PRODUCT RETURNS PRACTICES AND VALUE CHAIN PERFORMANCE IN THE FOOD AND BEVERAGE INDUSTRY IN KENYA

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ABSTRACT

With the age of e-procurement and consumer awareness, allowance for product returns is key in ensuring customer satisfaction and customer return. Value chains have been facing challenges such as waste accumulation, scarce resources and high material costs which could be reduced by returning waste products to the value chains for reusing, recycling and remanufacturing. The main objective of this study was to examine the influence of product returns on value chain performance in the food and beverage industry in Kenya. The study adopted a descriptive research design and the target population was 291 companies in the food and beverage industry. The sample population involved 74 companies in the food and beverage industry. Self-administered structured questionnaires were used to collect primary data. Data was analyzed using descriptive and inferential statistics. The study found that value chain performance was influenced positively and significantly by product returns practices and most of the food and beverage firms in the industry that are implementing product returns practices are improving their value chain performance by minimizing waste and the need to purchase new raw materials thereby increasing operational efficiency. This research was based on product returns practices and value chain performance in the food and beverage industry in Kenya and there is a need to undertake similar studies in retail or commercial sector and in other countries in order to uncover the underlying relationships between product returns practices and value chain performance and the findings may identify interesting comparisons. This study adds to existing research on the subject of product returns practices and value chain performance as it reveals that product returns practices are necessary to promote optimization of the performance of the value chains. Based on the current Literature, studies focusing on the implementation of the product returns practices are limited. There is no study that is linking product returns practices and value chain performance of the food and beverage industry. Therefore, this is a pioneering study in both content and context.

Keywords: Product Returns Practices, Reverse Logistics, Value Chain Performance.

INTRODUCTION

The global logistics and e-commerce market has experienced tremendous growth in the recent years owing to the rise in connectivity solutions. The growth in e-commerce and logistics industries drives the demand for time efficient delivery and return services for the transportation of goods in forward and reverse logistics worldwide. For instance, in May 2021, XPO Logistics announced the launch of an automation solution to manage high-volume reverse logistics for a fashion e-commerce customer in France. The solution integrates multiple technologies, including a state-of-the-art mechanized sortation system, to handle throughput of up to 12 million returned products per year. The unprecedented growth of online shopping in

the recent years has promoted the development and adoption of reverse logistics services and solutions by the leading retail, e-commerce and third party logistics companies. The returns segment of the e-commerce industry has become a critical component of the retail customer experience and thereby drives the adoption of reverse logistics services across the e-commerce industries and their value chains (Mayank, Aditya & Sonia, 2021).

Makaleng (2022) stated that in South Africa, there have been several fast moving consumer goods recalled and returned for a variety of reasons. For instance, in 2017 there was an outbreak of listeriosis, which was announced in March 2018 by the South African Minister of Health. This led to the recall and return of polony and Vienna sausages of a company named Enterprise, since these products were identified as the sources of the outbreak. These products were recalled as they threatened the lives of many individuals (as the products were exported to other countries), and the recall amounted to 415 million Rand. In February of 2020, there was a recall of tinned fish products in SA. Pilchards in tomato sauce and pilchards in chilli sauce were recalled from stores across the country due to an investigation that discovered a deficiency in the canning process, which could affect the consumers' safety. The Liqui Fruit Red Grape Still 330 mL can was also recalled in 2020 because three consumers found "small shards of glass" in their cans. Recently, in 2021, the KOO as well as Hugo's canned vegetable products were recalled due to an "extremely small number" of defective cans supplied by a packaging supplier. This shows that product returns practices are being implemented and efficiency in the value chain ensures smooth operations

Problem Statement

The manufacturing industry in Kenya has been experiencing a lot of turbulence in the recent past including a drop in the GDP, an increasing imbalance of trade and the exiting of large multinationals. The contribution of the manufacturing sector to the economy and jobs has been declining over the past few years, as the sector's share of the Gross Domestic Product (GDP) shrank by more than three percentage points from almost 10% per cent in 2013 to 8.4 per cent in 2017, according to the 2018 Economic Survey. In 2016, manufacturing contributed 9.1 per cent to GDP, a drop from the previous year's 11% per cent and 10 per cent in 2014 (Bor, 2021). The food and beverage industry, which is a subsector of the manufacturing industry has not been spared. This reduction in growth has necessitated an increase in imports which has led to a reduction in market share for food and beverage manufacturing firms in Kenya. The food and beverage manufacturing sector has also experienced declining customer satisfaction due to supply chain disruptions characterized by food safety scares, shortages and ever-increasing prices (Awino, 2019). This has had ripple effects in the economy whereby there has been increased inflation, competition and imports of substitutes.

