

Impact of Distribution Expenses on the Profitability Infertilizer Industry
A Case study on leading fertilizer producing companies:

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Abstract

The objectives of this study are to assess how distribution expenses affect a company's profitability in the fertilizer business and to develop managerial recommendations based on the study's findings. Data was gathered from five businesses that specialize in agricultural distribution and are Pakistan's top producers of fertilizer. Companies with consolidated financial statements that were listed on the PSX between 2012 and 2021 were the source of secondary data. research case studies of leading companies have been analyzed. This study has been supported by different articles from published articles and authors, also an interview and questionnaire has been selected as a research instrument asked from marketing managers for the different fertilizer companies in Pakistan. According to the analysis's test run, independent factors have a big impact on their profitability. The findings of this study indicated management applications to boost distribution cost efficiency. For this reason, producers must understand that even when a distribution expense isn't directly tied to manufacturing, it nevertheless affects the company's profitability. However, coming up with the greatest marketing channel system to boost sales, inventive distribution methods, and successful channel system administration are not simple chores. According to reports, the corporation can benefit from good channel management by reducing distribution costs, which otherwise would have a negative influence on sales. Distribution costs are involved in fostering business growth and development and are taken into consideration. This research has been conducted to study the impact of distribution expense on the profitability of companies in the fertilizer sector.

Keywords: Distribution expenses, Profitability, fertilizer sales, operational cost, distribution system.

1. Introduction

The Pakistani fertilizer market has a tonne of potential and is on track to overtake other regional exporters as one of the largest in the future years. Pakistan is predominantly an agricultural nation, hence the fertilizer sector is vital to the country's development. There are reports that The demand for fertilizer in Pakistan has consistently outpaced availability. The rapid increase in demand from the agricultural sector, the fertilizer business has experienced rapid expansion. Thus, ensuring optimum production with efficient distribution is a priority for the fertilizer sector. Fauji Fertilizer Company Limited (FFC), a public limited company; because it remained continuously in the list of top 25 best performing companies of the Karachi Stock Exchange (KSE) for the last 14 years due to its management of distribution cost and increased sales during the time span of these years. Even a highly productive company is limited in how big it can get if it cannot profitably ship its products to customers in distant markets with effective cost planning. Particularly, the operating costs have a positive effect on the sales revenue of a company as on the off chance that we broaden the working expenses; eventually we extend the promoting, organization, and selling and conveyance uses, driving to the increment in value included in a result. To begin with, sales volume are highly correlated with the operating cost of the company. Second, the working costs variable is highly noteworthy to influence the sales volume. Third, the prescient quality of the operating costs on deals is more than the predictive influence of back charges on deals for the FFC. Fourth, the elasticity for working costs is more versatile than for the financial charges. On the ground of this work, we advocate some policy steps to the company in order to boost its production level. As the working costs are noteworthy to explain sales income, at that point the company must get to increment its distribution and advertising consumptions so as to extend sales of the company. The noteworthy and versatile nature of the working costs on sales will boost up the company. It is difficult to design the ideal marketing channel system to boost sales, come up with innovative distribution strategies, and successfully manage the channel system. According to reports, the corporation can benefit from good channel management by reducing distribution costs, which otherwise would have a negative influence on sales. A key component of the company's cash flows, distribution costs play a role in the growth and development of the business and have the power to either increase or decrease sales volumes. History states that the fertilizer industry has been a great source of cultivation and expanding agricultural products for the rising demands from the population. The historical development of fertilizer has had a significant impact on the political, economic, and social circumstances in their traditional applications. There was no independent marketing structure for agricultural inputs prior to the founding of the West Pakistan Agricultural Development Corporation in 1961. However, the West Pakistan Agricultural Development Corporation was dismantled in 1972 when this responsibility was transferred to the provincial governments. The expansion of Pakistan's fertilizer sector has been both a success story and a difficulty for farmers, business owners, and governments alike.

2. Review Of Literature

This section is a comprehensive summary of all the previous research done on this topic from different articles, journal books of different authors.

