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Evaluating Technical Efficiency of District Central Cooperative Banks in Rajasthan: A DEA-Based Analysis (2013–2018)

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Abstract
This study evaluates the technical efficiency of District Central Cooperative Banks (DCCBs) in Rajasthan over the period 2013–14 to 2017–18 using Data Envelopment Analysis (DEA). Applying the input-oriented BCC model under variable returns to scale, the study decomposes overall technical efficiency (OTE) into pure technical efficiency (PTE) and scale efficiency (SE). Data for 29 DCCBs were sourced from the National Federation of State Cooperative Banks. The results reveal considerable variation in efficiency scores across banks and over time. While some banks like Dungarpur consistently achieved high OTE scores, others, such as 'Tonk' remained persistently inefficient. Approximately 15 banks were found to be pure technically efficient, suggesting strong managerial practices, but scale inefficiencies remained widespread. The findings highlight the need for policy attention to improve scale efficiency and support underperforming banks in adopting best practices from efficient peers.

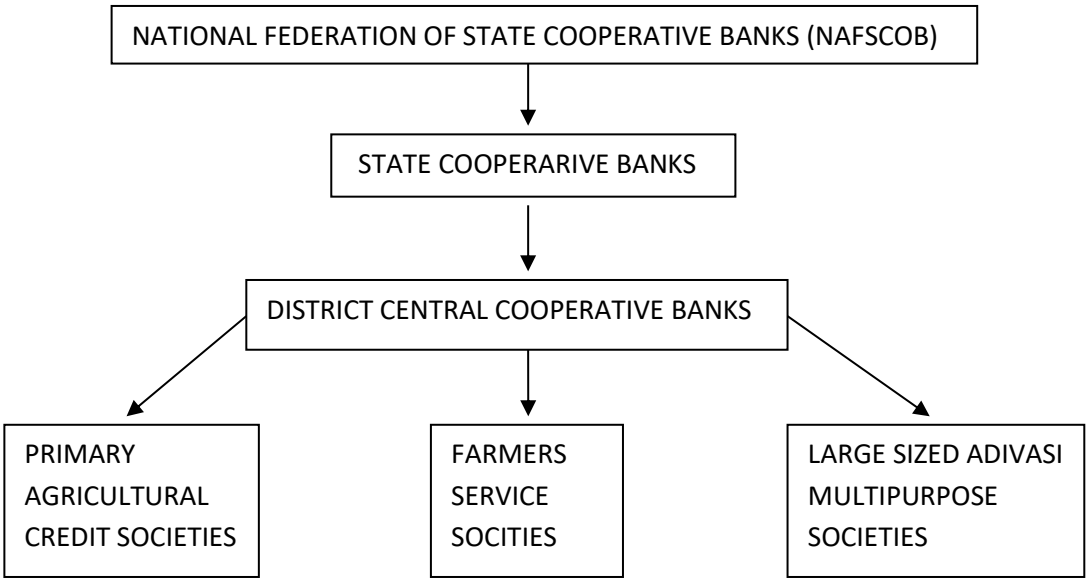
Keywords: District Central Cooperative Banks, Rajasthan, Data Envelopment Analysis, Technical Efficiency, Scale Efficiency, Banking Performance

Introduction

India has a vibrant banking system mainly consisting of commercial banks, regional rural banks, and cooperative banks. The cooperative system was started in India mainly with a need for providing agriculturists loans for agricultural work at a low rate of interest and securing them from the clutches of moneylenders. Because a large population part of India depends on the agriculture sector. The cooperative bank system provides help for rural development, agriculture development, poverty reduction, etc.
The government of India made a committee under the chairmanship of Sir Edward Low in 1901 to study the questions of starting cooperative credit societies in India. The government of India stabilized the Cooperative Credit Societies Act in 1904. This act provides credit facilities at cheap loan rates to small men living in rural and urban areas and agriculture and non-agriculture credit to rural areas. The cooperative movement in Indian history before independence can be classified into 4 parts. The first stage is the initiation stage 1904 to 1911 in this stage, rural-urban societies basis of the Raiffeisen model. The second stage is the modification stage (1912-1918) in this stage another made cooperative society's act of 1912. This act provided legal protection to all types of cooperatives and central financing companies. The

third stage expansion stage (1919-29) and the fourth stage is the restructuring stage (1930-1946). In 1906, the first central bank was established in Uttar Pradesh as a primary society. But the first perfect central cooperative bank in the real and modern sense was made in Rajasthan in 1910 at Ajmer.

