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Impact of Covid-19 on Inventory Management in E-commerce Industry

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ABSTRACT

The purpose of this study is to assess the impact on inventory management in the ecommerce industry created due to the Covid-19 pandemic and to find out what factors really caused inefficiencies in the inventory performance in the ecommerce industry. In this study, the quantitative approach has been used where responses were collected from 100 supply chain professionals who directly or indirectly had experience in the field of managing inventory in the ecommerce industry. With the help of the survey responses, the author conducted a series of analysis such as regression, ANOVA, correlation, where in this analysis it has been concluded that both the independent variables (changes in demand and logistical & supply chain constraints due to Covid-19 pandemic) are significantly corelated with the impact on inventory performance.

1. Introduction

Inventory management in the ecommerce industry can be referred as to managing processes such as buying, ordering, stocking & selling the inventory either owned by the company itself or by the supplier. Inventory management helps to tackle the supply and demand problems and help in forecasting right demand and making sure that right products are made available at the right time of the market (Hayes, 2022).

The Covid-19 pandemic halted all the economic activities during 2020-21 and due to this all economies were affected heavily as no one was prepared for such a major thing to happen. Also, due to Covid-19 the governments around the world imposed stricter restrictions on movements throughout the country and banned all the international travels, the Governments around the world had to take this step as to save and protect the public health. Due to this move, there were reduced economic activities throughout several sectors and economies, affecting all the parts of the supply chain from production, distribution to consumption affecting mostly the countries which were less prepared to deal with such crisis (Sirimanne, 2021).

Ecommerce, also called electronic commerce, is where buying and selling of goods takes place through smart devices such as smartphones and computers. In today's world most things are available in the ecommerce industry which makes this ecommerce industry highly competitive. There are several market segments in

ecommerce industry ranging from business to business, business to consumer and direct to consumers (Bloomenthal, 2022).

This study tries to answer the following research questions:

1. Does inventory performance in ecommerce industry was affected during Covid-19 pandemic?
2. Does changes in demand and inability of companies to match the demand affected inventory performance?
3. Does logistical and supply chain constraints were also responsible in affecting the inventory performance during and after the Covid-19 pandemic?

2. Literature Review

OECD (Organization for Economic Co-operation and Development) published a study where it discusses how Covid-19 changed the ecommerce industry right from the supply chains to the fluctuations in demand and changes in inventory allocation. The study states that the consumer behavior of buying online has shifted from buying luxury goods and services to buying everyday essential goods like medicines and groceries. Also, the study has mentioned how due to Covid-19 the demand share of brick-and-mortar retail store declined while at the same time the demand share of online retail or ecommerce companies grew in the OECD countries by large percentage, one such example is of Europe where the sales from internet increased by almost 30% year over year in April 2020. (The Organization for Economic Cooperation and Development (OECD), 2020).

In one of the reports by Forbes, where they with one of the experts from retail industry had a conversation on how the Covid-19 pandemic has affected the inventory management practices in ecommerce industry. The report states that it has become difficult for the retail companies to use their on-hand inventory from their physical store (Hemant & Shafighi, 2023). This problem occurred due to Covid lockdowns and store shutdowns throughout the world to contain the spread of virus, although this phenomenon is now only a thing of past but still the retailers will need to learn from this. Also, the expert pointed out that it is important for the retailers to have the inventory stored close to the customers, which makes inventory management more complex as to have a clear and trustable forecast will need more complex and smarter forecasting models. The expert also said that the important role will be played by the stores in fulfilling the last mile orders, as the retailers are focusing on getting the inventory close to the customers (Drenik, 2022).

In another article by "Modern Materials Handling", states that the first wave of Covid-19 pandemic caused unprecedented demand in the market along with out-of-stock situation in several categories of goods, also this situation caused overstock in some categories. The study also referred to a survey, where 69% of respondent's results stated that, to adjust the operations after the pandemic it is important to improve inventory control processes. The article also finds that to get the inventory performance back to the earlier levels the planners will need to access the impact of current demand signals and visibility across supply chains. Currently the ecommerce companies have also started to streamline their catalog and eliminate the SKUs which are having lower

turns, making the inventory management less complex while only focusing on the items which are high velocity items (Michel, 2021). Based on the foregoing research studies, the following hypotheses is proposed:
H1: There is a relation between Covid-19 and the effect on inventory performance.

The report from the IBM on how pandemic affected the demand and inventory management states that, as offices started to close and remote working got promoted throughout the industries many people started relocating from urban cities to the suburban area and this move made it difficult for the ecommerce companies to position their inventory based on the historical data. The aspects such as increased online shopping, decreased brand loyalty, and other shopping trends such as spending only on essential goods. The report by IBM also references the report by McKinsey & Company, which states how the great consumer shift has started to happen after covid and how it is here to stay. One such example from the report is that digital shopping is here to stay. One such example of the great relocation shift was New York city where more than 300,000 people move out of the city which is around 240% increase year-over-year, and this move might have caused excess inventory carrying cost for the ecommerce companies who had allocated huge amount of inventory in the city. The study states that to tackle such situation the ecommerce companies must become more agile and try to have some SOPs in place to meet customers' demands (Staub, 2021; Charm, et al., 2020).