Increased competition provides an array of choices for customers to select from hence attracting new clients does not guarantee profits as much as retaining existing customers. Kenyan middle-class consumers with purchasing power have far wider needs with a different opinion on quality versus price. Their spending habits are mainly influenced by a sum of product quality and service offered at each purchase engagement. These ever-changing

customer tastes and preferences are posing a challenge for food and beverage manufacturing firms who have to satisfy this expanding the scope of customer needs. The annual performance reports in Kenya exhibit a decreasing trend in performance for the period 2010- 2016. The highest performance was recorded in the year 2011 with a performance rate of 11.8% and declining to 9.1% in 2016 (Mwaura, 2021). Low performance of the firms can also be attributed to problems such as; scarce resources, waste accumulation, high material cost, disposal and lack of sustainability. The weak performance can be attributed to high operations cost and wastes in the entire value chain, which ought to be addressed through adoption of reverse logistics practices and returns management (Bor, 2021).

Despite the identification of returns management and reverse logistics practices as a technique of optimizing value chain performance, KNBS (2017) indicated that 65% of manufacturing firms in Kenya often focus on forward logistics and as a result, they tend to overlook the importance of reverse logistics activities and its potential of value addition to the value chain processes and various organizations. Documented studies in this area include Brennan and Rakhmatullin (2015) "Global Value Chains and Smart Specialization Strategy.", Korir (2018) "Factors Affecting Value Addition of Irish Potato and Effects on Smallholder Farmers' Income Generation in Bomet County, Kenya.", Mwari (2019) "Analysis of value chain and performance of leather companies in Kenya.", Mwaura (2021) "The Influence of supply chain management strategies on supply chain performance within the food and beverage industry in Kenya." and Okisegere (2012) "Value Chain Management Practices and Competitive Advantage of SeaFood Firms in Mombasa County in Kenya". Based on these findings on the performance gap in the manufacturing sector, a study was conducted to assess the role of product returns practices on the value chain performance in Kenya's food and beverage industry.

Research Hypothesis

To fulfill this objective, we aimed at testing the hypothesis H01: There is no statistically significant link between product returns practices and value chain performance in the food and beverage industry in Kenya.

LITERATURE REVIEW

Theoretical Review

Barnes (1954) proposed that social relationships can be viewed in terms of nodes and ties where nodes are the individual actors within the networks and ties are the relationships between the actors. There can be many kinds of ties between the nodes. In its most simple form, a social network is a map of all of the relevant ties between the nodes being studied. According to Lu (2018), the social network theory is a theory that applies to a variety of levels of analysis from small groups to entire global systems and is important when examining the structure of inter-organizational relationships in a value chain which has been brought about by the increased interlinked decision making approaches. The SNT is one that measures the number of ties in a

network that links actors together and also the position of an individual firm in relation to the flow of information. As network centrality increases however, the organization's ability to resist external pressures also increases (Zhu & Liu, 2010).

Accordingly, if an organization has many branches, customers and suppliers, and there is a general awareness in the public, it is likely to be under greater pressure to adopt green supply chain management practices. The adoption of reverse logistics practices for such a firm will thus be more or less reactive (Rodriguez-Rodriguez, 2015). Although it could be argued that constructs of SNT can largely help analysts explore relationships between value chain actors at both levels, there have been very few studies that employ this theory in the value chain management context. Social networks enable efficient application of value chain performance which a firm can benefit from its central position to champion and monitor product returns through both "hard" material/money flow and "soft" alliances and sharing-of-information types of ties (Mobolaji, 2017). Vlachos (2016) argues that firms rarely create value in isolation; rather, they align themselves with customers, suppliers, and other partners to co-develop and co-expand existing markets through supply chain integration. Supply chain integration is defined as the degree to which a manufacturer strategically collaborates with its supply chain partners and collaboratively manages intra- and inter-organization processes. He argues that supply chain integration represents the exchange mechanism of resources and knowledge in a supply chain which is key in product returns. Supply chain coordination is another dynamic capability which is important for product returns. Coordination can be achieved via different governing mechanisms such as market mechanisms, contracts, and partnership arrangements. It allows for investment in assets specific to product returns which reduces uncertainty. Because different consumers return products at different times, volume uncertainty, which is created by poor forecasting of future demand patterns, is reduced by sharing of strategic information between retailers and manufactures like trends in consumer behavior that leads to returning of products.

