

Cost as a Factor of Outsourcing Third-Party Logistics Providers and the Performance of Food and Beverages Manufacturing Companies in Kenya

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Abstract

Manufacturing companies in Kenya have been experiencing problems in the performance of their production and operations management. One strategy of improving their performance is resorting to logistics outsourcing. Outsourcing of non-core activities to Third Party Logistics providers (3PL) is one of the ways of ensuring efficient and effective performance of companies. This study therefore, sought to establish the influence of cost on the performance of food and beverages manufacturing companies in Kenya. The study adopted cross-sectional survey design using both quantitative and qualitative approaches. The target population of this study was 197 registered food and beverages manufacturing companies in Kenya as per Kenya Association of Manufacturers (KAM) Directory 2015. Data was collected using a questionnaire. Descriptive statistics was used aided by Statistical Packages for Social Sciences (SPSS) version 24 to compute percentages of respondents' answers. Inferential statistics using linear regression and correlation analysis was applied in examining relationship between the research variables. The study found out that cost was significant predictors in the

performance of food and beverages manufacturing companies in Kenya. The study found out that cost of transportation and distribution costs, customs clearance, document processing, freight forwarding, tracking and tracing affected performance of food and beverages manufacturing companies in Kenya. The study recommended that it would be appropriate for management to consider cost as criteria of outsourcing 3PL providers in improving performance of food and beverages manufacturing companies in Kenya.

Keywords: Third Party Logistics Providers, Lead-Time, Manufacturing Companies

Introduction

It is widely accepted that the outsourcing of logistics services aims at enabling the creation of strategic and operational value and majority of shippers, that is, 64% are increasingly using 3PLs (Lucie & Hudziak, 2012). These 3PL providers can handle more than 5,000 containers per year and account for relatively for 60% to 80% of the taxes collected by Kenya Revenue Authority in Kenya (Mathenge *et al.*, 2011). Most of these 3PL providers, offer efficient and effective complete logistics solutions including inbound logistics, warehousing and outbound logistics services to their clients. Today there are two major trends on the 3PL market; on one hand shippers are increasingly relying on 3PL services and on the other hand they are reducing the number of 3PL companies they use (Lucie & Hudziak, 2012). Third-party logistics (3PL) providers are able to take over the supply chain functions of businesses and manage them better in many cases than what the companies can do on their own.

The success of manufacturing organizations majorly relies on the efficiency and effectiveness of their logistics performance in controlling cost, reducing delivery lead times, sustaining quality and achieving customer satisfaction. If the flow of materials or finished goods from the supplier to the recipient company is not seamlessly sustained, the business operation is adversely affected (Vishal *et al.*, 2013). In order to evaluate properly the functions of a third party logistics provider, firms should have in place clear guidelines for appraising third party logistics provider outcomes. Logistics recognizes that all the activities of material movement across the business process are interdependent and need close coordination. These activities are to be managed as a system and not as functional silos.

Statement of the Problem

Manufacturing companies in Kenya have been experiencing problems in the performance of their production and operations management (KAM, 2015). One strategy of improving their performance is resorting to logistics outsourcing. While some companies have opted for outsourcing their logistics services, their performance has continued to deteriorate and thus several manufacturing companies are in a dilemma on whether to perform in-house logistics services or to outsource the services from Third Party Logistics (3PL) providers (Lucie & Hudziak, 2012). According to Alan, Phil and Peter (2006) logistics services contribute over 50 per cent of companies operating cost. Outsourcing of logistics services enables the creation of strategic and operational value and 64% of shippers are increasingly using 3PLs (Lucie & Hudziak, 2012). A study by Langley (2015) on the state of logistics outsourcing revealed that the total logistics cost of the companies reduced from 44% to 36% as a result of outsourcing logistics services. In the competitive and dynamic environment, manufacturing companies are looking for ways of enhancing efficiency and productivity, reducing cost, ensuring timely delivery, improving service quality and risk assessment which remains a challenge to manufacturing companies in maintaining their competitive edge (Vishal *et al.*, 2013; Ngonela

et al., 2014 & SoonHu, 2010). This study sought to investigate on determinants of outsourcing 3PL providers by the food and beverage manufacturing companies in Kenya.

Objective of the study

The purpose of this study was to investigate influence of cost as a factor of outsourcing 3PL providers on the performance of food and beverages manufacturing companies in Kenya.

Hypothesis

H₂ There is a positive significant influence of cost on the performance of food and beverages manufacturing companies in Kenya.

