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Rural Credit: Can We Make it More Inclusive?

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Abstract

Exclusion from institutional rural credit network has been on at least three fronts: geography, gender and farm households. This paper discusses these three variants of exclusion, interventions and policies that were implemented over the decades, progress report so far and way forward. Credit has been oft reported constraint for farmers. Access to credit is not uniform across geographies, farm households, and gender. Small farmers need more outside funds for their farming and family expenditure due to lower savings and, ironically, they have restricted access to credit. It was argued during late 1980s, using data on distribution of credit and landholding area across farm size categories, that there was an institutional bias in favour of small and marginal farmers as the share of small farmers in credit exceeded their share in operational area. It goes to the credit of successive institutional efforts, following multi-agency approach, starting from cooperative movement, nationalization of banks in two batches, establishment of Regional Rural Banks (RRBs), Self-help Groups (SHGs), Joint Liability Groups (JLGs), new generation institutions such as Micro-Finance Institutes (MFIs) and Small Finance Banks (SFBs) topped by directed credit policy driven by Priority Sector Guidelines issued by Reserve Bank of India (RBI) from time to time. Lower credit penetration in geographies like North Eastern region, Eastern and Central regions is well known. Some of the initiatives take for inclusion such as SHG-Bank linkage programme has been more successful in Southern and Western regions who have higher share in total credit. Infrastructure bottlenecks such as poor road network, lack of irrigation facilities, poor communication network, etc. could have played major role. Even among the well-developed regions of the country, small and marginal farmers are disadvantaged in terms of credit access. Access to institutional credit remains poor with hardly 20% of the 12.56 crore small and marginal farmers. Tractor financing and the like are mostly through NBFCs and we hardly have any evidence to understand the inter-farm size equity in credit dispensation from these agencies. Tenants who dominant the agriculture space are hardly included in the institutional credit system. Though banks and MFIs have supported rural people through SHG and JLG-modes, the total credit disbursed is hardly 5% of the annual ground level credit purveyed. Thus, most rural people have availed loans from informal sources including private moneylenders which often comes at high rates of interest. Among the rural people, access of women to credit has been low and insignificant. Importantly, we hardly have any hard data on credit to women. While a lot of efforts went into linking women to banks through SHGs under the programmes of NABARD and Ministry of Rural Development (MoRD), the progress is yet to be impactful. The problem of exclusion is very difficult to address as the marginal cost of reaching out to new clients will be much higher for the financing institutions. And, these clientele groups need small ticket loans. Infrastructure creation, leveraging digital technology for internet/mobile banking, digital payment system, *etc*., innovative credit products to suit the low-end clientele are some of the ways around the problem.

Key words: Disparity in credit distribution; Herfindahl Index; Panel regression; Gender gap.

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1. Introduction

The relationship between agriculture credit and development in agriculture sector from a macro perspective is captured in various studies. Multiple studies have documented positive relationship between the credit and development of the sector (Demetriades and Hussein, 1996; Arestis and Demetriades, 1997; Khan, 2001; Rajan and Zingales, 2003). Over the period of time discussion on rural credit and development has evolved to incorporate various dimensions like accessibility, productivity, and disparity in credit distribution.

Credit is a critical facilitator that enables adoption of technology, and higher input use in agriculture as well as an effective means of rural development. Various agencies, including commercial bank, regional rural bank (RRBs), co-operatives, small finance banks (SFBs), NBFCs, micro-finance institutions (MFIs) and indigenous bankers together form the rural credit delivery system in India. Since independence government of India (GoI), RBI and other financial institutions are trying to minimise the share of non-institutional credit in agriculture. Over the years, multiple committees have been formed to recommend ways to increase the institutional credit in agriculture and rural areas. These include the R. V. Gupta Committee on Agricultural Credit through Commercial Banks, Vikhe Patil Committee on Co-operatives, V.S. Vyas Advisory Committee on Flow of Credit to Agriculture, and A. Vaidynathan Task Force on Revival of Co-operative Credit Institutions. The GoI has accepted most of the recommendations and brought reforms suggested by these committees. In this direction several initiatives have been taken time to time, *e.g*., accepting Rural Credit Survey Committee Report (1954), nationalisation of the commercial banks in 1969 and 1980, establishment of RRBs (1975), establishment of National Bank for Agriculture and Rural Development (NABARD) (1982), *etc.*

Apart from institutional changes, GoI, RBI and NABARD have brought multiple schemes to increase credit penetration in agriculture like establishment of Lead Bank Scheme, provision of priority sector lending, self-help group – bank linkage programme (SHG-BLP), lending to joint liability group, kisan credit card scheme, Rural Infrastructure Development Fund (RIDF),*etc*. to increase credit penetration in rural area. After the formation of NABARD, credit flow to agriculture sector has gone up significantly. Total credit flow in agriculture was just ₹4,352 crore in 1982-83 which has increased to ₹15,58,831 crore.

However, despite significant jump in credit flow to agriculture sector, disparity in credit distribution is observed on three front, regional, gender and farm landholding. Empirical data suggest that Southern region get almost half of the total agriculture credit flow and reach of institutional agencies have remained poor to the small and marginal farmers.

The significant growth and coverage of the MFIs in the country since new economic reforms plus the implementation of Interest Subvention Scheme or KCC scheme have also failed to cover many credit starved region, as evident from the regionally skewed distribution credit disbursement. For example, NER comprising of seven sister states and Sikkim, account for 8 percent of total national area, 3.7 percent of total population and 4.3 percent of net sown area, the share of ground level credit in agricultural has remained just 1.1 percent in 2020-21, despite overall CAGR of agriculture credit at the national level is in double digit during the period from 2013-14 to 2020-21 (NABARD).

