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## EXAMINING THE INFLUENCE OF REVERSE LOGISTICS ON FIRM PERFORMANCE: A CASE STUDY FROM KARACHI, PAKISTAN

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### ABSTRACT

This investigation focuses on examining how reverse logistics impacts the performance of manufacturing firms. By treating reverse logistics as a component of the supply chain, the study suggests a method for companies to gain a competitive edge by assessing the efficiency and effectiveness of their operations. These reverse logistics practices offer a way to reduce production costs, enhance supply chain efficiency, foster customer loyalty, and promote environmental sustainability, ultimately leading to increased profitability for firms. The survey is conducted through the questionnaire only on those employees, middle managers, and the top management who are working in the manufacturing industry and also ISO-14001 certified manufacturing industry. The study is tested on the basis of Correlation and Regression. The results indicated that Firm performance may be improved through Supply Chain Visibility, Customer Satisfaction, Cost Reduction, and Environmental Sustainability. The management of the manufacturing industry should conduct seminars and create channels on the reverse logistics process to provide awareness to employees. Future research on the subject topic will be helpful and provide direction to identify the additional factor.

*Keywords: Forward logistics; Reverse logistics; Customer satisfaction; Firm's performance.*

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### INTRODUCTION

Recently, the global market has been increasing attention on reverse logistics because of global market challenges, rapid change in technology, environmental impact on society, and economic growth. The manufacturing industry is one of the best solutions for this situation by refurbishing, reusing, repairing, refilling, recalling, remanufacturing, and waste & disposal of different products and materials. Presently, Reverse Logistics is an important factor that provides logistics administration abilities and exercises that concern running and disposal of hazards and non-hazards thrown away from the product. Moreover, the firms have also realized that Reverse logistics is not only an important factor of business but also a strategic part of the business.

A forward logistics is to be concerned with the method to put in arrangements, complete the process, and control the productive fetched – workable flow of unrefined fabric within handle reserve, cover up great and connected information point of root to the point of utilization in favor the reason of affirming to client necessity. By and large, the acknowledged definition of reverse coordination is the preparation to put in arrangements, complete the process, and control the productive, fetched – the compelling flow of used things, in-progress collection, wrapped up merchandise along with connected data from the point of use to the point of beginning for the reason of recouping or reproducing, regard or authentic exchange (Hyder et al., 2023).

Basically, reverse logistics is like exercises through which the maker recovers items with their components to reuse, revamp, or else arrange them appropriately. Moreover, reverse logistics may allude to the real handle of return or take it back after the buyer has utilized the item or bundling to reuse, reuse, or recover supplies or give secure refills (Dowlatshahi, 2012). Such items that are back are capable of happening for many causes, at distinctive places within the supply chain, counting fabricating, dissemination, and client-related returns. Reverse coordination may be a significant part of Green Supply Chain Administration (GSCA) because it is capable of offering assistance to diminish the wastage created by taking care of and mien of returned and utilized items through utilizing organize of mien alternatives (Fernando et al., 2022).

### **Problem Statement**

A number of investigations have been performed to focus on the improvement of reverse logistic performance through refurbishing, remanufacturing, repairing, recalling, reusing, refilling, recycling, and waste & disposal of products. However, the past researcher found, in the context of awareness, knowledge, reverse logistics process, government policies, guidelines, and strategic decision-making models regarding usage. However, limited research was focused on reverse logistics systems. The literature focuses on the usage of reverse logistic systems in the supply chain management system to capitalize on the advantages it shall have. The literature reviewed by the researcher mainly focuses on creating awareness about the usage of reverse logistics systems. The literature focuses on the usage of reverse logistic systems in the supply chain management system to capitalize on the advantages it shall have. In this study, we will examine the issues and process of reverse logistics to engage firms, organizations, and societies in reverse logistics common activities. The research space for that investigation is short of distribution channels of reverse logistics for increasing attention to uncontrolled solid waste material. Customer motivation for the return of goods is also a challenge for society. There is no proper training for the assessment of reverse logistics issues in society as well as companies. Basically, reverse administrations have a poor understanding of the concept in the business. The main reason for this unwillingness is a lack of knowledge and unawareness. Most companies have challenges with quality information, over the reverse logistic practice, managing re-repair or reprocessing with the right technology and right time to the right customers, how the usage of reverse logistics can improve the manufacturing of the products, cost advantage, customer satisfaction, environmental sustainability, and supply chain efficiency for increasing the performance of the firm.

