86	14.75	16.92	5.63	10.92	8.17	8.09
Source: Appendix -1.								

Table – 1(A):Hypothesis Testing- Savings of SHGs with Banks		
Variables	**Number of SHGs Linked with Saving Amount**	**Saving Amount**
Panel A: One Way ANOVA Test H_0:the average amount of saving is the same across the regions.		
f-statistics	1935.916*	38.937*
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Panel B: Independent - Sample KruskalWallis Test H_0: the distribution of saving is the same across the regions.		
Test statistics	33.381*	33.441*
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Source: Table -1. Note: * significant at 1% level.		

Trends in the microfinance saving of southern states in India during 2010-11 to 2015-16are presented in Table - 2. As evident from the Table 4.2 the state wise microfinance saving linked SHGs are increasing in some states and decreasing in some states during the study period and has varied considerably. The maximum growth in number of SHGs is witnessed by Karnataka i.e., 9.30 per cent. The maximum decline is witnessed by Lakshadweep i.e., 52.02 per cent followed by Kerala having 9.40 per cent. Among the six states, only Karnataka has been observed positive trend in growth of SHGs while remaining state are observed negative trend during 2010-11 to 2015-16. Further, it also observed that microfinance saving linked SHGs increasing 14.60 per cent per year by all southern states together. During 2010-11 to 2015-16 growth in SHGs is not stable in Southern states.The low level of coefficient of variation (2.72) and Instability (1.99) have been recorded in Andhra Pradesh next Tamil Nadu with coefficient of variation (5.41) and instability (5.29) while unstable in Lakshadweep with high level of coefficient of variation (72.46) and instability (70.51) followed by Pondicherry.To analyze Growth of savings by SHGs during 2010-11 to 2015-16 in six Southern States of India compound annual growth rate is taken into consideration.

The maximum growth in saving amount is witnessed by Andhra Pradesh i.e., 27.57 per cent followed by Pondicherry and Karnataka with 9.06 per cent and 6.93 per cent, while minimum growth is recorded by Kerala. There is considerable decline in savings by SHGs in Lakshadweep and Tamil Nadu.During 2010-11 to 2015-16 growth in saving amount is stable in Karnataka with low level of coefficient of variation (0.16) and Instability (0.05) thenKerala with coefficient of variation (0.19) and Instability (0.06) while unstable in Pondicherry with coefficient of variation (2.06) and instability (1.90) followed byLakshadweep.

To test whether the differences in savings of SHGs across the South Indian states are statistically significant or not, two statistical tests, namely, ANOVA test and Independent - Sample Kruskal Wallis Test are applied. The results are presented in the Table - 2(A).The results of parametric and non-parametric tests as reported in Panel A and Panel B of Table above also confirm thatthere exists significant difference across the South Indian States regarding savings of SHGsbecause of the calculated test valuesare significant at 1% level. Hence, it can be conclude that the average saving amount of SHGs is significantly differs across the South Indian States. Kruskal Wallis Test resultalso supports the above conclusion that thedistribution of saving amount is significantly differs across the South Indian States.

From above analysis it can be found that there is positive trend in growth of SHGs those are saving in Andhra Pradesh only and the amount is saved by SHGs in Andhra Pradesh, Karnataka, Kerala and Pondicherryduring the 2010-11 to 2015-16.The estimated mean amount and distribution of number of SHGs and saving amount are not same across the states.

Microfinance- Loans Disbursed to SHGs through Banks:
Trends in the microfinance loans disbursed to SHGs through banks of all regions in India during 2010-11 to 2015-16 are presented in Table-3.As evident from the Table the regions wise distribution of loans linked to SHGS are increasing in all regions excluding Northern Regionand North Eastern Region during the study period and growth varied considerably among the regions. SHGs are increased by 9.56 per cent in Central Region, 8.88 per cent in Easter Region, 8.10 per cent in Southern Region and 3.42 per cent in Western Region,Further, it also observed that in India loans linked SHGs increasing 7.37 per cent per year.During 2010-11 to 2015-16 growth in SHGs is stable in Southern Region with low level of Instability (5.4) thenWestern Region with instability (13.79) while unstable in North Eastern Region with high level instability (32.53) followed by Northern Region.To analyze growth in amount disbursed to SHGs through banks during 2010-11 to 2015-16 in all regions

of India compound annual growth rate is taken for consideration. The maximum growth in loan amount is witnessed by Western Region i.e., 20.19 per cent followed by Southern Region is 18.22 per cent, while minimum growth is recorded by Northern Region. There is considerable growth observed in the loans of all regions of India excluding North Eastern Region. During 2010-11 to 2015-16, growth in loan amount is stable in Southern Region with low level of Instability (9.09) while unstable in North Eastern Region with instability (38.96).

