

A STUDY ON SUPPLY CHAIN STRATEGIES OF EXPORTERS OF GARMENT INDUSTRY POST-COVID-19 IN TIRUPUR CITY

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Abstract: The primary aim of the research is to study the impact of Covid-19 on supply chain strategies of exporters of the garment industry in Tirupur city. The garment industry is one of the vital motivations for financial and social advancement in the city (Paul et al., 2021). The study initiates with the descriptive statistics of the data to get better insights into the industry. The study has also tried to check the impact of Covid-19 on the organisation's supply chain management. Finally, the factor analysis is performed on the strategies created by the organisation to tackle the pandemic presented in this study.

Keywords: Covid-19, Garment Exporters, Supply Chain Strategies, Textile and Garment Industry, Tirupur District.

INTRODUCTION

The unprecedented crisis caused by the Covid-19 pandemic has brought severe disruptions in the business, livelihoods, economies and supply chain across the globe (Dohale et al., 2021). As per Deloitte (2020), the Covid-19 pandemic was responsible for the abrupt discontinuation of supply chains that eventually led to the closure of manufacturing facilities. Reports by World Bank further suggested that a contraction of global GDP levels of nearly 5.2% could be observed, leading to the "deepest global recession in decades". A huge upheaval in the supply chain structures was witnessed because they were lean and globalised which further made the supply chain more vulnerable to disruptions (Ivanov & Dolgui, 2020). Research further showed that industries that were most affected by the impact of the Covid-19 crisis were air and travel, hospitality, automotive, fashion and clothing, commercial aerospace; whereas a surge in demand for pharmaceutical products was witnessed (Yu, Razon & Tan, 2020; McKinsey & Co, 2020).

The textile and garment industry is considered a highly competitive industry with a huge profit margin as its unique selling proposition. Researchers have acknowledged that the rising competitiveness within the garment industry urges the companies to design supply chains to impart the needed competitive edge to sustain the market conditions. However, this also adds complexities in the supply chain, which are prone to huge risks during unprecedented and disruptive events such as the ongoing pandemic (Handfield et al., 2020).

The contribution of the textile and garment industry to the Indian economy cannot be emphasised enough. Approximately 7% of the industry products are produced by the apparel sector in India, which mark a contribution of 2% in the Indian economy and overall earnings of 15% (Dohale et al., 2021). Reports by NITI Aayog (2022) show that India is the second-largest manufacturer and exporter of textiles and garments across the globe. However, the Covid-19 pandemic severely impacted the supply chain management of the garment and textile industry in India, leading to a sharp decline in production and eventually huge financial losses. Reports by AEPC (2020) showed a decline in garments exports by nearly 91% in April, which further led to a contraction of about 26% in the garment sector's overall earnings. It is important to understand the impact of Covid-19 on the supply chain strategies of exporters of garments in India.

STATEMENT OF PROBLEM

There is ample evidence that shows the efforts taken by various researchers in addressing crucial aspects of supply chain management, which includes risk identification, management and elimination of bottlenecks and overall sustainability across global supply chain operations (Kanupriya, 2021; Ali, Rahman & Frederico, 2021; Majumdar, Shaw & Sinha, 2020). However, the Covid-19 pandemic has exposed a major gap showing the limitations of even the best supply chain structures. Research shows that during the initial onset of the pandemic, none of the traditional strategies related to robustness surplus inventory, redundant capacity, agility

and flexibility could help cope with the crisis (Majumdar et al., 2020). Therefore, disruption in supply chains in any form leads to gaps and risks in logistics management. As such, it is crucial to understand the strategies adopted by the garment exporters to ward off the disruptions caused due to pandemics. The current study takes the case of the garment industry located in Tirupur district in Tamil Nadu, India, to examine the impact of Covid-19 on the supply chain strategies of garment exporters in the region. While there is extant literature that has focused on the garment industry in Tirupur, there is limited evidence suggesting investigation of supply chain strategies adopted by garment exporters during the pandemic (Rajasekaran and Gokilavani, 2013; Sangeetha, 2020; Arthi and Naagarajan, 2018; Annamuthu et al., 2021).