SNT is relevant to this study because it explains the importance of product returns on value chain performance. This is because product return involves relations with the end consumers once they have achieved utility in their products, the organization retrieves them back to the organization in a form of solid waste management to achieve closed loop value chain success when they cooperate with consumers (Sarkis et al., 2011). A firm that desires to review its value chain should consider having information sharing mechanisms that will increase its value chain density as well as enable it sufficiently carry out the product returns process as a form of reverse logistics with an aim of improving its value chain performance.

Conceptual Framework

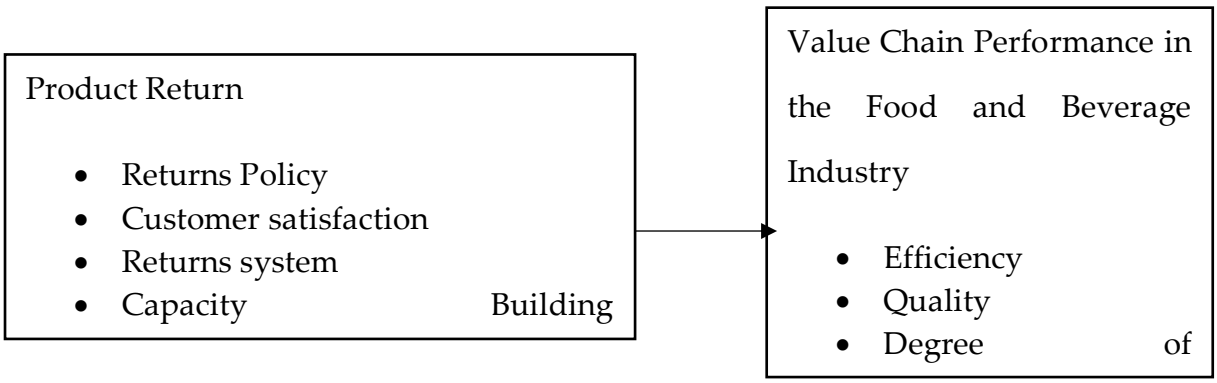

Figure 1: Conceptual Framework

Empirical Review of Product Returns Practices

The products that have already joined the value chain may also be channeled back on grounds of being defective or of poor quality or their functions are no longer needed. In the practical business environment, products that majorly reverse their course in the value chain are; manufacturing returns, commercial returns, recalled products, warranty returns, service returns, end-of use returns and end-of-life returns (Price Water House Coopers, 2008). Manufacturing returns refers to all those cases where components or products have to be recovered in the production phase. This occurs for a variety of reasons such as raw materials may be left over, intermediate or final products may fail quality checks and have to be reworked and products may be left over during production. Distribution returns refers to all those returns that are initiated by a value chain actor during distribution after the product has been made (including the manufacturer). It refers to product recalls, commercial returns, stock adjustments and functional returns. Product recalls are products recollected because of safety or health problems with the products, and the manufacturer or a supplier usually initiates them (de Brito, et al., 2005).

Commercial returns are all those returns where a buyer has a contractual option to return products to the seller. This can refer to wrong/damaged deliveries, or to unsold products that retailers or distributors return to e.g. the wholesaler or manufacturer. The latter include outdated products, for instance those products whose shelf life has been too long, such as pharmaceuticals and food, and may no longer be sold. Functional returns concern all the products that its inherent function makes them going back and forward in the chain. An example is distribution carriers as pallets as their function is to carry other products and they can serve this purpose several times (Schatteman, 2010). Customer returns, those returns initiated by a customer or user and/or as a result of consumption/use have a variety of reasons to return the products such as, reimbursement guarantees, warranty returns, service returns (repairs and spare-parts), end-of-use and end-of-life of an item.

Greve and Davis (2010) conducted a study on how to recover lost profit through reverse logistics. In their study, they recommended the following strategies for an effective reverse logistics system; the first recommendation is that the organization must first know its returns. Secondly, the organization must attach value to the returns. The organization must be in apposition to restore value to its customers. Thirdly, it is important to assess the organizations infrastructure. This will determine the organizations ability to recover products and restore their value. Fourthly, it is important to identify success areas depending on the opportunities and benefits an organization associate with recovered products. Lastly, the organization must commit to success by developing an internal process and capacity as well as build an organizational culture that embraces such strategies. Reverse logistics has direct relationship with value addition. This is because of the following reasons; reverse logistics improves customer service, reverse logistics directly improves quality management, reverse logistics leads to enhanced value creation from recovered materials which would otherwise be wasted and lastly, reverse logistics enhances revenue collection since a tax system can be integrated with the reverse logistics operations.