Table – 2: Progress under Microfinance Savings of SHGs with Banks State wise during 2010-11 to 2015-16

	Statistics	Andhra Pradesh	Karnataka	Kerala	Tamil Nadu	Laksha-eep	Pondi-cherry	Total
Number of SHGs	Mean	1440280	707467	525006	920547	137	19317	4338941
	S.D	36307	138703	130736	49839	99	3590	1748477
	CV	2.52	19.61	24.90	5.41	72.46	18.58	40.30
	CAGR	-0.26	9.30	-9.40	-1.68	-52.02	-6.49	14.60
	Instability	1.99	7.99	21.85	5.29	70.51	15.69	29.45
Amount in lakh Rupees	Mean	301557	115929	53275	81163	221	15210	651055
	S.D	160844	18343	10007	39663	331	31283	372355
	CV	0.53	0.16	0.19	0.49	1.50	2.06	0.57
	CAGR	27.57	6.93	6.90	-1.33	-100.00	9.06	24.28
	Instability	0.14	0.05	0.06	0.45	1.37	1.90	0.29

Source: Appendix - 2

Table – 2 (A):Hypothesis Testing- Savings of SHGs with Banks

Variables	Number of SHGs Linked with Saving Amount	Saving Amount
Panel A: One Way ANOVA Test H_0:the average amount of saving is the same across the South Indian States.		
f-statistics	273.143*	15.284*
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Panel B: Independent - Sample KruskalWallis Test H_0: the distribution of saving is the same across the South Indian States.		
Test statistics	33.144	31.997
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**

Source:Table - 2
Note: * significant at 1% level.

To test the statistical significance of differences across the regions regarding loans disbursed to SHGs through banks, parametric and nonparametric statistical tests are applied. Panel A and Panel B of Table–3(A) provide the results pertaining to these tests.Panel A of presents ANOVA results with the null hypothesis that the average amount of disbursed is the same across the regions. The null hypothesis is rejected in case of number of SHGs linked with loan amount and amount disbursed to SHGs because of the calculated F- value is significant at 1% level. Hence, it can be conclude that the average amount disbursed to SHGs is significantly differs across the regions. Panel B of presents Kruskal Wallis Test results with the null hypothesis that the distribution of amount disbursedis the same across the regions. The null hypothesis is rejected in case of number of SHGs and amount disbursed to SHGsbecause of the calculated test value is significant at 1% level, it indicate that the distribution of saving amount is significantly differs across the regions.

From above analysis it can be found that there is positive trend in growth of SHGs linked with loans and the amount is disbursedto SHGs in all regions of India excluding Northern Region and North Eastern Region during the 2010-11 to 2015-16. The growth in number of SHGs is increasing less compared to growth in amount is disbursed to SHGs.

Table –3 : Progress under Microfinance-Bank loans disbursed of SHGs with Banks Region Wise during 2010-11 to 2015-16								
	Statistics	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total
Number of SHGs	Mean	35067	29418	282250	71880	93523	885998	1398136
	S.D	7729	13273	89115	21699	14144	172378	274512
	CV	22.04	45.12	31.57	30.19	15.12	19.46	19.63
	CAGR	-1.80	-6.63	8.88	9.56	3.42	8.10	7.37
	Instability	21.99	32.53	17.41	17.34	13.78	5.54	7.35
Amount in lakh Rupees	Mean	37457	24305	213922	82227	100171	1884491	2342574
	S.D	7228	12195	98259	25836	47292	687753	829616
	CV	19.30	50.18	45.93	31.42	47.21	36.50	35.41
	CAGR	4.19	-6.12	13.68	11.87	20.19	18.22	16.98
	Instability	16.10	38.96	27.86	17.30	23.18	9.09	8.89
Source: Appendix- 3.								