Marketing is One of the most crucial decisions that management must make nowadays is which channels to use. In fact, distribution has the best chance right now of providing a competitive edge when compared to the other primary strategies of the marketing mix, including product, price, promotion, and distribution. Distribution is still a promising new market for competitive success, especially if great care is used to create and operate outstanding marketing channel systems that deliver first-rate customer service. However, creating the best marketing channel system to increase sales, coming up with creative distribution plans, and successfully administering the channel system are not easy tasks.(Obaji,2011).Companies nowadays must decide whether distribution methods or plans will make their products easily accessible to potential buyers (Achumba ,2000). Additionally, the necessity of additional organizations or middlemen in the supply of goods is occasionally questioned, especially in light of the perception that their earnings raise the price of the goods. The term "distribution" refers to the location and manner in which goods and services will be made available for purchase, as well as to all vital mechanisms and logistical support for the transfer of goods and services to clients. (Smith et al ,2006). According to (Ardiyoso,2000) and (Tarigan,2021) the costs that the business must bear will have an impact on the cost of items sold, including the costs of distribution and this cost includes cost for warehousing facilities, transportation, packaging, and packaging for loading into containers can all be categorized as distribution costs. Therefore, marketing expenses or, more precisely, sales channel expenses, are distribution costs. There are openings todiminish domestic operating costs through the taking cost cutting techniques for distribution expenses, planning the timing of fertilizer clearance from the manufacturing point with up-country transport, diminishing transport costs through vehicles, rail, street changes, decreasing fuel charges, and diminishing the vulnerability related with government input dispersion programs that force extra showcasing costs on traders (Jayne and Goverech,2003). Even though advertising, which is one of the major fractions of administrative and distribution cost, has been recognized as the center of success for nearly all competent companies (Akanbi,2011). These expenses are elements that affect how much something sells for (World 2018). In low-income nations, which are frequently characterized by ineffective distribution and logistics networks and poor transportation infrastructure, this is especially important. There is not much concrete data on the size of distribution costs, despite their apparent significance for the growth of the manufacturing industry. A company's budget-making process is one of its operations. The selection of a product's selling price will thereafter be influenced by the selected distribution channe (Munawar,2008).

Building and maintaining distribution that, on the one hand, is low cost in comparison to rivals' networks and, on the other hand, delivers a strong end-market presence and brand strength are key components of cost competitiveness. Producers must first decide between direct sales and intermediary channels in order to be effective. Any organization goes through an operational procedure to have that sales volume and if the process is not managed well it can cause destruction to the whole pre planning of the company, for instance a fertilizer company has to go through well planned distribution system in order to deliver fertilizers in areas where cultivation is in process but if cost is not managed then it will not grow sales volume for the firm and can't match the rate of production. The majority of earlier studies have generally demonstrated that businesses must navigate numerous difficult stages of growth based on two different perspectives: the first direction suggests that growth is a natural and essential component (Hermans et al, 2015), while the second direction defines growth as the outcome of the entire process in which businesses attempt to develop and achieve goals (Biesebroeck 2005). Consequently, businesses can enhance the cost structure allocation and support sustainable growth without squandering money or taking unproven risks. (Coad and Holzi, 2010) have created a unique theory and rule known as Gibrat's Law. Gibrat to gauge a company's growth rates to recommended practices. The promotion of fertilizer methods that can increase its efficacy has frequently been disregarded in Pakistani fertilizer strategies and investments. For instance, urea has received the majority of fertilizer subsidies, despite the fact that its use is rapidly approaching its optimal level (as suggested by the data), while other nutrients, such as phosphorus and potassium, are both underutilized by farmers and were, until recently, ignored by the subsidy policy. While this is going on, extension agents frequently give little priority to educating farmers about techniques that can increase fertilizer use efficiency, such as timing of application, application techniques, and optimal fertilizer mixtures (Rashid et al. ,2013).

Distribution channels have an impact on product sales and consumer preference.

Therefore, distribution costs are not only a resource cost for the economy but can also quickly become a sales bottleneck for the manufacturing sector (Peter and Ruane,2022).The manufacturer's ability to manage this type of cost shows the effect on revenue, profit and market share directly.