In another study by Federal Reserve on how fiscal policy was also one of the aspects in creating demand and supply imbalance during the Covid-19 pandemic. The study states that governments around the world came forward to support the common peoples to tackle the pandemic situation by engaging massive fiscal support programs. It also states that along with other factors fiscal support also contributed to increasing the demand while the industries were not able to cope with the demand and hence this initiated the high inflation. The study finds that as the governments injected large amounts of money into the market the governments were successful in increasing consumption, but the supply was not available and due to this the prices have skyrocketed. Although this move by governments created a demand-supply imbalance, the study says that it is also important to recognize this move as it helped the economies rebound from the fall due to Covid-19 (de Soyres, et al., 2022).

A report by McKinsey & Company on the topic "The consumer demand recovery and lasting effects of COVID-19" studies on how the pandemic created a demand shock around the world and what will happen once the pandemic is over. The study analyzes the consumer spending from China, France, Germany, the United Kingdom, and the United States. The study finds that the initial drop in consumption or demand was caused by lockdowns and the fear of getting Covid. The study also states that the restriction on spending and the stimulus paid by the United States doubled the US household saving to 3 trillion dollars in 2020 if compared to the saving in the year 2019 (Remes, et al., 2021). Based on the foregoing research studies, the following hypotheses is proposed:
H2: There is a relation between the changes in demand during Covid-19 and inventory performance.

A study by E&Y on the topic "How COVID-19 impacted supply chains and what comes next" states that the pandemic has accelerated the process for companies to work on making the supply chains more smarted and resilient, collaborative, and networked. The study finds that even though 72% of the respondents reported that the pandemic affected their business negatively, there were positives to it, which is getting more investments for making the supply chain more tech savvy with having real time visibility and resilience. It is also found that the supply chain visibility was among the top priorities which the industry experts believe to have. The study states that the organization should focus on 5 things to recover from the disruptions caused by the pandemic, and they are, 1) Reimagine the strategic architecture of the supply chain, 2) Build transparency and resiliency, 3) Extract cash and cost from your supply chain, 4) Create a competitive advantage with sustainability, and 5) Drive agility and opportunities for growth through a digital supply chain (Harapko, 2023).

The study by International Financial Corporation (IFC), states that the first impact of Covid-19 was seen in China as the government put restrictions on the movement internally and simultaneously factory closures happening at that time. Due to this, it created impact on other supply chains as well, like the cargo getting blocked at the Chinese ports, shortage of truck drives as there was travel restrictions in place, and ocean carriers cancelling the sailing. All these factors created a supply shock in the global market which made securing inventory impossible during that period. The study also found that these operational or logistical constraints will lead to delays in deliveries, congestion at the ports and higher shipping costs. Also, the ecommerce companies will be seeing more activity as the consumers are shopping more online rather than in physical stores. The researcher in this has concluded by saying that the logistics sector is going through the tech driven revolution and the companies who are investing in the tech for having more visibility throughout the supply chain and that can do business online are the ones benefitting from this change (Twinn, et al., 2020).