Table – 3(A) Hypothesis Testing- Savings of SHGs with Banks		
Variables	**Number of SHGs Linked to Loan Amount**	**Loan Amount Disbursed**
Panel A: One Way ANOVA Test H_0:the average amount of disbursed is the same across the regions.		
f-statistics	103.599	40.038
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Panel B: Independent - Sample KruskalWallis Test H_0: the distribution of disbursed amount is the same across the regions.		
Test statistics	32.453	32.171
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Source: Table -3. Note: * significant at 1% level.		

Trends in the loans disbursed to SHGs through banks in southern states during 2010-11 to 2015-16 are presented in Table-4. As evident from the Table, the maximum growth in number of SHGs is witnessed by Karnataka i.e., 20.85 per cent. The maximum decline is witnessed by Lakshadweep i.e., 100.0 per cent. Among the six states, Karnataka, Andhra Pradesh and Kerala have been observed positive trend in growth of SHGs while remaining state are observed negative trend during 2010-11 to 2015-16. Further, it also observed that microfinance loans linked SHGs increasing 8.10 per cent per year by all southern states together. During 2010-11 to 2015-16 growth in SHGs is not stable in Southern states. The low level of coefficient of variation (12.25) and Instability (6.01) have been recorded in Andhra Pradesh followed byKerala with coefficient of variation (16.40) and instability (9.95) while unstable in Pondicherry with high level of coefficient of variation (144.05) and instability (79.29) followed by Karnataka.To analyze Growth of loans disbursed to SHGs during 2010-11 to 2015-16 in six Southern States of India compound annual growth rate is taken into consideration. The maximum growth in saving amount is witnessed by Karnataka i.e., 28.75per cent followed by Andhra Pradesh and Tamil Nadu with 18.83per cent and 11.17per cent respectively, while minimum growth is recorded by Kerala. There is considerable decline in loans in Lakshadweep and Pondicherry.During 2010-11 to 2015-16 growth in loans are stable in Kerala with low level of coefficient of variation (26.78) and Instability (8.80) then Tamil Nadu with coefficient of variation (32.08) and Instability (12.63) while unstable in Lakshadweep with coefficient of variation (182.57) and instability (118.46) followed by Karnataka.

To test whether the differences in amount disbursedto SHGs across the South Indian states are statistically significant or not, two statistical tests, namely, ANOVA test, and Independent - Sample KruskalWall is Test are applied. The results are presented in the Table-4(A).The results of parametric and non-parametric tests as reported in Panel A and Panel B of Table above also confirm that there exists significant difference across the South Indian States regarding amount disbursed to SHGs because of the calculated test values are significant at 1% level. Hence, it can be conclude that the average amount disbursed to SHGs is

significantly differs across the South Indian States. Kruskal Wallis Test result also supports the above conclusion that the distribution of amount disbursed is significantly differs across the South Indian States.

From above analysis it can be found that there is positive trend in growth of loans linked SHGs in Karnataka, Andhra Pradesh and Keralaand growth of loan amount in Karnataka, Andhra Pradesh and Tamil Nadu during the 2010-11 to 2015-16. The estimated mean amount and distribution of number of SHGs and amount disbursed are not same across the states.

	Statistics	Andhra Pradesh	Karnataka	Kerala	Laksha-dweep	Tamil Nadu	Pondi-cherry	Total
Number of SHGs	Mean	483211	167703	66748	4	165142	3189	1071472
	S.D	98331	76296	10946	6	20229	1358	375921
	CV	20.35	45.49	16.40	144.05	12.25	42.58	35.08
	CAGR	9.30	20.85	1.44	-100.00	-1.93	-16.03	8.10
	Instability	16.98	35.33	9.95	79.29	6.01	10.60	8.81
Amount in lakh Rupees	Mean	1124559	322162	107583	2	324016	6170	2043898
	S.D	395232	192833	28811	3	103946	2163	793205
	CV	35.15	59.86	26.78	182.57	32.08	35.05	38.81
	CAGR	18.83	28.75	10.38	-100.00	11.17	-12.95	18.22
	Instability	14.49	16.93	8.80	118.46	12.63	16.63	6.14

Table – 4: Progress under Microfinance-Bank loans disbursed of SHGs with Banks State Wise during 2010-11 to 2015-16

Source: Appendix - 4.

Table – 4(A): Hypothesis Testing- Loan Amount of SHGs with Banks

Variables	Number of SHGs Linked with Loan Amount	Amount Disbursed
Panel A: One Way ANOVA Test		
H_0:the average amount disbursed is the same across the South Indian States.		
f-statistics	73.040*	31.364*
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Panel B: Independent - Sample KruskalWallis Test		
H_0: the distribution of amount disbursed is the same across the South Indian States.		
Test statistics	33.093*	32.661*
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**

Source:Table - 4.
Note: * significant at 1% level.

