Effect of Unrestricted Sourcing of Sugarcane on the Competitiveness of Sugar Manufacturing Firms

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Abstract: **Globally, Organizations apply various competitive strategies to ensure their survival in turbulent environment and enhance their performance at same time to enable them acquire a competitive advantage over the others. The case is not different for emerging economies, specifically in the sugar industry where firms struggle to survive in the environment full of competing sugar firms. Using a sample size of 140 respondents, the study sought to determine the effect of unrestricted sourcing of sugarcane on the competitiveness of sugar manufacturing firms in Kakamega and Bungoma Counties of Western Kenya. The study adopted a descriptive survey research design. The target population comprised of 697 supervisory employees from the sugar manufacturing firms in *Kakamega and Bungoma counties of Western Kenya.***

Keywords: **unrestricted sourcing, competitiveness, reforms, sugar sector.**

1. INTRODUCTION

In this section, previous studies that are related to the topic are reviewed. The chapter showcases prior literature and research related to studies exploring various disciplines, relationships, areas of concern, and other issues concerning reforms and industry competitiveness of sugar manufacturing firms.

Unrestricted Sourcing of Raw Material

Raw material supply is essential to the survival of industries all over the world. This is because it is a key input in the production process. Sugarcane supply in the cane growing belts is done by either contracted farmers, non-contracted farmers or from firm own sugar fields known as nucleus estates. As a reform agenda sugar firms increasingly source for raw material from areas not considered territorial. This has happened due to the inadequate raw material supplied by the contracted farmers as acreage under cane production continue to shrink even as competition increases. Good crop husbandry practices, timely delivery and payment encourage cane farmers to ensure optimal availability of cane thus helping guarantee supply to the millers (Imbabi et al.,2017)

Zimmerman and Zeddies (2002) define material capability as the ability to plan and continuously receive enough material for full factory capacity utilization over an extended period. Sugar companies must develop their supply chain strategies to stay competitive in the changing environment (Chidoko & Chimwa, 2011).

According to Unam (2012) a positive relationship exist between raw material management and success of manufacturing firms. In Brazil, supply chain management had a positive relationship on operational performance measured by cost, flexibility, quality and delivery (Miguel & Brito 2011). Therefore raw material supply that is steady and reliable, of high quality and delivered in timely manner is critical for competitive performance of sugar companies. The broader the supply sources the better for the millers because cane as a cash crop matures slowly and this may affect steady supply.

Performance Measures

Performance in an organization reflects the result of effects of implementation of various strategies adopted by a firm. Different organizations use varying measures of performance. These measures may be quantitative or qualitative.

Majority of the organization employs quantitative measures to assess the effect of strategy chosen and success of their implementation. Performance variables are both financial and non-financial.

i. Market share

Market share is a company's percentage of sales in a particular industry. Both increases and decreases may affect profits, so managers typically adjust operations and marketing strategies to increase or decrease it as needed. People also look at this figure before they invest in a company, since it can indicate a business' competitiveness. Market share increases can allow a company to achieve greater scale in its operations and improve profitability. Companies are always looking to expand their share of the market, in addition to trying to grow the size of the total market by appealing to larger demographics, lowering prices, or through advertising (Kotler, and Keller, 2006).

Kotler and Keller, (2006) aver that market share is now widely recognized as one of the main determinants of business profitability. Under most circumstances, enterprises that have achieved a high share of the markets they serve are considerably more profitable than their smaller-share rivals. This connection between market share and profitability has been recognized by corporate executives and consultants, and it is clearly demonstrated in the results of a project undertaken by the Marketing Science Institute on the Profit Impact of Market Strategies (PIMS). The PIMS project is aimed at identifying and measuring the major determinants of return on investment (ROI) in individual businesses. Phase II of the PIMS project, completed in late 1973, reveals 37 key profit influences, of which one of the most important is market share (Jauch and Glueck, 1998). Jauch and Glueck (1998) assert that this information is really important for businesses; since it can help managers make better- decisions for increasing growth and profits. Having a large market share also has some practical benefits.