3. Research Methodology

This section includes all the procedures and techniques used for the reliability and validity of the research. All the methods and instruments used are mentioned.

3.1. Problem statement:

Fertilizer industry has induced high growth due to increased demand by the agricultural sector. So it's a matter of concern for the fertilizer industry to ensure maximum production with effective distribution. For this purpose manufacturers have to realize the fact that distribution expense has an impact on profitability of the company even when it's not related to the

production directly. Objective of the study is to analyze the effect of distribution expense on profitability.

3.2. Hypothesis:

This research hypothesis is constructed to show the impact of independent variable distribution expense on the sales of the fertilizer company which has been observed in few companies in the fertilizer industry from past years. In the hypothesis the contribution of distribution expense is mentioned on the outcome of any company which is sales. The relationship will lead to a result of how these variables are interlinked for the companies in the fertilizer industry.

H1: Distribution expense has a significant impact on the profitability of the companies in the fertilizer industry.

3.3. Sampling and Instrument:

To study the impact of distribution expense on sales which are the independent and dependent variables in this research respectively on the companies producing fertilizer. They will be evaluating through a sampling process and for that purpose specific instruments will be chosen according to each source. The use of primary research involves instantaneous information for assessing the survivability of the market. further demonstrates the connection between the factors based on variables influencing the total organizational function. Simple random sampling is the methodology used for this study, which is based on quantitative research and a structured questionnaire. 100 respondents were chosen for the primary data questionnaire from a variety of Marketing, Sales, And Distribution Employees from Top Fertilizer Companies, Interviews are also conducted from the senior management. Additionally, field experts and dealers of various services that are directly or indirectly related to the distribution and fertilizer industries are being sampled for this study. Various research papers, books, journals, reviews, and websites are used to gather secondary data. The results acquired through the usage of PLS statistical software have been examined and explained.

3.4. Data Analysis:

For data analysis Top fertilizer companies are chosen in order to better understand how distribution costs affect profitability and how companies have managed the increased costs of distribution over the years. The marketing, supply chain, and finance departments will be asked to provide input on the internal cost analysis. The senior management will also be interviewed to get his or her perspective on the matter. Results are obtained from descriptive analysis, correlation analysis, and validity test,

4. Company Profitability And Its Determinants

This section is elaborating the secondary data to define definitions and relationship of the variables along with the data of fertilizer manufacturing companies from annual reports.

4.1. Company Profitability:

The proportion of a company's income to its expenses is known as its profitability. The amount of money a business makes through operations and activities is used to calculate its income. The quantity of resources (money, time, and inventory) used up during operations is how a business calculates its expenses. Any firm wants to make money, so it's important to evaluate your profitability. Every firm needs to turn a profit, even if some can survive for years operating at a loss. Demand for the product or service, supply, and any other economic factors that can have an impact on the bottom line should all be taken into account when examining profitability. When analyzing whether two organizations should merge, profitability can be utilized as a criterion because improved operational efficiency and expanded product lines may result in higher-quality, or larger, profits. Profitability is also taken into account while deciding whether to expand operations.

4.2. Distribution Expenses:

It is one of the most important determinants for a company's profitability. Goods must first be manufactured and then transported from the point of production to the final consumer before they can be consumed. Therefore, distribution expenses are not only a resource expense for the economy but also have the potential to stifle growth in the manufacturing industry. Even a highly productive company is limited in how big it can get if it cannot profitably ship its products to customers that are further away. The sum of all the costs a product's manufacturer incurs to enable delivery of the product from its location to the location of the final consumer is known as the distribution cost. Therefore, it includes all costs incurred by a manufacturer to enable the product to be delivered from its production site to the location of the customer, whether retailer, wholesaler, or the final customer. There is an effect of increased cost through the distribution methods and decisions made on the profitability of the company.