The history of district central cooperative banks in India after independence is divided into two parts first part is from 1950-51 to 1989-90, before the new economic policy, and the second part is after the new economic policy i.e. 1990-91 to 2004-05. In the years 1950-51 to 1989-90, the district central cooperative banks in India showed that growth rate of 17.31% to 136.25% in the case of reserves, deposits, share capital, owned funds, and working capital. This implies that the growth rate is positive before the new economic policy. But in the period 1950-51 to 1989-90 district central cooperative banks are unsuccessful in recovering loans and advances. The growth rate of district central cooperative banks of India after the new economic policy (1990-91 to 2004-05) is 10.82% to 23.55%. The number of district central cooperative banks in India was 361 before the new economic policy (1990-1991). At present 363 number district central cooperative banks in all India data 2018 NAFSCOB report. In 2018 total deposits were 34073787 crores, total borrowings 85917978 crores, total loans advances 24205851 crores, loans outs 26019789 crore, total employees 82939, and percent of over. To demand 24.97% according to the NAFSCOB report.



The cooperative movement in Rajasthan was formally established in 1910. The first modern and perfect central cooperative banks were established in Rajasthan at Ajmer in 1910. The main reason for cooperative banks is to provide chipper loans for small men and farmers for agricultural and non-agricultural work. At present 29 district central cooperative banks in Rajasthan.

The remainder of this paper is organized as follows part 2 is the objectives of the work, section 3 details of review of the literature, section 4 is about the methodology, section 5 details data source and variables, section 6 is about finding results and explanation, section 7 is conclusion of the study and last section 8 is references.

Objective

1. To estimate the overall technical efficiency (OTE), PTE, and scale efficiency (SE) of District Central

Cooperative banks: A Case of Rajasthan (2013-14 to 2017-18).
2. To evaluate the ranking of District Central Cooperative banks of Rajasthan (2013-14 to 2017-18).

Review of Literature

Chen et al. (2008) examined the Hualien First Central Cooperative Banks performance (HFCCB) from 2001 to 2006. Their study covered 24 banks and used non-parametric methods like DEA (CCR), DEA Balances Scorecard, and the DEA-Balances Scorecard with risk management. In this paper, the constant return to scale assumption and intermediaries' econometrics approach are used. They found that growth/learning perspective and financial and internal processes were closely related to the Hualien First Central Cooperative Banks (HFCCB) performance at the time. In the year 2001, the efficiency of banks is better than in other years. The average technical efficiency of the Hualien First Central Cooperative Banks (HFCCB) is 0.938 (DEA-CCR), 0.989 (DEA-BSC), and 0.989 (DEA-BSC with risk management). The DEA-CCR-based average efficiency is less than DEA-BSC and DEA-BSC with risk management.

Battaglian et al. (2010) analyzed the cost and profit efficiencies of Italy's cooperative bank (2683 observations), using the parametric frontier methodology (Stochastic Frontier Analysis). They used quarterly data from 2000 to 2005. This paper used a constant return scale assumption and value-added approach. They found that the total cost and profit efficiency of Italian cooperative banks without environmental variables is 0.8677 and 0.6854; cost and profit efficiency with environmental variables is 0.7630 and 0.7879. The study found that cooperative banks of Northeast Italy are shown to the highly cost-efficient, benefiting from a favorable environment variable, but in South Italy cooperative banks a more profit efficient, at lower competitive pressures.