In their review of quantitative models for reverse logistics, Fleischmann *et al.,* (2001) list out the differences between forward and reverse logistics networks which also constitute some of the barriers to reverse logistics particularly in network planning. These include requirement of a convergent structure of network from many sources to a few demand points, high degree of uncertainty in supply both in terms of quantity and quality of used products returned by customers, and uncertain end markets for recovered products. The uncertain timing and quality of returns, the need to balance returns with demands, and the uncertainty in materials recovered from returned items are also some of the complicating characteristics impacting production planning and control for remanufacturing. Depending on the ability to overcome these barriers, some firms are able to implement reverse logistics using internal self-support system, e.g. Hewlett-Packard, whereas others resort to outsourcing to third-party logistics (3PL) providers to handle consumer or EoL returns and recycling, e.g. 3M (Nyarega, 2015).

The outsourcing approach permits a firm to focus on its core activities as well as to achieve more flexible reverse logistics operations and to transfer risk to third party. However, selection and management of 3PL providers can be difficult. Another approach, which is usually initiated by industry association or government, is to set up a collaborative entity or strategic alliance to run reverse logistics for a number of firms in the same industry (He, 2006). This collaborative approach is more effective and efficient as it reduces the investment of individual firms and enables economies of scale through centralization. Price Water House Coopers (2008) conducted a research on how to achieve an agile and efficient reverse chain within the consumer electronics industry. In their report, they pointed out that reverse logistics is not one party's affair. They also established that reverse logistics operations are critical functions of supply chain and therefore need to be properly managed.

The report proposed five points' recommendations that may be adopted by any organization in its reverse logistics. The first recommendation is that the process must start with analysis of the current situation in the reverse chain. This enables the organization to prioritize, eliminate

unnecessary costs and maximize returns. The second recommendation is that there must be awareness a cross the organization that a customer centered approach of management does not only create value but also maintain value in the organization. This will organization's perception and approach of managing reverse supply chain operations. The next recommendation is that reverse logistics operations must be optimized from an operations perspective so as to maximize value to the organization. The forth recommendation is that the reverse logistics operations must be aligned with customer requirements. It must therefore take a multidimensional approach considering organizational structure, systems, structure and people. Lastly, management of reverse operation must be a collaborative affair where every player has clearly outline roles. For a company that accepts return as a strategy to gain customer loyalty through repeat buyers, reverse logistics is a fundamental process to recover re-usable for gaining additional revenue which inherently reduces cost of goods. Other than completing the supply chain loop so that products are handled at the benefit of environment, it is also important that products are recovered to cater to demand of after sales services so that cost of purchasing parts can be minimized (Rogers et al., 2010).

Value Chain Performance

Firms work to ensure that goods and services reach their customers quickly than their competitors through efficient and effective value chains. The need to do so has driven them to ensure the use of well managed supply chains due to the interdependence among supply chain partners. The competitive strategy paradigm Porter developed categorized the value chain operations into primary and secondary activities. The activities of inbound logistics, operations, outbound logistics, marketing and sales, and services were classified as primary activities, while procurement, human resource management, infrastructure, and technology development were grouped as support activities. Interdependence amongst value chains is a key factor and thus success or failure of a firm depends highly on activities adopted by value chain partners. The need for value creation along these supply chains is important. The primary focus in value chains is on the benefits that accrue to customers, the interdependent processes that generate value and the resulting demand and funds flows that are created (Porter, 1985).

A move up the value chain through innovations is now viewed as a crucial strategy to firms' competitiveness. This strategy is consistent with the general thesis that upgrading the value chain of a firm by producing better products, increasing business efficiency, and entering into more skill-intensive industries is a necessary and important strategy for ensuring sustainable competitive advantage (Abdi, 2012). Encouraging higher value added activities and innovations have become central to strategies of various firms as well as various policies aimed at increasing Research and Development (Hout & Ghemawat, 2010). Firms therefore need to clearly identify their value chains and aim to manage them to ensure that value is created in the present and future undertakings. Managing value requires a fundamental change in the way organization and individuals think, take decisions and behave. The value added process affects the value chain relationship and consequently value chain performance. Kenya's manufacturing sector suffers from limited value addition and diversification, high cost of inputs

and low competitiveness and yet this sector has a high potential in employment creation and poverty alleviation in the country (Mwaura *et al*., 2015).