Microfinance Outstanding of SHGs:

Trends in the microfinance outstanding of SHGs through banks of all regions in India during 2010-11 to 2015-16 are presented in Table-5. As evident from the Table the regions wise SHGs have outstanding with banks are increasing in all regions excluding Western Region and Southern Region during the study period and growth varied considerably among the regions. SHGs are increased by 3.25 per cent in Central Region, 0.62 per cent in Northern Region, 0.38 per cent in Easter Region and 0.09 per cent in North Eastern Region.Further, it also observed that in India SHGs have outstanding with banksare decreasing0.40 per cent per year. During 2010-11 to 2015-16 growth in SHGs is stable in Western Region with low level of Instability (2.66) then Central Region with instability (4.17) while unstable in North Region with high level instability (14.79) followed by North Eastern Region. To analyze growth in outstanding amount of SHGs with banks during 2010-11 to 2015-16 in all regions of India compound annual growth rate is taken for consideration.The maximum growth in loan amount is witnessed by Southern Region i.e., 12.03 per cent followed by Easter Region is 8.97 per cent, while minimum growth is recorded by Central Region. There is considerable growth observed in the loans of all regions of India. During 2010-11 to 2015-16, growth in loan amount is stable in Southern Region with low level of Instability (4.18) while unstable in North Region with instability (14.11).

To test the statistical significance of differences across the regions regarding microfinance outstanding of SHGs with banks, parametric and nonparametric statistical tests are applied. Panel A and Panel B of Table – 5(A) provide the results pertaining to these tests.Panel A of presents ANOVA results with the null hypothesis

that the average amount of outstanding is the same across the regions. The null hypothesis is rejected in case of number of SHGs have outstanding and amount outstanding because of the calculated F- value is significant at 1% level. Hence, it can be conclude that the average amount outstanding with SHGs is significantly differs across the regions. Panel B of presents Kruskal Wallis Test results with the null hypothesis that the distribution of amount outstanding is the same across the regions. The null hypothesis is rejected in case of number of SHGs and amount outstanding with SHGs because of the calculated test value is significant at 1% level, it indicate that the distribution of outstanding amount is significantly differs across the regions.

From above analysis it can be found that there is positive trend in growth of SHGs have outstanding with banksin all regions excluding Western Region and Southern Region. Outstanding amount of SHGs with banks has observed positive trend all regions of India. The growth in number of SHGs is increasing less compared to growth in outstanding amount of SHGs.

	Statistics	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total
Table – 5:Progress under Microfinance Outstanding of SHGs with Banks Region wise during 2010-11 to 2015-16								
Number of SHGs	Mean	181777	141928	1048452	394449	283265	2438593	4488463
	S.D	27491	14914	63369	40588	21476	167200	213258
	CV	15.12	10.51	6.04	10.29	7.58	6.86	4.75
	CAGR	0.62	0.09	0.38	3.25	-3.36	-1.03	-0.40
	Instability	14.79	9.41	5.79	4.17	2.66	6.56	4.72
Amount in lakh Rupees	Mean	117359	80765	542054	266687	162333	3139613	4308811
	S.D	20635	11258	105134	20092	32737	814688	968061
	CV	17.58	13.94	19.40	7.53	20.17	25.95	22.47
	CAGR	4.25	4.10	8.97	3.43	8.51	12.03	10.59
	Instability	14.11	13.92	7.33	6.73	4.28	4.18	3.69
Source:Appendix– 5								

Variables	Number of SHGs have Outstanding Amount	Outstanding Amount
Table –5(A) Hypothesis Testing- Savings of SHGs with Banks		
Panel A: One Way ANOVA Test H₀:the average amount of outstanding is the same across the regions.		
f-statistics	816.824*	76.324*
p-value	0.000	0.000
Inference	**Rejected H₀**	**Rejected H₀**
Panel B: Independent - Sample KruskalWallis Test H₀: the distribution of outstanding amount is the same across the regions.		
Test statistics	33.670*	33.643*
p-value	0.000	0.000
Inference	**Rejected H₀**	**Rejected H₀**
Source:Table -5. Note: * significant at 1% level.		