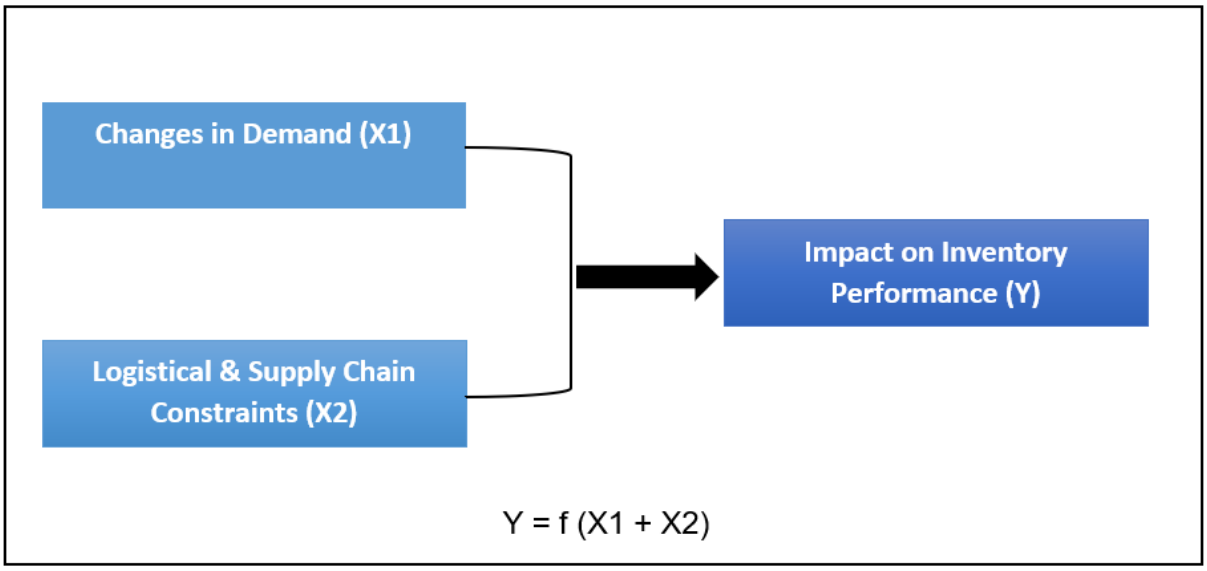
Another study by Jabil where the study was about finding the disruptions caused by the Covid-19 on supply chain. And according to a survey by the study, it was found that around 60% of the respondents reported that they were affected due to the pandemic. The study found that in pre-pandemic passenger aircraft carried around 40 percent of yearly global air cargo in the flight belly, while as per data, in April 2022 it is still down by almost 6 percent. It is due to airlines cancelling the flights due to the global passenger capacity is down by 22 percent in April 2022. It also states that the retailers and ecommerce companies are at high risk as the demand rises and as there is a lack of logistical support. And already the China's "Zero Covid" policy has caused shortage of products and materials due to few truck drivers, busy ports due to congestion and labor shortage to unload containers. Based on the foregoing research studies, the following hypotheses is proposed:
H3: There is a relation between logistical and supply chain constraints affecting the inventory performance.

3. Research Methodology

The research framework can be seen in Figure 1 below and this study focuses on this framework. The given research framework consists of 3 variables out of which 2 variables are independent variables support 1 dependent variable in this paper. This research framework illustrates the impact of Covid-19 on inventory

performance (Y) on the ecommerce industry due to two major reasons which are unexpected demand fluctuations (X1) and logistical and supply chain constraints (X2). This study analyzes the relationship between variables mentioned in the figure below:

Figure 1: Research Framework



Source: (Author findings)

The meaning of each independent and dependent variable is stated below:
Inventory performance (DV) in Covid-19 was mainly impacted by the following independent variables:
Changes in demand (IV 1) in Covid-19 was one aspect affecting the inventory performance mainly due to more household savings and later due to inflation and retailers' confusion on matching supply and demand.
Logistical and supply chain constraints (IV 2) in Covid-19 were also one of the major aspects impacting the inventory performance as the constraints such as factory shutdowns, shortage in labors, congestion at ports, etc. made it difficult for the ecommerce companies to secure inventory.

3.1 Data Collection

The data for this study is collected from multiple sources using both primary and secondary sources. The primary data is collected through a survey questionnaire while secondary data for this study is collected from the available literature and the past studies done which are available online in the form of an article or a report. This study collects the data through the survey responses for the major analysis part of this study by the ecommerce supply chain industry specialist mainly professionals from the inventory management team consisting of inventory mangers and planners (which are working at associate level) and the head of these departments (directors and associate directors). The survey is also shared with other supplier facing teams to collect the data for the questionnaire. The supplier facing teams were category management, warehouse operations management and fulfilment team which deal with inventory management partially. The reason for sharing this survey questionnaire with the supply chain professional or with the teams which work with managing the inventory directly or indirectly was to have a legitimate and real inputs from the industry professional and to reach to the conclusion

in effective manner. The sampling size of the responses collected thorough the survey is of 100 ecommerce supply chain professionals coming from top ecommerce companies from categories such as fashion, electronics, furniture, and home goods, etc. Responses were recorded in sections. The first one was general questions asking for respondents professional, education, category of their company, etc. The major sections which are analyzed are changes in demand (IV 1), logistical and supply chain constraints (IV 2) impact on Inventory performance (DV). The survey questions are designed as close ended questions only the demographic part can be said as it supports the qualitative aspect to collect data. The survey questionnaire consisted of four sections, one section consisting of demographic questions and the other three sections had questions related to the dependent and independent variables mentioned above. The respondents had 5 options to answer questions of the survey as the 5-point Likert scale format was used. The scale ranges from 1 to 5 where, 1 = Strongly agree, 2 = Agree, 3 = Neutral, 4 = Disagree and 5 = Strongly disagree.