Also, empirical evidence suggests that share of female farmers in the total agriculture credit flow is miniscule. For a scientific and empirical analysis of agriculture credit delivery,

it is important to examine disparity in credit distribution at micro level to distinguishing characteristics of the agricultural and rural households. Small farmers need more outside funds for their farming and family expenditure due to lower savings and, ironically, they have restricted access to credit. It was argued during late 1980s, using data on distribution of credit and landholding area across farm size categories, that there was an institutional bias in favour of small and marginal farmers as the share of small farmers in credit exceeded their share in operational area. Due to lack of access to formal credit, marginalised and weaker sections of society, women, small farmers *etc*. are forced to borrow from indigenous banker and exhaust their small savings. This has put many female household and small and marginal farmers in vicious circle of poverty, unemployment, and income inequality. This analysis would be useful in understanding the reasons for disparity in agriculture credit flow. This will also help in reorienting the agriculture credit policies and programmes for a better impact.

The observation that accessibility of finance is more acute underdeveloped region when compared to the developed region developed regions required a micro look at the underlying causes of credit distribution across states in developing economies like India. Against these backdrops, this study is undertaken to assess (i) Regional disparity in credit distribution, (ii) factor affecting the regional disparity in distribution of credit, (iii) gender-based disparity in agriculture credit distribution and (iv)disparity in credit distribution based on farm landholding.

The paper has been divided into six sections. The following section provides literature review. Section 3 gives brief description of data and the methods of analysis. Section 4 gives an overview of the performance of agriculture credit flow in last decade. Section 5, discuss about the findings of statistical analysis. Conclusion and policy implication are discussed in the last section.

2. Review of Literature

(Aportela, 1999) suggests that access of financial services increases savings, consumption and high investment (Dupas and Robinson, 2009). While lack of access to financial services may lead to a vicious circle of poverty and increase in the inequality (Banerjee and Newman, 1993; Galor and Seira, 1993; Aghion and Bolton, 1997; Beck *et al*, 2007). Many studies have shown that the level of financial inclusion inevitably rises in response to prosperity and declining inequalities (Sarma, 2008; Rajesh and Das, 2019). (Kumar *et al*., (2010), highlighted that the institutional credit has been conceived to play a pivotal role in the agricultural development of India. The empirical studies have highlighted that large number of institutional agencies are involved in the disbursement of credit to agriculture. However, the persistence of money lenders in the rural credit market is still a major concern.

Modern empirical studies confirm that economic development is not possible without credit(King and Levine, 1993; Levine *et al.,* 2000 and Beck and Levine 2004). Hulme and Mosely (1996) highlighted in their study that credit could be the important tool against urban and rural poverty as it helps to create long term asset to those who do not have capacity to finance large investment through their savings. However, many small and marginal farmers, people from marginalised section and small-scale entrepreneurs are deprived of access to credit in emerging countries like India, which is evident from a much lower CD ration per 1000 adults. Worldwide studies by various agencies have indicated that developed economies have the largest number of loans per 1000 people. Shetty (1997) highlighted that credit absorptive capacity of economy is one of the important instruments to achieve high ground

level credit flow. Credit absorptive capacity depends upon the infrastructure development, transportation facilities, banking infrastructure, public expenditure etc. World-wide as well as in India not many attempts have made to measure the disparity in the distribution of ground level credit in agriculture.

In this milieu, the present study has examined the performance of agricultural credit flow and has identified the determinants of increased use of institutional credit at the farm household level in India. The study based on the secondary data has revealed that the institutional credit to agriculture in real terms has increased tremendously during the past four decades. The structure of credit institutions has witnessed a substantial change and commercial banks have arisen as the major contributor in institutional credit in recent years. The quantum of institutional agri-credit availed by the farmers is affected by various socio-demographic factors such as education, landholding, family size, caste, gender, *etc*. The study has suggested that reduction in procedural complications may lead simplification of the procedure for a better access to agricultural credit of smallholders and less educated/illiterate farmers. Satyasai (2012) in his findings brought out that inequalities in the distribution of number of loans vis-à-vis operational holdings have increased over time. Chavan (2020) highlights that gender gap in credit access is significantly high.

3. Data and Methods

In this paper, the term "ground level credit" implies the total credit disbursement in agriculture at the end of the financial year. We employed the secondary data on state-wise distribution of number of credit accounts and amount of credit disbursement by various agencies during 2009-10 to 2020-21. This decade represents period of intensive policy-push through various measures to increase GLC in agriculture. Secondary data sourced from government/authentic reports published by the RBI, `Registrar General and Census Commissioner of India, the National Statistical Office and NABARD. All the 29 States (including united J and K as state)data have been included in the analysis. Union Territories are excluded due to their special features which are likely to affect the comparability of datasets.

Herfindahl Geographic Concentration Index

Ellison and Glaeser (1997), reformulated the original Herfindahl index to calculate geographical concentration index. The Herfindahl index is the one of the most used indices to measure geographic concentration (Spieza, 2002). This index takes into account differences in the gross cropped area. The formula appears as follows:

$$EG = \sum_{i=1}^{n} (Y_i - a_i)^2$$

where Y_i is the credit proportion of region/state, n stands for the number of regions/states being compared; and a_i is the gross cropped area of region i as a proportion of the total gross cropped area. If the credit share of each region equals its relative area, then there is no concentration and EG equals 0 indicating no regional disparity.

The EG index is the sum of all n squares for the entire nation. It shows the extent of credit disparity in agriculture among n states. Each of these squares would be a decimal number or a fraction, and the EG index is also most likely to be a decimal or fractional

number. Thus, to apply this formula to calculate the proportion of regional disparity that is contributed to the total by each state, the ratio of the square to EG is used. The formula would appear as follows:

$$(Y_i - a_i)^2/EG$$

Theil's Index

To get deeper understanding of regional disparity in ground level credit (GLC) distribution, weighted Theil's Index (*T*) has also been calculated. Theil's index measures inequality among 'm' regions using the formula given below (Conceição and Ferreira, 2000).

$$T = \sum_{i=1}^{m} w_i \, Log \frac{W_i}{n_i}$$

where,

w_i: Share of the *i*th state in agriculture credit to total agriculture flow in agriculture,

n_i: Share of the *i*th state in gross cropped area to total gross cropped area,

m: denotes region

The Index close to zero indicates a more equitable coverage.

