



RELATIONSHIP BETWEEN PRODUCTIVITY AND PROFITABILITY: A CASE STUDY OF PALUS SAHAKARI BANK LTD. PALUS

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Abstract

The present paper has made an attempt to study the relationship between productivity and profitability of Palus Sahakari Bank Ltd. Palus (PSB Ltd.). The researchers have selected parameters like Productivity of banks i.e. Employee Productivity and Branch Productivity and Profitability to analyze the performance of bank during the time period from 2009-10 to 2015-16. The main objective of the study is to examine the impact of productivity on profitability of co-operative bank. The productivity and profitability are depending on each other and its affects the financial performance of the co-operative banks. The researchers used different statistical tools like multiple correlations for testing the hypotheses. Overall study shows that there is strong relationship between productivity and profitability of PSB Ltd.

Keywords: Employee Productivity, Branch Productivity, Profitability, Co-operative Bank

Introduction

The co-operative banks have played a significant role in the banking system, by establishing a new type of banks which are distinguished by its customers based services and it improves the local development in rural area. The purpose of the co-operative banks is to provide banking facilities and services to their members and the small firms, these small firms do not have easy access to the traditional banks, because of the small volume of their business. It will help to development of rural and semi-urban areas and ultimately it will improve the growth of financial sector in Indian economy. Profitability is a relative measure of banks operational efficiency.



“Profitability in banking parlance denotes the efficiency with which a bank deploys its total resources to optimize its net profits and thus serve as measure of assets utilization and managerial effectiveness” (Debashish, 2003). Profitability is measure of efficiency with which the operations of a business organization are assessed and co-operative banks should maintain their profitability to improve their resource position. Profitability of banks mostly depends on the productivity, if the productivity increases ultimately profitability also increases and vice versa. Productivity is defined as “the goods and services produced per unit of labour, capital or both” (Rao, 1999). The branches and employees are the two important wheels on which whole banking industry is moving. In simple words, productivity is the output per unit of input employed. The banking industry is a service industry and its inputs are different such as branches and employees and outputs are also different i.e. deposits, advances (total business) and net profit etc.

Review of Literature

The aim of this literature review is to give a comprehensive overview of important findings of other studies and to provide understandings of research gaps and methodological gaps of current literature. The study reviews the existing literature on productivity and profitability of co-operative bank which are as follows:

Patil (2012) have made analysis of productivity and profitability of SBI and its associated banks, during the period from 2007-08 to 2008-09. He came to conclude that the productivity of SBI and its associate banks has increased and the Assets Burden Ratio (ABR) has also increased which affect the profitability of selected public sector banks. These banks need to do effective implement practices like of the Assets Liabilities Management (ALM), Risk Management and Risk based Audit and Governance. Chavali (2010) has made comparison of the performance and productivity of public and private sector banks and by using the t Test and One Way ANOVA analysis of data, in during the period from 2001 to 2009. The results indicate the similar performance of public and private sector banks there is no difference between them. Reddy (2005) has studied the changes in growth of bank productivity through employing the Malmquist Total Factor Productivity (TFP) index. He also studied effect of decomposing TFP change of



banks on technological progress, pure technological efficiency and skill efficiency change, with respect to various groups of Indian banks, during the period 1996-2002. He came to conclusion that public sector banks had the highest TFP growth; old private sector banks are ahead of new private sector banks and foreign banks in terms of increasing efficiency. TFP growth of banks in backward region was increased as compared to banks in developed region, due to spreading of technology and efficiency. Hoque, Bhuiyan and Rahman (2013) has studied on critical examine the impact of productivity on profitability of 15 PCBs operating in Bangladesh, during the period from 2007-2011. He analyzed the productivity and profitability performance by using Pearson Correlation, Multiple Correlation and Regression Model, for testing the hypotheses he applied F test, t test and ANOVA. He came conclude that there is strong relationship between productivity and profitability of banks and productivity is made a positive impact on profitability of selected banks. Nandy (2011) attempted to focus on the factors which are influencing on profitability of banks in India and by using the correlation matrix and regression analysis. The result of study indicates that the Interest Expenses and Net NPA are rightly negatively correlated with Net Profit but Operating Expense is positively correlated with Net Profit.