4.3. Relationship between the variables:

Variable itself is the value that has been taken for the research and the relationship of variables shows how it has been caused due to independent variables where dependent variable is the effect. On time distribution will lead to better results for both farmers and fertilizer firms in terms of more orders. Due to this reason every fertilizer firm has maintained a head of distribution expense in their income statements from ages. It is one of the important heads of other cash flows and balance sheets where's good amount every year has been spent under the name of distribution. The contribution of distribution on sales can be easily identified because only better provision can generate revenue for the firms. For fertilizer firms it is essential to know where to

distribute total area used for crops (grain crops and individual farms), districts , location under cultivation, what areas to target next this whole process comes under distribution system. This research is based on how distribution expenses of different firms fluctuate with span of time and now they have impacted sales of the companies.

4.4. Engro Fertilizer:

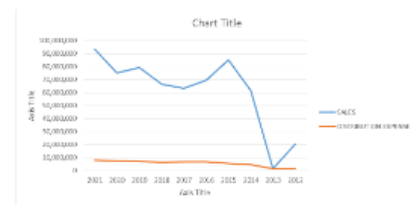
First company that has been analyzed is Engro fertilizer which is engaged in the manufacturing and marketing of fertilizer and has 30% percent of market share and it's a part of Engro corporation. Figure 1 shows that in annual income statements of the firm, sales have been inclined and shown a positive position in the graph since 2014. On the other hand, the figure of distribution expenses does not fluctuate very much but has been under the cap of 10 million, which shows that the firm has optimized the distribution system and generated sales. Optimization includes better and effective ways of distribution with cost reduction of even cost balance. Despite the challenges faced during 2020 the company has achieved highest urea production and highest sales by utilization of minimal outage days and better distribution network. Urea market share has also increased from 32% to 33%. Also, this graph shows a growth increase as a result of higher urea volumes, taz planning, and maintaining distribution cost.

4.5. Fauji Fertilizer:

Fauji fertilizers manufactures chemical fertilizers and was founded by Fauji Foundation. FFC core responsibility is to deliver premium products for agricultural and industrial use despite any environmental and social challenges. The entire distribution network is based on thirteen sales regions, sixty three districts and also extensive warehousing setup. Regions are divided into south, north and central regions. Figure 2 shows the data of ten years in which distribution expense lies under almost the same figures which shows that the company has maintained their cost even after challenging the market and increased sales in several years. Sales figures got a boom from 2015 and till 2021 its highest for the company. Profit for the company after tax increased upto 22% which beats market expectations. Even after a challenging situation from 2019, the company was able to achieve

Figure 1: Relationship of sales and distribution expense

Figure 2: Relationship between sales and distribution expense



Annual Report of FFC (2012-2021)

uninterrupted business operations and improved results due to overall operational excellence, lowered financial cost.

5. Primary Data Analysis

In this section, the collected data through questionnaires is analyzed by using SmartPLS. This chapter includes response rate analysis, company wise respondents analysis, descriptive statistics, correlation analysis, VIF analysis, convergent validity tests, discriminant validity tests, estimates calculation, hypothesis decision and model performance.

5.1. Response Rate Analysis

To conduct the study, a total 100 questionnaires are distributed to the employees of the target industry. Out of which 80 questionnaires are returned back. From that only 75 questionnaires are valid i.e. response rate of the study is 80% while the valid response rate of the study is 75%.

Table 5.1- Response Rate Analysis

Response	Frequency/Rate
Distributed Questionnaires	100
Returned Questionnaires	80
Usable Questionnaires	75
Excluded Questionnaires	5
Response Rate	80%
Valid Response Rate	75%

5.2. Company wise respondents analysis

The questionnaire is distributed to the individuals working in well-known fertilizer companies of Pakistan. Moreover, the questionnaire is also filled up from the agricultural experts and distributors. The breakup analysis is mentioned in below table 4-2. The analysis showed that the majority of the respondents are from Fatima fertilizer limited (33%) followed by Engro fertilizer (25%), Agricultural experts and distributors (21%) and Fauji fertilizer Ltd. (20%

Table 5.2- Demographic Summary of Respondents

Company Name / Respondent	Frequency	% of total
Fauji Fertilizer Ltd.	15	20%
Engro Fertilizer Ltd.	19	25%
Fatima Fertilizer Ltd	25	33%
Agricultural experts and distributors	16	21%
Total	75	100%

5.3. Descriptive Analysis

Descriptive analysis is a statistical method for summarizing and describing the primary characteristics of a dataset. This may include measurements of central tendency (such as mean, median, and mode), measures of spread (such as standard deviation (SD) and range). The objective of descriptive analysis is to offer a clear and informative image of the data.