OBJECTIVES OF THE STUDY

- ❖ To study the impact of Covid-19 on supply chain management of the garment industry in Tirupur District.
- ❖ To study the supply chain strategies adopted by garment units during the Covid-19 pandemic in Tirupur District.
- ❖ To offer suggestions based on the study

RESEARCH METHODOLOGY

The study is based on the purposive sampling method. The author has collected primary data by approaching the employees working in the various textile companies situated in Tirupur. The researchers have adopted quantitative analysis by using the questionnaire method. The secondary data analysis has been done by referring to existing literature available in journal articles, websites, news articles, books and other online material.

❖ Area of study

The study has been conducted among textile employees in the Tirupur district of Tamil Nadu.

❖ Sample Size

The researchers approached 200 respondents through the study. The response was received from 148 individuals, thereby providing a response rate of 74%.

❖ Duration of the study

The study was undertaken for 2 months (December 2021-February 2022).

❖ Statistical tools used for the study

The following statistical tools have been used to analyse the primary data

- Descriptive Statistics
- Chi-square tests
- Factor Analysis

❖ Limitations of the Study

- The responses could not be gained from a larger audience.
- The study has only considered the textile units located in the Tirupur district only.

ANALYSIS AND INTERPRETATION

Analysis and interpretation are the processes of assigning meaning to the collected information and determining the findings' conclusions, significance, and implications.

Descriptive Statistics

To better understand the impact of Covid-19, it is necessary to observe the descriptive analysis, which shows better insights.

Table 1 Descriptive summary

Age	Frequency (%)	Designation	Frequency (%)
Below 25	23(15.5)	General manager	43(29.1)
26-35 years	53(35.8)	Manager	45(30.4)
36-45 years	42(28.4)	Human resources	43(29.1)
Above 45 years	30(20.3)	Others	17(11.5)
Gender		Experience	
Male	84(56.8)	0-3 years	53(35.8)
Female	64(43.2)	3-8 years	46(31.1)
		Above 8 years	49(33.1)

The above table depicts the summary of the respondents. The majority of the participants (64.2%) were aged between 26 to 45 years, while a few were above 45 years. Also, respondents were preponderant of the male gender (56.8%). Most of the respondents (35.8%) have a working experience of 0 to 3 years, while participants (33.1%) had more than 8 years of experience.

