

# PRODUCT QUALITY INFLUENCING PRODUCTION RESHORING DECISION AMONG MANUFACTURING MULTINATIONAL CORPORATIONS IN KENYA

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**Abstract:** This study sought to identify the strategic drivers influencing reshoring decision among manufacturing multinational corporations in Kenya and was guided by the following research objectives; finding out extent to which production cost, product quality, operational flexibility, reduced time to market and hidden cost influenced production reshoring decision. It also considered the moderating effect of market condition on reshoring decision. The study adopted cross sectional design and census method targeting 96 manufacturing multinational corporations drawn from membership of Kenya Association of Manufacturers with a response rate of 88.9%. Descriptive analysis, factor analysis, multicollinearity test, ANOVA test and logistic regression test were carried out for each variable. Statistical Package for Social Sciences Version 24 was used as the tool for data analysis. The study found out that product quality have positive influence on production reshoring decision. The combined effect of all independent variables and the moderating variable reflected a positive effect of 78.9% on the dependent variable. The study model was also found to be the optimal model for the study. The major recommendations from the study was to improve capacity to service unique customer orders. Finally, the government should strengthen intellectual property laws and enhance their enforcement to reduce incidences of counterfeit products. This would improve overall Kenyan manufacturing entities competitiveness and reduced unfair competition from counterfeit products.

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## 1. BACKGROUND OF THE STUDY

More recently the phenomenon of reshoring has gained prominence in popular and specialized press (Booth, 2013) with increased reporting on reversal of offshored decisions. The Boston Consulting Group [BCG] in its 2013 report notes that a number of multinational corporations have either moved their production back to home countries or to new locations. In 2012, General Electric Company announced its intention of reshoring its appliances manufacturing from plants in China to the USA while Apple intended to manufacture its Mac computers exclusively in the USA beginning 2013 (Gray, Skowronski, Esenduran & Rungtusanatham, 2013). Other manufacturing entities from developed countries have signaled their intention to reconsider their previous offshoring decision (Bailey & De Propris, 2014).

According to Wiesmann *et al.* (2017) strategic drivers influencing reshoring decision include five sets of dynamics; global competitive dynamics, home country, host country, supply chain and firm-specific dynamic. Several research studies have associated strategic drivers with multinational corporations' reshoring decision (Kinkel & Maloca, 2009; Kinkel, 2012; Ellram, Tate & Petersen, 2013; Bailey & De Propris, 2014; De Baker *et al.*, 2016). Global dynamics such as changes in

regional attractiveness, eroding comparative advantages and increased competition on resource assets are some of the dynamic that have been associated with reshoring decisions (Kinkel, 2012; Ellram, Tate & Petersen, 2013; Bailey & De Propriis, 2014;). Diminishing growth opportunities, challenges on quality, intellectual property theft risks have been identified as drivers influencing reshoring (Kinkel & Maloca, 2009; Ellram *et al.*, 2013). Incentives such as strengthening brand in home market and political incentives to create goodwill are associated with home country dynamics and contribute to reshoring decision (Bailey & Propriis, 2014; De Baker *et al.*, 2016).

### General Objective

The general objective of the study was to identify product quality influencing production reshoring decision among manufacturing multinational corporations in Kenya.

### Specific Objectives

To establish the influence of product quality on production reshoring decision among Kenya's manufacturing multinational corporations.

### Research Hypothesis

Product quality does not affect production reshoring decision among Kenya's manufacturing multinational corporations.

### DEFINITION OF TERMS

**Multinational Corporation:** A Multinational corporation (MNC) refers to a company or enterprise that has an integrated global philosophy encompassing both domestic and foreign operations in more than one country defines a multinational corporation as any business having production activities in two or more countries. Multinational corporations are usually large entities with operations across national boarder (Hill, 2005; Daniels, Radebaugh & Sullivan, 2009).

**Product Quality:** Product quality refers to the features and characteristics of a product that determines a consumer's desirability of the product. Manufacturing entities strive to ensure that their products meet and exceed customer expectations. Research studies show that there is a correlation between a consumers' propensity to purchase a product and the perceived quality of the said product (Miskolci, 2011; Ernest & Young, 2015).

**Reshoring Decision:** Reshoring refers to the decision of a multinational manufacturing entity to shift its production activities from an offshore location to its home country or another location nearer its home base. Kinkel and Maloca (2009) see reshoring as the re-concentration of parts of production from a multinational corporation's own foreign locations as well as from foreign suppliers to the MNC's domestic production site.

