Role of Regional Rural Banks in Rural Development and Its Influences on Digital Literacy in India

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Abstract- This study investigated the influence of regional rural banks in India on digital literacy and rural development. We utilize secondary data from 29 Indian states and two union territories for three fiscal years, from 2018 to 2020. Panel data analysis (PDA) is used in this study to evaluate the hypothesis. As a result, regional rural banks contribute to digital literacy and rural development. According to the study's findings, regional rural banks and the government should focus more on infrastructure development and digital literacy. It is a critical component of regional rural banks and financial inclusion activities. These are necessary for digital literacy, financial inclusion, and rural development. It boasts a robust economy and a high degree of digital literacy.

Indexed Terms- Regional Rural Banks, Digital Literacy, Rural development, Financial Inclusion, Banking.

I. INTRODUCTION

The purpose of this study is to look into the influence of regional rural banks in India on rural development and digital literacy. Regional Rural Banks (RRBs) were founded in 1975 by an ordinance, and its aim is to connect the rural economy with agriculture, transportation, business, industry, and other productive activities, according to the terms of the Regional Rural Banks Act 1976. To develop, particularly small and marginal farmers, agricultural laborer's, artists, and small businesses, by providing loans and other facilities and assisting them in their operations [1]-[2]. Rural development and financial and digital literacy efforts in India important on regional rural banks. RRB was founded in order to provide banking services to rural people in need of speedy and low-cost financing. These are organizations dedicated to realizing aspirations [5]. In India, regional rural banks (RRBs) have eliminated regional variations in banking services [8]. In some locations, RRB performance is excellent, while in others, it falls short. In India's agricultural and rural development, regional rural banks play a significant role. The RRBS has increased its reach into India's rural areas because to its large network [9].

RRBs, with their goods and services, are a viable choice for economic development and agricultural development. RRBs, with their goods and services, are a viable choice for poverty reduction and rural development. Regional rural banks and their financial literacy are the most important digital financial services for rural people to use, and regional rural banks' financial services are the most important social welfare microfinance and appropriate development, with a positive impact on rural development and digital literacy [6]-[4]. RRBs have significantly reduced regional differences in banking services in India. The RRB's branch expansion, deposit mobilization, rural development, and credit distribution activities in underserved rural areas are all impressive [14]-[16]-[13]. Regional Rural Banks play an essential role in rural credit distribution, with the purpose of providing loans to small, marginal farmers and socioeconomically disadvantaged parts of the population in order to expand agriculture, commerce, and industry [51]. RRBs are key rural financing organizations responsible for meeting credit demands for various types of agricultural loans in rural areas. The proliferation of RRBs has resulted in a major reduction in regional banking disparities in India [15]-[17].

The fundamental goal of establishing Regional Rural Banks (RRBs) in India is to provide loans to rural populations who are financially vulnerable, such as small and marginal farmers, craftsmen, agricultural laborers, and small businesses [18]-[7]-[10]-[11]. Financial institutions and banks are identified as essential to India's rural economy's development. The RBI has been working hard to increase financial

inclusion, and the government has launched a number of programs. Bank expansion into rural areas and the provision of digital banking expertise, as well as digital services like ATMs, agro-based loans, KCCs, GCCs, and PMJDY, are some of the government's attempts to reduce poverty and economic isolation [20]-[21]-[34]-[35]. The performance of rural credit in India is significantly based on their financial health. RRB achieves its goals of bringing banking to rural households' doorsteps, especially in banking-deficient rural areas, providing easy and cheaper credit to the poorer rural section who rely on private lenders, encouraging rural savings for productive activities, creating jobs in rural areas, and lowering the cost of giving credit in agriculture areas [29]-[38]-[39]-[40]. This government policy's main purpose is to ensure that all citizens have equitable access to banking and payment services.

