

The Impact of Covid-19 on Textile and Fashion Industries: The Economic Perspective

Febristi Arania¹, Irley Maura Putri¹ and Muchammad Saifuddin¹

Management, UIN Sunan Ampel Surabaya, Indonesia

Correspondence author: febristi.fa@gmail.com

ABSTRACT:

The COVID-19 pandemic has not only had an impact on the health sector but also on the economy. Before the pandemic, the textile and fashion industry produced various kinds of fashion needs involving all its employees. In Indonesia, the textile and fashion industry are one of the most significant contributors to the state revenue. However, during the pandemic, the textile and fashion industry sector decreased the amount of production. The aim of this research is to determine the impact of Covid-19 on the textile and fashion industry from the economic perspective. This research is conceptual research by reviewing 30 related journals. Not only does it lead to a declining demand, but the pandemic also causes textiles and fashion to be eliminated from the society's basic needs since people shifts their priorities to food and health sector. In conclusion, companies must be able to collaborate, to be flexible, and to be innovative in strategy. In addition, the government must reduce imports and apply import duties to support the collaboration.

Keywords:

Covid-19, Textile and Fashion Industry, Marketing and Supply Chain

ARTICLE INFO

Article History:

Received 14 Oct 2021

Revised 28 Feb 2022

Accepted 04 Mar 2022

Available online 20 Mar 2022

1. INTRODUCTION

Covid-19 pandemic was initially started in China. It has claimed the lives of more than 50,000 people worldwide, with nearly three-quarters of the deaths reported in Europe. The United States has written more than 10,000 deaths. Covid-19 pandemic is not only a health issue, but it also political, social, and even economic issues. In Indonesia, two people were confirmed to be infected by Covid-19 in March 2020 (*Covid Map: Coronavirus Cases, Deaths, Vaccinations by Country - BBC News*, n.d.). To prevent the spread of the Covid-19 virus, the government made a government regulation policy no. 21 of 2020 implements the policy of Large-Scale Social Restrictions, Social Distancing, Work From Home (WFH). Moreover, several other countries implemented a "lockdown" policy or locked down their country. Indonesia did not do a lockdown or a total lockdown as it would impacted another sectors besides the health sector. However, the government still closes access to go out of the country and to enter the country. As a result of this restrictive policy, many shopping centers were forced to close. This is where the challenge for the government as a policymaker. On the one hand, they want to restore health conditions but it will make economic conditions decline. However, they also want to maintain the economic conditions while the virus are spreading. The handling of Covid-19 must indeed be carried out quickly by considering its rapid widespread as the world economy is also a victim.

According to the analysis of Professor Carlos Cordon in (Lathifah, 2020a), a supply chain expert from the Institute for Management Development (IMD) explained that several issues are the impact of Covid-19. First, there is panic buying in various regions of the country. The Association of Indonesian Advisory Board of Shopping Center Tenant (HIPPINDO) stated that three panic periods of purchases occur in Indonesia. The first case happened on March 2, 2020, when the first case of COVID-19 in Indonesia appeared. The second case happened on March 14-16, 2020 when many agencies were called for working from home. The third case happened on March 19 2020 by the starting of the intensive information about the planned implementation of lockdown (Bappenas, 2021). The panic buying caused the emergence of public concerns that basic commodities would run out when they were quarantined in their respective homes (Wahyu et al., 2021). The impact of the drastically increasing demand resulted in prices rising, and there were groups of people who did not get a share. Second, there is an increasing demand for some products as health products are everyone's top priority. As a result, the demand for disinfectant products, hand sanitizers, masks, Covid-19 test kits, and personal protective equipment has increased dramatically and some people take advantage of this momentum. Third, the closure of factory production is unavoidable when the only available Covid-19 prevention effort is physical distancing. As the result, many companies temporarily have to close their company operations. The closure was due to the mass lay off and resulted in the dismissal or reduction of employees. Fourth, the increasing demand for workers in the distribution and logistics sector caused the distribution of basic needs and it required many human resources abruptly. Fifth, the global economic recession was caused by the damage from both supply and demand sides. Those reasons impact the economy, such as the decrease in people's income, the

reduction in consumer demand, the potential for bankruptcy, and the increase in unemployment, especially for the informal sector workers. This is due to the decrease in output due to the restrictions on people's movements and activities, as well as the disruption in supply chain (Safitri et al., 2020)