Firms seek to ensure that consumer needs are met beyond expectation and with this the need to determine value chain performance. Value chain performance is usually affected by value chain optimization. One of the most significant changes in modern business management is that businesses focusing on value chain optimization are no longer competing solely autonomous entities but as value chains. As competitive efforts are put in place, value chain management is key to ensuring organization goals are met. As much as value chain optimization affects value chain performance, it is important that organizations seek to adopt measures that best suit them (Odhiambo, 2014). Therefore, value chain performance should be tracked regularly and measured transparently, and exceptions and unplanned events should be proactively identified and managed.

Value is measured by total revenue, a reflection of the price a firm's product commands and the units it can sell. A firm is profitable if the value it commands exceeds the costs involved in creating the product (Porter, 1985). Porter defined value as the amount buyers are willing to pay for what a firm provides, and he conceived the value chain as the combination of nine generic value added activities operating within a firm's activities that work together to provide value to customers (Abdi, 2012). According to Porter (1985), Value chain analysis investigates the sequence of activities required to bring a product or service from conception and procurement through production and distribution to the final customer. The analysis can be done for individual firms, for clusters of firms whose value chains are interlinked -referred to as value systems by Porter and usually involving suppliers, distributors, sellers and customers. Value configuration analysis is then linked to the analysis of the structural determinants of both industry attractiveness and alternative competitive strategies. The activities work together to provide value to customers (Porter, 1985). In Porter's Value Chain model, he linked up the value chains between firms to form what he called a Value System (Abdi, 2012).

RESEARCH METHODOLOGY

Research Design

This is the outline, plan or scheme that is used to generate answers to a research problem. This study adopted a descriptive research design as it is more investigative and focuses on a particular variable factor (Ott & Longnecker, 2010). It describes what is in existence in respect to conditions or variables that are found in a given situation. A case study is a research method involving an up-close, in-depth, and detailed examination of a subject of study, as well as its related contextual conditions. In this study data was collected to show the role of product returns practices on value chain performance in the food and beverage industry in Kenya.

Population

Ott and Longnecker, (2010) define the target population as the complete collection of objects whose description is the major goal of the study. According to the Manufacturers and Exporters Directory (2022) data, the total number of companies in the food and beverage industry is 291 but the target population for the study is 74 companies in the food and beverage industry which have implemented the product returns practices in their organizations and value chains.

Sample Size and Sampling Technique

A sample size refers to the number of items to be selected from the universe (population) to constitute a sample (Kothari, 2014). The sample size depends on what one wants to know, the purpose of the inquiry, what is at stake, what is useful, what has credibility and what can be done within the available time and resources. The researcher applied the statistical formula by Yamane (1967) in order to derive the sample size. The formula is:

$$n = \frac{N}{1+N(e)^2}$$

Where:
n=sample size
N=total population
1=constant
e=error term (0.1)

This gave a sample size of 74 organizations in the Food and Beverage industry. Purposive sampling was used to select the 74 organizations under consideration in this study. Kothari (2014) states that under purposive sampling, the researchers deliberately choose the units of study to constitute the sample on the basis that the small mass they select out of the huge one will be a typical representative of the whole. For instance, in this study, not all organizations in the food and beverage industry can conduct reverse logistics as some products such as food waste, food-tainted items (such as: used paper plates or boxes, paper towels, or paper napkins), plastic wrap, packing peanuts, bubble wrap and wax boxes which are used in packaging cannot be reused or recycled for the same or a similar purpose. Similarly, not all organizations in the food and beverage industry have implemented the product returns processes therefore only organizations that have implemented product returns practices were considered.

Data Collection Instrument

This research used structured questionnaires as a data collection instrument. Questionnaires were used since according to Cooper and Schindler (2014), they are effective data collection instruments that allow respondents to give much of their opinions in regard to the research problem. Questions in the instruments were structured in a way that they address various aspects of the study variables. This method is more confidential, easier to administer and to

analyse, economical and time saving as compared to the other instruments thus it was appropriate for this study. The researcher did a preliminary study where she contacted all the companies under study to find out whether they conduct any product returns practices before administering the questionnaires to the respondents.