There hasn't been much research on the influence of regional rural banks (RRBs) on rural development and digital literacy in India. Regional rural banks (RRBs) provide critical development services and assist rural residents in learning about digital banking services. Regional rural banks are vital for financial inclusion and digital literacy in India's agriculture, and they play a critical role in boosting digital literacy and economic growth. The current study looks at regional rural banks in India and their influence on poverty alleviation and economic growth. We used panel data analysis to assess the influence of regional rural banks on rural development and digital literacy in rural India since our topic lacks research, and the critical need for scenario study is the motivating factor for our research.

Panel data analysis (PDA) captures the fundamental aspects of financial knowledge and its implications for regional rural banks (RRBs), rural development (RD), and digital literacy (IND LR) in India more effectively than normative economics or regression research [32]-[33]-[36]-[37]. As a result, panel data analysis was chosen as an intrinsic component of a model. This research aims to find out more about regional rural banks (RRBs) influencing rural development (RD) and digital literacy (IND LR). It tries to objectively identify rural areas in India by utilizing specific criteria connected to the number of regional rural banks. We examined secondary data from 29 states

and two union territories for fiscal years 2018 to 2020 and employed various parameters from prior studies. The scarcity of research on this subject and the crucial necessity for a scenario study assessment are the driving forces for this research. We took the strategic decision to look into the role of regional rural banks in rural development and their impact on rural digital literacy. Expanding regional rural banks and financial inclusion can improve India's rural development by increasing digital literacy. Regional rural banks and their goods and services are crucial to Indian farmers because they aid economic growth, financial inclusion, and digital literacy.

The introduction is the first component of this work, and the literature review is the second. Data and methods are covered in the third portion, findings are covered in the fourth section, and the study's discussion and conclusion are covered in the fifth and sixth sections.

II.   LITERATURE REVIEW OF THE STUDY

There is a shortage of research in India about the functioning and performance of RRBs and digital literacy. This section summarizes the findings of regional rural bank researchers and their implications for digital literacy, financial inclusion, rural development, research publications, and economic analyst opinions. Rural development and regional rural banks (RRBs) are covered in one segment, while rural people's financial inclusion and digital literacy is covered in the other.

A. Regional Rural Banks and rural development
The burden of debt is particularly heavy in rural India. Despite significant structural changes in lending institutions and varieties of the rural loan in the post-Independence period, rural credit exploitation remains one of the most prevalent and persistent features of rural India [3]. The RRB's presence in all parts of the country, particularly in impoverished regions, can assist because it is supposed to be a bank for the poor. The government should build RRB branches at the grassroots level to provide such banking services to truly needy rural populations [19]. In India, the advent of RRBs has significantly reduced regional differences in banking facilities. The RRB's branch expansion, deposit mobilization, rural development, and credit

distribution activities in underserved rural areas are excellent [23]. Rural banks must address a lack of openness in their operations, resulting in an uneven relationship between bankers and customers [27]. To remedy this issue, banking workers should interact with their customers more regularly. Banking workers should interact with their customers regularly to fix this issue. Banks should open branches where consumers do not have access to financial services [25]. To keep existing clients and attract new ones in this era of digitization, RRBs must emphasize offering quick, high-quality, and secure financial services [46]. RRBs' involvement in economic growth and rural development Furthermore, RRBs were more efficient than commercial banks in disbursing loans to rural borrowers [43]. Support from state governments, local participation, sufficient loan supervision, and establishment of urban branches was among the strategies recommended to improve RRB efficiency. In rural banking, priority sector credit and preferential lending to the poor have declined [28]-[46].

The RRB is intended to be an underprivileged, people's and its existence in all states and union territories can help. RRB branches should be established at all levels of government [44]-[54]. The lending of rural banks is generally aimed at their local market, notably local farmers. Furthermore, rather than being too cautious, bank help for agriculture, one of their most important service sectors, may jeopardize bank stability [15]-[17]. RRBs have successfully achieved their banking objectives of creating jobs, encouraging rural savings for productive activities, and providing accessible and affordable credit to rural families, particularly in banking-deprived rural areas, and to the vulnerable rural population that relies on private lenders [45]-[41].