### **Research Questions**

- RQ1.* What is the effect of supply chain visibility on improving firm performance?
- RQ2.* What is the significance of customer satisfaction on firm performance?
- RQ3.* What is the major impact of cost reduction on improving firm performance?
- RQ4.* What is the key impact of environmental sustainability on firm performance?

## **REVIEW OF LITERATURE**

### **Concept of the Reverse Logistic**

Reverse logistics is the operation of reusing items along with materials, which are prepared merchandise from the ultimate goal in favor of the reason of confine values or for transfer reverse, logistics the strategy of organizing and controlling valuable, favorable in the price of used things, in-process stock, wrapped up stock and associated information from the stage of utilization to the point of beginning for the reason of recovering esteem or appropriate transfer (Shaharudin et al., 2022). Concurring to the Board of Supply Chain Administration, Reverse coordination is a method inside items (conclusion of, life items) are get back from buyers or client benefit midpoint for the reason of picking up its esteem or arranging for its appropriate disposal (Dowlatshahi, 2012).

Reverse logistics is a specialized segment of logistics focusing on the movement and management of products and resources after the sale and after delivery to the customer. Reverse logistics may be handled

so as to empower organizations to be further economically able by recycling, reusing, and lessening the sum of the materials utilized (Badenhorst & Nel, 2012). When the reverse items are developed into physical advancement through repairing and returning substandard stock along with turnover holders returned to the supply side from the required side, that is basically reverse logistics. That includes the things entities' turn around stream prepare such as recovering beds and holders utilized to convey, accepting the material which is returned through the client, collecting holders, crude items, scrap & save items preparing absconds within the item deals (Zhang et al., 2013). From the over reference, the material of reverse logistics is seen from the client side to (downstream of the supply chain management) manufacture side along with the retailer side (upstream of supply chain management).

### **How does logistics impact firm performance?**

*Financial Impacts:* Finance is basically playing a very effective role in business performance through finance impact. Alternatively, whenever the Reverse logistics exercises are coordinated to take advantage of the financial utilization of material, which may utilize the similar fabric extra time, reverse logistics calculated is named as the budgetary effect of turnaround coordination. For illustration, as the price for reverse, logistic drop, and the price tag of getting unused things is decreased, benefits increment, which can enable firms to have sufficient reserves to maintain and develop the trade. Dropping reverse logistic costs has a helpful relationship with the business expansion side and achievement (Turrisi et al., 2013).

*Impacts on Supply Chain efficiency:* Reverse Logistic actions also play an essential part in the efficiency of the Supply Chain Management System (SCMS), which ultimately improves firm execution. Reverse logistics has an effect on supply chain competitiveness Studies of (Umer & Afzal, 2014). The Trade Environment is greatly competitive for organizations that are endeavoring to execute techniques that can empower them to achieve competitive advantage in their industry. Companies will be able to utilize its returns handle as a competitive weapon. Reverse logistics can offer competitive improvement and also can capture a huge business share in the manufacturing industry (Huscroft, 2010).

*Customers, Satisfaction impacts:* Reverse Logistics guides client fulfillment, which enables the organization to set out reverse logistic benefits over those that don't set out on reverse logistics. An investigation prepared by Kinobe et al. (2012) about the Reverse Logistics Related to Waste Administration with Accentuation on Creating Countries. An Audit Paper established that the backflow of logistics leads to client fulfillment in addition to including the competitiveness of the organization. In addition, reverse logistics might be used as a technique to maintain clients' realistic (Adebayo, 2022). A researcher agrees with this study in her thinking, where she detects that client, along with communities, are demanding the reassignment of used items, setting up reverse logistics in a smooth way along with a natural viewpoint that may carry a competitive advantage (Jeong-Eun, 2012).