Literature Review

The study was supported by the following theory and reviewed literature:

The Transaction Cost Analysis (TCA)

For a business to choose whether to perform a particular activity, transactional cost analysis becomes very important. The theory uses transaction as the unit of analysis and divides transaction costs into production and co-ordination costs. According to the theory, transaction costs arise at contracting (drafting, negotiation and safeguarding) or at implementation (mal-adoption, haggling and establishment, operational and bonding costs). Decision makers must weigh and compare the costs associated with executing a transaction within their firms (in-house) and outsourcing. The foundations of TCA were laid down by Coase (1937) and were further developed by Williamson (1992; 1994). Fundamentally, TCA suggests that transaction costs related to make or buy decision impact the choice between the firm and the market. The transaction costs analysis helps in deciding whether to perform activity in-house or outsource from third party. According to TCA, there are five determinants of transaction costs, namely transaction frequency, asset specificity, uncertainty, bounded rationality, and opportunistic behavior.

Transaction frequency is how often the parties involved in a contract interact. Asset specificity refers to the idiosyncratic investments in a partnership that cannot be re-deployed such as training and special equipment. Uncertainty may be further divided into environmental uncertainty and behavioral uncertainty. Environmental uncertainty refers to circumstances surrounding an exchange that cannot be specified ex-ante and behavioral uncertainty refers to the difficulty in verifying whether compliance with established agreements has occurred (Yazdanparast, Manuj & Swartz, 2010). Bounded rationality means that decision makers have a constraint on their cognitive capabilities (or have limited information processing ability) and limits on their rationality. Opportunism states that given the opportunity, decision makers may unscrupulously seek to serve their self-interests and it is difficult to know a priori who is trustworthy and who is not (Yazdanparast *et al.*, 2010). From the viewpoint of resources and time investments in a relationship, the characteristics of a transaction can help us in identifying the mode of governance.

However, development of close and enduring inter-organizational ties such as through information sharing and joint planning has been suggested as a substitute for vertical integration (Palay, 1984; Noordewier *et al.*, 1990; Payan, 2007). Development of close relationships is particularly significant consideration in a logistics context because there is growing trend toward outsourcing of logistics services and users of outsourced logistics services want to maintain tight relationships with providers so that they do not lose touch with their end customers. In addition to vertical integration, TCA has been employed to

investigate vertical inter-organizational relationships (Heide & John, 1992; Sriram *et al.*, 1992) and horizontal inter-organizational relationships (Gates, 1989; Osborn & Baughn, 1990; Parkhe, 1993). This is interesting because logistics service provider may be playing both roles in a relationship.

By reducing the supplier base of transport firms and entering into close and long-term cooperation with a few key operators, a firm may reduce the transaction costs related to collecting information about numerous suppliers, the costs of negotiating and writing a contract, and the enforcement costs after the negotiation of a contract (Payan, 2007; Herbert *et al.*, 2007). However, close cooperation also involves the risk of opportunistic behavior. Therefore, it might be necessary to incorporate “safeguards” and “credible commitments” into TPL agreements, such as penalty clauses related to poor delivery performance, joint investments in dedicated warehouses or equipment, joint training programs, and exchange of employees between the firms (Herbert *et al.*, 2007). Therefore, this theory was relevant in providing understanding to managers of food and beverages manufacturing companies in Kenya because they can refer to it to make effective outsourcing decisions for 3PL providers.

The Network perspective Theory (NT)

The performance of a firm depends not only on how efficiently it cooperates with its direct partners, but also on how well these partners cooperate with their own business partners in cooperative relationships. The firm’s continuous interaction with other players becomes an important factor in the development of new resources (Herbert *et al.*, 2007). Relationships combine the resources of two organizations to achieve more advantages than through individual efforts. Such a combination can be viewed as a quasi-organization (Haakansson & Ford, 2002). The value of a resource is based on its combination with other resources, which is why interorganisational ties may become more important than possessing resources per se.

The network theory (NT) contributes profoundly to an understanding of the dynamics of inter-organisational relations by emphasizing the importance of “personal chemistry” between the parties, the build-up of trust through positive long-term cooperative relations and the mutual adaptation of routines and systems through exchange processes (Herbert *et al.*, 2007). Through direct communication, the relationships convey a sense of uniqueness, ultimately resulting in supply chains as customization to meet individual customer requirements. The parties gradually build up mutual trust through the social exchange processes. Links between firms in a network develop through two separate, but closely linked, types of interaction: exchange processes (information, goods and services, and social processes) and adaptation processes (personal, technical, legal, logistics, and administrative elements). Network theory is descriptive in nature and has primarily been applied in logistics and SCM to map activities, actors, and resources in a supply chain. The focus has been on developing long-term, trust-based relationships between the supply chain members. Examples of issues include third party logistics (Halldorsson, 2002), and management roles in supply networks (Harland & Knight, 2001).

