Costing Techniques and Pricing Decisions of Manufacturing Companies in Ogun State

Babatolu Ayorinde Tobi
Department of Accounting
Federal University of Agriculture
Abeokuta, Ogun State
Nigeria

Aigienohuwa Osarenren Osasrere
Department of Accountancy
Nnamdi Azikwe University
Awka
Nigeria

Adewumi Ademola Adeniran
Department of Accounting
Federal University of Agriculture
Abeokuta, Ogun State
Nigeria

Abstract

In recent years, companies have drastically reduced their reliance on traditional accounting technique by developing activity-based and target cost management systems due to the facts that Traditional costing techniques do not provide detailed information to managers to make cost effective decisions. The study population comprised Ninety-eight (98) manufacturing companies with a sample size of Twenty-two (22) selected manufacturing companies using convenience sampling technique. A structured questionnaire was used to elicit information on relevant variables from respondents The data analysis techniques used for the study were Kolmogorov Simonov test and kruskal-Wallis test through the aid of Statistical Package for social sciences(SPSS 21.0).The findings of the study revealed that there was significant difference in the use of Target costing technique for pricing decision($p<0.05$) and there was no significant difference in the use of Activity based costing technique for pricing decision.($p>0.05$).This study concluded that there was strong consensus on the wide use of Activity based costing and target costing for pricing decision. The study recommended that the use of costing technique could also be extended to other sectors of Nigerian economy aside the Manufacturing sector.

Key words: Activity based costing, target cost, pricing decision and Manufacturing companies.

1 Introduction

Traditional costing techniques do not provide detailed information to managers; they can lead to erroneous decision making by ignoring the fact that complex products consume more resources than simply structured products**.** In recent years, companies have drastically reduced their reliance on traditional costing technique by developing activity-based and target cost management systems. Traditional costing technique of assigning costs can be very inaccurate because there is no actual relationship between the cost pool and the cost driver (Nitin and Dalgobind, 2013). Considering the numerous factors influencing pricing decision in manufacturing companies, cost is considered the basic factor which can be managed efficiently by the business. In lieu of this, accurate cost information is seen to be the basis for pricing decision. Cost information is not only needed for effective decision making, but also needed to achieve the company's objective. Key information on costs and revenue must be made available to the management on a regular basis as it will determine to a great extent the financial health of the organization.

However, with the progress of social productivity and a higher level of market demand, great changes have taken place in the manufacturing environment, which results in serious information distortion provided by traditional cost method, and cannot satisfy the demand of the enterprise' product pricing management any more (Lin, Yi and Zhilin, 2014) . Activity based costing was developed to cover up for the deficiencies emanating from the use of traditional costing technique in the area of overhead cost allocation to product. It can provide relatively accurate cost information and better serve the enterprise's product pricing decision (Roger, 2001). At present, only little study have been carried out on activity-based costing and target costing application in pricing decision. Usually product cost is divided into variable cost, activity cost and fixed cost. Due to the overlapping between those three costs, the cost basis of product pricing is not accurate. According to the product's cost behavior analysis, product cost can be divided into unit level, batch level, product-sustaining level and facility level activity costs. Because there is no overlapping between those four costs, it can provide more accurate and reliable cost information for product pricing (Lin, Yi and Zhilin, 2014). Stemming from the forgoing, this paper seeks to ascertain the difference in the use of activity base costing and Target costing technique for pricing decisions of selected manufacturing companies in Ogun State.

2 Objective of the Study

The general objective of this paper is to access the difference that exists in the use of costing techniques for pricing decision of selected manufacturing companies in Ogun State and the specific objectives are to;

1) examine the difference that exists in the use of Activity base costing technique for pricing decision of selected manufacturing companies in Ogun State; and
2) investigate the difference that exists in use of Target costing technique for pricing decision of selected manufacturing companies in Ogun State

3 Literature review and hypotheses development

ABC has been defined as a system that allows organizations to track the cost associated with activities performed to produce products or to deliver services. Activity Based Costing (ABC) could be seen as a managerial accounting system which determines the cost of activities without distortion and provides management with relevant and timely information. It does not represent just a new set of overhead allocation rules or techniques to value inventory. ABC represents a way to look at operating costs and provides methods to dissect the underlying activities, which cause costs to exist. ABC was developed as an approach to address problems associated with traditional cost management systems tending to have the inability to accurately determine actual production and service costs, or provide useful information for operating decisions (Volkán, 2007). Moreover, Kaplan and Cooper (1998) considered that the percentages of overhead costs had risen; traditional techniques became increasingly inaccurate because the indirect costs were not equally caused by all the products. Consequently, when multiple products share common costs, there is a risk that one product subsidize another, and that is why managers were making decisions based on inaccurate data.