Statement of the Problem

In the present situation the Co-operative banks have many problems. For solving problems of the co-operative banks specific remedies should be taken by the top management of co-operative banks. The management, shareholders, depositors, borrowers, creditors are always think about the financial health of the co-operative banks. From the whole situation of co-operative banks the researcher has thought on the following investigative questions:

1. What are the causes which affecting the productivity of bank?
2. Which factors are influencing the profitability of bank?
3. How does the co-operative bank improve their productivity and profitability?



Objectives of the Study

The main objective of study is to make a relationship between Productivity and Profitability of PSB Ltd. The specific objectives of the study are as follows:

1. To assess the productivity performance of PSB Ltd.
2. To examine the profitability performance of PSB Ltd.
3. To study the impact of productivity on profitability of PSB Ltd.
4. To offer suggestion for improving productivity and profitability of the co-operative bank.

Hypotheses

1. The Branch Productivity of PSB Ltd. affects the profitability.
2. The Employee Productivity of PSB Ltd. affects the profitability.

Methodology of the Study

The present study is an analytical study and mainly depends on secondary sources of data. The researcher has selected Palus Sahakari Bank Ltd. Palus is located in Palus Taluka of Sangli District. For testing the hypothesis researcher has used Correlation Matrix. The study of bank has been done for a period of seven years from 2009-10 to 2015-16.

Analysis and Findings

The researcher has analyzed the data relating to the productivity and profitability of co-operative bank. The branch productivity and employee productivity are main indicators of productivity of bank. Return on Assets and Return on Equity are major indicators of profitability of bank; it indicates the earning quality of bank. Measurement of productivity has made in terms of productivity per branch and productivity per employee. In the next stage the parameters for productivity per branch are taken as, Deposits per Branch (DPB), Advance per Branch (APB), Business per Branch (BPB), Net Profit per Branch (NPPB), Spread per Branch (SPB), Burden per Branch (BPB₁), Total Income per Branch (TIPPB), Total Expenditure per Branch (TEPB) were as productivity per employee such as Deposits per employee (DPE), Advance per employee (APE), Business per employee (BPE), Net Profit per employee (NPPE), Spread per employee



(SPE), Burden per employee (BPE₁), Total Income per employee (TIPPE), Total Expenditure per employee (TEPE). Analysis of profitability is based on the performance called Return on Assets (ROA), Return on Equity (ROE), Spread Ratio and Burden Ratio. The productivity measures and profitability measure has been presented in Table 1 and Table 2 which are as follows.

Table - 1**Productivity Performance of PSB Ltd.**

Year	Branch Productivity								Employee Productivity							
	DPB	APB	BPB	NPPB	SPB	BPB ₁	TIPB	TEPB	DPE	APE	BPE	NPPE	SPE	BPE ₁	TIPE	TEPE
2009-10	738.26	519.05	1257.30	3.62	24.58	16.82	111.69	108.05	65.83	46.28	112.12	0.32	2.19	1.50	9.96	9.64
2010-11	717.27	517.74	1235.00	3.18	27.15	16.45	87.20	84.02	64.78	46.76	111.55	0.28	2.45	1.48	7.88	7.59
2011-12	793.07	540.67	1333.74	3.64	28.62	19.00	86.78	83.14	77.64	52.93	130.58	0.35	2.80	1.86	8.50	8.14
2012-13	837.14	577.75	1414.89	4.45	34.44	20.62	102.38	97.94	83.12	57.36	140.48	0.44	3.41	2.04	10.17	9.72
2013-14	936.79	584.37	1521.15	6.70	38.19	22.29	107.05	100.34	100.37	62.61	162.98	0.72	4.09	2.39	11.47	10.75
2014-15	1025.00	754.87	1779.87	6.04	47.37	24.46	126.59	120.54	109.82	80.88	190.70	0.65	5.07	2.62	13.56	12.91
2015-16	1180.9	868.75	2049.65	8.31	58.06	25.45	149.07	140.76	127.43	93.75	221.18	0.89	6.26	2.75	16.09	15.19

