
EFFECTIVENESS OF PRODUCTIVITY MEASURES ON PERFORMANCE AND PROFITABILITY OF SELECTED BANKS IN INDIA

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Abstract: Productivity is one of the important measures which helps for growth and development of economy of the country. The productivity plays a crucial part in organizational achievement of excellence which is essential for dynamic society. Optimum productivity of a company depends on coordination between all inputs that yield maximum profitability with minimum effort. Hence the present study focuses on an objective to identify and compare the factors influencing the Productivity as well as profitability Performance of select Public and Private sector banks in India. The sample consists of 20 Banks which were operating in India. The study period considered for the study is ten years from 2011-2012 to 2020-2021. The methodology which is used in the present study is Correlation analysis which helps to know the relationship between the select variables and Regression analysis is used to analyse the impact of select independent variables such as Sales Per employee, value added per employee, Profit before tax per employee, employee cost to sales and employee cost to value added on dependent variables like Return on Assets, return on Equity and Value added per fixed assets. Further Independent sample test is used to assess the relationship between Productivity and Performance measures of select Public and Private sector Banks in India. Thus, the results from correlation analysis indicate that almost all the independent variables except Sales per employee and employee cost to sales have significant relationship with dependant variables in both Public sector and private sector banks. The Regression result shows that Sales per employee is having significant negative impact on Return on Assets, return on equity and Value added per fixed assets. Independent samples test reveals that the Private sector banks are showing superior performance than Public sector banks.

Key Words: Productivity Measures, Profitability, Public and Private Sector Banks, Productivity, Return on Assets

1. INTRODUCTION

The banking system plays an important role to the economic development and growth of the country. Growth in Banks productivity is very important for the effective functioning of the various societal activities. Finance acts as a catalyst to the enhancement of the country's economic condition. There is a necessity to meet the growth in finance as well as there is an extreme necessity to strengthen the banks productivity and their performance. Banking activities and its performance are the nerve centres for the nation's economy. The role of finance for the economic development of a country has identified and it forms the essential of the money market in economy. Over the past few decades, more focus has been put on financial institutions especially on commercial banks in analysing both productivity and performance. Thus, keeping in view the importance of banking sector reforms and Basel Accords, the present study

aimed to analyze the relative factors affecting both productivity and Profitability performance of selected public and private sector banks from the year 2011-2012 to 2020-2021. The present study aims at an analysis of banks productivity using the ratios Sales per employee, value added per employee, Profit before tax per employee, employee cost to sales, Employee cost to value added and Performance measures like return on assets, return on equity and value added per fixed assets.

2. LITERATURE REVIEW

Jamin Patel (2021) compared the Profitability of private and public sector banks. The study will consider profitable relationships between Indian commercial banks. Analysis reveals that national and private sector banks are quite profitable.

AdwaitaMaiti, Sebak Kumar Jana (2020) seeks to examine the five largest banks in India. The result shows that the select ratios profit margin per employee, net interest margin, net non-corporate asset ratio and non-monetary income have a significant impact on profits for select banking groups.

Amanjot Kaur Sodhi & Simran Waraic (2019) estimates the performance of selected public and private sector banks in India. They will study and compare the various aspects of the performance of selected public and private sector banks in India. The study reveals that Private sector banks are performing well than public sector banks. This study has suggested that more emphasis is on the consumer service which will increase the customer confidence.

Shaik Abdul Mazed et.al. (2019): This study reveals a fact that the best and exemplary ratio of equity capital and debt capital will boost the net worth of a company (profitability) equally with return rates.

Amit Kumar Singh (2018) his research analysed the profitability position of private banks in India. The survey reveals that the selected private sector banks got a huge response in terms of service and quality banking.

Rina V., Sommanek (2017) focuses on employee productivity in the banking sector. They concluded that no significant difference exists in Business per Employee among the select Private Sector Banks. No significant difference has found in Profit per Employee of the Private Sector Banks

Cheenu Goel, Rekhi (2016) conducted a study in comparison of selected public and private sectors in India during the period of 2009-2012. Analysis shows that the public sector banks are less profitable compare to private banks. As per his analysis the performance of bank depends on return on assets, return on equity and net interest margin.

Banik and Das (2015) study of "comparative financial efficiency of commercial banks": According to the correlation, regression analysis and testing, they consider negative correlations instead of loans with non-loans, secret credit percentages, and positive lending relationships on asset coefficients, deposit ratio to loans.