Credit growth convergence

Before analysing the causes for regional disparity in ground level credit across states, we made attempt to check whether growth in GLC is converging across the states over the years. β-convergence method is used to empirically investigate the disparity in credit distribution in agriculture across Indian states. The fixed effect panel regression consisted of all 29 states (Jammu & Kashmir and Ladakh as considered one state) for 2011-12 to 2020-21 with eight-year average credit growth as a dependent variable and the base period credit growth as an independent variable. The coefficient of β found positive and statistically insignificant. The finding suggests no statistical evidence of convergence of credit growth of agri-credit across states over time.

Panel regressions

Panel regression is used to understand the factor affecting disparity in the agriculture credit distribution across the states. This will help in understanding the causes of disparity which can be helpful in formulating the policy to bridge the credit gap across the states. Multi-variables are used to explain divergence in agriculture credit across states and their economic rationale discussed as well. We examine whether the high agriculture growth of a particular state helps in attracting more credit to the sector in that particular state and vice versa. Second, impact of share of gross cropped area, irrigation facility, rural road, and electricity consumption for agriculture over ground level credit in agriculture. These variables used as a proxy of higher credit absorption capacity across the states.

Further, state-wise rural bank branches are taken to represent the availability of banking infrastructure and penetration of the banking services in the states. One of the key features of

this paper is the introduction of infrastructure in rural areas as explanatory variables for agriculture credit in state. The crucial role played by infrastructure in economic development has been well established in academic literature for a long time (Hirschman, 1958 and Rostow,1960). Better infrastructure facilities like transport, communication and power help in enhancing the productivity of investment in that region, which in turn propels competitiveness.

We employ a generic panel data model with ground level credit in agriculture as a dependent variable and function of agriculture gross value added, gross cropped area, bank branches in rural area, rural CD ratio, power consumption in agriculture, fertiliser consumption and irrigation coverage as independent variables. All the explanatory variables have been suitably standardized taking into account the size of the state. The equations are:

$$Y_i = a + b_1X_{i1} + b_2X_{i2} + b_3X_{i3} + b_4X_{i4} + b_5X_{i5} + b_6X_{i6} + b_7X_{i7} + e_i$$

where Y_i = Agriculture GLC, X_{i1} = Agriculture GVA, X_{i2} = Rural Bank Branch, X_{i3} = Gross Irrigated Area, X_{i4} = Rural Electricity Consumption, X_{i5} = Gross Cropped Area, X_{i6} = Rural CD ratio, X_{i7} = Fertiliser consumption, and e_i = error term.

4. Performance of Credit Flow in Last Decade

In last one decade agriculture credit has increased by more than 3 times. During 2020-21, the institutional credit flow to agriculture sector in India was to the tune of Rs.15.58 lakh crore, including Rs.8.85 lakh crore of short-term credit and 6.73 lakh crore of long-term credit. The share of long-term credit in total institutional credit flow to agriculture has been rising steadily and exceeds 40% mark in 2018-19. The share of LT credit which stood at 22.48% in 2011-12 has increased to 43.08% in 2020-21.

The declining trend seen in long term credit before 2014-15 was of concern to the policy makers as term credit purveyed to finance long term investments led to private capital formation in farm mechanisation, minor irrigation structures including pump sets, land development, orchards, farm ponds, micro-irrigation, *etc*., in the country. As we know, long term credit has been the major driver of the private sector capital formation in agriculture (PSCFA). There exists a high correlation between long term credit and private investment. This can also be seen in increasing share of private sector in Gross Capital formation in agriculture sector to 80% in 2017-18 from 56% in 1980-81. Driven by the understanding of this relationship and the fact that investment on the farm is indispensable for enhancing production as also building productive capacity on the farm, NABARD and other stakeholders made concerted efforts and the trend started reversing, reaching 43 per cent by 2020-21.

There was a year-on-year growth of 11.9 percent in the total credit flow in 2020-21, mainly on the strength of the 18.6 percent rise in the term loan whereas the y-o-y growth of short-term credit flow increased by 7.4 percent. There has been steady progress in the flow of institutional credit to agriculture sector over the years and the compound annual growth rate (CAGR) between 2010-11 and 2020-21, is 12.9 percent (Table 1), which means total credit flow has doubled in 6 years. During the period 2011-12 to 2020-21, the long-term credit, which adds to the capital formation in the agriculture and allied sector, increased at a faster rate (CAGR 20.7%) as compared to the short-term credit (CAGR 9.4%). Data is showing that term loan has doubled in less than 4 years in last decade while crop loan has doubled in almost 8 years. High growth in term loan is indication of higher capital investment

in the sector and greater mechanisation of the agriculture which may lead to higher production and productivity. Apart from increase in term loan, crop loan has also gone up significantly and helping farmers to get rid of moneylenders.

Kisan Credit Card is playing important role in increase in crop loan. Till 31st March 2019, total 1896 lakh kisan credit card issued which helped in increasing the cheap institutional credit to masses. GoI started Kisan Credit Card (KCC) saturation drive for publicity and awareness campaigns across districts to cover all beneficiaries under the Pradhan Mantri Kisan Samman Scheme to increase credit penetration throughout the country.