Data Analysis and Interpretation

Response Rate

Response rate refers to the extent to which the final data sets includes all sample members and is calculated as the number of respondents with whom interviews are completed (Kothari, 2014). The researcher distributed 74 questionnaires and 72 questionnaires were completed by the respondents representing a 97% return rate as shown in Table 4.1.

Table 4.1 Instrument Response Rate

	Frequency	Percent
Operations Officers	72	97%

Reliability Analysis

The reliability of a measure denotes the consistency of results obtained in the use of a particular instrument and is an indication of the extent of random error in the measurement method (Kothari, 2014). To ensure reliability of measurement in relation to the consistency, accuracy, and precision of the measures to be taken in the use of the research instrument and to ensure that there was no bias during the study, Cronbach's alpha method was used to measure the consistency of the questions in the questionnaire. It ranges between 0 and 1 and acceptable alpha should be at least 0.70 (Mugenda & Mugenda, 2003). Table 4.2 shows the output from the reliability of statements measuring each individual variable.

Table 4.2 Reliability Statistics

Independent/ Variables	Dependent	Number of Items	Cronbach's Alpha value
Product Returns		6	0.742
Value Chain Performance		19	0.926

Descriptive Statistics

The respondents were questioned on various indicators of product returns practices on value chain performance. Their responses were rated on a 5 points Likert scale in which they either

stated strongly disagree, disagree, neutral, agree and strongly agree. The results were expressed in percentages as shown in Table 4.3

Table 4.3: Measurement of Product Returns

Statement	Strongly Disagree (%)	Disagree (%)	Neutral (%)	Agree (%)	Strongly Agree (%)	Mean	Standard Deviation
Our organization has a return policy that is favorable to the consumers	3	11	14	32	40	3.96	1.12
The product returns system is synced with the supply chain network	4	8	13	39	36	3.94	1.10
Product returns increase the level of customer satisfactions	0	14	22	31	33	3.83	1.05
We use a time based turnaround strategy to measure product returns performance	1	18	11	38	32	3.81	1.12
Our organization employs returns management to minimize wastage	3	10	13	31	44	4.04	1.11
We conduct regular capacity building on returns management to enhance productivity	3	18	36	28	15	3.35	1.04

In order for reverse logistics activities to be successful, products have to be returned efficiently to the organization. Respondents were asked whether their organization has a returns policy that is favorable to their consumers. 3% of the respondents strongly disagreed, 11% of the respondents disagreed, 14% of the respondents chose neutral, 32% of the respondents agreed and 40% of the respondents strongly agreed. Respondents were further asked whether the returns process was synced within the supply chain. 4% of the respondents strongly disagreed, 8% of the respondents disagreed, 13% of the respondents chose neutral, 39% of the respondents agreed and 36% of the respondents strongly agreed. Respondents were also asked whether product returns increases customer satisfaction. 14% of the respondents disagreed, 22% of the respondents chose neutral, 31% of the respondents agreed and 33% of the respondents strongly agreed. Respondents were further asked whether their organization uses a time based turnaround strategy to measure product returns performance. 1% strongly disagreed, 18% disagreed, 11% chose neutral, 38% of the respondents agreed and 32% of the respondents strongly agreed.

Respondents were also asked whether their organization employs returns management to minimize wastage. 3 of the respondents strongly disagreed, 10% of the respondents disagreed, 13% of the respondents chose neutral as they had no knowledge of this, 31% of the respondents agreed and 44% of the respondents strongly agreed. Lastly, the respondents were asked whether their organization regularly conducts capacity building on returns management in order to enhance productivity. 3% of the respondents strongly disagreed, 18% of the respondents disagreed, 36% of the respondents chose neutral as they said there was no capacity building program in their organization, 28% agreed and 15% of the respondents strongly agreed. The findings of this study confirmed that product returns influences value chain performance in the organization. This was supported by Panya and Marendi (2021) and Mogaka (2015) who found that syncing the returns process in the supply chain network made the returns process easier, increased customer satisfaction, minimizes wastage, enhances productivity and ensures continuous capacity building to ensure team work in achieving the goals listed thus improving the performance of the value chain.