*Environmental Impacts:* Reverse Logistic plays an important role in environmental impact. While reverse administration exercises are heading for collecting utilized or imperfection material as the points of utilize to the points of production for reusing along with appropriate transfer in order to reduce harmful surroundings impacts, it has been defining Green Logistics or Green Supply Chain Logistics (GSCL) is the green solution while products are returned or recycle or disposed of, the most of the environment becomes free of charge from pollutions, such as disposing of plastics through burning isn't a legitimate strategy of plastic transfer, and tossing the bottles of glasses at earth otherwise water (like streams, lakes & dams) is additionally an off base mode for arranging these glasses. Rotate the stream of the materials for recuperation with appropriate transfer contribution to green environments since waste & contamination are decreased at very low prices, which progresses benefit (Badenhorst, 2013). Most of the backup multination enterprises that provide various reverse logistics programs and a larger part of neighborhood foundations have not gotten any kind of certification to the environmental administration system in Malaysia, which is driven to few green exercises to move forward the green environment (Khor & Udin, 2012).

*Firm Performance:* In this study, the researcher explains the relationship of all indirect variables with direct variables and how these four indirect variables can relate to direct variables. Recycling and remanufacturing of the reverse products and materials by the customer directly reduces the cost of raw materials and increases the profitability of the firm. Reuse and refilling products and materials are commonly used in the logistics system, which increases the supply chain efficiency and develops positive points in firm performance. Moreover, some of the products that cannot be reused in any form are harmful to society as well as the environment, so these products and materials are properly wasted & disposed of by the organization for the benefit of society and the environment; such kind of initiatives play a significant role in business performance.

## **Reverse, Logistic Drivers**

### ***Internal drivers***

The internal factor of reverse logistics motivates organizations to adopt and maintain reverse logistics operations to increase income and benefit through cost saving of return products and materials (Hsu et al., 2016). Following is the section that deals with internal factors of reverse logistics put into practice.

*Economics Drivers of Reverse Logistics:* In RL practice, the economics driver is very important and plays an important role in business performance. Economics Drivers are concerned with profit and all other factors that are directly or indirectly related to the gain of the company. Reverse Logistics drivers directly provide economic benefits from all sides, like reducing the usage of raw materials, capturing values from recovery, and reselling valuable product returns. Some of the indirect benefits are improving customer & supplier relationships, market protection, and image building of the organization (Somuyiwa & Adebayo, 2014).

*Competitive drivers:* RL practices are very important in cost-saving and inventory management systems. Reverse Logistics practices are very important to allow any firm to stay aggressive by dropping the level of supply through product revival, however, dropping the organization's inventory transportation cost (Barcos et al., 2013).

*Operational performance drivers:* Operational performance drivers are very important in reverse logistics practices because reverse logistics is directly concerned with the manufacturing process, and reverse logistics practices are performed by manufacturing industries. Effectively managed practice of reverse logistics by the fabricating businesses can decrease transportation costs, waste transfer, and stock holding costs (Dues et al., 2013; Sobral et al., 2013).

### ***External drivers***

External drivers of reverse logistics attention on triple base line (TBL), which means an accounting framework of three parts are social, environmental, and financial, and these TPL enable any firm to customer's value perception (Diabat and Govindan, 2011). The basic external drivers of reverse logistics are as follows.

*Legal Drivers:* It has turned out to be progressively visits to different countryside to uphold amplified manufacturer duty laws to facilitate the manufacturer's obligation in favor of managing the cost of the reuse, collection, and disposal of end-of-life items (Alumur et al., 2012). Furthermore, the harsh environmental performance of unsafe material bundling waste, in addition to the recovery of bundling fabric, forced grip makers to be dependable for the item to complete the item life cycle (Nikolaou et al., 2013).

*Environmental Drivers:* The administration of the environmental department is creating a key vital issue that has the potential to affect organizational performance (Dey, LaGuardia & Srinivasan, 2011). As of late, consumerism culture believes that the system has contributed to an expansive sum of waste from the past, in this way putting stress on asset maintainability (Arrieta, 2015; Nikolaou et al., 2013).

Corporate citizenship may be a driver of reverse logistics (Badenhorst, 2013). The corporate social obligation may be a proficient set of laws that are forced due to client pressure or partner requests (Oberseder et al., 2013; Pishvae et al., 2012).

### **Reverse Logistics process**

Over many years, research on reverse logistics has been increasing appreciably, and its meaning has changed with the passage of occasion (Jayasinghe et al., 2022). The presence of the most basic description of reverse logistics by referring to the backstream of material. RL has been characterized as the term most frequently utilized to refer to the part of logistics in item return, center diminishment, reusing, replacement and reuse of the material, waste disposal along with repairing of products, repair of items and remanufacturing of items (Abdissa et al., 2022). Frequently accepted definition of reverse, logistics is the handling of arranging, actualizing along with controlling skillful, prices compelling stream of crud material, in-progress stock, finished merchandise, and connected data from a place of utilization to the point of the manufactures for the reason of recovering or reproducing esteem or proper disposal.