Table 1: Ground level credit flow to agriculture – ST / LT disbursement

Year	Short Term			LT/MT			Total GLC	
	Amount (₹ crore)	Annual growth (%)	% to total	Amount (₹ crore)	Annual growth (%)	% to total	Amount(₹ crore)	Annual growth (%)
2011-12	3,96,158	15.3	77.52	1,14,871	–15.6	22.48	5,11,029	9.1
2012-13	4,73,500	16.3	77.96	1,33,875	14.2	22.04	6,07,376	18.9
2013-14	5,48,435	13.7	75.12	1,81,687	26.3	24.88	7,30,123	20.2
2014-15	6,35,412	13.7	75.17	2,09,916	13.5	24.83	8,45,328	15.8
2015-16	6,65,313	4.5	72.67	2,50,197	16.1	27.33	9,15,510	8.3
2016-17	6,89,457	3.5	64.69	3,76,298	33.5	35.31	10,65,756	16.4
2017-18	7,53,214	9.5	64.61	4,09,402	9.9	35.39	11,62,616	9.6
2018-19	*7,52,209*	-0.1	59.85	*5,04,620*	23.3	40.15	*12,56,829*	9.1
2019-20	8,25,151	9.7	59.25	5,67,579	12.5	40.75	13,92,730	10.8
2020-21P	8,85,811	7.4	56.83	6,73,020	18.6	43.17	15,58,831	11.9
CAGR	**9.4**			**20.7**			**12.9**	
P = Provisional Data								

Source: *Handbook of state statistics and NABARD Annual Report*

With the concerted efforts of financing banks, operationalisation of Small Finance Banks, refinance support from NABARD under Long Term Rural Credit Fund (LTRCF) to RRBs and RCBs etc. the investment credit in agriculture sector has been overachieving the targets for past four consecutive years. It is heartening to note that Banks have been overachieving the long-term credit targets since 2016-17. Banks could hardly achieve 58 % of the LT target in 2012-13, however, since then the same has increased to 131% of the target in 2018-19, 117 percent in 2019-20 and 118 percent in 2020-21 of target has been achieved.

Table 2: Target and Achievement under Investment Credit (Amount in ₹ Crore)

Year	Target	Achievement	Target Achievement (%)
2011-12	1,95,000	1,14,871	59
2012-13	2,30,000	1,33,875	58
2013-14	2,00,000	1,81,687	91
2014-15	2,25,000	2,09,916	93
2015-16	2,55,000	2,50,197	98
2016-17	2,85,000	3,76,298	132
2017-18	3,20,000	4,13,530	129
2018-19	3,85,000	5,04,620	131
20-2019	4,86,675	5,67,579	117
2020-21	5,70,000	6,73,020	118

Source: *NABARD Annual Report*

4.1. Market shares of rural financial agencies in GLC

Commercial Banks have maintained their three-fourth share in the total agriculture credit and the rest about one-fourth was shared between the RRBs and RCBs. The RCBs have been steadily losing their share in GLC over time from 40 percent in 1999-2000 to 12 percent in 2020-21. Commercial Banks (CBs) enhanced their Agri-credit growth at a faster pace since 2004-05 (GoI announced doubling of credit flow) and increased their share from 53.7 percent in 1999-2000 to 75.8 per cent in 2020-21. RRBs accounted for the remaining share of 12.1 per cent in 2020-21, which is an improvement from their share of 6.9 per cent in 1999-2000. The agency wise share indicates that agriculture credit dispensation in the country is heavily dependent on commercial banks and points towards the poor credit delivery capability of RCBs and RRBs.

Table 3: Share of various agencies in total agricultural GLC(Amount in ₹ crore)

Year	Commercial Banks		RRBs		Cooperative Banks		Total GLC
	Amt.	% to total	Amt.	% to total	Amt.	% to total	Amount
1999-2000	24,836	53.7	3,172	6.9	18,260	39.5	46,268
2004-2005	81,674	65.2	12,404	9.9	31,231	24.9	1,25,309
2009-2010	2,85,800	74.3	35,217	9.2	63,497	16.5	3,84,514
2013-2014	5,27,506	72	82,653	11	1,19,963	16	7,30,122
2014-2015	6,04,376	71.5	1,02,483	12.1	1,38,469	16.4	8,45,328
2015-2016	6,42,954	70.2	1,19,261	13	1,53,295	16.8	9,15,510
2016-2017	7,99,781	75	1,23,216	11.5	1,42,758	13.5	10,65,755
2017-2018	8,77,155	75	1,40,959	12.1	1,50,389	12.9	11,68,503
2018-2019	9,54,822	76.0	1,49,666	12.1	1,52,340	12.3	12,56,829
2019-20	10,70,036	76.8	1,65,326	11.9	1,57,367	11.3	13,92,729
2020-21	11,81,558	75.8	1,89,505	12.2	1,87,769	12	15,58,831

Source: *NABARD*

The Share of term loan to total agriculture credit disbursed by RRBs during the last six years has increased from 12.8% to 16.4%. Strive for achieving the term loan targets to give boost to long term investments in agriculture, GoI has set up Long Term Rural Credit Fund (LTRCF) with NABARD for providing refinance support to RRBs and Cooperatives. The current interest rate on refinance under LTRCF is lower as compared to rate under normal refinance and this benefit may be passed on to ultimate borrowers.

Apart from SCB, RRBs and RCBs, NBFCs, micro-finance institutions and small finance banks have emerged as new force in agriculture and rural financing. Recently robust growth has been witnessed in credit disbursed by NBFCs to the agriculture sector. Credit by NBFCs have increased by CAGR of 22 % between 2015-16 to 2018-19 while the growth rate witnessed in total ground level credit to agriculture was 11% during the same period. NBFCs credit to agriculture has increased by 79 % between the years 2015-16 and 2018-19. This points towards development of deeper reach into the rural areas by the NBFCs. NBFCs also may score over banks due to their ability to provide a more hassle-free processes and better technology adoption. Small Finance Banks (SFBs) were set up in 2016 to offer basic banking services such as accepting deposits and lending to the unserved and the under-served

sections, including small businesses, marginal farmers, micro and small industries, and the unorganised sector. Small finance banks are spreading well in semi-urban areas while spread in rural areas are still slow.

5. Analysis

5.1. Regional imbalance in credit dispensation

Regional imbalance in the distribution of agriculture credit has persisted over the years. In 2020-21, Southern Region had the largest share (45.9%) followed by the Northern Region with almost half of the former (17.1%). Incidentally, the share of Southern Region in the total agriculture credit flow has increased, whereas the share of northern region has decreased from 2014-15 to 2020-21. This indicates a persistence and deeper regional imbalance of the credit flow across regions. In year 2020-21, north-eastern region has witnessed highest YoY growth of 39 percent, followed by western region (16.8%). Northern region has witnessed decline in ground level credit in agriculture by 8 percent compared to 2019-20. This will lead to further disparity in credit distribution.