Virender Koundal (2013) analyzes the Performance of banks in India through the financial system of India. For this study he considered public, private and foreign sector banks. Here, foreign banks are more efficient banks then new banks after old banks and at last Public sector banks.

3. CONCEPTUAL MODEL

The structure used for the analysis is mainly based on the productivity impact on profitability performance measures. There is a certain relationship among Productivity and Performance which should to be carefully dissected and analysed, to get their corresponding impact on profitability. So, it is necessary to bring up the different assumptions of the analytical structure. The Sales per employee, Value added per employee, Profit Before Tax per employee, Employee Cost to Sales, Employee Cost to Value added interest are selected as measures to productivity of banks. ROA, ROE and Value added to Fixed Assets are selected as Profitability measures of banks. The key measures of Productivity and profitability performance banks and their relationship are presented in figure 1.

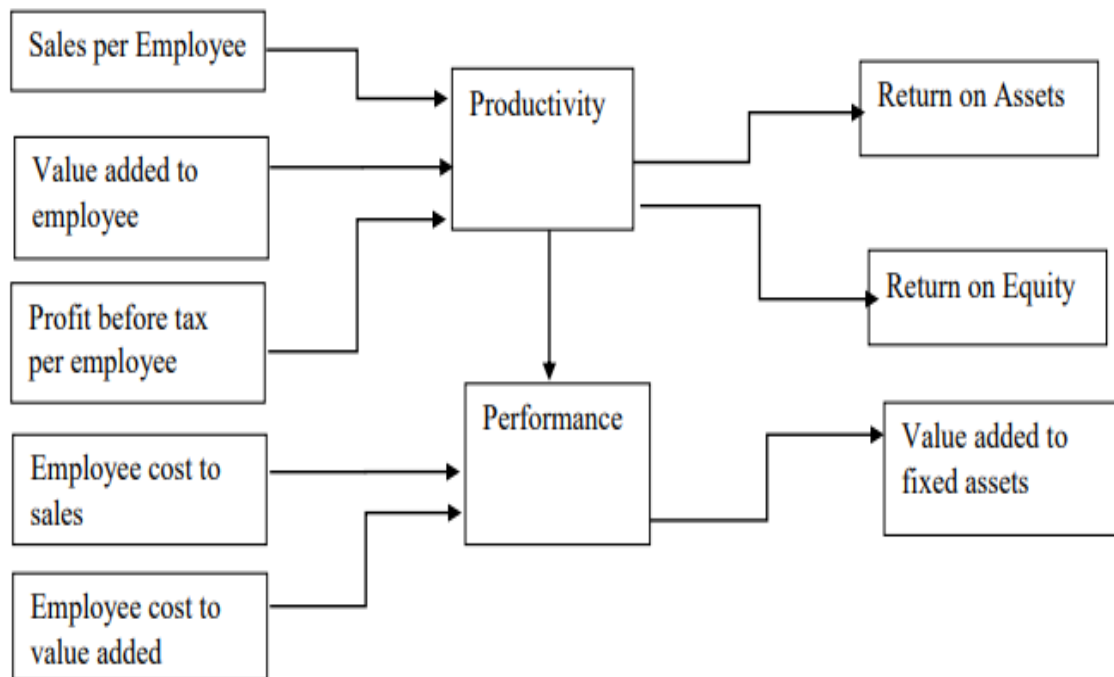


Figure-1 Conceptual Model of Variables

4. OBJECTIVES

1. To analyze and compare the factors influencing Productivity of select Public Sector and Private sector banks in India.
2. To analyze and compare the Profitability ratios of select public sector and private sector banks in India.
3. To study the effect of Productivity measures on Profitability ratios of select Public Sector and Private Sector Banks in India.

5. HYPOTHESES

1. **H₀₁**: there is no relationship among Productivity and Profitability measures of select Public and Private sector banks.
2. **H_{a1}**: there exists a relationship among Productivity and Profitability measures of select public and Private sector banks.
3. **H₀₂**: There is no existence of positive impact of Productivity measures on the profitability measures of select public and Private sector banks.
4. **H_{a2}**: There is existence of positive impact of Productivity measures on the profitability measures of select public and Private sector banks.