### **Products gaining/Gate keeping**

The process of product gaining is basically obtaining a used product from the customer for further processing the products. This is a very important consideration for the success of reverse logistics because of the time uncertainty in the quality and quantity of used products (Agrawal et al., 2015). The gate keeping is the sum of decisions where products are sent by clients, collected for advance preparation, or given back to the customer, which the retailer frequently directs.

### **Collection**

Collection is the method of collecting used or returned products after acquisition and sending these products for scrutiny, categorization, and disposition. Ding et al. (2023) explained the gathering process into three groupings; the manufacturer collects used, and returned products directly from the customer, collects from a retailer, and collects through 3rd party logistics.

### **Inspection and Sorting**

Reverse Logistics items are reviewed and sorted after collection; the purpose of the inspection is to examine the category of returned products regarding remanufacture and distribution of this product to customers (Nguyen et al., 2022). It is necessary for the inspection of returned products separately so that these can be sorted in different groups for disposition.

### **Disposition**

The last process of reverse logistics is disposition. While the returned product is inspected and sorted, the next and last stage is disposition. Product disposition is a very important stage of reverse logistics (Wardani et al., 2022). The set of choices regarding disposition options normally includes refurbishing, repair, refilling, remanufacturing, recalling, reusing, recycling, and waste & disposal. These are explained under:

*Refilling:* It is the process where the product packing materials are returned to the retailer as well as the manufacturer for the purpose of refilling, for example, soft drink bottles, gas cylinders, plastic containers, etc.

H1: Refilling of return products by the firm has a positive relationship with Supply Chain Visibility.

*Remanufacturing:* It is the process where faulty parts or replacing obsolete parts are replaced with new or refurbished ones. In this method, the functionality and identity of the unique products are maintained. Recommended parts are redistributed or sold in the competitive market.

H1a: Remanufacturing of return products by the firm has a positive relationship with supply chain Visibility.

**Refurbishing:** Refurbishing is the process where damaged, defective, or below-performance return products under warranty period are collected, and accurate remedial action is taken by the manufacturer. Mostly, this system is operated by the company service center where refurbishing takes place.

H2: Refurbishing of products by the firm has a relationship with customer satisfaction.

**Repairing:** It is a process of repairing and servicing returned products by the customer, which may be under warranty or not in warranty.

H2a: The level of repair products by the firm has a relationship with customer satisfaction.

**Recalling:** It is an emergency situation where the product is circulated in the market and called back to the production line due to some reasons like lack of guaranteed performance, quality complaints by many customers, defective products that are harmful to human life, incomplete products, violation of government regulations and ethical considerations.

H2b: Recalling products by the customer to the firm has a positive relationship with Customer satisfaction.

**Reusing:** It is the process where the product is reused only for minor inspection, cleaning, or maintenance without any reprocessing or reassembling. This process takes place in less work as compared to other options.

H3: Reuse of returned products in my firm has a positive relationship with cost reduction.

**Recycle:** It is the process where waste material is converted into new material. It is the alternative to waste disposal, which can save material and help in environmental sustainability. Recycling is selected while the first item or components are able to be utilized for new items or subassembly. The basic purpose of recycling is to extricate recycled parts from utilized items or components by counting, collecting, destroying, sorting out, and preparing fabric for reuse in modern items when unique item or component misplaced their personality or usefulness.

H3a: Recycling of return products by the firm has a positive relationship with cost reduction.

**Waste & Disposal:** The method of land, filling, or burning material or item on that state while different mien alternatives are difficult, not commendable of recuperation along with deals aftermarket is nearly non-existent. It is additionally the method when items or materials cannot be utilized or recycled at that point is landfill.

H4: Waste and disposal of returned products by the firm has a positive impact on environmental sustainability.

The following Figure 1 illustrates the overall process of Reverse and Forward Logistics.