Table 2 Qualification of the respondents

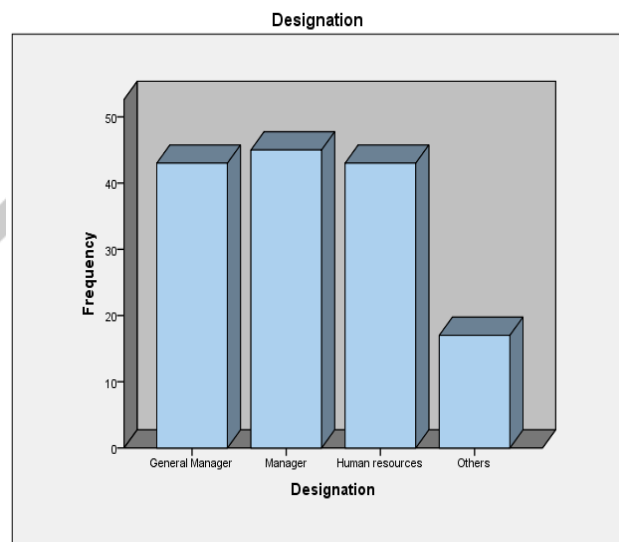
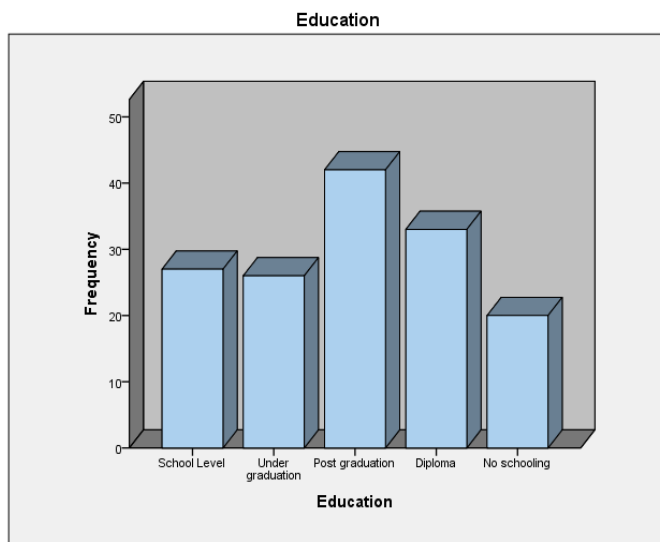
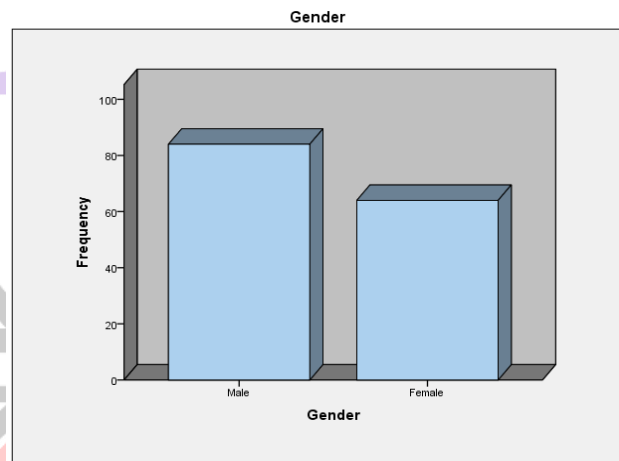
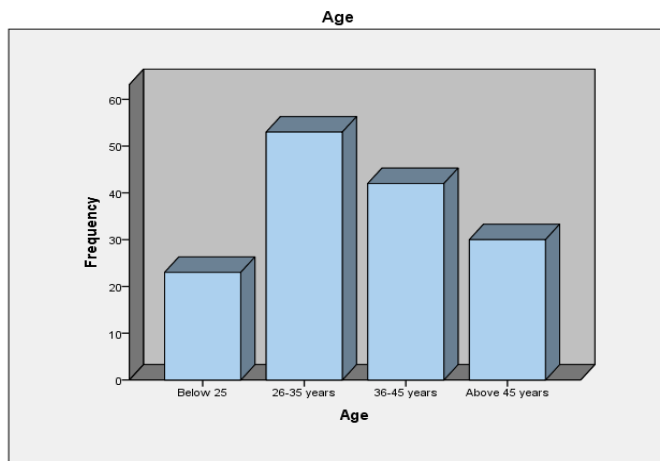
Qualification	Frequency (%)
School-level	27(18.2)
Under graduation	26(17.6)
Post-graduation	42(28.4)
Diploma	33(22.3)
No schooling	20(13.5)

Table 2 illustrates the qualification of the respondents. 28.4% were post-graduation, while 22.3% had done diploma courses and 13.5% had no schooling.

Table 3 Annual revenue

Annual revenue	Frequency (%)
Above 50 lakhs	40(27)
30-50 lakhs	27(18.2)
10-30 lakhs	37(25)
Below 10 lakhs	44(29.7)

The above table shows the annual revenue of the organisation. It can be observed that 29.7% of the organisation had annual revenue below 10 lakhs, while 27% had annual revenue above 50 lakhs.



Impact of Covid-19 on supply chain

This section shows how the Covid-19 impacted the supply chain management of the garment industry. In recent times, supply chain management has been going through a tough time, and it will take a lot of effort and time to bounce back and show a significant performance after the pandemic (Handfield et al., 2020).

Table 4 Impact of Covid-19

Covid-19 Affected the organisation	Frequency (%)
Highly affected	38(25.7)
Affected	34(23)
Somewhat affected	42(28.4)
Not affected	34(23)

The majority of the respondents agreed that their organisation is affected by the pandemic in one or the other way. Additionally, it was observed that the extent of the impact varies from one supply chain to another, according to the activities that they provide.

Table 5 Areas affected by the pandemic

Areas affected by Covid-19	Frequency (%)
Inventory management	35(23.6)
Warehouse & Distribution	25(16.9)
Manufacturing	30(20.3)
Logistics	36(24.3)
Supplier network	22(14.9)

It can be observed from the above table that the most affected area was logistics and inventory management. On the other hand, the manufacturing and supplier network was equally disrupted by the pandemic. Thus, it can be said that all the areas of the supply chain management had equal impact due to the pandemic.