6. METHODOLOGY

The purposive sampling technique has been adopted for the selection of the sample banks. Twenty banks were selected for the study of which ten i.e. 50 percent banks were from public sector banks and ten i.e. 50

percent were from private sector banks. To select the sample banks, net profit of last ten years from 2011-2012 to 2020-2021 was considered both for public and private sector banks in India.

A. SAMPLE SIZE: The universe of the research includes all the banks working in India. But for the study purpose, 20 Banks were selected as sample. Those Banks were; Allahabad bank, Andhra bank, Bank of Baroda, Bank of India, Canara Bank, Central Bank of India, Indian Bank, Oriental bank of Commerce, State bank of India, Syndicate bank, City union bank, Dhanalakshmi Bank, Federal bank, HDFC bank, ICICI bank, Karnataka bank, Karur Vysya bank, Laxmi vilas bank, South India bank and Yes bank

B. FINANCIAL TOOLS OF ANALYSIS: Sales per Employee, Value Added by Employee, Profit before Tax per Employee, Employee Cost to Sales, Employee Cost to Value Added, return on Assets, return on Equity, Value added per rupee of fixed Assets

C. STATISTICAL TOOLS: Correlation Analysis, Regression Analysis and Independent samples test

7. RESULTS AND ANALYSIS

Table-1: Multiple Correlation matrix for public sector banks

PUBLIC SECTOR BANKS								
Ratios	SPE	VAPE	PBTE	ECS	ECVA	ROA	ROE	VAFa
SPE	1							
VAPE	.176	1						
PBTE	-.088	-.102	1					
ECS	.037	.019	-.180	1				
ECVA	-.478**	-.174	.157	-.029	1			
ROA	-.500**	-.165	.769**	-.198*	.301**	1		
ROE	-.166	.578**	.462**	-.093	.157	.507**	1	
VAFa	.053	.586**	-.198*	-.013	-.229*	-.039	.496**	1

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

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

Interpretation: Correlation coefficient is a tool to measure the association between two variables. From the above table 1 it is observed that the relationship between eight variables was studied. It is found that the variable SPE was having significant relationship with ECVA and ROA (-0.478 and -0.500) at 1 percent level of significance but these two variables were negatively affecting the SPE. Whereas VAPE, PBTE, ECS, ROE and VAFa having insignificant relationship with SPE. The above table 1 shows that VAPE is positively associated with ROE and VAFa (0.578 and 0.586) at 1 percent level of significance. PBTE is positively correlated with ROA and ROE (0.769 and 0.462) at 1 percent level of significance. PBTE and VAFa have a high degree of negative relationship (-0.198) with VAFa whereas ECS was negatively correlated with ROA (-0.198) at 5 percent level of significance. ECVA have a positive association with ROA (0.301) at 1 percent significance level and ROE have a high positive association with ROE and VAFa (0.507 and 0.496) respectively at 1 percent significance level. Overall all the variables were correlated positively or negatively with few of other variables.

Table-2: Multiple Correlation matrixes for Private Sector Banks

PRIVATE SECTOR BANKS								
Ratios	SPE	VAPE	PBTE	ECS	ECVA	ROA	ROE	VAFa
SPE	1							
VAPE	.241*	1						

PBTE	.786**	.372**	1					
ECS	-.431**	-.239*	-.549**	1				
ECVA	-.380**	-.484**	-.457**	.683**	1			
ROA	.254*	.370**	.700**	-.696**	-.488**	1		
ROE	.184	.731**	.482**	-.373**	-.439**	.600**	1	
VAFA	.647**	.110	.719**	-.238*	-.357**	.320**	.258**	1

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

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

Interpretation: From the above table 2 depicts the association among eight components. From this table 3 it is noticed that the variable SPE was having high degree of positive relationship with VAPE and ROA (0.241 and 0.254) at 5 percent level of significance. SPE was having significant positive relationship with PBTE and VAFA (0.786 and 0.647) and SPE was having significant negative relationship with ECS and ECVA (-0.431 and -0.380) at 1 percent significance level. Whereas ROE is having insignificant relationship with SPE. The VAPE is positively associated with PBTE, ROA and ROE (0.372, 0.370 and 0.731) at 1 percent significance level. VAPE is negatively correlated with ECS at 5 percent level and ECVA (-0.239 and -0.484) 1 percent significance level independently. PBTE is positively correlated with ROA, ROE and VAFA (0.482, 0.700 and 0.719) and PBTE have negative relationship (-0.549 and -0.457) with ECS and ECVA whereas ECS was positively correlated with ECVA (0.683) at 1 percent level of significance. ECS was negatively correlated with ROA, ROE and VAFA (-0.696, -0.373 and -0.238). ECVA have a negative association with ROA, ROE and VAFA (-0.488, -0.439 and -0.357) at 1 percent level of significance. ROA have a high positive association with ROE and VAFA (0.600 and 0.320) further ROE is correlated positively with VAFA (0.258) at 1 percent significance level.