## 2. LITERATURE REVIEW

### 2.1.1 Dynamic Capabilities Theory

Dynamic capabilities theory (DCT) was initially introduced by Teece and Pisano (1994). They urge that while RBV recognizes the mechanisms for facilitate competitive advantage, it is incapable of explaining how these mechanisms interact to create sustainable competitive advantage particularly in rapidly changing environments. DCT was necessitated by the desire to address the shortcomings of RBV. "Dynamic capabilities as the firm's ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments" (Teece, Pisano & Shuen, 1997, p. 516). DCT is closely linked to resource-based theory as it posits that a firm's invisible assets are essential for creating a sustainable competitive advantage (Itami, 1991).

DCT identifies three classes of factors that help explain the source of competitive advantage; processes, positions and paths (Teece & Pisano 1994). Processes are the routines or way things are done within an organization, position refers to an organizations specific asset endowment such as customers, intellectual property and relations with stakeholders and paths refers to the organizations current and future strategic alternatives. Consequently a firm's competitive advantage lies with its managerial and organizational processes, is shaped by specific firm endowments and the strategic alternatives available to the firm. Managerial routines provide opportunities for knowledge accumulation and learning.

Dynamic capabilities theory has been found suitable for the study the reshoring phenomenon (Adroer, 2015) and was used for the study of the fourth independent variable reduced time to market and test hypothesis four.

### 2.1.2 Resource-based View Theory

The resource-based theory (RBT) is today one of the most prominent and widely cited theories in the history of management theorizing. RBT seeks to explain and predict organizational relationships and the internal sources of a firm's sustainable competitive advantage (Kraaijenbrink, Spender & Groen, 2010; Barney, Ketchen Jr. & Wright, 2011). Works by other authors and researchers has contributed significantly to the development of the resource-based view (RBV) theory (Lippman & Rumelt, 1982; Wernerfelt, 1991; Barney, 1991). Penrose (1959) identified the importance of a firm's resources particularly in influencing growth and success of the firm urging that when resources are inadequate, the growth of the firm is constrained.

RBV has been found suitable for the study the reshoring phenomenon and has been used in a number of recent studies (Adroer, 2015; Fisch & Zschoche, 2012; Ellram, Tate & Petersen, 2013). The Resource-based theory was used to study the second independent variable product quality and test hypotheses two.

*H<sub>02</sub>: Product quality does not affect production reshoring decision among Kenya's manufacturing multinational corporations.*

### 2.2.1 Product Quality

Product quality refers to the features and characteristics of a product that determines a consumer's desirability of the product. Manufacturing entities strive to ensure that their products meet and exceed customer expectations. Product quality is represented by consumers' value perception of a product and the product's origin or manufacture location impact on purchase decisions. Research studies show that there is a correlation between a consumers' propensity to purchase a particular product and the perceived quality of the said product (Miskolci, 2011; EY, 2015). This is what has led to the term "made in effect" when considering the importance of product quality on reshoring strategy decisions.

According to the United Nations Industrial Development Organization [UNIDO], the quality of a product is defined as its ability to fulfill a customer's needs and expectations (UNIDO, 2006). Results from a study on consumers' willingness to purchase food items carried out in the Czech Republic suggests that indications of food quality improvements increased the willingness to purchase (Miskolci, 2011). Further consumers were willing to pay a premium price of up to 11% for quality improvement. Product quality has emerged as the most important motive for production reshoring for German manufacturing entities that have been involved in production reshoring (Kinkel & Maloca, 2009; Kinkel, 2012).

#### *Empirical Review*

##### **Product Quality**

In their study on drivers and antecedents of manufacturing offshoring and backshoring Kinkel and Maloca (2009) carried out an analysis of 1,663 German manufacturing firms. The study notes that product quality challenges in the offshore location and lack of flexibility were the main drivers for backshoring (reshoring) of production activities among German manufacturing companies. They find that for every four to six offshoring activities, one backshoring activity follows within a four year period. Their study also indicates that backshoring is predominantly a short-term correction of prior misjudgment of offshoring decision.

Miskolic (2011) study surveyed consumers in the Czech Republic on their preferences willingness to pay for quality. Results from the study indicate that consumers are willing to pay an 11% premium for guaranteed quality of a product. A study by Ernest and Young (2015) on U.K. manufacturing finds that British made products have a reputation for quality; that consumers are constantly considering a product's origin ("made in effect") in their purchase decision. They suggest that product quality issues are driving manufacturing reshoring.