Table 5.3 - Descriptive Analysis

Constructs	Missing	Mean	Median	Min	Max	Standard Deviation
PROF1	0	1.28	1	1	3	0.53
PROF2	0	1.48	1	1	2	0.50
PROF3	0	2.16	2	1	4	0.99
PROF4	0	2.25	2	1	4	1.08
DIST1	0	1.59	1	1	4	0.80
DIST2	0	1.75	1	1	4	0.95
DIST3	0	1.79	1	1	4	0.98
DIST4	0	1.91	2	1	4	0.88
DIST5	0	1.67	1	1	4	0.79
DIST6	0	2.07	2	1	4	1.05
DIST7	0	1.55	1	1	3	0.68
DIST8	0	1.56	1	1	3	0.70
DIST9	0	1.60	1	1	4	0.80
DIST10	0	1.77	2	1	4	0.89
DIST11	0	1.41	1	1	3	0.57
DIST12	0	1.57	1	1	3	0.70
DIST13	0	1.63	1	1	4	0.83
DIST14	0	1.51	1	1	3	0.70
DIST15	0	1.93	2	1	4	1.09
DIST16	0	1.33	1	1	3	0.60

Note: PROF: Profitability, DIST: Distribution expense

The above table shows descriptive analysis results obtained by using SmartPLS software. The descriptive analysis displays missing value, mean, median, minimum, maximum and standard deviation of the data. From the above table, it is witnessed that there are no missing values in the analyzed data. Mean of the responses falls between 2 – 3. Median of the responses fall at 2. Minimum observation is 1 and maximum observation is 5 as we have adopted a 5-point likert scale in the questionnaire. The standard deviation of the responses falls close to 1.

5.4. Correlation Analysis

Correlation analysis is utilise to measure the strength between constructs. Secondly it is also used in detecting multicollinearity in the data. The results of

correlation in below table depicts that there is a positive association between each constructs. Moreover, there is no high correlation between constructs i.e. there is no correlation higher than 0.8 so there is no existence of multicollinearity.

Table 5.4 Correlation Analysis

Table 4-4 Correlation Analysis

Items	PROF1	PROF2	PROF3	PROF4	DIST1	DIST2	DIST3	DIST4	DIST5	DIST6	DIST7	DIST8	DIST9	DIST10	DIST11	DIST12	DIST13	DIST14	DIST15	DIST16	
PROF1	1.00																				
PROF2	0.10	1.00																			
PROF3	0.009	0.46	1.00																		
PROF4	0.09	0.42	0.66	1.00																	
DIST1	0.08	0.20	0.37	0.63	1.00																
DIST2	0.018	0.137	0.06	0.11	0.49	1.00															
DIST3	0.11	0.18	0.20	0.36	0.21	0.23	1.00														
DIST4	0.40	0.28	0.23	0.15	0.27	0.18	0.16	1.00													
DIST5	0.32	0.30	0.07	0.18	0.049	0.024	0.30	0.66	1.00												
DIST6	0.04	0.09	0.42	0.59	0.35	0.34	0.45	0.40	0.33	1.00											
DIST7	0.57	0.05	0.13	0.12	0.22	0.07	0.35	0.60	0.49	0.25	1.00										
DIST8	0.44	0.30	0.31	0.22	0.44	0.19	0.39	0.71	0.32	0.37	0.42	1.00									
DIST9	0.08	0.31	0.42	0.32	0.22	0.028	0.45	0.46	0.42	0.46	0.33	0.62	1.00								
DIST10	0.14	0.015	0.39	0.32	0.52	0.15	0.51	0.23	0.27	0.37	0.45	0.33	0.34	1.00							
DIST11	0.41	0.48	0.28	0.46	0.55	0.14	0.61	0.37	0.28	0.40	0.24	0.56	0.28	0.40	1.00						
DIST12	0.43	0.32	0.27	0.27	0.09	0.042	0.43	0.33	0.59	0.33	0.30	0.44	0.70	0.45	0.38	1.00					
DIST13	0.51	0.43	0.45	0.33	0.35	0.15	0.34	0.48	0.38	0.30	0.34	0.75	0.62	0.37	0.55	0.69	1.00				
DIST14	0.59	0.18	0.32	0.31	0.52	0.25	0.47	0.40	0.19	0.43	0.37	0.62	0.15	0.57	0.75	0.39	0.53	1.00			
DIST15	0.31	0.039	0.23	0.09	0.23	0.17	0.39	0.45	0.19	0.33	0.47	0.44	0.02	0.29	0.33	0.108	0.15	0.54	1.00		
DIST16	0.21	0.13	0.45	0.12	0.28	0.34	0.30	0.44	0.32	0.22	0.27	0.45	0.20	0.29	0.30	0.25	0.33	0.46	0.40	1.00	