3.2 Data Analysis Method:

Regression analysis, a test for the correlation between independent and dependent variables and comparison of variables are used to examine the responses gathered from e-commerce and supply chain specialists for the survey questionnaire. The primary purpose of a regression analysis model is to determine the significance of any relationships between the independent and dependent variables, and the correlation test is used to determine the influence of each independent variable on the dependent variable. The regression analysis and correlation test will examine the following dependent and independent variables:

1. Changes in demand (IV 1)
2. Logistical and supply chain constraints (IV 2)
3. Impact on inventory performance (DV)

The regression analysis and correlation test in this study will examine how changes in demand and logistical and supply chain constraints during and after Covid-19 will create and impact on inventory performance during and after Covid-19.

Also, using the regression analysis is efficient as it helps to find which one of the independent variables has highest impact on the dependent variable which means is it the unexpected demand fluctuations or the logistical and supply chain constraints impacting the most of the ecommerce industry's inventory performance.
After the regression analysis and correlation test the study is also comparing the variables using the scatterplot chart and linear trendline which is an efficient tool to create a visualization if the independent variables have positive or negative relationship with dependent variable.

4. Results & Findings:

4.1 Demographic Data

The investigator may learn more about the age, gender, and educational background of the target audience thanks to the demographic component. The study's correct information needs are met by using this data as the starting point. Let's start by analyzing the demographic data.

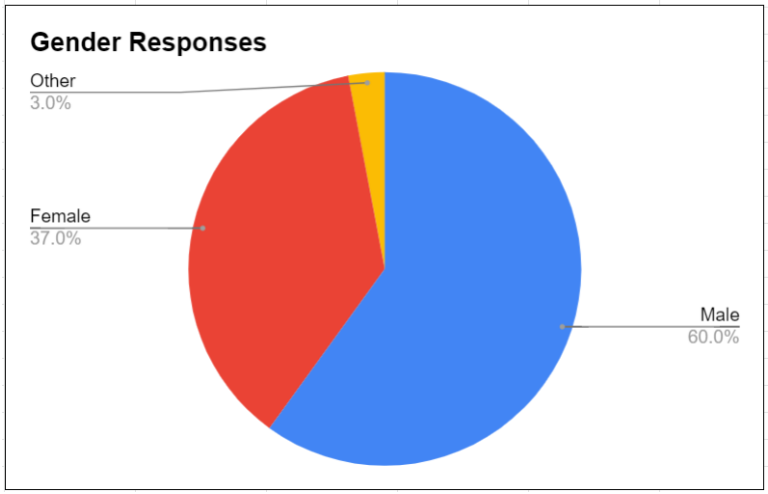
From Table 1 and Chart 1, it is visible that out of 100 responses most of the responses where from male accounting for 60% following female with 37% while other stating for 3%.

Gender	Responses
Female	37
Male	60
Other	3
Grand Total	**100**

Table 1: Gender

Source: (Author findings)

Chart 1: Gender



Source: (Author findings)

As per the Table 2 and Chart 2 it can be said that most of the respondents had master's degree accounting for 51% while respondents with undergraduate degree accounted for 41% followed by the doctorate which accounted for 8%

Table 2: Educational Background

Educational Background	Responses
Doctorate	8
Master's degree	51
Undergraduate Degree	41
Grand Total	**100**

Source: (Author findings)

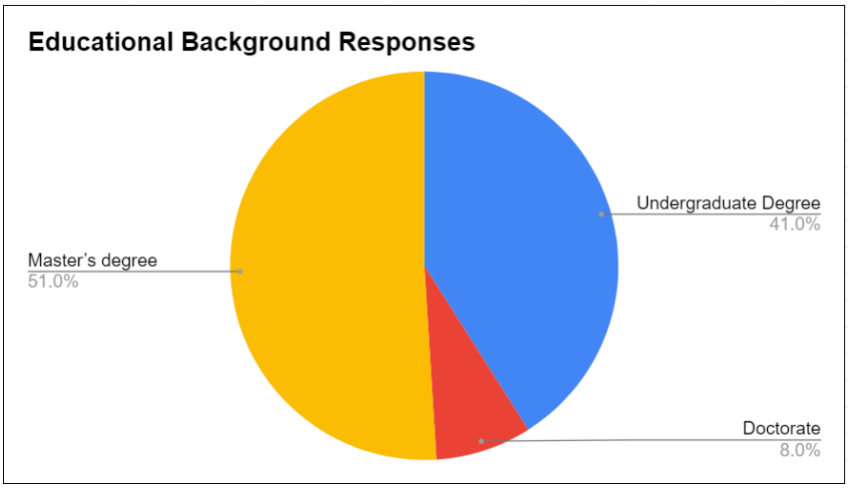


Chart 2: Educational Background

Source: (Author findings)

The analysis from Table 3 and Chart 3 states that most of the respondents work in the companies which work in the category of furniture and home goods, and they account for 43%, following that is the category of fashion which accounts for 20%. Also, 16% respondents work in the category of electronics. However only 9% of the respondents had their company working in all three categories (furniture and home goods, fashion, and electronics), while 12% of the respondents work in categories other than furniture and home goods, fashion, and electronics which accounted for 12% while from that 2% said they work in q-commerce.