The study by Canham and Hamilton (2013) surveyed 676 manufacturing firms based in New Zealand receiving a response rate of 22.3%. The study finds that operational flexibility and product quality concerns are responsible for reshoring decisions for New Zealand manufacturing firms. Brand identity is strongly associated with country of origin and consumers perception of the quality of the particular product. The study findings are consistent with the results from Kinkel and Maloca (2009). According to the study by Kinkel and Maloca (2009) and Kinkel (2012) product quality has emerged as the most important motive for reshoring by German manufacturing entities.

### 3. RESEARCH METHODOLOGY

#### Research Design

The research study adopted a cross-sectional research design to determine the product quality affecting production reshoring strategy decision among MNCs operating in Kenya. From literature, research design is defined as the blue print, plans and procedures for collection, measurement and analysis of data (Creswell, 2009; Sekaran & Bougie, 2013). It is the conceptual structure within which research is conducted (Kothari, 2004). Cross sectional research design is used to investigate variables in different contexts over the same period of time (Collis & Hussey, 2009). Martinez-Mora and Merino (2014) used cross sectional research design in their study on reshoring in the Spanish footwear industry while Bailey and De Propriis (2014) used it in their study of reshoring in the U.K. automotive industry. The researcher was able to achieve the objectives of the study given the time constraints.

#### Target Population

The target population consisted of Kenyan manufacturing MNCs who are members of the Kenya Association of Manufacturers (KAM). The target population was relevant for the study since the researcher sought identify product quality influencing production reshoring strategy decision among this category of manufacturers. According to Kenya Vision 2030's second medium term plan the medium and large manufacturing entities which include MNCs based in Kenya constitutes less than 5% of the total number of manufacturing enterprises but account for over 60% of manufacturing contribution to the country's GDP (RoK, 2013). From literature (Daniel, 2012; Sekaran & Bougie, 2013) population is described as the universe or entire collection of people, events or objects of interest for which a researcher wanted to study.

#### Sampling Design

A good sampling design must consider accuracy (absence of bias) and precision of the estimate. This study will use probability sampling design. Sampling designs that use probability methods offer more accuracy and precision than non-probability sampling methods and allows use of quantitative methods of data analysis (Daniel, 2012). Several sampling design approaches are available such as random sampling, stratified sampling and cluster sampling among other. Israel (2009) posits that where the study population is below 200, the census method is attractive. Studying the entire population eliminates sampling errors by increasing level of precision and reducing degree of variability (Israel, 2009). Since the study population was 96, use of the census method was an appropriate choice for this study.

#### Data Processing and Analysis

From literature, data analysis is a practice that involves conversion of raw data to enable extraction of useful information (Saunders *et al*, 2012). The process involves ordering and organizing the data. Quantitative and qualitative data will be collected necessitating the use of mixed methods for data analysis. According to Vargas-Hernandez, De Leon and Valdez (2011) quantitative measures attract the attention to the underlying objective facts giving evidence of the phenomena while qualitative data colours the analysis and interpretation of such phenomena.

The data was coded and processed using Statistical Package for Social Science (SPSS) data analysis software. Boone and Boone (2012) acknowledge difficulties of analyzing Likert data due to its non-continuous nature. Some of Likert type items will be analyzed individually while others will be combined into Likert scale data, summarized and converted into "accept" and "reject" to convert the qualitative responses into quantitative data. Data analysis was carried out by use of descriptive and inferential statistics.

For Likert type items descriptive statistics such as median, mode, frequencies and Chi-square will be used. For quantitative data obtained from Likert scale descriptive statistics such as mean, standard deviation, Pearson's r, ANOVA, regression analysis and t-test were applied. Descriptive statistics enable presentation of quantitative descriptions in a manageable form (Gupta & Gupta, 2005). Prior to subjecting the data to inferential statistical analysis normality test of the data set will be carried out. Normality test is carried out to test whether the results are normally distributed. Consideration of descriptive values such as kurtosis and skewness of the data set are some of the tests used to check for normality of the data set. Use of non-normally distributed data can lead to incorrect results (Mukerji, 2008).

Multiple regression analysis was carried out to establish whether a relationship exists between the independent variables and the dependent variable. Pearson's moment correlation is a measure that is used to determine whether a relationship

exists between each of the independent variables and the dependent variable and to indicate the strength and direction of such relationship (Argyrous, 2011).