The pandemic now also affects in major textile and apparel producing countries in Asia and causes different impacts on different nodes of the global supply chain. Globalization which has ensured the fulfillment of all the basic needs of a country has now been threatened and destroyed by Covid-19. Many countries have limited interaction between countries with each other by prohibiting the foreigners to make a visit. Covid-19 pandemic has changed people's behavior in daily shopping and changes in priority needs. Several changes occur and have a significant impact on global supply chains and how each country is trying to adapt to the changing conditions. (Chowdhury et al., 2021)

One of the industries affected by the pandemic is the textile and fashion industry. As the top 10 commodities in Indonesia, these industries play an important role in economic growth, poverty alleviation, and job creation. Before the pandemic, the textile industry sector also experienced a decline in competitiveness due to high energy and logistics costs, low productivity, and layered downstream legal and tax issues. During the pandemic, the textile and fashion industry sector was the most affected industry among other manufacturing industry sectors although this sector is favored by many entrepreneurs as many as 323 industries recorded by the Ministry of Industry. In 2019, the textile and apparel industry showed a brilliant performance by recording a growth rate of 15.35%. Moreover, this sector has become a mainstay (WTO | Press Release 2020 - Trade Will Drop as the COVID-19 Pandemic Shakes the Global Economy - Press/855, nd-a) in the 2015-2035 National Industrial Development Master Plan (RIPIN) and which development is prioritized based on the Map Making of Indonesia 4.0 Road (Bappenas, 2021)

In the early phase of the pandemic, slowing China raw material supplies harmed the production in Indonesia, Cambodia, and Sri Lanka. China, as the major supplier of textile and fashion raw materials, has locked the country. Thus, the supply of several countries is also disrupted, especially the supply of raw materials in the Asian region such as Sri Lanka and Myanmar as the center of apparel manufacturing which 90 percent of their raw materials supply depends on China. In addition, as the producer of textile and fashion, this condition in China also affects the apparel industry. In America, about 40 percent of clothing comes from China (Leitheiser et al., 2020a). Currently, some predictions suggest that China could lose its role as a supply chain center for countries such as Brazil, Mexico, and several Southeast Asian countries (Lathifah, 2020b). This is especially true for companies with a lean and global supply chain structure. Another facts report that 94% of the 1000 companies listed on Fortune's list have experienced supply chain disruptions triggered by COVID-19. As a result, companies must reorganize supply chains by increasing resilience and re-examine relationships with suppliers to reduce systemic risk (McMaster et al., 2020). During the Covid-19 pandemic, companies

must be able to adapt to new environmental changes. Company leaders as policymakers must be able to determine what strategic steps should be used. This study aims to further study the impact of the Covid-19 pandemic on the textile and apparel fashion industry sector, especially in the territory of Indonesia.

2. LITERATURE REVIEW

In this study, the literature perspective used is the theory that forms the basis for research and also literature review through national and international research journals that discuss the impact of COVID-19 on the textile and clothing industry sector on the economy.

Table 1. The impact of COVID-19 on the textile and clothing industry sector

Impact area	Specific impact	References
Demand issues	Demand for textiles decreased	(Sari, 2021); (Wulandari & Darma, 2020); (McMaster et al., 2020); (Leitheiser et al., 2020b); (Risti Ade Putra, n.d.)
	Textile industry workers who were affected by labor housing or labor reductions	(Daneswari, 2020; Muhammad, 2020); (Prasetio, 2020); (Leitheiser et al., 2020b); (Perdagangan & Prima, 2015)
Finance issues	Financial losses in the textile and fashion industry	(Ivanov & Das, 2020); (Kumar & Kumar, 2021); (Hakovirta & Denuwara, 2020); (Guan et al., 2020); (<i>Kas Tertekan, 700 Perusahaan Tekstil Sulit Bayar Kredit</i> , n.d.); (<i>Imbas Gagal Bayar Utang, Sritex Didepak Dari 4 Indeks Saham</i> , n.d.); (<i>Resiliensi Industri Di Tengah Pandemi – Fakultas Ekonomi Dan Bisnis Universitas Brawijaya</i> , n.d.)
Supply chain issues	The decline in demand for the textile industry capacity	(Prasetio, 2020); (Kemenperin: <i>Lampau 18 Persen, Industri Tekstil Dan Pakaian Tumbuh Paling Tinggi</i> , n.d.); (Perdagangan & Prima, 2015);
	The disproportionate decline in US cotton exports to Indonesia	(Prasetio, 2020); (Chowdhury et al., 2021); (Budi Basuki & Bank Mandiri Persero Tbk, 2016); (Yofa et al., 2020)