Before the formation of the RRB, thousands of commercial and cooperative bank branches operated in rural India. Despite such a vast network of bank branches, rural India's credit requirements were insufficient [39]-[11]. The general state of RRBs in India is not encouraging. Poor credit-deposit ratios continue to hamper RRBs' capacity to function correctly. Because the RRB is a poor bank, people's presence may be felt across the country, particularly in the poorer states and union territories [37]-[38]. The government should extend RRB branches to the grassroots level to provide banking and credit services to rural Indians in need. The difference between commercial banks' C-D ratios and regional rural banks' C-D ratios must be bridged, and rural India tends to benefit from rural lending policies [25]-[4].

B. *Regional Rural Banks, Financial Inclusion and Digital Literacy*

The key to overcoming the rural development dilemma is financial inclusion and digital literacy, which can improve the lives of impoverished farmers, small enterprises, and other vulnerable groups [22]-[14]. Financial inclusion and digital literacy are financial services that are freely available and affordable to people from all walks of life [26]. The main motive behind digital literacy and financial inclusion are that non-accessible groups, such as impoverished farmers in remote rural areas, may utilize financial services to improve since individual growth can help the nation progress more quickly [30]-[7]. Financial inclusion and digital literacy are tools for a country's inclusive growth. Regional Rural Banks are critical in India's rural development and financial inclusion. RRBs were created to bring banking to the doorsteps of rural residents needing rapid and inexpensive loans [53]-[9]. These are organizations dedicated to bringing aspirations to life. The RRBs' purpose is to strengthen the rural economy, which is the backbone of the Indian economy [48]. The aim of economic planning will never be achieved until the rural economy, and people of India are improved. Financial inclusion has become a reality thanks to Regional Rural Banks and increased digital literacy [50]-[5].

Financial inclusion is the process of prominent financial institutional actors providing vulnerable groups, such as weaker and low-income groups, cheap economic goods and services fairly and transparently [52]. The Reserve Bank of India (RBI) has created a strategy of financial inclusion in our country to provide banking services to disadvantaged and low-income groups at a reasonable cost. Regional Rural Banks (RRBs) have been recognized as a critical rural financial institution encouraging long-term economic growth since 1975 [13]. Because of their advantageous geographical position in distant parts of the country, RRBs have the potential to play a more important role

in digital literacy and financial inclusion [10]-[23]. In some parts of the nation, such as the states of Uttar Pradesh, Bihar, and the North Eastern Region, the banking system is mostly comprised of RRBs [14]. The government has established Prime Minister Jan Dhan Yojana, which has seen a surge in digital literacy and financial inclusion thanks to RRBs, and has underlined the importance of digital literacy and financial inclusion for the country's growth and development [36].

The lack of unique literature goes beyond concepts. This strategy also needs a hitherto unseen methodology in the literature. The following hypothesis is investigated in this work based on literature research:

H1: Regional rural bank branches (RRB_bran) significantly impact India's rural development and digital literacy.

H2: Regional rural bank credit deposit ratio (RRB_C_D_r) significantly impact India's rural development and digital literacy.

III. DATA AND METHODOLOGY

A. Data

This study examined data from 29 Indian states and two union territories across three fiscal years (2018-2020). RRB branches and RRB (CDR) data were obtained from the RBI's official website, whilst India literacy ratio (IND LR) statistics were obtained from downtoearth.org.in and timesnownews.com. Because there is just one dependent variable and two independent variables to study, two models have been developed. Table 1 lists the variables used in the investigation.

Table 1. List of Variables

S N	Variable	Type	Code	Definition	Citations
1	India literacy ratio	DV	IND_LR	The literacy rate of an adult population in a certain country,	(Nagaich and Sharma , 2014)
				region, or geographic area.	
2	Regional rural bank branches	IV	RRB_bran	There are now 43 RRB bank branches operational in India.	Ministry of Finance (Depertment of financial services)
3	Regional rural bank credit/ debt ratio	IV	RRB_C_D _r	Banks examine this ratio along with other considerations when determining how much credit to extend.	Bankrate (Glossary)

Note: DV and IV represent the dependent variable and independent variable, respectively.