The southern region has higher credit absorption capacity may be because of better infrastructure facilities, better outreach and credit availability leading to improvement in its share. Normally, low density of credit delivery outlets and weak financial health of Rural Financial Institutions could be the constraints for increasing credit flow in credit starved regions like Eastern and Central states. However, central and eastern regions account for 21 % and 19% share in rural and semi urban bank branches respectively pointing towards demand side bottlenecks in the regions.

Data further indicates that there is a growing disconnect between the real sector parameters and regional distribution of agriculture credit**.** For example, the Eastern Region has 11.7 % share in Net Sown Area and 11 per cent in NIA, but hardly accounted for 9.5 per cent of agriculture credit disbursed during the year 2019-20. In contrast, the southern region accounted for 19.6 per cent of Net Sown Area and 16.6 percent of NIA, but availed the highest share (45.9 %) of GLC disbursed during 2020-21.

Table 4: Regional distribution of agriculture credit and real sector indicators (%)

Regions	Share in total agricultural GLC (%)					Real Sector Indicators (%)		
	2018-19	2019-20	Share	YoY Growth (2020-21)	Share in Net Sown Area	Share in NIA	Share in Food grain production#	Share in rural/semi urban branches
Northern	21.7	20.4	17.1	–8.1	18.9	22.6	24.9	16.9
N.E.R.	0.9	0.8	1.1	39.3	3.27	1.0	3.0	3.7
Eastern	8.7	9.1	9.5	10.2	11.7	11.0	16.5	18.6
Central	13.7	14.1	14.4	14.1	26.6	37.7	32.5	20.9
Western	12.3	11.2	12.0	16.8	19.8	40.6	7.4	12.4
Southern	42.8	44.4	45.9	14.1	19.6	16.7	15.7	27.5
Note: (a) # denotes share for the period 2017-18 (b) Net Sown Area as per 2014-15, NIA- Net irrigated Area as per 2014-15								

Source: *Calculated based on data from MOA, RBI, SLBC and NABARD*

Table 5 shows that Kerala received highest loan per hectare (6.63 lakh) followed by Tamil Nadu (3.19 lakh) and West Bengal (2.07 lakh). In all 29 states (including united J and K), only 9 states have per hectare loan amount more than ₹ 1 lakh.

Table 5: Average disbursement per account (₹ Lakh)

States	All Farmers Accounts	Loan per hectare (NSA)
Haryana	1.9	1.76
Himachal Pradesh	1	0.73
Jammu and Kashmir	1.4	1.56
Punjab	2.2	1.96
Rajasthan	1	0.4
Arunachal Pradesh	1	0.01
Assam	0.7	0.24
Manipur	1.1	0.14
Meghalaya	0.6	0.07
Mizoram	3.3	0.32
Nagaland	0.5	0.02
Sikkim	1.2	0.18
Tripura	0.7	0.95
Bihar	0.7	0.55
Jharkhand	0.5	0.13
Odisha	0.5	0.59
West Bengal	0.8	2.07
Chhattisgarh	0.6	0.21
Madhya Pradesh	0.8	0.39
Uttarakhand	1.4	1.38
Uttar Pradesh	0.9	0.51
Goa	2.1	1.61
Gujarat	1.7	0.66
Maharashtra	1.3	0.41
Andhra Pradesh	1	1.53
Telangana	1.2	0.96
Karnataka	0.8	0.62
Kerala	1.1	6.63
Tamil Nadu	0.8	3.19

Source: *Calculated by authors from NABARD data*

In the above section, disparity in credit distribution is indicated in absolute form. To get the better understanding of the relative disparity, weighted Theil's and modified Herfindahl index is calculated. In the calculation, ground level distribution of credit is weighted with gross cropped area.

5.2. Result of Theil and Herfindahl Index

As illustrated in Table 6, the southern states make the highest contribution to the overall regional disparity as per Theil's and EG index. This means southern region is contributing about 58 % of the regional disparity in credit distribution for the entire country in agriculture. Even though North-eastern region is showing low disparity in EG index, however as per Theil's index, disparity in credit distribution in the region is relatively more.

Table 6: Theil's and Modified Herfindahl Index

S. No.	Region	Theil Index	EG Index
1	Southern	0.21	0.58
2	Northeast	0.19	0.003
3	Northern	0.11	0.02
4	Central	0.05	0.13
5	Western	0.03	0.02
6	Eastern	0.01	0.003
7	India	0.33	0.17
Note: Theil's Coefficient and EG index is estimated based on GLC data from Ensure (GLC data)			

5.3. Factor affecting disparity in agriculture distribution

Panel regression result and correlation among the variables are suggesting the plausible causes of regional disparity in the credit distribution. The list of variables is chosen based upon availability of data and their plausible impact on ground level credit in agriculture. Rural bank branches and CD ratio explains the banking services in the rural area while fertiliser consumption and electricity consumption are taken as input and rural infrastructure helping the spread of banking facility. Table 7 suggests that GLC is highly correlated to rural branches, CD ratio and electricity consumption among all the variables.

Table 7: Correlation Coefficient

Correlation	GLC	Agri-GVA	GCA	Fertiliser	Bank Branches	GIA	Electric
GLC	1.0000						
Agri-GVA	0.6651	1.0000					
GCA	0.5694	0.9262	1.0000				
Fertiliser	0.5655	0.4666	0.3122	1.0000			
Bank Branches	0.7864	0.7564	0.6720	0.5496	1.0000		
GIA	0.5559	0.8744	0.8582	0.4446	0.7186	1.0000	
Electric	0.7713	0.7658	0.8004	0.4765	0.6555	0.5914	1.0000
Rural Account	0.5511	0.7743	0.6716	0.4422	0.8623	0.8052	0.4326
CD Ratio	0.7081	0.3815	0.3747	0.5446	0.4316	0.2879	0.6791

Panel regression of last one decade suggests that rural bank branches, electricity consumption in rural area and CD ratio has significant positive impact on the agriculture credit (Table 8).As result suggests that agri-GVA, gross cropped area and fertiliser consumption do not have significant impact over credit distribution.