5.5. VIF Analysis

The variance inflation factor is defined as the ratio of the variance of estimating some parameter in a model that includes numerous other components to the variance of a model constructed with only one term. It quantifies the severity of multicollinearity.. The variance inflation factor should not be larger than 5, according to general rule. The results in below table 4-5 clearly shows that there is no sign of multicollinearity as the value of VIF is not greater than 5.

Table 5.5 Results of VIF Analysis

Items	VIF
DIST1	1.941
DIST10	1.984
DIST11	1.787
DIST12	1.039
DIST13	1.371
DIST14	1.726
DIST15	3.891
DIST16	1.705
DIST2	4.778
DIST3	1.140
DIST4	1.737
DIST5	1.275
DIST6	2.600
DIST7	3.034
DIST8	1.857
DIST9	1.475
PROF1	1.024
PROF2	1.322
PROF3	1.922
PROF4	1.823

Note: PROF: Profitability, DIST: Distribution expenses.

- **PLS-SEM Modelling**

The PLS model consists of two other models: the measurement model and the structural model. According to Creswell & Clark (2011), internal relationships between items of each construct are depicted in the measuring model. However, the structural modal entails relationships with different constructs (Sarstedt & Hwang, 2020). The main purpose or objecting of using PLS-SEM technique is to ensure convergent and discriminant validity of the data.

5.6. Convergent Validity

Convergent validity examines the degree to which multiple indicators of the same construct are connected (Amora, 2021). It is used to determine if different measurements of the same construct produce comparable findings, and therefore measure the same construct (Purwanto & Sudargini, 2021). The AVE criterion value must be greater than 0.5 (Surucu & Maslakci, 2020). According to the data shown in the table 4.6, the AVE for each construct exceeds the benchmark. Results of tests of convergent validity are mentioned in table 5.6

- **Discriminant Validity**

Discriminant validity is the degree to which a measure of one construct is distinguishable from measures of other constructs (Yusoff et al., 2020).

Table 5.6 Convergent Validity Tests

Constructs	Outer loadings	Cronbach Alpha	Composite reliability	AVE
DIST1	0.744			
DIST10	0.732			
DIST11	0.749			
DIST12	0.767			
DIST13	0.785			
DIST14	0.771			
DIST15	0.773	0.899	0.913	0.606
DIST16	0.741			
DIST2	0.775			
DIST3	0.735			
DIST4	0.795			
DIST5	0.757			
DIST6	0.705			
DIST7	0.783			
DIST8	0.822			
DIST9	0.749			
PROF1	0.771			
PROF2	0.779	0.814	0.779	0.677
PROF3	0.774			
PROF4	0.792			

Note: PROF: Profitability, DIST: Distribution expenses.

5.7. Coefficients / Estimates

Coefficients are derived to represent the strength and direction of the relationship between two variables (Hair Jr et al., 2020). They can be utilized to assess the relevance of variables in the

model. In addition, they are used to determine whether the research hypotheses are supported or not (Ringle et al., 2015).