Trends in the outstanding amount of SHGs with banks in southern states during 2010-11 to 2015-16 are presented in Table-6. As evident from the Table, the positive growth in number of SHGs is witnessed by Karnataka i.e., 16.53 per cent. The maximum decline is witnessed by Lakshadweep i.e., 27.70 per cent. Among the six states, only Karnataka has been observed positive trend in growth of SHGs while remaining state are observed negative trend during 2010-11 to 2015-16.Further, it also observed that SHGs which are having outstandingare increasing 9.53 per cent per year by all southern states together. During 2010-11 to 2015-16 growth in SHGs is not stable in Southern states. The low level of coefficient of variation (11.19) and Instability (6.34) have been recorded in Andhra Pradesh followed by Tamil Nadu with coefficient of variation (12.07) and instability (3.95) while unstable in Lakshadweep with high level of coefficient of variation (70.20) and instability (56.38) followed by Pondicherry.To analyze Growth in outstanding of SHGs during 2010-11 to 2015-16 in six Southern States of India compound annual growth rate is taken into consideration. The maximum

growth in outstanding amount is witnessed by Karnataka i.e., 22.19 per cent followed by Andhra Pradesh and Tamil Nadu with 12.49 per cent and 5.83per cent respectively, while minimum growth is recorded by Kerala. There is considerable decline in loans in Lakshadweep and Pondicherry.During 2010-11 to 2015-16 growth in outstandingis stable in Andhra Pradesh with low level of Instability I2.68) then Tamil Nadu with Instability (5.93) while unstable in Lakshadweep with instability (54.66) followed by Pondicherry.

To test whether the differences in outstanding amount of SHGs across the South Indian states are statistically significant or not, two statistical tests, namely, ANOVA test and Independent - Sample Kruskal Wallis Test are applied. The results are presented in the Table-6(A).The results of parametric and non-parametric tests as reported in Panel A and Panel B of Table above also confirm that there exists significant difference across the South Indian States regarding outstanding amount of SHGs because of the calculated test values are significant at 1% level. Hence, it can be conclude that the average outstanding amount of SHGs is significantly differs across the South Indian States. Kruskal Wallis Test result also supports the above conclusion that the distribution of outstanding amount is significantly differs across the South Indian States.

From above analysis it can be found that there is positive trend in growth of SHGs which have outstanding with banks in Karnataka only and positive trend has observed in outstanding amount in all Southern States excluding union territories during the 2010-11 to 2015-16. We note that the null hypothesis is rejected in case of number of SHGs and outstanding amount, indicating that the estimated mean amount and distribution of number of SHGs and outstanding amount are not same across the states.

Table – 6: Progress under Microfinance Outstanding of SHGs with Banks State wise during 2010-11 to 2015-16

	Statistics	Andhra Pradesh	Karnataka	Kerala	Laksha-dweep	Tamil Nadu	Pondi-cherry	Total
Number of SHGs	Mean	1389361	399747	154989	15	484527	9954	2793494
	S.D	155507	151463	23000	11	58469	4296	934236
	CV	11.19	37.89	14.84	70.20	12.07	43.16	33.44
	CAGR	-4.37	16.53	-0.03	-27.70	-4.60	-6.84	9.53
	Instability	6.34	13.56	14.53	56.38	3.95	38.65	27.76
Amount in lakh Rupees	Mean	1976731	438795	185058	5	528446	10579	3373146
	S.D	530479	193646	26869	4	80072	4092	1283482
	CV	26.84	44.13	14.52	72.66	15.15	38.68	38.05
	CAGR	12.49	22.19	5.20	-20.63	5.83	-7.74	17.41
	Instability	2.68	14.77	8.02	54.66	5.93	29.36	15.08

Source: Appendix – 6.

Table – 4.6 (A) Hypothesis Testing- Outstanding Amount of SHGs with Banks

Variables	Number of SHGs Linked with Outstanding Amount	Outstanding Amount
Panel A: One Way ANOVA Test		
H_0:the average outstanding amount is the same across the South Indian States.		
f-statistics		
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**
Panel B: Independent - Sample KruskalWallis Test		
H_0: the distribution of outstanding amount is the same across the South Indian States.		
Test statistics	33.093*	32.661*
p-value	0.000	0.000
Inference	**Rejected H_0**	**Rejected H_0**

Source: Table – 6.
Note: * significant at 1% level.