Advantages of Activity – Based Costing

Roya, Reza, Hossain and Maghsoud (2015) highlighted the following as the advantages of Activity base costing. ABC system is a very valuable tool of control. It offers a number of advantages to the management and the following are the main advantages: (I) it brings accuracy and reliability of the costing data in determination of the cost of the products_ (2) it facilitates cause and effect relationship to exercise effective cost control. (3) It provides necessary cost information to the management to take decisions on any matter, relating to the business_ (4) it is much helpful in fixing the cost and selling price of a product. (5) It facilitates overhead costs allocated directly to the specific product. (6) It focuses on managing activities rather than costs. (7) It helps to remove all types of wastages and inefficiencies. (8) It provides valuable information to evaluate on the relative efficiencies of various plants and machinery. (9) Cost Driver Rates will help in significant impact on the development of new products or modification of existing products (Makepeace, 1997).

Target Costing

Target Costing is an important tool for sustaining manufacturers' overall efforts to remain cost competitive while meeting standards and specifications demanded by customers (Ellarm, 2000). Target Costing uses price information in the market to determine product cost (Zeng and Ada, 2010).

In accounting literature, target costing has been introduced as a strategic management accounting system for the management of product costs (Ewert and Ernst, 1999). This management of target costs is generally referred to as TCM (Target Cost Management) and Japanese firms are concerned with achieving target costs simultaneously with planning, development and design of new products. In relation to this TCM system, specific tools were developed such as cost tables, value engineering, total quality management, and inter-organizational cost management (Cooper, 1995 and Kato, 1993). Target costing is a reverse costing Methodology in which the selling price and profit margin are used to determine the allowable cost for manufacturing a new/existing product (Dekker and smidt, 2003). The following formula is used to determine the allowable cost: Maximum allowable cost = attainable sales price – required profit margin, then allowable cost is adjusted for already identified cost reduction opportunities and for cost increasing and cost decreasing to reach the target cost (Yazadifar and Askarany, 2012).

Research Hypotheses

Hypothesis 1

H_0: there is no significant difference in the use of Activity based costing for pricing decision of selected manufacturing companies in Ogun State.

Hypothesis 2

There is no significant difference in the use of Target costing for pricing decision of selected manufacturing companies in Ogun state.

4 Methodologies

4.1 Research design

The research design adopted for this study was cross sectional survey design.

4.2 Population and sample selection

The population of the study comprised of the ninety eight (98) Manufacturing companies in Ogun- state. It was sourced from Manufacturer Association of Nigeria and the selected manufacturing companies were segregated into ten (10) categories. The sample size for this study comprised of twenty two Manufacturing companies and the sampling technique adopted was Non probability sampling technique using convenience sampling technique for easy administration of the research instrument.

4.3 Data Analysis Procedure

In analyzing the data gathered for this study, the study made use of both descriptive and inferential statistics such as percentage analysis, Mean, Minimum, Maximum, standard deviation, Kolmogorov-Smirnov test, Kruskal-Wallis test.

5 Results and discussion

5.1 Data Presentation- Respondents' Demographics

Tables 1 to 8 present the results of analyzing the demographics of respondents, and also some firm characteristics.

Table 1: Gender of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	59	56.2	56.2	56.2
	Female	46	43.8	43.8	100.0
	Total	105	100.0	100.0	

Table 1 shows the research instrument were distributed relatively proportionately between male (56.2%) and female (43.8%) respondents. The study is therefore not gender biased or lobe-sided towards a particular gender.

Table 2:Academic Qualification of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BSc/HND	46	43.8	43.8	43.8
	MSc/MA/MBA	50	47.6	47.6	91.4
	PhD	9	8.6	8.6	100.0
	Total	105	100.0	100.0	

Table 2 shows the academic qualifications of respondents. 43.8% have a first degree; 47.6% have a second degree and 8.6% have a third degree. This shows that respondents possess requisite academic qualifications.