Glass et al. (2012) analyzed the technical efficiency of cooperative banks in Japan using the quarterly data from 1998 to 2009. Their study covered a total of 393 cooperative banks (Skikin banks 258 and Skinkumi banks 135). In this paper using the Translog Enhanced Hyperbolic Distance Function technical model, increasing returns to scale assumption and intermediary's approach. They found that banks could improve productive performance by declining non-performing loans and input while simultaneously expending more desirables. In addition, increasing returns to scale at the sample average implies that cooperative banks are too small on average. This is finding that small cooperative banks are less efficient than their larger financial bank. They found that the technical efficiency of Japanese cooperative banks is 0.955.

Bhatt and Bhat (2012) analyzed the efficiency and financial performance of cooperative banks in Jammu and Kashmir (India) using the quarterly data from 2000-01 to 2006-07. This paper used the DEA (CCR-I) method, constant and variable return to scale assumptions, and intermediaries approach. They found that average efficiency under constant return to scale is 90% and under the variable return to scale is 97% during the 2000-01 to 2006-07. The study also found that 5 banks are relatively efficient when efficiency is calculated in terms of variable return to scale and 3 banks are relatively efficient when efficiency is calculated in terms of constant return to scale.

Aiello and Bonanno (2015) utilized the stochastic frontier parametric approach to derive cost efficiency for Italian mutual cooperative banks and Banche-di-credit cooperative (BCCs) banks using the quarterly data from 2006 to 2011. They used constant return to scale assumption and the intermediary's approach. They found that the average cost efficiency of Banche-di-Credit Cooperative (BCC) banks is 0.90 and the cost efficiency of Italian cooperative banks is 0.87. Also, they found cost efficiency of BCCs is positively related to demand density and market concentration and negative relation with branching. The Italian banks attain a lower cost efficiency level than small Italian banks.

Marwa and Aziakpono (2016) examined the technical and scale of credit and saving cooperatives banks of Tanzanian during 2011. They utilized non-parametric frontier methodology, DEA (CCR-I), and intermediaries approach used. Their study covered 103 credit and saving Tanzanian cooperative banks in the period 2011. Also, they used a constant return scale and variable and increasing return scale assumption. It has been found that the average technical efficiency is 42%, the average pure technical efficiency is 52%, and scale efficiency is 76%. Also, they found that 9 firms are fully technically efficient, 24 firms are purely technically efficient and 9 firms are scale efficient. The result further indicates that larger and smaller firms seem to moving from a lack of diseconomies of scale and economies of scale together, but medium banks experienced a significant decrease in technical while a significant increase in scale efficiency.

Methodology

BCC-DEA Model

In this study, I use the non-parametric efficiency and productivity method, the DEA. The DEA model is called non-parametric because it requires no shape on assumption and no parameters used to determine production. Farrell (1957) measured the technical efficiency of different decision-making units (DMUs) through by DEA model. It is a linear programming mathematics technique-based model. Let's assume the number of decision-making units (DMUs) is s and produces n outputs and uses m inputs. Let s decision unites of k^{th} decision-making unit (DMUs) and where $1 \leq k \leq s$. There are n outputs which marked with (j = 1, ... ,n) and inputs m are marked with (I = 1, ... ,m). We define technical efficiency as the ratio of total outputs divided by total inputs. The efficiency of k^{th} decision-making units (DMU_k) is;

TE of DMU_k $$TE_k = \frac{\sum_{j=1}^{n} u_j Y_j^k}{\sum_{i=1}^{m} v_i X_i^k} \quad \ldots\ldots\ldots\ldots \quad (1)$$

$X_i^k, Y_j^k \geq 0,\ i = 1, \ldots . ,m,\ j = 1, \ldots . ,n,\ k = 1, \ldots . .s$

$u_j, v_i \geq 0,\ i = 1, \ldots . ,m,\ j = 1, \ldots . ,n,$

The Data Envelopments Analysis (DEA) model does not find the proper weights that optimum the efficiency of the decision-making unit (DMU) and estimate the efficiency score and frontier. The CCR model developed by Charnes et al. (1978), has led to more extensions, more extension notably Banker et al. (1984) in the BCC model. The BCC model and CCR model can be divided into two parts: the first part is the input orientation model and the second part is the output orientation model. The output orientation maximizes the level of output for a given level of input while the input orientation seeks to minimize the using of input given a fixed level of output. The constant returns to scale (CRS) assumption is assumed in the CCR model while the variables return to scale assumption is assumed in the BCC model.