B. Methodology

The panel data model (PDM) is mostly employed to examine the data in this study. The panel data model incorporates elements of the other well-known analytic models, cross-sectional and time-series [13]-[16]. As a result, it has been discovered that PDM can reveal far more information than a single time series or cross-section analysis.

The model specifications are given as follows:

$$IND\_LR_{it} = \beta_0 + \beta_1\, RRB\_bran + u_{it} \qquad \text{Eq. 1}$$
$$IND\_LR_{it} = \beta_0 + \beta_1\, RRB\_C\_D\_r + u_{it} \qquad \text{Eq. 2}$$

Where IND_LR is the dependent variable, i represents cross-section, and t represents time series. β_0 is the constant term, and β_1 is the coefficient of the independent variable and RRB_bran, and RRB_C_D_r are the independent variables used in the study. In contrast, uit in the model is considered the error term.

IV. RESULTS

A. Descriptive statistics and correlation

Table 2. Descriptive Statistics

Variables	Mean	SD	Min	Max
IND_LR	78.01581	7.993667	61.8	96.2
RRB_bran	711.0323	865.9692	0	4342
RRB_C_D_r	52.91935	30.24848	0	128.3

Note: Mean, SD, Min, Max is mean value, standard deviation, minimum and maximum respectively.

Table 3. Correlation Matrix

VAR	RDEXP	1_articlex	1_popu
IND_LR	1		
RRB_bran	-0.4820*	1	
RRB_C_D_r	-0.1190	0.3239*	1

Note: * represents a significant correlation coefficient at 0.05.

Tables 2 and 3 provide the statistics (IND LR, RRB bran, RRB C D r) employed in the research. The mean literacy rate of Indian states and union territories is 78.01581, showing a much higher literacy rate. On the other hand, the standard deviation is 7.993667, indicating that the score does not fluctuate much from the mean number. The lowest and highest numbers are 61.8 and 92.6, respectively. The average value of the RRB bran variable is 711.0323, indicating that many branches have been constructed throughout India. The standard deviation is determined to be 865.962, meaning that there is significant variability from the variable's value. The minimum and highest values are 0 and 4342, respectively, indicating a significant disparity. The last variable in this study, RRB C D r, has a mean value of 52.91935, indicating that no substantial amount of ratio is present on average. The difference from the mean value, on the other hand, is determined to be 30.24848. The lowest and highest values are 0 and 128.3, respectively.

B. Result of model I

Table 4. Result of Regression Analysis (Model 1)

Dependent Variable: IND_LR			
Standard Errors (Normal)			
Variable Name	Coefficient	SE	p-value
Constant	81.17944	1.326492	0.000
RRB_bran	-.0044494	.0001317	0.000
R-square	0.8759		
SE of Regression	6.8246135*		
F-test Fixed Effect	3.95* (0.0228)		
Breush-Pagan Test	0.00*(1.0000)		
Hausman Test	6.52 (0.0107)		
No of observations (n)	93		
Degree of freedom	89		
Wald test for Heteroscedasticity	1.01*(0.7988)		
Wooldridge Autocorrelation	89.294 (0.0110)		

Note: Wald test of heteroscedasticity has the null of no heteroscedasticity. Wooldridge test of autocorrelation in panel has the null of no autocorrelation (with 1 lag). Robust estimates are estimated due to significant Heteroscedasticity and Autocorrelation. DV is IND_LR (Indian poverty score). RRB_bran is the log of regional rural bank branches. * sig at 5%.

We investigated the link between the dependent variable (IND LR) and the independent variable in model one (RRB branches). Table 4 depicts the outcome of model one. According to the table's explanation of the various outputs, the R-square reveals just 0.8759 percent variability in IND LR, which the independent variable, RRB bran, can explain. The SE is calculated to be significant at 6.8246135. The Hausman test identifies the model's random effects. The Breusch-Pagan test is similarly significant, with a score of 6.52, indicating the existence of heteroscedasticity. The Wald test also yields significant results, rejecting the null hypothesis. The independent variable, RRB bran, has a negative coefficient (-.0044494) and a p-value less than 0.05, indicating that RRB branches positively and significantly influence poverty scores. As a result of our investigation, we accept hypothesis H1.