Table 8: Panel Estimates Explaining Credit Disbursement

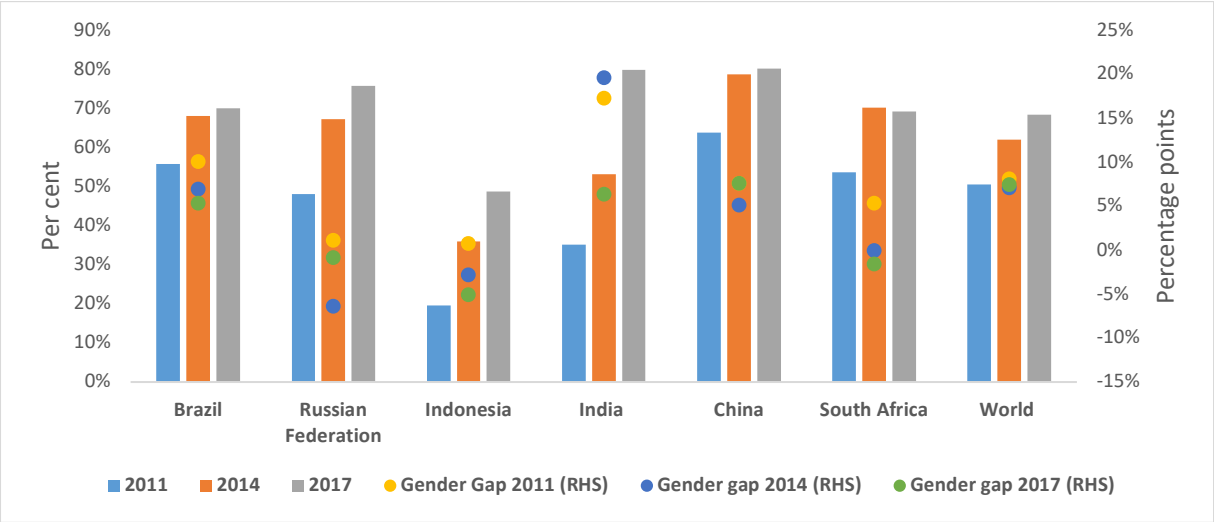
Log Variable	Estimate
Log Agri-GVA	0.0240 (0.26)
Log Fertilisers Consumption	–0.146* (–2.02)
Log Rural Bank Branches	1.088*** (10.35)
Log Electricity Consumption	0.149*** (4.57)
Log rural CD ratio	0.548*** (4.80)
***N* = 173, *t* statistics in parentheses,** *–p<0.05, **–p<0.01, *** –p<0.001	

5.4. Gender disparity in credit distribution

India's achievement in providing access of basic banking services is not very encouraging in compare to the other emerging countries in the world. The term gender gap in credit distribution indicates to the gap of access to women vis-a-vis men.

5.4.1. Gender gap in deposits

After the launch of Pradhan Mantri Jan Dhan Yojana, women share in total bank account has increased significantly, which has led to decrease in gender gap in availing the financial services. However, the gap is still very significant and it is highest among the BRICS nations (Figure 1).

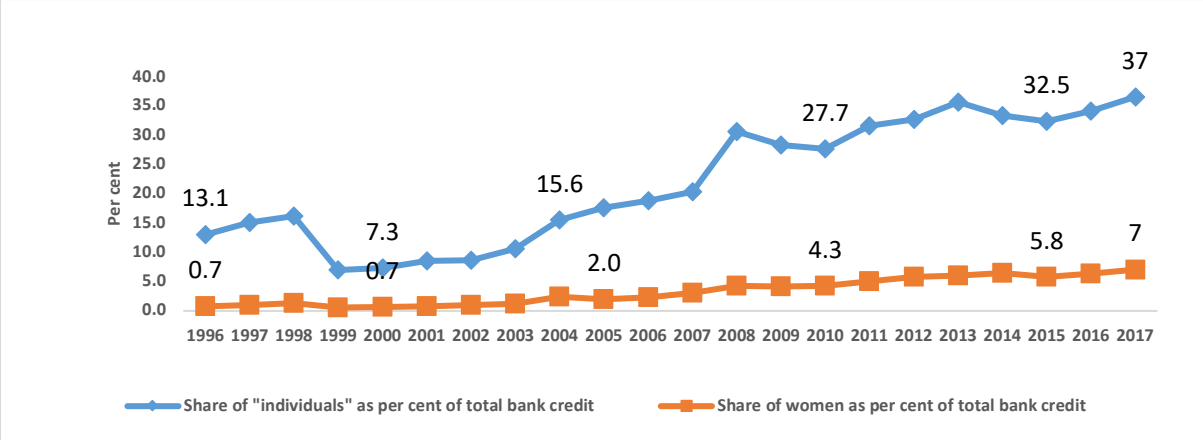


Source: *Trends in women banking- Pallavi Chavan*

Figure 1: Adult population with deposit accounts in financial institutions(in per cent)

5.4.2. Gender gap in availing credit

As data suggests globally, India is still lagging behind by distance with respect to the access to bank credit for its women. As per World Bank findex data, only 5 per cent of Indian women accessed bank credit. This shows that while women deposits have gone up over the period of time but they are still not getting credit from bank due to various reasons. As figure 2 is suggesting that women's share in bank credit is increasing over the period of time but at a very slow pace. Women share in 1996 was just 0.7 percent which has gone up to just 7 percent in 20 years as against 30 per cent for men. NABARD Shelf-Help Group- Bank Linkage Programme (SHG-BLP) helped rural women to avail credit but the pace is not very encouraging. Even after including the credit going to MFIs, and joint liability groups (JLGs)/trusts/non-governmental organisations (NGOs) as credit to women, there was only a marginal increase to 8 per cent in women's share.