Table-3: Multiple Regression analysis of Public sector banks

Regression statistics with ROA,	With ROE	With VAFA
Multiple R	0.885	0.820
R Square	0.783	0.672
Adjusted R Square	0.772	0.655
SE of the Estimate	0.00232	2.94161
Observations	100	100
F-Value	67.926	38.533
P-Value	0.000	0.000

Regression Co-efficient of ROA, ROE and VAFA of Public sector banks (continue... Table 4)

Variable	With ROA		WITH ROE		WITH VAFA	
	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value
Intercept	0.009	0.000	-0.464	0.836	3.880	0.000
SPE	-0.001	0.000	-0.422	0.006	-0.086	0.128

VAPE	-0.010	0.729	-0.005	0.000	-0.006	0.000
PBTE	0.007	0.000	4.662	0.000	-0.345	0.112
ECS	-0.006	0.291	0.001	0.918	0.000	0.558
ECVA	-0.005	0.591	0.049	0.121	-0.022	0.057

Interpretation: The above table 3 explains the relationship between ROA, as Dependent Variable and SPE, VAPE, PBTE, ECS and ECVA as Independent Variables. The adjusted R square value from the above table 3 was 0.772. This means the selected Independent Variables in the model account for 77.2 percent variance in the Dependant Variable that is ROA. The P- value for SPE and PBTE was 0.000 which was less than 5 percent level of significance. From this we can declare that the Performance of ROA is significantly related to SPE and PBTE, but the Beta coefficient of SPE was -0.001 it means the variable SPE was negatively affecting the ROA of Public Sector Banks whereas PBTE was positively affecting the ROA (DV) because the Beta value was positive that is 0. 007.The remaining three Independent Variables VAPE, ECS and ECVA were having insignificant relationship with ROA of Public Sector Banks. Table 3 shows the relationship between ROE, as Dependant Variable and SPE, VAPE, PBTE, ECS and ECVA as Independent Variables. The above table 4 provides the R values for the estimating the total fit of the model. Table 4 also shows the adjusted R square value that is 0.655. This means the selected Independent Variables in the model account for 65.5 percent variance in the Dependant Variable that is ROE. The P- value for SPE was 0.006 and VAPE and PBTE P-value was 0.000 which was less than 5 percent significance level. From this we can claim that the Performance of ROE was significantly related to SPE, VAPE and PBTE, but the Beta coefficient of SPE and VAPE were -0.422 and -0.005 it means the variables SPE and VAPE was negatively affecting the ROE of Public Sector Banks whereas PBTE was positively affecting the Dependant Variable ROA because the Beta value was positive that is 4. 662.The remaining two Independent Variables ECS and ECVA were having insignificant relationship with ROE of Public Sector Banks. The above table 3 also shows the relationship between VAFA, as Dependant Variable and SPE, VAPE, PBTE, ECS and ECVA as Independent Variables. The above table 5 gives us the R values to estimate the overall fit of the model. The adjusted R square value from the above table 5 was 0.360. This means the selected Independent Variables in the model account for 36.0 percent variance in the Dependant Variable that is VAFA. The P- value for VAPE was 0.000 which was less than 5 percent level of significance.