C. Result of model II

Table 5. Result of Regression Analysis (Model 2)

Dependent Variable: IND_LR						
	Standard Errors (Normal)			Robust Standard Errors		
Variable Name	Coefficient	SE	p-value	Coefficient	SE	p-value
Constant	79.64986	1.641267	0.0000	81.86084	4.359931	0.0000
RRB_C_D_r	-.0308782	.0269664	0.255	-.0726584	.0823882	0.385
R-Square	0.0146					
SE of Regression	7.8184662*					
F-test Fixed Effect	2.90* (0.0600)					
Breush-Pagan Test	1025* (0.1316)					
Hausman Test	0.00 (0.9702)					
No of observations (n)	93					
Degree of freedom	89					
Wald test for Heteroscedasticity[1]	1.07 (0.7852)					
Wooldridge Autocorrelation	0.032 (0.8752)					

Note: Wald test of heteroscedasticity has the null of no heteroscedasticity. Wooldridge test of autocorrelation in panel has the null of no autocorrelation (with 1 lag). Robust estimates are estimated due to significant Heteroscedasticity and Autocorrelation. DV is IND_LR (Indian poverty score). RRB_C_D_r is the log of regional rural bank credit- debt ratio. * sig at 5%.

We explored the link between the dependent variable (IND LR) and the independent variable in model two (credit to debt ratio of RRB). Table 5 depicts a description of all the parameters necessary to comprehend the outcome of model two. According to the table's explanation, the R-square reveals just 0.0146 percent variability in LR, which may be explained by the independent variable, RRB C D r. The SE is determined to be 7.8184662, indicating its significance in this model. The Hausman test identifies the model's random effects. The Breush-Pagan test is similarly significant, with a result of 0.00 indicating the existence of heteroscedasticity. The Wald test also yields significant results, rejecting the null hypothesis. The independent variable, RRB C D r, has a negative coefficient (-.0308782) and a p-value greater than 0.05, indicating that RRB C D r has no effect on the LR and the relationship is insignificant. As a result of the interpretation described above, we reject hypothesis H2.

V. DISCUSSION

Following a review of previous literature, the present study focused on regional rural banks (RRBs) in India on rural development (RD) and digital literacy (IND LR). This study's hypothesis is based on literature, and we test the hypothesis (H1 and H2) using the proper model (Table 4, Table 5), which is a problem with the created approach (Eq.1, Eq.2). The first model in variable regional rural banks branch is significantly related to Indian digital literacy ratio, the hypothesis H1 is accepted, but the second model rural bank branch C D r is insignificant, the hypothesis H2 is rejected. The first and second models say that the all-variable high reliability and stability are present (Table 4, Table 5). The research supports the study's premise that regional rural banks significantly impact digital literacy and rural development. This study focuses on regional rural banks and financial inclusion, digital literacy, and rural farmer development in India. This analysis is based on secondary data from 29 Indian states and two union territories from fiscal years 2018 to 2020, as well as components from previous studies.

According to our findings, regional rural banks should improve their branches and focus on financial literacy initiatives in rural regions [16]-[13]-[39]. Rural people must educate their consumers on financial matters, and financial literacy may improve financial inclusion and contribute to India's economic progress. The government and the RBI should implement regulations to make financial services more accessible, and the government should connect rural regions to WIFI networks to improve digital literacy [30]-[34]-[52].

VI. CONCLUSION

This research looks at the influence of regional rural banks on digital literacy and rural development in India. According to the findings, regional rural banks substantially influence India's digital literacy and economic development. Regional rural banks' digital and financial literacy can contribute to poverty reduction and economic progress. Residents in rural areas can benefit from regional banks' knowledge of their products and services, as well as teaching how to use digital banking.

India is a developing country with little digital infrastructure and financial and digital literacy, as well as a desire to learn more about these topics for rural development. Financial inclusion in India's rural communities might be aided by digital literacy. This research could be done using primary data analysis for future research, and they could also increase the number of states, union territories, and years of data.

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