To TPL, the NT presents openness and trust between the parties as a condition for gaining the best possible results from cooperation (Herbert *et al.*, 2007). Over time, mutual adjustments improve administrative and logistical systems, making them more efficient. By entering into close cooperation with TPL providers who possess complementary competencies, the individual firm is able to utilize resources and skills controlled by other players (Haakansson & Ford, 2002). In close and long-term cooperation, the parties are able to establish mutual

and strong relations of trust, which may result in the elimination of cost (Parkhe, 1993; Herbert *et al.*, 2007). Thus, managers of food and beverages manufacturing companies in Kenya need to ensure efficient and effective cooperative integration of all logistics activities to gain competitive advantage from the 3PL providers by managing their lead-time.

Cost in the Performance of Food and Beverages Companies in Kenya

The decision on whether to perform logistics activities in-house or outsource from 3PL providers depend on evaluation of cost or service trade-offs. One important determinant of the decision is cost comparison between alternative options (Selviaridis & Spring, 2007). Costs associated with performing logistics activities in-house and investment in capital assets is traded-off against service provider fees and the lowest cost solution should then be selected (van Damme & Ploos van Amstel, 1996). However, cost is not the single most important decision variable and logistics service issues are also considered (La Londe & Maltz, 1992; McGinnis *et al.*, 1995). For instance, Maltz (1994a) examined the relative impact of cost and service on the decision to outsource warehousing and found that organisations were reluctant to use third-party warehousing due to customer service considerations.

The decision to contract-out logistics can also be driven by resource and capability considerations (Bolumole, 2001). Forming relationships with 3PL providers is an efficient and effective means of achieving the required service without investing heavily in assets and new capabilities (Persson & Virum, 2001; Stank & Maltz, 1996). In this way, firms can focus on their core business. Furthermore, changes in the business environment, increased competition, pressure for cost reduction and the resulting need to restructure supply chains are often quoted as motives for the formation of alliances with 3PL providers (Bagchi & Virum, 1996; Laarhoven, Berglund & Peters 2000).

Logistics outsourcing offers many cost-related advantages such as reduction in asset investment (turning fixed cost into variable), labour and equipment maintenance costs (Bardi & Tracey, 1991). Third party logistics providers serve multiple customers and are able to utilize capacity better and spread logistics costs, thus achieving economies of scale (van Damme & Ploos van Amstel, 1996). However, cost reduction is not always realized due to unrealistic fee structures proposed by service providers (Ackerman, 1996); and even if realised, it can be offset by the provider's margin (Wilding & Juriado, 2004). Cost savings evaluation can be difficult due to the firms' lack of awareness of internal logistics costs. Indeed, the outsourcing option may be chosen in order to give an indication of in-house costs and serve as an external benchmark for logistics efficiency (van Laarhoven *et al.*, 2000). One of the objectives of the study was to determine the role of cost in the performance of food and beverages manufacturing companies in Kenya.

Research Methodology

The study adopted cross-sectional survey design using both quantitative and qualitative approaches. The target population was 197 manufacturing firms in Nairobi and its surroundings, who were members of Kenya Association of Manufacturers (KAM) in 2015. The study used stratified random sampling to pick a sample size of 116 manufacturing firms which represented 14 industrial sectors in manufacturing firms. Data was collected using questionnaire. Descriptive statistics was used aided by Statistical Packages for Social Sciences version 24 to compute percentages of respondents' answers. Also, analysis was conducted using quantitative approach.

Research Findings And Discussion**Response Rate**

The targeted respondents in the study were supply chain managers of the manufacturing firms in Kenya and which were registered members of Kenya Association of Manufacturers (KAM) in the year 2015. A total of 83 self-administered questionnaires were filled out of the expected 116 yielding a response rate of 72%. This response rate was good and representative and confirms to Mugenda (2008) stipulation that a response rate of 50% is adequate for analysis; a rate of 60% is good and a response rate of 70% and over is excellent. This good response rate was attributed to the data collection procedure, where the researcher personally administered questionnaires to the respondents who filled them. The researcher collected the filled questionnaires later. This response rate demonstrated willingness to respond to study.