In my paper, I choose the input-oriented model. The CCR model in dual is as follows;

$$Min\theta - \varepsilon\left[\sum_{i=1}^{m} s_i^- + \sum_{k=1}^{n} s_j^+\right] \quad (2)$$

s.t. $\sum_{i=1}^{s} \lambda_r x_i^r + s_i^- = \theta X_j^k \quad i = 1, \ldots . ,m$

$$\sum_{i=0}^{s} \lambda_r Y_j^r - s_i^+ = Y_j^r$$

$\lambda_r \geq 0$ r = 1,…..,,s

$s_i^- \geq 0$ $i = 1, \ldots . ,m$

$s_j^+ \geq 0$ $j = 1, \ldots . . . ,n$

Where:
θ is the efficiency of one DMU
S_i^- is an input slack variable that implies the excess value of the input
S_j^+ is the surplus variable this implies the shortfall value of the output
ε is a mathematical constant, the value is very small
λ_r This means the proportion of referencing DMU_r when measuring the efficiency of DMU_k
If we are adding one property in the CCR dual model is known as the BCC model;

$$\sum_{r=1}^{s} \lambda_r = 1 \quad (3)$$

Equation (3) frees constant returns to scale (CRS) and makes the BCC model variable returns to scale (VRS). The CCR model estimates overall technical efficiency (OTE), and the BCC model can estimate both the scale efficiency (SE) and the pure technical efficiency (PTE) of DMU. The relationship between OTE, PTE, and SE is;

OTE = PTE * SE (4)

DEA technique has been used successfully as a performance estimation tool in different sectors including hospitals, pharmaceutical firms, the manufacturing sector, education, banks, transportation, etc.
In my study, an input orientation as opposed to an output orientation has been adopted.

Data And Specification of Outputs and Input Variables

Data for 29 District Central Cooperative Banks of Rajasthan were taken from the National Federation of State Cooperative Banks Ltd. (NFSCBL) report, India. Our study is based on the intermediation approach. According to this approach, define three input variables and two output variables;

Table-1

Inputs	Outputs
Total no. of employees	Loan &Advances
Loanable Fund (Deposits + Borrowing)	Investments
Capital (Share Capital + Reserve Funds)	

*In this paper, I am using the Intermediaries Approach.
Source: Compiled by author

Results

Table 2: Overall Technical Efficiency of District Central Cooperative Banks of Rajasthan

Bank	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Ajmer	0.92	0.833	0.507	0.827	0.876	0.7926
Alwar	0.851	0.846	0.48	0.737	0.675	0.7178
Banswara	1	0.827	0.757	0.846	0.719	0.8298
Baran	0.761	0.756	0.459	0.791	0.652	0.6838
Barmer	0.666	0.614	0.244	0.544	0.7	0.5536
Bharatpur	0.769	1	0.731	0.693	0.737	0.786
Bhilwara	0.913	0.935	0.555	0.885	0.799	0.8174
Bikaner	0.586	0.596	0.101	0.676	0.417	0.4752