Source: *BSR, RBI.*

Figure 2: Share of women in total bank credit in India (in per cent)

5.5. Disparity based on landholding

As per agri-census 2015-16, 86.58 percent farmers are small and marginal farmers holding less than 2 hectares of land. Apart from that in Indian around 14 crore cultivators are lessee, sharecroppers or tenant farmers.

Table 9 indicates that small and marginal farmers were getting just 44 percent of total credit disbursement in agriculture sector, which has slightly increased to 52 percent in 2019-20. While medium and large farmers who are just 14 percent of total farmers are getting 48 percent of the total agriculture credit. Main reason behind the low credit disbursement to small and marginal farmers is that decrease in share of RRBs and Cooperatives in total credit disbursement. As RRBs 66 percent and cooperatives 70 percent of total loan goes to small and marginal farmers while only 47 percent of total loan of commercial banks goes to small and marginal farmers which has largest share in total credit disbursement. Tenant and sharecropper are largely excluded in most of the government schemes and benefits.

6. Conclusion and Policy Recommendation

The preceding analysis exhibits that though government policies and initiatives have undoubtedly resulted in considerable improvement over the period of time especially in increase in ground level credit flow, but disparity in distribution one of the major concerns at present time. While much of the improvement in credit parameters is accounted for by a few high-income states, there exists severe disparities with the low-income states consistently maintaining their lower positions relative to the former, indicating absence of equity in distribution of credit. In Central and Eastern regions, the various real sector variables indicate relatively favourable situation for enhanced credit flow. For example, the share of Central region in net sown area is 26 per cent against its share in GLC at 13.7%, not commensurate with its share in irrigation area and net sown area. In Eastern region around 95 per cent of the operational holdings are of small and marginal farmers. In central and NER region the share is 86 per cent and 82 percent, respectively. There is a need to sensitize and develop credit products that are in sync with the need of the majority of the borrowers. The state-wise percentage of farm households with loan accounts is lower in eastern region as compared to southern states. In the eastern and central region, there is huge gap in the number of farm households to be covered under bank finance. States like Uttar Pradesh and Bihar need to be focused for more coverage of house hold accounts as well. Some of the States like Tamil

Nadu, Andhra Pradesh, Kerala, and Karnataka) have higher number of bank accounts than the number of farm house holds.

Table 9: Ground Level Credit Flow to Agriculture – Share of SF/MF

Yr.	Agency	No of accounts (lakh)			Loan disbursed (Rs. crore)			Average loan amt of SF/MF (Rs.)
		Total	SF/MF	Share of SF/MF (%)	Total	SF/MF	Share of SF/MF (%)	
2013-14	Com. Banks	385.3	232.5	60.4	5,27,506	2,01,296	38.2	86579
	Coop. Banks	321.4	206.5	64.1	1,19,964	69,352	57.8	33585
	RRBs	99.3	66.6	67.1	82,653	51,359	62.1	77116
	Total	805.9	505.2	62.7	7,30,123	3,22,007	44.1	63739
2014-15	Com. Banks	426.2	195.4	45.9	6,04,376	1,97,540	32.7	101095
	Coop. Banks	306.9	202.8	66.1	1,38,470	78,736	56.9	38824
	RRBs	120.5	87.8	72.9	1,02,483	70,390	68.7	80171
	Total	853.6	486.3	56.9	8,45,328	3,46,666	41.1	71286
2015-16	Com Banks	441.6	210.2	47.6	6,42,954	2,00,346	31.2	95312
	Coop. Banks	324.2	232.9	71.8	1,53,295	97,999	63.9	42078
	RRBs	133.2	97.0	72.8	1,19,261	81,653	68.5	84178
	Total	899.6	540.4	60.7	9,15,510	3,79,998	41.5	70318
2016-17	Com. Banks	664.2	482.5	72.6	7,99,781	3,62,675	45.4	75166
	Coop. Banks	269.5	190.1	70.5	1,42,758	89,178	62.5	46911
	RRBs	137.0	99.0	72.3	1,23,216	82,496	67.0	83329
	Total	1070.7	771.6	72.6	10,65,755	5,34,351	50.1	69252
2017-18	Com. Banks	732.7	556.9	76.0	8,71,080	3,89,866	44.8	70009
	Coop. Banks	254.6	183.7	72.2	1,50,321	98,109	65.3	53401
	RRBs	144.6	104.9	72.5	1,41,216	92,482	65.5	88191
	Total	1131.9	845.5	74.7	11,62,617	5,80,457	49.9	68655
2018-19	Com. Banks	850.1	631.8	74.3	9,54,823	4,28,063	44.8	67753
	Coop. Banks	255.5	192.9	75.5	1,52,340	1,06,849	70.1	55405
	RRBs	149.8	106.7	71.3	1,49,667	98,749	66.0	92539
	Total	1255.4	931.4	74.2	12,56,830	6,33,661	50.4	68036
2019-20	Com. Banks	934.3	714.4	76.5	10,61,215	5,02,172	47.3	70294
	Coop. Banks	270.6	198.6	73.4	1,49,694	1,04,883	70.1	52809
	RRBs	153.5	109.5	71.3	1,62,857	1,07,301	65.9	98010
	Total	1358.3	1022.5	75.3	13,73,766	7,14,356	52.0	69866

Source*: NABARD Annual Report*

Satyasai and Kumar (2020) have developed index (NAFINDEX) based on NABARD All India Rural Financial Inclusion Survey 2016-17 data. State wise performance of NAFINDEX is presented in Table 10. NAFINDEX is calculated based on 3 parameters *i.e.*, traditional banking product, modern banking services and payment mechanism. It is very encouraging to see that small state like Goa and North-eastern states have performed exceedingly well especially in the modern banking services. Modern banking services can be

one of the innovative ways to increase the penetration of credit in credit starved region. This will also help in promoting the regional equity in credit distribution.