Company Category	Responses
All of the above	9
Electronics	16
Fashion	20
Furniture and Home Goods	43
Other	12
Grand Total	**100**

Table 3: Company Category

Source: (Author findings)

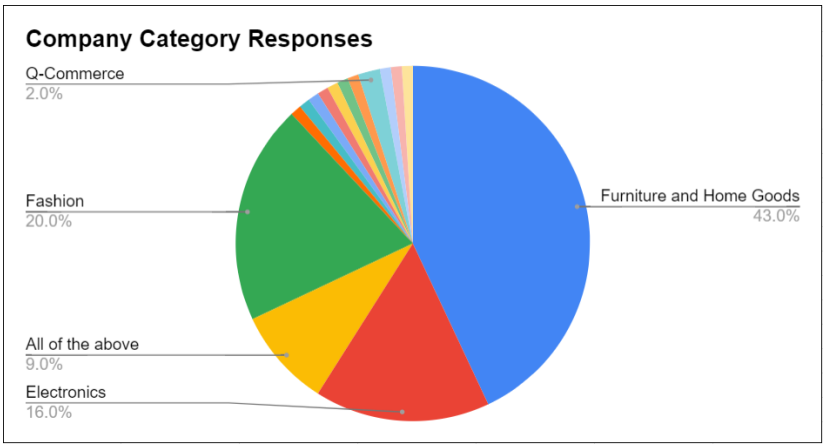


Chart 3: Company Category

Source: (Author findings)

According to Table 4 and Chart 4, it can be stated that 51% of respondents' companies operate in European region only while 31% of respondents said their companies operate in North American and European region. There were also responses stating that their companies operate in all the regions (North America, South America, Asia, Europe, Africa) which accounted for 5% and the other 5% of the respondents said their companies operate in North America, Asia, and Europe. While only 2% of the respondents' companies operate in North America.

Table 4: Company Operations Region

Company Operations Region	Responses
Asia	4
Europe	51
North America	2
North America, Asia, Europe	5
North America, Europe	31
North America, South America, Asia, Europe, Africa	5
North America, South America, Europe	1
South America, Asia, Europe	1
Grand Total	**100**

Source: (Author findings)

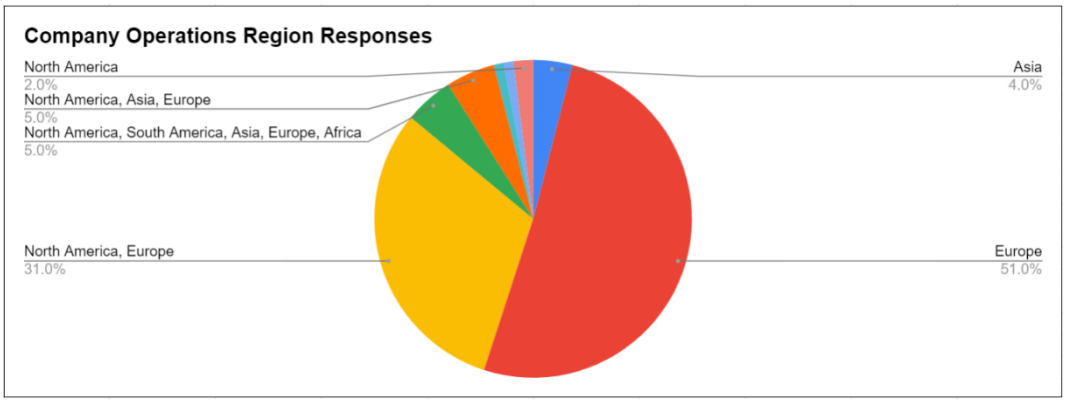


Chart 4: Company Operations Region

Source: (Author findings)

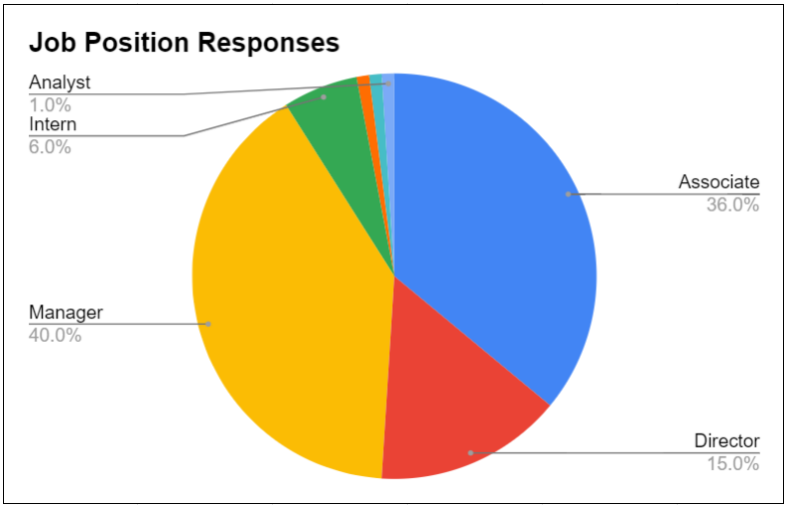
Based on Table 5 and Chart 5, it can be stated that the top three group of respondents worked as manager, associate and director in their respective company which accounted for 40%, 36% and 15% respectively. Also, 9% of respondents worked in other positions, of which 6% were interns and 1% was analyst.