Bundi	1	1	0.731	1	1	0.9462
Chittorgarh	0.944	0.877	0.599	0.8814	0.758	0.81188
Churu	0.929	0.883	0.367	0.814	0.756	0.7498
Dausa	0.961	0.957	0.613	1	0.882	0.8826
Dungarpur	1	1	1	1	0.882	0.9764
Ganganagar	1	0.912	0.393	0.965	1	0.854
Hanumangarh	1	1	0.646	1	1	0.9292
Jaipur	0.789	0.947	0.726	0.793	0.74	0.799
Jaisalmer	0.72	0.723	0.456	0.754	0.633	0.6572
Jalore	0.985	0.968	0.846	1	1	0.9598
Jhalawar	0.954	0.826	0.395	0.792	0.838	0.761
Jhunjhunu	0.883	0.91	0.497	0.96	0.763	0.8026
Jodhpur	1	0.928	1	0.97	0.838	0.9472
Kota	0.921	0.909	0.666	0.952	1	0.8896
Nagaur	0.604	0.606	0.422	0.625	0.533	0.558
Pali	0.912	0.847	0.461	0.692	0.629	0.7082
Sawai Madhopur	0.994	0.858	0.363	0.787	0.613	0.723
Sikar	0.873	0.71	0.782	0.984	0.83	0.8358
Sirohi	0.873	0.794	0.569	0.732	0.743	0.7422
Tonk	0.245	0.247	0.18	0.253	0.214	0.2278
Udaipur	0.902	0.895	0.963	0.994	1	0.9508

Source: Compiled by author on the basis of result from input-oriented BCC Model by DEA\EMS software

In Table 2, the overall technical efficiency score of district central cooperative banks of Rajasthan from 2013/14 to 2017/18, was obtained by the BCC model. The table shows that out of 29 districts central cooperative banks, 6 banks were found to be overall technically efficient in 2013/14, and 2017/18, with the OTE score equal to 1. The range of OTE was 0.245 or 24.5 percent to 1 or 100 percent and 0.214 or 21.4 percent to 1 or 100 percent in the years 2013/14 to 2017/18. The frontier district's central cooperative banks are the Baswara, Bundi, Dungarpur, Ganganagar, Hunumangad, and Jodhpur these banks were fully technical efficient banks in the year 2013/14 and in the year 2017/18 technical efficient banks were Bundi, Ganganagar, Hanumangarh, Jalore, Kota, and Udaipur. Furthermore, the inefficient banks identified in the sample could move towards the efficient frontier by emulating the best practices of the efficient banks. That is, the ultimate destination for all inefficient banks in their drive to achieve a high level of performance is to follow the input-output combinations that are used by efficient banks. The range of average level of OTE in the districts central cooperative banks of Rajasthan is 0.2278 to 0.9764 for 2013/14 and 2017/18. The district central cooperative banks of Dungarpur were the best performers from 2013/14 to 2017/18, with a mean of OTE is 0.9764 and Tonk was a very low performer bank from 2013/14 to 2017/18, with a mean of OTE is 0.2278.

Table 3: Pure Technical Efficiency of Districts Central Cooperative Banks of Rajasthan						
Bank	2013-14	2014-15	2015-16	2016-17	2017-18	Mean

Ajmer	0.923	0.863	0.695	0.827	1	0.8616
Alwar	0.852	0.849	0.56	0.737	0.73	0.7456
Banswara	1	0.849	0.879	0.945	0.874	0.9094
Baran	0.914	0.865	0.858	0.959	0.909	0.901
Barmer	0.673	0.625	0.316	0.556	1	0.634
Bharatpur	1	1	1	0.978	0.996	0.9948
Bhilwara	0.917	0.969	0.581	0.885	0.854	0.8412
Bikaner	1	1	1	1	1	1
Bundi	1	1	0.995	1	1	0.999
Chittorgarh	1	0.898	0.611	1	1	0.9018
Churu	0.983	0.912	0.68	0.884	0.955	0.8828
Dausa	1	1	1	1	1	1
Dungarpur	1	1	1	1	1	1
Ganganagar	1	0.92	0.43	1	1	0.87
Hanumangarh	1	1	0.658	1	1	0.9316
Jaipur	1	1	1	1	0.759	0.9518
Jaisalmer	1	1	1	1	1	1
Jalore	1	1	1	1	1	1
Jhalawar	0.956	0.835	0.536	0.85	0.893	0.814
Jhunjhunu	0.888	0.918	0.622	0.96	0.835	0.8446
Jodhpur	1	0.961	1	1	1	0.9922
Kota	0.921	0.92	0.77	0.952	1	0.9126
Nagaur	0.63	0.653	0.643	0.651	0.665	0.6484
Pali	1	0.862	0.493	0.694	0.74	0.7578
Sawai Madhopur	1	0.887	0.522	0.788	0.718	0.783
Sikar	0.873	0.782	0.968	1	1	0.9246
Sirohi	0.889	0.847	0.747	0.748	0.819	0.81
Tonk	0.703	0.703	0.703	0.703	0.703	0.703
Udaipur	0.905	0.901	1	1	1	0.9612