(Sources: Annual Reports of PSB Ltd. from year 2009-10 to 2015-16)

Table no. 1 shows the productivity of PSB Ltd. during the study period from 2009-10 to 2015-16. It shows that the productivity including two parts i.e. Branch Productivity and Employee Productivity of bank, by using the eight parameters such as DPB, APB, BPB, NPPB, SPB, BPB₁, TIPB, TEPB for branch productivity and DPE, APE, BPE, NPPE, SPE, BPE₁, TIPE, TEPE for employee productivity of bank. The Business (deposits + advance) per Branch show the increasing trend, it was Rs. 1257.30 lakhs in 2009-10 which reached to Rs. 2049.65 lakhs in 2015-16 year. Business per employee show the increasing trend as it was Rs. 112.12 lakhs in 2009-10 which reached to Rs.221.18 lakhs. The spread per branch of PSB Ltd. are shows expansion of business in wide area network (i.e. in year 2009-10 was Rs. 24.58 lakhs which reached to Rs.58.06 lakhs in 2015-16), because interest income has increased year by year and similar situation in the spread per employee of PSB Ltd. show increasing trend year by year. But burden per employee and Burden per branch show increasing trend and it adversely affects the



productivity of bank. Total expenditure per branch of PSB Ltd. shows increasing trend i.e. Rs.108.05 lakhs in 2009-10 and Rs.140.76 lakhs in 2015-16. It indicates that reduced the productivity of bank. Table reveals that the overall productivity of PSB Ltd. is satisfactory and it improved the financial performance of bank in study period.

Table - 2

Profitability Performance of PSB Ltd.

Year	ROA	ROE	Spread	Burden
2009-10	0.03	0.29	1.95	1.34
2010-11	0.03	0.28	2.20	1.33
2011-12	0.03	0.27	2.15	1.42
2012-13	0.04	0.32	2.43	1.46
2013-14	0.04	0.37	2.51	1.47
2014-15	0.05	0.43	2.66	1.37
2015-16	0.05	0.47	2.83	1.24

(Sources: Annual Reports of PSB Ltd. and SSB Ltd. from year 2009-10 to 2015-16)

Table no.2 reveals that the profitability performance of PSB Ltd. by using the four parameters likes ROA, ROE, Spread Ratio and Burden Ratio. Return on Assets of bank shows constantly increasing trend during the study period because bank used assets in better way. The Return on Equity of bank 0.29% in 2009-10 and increasing trend in 0.47% in 2015-16, it indicates the increasing trend of earning returns to owners of the bank. The Spread Ratio shows the increasing trend (i.e. 1.95% in 2009-10 and 2.83% in 2015-16) of bank which improves the productivity during the study period. Burden Ratio of PSB Ltd. in first five years shows increasing trend like 1.34%, 1.33%, 1.42%, 1.46%, 1.47% but in last two years burden ratio shows decreasing trend i.e. 1.37% and 1.24% respectively. It indicates the bank should take efforts to reduce the burden in last two years and improve the profitability.



Testing of Hypotheses

The study aimed at testing the relationship between branch productivity and profitability of a bank. Hence, the following hypotheses have been formulated;

H₀₁: The Branch Productivity of PSB Ltd. does not affect the profitability.

H_{a1}: The Branch Productivity of PSB Ltd. affects the profitability.

Table - 3

Correlation between Branch Productivity and Profitability of PSB Ltd.