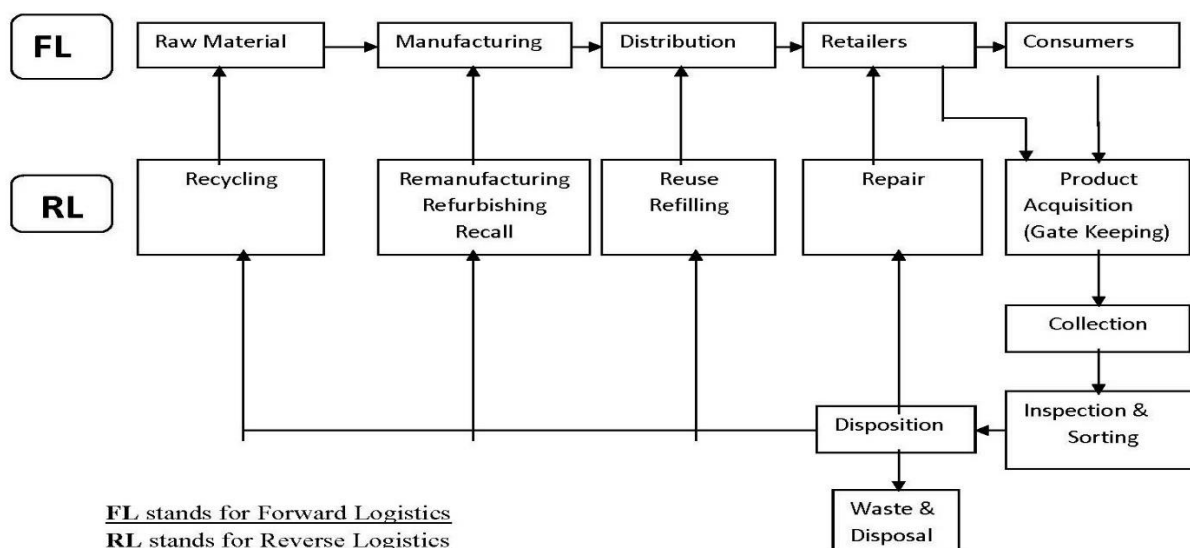


Figure 1. Reverse and forward logistics process.

**Hypothesis of the Study**

H1: There is a largely positive relationship between reverse logistics and supply chain visibility on firm performance.

H2: There is a significant positive connection between reverse logistics & customer satisfaction on the performance of the firm.

H3: There is an optimistic link between reverse logistics and cost reduction on firm performance.

H4: There is a positive attachment between reverse logistics and environmental sustainability on firm performance.

**Theoretical Framework**

Figure 2 illustrates the factors of independent variables that are influencing the dependent variables.

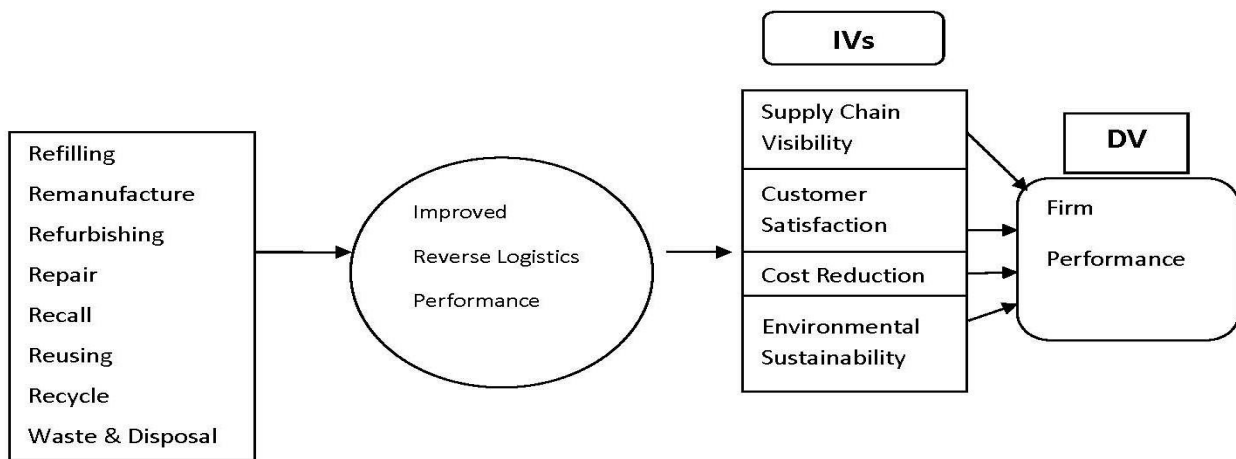


Figure 2. Theoretical frame work.