Source: Compiled by author on the basis of result from input-oriented BCC Model by DEA\EMS software

Table 4: Scale Efficiency of Districts Central Cooperative Banks of Rajasthan

Bank	2013-14	2014-15	2015-16	2016-17	2017-18	Mean
Ajmer	0.996	0.965	0.729	0.924	0.876	0.898
Alwar	1	0.997	0.856	1	0.924	0.9554
Banswara	1	0.974	0.862	0.896	0.823	0.911
Baran	0.833	0.873	0.535	0.825	0.717	0.7566
Barmer	0.99	0.983	0.771	0.978	0.7	0.8844
Bharatpur	0.769	1	0.731	0.709	0.74	0.7898
Bhilwara	0.996	0.996	0.955	1	0.935	0.9764
Bikaner	0.586	0.596	0.101	0.676	0.417	0.4752

Bundi	1	1	0.734	1	1	0.9468
Chittorgarh	0.944	0.977	0.98	0.881	0.758	0.908
Churu	0.945	0.968	0.54	0.92	0.791	0.8328
Dausa	0.961	0.957	0.613	1	0.882	0.8826
Dungarpur	1	1	1	1	0.882	0.9764
Ganganagar	1	0.991	0.916	0.965	1	0.9744
Hanumangarh	1	1	0.982	1	1	0.9964
Jaipur	0.789	0.947	0.726	0.793	0.974	0.8458
Jaisalmer	0.72	0.723	0.456	0.754	0.63	0.6566
Jalore	0.985	0.968	0.846	1	1	0.9598
Jhalawar	0.998	0.99	0.736	0.932	0.938	0.9188
Jhunjhunu	0.995	0.992	0.799	1	0.913	0.9398
Jodhpur	1	0.965	1	0.97	0.838	0.9546
Kota	1	0.988	0.865	1	1	0.9706
Nagaur	0.96	0.929	0.657	0.96	0.802	0.8616
Pali	0.912	0.982	0.934	0.998	0.85	0.9352
Sawai Madhopur	0.994	0.967	0.695	1	0.853	0.9018
Sikar	1	0.907	0.808	0.894	0.83	0.8878
Sirohi	0.982	0.936	0.761	0.978	0.907	0.9128
Tonk	0.348	0.352	0.256	0.36	0.305	0.3242
Udaipur	0.997	0.993	0.963	0.994	1	0.9894

Source: Compiled by author on the basis of result from input-oriented BCC Model by DEA\EMS software

Tables 3 and 4 show the pure technical efficiency and scale efficiency scores of 29 district central cooperative banks of Rajasthan, year 2013/14 to 2017/18. OTE can be decomposed into two mutually exclusive and non-additive components: PTE and SE. It is significant to note that, like the OTE measure, PTE also indicates the underutilization of inputs. However, in contrast to OTE, PTE is devoid of scale effects. It captures a firm's managerial efficiency independently from any scale consideration. Therefore, all inefficiencies reflected from the PTE measure directly result from managerial sub-performance. For overall technically inefficient banks, the OTE score is always less than the PTE score. A bank with a PTE of less than 1 is considered neither technically efficient nor scale efficient. Otherwise, if the bank receives a PTE score equal to 1, it is pure technically efficient but may not be scale efficient. On the other hand, the SE measure indicates whether the bank in question operates at an optimal scale size or not. The table also provides the PTE scores along with the SE score, the PTE score ranges from the lowest figure of 0.63 to the highest figure of 1 for 2013/14 and 0.703 to 1 for 2017/18. The average PTE score range from 2013/14 to 2017/18, lowest is 0.703 bank Tonk and the highest is 1. Further 15 banks have been identified out of 29 banks as relatively efficient under the VRS assumption in 2013/14 and 2017/18 since they have attained a PTE score equal to 1. Table 3 shows the scale efficiency score of 29 banks in the year 2013/14, 9 banks attained an SE score equal to 1 and have either DRS or IRS. Also, the majority of banks work with an SE above 80%. In 2017/18, 6 banks are fully scale efficient banks with SE score equal to 1 and operating at CRS. The remaining 23 banks operate with some degree of SE and have DRS or IRS.