		DPB	APB	BPB	NPPB	SPB	BUR	TIPB	TEPB	ROA	ROE	SPRD	BRDN
DPB	Pearson Correlation	1	-.890**	-.823*	-.587	-.795*	-.681	-.802*	-.810*	-.761*	-.797*	-.666	.699
	Sig. (2-tailed)		.007	.023	.166	.033	.092	.030	.027	.047	.032	.103	.081
APB	Pearson Correlation	-.890**	1	.989**	.869*	.979**	.902**	.913**	.903**	.916**	.954**	.890**	-.555
	Sig. (2-tailed)	.007		.000	.011	.000	.005	.004	.005	.004	.001	.007	.196
BPB	Pearson Correlation	-.823*	.989**	1	.929**	.994**	.946**	.907**	.891**	.933**	.974**	.923**	-.462
	Sig. (2-tailed)	.023	.000		.003	.000	.001	.005	.007	.002	.000	.003	.296
NPPB	Pearson Correlation	-.587	.869*	.929**	1	.934**	.924**	.849*	.822*	.872*	.942**	.900**	-.286
	Sig. (2-tailed)	.166	.011	.003		.002	.003	.016	.023	.011	.002	.006	.533
SPB	Pearson Correlation	-.795*	.979**	.994**	.934**	1	.954**	.877**	.859*	.948**	.975**	.958**	-.422
	Sig. (2-tailed)	.033	.000	.000	.002		.001	.009	.013	.001	.000	.001	.345
BUR	Pearson Correlation	-.681	.902**	.946**	.924**	.954**	1	.796*	.772*	.961**	.943**	.949**	-.153
	Sig. (2-tailed)	.092	.005	.001	.003	.001		.032	.042	.001	.001	.001	.743
TIPB	Pearson Correlation	-.802*	.913**	.907**	.849*	.877**	.796*	1	.999**	.839*	.917**	.738	-.590
	Sig. (2-tailed)	.030	.004	.005	.016	.009	.032		.000	.018	.004	.058	.164
TEPB	Pearson Correlation	-.810*	.903**	.891**	.822*	.859*	.772*	.999**	1	.823*	.900**	.712	-.609
	Sig. (2-tailed)	.027	.005	.007	.023	.013	.042	.000		.023	.006	.073	.147
ROA	Pearson Correlation	-.761*	.916**	.933**	.872*	.948**	.961**	.839*	.823*	1	.961**	.950**	-.237
	Sig. (2-tailed)	.047	.004	.002	.011	.001	.001	.018	.023		.001	.001	.608
ROE	Pearson Correlation	-.797*	.954**	.974**	.942**	.975**	.943**	.917**	.900**	.961**	1	.927**	-.407
	Sig. (2-tailed)	.032	.001	.000	.002	.000	.001	.004	.006	.001		.003	.365
SPRD	Pearson Correlation	-.666	.890**	.923**	.900**	.958**	.949**	.738	.712	.950**	.927**	1	-.218
	Sig. (2-tailed)	.103	.007	.003	.006	.001	.001	.058	.073	.001	.003		.639
BRDN	Pearson Correlation	.699	-.555	-.462	-.286	-.422	-.153	-.590	-.609	-.237	-.407	-.218	1
	Sig. (2-tailed)	.081	.196	.296	.533	.345	.743	.164	.147	.608	.365	.639	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).



Table 3 shows the correlation between branch productivity and profitability of PSB Ltd. with the help of different variables of productivity i.e. DPB, APB, BPB, NPPB, SPB, BUR, TIPB, TEPB and profitability like ROA, ROE, Spread and Burden ratios. There is strong negative (i.e. more than -0.70) correlation between DPB and ROA, ROE and Spread ratio, but moderate positive correlation between DPB and ROA, ROE and Spread ratio. It shows that productivity affects the profitability of PSB Ltd. There is high positive (i.e. more than 0.80 to 0.90) correlation between productivity parameters like APB, BPB, NPPB, SPB, BUR, TIPB, TEPB and profitability parameters i.e. ROA, ROE and Spread ratio. It indicates the productivity positively affects the profitability of bank and increase the productivity ultimately increases the profitability of bank. But relationship between productivity parameters (i.e. APB, BPB, NPPB, SPB, BUR, TIPB, TEPB) and Burden ratio of profitability it shows that the low negative correlation (i.e. -0.10 to -0.50) for each other. It shows that the productivity adversely affects the profitability of PSB Ltd. The null hypothesis is rejected and hence the alternative hypothesis is accepted because, the probability is less than the present level of significance (i.e. 0.01 or 0.05). It represents the strong relationship between branch productivity and profitability of PSB Ltd. and productivity increases the profitability increase and vice versa.