Table 5: Job Position

Job Position	Responses
Associate	36
Director	15
Manager	40
Other	9
Grand Total	**100**

Source: (Author findings)

Chart 5: Job Position



Source: (Author findings)

4.2 Linear Regression Analysis:

When regression analysis is executed, it gives three outputs, which are regression statistics analysis, ANOVA analysis and the actual coefficient analysis. Below the study of these analysis has been done.

Table 6: Regression Statistics

Regression Statistics	
Multiple R	0.869558819
R Square	0.75613254
Adjusted R Square	0.751104345
Standard Error	0.51634387
Observations	100

Source: (Author findings)

Before starting to analyze the outcome of the regression analysis let's understand what Multiple R, R Square, Adjusted R Square is, as these values are important in analyzing the variables. So, with the help of Multiple R the strength of the linear relationship is indicated. While the value of zero means that there is a negative relationship with the variables whereas value of one means there is a positive relationship with the variables. R Square tells us how many points fall on regression line and the value can range from 0 to 1. It also tells how efficiently the data fits the model. Adjusted R Square is another version of R Square where it is useful for comparing different regression models (Zach, 2019; Glen, n.d.).

From the Table 6, it can be observed that the regression statistics model is created from 100 responses to the survey questionnaire and the Multiple R value is 0.8695 which states that there is a strong positive relationship between independent and dependent variables. While the value of R Square is 0.7561 which states that around 75% of the values fit the model and it also indicates that this study's independent variables are successfully in line with the dependent variable. Also, here the value of Standard Error is 0.5163 which can be said as it is a lower number and can be stated as the regression analysis in this study is robust and reliable in having results (Patil & Shafighi, 2022).

4.3 ANOVA Analysis:

ANOVA					
	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	80.1851	40.0926	150.3785	1.892E-30
Residual	97	25.8613	0.26661		
Total	99	106.046			

Table 7: ANOVA

Source: (Author findings)

The full form of ANOVA is 'Analysis of Variance' and it compares the means of various samples to examine the influence of one or more factors. ANOVA is used to prove or disprove if each variable has an equal impact or not (Singh, 2023). Also, as in this study there are 2 independent variables the df value in 2 where full form of df is 'Degree of Freedom'. From Table 7 above, the most important metric is 'Significance F' which states if the model fits efficiently and correctly to the analysis and if the results are reliable. To find the reliability the researcher considers the value of alpha (α) as 0.05. So, if the value of Significance F is below 0.05 it can be said that the model is reliable and is accepted. But if the value of Significance F is above 0.05 then the question can be raised, and the researcher needs to consider other variables. From the above Table 7, the value of Significance F is 1.892E-30 which is way lesser than 0.05 and it can be said that the results of this study are reliable and are statistically correct (Patil & Shafighi, 2022).

4.4 Actual Coefficient:

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.02891509	0.148536666	0.19467	0.8460613
Changes in Demand	0.56901056	0.111002658	5.1261	1.509E-06
Logistical and Supply Chain Constraints	0.37751937	0.106034597	3.56034	0.0005757

Table 8: Actual Coefficient

Source: (Author findings)

From the above Table 8, there are two important metrics one is coefficient values, and the other is p-values. P-values will be used further for testing the hypothesis which are, H1: there is a relation between Covid-19 and the effect on inventory performance, H2: there is a relation between the changes in demand during Covid-19 and inventory performance, and H3: there is a relation between logistical and supply chain constraints affecting the inventory performance. Whereas the regression coefficient values indicates if the independent variables have positive or negative correlation. According to the positive coefficient value, when the independent variables value rises, the dependent variables mean rises as well and according to the negative coefficient value, when the independent variables value rises the dependent variables value falls and this negative value states that the independent variable is not having significant relationship between with dependent variables (Frost, 2023).

Table 8 shows that the coefficient value of independent variables changes in demand (IV 1) and logistical and supply chain constraints (IV 2) have positive values and therefore it can be said that both the independent variables have positive linear relationship and is significant to the dependent variable which is inventory performance (DV).