Inferential Statistics

Test for Normality

For purposes of this study, Kolmogorov-Smirnov and Shapiro-Wilk tests were used to test for normality. As a rule of thumb, (Thode 2002 as cited in Thogori, 2017) Kolmogorov-Smirnov is used for small samples and for large samples, Shapiro Wilk test is adopted. The test statistic for normality is $p>.05$. P-values greater than 0.05 indicates that the data is normally distributed. On the contrary, a P-value <0.05 indicates that the data is not normally distributed. Table 4.4 below shows the significance levels of product returns practices ($p= 0.122$) and value chain performance ($p= 0.575$). From the table, we can conclude that all the variables exhibit a normal distribution. Hence the data satisfies the first assumption of regression that for one to conduct regression analysis, data must be normally distributed.

Table 4.4: Test of Normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Product Returns	.121	72	.011	.973	72	.122
Value Chain Performance	.075	72	.200*	.985	72	.575

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

To corroborate the skewness and kurtosis results, the graphical representation showed the line signifying the actual data distribution closely follow the diagonal in the normal Q-Q plot as illustrated in Figures 4.1 and 4.2 below, connoting normal distribution (Lorenzo-Arribas, 2019). In Q-Q plot, or the normal probability plot, the observed value for each score is plotted against the expected value from the normal distribution, whereby, a sensibly straight line implies a normal distribution and if the points in a Q-Q plot depart from a straight line, then the assumed distribution is called into question. Looking at the above Q-Q plots for all the variables the departure from normality is non-existent, this corroborates the Shapiro Wilk test for normality.