The study aimed at testing the relationship between employee productivity and profitability of a bank. Hence, the following hypotheses have been formulated;

H₀₂: The Employee Productivity of PSB Ltd. does not affect the profitability.

H_{a2}: The Employee Productivity of PSB Ltd. affects the profitability.

Table - 4

Correlation between Employee Productivity and Profitability of PSB Ltd.

	DPE	APE	BPE	NPPE	SPE	BUR	TIBE	TEPE	ROA	ROE	SPRD	BRDN
DPE Pearson Correlation	1	.976**	.995**	.973**	.991**	.982**	.945**	.936**	.936**	.965**	.947**	-.289
DPE Sig. (2-tailed)		.000	.000	.000	.000	.000	.001	.002	.002	.000	.001	.529
APE Pearson Correlation	.976**	1	.992**	.914**	.991**	.939**	.959**	.956**	.943**	.971**	.930**	-.443
APE Sig. (2-tailed)	.000		.000	.004	.000	.002	.001	.001	.001	.000	.002	.319
BPE Pearson Correlation	.995**	.992**	1	.953**	.997**	.969**	.957**	.950**	.945**	.974**	.945**	-.358
BPE Sig. (2-tailed)	.000	.000		.001	.000	.000	.001	.001	.001	.000	.001	.430
NPPE Pearson Correlation	.973**	.914**	.953**	1	.950**	.947**	.926**	.913**	.882**	.943**	.911**	-.248
NPPE Sig. (2-tailed)	.000	.004	.001		.001	.001	.003	.004	.009	.001	.004	.592
SPE Pearson Correlation	.991**	.991**	.997**	.950**	1	.961**	.952**	.945**	.951**	.976**	.962**	-.374



	Sig. (2-tailed)	.000	.000	.000	.001		.001	.001	.001	.001	.000	.001	.409
BUR	Pearson Correlation	.982**	.939**	.969**	.947**	.961**	1	.895**	.884**	.946**	.933**	.946**	-.119
	Sig. (2-tailed)	.000	.002	.000	.001	.001		.006	.008	.001	.002	.001	.800
TIPE	Pearson Correlation	.945**	.959**	.957**	.926**	.952**	.895**	1	.999**	.921**	.977**	.859*	-.468
	Sig. (2-tailed)	.001	.001	.001	.003	.001	.006		.000	.003	.000	.013	.290
TEPE	Pearson Correlation	.936**	.956**	.950**	.913**	.945**	.884**	.999**	1	.917**	.973**	.848*	-.483
	Sig. (2-tailed)	.002	.001	.001	.004	.001	.008	.000		.004	.000	.016	.272
ROA	Pearson Correlation	.936**	.943**	.945**	.882**	.951**	.946**	.921**	.917**	1	.961**	.950**	-.237
	Sig. (2-tailed)	.002	.001	.001	.009	.001	.001	.003	.004		.001	.001	.608
ROE	Pearson Correlation	.965**	.971**	.974**	.943**	.976**	.933**	.977**	.973**	.961**	1	.927**	-.407
	Sig. (2-tailed)	.000	.000	.000	.001	.000	.002	.000	.000	.001		.003	.365
SPRD	Pearson Correlation	.947**	.930**	.945**	.911**	.962**	.946**	.859*	.848*	.950**	.927**	1	-.218
	Sig. (2-tailed)	.001	.002	.001	.004	.001	.001	.013	.016	.001	.003		.639
BRDN	Pearson Correlation	-.289	-.443	-.358	-.248	-.374	-.119	-.468	-.483	-.237	-.407	-.218	1
	Sig. (2-tailed)	.529	.319	.430	.592	.409	.800	.290	.272	.608	.365	.639	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Table 4 shows the correlation between employee productivity and profitability of PSB Ltd. with the help of different variables of productivity i.e. DPE, APE, BPE, NPPE, SPE, BUR, TIPE, TEPE and profitability like ROA, ROE, Spread and Burden ratios. There is high positive (i.e. more than 0.80 to 0.90) correlation between employee productivity parameters i.e. DPE, APE, BPE, NPPE, SPE, BUR, TIPE, TEPE and profitability parameters like ROA, ROE and Spread ratio. It indicates the employee productivity positively affects the profitability of bank and increases the profitability of bank. But relationship between employee productivity (i.e. DPE, APE, BPE, NPPE, SPE, BUR, TIPE, TEPE) and Burden ratio of profitability, it shows that the low negative correlation (i.e. -0.10 to -0.50). It indicates the employee productivity adversely affects the profitability of bank and reduces the profitability of bank. The null hypothesis is rejected because the probability is less than the present level of significance (i.e. 0.01 or 0.05) and hence the alternative hypothesis is accepted. It conclude that the there is strong relationship between them.