Table 6 Impact of the pandemic on the revenue

Impact on revenue	Frequency (%)
Decrease by 5-10 per cent	35(23.6)
Decrease by 1-5 per cent	25(16.9)
Increase by 1-5 per cent	30(20.3)
Increase by 5-10 per cent	36(24.3)
No impact	22(14.9)

The null and alternative hypothesis for testing whether there is a relationship between gender and the impact of Covid-19 is-

H₀: There is no relationship between the gender and impact of Covid – 19

H₁: There is a relationship between the gender and impact of Covid – 19

Table 7 Cross tabulation

Impact of Covid-19	Gender		Total
	Male	Female	
Highly affected	24	14	38
Affected	19	15	34
Somewhat affected	22	20	42
Not affected	19	15	34
Total	84	64	148

The above table presents the cross-tabulation of gender and the impact of the pandemic.

Table 8 Chi-square tests

	Value	df	Sig
Pearson Chi-square	0.983	3	0.805
Likelihood ratio	0.99	3	
Valid cases	148		

Since the p-value (0.805) is more than 0.05, therefore the null is not rejected, and it can be concluded that there is no relationship between gender and the impact of the Covid-19 on the organisation.

Strategies adopted during Covid-19

The following section highlights the strategies that the organisation adopted during the pandemic.

Table 9 Strategies adopted by the organisation

Strategies adopted by the organisation	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Flexibility of price	38	40	32	21	17
Increment of agility	28	47	33	17	23
Cheaper rates to attract more buyers	40	40	31	22	15
Flexible work shifts	34	23	38	23	30
Use of AI and big data	35	38	34	21	20
Adjustments of supply chain design	35	31	33	28	21
To look for alternative buyers	33	36	39	20	20
E-commerce enablement	37	26	29	36	20
Using analytics to predict the requirements	35	33	37	21	22
Health & safety training to the staff	29	40	31	21	27

From the above table, it can be said that most of the organisations had developed strong strategies to tackle the pandemic. They achieved good performance by making the price flexible, cheaper rates to attract more buyers, using artificial intelligence and big data, and giving the staff health & safety training. Therefore, it can be interpreted that most of the respondents agreed that their organisation was somewhat prepared to tackle the pandemic, giving them better results in terms of the market.

Factor Analysis

This section will represent the factor analysis for the strategies planned by the organisation to handle the Covid-19. The results of the factor analysis can be seen in this section.

Table 10 Total variance explained

Component	Initial Eigenvalues			Extraction sum of squared loadings		
	Total	Per cent of the variance	Cumulative per cent	Total	Per cent of the variance	Cumulative per cent
1	1.493	14.925	14.925	1.493	14.925	14.925
2	1.234	12.34	27.265	1.234	12.34	27.265
3	1.202	12.024	39.289	1.202	12.024	39.289
4	1.126	11.262	50.551	1.126	11.262	50.551
5	1.011	10.112	60.663	1.011	10.112	60.663
6	0.918	9.184	69.847			
7	0.879	8.794	78.641			
8	0.804	8.04	86.681			
9	0.695	6.948	93.629			
10	0.637	6.37	100			

The above table shows the total variance explained by the variables. Only 5 components have Eigenvalues of at least 1, while the other components have low scores, which cannot assume to represent the real entity, which can also be observed through the Scree plot.

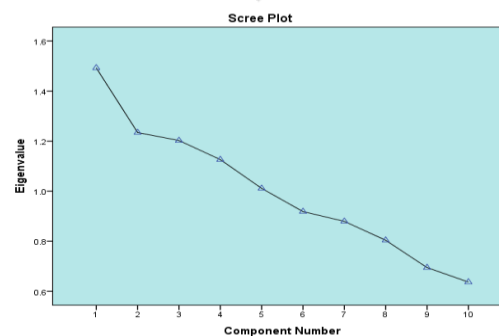


Figure 1 Scree plot

Table 11 Communalities

Communalities	Initial	Extraction
Flexibility of price	1	0.610
Increment of agility	1	0.560
Cheaper rates to attract more buyers	1	0.633
Flexible work shifts	1	0.576
Use of AI and big data	1	0.580
Adjustments of supply chain design	1	0.665
To look for alternative buyers	1	0.674
E-commerce enablement	1	0.578
Using analytics to predict the requirements	1	0.611
Health & safety training to the staff	1	0.578

The variables with low commonalities don't contribute much and can be ignored. Thus, many variables have a high communality value, so if we predict the flexibility of price by 5 components, the r square will be 0.610.