Table 5.7 Model Coefficients and Hypothesis Decision

IV's	Estimate	T Statistics	P Values	Remarks	Decision
DIST	0.666	11.216	0.000	Significant	Ho rejected

Dependent variable: PROF

Note: PROF: Profitability, DIST: Distribution expenses

The above table includes estimate (beta), t-statistic and p-value of the model. The estimate (beta) shows how much is the impact of the independent variable on the dependent variable. Results depict a positive impact of overall distribution expenses on the profitability and growth of the Fertilizer companies of Pakistan. The estimate / coefficient of the distribution expenses is found to be 0.666 i.e. by increasing distribution expenses by 1 unit will increase profitability of the fertilizer companies by 0.666 times.

T-statistic and p-value are used to check the significance of the variable. As a rule of thumb, p-value should be less than 5% or 0.05 (level of confidence). The results found p-value of the variable lesser than 5% i.e. estimate of the variable i.e. distribution expenses is significant in predicting profitability of the Fertilizer companies of Pakistan.

Thus, based on the results, we can reject our null hypothesis i.e. spending on distribution expenses have a significant impact on the growth and profitability of the Fertilizer companies of Pakistan.

4.8. Model Performance (R-square)

It tells the explanatory power of the variables. Higher the value, better the explanatory power of the variables (Hair Jr et al., 2020; Purwanto & Sudargini, 2021). The r-square of the model stands at 0.444 or 44.4% which means the independent variable i.e. distribution expenses is able to explain 44.4% of the variation in the dependent variable i.e. profitability. Moreover, the adjusted r-square stands at 43.6%.

Table 5.8 Results of R-square

R Square	R Square Adjusted
0.444	0.436

6. Opinion Of senior Management (Marketing, sales and Distribution) of fertilizer industry:

This section is about the opinion gathered on different questions from the senior management of fertilizer manufacturing firms. Most of the organizations have adopted various methodologies to improve their operational management and overall performance and this is due to the efficient decision-making and improved strategic thinking of senior management. Hence, senior management from sales, distribution and marketing departments are interviewed to add valuable and authentic information related to this topic.

According to the managers profitability in the fertilizer industry comprises two parts one is fertilizer itself including production levels, distribution, placement and second one is the market, which includes supply demand, price trends and inflation. Production is a continued process Where supply, whether high or low decides the storage time hence cost associated with it. Companies must have to maintain a distribution expense, which is a sum of storage cost, handling cost and transport. There are two types of distribution for fertilizer. Direct distribution, which require company's transport from manufacturing point to dealer and other one, is direct pickup from manufacturing point by dealer itself. Further, they added regarding the hidden cost attached to distribution cost is warehousing which includes storage and handling cost. As the product is stored for a longer period, this will increase the storage cost. Companies are working on annual contracts with the warehouse, they have warehouses in almost every district, and if they rent out a warehouse in another district this will be based on a 2-3 months contract so they have to manage the cost accordingly through proper planning of production and placement.

According to the sales manager

How a company's sale is going will indicate a lot about the increased cost, because if the product is stored for a longer time period then it will definitely bring more charges involved. If the manufacturing is done and directly sold without storing it for a while it will automatically decrease the distribution cost, handling and storage cost also adds a boom to profitability. From 2018-2020 fertilizer sector sales increased. More factors are market trends like what is the demand and supply, demand increased of urea for last year which increased sales due to the increased rate of DAP. This also increased the consumption rate of Urea. Commodity price is one of the factors which has been increased upto 75% per bag.

They further quoted that in the case of fertilizer product availability and placement is crucial and needs special attention. If the product is produced in excessive amounts then it should be booked and sold on a continuous basis otherwise it will cost high. Product sensitivity is also an important factor which is linked with external factors. Long time storage may cause damage to the product. That's why placement is important and dealers must have to keep 50-60 kgs stock at a time.