4.5 Hypothesis testing with p-value:

P-value signifies if there is a relationship between the independent and dependent variables and if the hypothesis can be accepted or rejected. So, when p-value is less than the significance level which is alpha = 0.05 then it can be said that the data is providing enough proof to reject the null hypothesis. From the p-value of intercept the value is more than 0.05 which is 0.8460, so the hypothesis of covid-19 affecting inventory performance can be rejected and that there is insufficient evidence in the sample data. The p-values of changes in demand (IV1) and logistical and supply chain constraints is less than the significance level of 0.05 which is 0.00000151 and 0.0005757 respectively and can be said that both the hypothesis can be accepted and that there is a significant influence on the dependent variable inventory performance (DV).

4.6 Correlation Analysis:

	Changes in Demand (X1)	*Logistical and Supply Chain Constraints (X2)*	*Impact on Invenotry Perfromance (Y)*
Changes in Demand (X1)	1		
Logistical and Supply Chain Constraints (X2)	0.87428611	1	
Impact on Invenotry Perfromance (Y)	0.85103687	0.830704452	1

Table 9: Independent Variables Correlation

Source: (Author findings)

So, correlation coefficients serve as measures of how strongly different variables are related linearly. A positive correlation is shown by a linear correlation coefficient that is greater than zero. A value less than zero denotes an adverse association. Lastly, a value of 0 denotes that there is no correlation between the variables (Nickolas, 2021). By checking the Table 9 above it can be stated that there is a strong positive linear relationship between the variables changes in demand (X1) and logistical and supply chain constraints (X2) as from the Table 9 the relationship is around 90% and that the variables are showing strong influence on each other. Therefore, it can be concluded that changes in demand (X1) and logistical and supply chain constraints (X2) are responsible in affecting inventory performance.

4.7 Comparison of independent and dependent variables:

To understand more about the independent variables and how it is correlated with the dependent variable the following method has been used where a scatter plot is used with the trendline. On the X-axis the data of independent variable is used while on Y-axis the data of dependent variable is represented. The circular dots represent the data collected from the survey questionnaire while the linear trendline represents the relationship between independent and dependent variable.

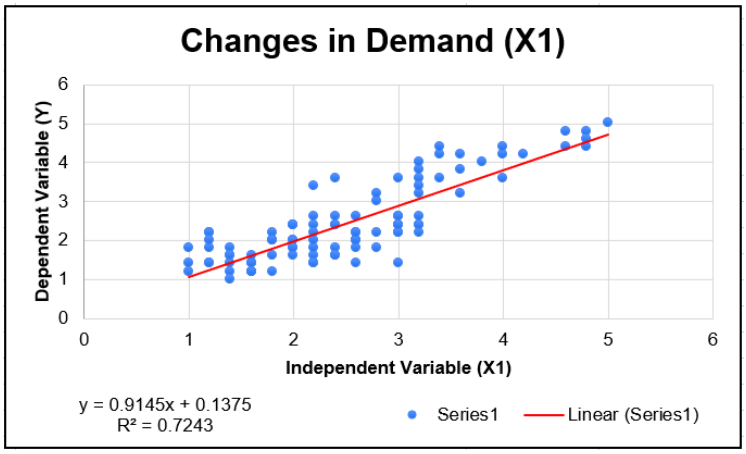
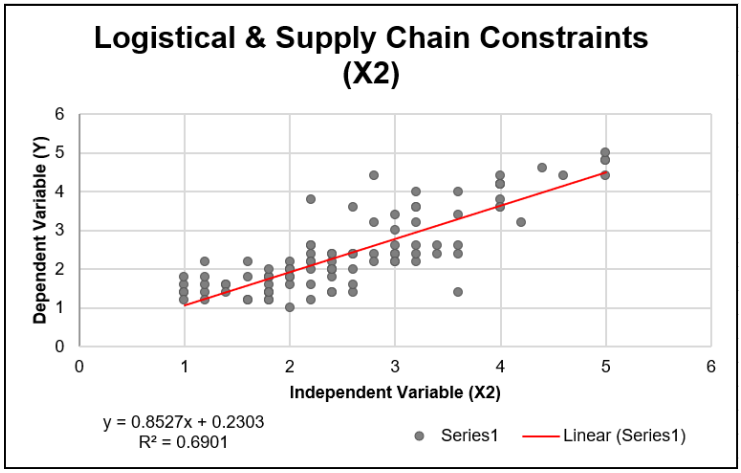


Chart 6: Comparison of Changes in Demand with Dependent Variable

Source: (Author findings)

In the above Chart 6, the independent variable changes in demand (X1) are compared with the dependent variable impact on inventory performance. From the above chart it can be observed that the linear trendline is moving upwards which states that the relationship between the independent variable changes in demand (X1) is positive with the dependent variable impact on inventory performance (Y) and it can also be said that as the demand changes the performance of inventory will also tend to change. Also, looking at the equation y = 0.9145x + 0.1375, it can be stated that independent variable change in demand impacts the inventory performance at a positive value of 0.9145 times change in the dependent variable at a constant value of 0.1375. It also means that if changes in demand impacts the dependent variable by one point, then it will return dependent variable as 1.052 times. Therefore, it can be concluded that changes in demand impact the inventory performance in the ecommerce industry.