SUGGESTION

- ❖ There is a need to develop a comprehensive strategy that considers inter-linkages within the supply chain and the ability to proactively ward off any unprecedented crisis.
- ❖ While it is easier to adopt the inclusion of big data and advanced technologies to survive the impact of the pandemic, the strategies must consider the employment and social aspects, especially for small and medium scale enterprises, so that livelihoods can be retained in the hour of crisis.
- ❖ The supply chain strategies must consider guidelines by ILO (2017) that advocate occupational and worker safety. This is recommended since it is known that private companies tend to ignore the welfare of workers in the interest of scaling up production levels to maintain competitiveness in the market. Therefore, the supply chain strategies must consider worker welfare and safety as they can be a significant contributor to the overall production and reputation of the company.
- ❖ A study by Kanpuriya (2021) also recommends resorting to government aids, particularly imparting concession to exporters against Remission of Duties and Taxes on export products so that the exporters are compensated for unpaid taxes and duties.

CONCLUSION

The study aims to analyse the status of exporters of the garment industry in India amidst the disruptions caused by the Covid-19 pandemic. In particular, the study investigates the impact of Covid-19 on supply chain management of the garment industry located in Tirupur district in India and the consequent strategies adopted by exporters to ward off the impact of the pandemic in the region. While the Indian textile sector posits strong potential in putting the country in a lucrative spot on the global map, the impact of Covid-19 has dented the growth prospects of the sector significantly. In particular, the disruptions witnessed in the supply chain management within the garment industry shows the unpreparedness and reliance on traditional measures to manage the supply chain. However, the pandemic crisis has led to the realisation that companies need to be more proactive and strategic about their logistics and inventory management to insulate themselves from the economic and financial losses during such unprecedented events. A sound supply chain management system is critical for income generation not only for a business but for the sector which represents the country. Therefore, if the companies focus on rebuilding their supply chain through a holistic perspective that includes employee welfare, the prospects of running the business profitably can improve.

REFERENCES

- AEPC (2020). 'Our Council is entering into medical textiles in a big way: Apparel India. [online] Available at: https://www.aepcindia.com/sites/default/files/ceaZine/AEPC%20July%202020_0.pdf [Accessed 4 Mar. 2022].
- Ali, M., Rahman, S.M. and Frederico, G.F. (2021). Capability components of supply chain resilience for readymade garments (RMG) sector in Bangladesh during COVID-19. *Modern Supply Chain Research and Applications*, ahead-of-print(ahead-of-print).
- Annamuthu, D.P., Rufy, A. D., Vijayan.M, L., Hemalatha, R. and Naveena, D. (2021). A Study on the Obstacles Confronting by the Garments Exporters in Tirupur District. *Nat.Volatiles & Essent. Oils*, [online] 8(5), pp.4956–4962. Available at: <https://www.nveo.org/index.php/journal/article/view/1521/1328> [Accessed 4 Mar. 2022].
- Arthi, R. and Naagarajan, R. (2018). Health Security of Migrant Workers in Tirupur Garment Industry - An Econometric Analysis. *Shanlax International Journal of Economics*, 6(2), pp.27–43.
- Deloitte (2020). *COVID-19 Managing supply chain risk and disruption ii COVID-19: Managing supply chain risk and disruption*. [online] Available at: https://www2.deloitte.com/content/dam/Deloitte/ca/Documents/finance/Supply-Chain_POV_EN_FINAL-AODA.pdf [Accessed 4 Mar. 2022].
- Dohale, V., Verma, P., Gunasekaran, A. and Ambilkar, P. (2021). COVID-19 and supply chain risk mitigation: a case study from India. *The International Journal of Logistics Management*, ahead-of-print(ahead-of-print).