Technological advancement has been adopted by the companies through various ways and improved softwares like SAP are now part of regular functioning. Apps are also introduced by the companies which enables the 24 hours booking of stock by the dealers just by logging in. The booking process has also been made easy, accessible and cheap. Manual process starts with a

demand draft which requires a whole day to process. Updated process is just placing order generating drafts within secs, dealer requests and then it is approved by the mail. Warehousing is also now updated and made less costly by online letters and other activities are handled online through proper systems of registration. Sale is also boosted due to the online payment facility. In case of 24 hours notice period from the market to increase the prices immediate order are placed to avail previous prices.

We can summarize by the overall response that distribution cost contains several costs which should be managed well to decrease the overall cost and these companies have maintained their distribution cost through different ways which has positively impacted profitability and increased it.

7. **Conclusion:**

From the above research, responses and interviews conducted we can conclude that hypothesis is accepted by companies and there is a significant impact of distribution expenses on the profitability in the fertilizer industry. Results depict a positive impact of overall distribution expenses on the profitability and growth of the Fertilizer companies of Pakistan. The estimate / coefficient of the distribution expenses is found to be 0.666 i.e. by increasing distribution expenses by 1 unit will increase profitability of the fertilizer companies by 0.666 times.

are probably losing a lot of money if you do not precisely and consistently assess these KPIs to identify areas for development. Proper inventory levels are essential for any organization to operate since uncontrolled distribution expenses can quickly eat away at margin and render even the most innovative products and services completely unprofitable. It's simple to overlook the fact that distribution costs are crucial financial measures that can help you increase profitability.

According to the district manager of Engro fertilizer and distribution manager of Agritech companies must have to maintain a certain distribution expense for storage and warehousing because not every time the sales is same is same where production remains continue. They further added that profit in the fertilizer industry comprises two parts: fertilizer itself which includes production levels, cost associated with production and distribution, storage cost and sales. Second part is the market which relates to inflation rates, supply and demand and market trends for price of Urea, DAP and other fertilizers. Technology has also served positively by saving extra cost related storage, handling and transport. Manual processes of handling, order booking and sales cycle is time consuming and cost is incurred at every cost but recently through their apps, online banking facility all the process are smoother and less cost is incurred.

Following distribution costs as a share of sales allows you to assess the health of a business. Any decrease in the cost of items might increase your profit margins in today's cutthroat market: Significant drops in your distribution expenses might have a hugely positive impact on your revenue.

8. Recommendations:

Beyond merely lowering them, it's crucial to monitor your distribution expenses over time. Any change in quality or a sharp rise in the cost of distribution can signal the need for remedial action as revenues climb. By carefully monitoring this expense, you may create a baseline and detect any deviations in your operations. This is one of those issues that, like most issues, is much simpler to deal with early on than it is if you wait too long. Additionally, you should monitor your distribution expenses on a "per unit shipped" basis. This will enable you to take a more targeted approach to reducing costs by focusing on particular regions within your distribution center.

Companies may develop a clear action plan that will enable you to cut costs as much as possible by analyzing the costs connected with both the big picture (distribution cost as a percentage of total sales) and the little picture (distribution cost per unit sent). According to the senior managers of fertilizer industry following factors should be managed well in order to prevent them to become a challenge in future:

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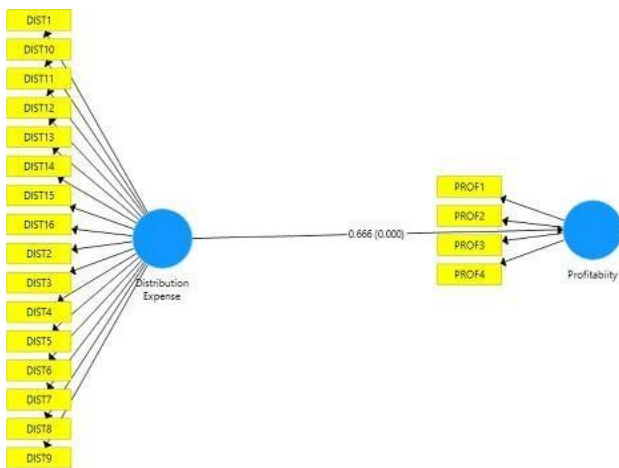
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Annexure I



PLS Model with coefficient and P-value