Influence of cost on the performance of food and beverages manufacturing

The study sought to find out whether cost determines performance of food and beverages manufacturing companies in Kenya. This objective was measured using the following indicators: transactional cost and logistics service providers' cost in the opinion statements given. Respondents were asked to indicate the extent to which cost affected performance of food and beverages manufacturing companies. This was on a likert scale of not at all, small extent, moderate, large extent and very large extent. Thus, in this study the scale of not all and small extent meant disagree while large and very large extent meant agreed.

a) Transactional cost

The majority of the respondents (40%) indicated moderate that cost for processing documents neither nor affected the performance food and beverages manufacturing companies. This is because average number of food and beverages manufacturing companies believe that the cost of processing documents is not a major issue as companies can handle on their own and other companies felt that it is an important issue and thus they can be outsourced hence affecting performance. Likewise, 35% disagreed that cost for processing documents was not regarded as important when outsourcing logistics services by food and beverages manufacturing companies. This is because most food and beverages manufacturing companies might incur the cost of processing documents on their own and hence cost of processing documents does not affect performance of companies when outsourcing logistics services. However, 25% agreed that cost for processing documents affected performance of food and beverages manufacturing companies. Therefore, these companies felt that cost of processing documents was important and could be a major determinant when outsourcing logistics services.

With regard to freight forwarding cost, 35% of the respondents agreed that freight forwarding cost affected performance of food and beverages manufacturing companies, 35% indicated moderate and 30% disagreed that freight forwarding cost affected food and beverages manufacturing companies. On customs clearance cost, 47% of the respondents agreed that customs clearance cost affected performance of food and beverages manufacturing companies, 8% indicated moderate and 25% disagreed that customs clearance cost affected performance of food and beverages manufacturing companies. Concerning transportation and distribution cost, 50% of the respondents agreed that transportation and distribution cost affected performance of food and beverages manufacturing companies, while 45% indicated moderate and 6% disagreed that transportation and distribution cost affected performance of food and beverages manufacturing companies. Regarding tracking and tracing cost, 34% of respondents agreed that tracking, and tracing cost affected

performance of food and beverages manufacturing companies, 37% indicated moderate and 28% disagreed that tracking and tracing cost affected performance of food and beverages manufacturing companies as shown in Table below.

Transactional cost

Statements	Not at all (%)	Small extent (%)	Moderate (%)	Large extent (%)	Very large extent (%)	Mean	Std. Deviation
Document processing	4	31	40	20	5	2.92	0.93
Freight forwarding cost	17	13	35	33	2	2.90	1.11
Custom clearance	11	14	28	37	10	3.20	1.15
Transportation and distribution	0	6	45	34	16	3.59	0.83
Tracking and tracing	7	23	36	27	7	3.04	1.04
Warehousing	14	14	37	23	11	3.01	1.18

In general, the study found out that the majority of the respondents indicated that transportation and distribution cost affected performance of food and beverages manufacturing companies in Kenya. This might be attributed to the fact that food and beverages manufacturing companies outsourcing logistics services to bring raw materials to the companies and also transportation of finished goods to the final consumers. In addition customs clearance was found to affect performance of food and beverages manufacturing companies. This is because any delay in clearance of goods from the ports attracts additional cost to the products. On average, food and beverages manufacturing companies felt that document processing, freight forwarding, tracking and tracing affected performance of food and beverages manufacturing companies. This is because the companies have room to intervene on cost escalation. Also, these costs are regarded as transactional cost and they provide a major decision when food and beverages manufacturing companies outsource 3PL providers. Thus, food and beverages manufacturing companies outsource logistics activities when transactional cost of producing in-house is higher and it would reduce profitability of the company if done in-house. This result agrees with the study of Selviaridis and Spring (2007) that the decision on whether to perform logistics activities in-house or outsource from 3PL providers depend on evaluation of cost or service trade-offs. One important determinant of the decision is cost comparison between alternative options. Costs associated with performing logistics activities in-house and investment in capital assets is traded-off against service provider fees and the lowest cost solution should then be selected (van Damme & Ploos van Amstel, 1996).

b) Logistics service provider cost

A high number of respondents (43%) indicated moderate that agency or administrative fees affected performance of food and beverages manufacturing companies, 35% agreed that agency or administrative fees affected performance of food and beverages manufacturing companies and 22% disagreed that agency or administrative fees affected performance of food and beverages manufacturing companies. Concerning handling and processing fees, 43% of the respondents indicated that handling and processing fees moderately affected performance of food and beverages manufacturing companies while 38% agreed that handling and processing fees affected performance of food and beverages manufacturing

companies and 19% disagreed that handling and processing fees affected performance of food and beverages manufacturing companies as shown in Table below.