**METHODOLOGY**

This is basically quantitative research. Due to the descriptive type of research method, the survey research method is best for this research. In this study, deductive research is to be used to explain the relationship between reverse logistics and firm performance through the independent variables and will be very advantageous for the respondent. In this research approach, the dependent variable firm performance evaluates the subjective measured of independent variables like supply chain visibility, cost reduction, customer satisfaction, and environmental sustainability through refilling, remanufacturing, refurbishing, repairing, recalling, reusing, recycling and waste & disposal of manufacturing industry of Karachi. The total population that is selected is 10,000, and on the basis of population, the sample size of respondents is 370. The survey is conducted through the questionnaire only on those employees, middle managers, and the top management who are working in the manufacturing industry and also ISO-14001 certified manufacturing industry. Random sampling technique opted in this research, which has the chance for achieving higher to attain the representative sample random sampling technique. In this study, the researcher used a cross-sectional technique on the manufacturing industry placed in different geographical locations of Karachi. The manufacturing industries which are agreed to share data are: 1) Pak Suzuki (Pvt) Ltd, 2) Getz Pharma (Pvt) Ltd, 3) Dawlance (Pvt) Ltd, 4) Pepsi Cola (Pvt) Ltd, and 5) Exide Pakistan Limited.

**RESULTS AND DISCUSSION**

**Reliability Analysis**

Table 1 shows the acceptability of the questionnaire as the value of Cronbach’s Alpha is 0.913, which is shown in the table. According to the universally accepted criteria by the researchers, the value of Cronbach’s Alpha should be more than 0.7.

Table 1. Reliability statistics.

Cronbach's Alpha	No. of Items
.913	5

**Descriptive Analysis**

The descriptive analysis of the study is appended in two tables. The descriptive analysis of the study is taken to determine the mean and standard deviation of the variables, as shown in Table 2. These collected responses prove the righteousness of the model. In this descriptive analysis, the standard deviation is below but very close to the mean, which explains that the collected data for this study is reliable.

Table 2. Descriptive statistics.

Descriptive statistics.	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Supply Chain Visibility	400	4.66	.561	-1.509	.122	1.773	.243
Customer Satisfaction	400	4.65	.634	-2.348	.122	7.368	.243
Cost Reduction	400	4.69	.543	-1.839	.122	4.004	.243
Environmental Sustainability	400	4.68	.582	-2.037	.122	4.818	.243

**Correlation Analysis**

This analysis of the study explains the relationship and the significance of all independent variables among dependent variables. The tables of the correlation analysis are appended below:

***Supply chain visibility and firm performance***

Table 3 shows the correlation analysis between Supply Chain Visibility and Firm Performance, which is 53.6%. It is relatively moderate but has a positive relationship.

Table 3. Correlations.

Correlations		Supply Chain Visibility	Firm Performance
Supply Chain Visibility	Pearson Correlation	1	.536**
	Sig. (2-tailed)		.000
	N	370	370
Firm Performance	Pearson Correlation	.536**	1
	Sig. (2-tailed)	.000	
	N	370	370

\*\* . Correlation is significant at the 0.01 level (2-tailed).

***Customer satisfaction and firm performance***

Table 4 shows the correlation analysis between Customer Satisfaction and the dependent variable, Firm Performance, which is 59.9%. It is a good correlation and also has a positive relationship.

Table 4. Correlations.

Correlations		Customer Satisfaction	Firm Performance
Customer Satisfaction	Pearson Correlation	1	.599**
	Sig. (2-tailed)		.000
	N	370	370
Firm Performance	Pearson Correlation	.599**	1
	Sig. (2-tailed)	.000	
	N	370	370

\*\* . Correlation is significant at the 0.01 level (2-tailed).



**Cost reduction and firm performance**

Table 5 shows the correlation analysis between Cost Reduction and the dependent variable, Firm Performance, which is 67.4%. It is a good correlation between IV & DV, and also has a positive relationship.

Table 5. Correlations.