Table 10: NAFINDEX

State	Traditional Banking products	Rank	Modern Banking Services	Rank	Payment mechanism	Rank	NAFINDEX	Rank
Goa	0.472	5	0.946	1	0.761	1	0.600	1
Punjab	0.617	1	0.473	12	0.383	19	0.486	2
Karnataka	0.533	3	0.430	14	0.438	13	0.483	3
Telangana	0.482	4	0.563	8	0.478	8	0.480	4
Andhra Pradesh	0.424	7	0.703	4	0.529	5	0.473	5
Kerala	0.609	2	0.446	13	0.362	21	0.470	6
Manipur	0.385	12	0.791	2	0.558	3	0.464	7
Tripura	0.366	14	0.523	10	0.558	3	0.452	8
Jammu & Kashmir	0.420	8	0.427	15	0.450	12	0.435	9
Odisha	0.379	13	0.381	24	0.477	9	0.425	10
Haryana	0.409	10	0.328	26	0.423	14	0.416	11
Mizoram	0.322	16	0.580	6	0.476	10	0.392	12
Assam	0.237	21	0.482	11	0.625	2	0.385	13
Himachal Pradesh	0.460	6	0.565	7	0.310	23	0.377	14
Meghalaya	0.318	17	0.240	29	0.403	17	0.358	15
Arunachal Pradesh	0.337	15	0.353	25	0.374	20	0.355	16
Sikkim	0.253	20	0.678	5	0.486	7	0.351	17
Nagaland	0.318	17	0.734	3	0.325	22	0.322	18
West Bengal	0.202	25	0.419	16	0.507	6	0.320	19
Maharashtra	0.224	22	0.416	18	0.416	16	0.305	20
Jharkhand	0.200	26	0.321	27	0.451	11	0.301	21
Gujarat	0.215	24	0.531	9	0.420	15	0.300	22
Uttar Pradesh	0.217	23	0.417	17	0.397	18	0.294	23
Tamil Nadu	0.387	11	0.404	20	0.208	25	0.284	24
Uttarakhand	0.420	8	0.401	21	0.189	27	0.281	25
Bihar	0.198	27	0.387	23	0.264	24	0.229	26
Rajasthan	0.276	19	0.398	22	0.178	28	0.222	27
Madhya Pradesh	0.141	29	0.266	28	0.195	26	0.166	28
Chhattisgarh	0.160	28	0.411	19	0.055	29	0.094	29
All India	0.307		0.345		0.370		0.337	

Source: *Satyasai, K.J. and Kumar, A., 2020. NAFINDEX: Measure of Financial Inclusion based on NABARD All India Rural Financial Inclusion Survey (NAFIS) Data.*

The mismatch between demand and supply for financial services, substantial differences across regions, socio-economic groups and gender, high cost, inadequate access for micro and small enterprises and inability to harness technology to the fullest extent have been cited as the major impediments for poor uptake of credit. Inadequate banking infrastructure is another cause of concern in low-income states and regions challenged by topography, inadequate infrastructure, and security issues. Further, the demand for credit and credit absorptive capacity depends upon various factors which shape opportunities like initial asset endowments (household and geographical), cultural and geographical identification, market conditions and participation, policy environment, infrastructure, quality of institutions, industrial development, political economy of growth and public investment.

6.1. Recommendations/Suggestions for improving regional spread of credit flow

On the basis of the analysis, following suggestions are offered:

a) Financial Deepening is crucial, which not only helps in garnering more resources from the state but also helps in channelizing more resources to the state. This involves more penetration of physical outlets, BCs, and digital banking facilities, especially in the states or regions with imbalance in credit flow. Also, this involves better deposit mobilization, which requires targeted financial literacy campaigns highlighting the importance of thrift.

b) Providing better infrastructure to create an investor friendly environment leads to greater credit absorption.

c) Strengthening of RFIs especially in certain regions of the country (which are credit starved regions also) are weak. This reduces their ability to lend at grass root level. Strengthening such institutions will lead to enhanced credit flow and reduce the imbalance. As it was observed with the declining share of RRBs' and cooperative banks in the amount disbursed.

d) Computerisation of land records: Farmers such as tenants and cultivators with only usufructuary rights on their land without clear titles face difficulties in accessing institutional credit and other facilities as they cannot offer collateral. It is required to computerise land records so that a transparent system for changing land records and dividing or merging plots of land may be created.

e) Strategies for Financing SF/MF -Overall: PSL guidelines by RBI stipulated that within the 18 per cent target outlined for agriculture, 8 per cent of Adjusted Net Bank Credit (ANBC) or credit equivalent amount of off-balance sheet exposure, whichever is higher, to be purveyed to SF/MF from March 2017 onwards. RBI's Internal working group on agriculture credit has suggested to increase this sub target to 10%.

f) Land Lease Markets: State governments should be encouraged to reform their legal framework on the basis of Model Land Leasing Act proposed by NITI Aayog so that formal lending to tenant farmers can improve. This would ensure that land owners have the security of ownership rights, and land tenants are secure in their tenancy. Legalisation of land tenancy would also ensure that farmers get access to formal credit, insurance, and inputs such as fertilizer.

g) Addressing Regional Disparity: Allocation of RIDF in central, eastern and north eastern states may be increased over time to strengthen the rural infrastructure in these regions.

h) Credit Guarantee: Tenants and sharecropper are unable to access formal credit due to lack of collateral. It is important to create a credit guarantee scheme on the lines of Credit guarantee fund trust for micro and small enterprises to provide collateral free loans.

i) Collectives: Farmers' Producer Organisations (FPOs) help in overcoming the challenges of high transaction costs, security stipulations of loans and also support smallholders in gaining access to markets, public services, better price etc. through collective action. Further, small farmers in collectives would get more capacity for getting inputs at reasonably lower price and quality material and also to gain from market that would provide more income and encourage farmers to access more credit.

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