Logistics service provider cost

Statements	Not at all (%)	Small extent (%)	Moderate (%)	Large extent (%)	Very large extent (%)	Mean	Std. Deviation
Agency/administration fees	6	16	43	22	13	3.20	1.06
Handling and processing fees	2	17	43	22	16	3.31	1.01

Basing on the results of the study, agency or administrative fees, handling and processing fees affected the performance of food and beverages manufacturing companies in Kenya. If the cost of agency or administrative fees is high, it is likely to affect the profitability of the company. Also, if the handling and processing fees is high, it would reduce the profitability of company producing in-house and therefore it would be better to outsourcing company. Therefore, food and beverages manufacturing companies in Kenya would outsource 3PL providers whose administrative, handling and processing fees are relatively lower in order for them to break-even and eventually increase profit margins. Thus, the findings of this study agreed with Selviaridis and Spring (2007) that logistics outsourcing offers many cost-related advantages such as reduction in asset investment (turning fixed cost into variable), labour and equipment maintenance costs. Cost and service represent the most important criteria in logistics outsourcing decisions (SoonHu, 2010).

Test of hypothesis

The researcher conducted regression analysis so as to find out whether cost determines performance of food and beverages manufacturing companies in Kenya. The hypothesis to test for this specific objective was:

H₁ There is a positive significant influence of cost on the performance of food and beverages manufacturing companies in Kenya.

The linear regression model showed $R^2 = 0.352$ which means that 35.2% change of performance of food and beverages manufacturing companies in Kenya can be explained by a unit change of cost. The result is shown in Table below.

Model Summary of cost

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.600 ^a	.360	.352	.18366

a. Predictors: (Constant), cost

From the results there was an indication that one unit change in cost translates to 35.2% change of performance of food and beverages manufacturing companies in Kenya. Therefore, cost has influence on performance of food and beverages manufacturing companies in Kenya. Further test on ANOVA shows that the significance of the F-statistic (18.173) is less than 0.05 since p value, $p=0.00$, as indicated in Table below. This implies that there is a positive

significant relationship between cost and performance of food and beverages manufacturing companies in Kenya.

ANOVA^a of cost

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.494	1	8.494	18.173	.000 ^b
	Residual	33.652	72	.467		
	Total	38.146	73			

a. Dependent Variable: performance

b. Predictors: (Constant), cost

Further test on the beta coefficients of the resulting model, the constant $\alpha = 0.176$, if the independent variable of cost is held constant then there will be a positive performance of food and beverages manufacturing companies in Kenya by 0.176. The regression coefficient for cost was positive and significant ($\beta = 0.427$) with a t-value=5.338 (p-value<0.001). As shown in Table below.

Coefficients^a of cost

Model		Unstandardized Coefficients		Standardized	t	Sig.
		B	Std. Error	Coefficients Beta		
1	(Constant)	.176	.080		2.210	.030
	cost	.427	.080	.600	5.338	.000

a. Dependent Variable: performance

This implies that for every 1 unit increase in cost, performance of food and beverages manufacturing companies in Kenya is predicted to increase by 0.427 units and therefore H_1 is accepted. From the study it was revealed that cost affects performance of food and beverages manufacturing companies. These study findings are in agreement with the study of Selviaridis and Spring (2007) who noted that one important determinant of the decision is cost comparison between alternative options. Costs associated with performing logistics activities in-house and investment in capital assets is traded-off against service provider fees and the lowest cost solution should then be selected (Langley, 2015). However, cost is not the single most important decision variable and logistics service issues are also considered (Lucie & Hudziak, 2012). For instance, Maltz (1994a) examined the relative impact of cost and service on the decision to outsource warehousing and found that organisations were reluctant to use third-party warehousing due to customer service considerations.

Conclusion And Recommendations

From the study findings, it could be concluded that cost had a positive significant influence on performance of food and beverages manufacturing companies in Kenya. The study showed that transportation and distribution costs, customs clearance, document processing, freight forwarding, tracking and tracing affected performance of food and beverages manufacturing companies in Kenya. Thus, these costs are regarded as transactional costs and they provide a major decision when food and beverages manufacturing companies outsource 3PL providers. Hence, food and beverages manufacturing companies outsource logistics activities when transactional costs of producing in-house are higher than outsourcing same service. Further, agency or administrative fees, handling and processing fees affected the performance of food and beverages manufacturing companies in Kenya. Therefore, food and beverages

manufacturing companies in Kenya would outsource 3PL providers whose agency or administrative fees, handling and processing fees are relatively lower in order for them to break-even and increase overall performance of the company.

The study established that cost influence positively performance of food and beverages manufacturing companies in Kenya. Therefore, the study recommends that it would be appropriate for management to consider cost as criteria of outsourcing 3PL providers for improving performance of food and beverages manufacturing companies in Kenya. Also, the study recommends that companies should only perform in-house logistics activities where the cost is lower than outsourcing from 3PL providers because cost directly affects the overall performance of the company.

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