ii. Profitability

Calderon and Ofobike (2008) assert that profitability refers to the potential of a venture to be financially successful. This may be assessed before entering into a business or it may be used to analyze a venture that is currently operating. Although it may be found that one set of factors is not likely to be successful or has not been successful, it may not be necessary to abandon the venture. It may instead be feasible to change operational factors such as pricing or costs. There are three basic situations that can describe a business' financial situation. It can be profitable, it can break even, or it can operate at a loss. In most cases, an organization's goal is to make a profit (Calderon and Ofobike, 2007). Profitability is a key metric in business as companies need to know how much they make from their activities resulting from a competitive strategy employed. A few different measures used by businesses include the income statement, gross margin ratio, and return on investment analysis. Each method is proper for measuring financial returns, although a company can only use one if it desires. Profitability is both an internal metric and a benchmark. High profits often indicate a strong ability to reinvest earnings and compete heavily for market share in the business environment (Rayport and Jaworski, 2001).

According to Rayport and Jaworski (2001) return on investment (ROI) is a measurement that reviews the profitability for various projects in which a company engages. The classic formula here is investment gain less investment cost divided by investment cost. Companies can typically use this as a pre project profitability measurement as they look to find the most profitable projects among several options. In most cases, companies' desire selection of the most profitable projects as these will add to the bottom line and not create a drag on company resources. Other profit measures are necessary to compare profits after the project is up and running (Rayport and Jaworski, 2001). Hybrid profit metrics or other profit measures may be more appropriate for a company. These may include time value of money measurements, the statement of cash flows, or return on equity ratios. In short, there is really no end to the methods available when measuring profit. The company must simply assess the formula against the need and select the appropriate profitability measure (Brown, 2003).

iii. Operational Efficiency

In the sugar industry, operational efficiency is measured in terms of recovery percentage. Recovery percentage is an important indicator of technical efficiency with regard to the conversion of sugarcane to sugar. In most states in India, the recovery percentage ranges from 9.15% to 9.60% (N. P. Singh et al, 2007). Operational efficiency comprises of quality of sugarcane husbandry field practices, timeliness in harvesting, timeliness in transportation of sugarcane from fields to factory while minimizing in-field and on-road wastages and recovery percentage at the processing units (KSB, 2010).

Inferential Statistics of Sugar Industry Reforms

The study further conducted a correlation analysis between industry reforms and competitiveness of sugar industry firms in the counties of Kakamega and Bungoma. The constructs were unrestricted sourcing of raw materials, diversification and increased sugar industry players. The study used the Pearson correlation coefficient to establish the relationship. The results are as shown in Table 1 below. The variables were grouped as US, DV and IC where they represent unrestricted sourcing of raw materials, diversification and increased competition in the industry respectively. Competitiveness was captured as dependent variable (CO)

From the results in the Table 1 below, it is evident that unrestricted sourcing of raw materials had a significantly positive and very strong correlation with firm competitiveness (r =0.822 and p = 0.000). This is consistent with Imbabi, Oloko and Rambo (2017), Zimmerman and Zeddies 2002 and Chiloko and Chimwa (2011). Similarly, diversification had a very strong and positive correlation with competitiveness (r =0.834 and p =0.000). The result is in agreement with Anyango (2011) and Thomson et al., (2010). Lastly, it was established that increased sugar industry players (Competition) had equally a positive and strong relationship with sugar company competitiveness (r =0.817 and p=0.000) an outcome that was supported by Kaburu (2014) and the sugar directorate (2014). Overall, there is statistically significant positive correlation among the various sugar industry reforms. Therefore increased competition, diversification of products and unrestricted sourcing of sugar cane positively impact competitiveness of the four sugar firms in the counties of Kakamenga and Bungoma. Correlation coefficients between the independent variables (reforms) themselves was low signifying that multicollinearity was not a problem with the variables and therefore additional predictive analysis could be done.

Table 1: Correlation Table (of sugar industry reforms)

		CO	US	IC	DV
		Correlations			
CO	Pearson Correlation	1			
	Sig. (2-tailed)	.000			
	N	139			
US	Pearson Correlation	.822**	1		
	Sig. (2-tailed)	.000			
	N	138	140		
IC	Pearson Correlation	.817**	.401	1	
	Sig. (2-tailed)	.000	.000		
	N	136	140	140	
DV	Pearson Correlation	.834	0.31	0.205	1
	Sig 2-tailed	.000	.000	.000	.000
	N	138	138	140	136
**. Correlation is significant at the 0.01 level (2-tailed).					