Table-4: Multiple Regression analysis of Private sector banks

Regression statistics with ROA,	With ROE	With VAFA
Multiple R	0.929	0.816
R Square	0.864	0.666
Adjusted R Square	0.857	0.648
SE of the Estimate	0.00238	2.84535
Observations	100	100
F-Value	119.238	37.448
P-Value	0.000	0.000

Regression Co-efficient of ROA, ROE and VAFA of Private sector Banks (continue. Table 5)

Variable	With ROA		WITH ROE		WITH VAFA	
	Coefficients	P-value	Coefficients	P-value	Coefficients	P-value
Intercept	0.021	0.000	5.896	0.002	1.381	0.016
SPE	-0.001	0.000	-0.616	0.000	0.066	0.128
VAPE	-0.008	0.061	-0.005	0.000	-0.005	0.000
PBTE	0.007	0.000	2.606	0.000	1.188	0.000
ECS	-0.001	0.000	-0.275	0.102	0.257	0.000
ECVA	-0.005	0.276	0.015	0.656	-0.045	0.000

Interpretation: The above table 4 shows the relationship between ROA, as Dependant Variable and SPE, VAPE, PBTE, ECS and ECVA as Independent Variables. The adjusted R square value from the above table 6 was 0.857. This means the selected Independent Variables in the model account for 85.7 percent variance in the Dependant Variable that is ROA. The P- value for SPE, PBTE and ECS was 0.000 which was less than 5 percent level of significance. From this we can claim that the Performance of ROA was significantly related to SPE, PBTE and ECS but the Beta coefficient of SPE and ECS was -0.001 it means the variables SPE and ECS was negatively affecting the ROA of Private Sector Banks whereas PBTE was positively affecting the Dependant Variable ROA because the Beta value was positive that is 0. 007.The remaining two Independent Variables VAPE and ECVA were having insignificant relationship with ROA of Private Sector Banks. The above table 4 shows the relationship between ROE, as Dependant Variable and SPE, VAPE, PBTE, ECS and ECVA as Independent Variables. The adjusted R square value from the above table 7 was 0.648. This means the selected Independent Variables in the model account for 64.8 percent variance in the Dependant Variable that is ROE. The P- value for SPE, VAPE and PBTE was 0.000 which was less than 5 percent level of significance. From this we can claim that the Performance of ROE was significantly related to SPE, VAPE and PBTE but the Beta coefficient of SPE and VAPE were -0.616 and -0.005 it means the variables SPE and VAPE was negatively affecting the ROE of Private Sector Banks whereas PBTE was positively affecting the Dependant Variable ROE because the Beta value was positive that is 2. 606.The remaining two Independent Variables ECS and ECVA were having insignificant relationship with ROE of Private Sector Banks. The above table 4 also shows the relationship between VAFA, as Dependant Variable and SPE, VAPE, PBTE, ECS and ECVA as Independent Variables. The adjusted R square value from the above table 8 was 0.643. This means the selected Independent Variables in the model account for 64.3 percent variance in the Dependant Variable that is VAFA. The P- value for VAPE, PBTE, ECS and ECVA was 0.000 which was less than 5 percent level of significance. From this we can claim that the Performance of VAFA was significantly related to VAPE, PBTE, ECS and ECVA but the Beta coefficient of VAPE and ECVA were -0.005 and -0.045 it means the variables VAPE and ECVA was negatively affecting the VAFA of Private Sector Banks whereas PBTE and ECS was positively affecting the Dependant Variable VAFA because the Beta values were positive that is 1.188 and 0.257.

8. CONCLUSION

Productivity is the important measure which assesses the economic outcome of the banks. Present days banking industry is operating under more competitive conditions, hence measuring the productivity becomes considerable significance. The variables selected to measure productivity parameters for the present study are Sales per Employee, Value Added Per Employee, Profit Before Tax per Employee, Employee Cost to Sales and Employee Cost to Value Added over the two sectors of all the twenty sample banks. As per analysis it can be concluded that productivity of Private Sector Banks in India is greater than

the Public Sector Banks productivity. The result shows that the Private Sector Bank's productivity was good during the period of study. The productivity with regards to Sales per Employee, Employee Cost to Sales was unremarkable in Public Sector Banks. The Private Sector Banks Profitability regarding ROA, ROE, value Added per Fixed Assets shows Positive result during the study period. The Profitability with respect to Return on Assets was remarkable in Public Sector Banks. Profitability is the outcome of productivity. The analysis shows that the public sector banks in India are not as much as profitable as the private sector banks in case of overall profitability. Public sector banks profitability is also improving over the last two years. Indian public sector banks have an advantage over the competitors in terms of their network of branch and the huge customer base. Adopting the technology usage will enable public sector banks to improve their strengths. In Indian banking system, competition is increasing among the major banks of India due to consolidation of the smaller public sector banks. Hence forth, it is concluded that public sector banks have to maximize efforts to increase its profitability position.

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