Studies from (Sari, 2021) and (Wulandari & Darma, 2020) as displayed in Table 1 show that the effect of Covid-19 was felt by MSMEs in the textile sector because their

products are usually marketed traditionally in tourism places. Since it was closed as the impact of the pandemic, MSMEs are forced to seek marketing alternatives through internet marketing channels such as e-commerce. In addition to marketing problems, there are also supply chain management problems. Research from (McMaster et al., 2020) and (Leitheiser et al., 2020b) found that countries exporting raw materials and importing countries could not run properly during the lockdown. China, as the ruler of the textile raw material export market, has locked up its country so that some importing countries do not get supplies of textile raw materials. In addition, several countries have also experienced the same thing to the point of maintaining the safety and health of some companies (*Risti Ade Putra*, n.d.). Only a few employees who have important positions and strategies can be hired, such as employees who know about digital marketing technology.

To prevent the spread of the virus, governments have enforced full or partial lockdowns around the world, restricting vehicle movements; such as measuring the significant impact on suppliers' ability to deliver items on time to customers (Ivanov & Das, 2020). Companies in today's globalized world source commodities from all around the world. Even if a company's primary suppliers are domestic, its tier 2 or tier 3 vendors are almost certainly situated abroad. As a result, manufacturers have experienced supply shortages due to the abrupt suspension of overseas suppliers' operations under local restrictions imposed by lockdowns.

In another study, (Misbahul et al., 2020) and (Chakraborty & Biswas, 2021) stated that due to the quiet textile market, they racked their brains to produce goods that have high demand, such as masks and Personal Protective Equipment (PPE). This is done to maintain the company's finances and employees. In a study (Kumar & Kumar, 2021), it is stated that the Indian government also helps the existence of textile companies through a policy of retribution rebates in the international market and credit assistance to revive their textile business.

3. METHODS

The research methodology was a descriptive qualitative method. It is based on the secondary data from study results and literature references to data obtained through a literature review of scientific journals and research-related information. The types of data used are qualitative and quantitative data from online journals and news. 30 Journals, online news, and other literatures have been researched for their creation and several journals are very important for this article. The literature used is related to the topics of fashion, textiles, Covid-19, and also supply chains. The results of several reviews will be used to identify the impact of Covid-19 on the textile and fashion industry.

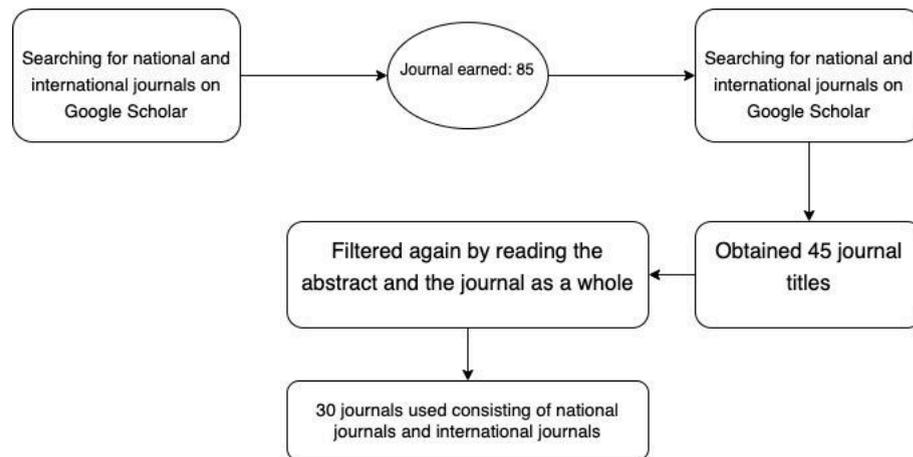


Figure 1. Searching methodology for finalizing the articles for analysis.

Figure 1 explains that the first step is to find the international and national journals. At the collection step, a total of 85 journals were obtained to be classified. In the second step, the journals were selected based on the title, abstract, section, and issues that were discussed in the journal into 45 journals. In the third step, to get more detailed references, it is necessary to re-select journals with more attention to abstracts and discussion. As the implication, 30 journals can be obtained as the main references. To support this research, it also includes data from several sources such as websites, online news, and other literacy sources related to this research.