Inferential statistics were used to further analyze the data. Argyrous (2011, pp. 283) defines inferential statistics as “the numerical techniques for making conclusions about a population based on information obtained from a random sample drawn from that population”. Analysis of Variance (ANOVA) also referred to as the F-test was carried out to test the significance of the overall model chosen for the study. The researcher tested the various research hypotheses at a confidence level of 95%.

#### 4. RESEARCH FINDINGS AND DISCUSSIONS

##### 4.1.1 Product quality

The second objective of the study sought to determine the influence of product quality on production reshoring decision among Kenya’s manufacturing multinational corporations. The respondents were asked to rate the extent of their agreement or otherwise with the four aspects of product quality: strategic importance of product quality (PQ1); extent to which product quality influences customer’s willingness to purchase (PQ2); influence of product made in location on customer’s perception of quality (PQ3); importance of brand image to the organization (PQ4).

Figure 4.6 shows the study results on aspects of product quality questions respondents were asked. Product quality was considered a major strategic issue by 94.7% of the respondents with a mean of 4.61 and a standard deviation of 0.634; further 88.1% indicated that product quality influences a customer’s purchase decision while 84.2% agreed that product quality is influenced by its manufacturing location. Brand image was important to these organizations; 86.8% of the respondents in agreement. Similarly, on brand image emerged as a critical aspect of the organization’s image as opined by Brennan et. al (2015).



Figure 4.6: Product quality descriptive statistics

##### 4.2 Regression Analysis

The correlation coefficient is a measure of linear association between two variables. Values of the correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that two variables are perfectly related in a positive linear sense, a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense, and a correlation coefficient of 0 indicates that there is no linear relationship between the two variables. In this study, correlation analysis was carried out between the variables using Pearson product-moment correlation coefficient both in the present of moderator and absence of moderator.

The findings show that product quality had no significant relationship. The finding also shows that there was no multicollinearity amongst the independent variable since the correlation coefficient value was below 0.8 as suggested by Tabachnick and Fidel (2001)

**Influence of product quality on reshoring decision**

The second objective of the study was to establish the influence of product quality on reshoring decision among Kenya’s manufacturing multinational corporations. The binary logistic regression between product quality and reshoring decision was conducted and the output was again split into two sections, block 0 and block 1. Block 0 assesses the usefulness of having a null model, which is a model with no independent variables. The variables in the equation table only include a constant so every respondent had the same chance of saying Yes or No for the factors that determine reshoring decision among Kenya’s manufacturing multinational corporations. From classification table 4.17 for product quality, it was clear that 56.6% of the respondent agreed that all the indicators under reshoring decision affect product quality.

**Table 4.17: Classification table 1 for product quality**

Observed		Predicted		Percentage Correct	
		Reshoring Decision			
		No	Yes		
Step 0	Reshoring Decision	NO	0	33	.0
		YES	0	43	100.0
Overall Percentage					56.6

a. Constant is included in the model.

b. The cut value is .500

Under Variables in the equation for product quality table 4.18 it was clear that the intercept-only model is  $\ln(\text{odds}) = .265$ . If we exponentiate both sides of this expression, we find that our predicted odds  $[\text{Exp}(B)] = 1.683$ . That is, the predicted odds of those who agreed that indicators of EO affect Reshoring decision among Kenya’s manufacturing multinational corporations were 1.303. Since 43 of the respondents said Yes while 33 said No, the observed odds was  $43/33 = 1.303$ .

**Table 4.18: Variables in the equation for product quality**

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 0 Constant	.265	.231	1.308	1	.253	1.303

Just as was the case of production cost, the omnibus tests of model coefficients for product quality in block 1 gives the result of the likelihood ratio (LR) test which indicates whether the inclusion of this block of variables (product quality) contributes significantly to model fit. An increase in the chi square statistics value from 15.314 to 24.892 and a p-value (sig) less than 0.05 for the block was recorded implying that the block 1 model was a significant improvement to the block 0 model. Based on the finding that, the p-values were all less than 0.05, we can conclude that product quality significantly affects reshoring decision among Kenya’s manufacturing multinational corporations. But it was also worth mentioning that in the presence of moderator, the model improved as characterized by increase in the value of chi square test statistic. table 4.19 gives the details of the finding.