V. CONCLUSION

From thestudy it can be found that there is a positive trend in growth of SHGs those are saving and the amount is saved by SHGs in all regions of India during the 2010-11 to 2015-16. The growth in number of SHGs is more stable compared to growth in amount is saved by SHGs.The distribution of saving amount is significantly differs across the regions. In the case states, there is positive trend in growth of SHGs those are saving in Andhra Pradesh only and the amount is saved by SHGs in Andhra Pradesh, Karnataka, Kerala and

Pondicherryduring the 2010-11 to 2015-16.The estimated mean amount and distribution of number of SHGs and saving amount are not same across the states.

As regard to loan amount it can be found that there is positive trend in growth of SHGs linked with loans and the amount is disbursedto SHGs in all regions of India excluding Northern Region during the 2010-11 to 2015-16. The growth in number of SHGs is increasing less compared to growth in amount is disbursed to SHGs. From thestudy it can be found that there is positive trend in growth of loans linked SHGs in Karnataka, Andhra Pradesh and Keralaand growth of loan amount in Karnataka, Andhra Pradesh and Tamil Nadu during the 2010-11 to 2015-16. The estimated mean amount and distribution of number of SHGs and amount disbursed are not same across the states.

Further, the study found that there is positive trend in growth of SHGs have outstanding with banksin all regions excluding Western Region and Southern Region. Outstanding amount of SHGs with banks has observed positive trend all regions of India. The growth in number of SHGs is increasing less compared to growth in outstanding amount of SHGs. For states, there is positive trend in growth of SHGs which have outstanding with banks in Karnataka only and positive trend has observed in outstanding amount in all Southern States excluding union territories during the 2010-11 to 2015-16. In case of number of SHGs and outstanding amount, indicating that the estimated mean amount and distribution of number of SHGs and outstanding amount are not same across the states.

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Appendix

Appendix – 1: Progress under Microfinance Savings of SHGs with Banks Region Wise during 2010-11 to 2015-16

Region/ Year	Number of SHGs							Amount in lakh Rupees						
	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total
2010-11	372772	324739	1527618	786436	960921	3489460	7461946	32857	13104	140837	60338	82901	371592	701630
2011-12	409326	366718	1625714	812767	1062087	3683737	7960349	25277	15252	94726	61358	87194	371335	655141
2012-13	372837	323896	1471099	702198	906016	3541505	7317551	29119	13011	139326	62422	69586	508263	821725
2013-14	365208	316299	1468786	685929	896954	3696324	7429500	28295	12882	152655	79056	92990	623862	989741
2014-15	360858	333981	1524614	817251	941144	3719621	7697469	23992	13022	215336	82370	109123	662141	1105984
2015-16	393475	429823	1700106	815653	1018049	3545896	7903002	45014	19026	248352	84109	105704	866934	1369139

Source: Status of Microfinance in India- various issues NABARD Mumbai.

Appendix – 2: Progress under Microfinance Savings of SHGs with Banks State wise during 2010-11 to 2015-16

State / Year	Number of SHGs							Amount in lakh Rupees						
	Andhra Pradesh	Karnataka	Kerala	Tamil Nadu	Laksha-dweep	Pondi-cherry	Total	Andhra Pradesh	Karnataka	Kerala	Tamil Nadu	Laksha-dweep	Pondi-cherry	Total
2010-11	1466225	564545	493347	943098	164	22081	3489460	130780	96503	42144	99724	10	2431	371592
2011-12	1495904	628643	615714	925392	171	17913	3683737	149016	100213	41371	16830	12	79040	371335
2012-13	1421393	645695	581325	873012	27	20053	3541505	254179	115619	51759	84967	7	1732	508263
2013-14	1418676	709171	601325	942469	229	24454	3696324	349962	108757	56942	105145	649	2406	623862
2014-15	1395692	734304	585471	987282	231	16641	3719621	361711	130241	64524	103457	648	1558	662141
2015-16	1443792	962446	272859	852034	2	14763	7903002	563692	144242	62907	92003	0	4090	1369139

Source: Status of Microfinance in India- various issues NABARD Mumbai.