4. RESULTS AND DISCUSSION

4.1 Economic Growth Data

The government's policy so that people do not leave their homes affects economic conditions that cause a decrease in supply and demand. As can be seen in Figure 2, Indonesia and even the whole world experienced a slowdown in the economy. In Indonesia itself, it experienced a slowdown of 2.07% as of the end of 2020. The Indonesian economy is in the category of the recessionary abyss since the growth rate is negative in two consecutive quarters. However, the international institutions such as theWorld Bank, OECD, and International Monetary Fund (IMF) project state that the slowdown in economic growth in Indonesia is relatively smaller than in countries in Europe, the USA, and Japan. The latest estimation shows that the trading volume declined between 13% and 32% in 2020 (WTO | 2020 Press Releases - Trade Set to Plunge as COVID-19 Pandemic Upends Global Economy - Press/855, n.d.), the global growth fell to -3% (International Monetary Fund, 2020) and various maritime scenarios ranged from a return to the sector average (approximately 3% pa) after 2022 to a declining growth rate of 17% by 2024.



Figure 2. Economic Growth Rate in Certain Countries

Source: Report of PT Sarana Multi Infrastruktur

The limited mobility of people during the pandemic has caused a decline in demand for the manufacturing industry. At the same time, the manufacturing industry can contribute 19.87% to the economy in Indonesia. The growth of the manufacturing industry in the second quarter of 2020 decreased by 6.19%.

4.2 Demand Issues

Economic problems due to the Covid-19 pandemic can be seen from the demand side. On the demand side, the Covid-19 pandemic has reduced the consumption and trade sectors. In 2020, the domestic demand for textiles decreased by 50 percent, so there were around 2.1 million textile industry workers who were affected by labor housing or labor reductions. The reduction was made because there was no demand, which resulted in a decrease in the production process and a non-current company cash flow.

Although domestic demand for textiles and apparel has decreased, imports of textiles and apparel in Indonesia during the Covid-19 pandemic increased. According to the Indonesian Central Statistics Agency (BPS), in May 2020, the import value of special woven fabrics stood at US\$ 12,797,291 with a total of 922,029 Kg. This type of fabric includes frayed textile fabrics, lace, wall rugs, decorations, and embroidery. Also, imports of textile goods suitable for industrial use reached US\$ 38,798,172 with a capacity of 4,900,044 Kg. This type includes impregnated, coated, covered, or laminated textile fabrics. However, it does not mean that other segments are not monitored by Chinese manufacturers. There is also a potency that is starting to be seen, namely ready-made textile goods. BPS data shows that in May 2020, the value of this commodity reached US\$ 37,256,567 with a total of 1,907,540 Kg.

4.3 Finance Issues

Contraction in supply chain financial performance (Ivanov & Das, 2020) and total cash in flow (Hakovirta & Denuwara, 2020) are documented in the examined publications in terms of financial management or performance domain. Two studies (Guan et al., 2020) investigated at how these losses change as a result of other factors

such as restriction measures and length. According to the data research, the amount of financial losses is mostly driven by the number of countries that adopt lockdown or restriction measures, as well as the length of time that these limitations are in place, rather than the severity of such measures (Guan et al., 2020). The magnitude of losses is also determined by the timing of facility closures and reopenings at various levels of a supply chain (Ivanov & Das, 2020). As a result of these performance cutbacks, the global gross domestic product is anticipated to fall by 12.6 percent in 2020, with the global shutdown raising that figure to 26.8% (Guan et al., 2020)

Before the Covid-19 pandemic, several textile companies listed on the IDX also had problems in their cash flow. Financial statements are one of the important indicators for companies to find out the company's position. Financial statements are generally in the form of cash flow. Secretary-General of the Indonesian Filament Yarn and Fiber Association (APSyFI) said that more than 50 percent or around 700 companies are having difficulty paying loan installments to banks currently. Cash flow is still depressed due to the Covid-19 pandemic (*Kas Tertekan, 700 Perusahaan Tekstil Sulit Bayar Kredit*, n.d.). One of the biggest textile companies in Indonesia with financial problems is PT Sri Rejeki Isman (SRIL) or commonly called Sritex. The Sritex company has already a fairly large amount of outstanding debt starting from 2021 until 2022. Throughout 2020, Sritex's cash flow was at a minus number. As reported by (*Imbas Gagal Bayar Utang, Sritex Didepak Dari 4 Indeks Saham*, n.d.), Sritex is currently in the gray stage because it has the status of Debt Payment Obligation Suspension (PKPU).

Besides Sritex, there is a giant textile company that also experienced disruptions in its cash flow, namely PT PAN Brother Tbk (PBRX). Currently, Pan Brother has filed a debt restructuring against the Singapore court for its debt of Rp 4.36 Trillion. Debts to creditors in Singapore have been successfully postponed until July 1, 2021. Domestically, PT PAN Brother has also been sued by PT Maybank Indonesia Tbk to PKPU for a total debt of Rp. 4.16 billion with an interest rate of Rp. 446 thousand.