Table 3: Professional Qualification of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	ACA	49	46.7	47.1	47.1
	ACCA	28	26.7	26.9	74.0
	ANAN	18	17.1	17.3	91.3
	CPA	3	2.9	2.9	94.2
	Others	7	5.7	5.8	100.0
Total		105	100.0		

Table 3 shows the professional qualifications of respondents. Majority are ICAN qualified (47.1%), followed by the ACCA qualified (26.7%). 17.3% are ANAN qualified, while the rest belong to other professional bodies.

Table 4 : Age of Organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5years	3	2.9	2.9	2.9
	6-10years	18	17.1	17.1	20.0
	11-15years	39	37.1	37.1	57.1
	15-20years	22	21.0	21.0	78.1
	above 20 years	23	21.9	21.9	100.0
	Total	105	100.0	100.0	

Table 4 contains the age of the organization. The age distribution cuts across the five strata for age. Most of the organizations are 11-15 years old (37.1%). 2.9% are within the age of 1-5 years.

Table 5: Number of employees

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 20	3	2.9	2.9	2.9
	20-50	20	19.0	19.0	21.9
	50-100	25	23.8	23.8	45.7
	100-200	35	33.3	33.3	79.0
	above 200	22	21.0	21.0	100.0
	Total	105	100.0	100.0	

Employee size of the organization also cuts across the five strata. Majority of the organizations have 100-200 numbers of employees (33.3%). The lowest range of employee is less than 20, with 3 (2.9%) firms in that category.

Table 6: Overall work experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5yrs	9	8.6	8.6	8.6
	5yrs- 10yrs	17	16.2	16.2	24.8
	11yrs-15yrs	50	47.6	47.6	72.4
	>15yrs	29	27.6	27.6	100.0
	Total	105	100.0	100.0	

Tables 6 and 7 respectively show the work experiences of respondents. The work experiences are spread across the categories, meaning that persons with varying length of experiences are represented.

Table 7: Work experience in current organization

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<5yrs	41	39.0	39.0	39.0
	5yrs- 10yrs	43	41.0	41.0	80.0
	11yrs-15yrs	18	17.1	17.1	97.1
	>15yrs	3	2.9	2.9	100.0
	Total	105	100.0	100.0	

Table 8: Turnover (N/per annum)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Less than 10Million	10	9.5	9.5	9.5
	10-20Million	14	13.3	13.3	22.9
	20-50Million	38	36.2	36.2	59.0
	Over 50Million but less than 100Million	22	21.0	21.0	80.0
	Over 100Million	21	20.0	20.0	100.0
	Total	105	100.0	100.0	

The results in table 8 show that the organizations have different categories of turnover, hence different sizes. This means that both small, medium sized, and large-sized firms are represented and covered by the study.

5.2 Use of Activity Based Costing for Pricing Decisions (*ABCPD*)

Table 9 presents analysis result on the use of activity based costing for pricing decisions.

Table 9: Descriptive Statistics on the use of ABC for pricing decisions (ABCPD)

	N	Minimum	Maximum	Mean	Std. Deviation
Do you agree Activity based costing is widely used in in your manufacturing company?	105	1	5	4.46	.694
Do you agree Activity based costing technique is used for identifying activities and assigning cost for each activity in your manufacturing company?	105	2	5	4.31	.593
Do you agree that Activity based costing is more useful than traditional costing technique in your manufacturing company?	105	2	5	4.27	.737
Do you agree that there is positive relationship between Activity based costing and pricing decision in your manufacturing company?	105	1	5	4.15	.718
Do you agree that Activity based costing technique is used for improving decision making processes in relation to product cost in your manufacturing company?	105	2	5	4.27	.669
Do you agree that Activity based costing technique is used for improvement of the decision making process in relation to the preservation and discontinuance of activities?	105	2	5	4.11	.738
Do you agree that Activity based costing is used for adjusting pricing policy to increase product mix completely?	105	1	5	4.08	.885
Do you agree that Activity based costing is relevant for management efficiency in your manufacturing company?	105	1	5	4.23	.800
ABCPD	105			**4.2345***	

*composite mean

From table 9, we can infer that the consensus on the wide use of Activity based costing is very strong (M= 4.46, SD=.694) as this item has the highest mean; followed by the use of Activity based costing for identifying activities and assigning cost for each activity in manufacturing concerns (M= 4.31, SD=4.31); Activity based costing being more useful than traditional costing techniques (M= 4.27, SD=.737); and Activity based costing technique being used for improving decision making processes in relation to product cost in manufacturing companies (M=4.27, SD=.669).