Appendix – 3: Progress under Microfinance-Bank loans disbursed of SHGs with Banks Region Wise during 2010-11 to 2015-16

Region/ Year	Number of SHGs							Amount in lakh Rupees						
	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total
2010-11	42493	39307	247624	48734	91954	726022	1196134	37752	32096	161950	60755	62591	1099629	1454773
2011-12	30751	51003	201201	58460	101044	705419	1147878	33543	45129	162406	70937	75286	1266176	1653476
2012-13	31285	25168	182823	64180	70429	845936	1219821	34230	18022	129019	69889	70994	1736383	2058536
2013-14	23918	16201	297478	66393	87846	874585	1366421	28048	12819	151067	61806	86444	2061550	2401736
2014-15	43848	18791	351800	109231	97341	1005227	1626238	42873	15795	329602	110909	117080	2141972	2758231
2015-16	38106	26037	412576	84282	112525	1158797	1832323	48298	21969	349489	119067	188632	3001235	3728690

Source: Status of Microfinance in India- various issues NABARD Mumbai.

Appendix – 4: Progress under Microfinance-Bank loans disbursed of SHGs with Banks State Wise during 2010-11 to 2015-16

State / Year	Number of SHGs							Amount in lakh Rupees						
	Andhra Pradesh	Karnataka	Kerala	Laksha-dweep	Tamil Nadu	Pondi-cherry	Total	Andhra Pradesh	Karnataka	Kerala	Lakshad-weep	Tamil Nadu	Pondi-cherry	Total
2010-11	367420	90342	72761	14	191469	4016	726022	620919	137435	77769	7	255622	7877	1099629
2011-12	378526	87943	55242	8	179902	3798	705419	817142	162949	85415	1	193292	7377	1266176
2012-13	484292	145733	60830	1	150586	4490	845936	1116440	229941	89892	1	291610	8499	1736383
2013-14	504351	175778	55281	1	135269	3905	1366421	1332482	296402	107255	0	319281	6130	2401736
2014-15	538303	225031	77106	0	163268	1519	1626238	1111776	480337	144477	0	401673	3708	2758231
2015-16	626373	281389	79268	0	170359	1408	1158797	1748597	625908	140688	0	482616	3427	3001235

Source: Status of Microfinance in India- various issues NABARD Mumbai.

Appendix – 5: Progress under Microfinance Outstanding of SHGs with Banks Region Wise during 2010-11 to 2015-16

Region / Year	Number of SHGs							Amount in lakh Rupees						
	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total	Northern Region	North Eastern Region	Easter Region	Central Region	Western Region	Southern Region	Grand Total
2010-11	149108	150021	1105533	358872	316821	2706408	4786763	90314	69525	420255	236540	124623	2180859	3122117
2011-12	212041	159416	985329	352452	289472	2355732	4354442	117828	99327	462980	278029	136378	2539459	3634000
2012-13	213955	143660	1020656	362521	295451	2415191	4451434	116068	79676	553813	277685	146752	2763536	3937530
2013-14	183929	124569	978960	419834	269008	2221038	4197338	110064	75380	494463	269666	164046	3179133	4292752
2014-15	176904	123041	1069329	438216	270718	2389972	4468180	153970	72209	617046	248614	198739	3863968	5154546
2015-16	154724	150860	1130902	434797	258119	2543219	4672621	115907	88473	703767	289590	203462	4310725	5711923

Source: Status of Microfinance in India- various issues NABARD Mumbai.

Appendix – 6: Progress under Microfinance Outstanding of SHGs with Banks State Wise during 2010-11 to 2015-16

State/ Year	Number of SHGs							Amount in lakh Rupees						
	Andhra Pradesh	Karnataka	Kerala	Laksha-dweep	Tamil Nadu	Pondi-cherry	Total	Andhra Pradesh	Karnataka	Kerala	Laksha-dweep	Tamil Nadu	Pondi-cherry	Total
2010-11	1693792	252613	178211	14	574385	7393	2706408	1336912	224612	157275	6	452624	9430	2180859
2011-12	1400995	266978	159843	35	514203	13678	2355732	1534172	346988	177923	12	463927	16437	2539459
2012-13	1356720	379305	153336	12	511859	13959	2415191	1748105	329358	167828	3	504018	14224	2763536
2013-14	1306076	337196	117303	15	446671	13777	2221038	2114104	391584	170526	4	492452	10464	3179133
2014-15	1283410	529953	143358	14	427153	6084	2389972	2418684	592752	223672	4	621755	7101	3863968
2015-16	1295174	632437	177880	2	432893	4833	4672621	2708406	747475	213125	1.5	635902	5816	5711923

Source: Status of Microfinance in India- various issues NABARD Mumbai.

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