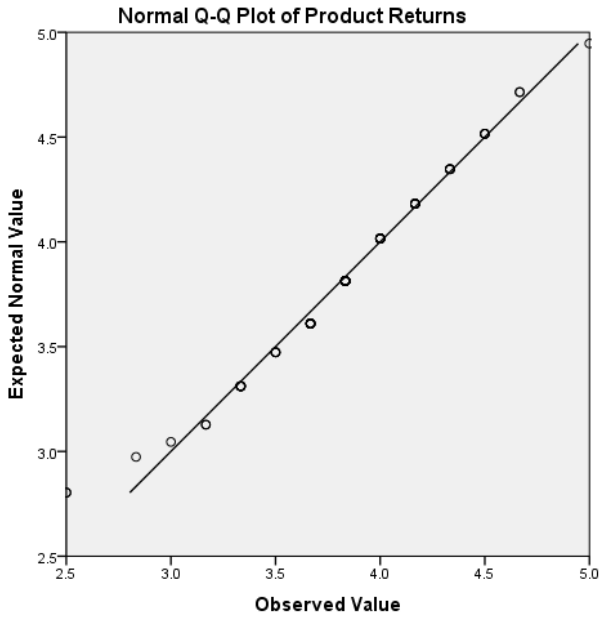

Figure 4.1: Q-Q Plots for Product Returns Practices

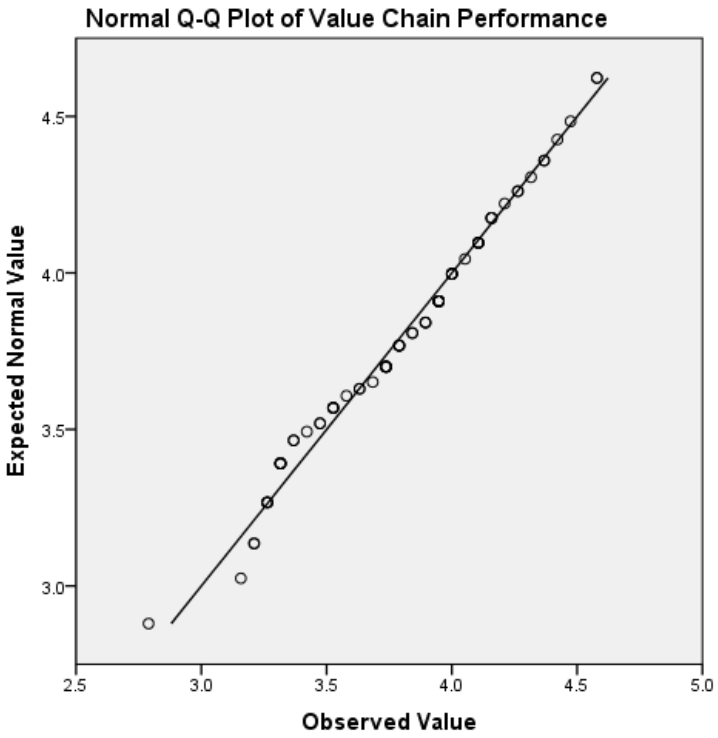

Figure 4.2: Q-Q Plot for Value Chain Performance

Simple Linear Regression

Product Returns Practices and Value Chain Performance

R is the correlation coefficient (simple correlation coefficient) measures the strength and direction of the linear relationship between the product returns practices and value chain performance. In this case, the R value is 0.342, indicating a moderate positive relationship between the predictor (products returns) and the dependent variable (value chain performance). R Square represents the coefficient of determination and it indicates the proportion of variance in the dependent variable that can be explained by the products returns practices. In this case, the R-squared value is 0.117, meaning that approximately 11.7% of the variance in the value chain performance can be explained by the products returns. The adjusted R-squared value takes into account the number of predictors and sample size, providing a more conservative estimate of the proportion of variance explained. In this case, the adjusted R-squared value is 0.104. Std. Error of the Estimate value is 0.36366 which represents the standard deviation of the residuals, providing an indication of the average distance between the observed and predicted values.

Table 4.5: Model Summary of Product Returns

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.342[a]	.117	.104	.36366

a. Predictors: (Constant), Product Returns
b. Dependent Variable: Value Chain Performance

The ANOVA table below examines the overall significance of the regression model. The regression sum of squares of 1.226 represents the variability in the dependent variable explained by the predictor variable; product returns. The residual sum of squares value of 9.257 represents the unexplained variability or error term in the model. The total sum of squares is 10.483 and accounts for the sum of the regression sum of squares and the residual sum of squares. The F-statistic=9.268 and it tests the overall significance of the regression model. With a p-value of .003, which is less than the conventional significance level of .05, we can conclude that the regression model is statistically significant. This suggests that the product returns has a significant impact on value chain performance.

Table 4.6: ANOVA of Product Returns

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.226	1	1.226	9.268	.003[b]
	Residual	9.257	70	.132		
	Total	10.483	71			

a. Dependent Variable: Value Chain Performance

b. Predictors: (Constant), Product Returns

Table 4.7: Coefficients of Product Returns

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.732	.352		7.768	.000
	Product Returns	.278	.091	.342	3.044	.003

a. Dependent Variable: Value Chain Performance

The specific model;
$Y= \beta 0+ \beta 1\ X4+\varepsilon$
Value Performance = 2.732+0.278 Product Returns

Hypothesis Testing

The test of hypothesis was conducted using the Ordinary Least Square Regression. The acceptance/rejection criteria was that, reject the null hypothesis if the p-value is less than the convectional 0.05. Fail to reject the null hypothesis if the p-value is higher than the convectional 0.05.

H_{o4}: Product return does not have a significant effect on value chain performance in the food and beverage industry in Kenya.

The null hypothesis was that product returns does not have a significant effect on value chain performance in the food and beverage industry in Kenya. Results in Table 4.32 indicates that p-value (0.000) was less than the convectional p-value (p= 0.05). This demonstrates that product returns practices have a significant effect on performance in food and beverage industry in Kenya. Otherwise put, the role of product returns practices in determining the value chain performance in the food and beverage industry in Kenya cannot be ignored. In conclusion, we reject the null hypothesis H_{o4}: Product return does not have a significant effect on value chain performance in the food and beverage industry in Kenya.

Conclusions and Recommendations

From the study findings, it can be concluded that product returns practices had a positive significant influence on value chain performance of the firms in the food and beverage industry in Kenya. This is because an increase in a unit of product returns practices leads to an improvement of the performance of the value chains in the food and beverage industry. The study recommends leveraging automation to ensure syncing of the product returns processes to ensure streamlining of the returns management processes to foster efficiency in their value chains. The study recommends that the logistics infrastructures of the forward and reverse logistics should be streamlined to ensure efficient returns of the products from the consumers to the manufacturing firms just as efficient as it is to move finished products from the manufacturing organizations to the final consumers. The study also recommends that the food and beverage manufacturing firms should determine where they can use their resources more effectively in order to cut costs and boost output which could entail making investments in cutting-edge technology or optimizing operations. The study also recommended that a system for the management of knowledge should be purchased by food and beverage manufacturing companies in order to standardize and oversee the sharing of knowledge across the value chain. Also, in order to increase communication with logistics partners and cut down on supply chain delays, these companies should also provide crucial information on load preparation, freight invoicing, optimum routes, and tender activities dealing with the returns management. The study also recommended that the food and beverage industry regulators should devise policies that would allow food and beverage manufacturers to integrate their value chains to help avoid losses that impact the efficiency of these businesses and eventually the economy as a whole.

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