Chart 7: Comparison of Logistical & Supply Chain Constraints with Dependent Variable



Source: (Author findings)

In the above Chart 7, the independent variable logistical & supply chain constraints (X1) is compared with the dependent variable impact on inventory performance. From the above chart it can be observed that the linear trendline is moving upwards which states that the relationship between the independent variable logistical & supply chain constraints (X1) is positive with the dependent variable impact on inventory performance (Y) and it can also be said that the inventory performance will change due to logistical and supply chain constraints. Also, looking at the equation y = 0.8527x + 0.2303, it can be stated that independent variable logistical & supply chain constraints impact the inventory performance at a positive value of 0.8525 times change in the dependent variable at a constant value of 0.2303. It also means that if changes in demand impacts the dependent variable by one point, then it will return dependent variable as 1.083 times. Therefore, it can be concluded that logistical & supply chain constraints impact the inventory performance in the ecommerce industry.

4.8 Discussion

This study has looked at the impact created by the Covid-19 pandemic on inventory management in the ecommerce industry. To find out the impact, the study has carried out a framework consisting of two independent

and one dependent variable and analyzed them using statistical tools such as regression, ANOVA, and correlation tests. All these statistical tools were applied to the hypotheses and the results were studied appropriately. From the regression analysis, the study found that from the R value which is 0.8695 that there is a strong positive relationship between changes in demand due to Covid-19 and the logistical and supply chain constraints during and after Covid-19 impacted the inventory performance. While the regression analysis also showed that the results of this study are reliable and statistically correct where significance F was less than the alpha 0.05. Also, the coefficient values of all three variables are positive and states that there is a positive relationship between changes in demand and logistical and supply chain constraints while both these independent variables are significant to the dependent variable which is impact on inventory performance. From the correlation test the variables show strong influence on each other and that both changes in demand due to Covid-19 and logistical and supply chain constraints during and after Covid-19 pandemic impacted the inventory performance in ecommerce industry.

4.9 Limitations and Future Scope:

This study is focusing on two factors which are also variables in this study which are changes in demand and the logistical and supply chain constraints in analyzing the impact on the inventory performance in the ecommerce industry. There are several factors which also contributed to affecting the inventory performance which are not considered in this study. The researcher believes that in the future there can be more factors which will affect the inventory performance and that further studies can be conducted in finding those factors and how they impacted the inventory performance in industry other than ecommerce as Covid-19 not only affected the ecommerce industry but many more sectors. The researcher believes that following three topics can be researched on in the future:

1. What different factors were responsible in affecting the inventory performance.
2. Most affected industries were impacted due to the pandemic.
3. How companies can make their inventory performance resilient to supply chain shocks.

5. Conclusion:

The aim of this research study was to study the impact on inventory performance and to find out what factors were responsible for impacting the inventory performance in the ecommerce industry. Therefore, this study considered two factors, mainly changes in demand which happened due to the Covid-19 pandemic and logistical and supply chain constraints that occurred during and after the Covid-19 pandemic. To study this the researcher developed a research framework consisting of independent and dependent variables and conducted a survey to gather the data required to have the conclusion for this study where the data from 100 supply chain professionals was collected who worked directly or indirectly in managing the inventory in ecommerce industry. The data collected was analyzed through regression, ANOVA & correlation tests and the analysis was used to prove if the hypotheses is accepted or rejected. From the survey it can be understood that the ecommerce professionals believe and experienced that the Covid-19 pandemic created an impact on the inventory

performance and that the companies believed that there is a need in ecommerce industry to build smarter and more dynamic supply chains along with having more visibility throughout the supply chains. The result of the study confirms that the changes in demand and logistical and supply chains constraints had an impact on inventory management in the ecommerce industry.

5.1 Managerial Implications:

This study can be a great starting point for ecommerce supply chain professionals to learn about inventory performance affecting factors such as changes in demand and logistical and supply chain constraints. From this study ecommerce companies should understand that it is important for them to work on building more dynamic and smarter supply chains to be prepared for such pandemic like situation in the future. Also, they should work on finding more local suppliers through which inventory can be secured easily when there are international issues going on such as Covid-19. And looking into the future there will be more sales on ecommerce websites rather than brick and mortar stores but there will be a need for companies to accept both the options to be competitive and more customer centric.

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