Other uses of Activity Based costing include achieving managerial efficiency (M= 4.23), pricing decision (M= 4.15), improvement of the decision making process in relation to the preservation and discontinuance of activities (M=4.11); and adjusting pricing policy to increase product mix (M= 4.08). On the whole, all the items have mean score above 4.0 over a 5 point scale (equivalent to 80%). This means that respondents agree that Activity based costing is highly useful for pricing decision. We computed the composite mean score for use of Activity Based costing for Decision-making (designated with the variable name, *ABCPD*) by aggregating the scores of all the eight items in table 9 and finding the average.

Other statistics of the variable ABCPD is contained in table 11. The composite mean of ABCPD at 4.2345 equally corroborates our submission that respondents regard ABC to be very useful for pricing decision in manufacturing concerns.

5.3 Use of Target Costing for Pricing Decisions (*TACPD*)

Table 10: Descriptive Statistics on the use of Target Costing for Pricing Decisions (TACPD)

	N	Minimum	Maximum	Mean	Std. Deviation
Do you agree Target costing is used for pricing decision in your manufacturing company	105	2	5	4.33	.755
Do you agree that there is positive relationship between Target costing and pricing decision in your manufacturing company?	105	2	5	4.10	.649
Do you agree your Manufacturing company has been using Target costing technique for many years?	105	1	5	4.09	.822
Do you agree Target costing techniques is used for making rational and quick decisions in your manufacturing company?	105	1	5	4.19	.695
Do you agree that Target costing is more relevant than traditional costing techniques in your manufacturing company?	105	1	5	4.09	.856
Do you agree that Target costing technique bring about customer satisfaction?	105	1	5	4.20	.752
TACPD	105			**4.1667****	

**composite mean of *TACPD= Target costing for pricing decision*

Results in table 10, suggest that respondents consider Target costing to be useful for pricing decision (M=4.33, SD=.755); and for enhancing customer satisfaction (M= 4.20, SD=.752); and for making rational and quick decisions in manufacturing firms (M= 4.19, SD=.695). There is also a strong consensus in their opinion that there is positive relationship between Target costing and pricing decision (M= 4.10, SD=.649); that Target costing is more relevant than traditional costing techniques in manufacturing companies (M= 4.09, SD=.856). The six items in table 10 have mean score above 4.0 on a 5-point calibrated scale. The composite mean score for the variable, *TACPD* (Target Costing for Pricing Decisions), obtained by aggregating and averaging the score of the six items is 4.1667 , which is high, confirming that target costing is highly useful for pricing decision, based on the survey result. Other statistics for the variable, *TACPD* is presented in table 11.

Composite Statistics of variables

Table 11: Descriptive Statistics of ABCPD and TACPD

	N	Minimum	Maximum	Mean	Std. Deviation
ABCPD	105	3.25	4.88	4.2345	.31139
TACPD	105	3.17	5.00	4.1667	.36324
Valid N (listwise)	105				

5.4 Test of Normality

We tested for normality of the ABCPD and TACPD variables using the Kolmogorov-Smirnov Test as in table 12 and summary result in table 13.

Table 12: One-Sample Kolmogorov-Smirnov Test

		ABCPD	TACPD
N		105	105
Normal Parameters[a,b]	Mean	4.2345	4.1667
	Std. Deviation	.31139	.36324
Most Extreme Differences	Absolute	.177	.157
	Positive	.109	.103
	Negative	-.177	-.157
Kolmogorov-Smirnov Z		1.813	1.610
Asymp. Sig. (2-tailed)		.003	.011

a. Test distribution is Normal.
b. Calculated from data.