Source: Research data 2016

Regression Results (testing of the hypotheses)

Simple and multiple regression techniques were used to analyze effects of the industry reforms on sugar company competitiveness in the two counties of Kakamega and Bungoma. Firm competitiveness was regressed against each of the three reform strategies namely unrestricted sourcing of raw material, diversification and increased competition to establish the predictive power of the strategies on sugar firm competitiveness. The beta coefficients for each strategy explain by how much competitiveness increased or not after the strategy improve by a unit. Changes in firm competitiveness would therefore be significant or not at the 0.05 percent level as a result of changes in the reform strategy deployed.

Effect of Unrestricted Sourcing of Sugarcane

The objective of the study was to establish the effect of unrestricted sourcing of sugarcane on the competitiveness of sugar manufacturing firms in Kakamega and Bungoma counties of Kenya. The hypothesis was formulated as follows:

$H0_1$: Unrestricted sourcing of sugarcane has no significant effect on the competitiveness of sugar manufacturing firms in Kakamega and Bungoma counties of Kenya.

Statistics from the regression Table 2 indicate that the estimated regression equation (1) for this hypothesis is:

$$Y = 0.762 + 0.834US \qquad (1)$$

P value   0.001   0.000

The regression coefficient 0.834 imply that firm competitiveness among sugar companies in the counties of Kakamega and Bungoma would improve by 0.834 units when restrictions on sourcing for raw material for sugar manufacturing is removed. When one looks at the corresponding significance value (P-value) one notices a very low value of 0.000. This means the improvement in competitiveness is statistically significant (Table 2). The model was valid with an F-value of 266.163 and degrees of freedom of 1.138. From the model summary Table 2, unrestricted sourcing of sugar cane is observed to explain 65.9 percent of the changes in competitiveness attributable to unrestricted sourcing of sugar cane.

Table 2: Regression Summary Table For Unrestricted Sourcing of Sugar cane

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822[a]	.659	.656	.27873

a.   Predictors: (Constant), unrestricted sourcing

ANOVA[a]

Model		Sum of Squares	Mean Square	F	Sig.
1	Regression	20.679	20.679	266.163	.000[b]
	Residual	10.721	.078		
	Total	31.400			

a. Dependent Variable: Competitiveness

b. Predictors: (Constant), unrestricted sourcing

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.762	.218		3.495	.001
	Unrestricted	.834	.051	.822	16.31	.000

a. Dependent Variable: Competitiveness of sugar firms
Significance level =0.05

Source: Research data 2016

2. SUMMARY

The first objective of the study was to establish the effect of unrestricted sourcing of sugarcane on the competitiveness of sugar manufacturing firms in the two counties. The objective was put into a hypothesis; H_{01}: There is no effect of unrestricted sourcing of sugarcane on the competitiveness of sugar manufacturing firms in Kakamega and Bungoma counties. The study used correlation and regression techniques to test this hypothesis. Result indicated that unrestricted sourcing of raw material for the sugar companies would potentially and significantly improve their competitiveness other things held constant (**$\beta_1 = 0.834$**). The correlation tests revealed that unrestricted sourcing of sugarcane has the strongest association with competitiveness at 0.834 beta coefficient. This factor also was significant at predicting competitiveness among sugar firms of Kakamega and Bungoma at 66 percent. This result was similar to one realized by Imbabi et al., (2017), Zimmerman and zeddies (2002), Unam (2012).

From the findings, unrestricted sourcing had a statistically significant positive and predictive effect on competitiveness of sugar industry in the two counties. Therefore hypothesis one is rejected.

The study thus recommends that sugar firms should be allowed to unrestricted sourcing of raw materials since it positively affects the competitiveness of sugar industry in Kakamega and Bungoma counties of Kenya. The likely outcome is steady supply of cane and therefore limited disruption of operations at the factories. Additionally more acreage for cane is likely to be developed with farmers benefiting from better prices and prompt harvesting of the mature cane.

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