- Handfield, R., Finkenstadt, D.J., Schneller, E.S., Godfrey, A.B. and Guinto, P. (2020). A Commons for a Supply Chain in the Post-COVID-19 Era: The Case for a Reformed Strategic National Stockpile. *The Milbank Quarterly*, 98(4), pp.1058–1090.
- ILO (2020). *COVID-19 and the textiles, clothing, leather and footwear industries*. [online] www.ilo.org. Available at: https://www.ilo.org/sector/Resources/publications/WCMS_741344/lang--en/index.htm [Accessed 4 Mar. 2022].
- Ivanov, D. and Dolgui, A. (2020). Viability of intertwined supply networks: extending the supply chain resilience angles towards survivability. A position paper motivated by the COVID-19 outbreak. *International Journal of Production Research*, 58(10), pp.1–12.
- Kanupriya (2021). COVID-19 and the Indian Textiles Sector: Issues, Challenges and Prospects. *Vision: The Journal of Business Perspective*, 25(1), p.097226292098458.
- Kumar Paul, S., Chowdhury, P., Abdul Moktadir, Md. and Hung Lau, K. (2021). Supply Chain Recovery Challenges in the Wake of COVID-19 Pandemic. *Journal of Business Research*, 136, pp.316–329.
- Majumdar, A., Shaw, M. and Sinha, S.K. (2020). COVID-19 Debunks the Myth of Socially Sustainable Supply Chain: A Case of the Clothing Industry in South Asian Countries. *Sustainable Production and Consumption*, 24.
- Majumdar, A., Sinha, S.K., Shaw, M. and Mathiyazhagan, K. (2020). Analysing the vulnerability of green clothing supply chains in South and Southeast Asia using fuzzy analytic hierarchy process. *International Journal of Production Research*, 59(3), pp.752–771.
- McKinsey & Co (2020). *Covid-19 Briefing Materials: Global Crisis and Response*. [online] Available at: <https://www.mckinsey.com/~media/McKinsey/Business%20Functions/Risk/Our%20Insights/COVID%2019%20Implications%20for%20business/COVID%2019%20July%209/COVID-19-Facts-and-Insights-July-6.pdf> [Accessed 4 Mar. 2022].
- NITI Aayog (2022). *Annual Report 2021-22*. [online] www.niti.gov.in. Available at: https://www.niti.gov.in/sites/default/files/2022-02/Annual_Report_2021_2022_%28English%29_22022022.pdf [Accessed 4 Mar. 2022].
- Rajasekaran, M. and Gokilavani, S. (2013). A Study on Supply Chain Strategy of Exporters- with Reference to Hosiery Product Export in Tiruppur City, Tamil Nadu State. *Global Journal of Management and Business Studies*, [online] 3(7), pp.725–732. Available at: https://www.ripublication.com/gjmbs_spl/gjmbsv3n7_05.pdf [Accessed 4 Mar. 2022].
- Sangeetha, R. (2020). A Study on Marketing Strategies of Garment Industry with Special Reference to Tiruppur. *International Journal of Research and Review*, [online] 7(2), pp.230–234. Available at: https://d1wqtxts1xzle7.cloudfront.net/63116725/IJRR003620200427-691-xdvy99-with-cover-page-v2.pdf?Expires=1646365844&Signature=J6ty02Lmvr~Jg2qGwWeZp1F3IrWqyPDDMsIYSsmgde7uID-PdmHp2DkL0PGUQBburYIUj660ST8dolEtMJz5JShRsGDLhJH0XLvWjmyb6CrKa-izI-mN2zvuEDcpW-rD157OyoSoGhy2Bmg57~ahzUo0-WPJwKrLtnZtqq9COXKoROX~KTMh2iW0NpHeIv~k2j-9rrJ2UAnJUQnPma2k9K-36O48DA4h4FNLzCJIzUAmty0h2Z7vpQ5ikQNf04ZKNxfGbroBM49dNa2~RHyPTU~x-iwdbK9n81gadRBeOFBbzQxge2YYMTJpKU5uXcsiN7OWB5L8Kq3V5NTMHx4uQ__&Key-Pair-Id=APKAJLOHF5GGSLRBV4ZA.
- Yu, D.E.C., Razon, L.F. and Tan, R.R. (2020). Can Global Pharmaceutical Supply Chains Scale-Up Sustainably for the COVID-19 Crisis? *Resources, Conservation and Recycling*, p.104868.