Table 13: Normality hypothesis test summary for ABCPD and TACPD

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ABCPD is normal with mean 4.235 and standard deviation 0.31.	One-Sample Kolmogorov-Smirnov Test	.003	Reject the null hypothesis.
2	The distribution of TACPD is normal with mean 4.167 and standard deviation 0.36.	One-Sample Kolmogorov-Smirnov Test	.011	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

The p- value is less than.05, meaning that the assumption of normality is not satisfied. We therefore used the non-parametric statistics to analyze differences in mean, using the Kruskal-Wallis test.

5.5 Hypotheses Testing— Analysis of differences in Mean

We used firm characteristics such as Age and Size (proxied by Number of employees and Turnover) as grouping variable to examine if there is difference in the use of Activity based costing and Target Costing for pricing decisions. Results are presented in sections 5.5.1 and 5.5.2 respectively.

5.5.1 Use of Activity Based costing for pricing decision

H0[1]: There is no significant difference in the use of ABC for pricing decision among Nigerian manufacturing firms.

Table 14: Use of ABCPD using Firm Age as grouping variable

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ABCPD is the same across categories of Age of Organization.	Independent-Samples Kruskal-Wallis Test	.534	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 15: Use of ABCPD using Number of employee as grouping va
Table 16: Use of ABCPD using Firm Turnover as grouping variable

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of ABCPD is the same across categories of Turnover (N/per annum).	Independent-Samples Kruskal-Wallis Test	.058	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Decision:

In tables 14, 15 and 16, the p value ≤.05, meaning there is no significant difference in the use of ABC for pricing decision among manufacturing companies in Ogun State, we therefore retain the null hypothesis that *there is no significant difference in the use of ABC for pricing decision among manufacturing companies in Ogun State.*

5.5.2 Use of Target Costing for pricing decision

H0[2]: There is no significant difference in the use of Target Costing for pricing decision among manufacturing companies in Ogun State.

Table 17: Use of TACPD using Firm Age as grouping variable

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of TACPD is the same across categories of Age of Organization.	Independent-Samples Kruskal-Wallis Test	.650	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 18: Use of TACPD using Number of Employees as grouping variable

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of TACPD is the same across categories of Number of employees.	Independent-Samples Kruskal-Wallis Test	.050	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Table 19: Use of TACPD using Number of Employees as grouping variable

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of TACPD is the same across categories of Turnover (N/per annum).	Independent-Samples Kruskal-Wallis Test	.000	Reject the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

Decision:

In table 17, p value ≤ .650. There is no significant difference in the application of Target Costing for decision-making among the firms on the basis of their age. However, in tables 18 and 19, the p value ≤.05, meaning there is significant difference in the use of Target Costing for pricing decision among manufacturing companies in Ogun State, we therefore reject the null hypothesis but accept the alternate that *there is significant difference in the use of Target costing for pricing decision among manufacturing companies in Ogun State.*

6 Summary of findings

Stemming from the findings of this study, it was revealed that there is no significant difference in the use of ABC for pricing decision among manufacturing companies in Ogun State. The study further revealed that there is however significant difference in the use of Target costing for pricing decision among manufacturing companies in Ogun State.

7. Conclusions and Recommendation

The consensus on the wide use of Activity based costing is very strong. Activity based costing is also useful for identifying activities and assigning cost for each activity in manufacturing concerns. Activity based costing is more useful than traditional costing techniques ; and Activity based costing technique is being used for improving decision making processes in relation to product cost in manufacturing companies. Other uses which Activity Based costing has include achieving managerial efficiency, pricing decision, and improvement of the decision making process in relation to the preservation and discontinuance of activities; and adjusting pricing policy to increase product mix. Activity based costing is highly useful for pricing decision.

Target costing is considered useful for pricing decision; for enhancing customer satisfaction; and for making rational and quick decisions in manufacturing firms. There is also a strong consensus in their opinion that there is positive relationship between Target costing and pricing decision; that Target costing is more relevant than traditional costing techniques in manufacturing companies. There is no significant difference in the use of ABC for pricing decision among manufacturing companies in Ogun State. There is however significant difference in the use of Target costing for pricing decision among manufacturing companies in Ogun State. The implementation of strategic cost management techniques such as Activity based costing and target costing will call for some changes in the way things are done in the organization. As such, having change management skills in organizations is crucial in ensuring a smooth transitioning from the traditional costing techniques to the strategically-oriented techniques.

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