Correlations		Cost Reduction	Firm Performance
Cost Reduction	Pearson Correlation	1	.674**
	Sig. (2-tailed)		.000
	N	370	370
Firm Performance	Pearson Correlation	.674**	1
	Sig. (2-tailed)	.000	
	N	370	370

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Environmental sustainability and firm performance**

Table 6 shows the correlation analysis between Environmental Sustainability and the dependent variable, Firm Performance, which is 72.8%. There is a very good correlation between IV & DV, and also has a positive relationship.

Table 6. Correlations.

Correlations		Environmental Sustainability	Firm Performance
Environmental Sustainability	Pearson Correlation	1	.728**
	Sig. (2-tailed)		.000
	N	370	370
Firm Performance	Pearson Correlation	.728**	1
	Sig. (2-tailed)	.000	
	N	370	370

\*\* . Correlation is significant at the 0.01 level (2-tailed).

**Regression Analysis**

Table 7 shows the model summary of the regression analysis. In this analysis, the value of R and R Square show the overall significance level among all independent variables and dependent variables. These values are 68% & 46.3% respectively. These values of the table show the high significance in measuring the Firm Performance of the manufacturing industry.

Table 7. Model summary.

R	R Square	Adjusted R Square	Std. Error of the Estimate
.680 <sup>a</sup>	.463	.462	.419

Table 8 is known as the ANOVA table, and the purpose of this table is to prove the significance value, which is 0.000 and below 0.005. This value confirms that the null hypothesis of this study has been rejected, leaving a significant bond between independent and dependent variables.

Table 8. ANOVA.

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	300.312	4	75.078	428.649	.000 <sup>b</sup>
Residual	348.724	1991	.175		
Total	649.036	1995			

The regression analysis of the collected data or responses taken from the respective respondents demonstrates the contribution and proportion of the impact of Supply Chain Visibility, Customer

Satisfaction, Cost Reduction, and Environmental Sustainability (independent variables) on Firm Performance (Dependent variable), as shown in Table 9. The impact of Supply Chain Visibility on Firm Performance is 10.9%, which is a positive and good relation. The impact of Customer Satisfaction on Firm Performance is 11.9%, which is a positive and good relation. The impact of Cost Reduction on Firm Performance is 32.1%, which is positive and should be considered a meaningful relation. The impact of Environmental Sustainability on Firm Performance is 28.5%, which is positive and considered significant.

Table 9. Coefficients.

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.793	.097		8.163	.000
Supply Chain Visibility	.109	.018	.113	5.930	.000
Customer Satisfaction	.118	.019	.129	6.369	.000
Cost Reduction	.321	.022	.318	14.800	.000
Environmental Sustainability	.285	.021	.288	13.678	.000

Dependent variable: firm Performance.

### CONCLUSIONS AND RECOMMENDATIONS

In this study, the entire alternative hypothesis has been accepted. It describes that Firm performance may be improved through Supply Chain Visibility, Customer Satisfaction, Cost Reduction, and Environmental Sustainability. In this research, according to Pearson’s Correlation analysis, the relationship between Firm Performance and Supply Chain Visibility is positive and significant. So, H1 has proved that there is a relationship between Supply Chain Visibility and Firm Performance. As per Correlation analysis, the relationship between Firm Performance and Customer Satisfaction is positive and significant. So, H2 has been proven there is a key relationship between Customer Satisfaction and Firm Performance. Through the Correlation analysis, the relationship between Firm Performance and Cost Reduction is positive and significant. So, H3 has proved that there is an important relationship between Cost Reduction and Firm Performance. After taking the analysis, the relationship between Firm Performance and Environmental Sustainability is positive and significant. So, H4 has proved that there is a key relationship between Environmental Sustainability and Firm Performance.

The management of the manufacturing industry of Karachi should conduct seminars and create channels on the reverse logistics process to provide awareness to employees as well as the general public of the city. There should be a comprehensive plan for reverse logistics and the use of forecasting technologies. The manufacturing industry should develop remanufacturing capabilities. The government should become an active partner of manufacturing industries to implement the rules and regulations in the reverse logistics process and provide necessary assistance where needed. It is further stated that this study could not cover all aspects of reverse logistics, and that should be considered a comprehensive step in the direction of developing reverse logistics activities. Future research on the subject topic will be helpful and provide direction to identify the additional factor. Energetic capabilities have been under-researched in reverse logistics writing, and future considerations can expand this thing to this heading.

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