Findings

1) The BPB and BPE of PSB Ltd. have increasing trend because deposits and advances are increased over a study period. It shows the higher productivity of bank.



- 2) Spread per branch of PSB Ltd. goes from Rs.24.58 lakhs in 2005-06 to Rs.58.06 lakhs in 2011-12 during the study period; it indicates the expansion of business in operational area.
- 3) PSB Ltd. Shows the increasing trend of burden ratio in first five years and after that decreasing trend in burden ratio because first five years other operating expenses are increased. It indicates the raising frustration of bank and reduces the productivity of bank but after that bank reduce the burden and improve the productivity.
- 4) It is found that the total expenditure per employee of PSB Ltd. showing increasing trend during the study period. It shows the poor productivity of PSB Ltd., because increasing the total expenditure year after year.
- 5) The overall profitability position of PSB Ltd. is satisfactory level because there is constantly increasing trend in ROA, ROE and Spread ratio and reduce the Burden ratio.
- 6) There is high positive correlation between productivity and profitability of PSB Ltd. It shows the increase the productivity ultimately improve the profitability of bank.
- 7) There is negative correlation between burden ratio of productivity and profitability of PSB Ltd. because increases in burden of bank it is adversely affect the productivity and profitability of bank.

Suggestions

- 1) PSB Ltd. should try to reduce the other operating expenses which were adversely affected the productivity of bank. It will reduce the burden of bank.
- 2) The bank should provide the ATM and Core Banking Service to customers, which will help to attract more customers and generate new revenues and consequently increase the profitability.
- 3) The bank should launch a new training programme (i.e. Integrated Server Room [ISR] developed by IBM, Core Banking Software etc.) in operations management at branch level to increase the performance of bank.



- 4) The bank should establish marketing division and through which they can promote the banking products such as different deposits and advances scheme.
- 5) Respected branches may increase banking business through Business Correspondent in various villages of the catchment areas, by which bank can seek business on one hand and achieve financial inclusion on the other hand.
- 6) It is also advisable to increase the profitability by making the provision as well as expansion, to increase the welfare scheme of employees, to maintain reputation of banks as well as to create job opportunities for the future generation and bank can also improve their credit worthiness position.
- 7) When bank sanction the loan to the customers the bank properly adopts the 'Credit Appraisal Mechanism' it will reduce the recovery problem of bank and consequently increase the productivity.

Conclusion

Productivity is the key factor of growth and profitability of co-operative banks for improving their performance. One important result found from this paper is that the co-operative bank has achieved significant magnitude and it has covered basic need of the local societies. The productivity and profitability position of PSB Ltd. is satisfactory level. The measures of productivity as mentioned in the study should be of great concern for the bank management since they have positive impact on the bank profitability. Hence, the PSB Ltd. authority should give due emphasis on productivity measures of performances since they have direct influence on their profitability.

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