Table 5: Return to Scale of Districts Central Cooperative Banks of Rajasthan					
Bank	2013-14	2014-15	2015-16	2016-17	2017-18
Ajmer	irs	irs	irs	irs	Irs
Alwar	-	irs	irs	-	Irs
Banswara	-	irs	irs	irs	Irs
Baran	irs	irs	irs	irs	Irs
Barmer	irs	irs	irs	drs	drs
Bharatpur	irs	-	irs	irs	Irs
Bhilwara	irs	drs	irs	-	Irs
Bikaner	irs	irs	irs	irs	Irs
Bundi	-	-	irs	-	-
Chittorgarh	drs	drs	drs	drs	drs
Churu	irs	irs	irs	irs	Irs
Dausa	irs	irs	irs	-	Irs
Dungarpur	-	-	-	-	Irs
Ganganagar	-	irs	irs	drs	-
Hanumangarh	-	-	irs	-	-
Jaipur	drs	drs	drs	drs	drs
Jaisalmer	irs	irs	irs	irs	Irs
Jalore	irs	irs	irs	-	-
Jhalawar	irs	irs	irs	irs	Irs
Jhunjhunu	irs	irs	irs	-	Irs
Jodhpur	-	drs	-	drs	drs
Kota	-	irs	irs	-	-
Nagaur	irs	irs	irs	irs	Irs
Pali	drs	drs	drs	drs	drs
Sawai Madhopur	irs	irs	irs	-	Irs
Sikar	-	drs	drs	drs	drs
Sirohi	irs	irs	irs	irs	Irs
Tonk	irs	irs	irs	irs	Irs
Udaipur	drs	irs	irs	irs	-

Source: Compiled by author on the basis of result from input-oriented BCC Model by DEA\EMS software

Table 5 explains of return to scale of Districts Central Cooperative Banks of Rajasthan, we found that in the year 2013/14, 16 banks were IRS, 4 banks were DRS and 9 banks were CRS and in the year 2017/18, 17 banks belonged to IRS, 6 banks DRS and 6 banks are CRS assumption attained. Also, table 5 shows that banks Ajmer, Baran, Bikaner, Jaisalmer, Jhalawar, Nagaur, Sirohi, and Tonk are IRS assumptions attained in the year 2013/14 to 2017/18 and banks Chittorgarh, Jaipur, and Pali are DRS assumption attained in the year 2013/14 to 2018.

Conclusion

The central theme of this project work is finding the OTE, PTE, and SE of Districts Central Cooperative Banks of Rajasthan in years 20113/14 to 2017/18 using by BCCs model and the second objective is to evaluate the ranking of District Central Cooperative banks of Rajasthan (2013-14 to 2017-18). The results show that the OTE score ranged between 24.5% to 100% for 2013/14, with 6 banks fully OTE, and 21.4% to 100% for 2017/18 and 6 banks fully OTE. Further 15 banks have been identified out of 29 banks as relatively efficient under the VRS assumption in 2013/14 and 2017/18 since they have attained a PTE score equal to 1. %. In 2017/18, 6 banks are fully scale efficient banks with SE score equal to 1 and operating at CRS. The remaining 23 banks operate with some degree of SE and have DRS or IRS. Also, the average OTE score defines the ranking of banks, Dungarpur Bank was the best-performing bank in the years 2013/14 to 2017/18 an average OTE was 97.64% and Tonk Bank ranked last 29 number is overall year the average OTE is 22.78%.

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