**Table 4.19: Omnibus tests of model coefficients for product quality**

	Chi-square	df	Sig.	
Step 1	Step	15.314	1	.000
	Block	15.314	1	.000
	Model (Without moderator)	15.314	1	.000
Step 1	Step	24.892	1	.000
	Block	24.892	1	.000
	Model (With moderator)	24.892	1	.000

In this section, the model summary for product quality table 4.20 gives the values for two pseudo R<sup>2</sup> (Cox & Snell R-Square and Nagelkerke R-Square) values which try to measure something similar to linear regression. From the table, we can conclude that between 18.2% and 24.5% of the variation in reshoring decision among Kenya’s manufacturing multinational corporations can be explained by the model in block 1 in the absence of moderator. Similarly, in the present of moderator, between 27.9% and 37.5% of the variation in reshoring decision can be explained by the model in block 1.

**Table 4.20: Model summary for product quality**

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
Model 1	88.725 <sup>a</sup>	.182	.245
Model 2	79.147 <sup>a</sup>	.279	.375

a. Estimation terminated at iteration number 5 because parameter estimates changed by less than .001. Model 1 (without moderator), Model 2 (with moderator)

The classification table 4.21 for product quality indicates that there was an increase from 56.6% to 62.3% in the rate in the absence of moderator and an increase from 56.6% to 72.3% in the rate in the present of moderator. The result confirms further improvement of the model in the present of moderator

**Table 4.21: Classification table for product quality**

Model	Observed	Predicted		Percentage Correct
		Reshoring Decision	Percentage	
		No	Yes	
<b>Model 1</b>	Step 1 Reshoring Decision	No	18	54.5
		Yes	13	69.8
	Overall Percentage			<b>63.2</b>
<b>Model 2</b>	Step 1 Reshoring Decision	1.00	20	60.6
		2.00	8	81.4
	Overall Percentage			<b>72.4</b>

a. The cut value is .500. Model 1 (without moderator), Model 2 (with moderator)

The finding based on variables in the equation table for product equality shows that, there was positive and significant relationship between product equality and reshoring decision. The model was given as  $Y = -11.241 + 2.527X_2$  in the absence of moderator (market condition). The regression coefficient of 2.527 indicates that an increase in product equality by one unit leads to an increase in reshoring decision by 2.527 units. On the other hand, in the presence of moderator (market condition), the model was expressed  $Y = -9.415 + 2.422X * Z$  showing that an increase in product quality by one unit leads to an increase in reshoring decision by 2.422 units table 4.22 shows the details of the finding. The p-values were 0.002 and 0.000 were recorded for both models.

**Table 4.22: Variables in the equation for product quality**

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup>	product quality	2.527	.769	10.805	1	.001	12.513
<b>Model 1</b>	Constant	-11.241	3.502	10.301	1	.001	.000
Step 1 <sup>a</sup>	product quality	2.422	.622	15.145	1	.000	11.269
<b>Model 2</b>	Constant	-9.415	2.518	13.982	1	.000	.000

a. Variable(s) entered on step 1: product quality Model 1 (without moderator), Model 2 (with moderator)

## 5. CONCLUSIONS, RECOMMENDATIONS AND FUTURE RESEARCH

### Influence of product quality on production reshoring decision

This study sought to establish product quality on production reshoring decision among manufacturing multinational corporations operating in Kenya. To establish the influence of product quality on production reshoring decision among Kenya’s manufacturing multinational corporations.

The study findings found out that product quality has positive and significant relationship with reshoring decision. the regression coefficient of 2.527 indicated that for every 1 unit increase in product quality, reshoring decision increased by 2.527 units in the absence of the moderator (market condition) and by 2.422 units when moderator was present. Further 72.4% of changes in reshoring decision were explained by product quality when the moderator was present and 63.2% in the absence of moderator. From the findings 94.7% indicated the strategic importance of product quality to MNCs while 86.8% said that brand image associated with product quality was important. The increase in Nagelkerke R<sup>2</sup> from 0.245 to 0.375 indicates that market condition had a moderating effect product quality and reshoring decision. Recorded p value was 0.02 and 0.01 without moderator and with moderator respectively. The two null hypotheses were rejected.

Kenya's manufacturing MNCs need to continuously pursue product quality improvements to ensure their products meet consumers' product quality expectations. Improving product quality will increase consumers propensity to purchase such a product. Further consumers perceived product quality has a direct correlation with willingness to pay a premium price.

### Areas of Further Study

This study sought to determine the product quality influencing production reshoring decision among manufacturing multinational corporations operating in Kenya. The study recommends that similar research be carried out on the small and medium manufacturing companies not classified as MNCs to determine whether the findings will be different from those of this study as a means of filling the existing contextual research gaps.

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