4.4 Supply Chain Issues

In addition to demand problems, the global market is also experiencing supply chain problems. At the global level, the textile industry needs more world fabrics to depend on China. For example, in Bangladesh, 70 percent of the raw fabric materials come from China, and 90 percent of the fabric in the garment industry comes from China.

In Figure 3, Indonesia has decreased in demand for the textile industry capacity. Indonesia's cotton imports for the January-July 2020 period fell 20 percent to 302,370 tons (equivalent to 1,389 bales). This figure slightly decreased compared to 379,203 tons (equivalent to 1,742 bales) during the same period in 2019. Following a record year for the US cotton exports in 2018, and a moderate decline in 2019 as a result of high residual stocks and sluggish domestic demand, Indonesian cotton imports from the US fell by 32% to 109,081 tonnes (equivalent to 501 bales) from 161,004 tonnes (equivalent to 739 bales) imported during the same period in 2019.



Figure 3. Cotton Data Import From US

Sources: USDA GATS

The disproportionate decline in US cotton exports to Indonesia was partly due to rising US cotton prices as a result of demand resulting from the implementation of the Phase One trade agreement between the United States and China. The increase for US cotton imported from China, which increased dramatically in June–August, has pushed Indonesian buyers toward more competitive supplies from Brazil and Africa. (McMaster et al., 2020)

5. DISCUSSION

Indonesia is an integrated textile-producing country and included in the top 10 textile-producing countries. Indonesia is also ranked in 12th position as the exporter of textiles and apparel. Its target export areas include the Americas, the European Union, and the Middle East. The first largest textile exporter is China with more than 50% control of the territory because China has taken a serious part in exporting the raw textile materials such as cotton, fiber, yarn, and apparel. The second is India with a world market share of 6.9%. Indonesia can contribute 1.5% of the textile market. Based on the data of Central Statistics Agency Indonesia, Indonesia exports 60% of fashion apparel, 35% of fiber and yarn, and the rest is exported fabrics.

Before the pandemic, the textile industry experienced a chronic problem in entering a wider export market share. Although the exports have increased in recent years, this has also been accompanied by an increase in textile imports. In 2018 to 2019, the average increase in textile exports was 8.9%. This figure is feared to shift the existence of the domestic textile industry. This condition is different from neighboring countries, namely Vietnam, which can reduce imports and increase exports.

In pandemic era, the textile and fashion apparel industry experienced demand problems because the demand for textiles and apparel fashion in the market is significantly declined. At the time of the pandemic, textiles and fashion were not the main basic needs because people are more focused on food and health needs. Meanwhile, on the global market, it has been predicted by the International Labor

Organization (ILO) that there will be a decline in demand in the European market by up to 50% (*Industri Pakaian Sempit Melorot, Bagaimana Nasib Pekerjanya?*, n.d.). This shows that the demand for textiles and fashion apparel in the global market has also decreased. It also affects the textile and fashion industry in Indonesia because Indonesia is a major textile and fashion exporter. According to the general chairman of the Indonesian Textile Association, in 2020, domestic textile demand will decline by 50 percent, resulting in around 2.1 million textile industry workers who are affected by labor housing or labor reductions. The reduction was made because there was no demand, resulting in a decline in the production process and the company's cash flow. In June 2020, several textile and fashion factory employees were recalled to work. However, the workers recalled are those who meet the production qualifications. It is due to the fact that the demand for textiles in the export and import markets is still low in June 2020. It is estimated that the factory's production capacity is still 25 percent-30 percent due to the declining demand for textiles in the market. They expected the government to immediately apply import duties on trade security measures or apparel safeguards. This way is believed as the right step to save the textile SMEs.

By seeing the problems faced by the textile and apparel fashion industry, namely the suppressed cash flow of companies during this pandemic, the policy mix that has been issued by the government has been right on the target to reduce the burden on the textile and apparel fashion industry. Especially, with various tax incentives, as well as an opportunity for the company to restructure its debt, it will reduce the interest expense and debt burden that must be paid by the company so that it can help the company's cash flow in the short term. In its implementation, not all of the policies issued have been effective. For example, the debt restructuring policy is considered to get improvement in its implementation.

From a logistics perspective, industrial textiles, apparel, and garments are considered time-sensitive industries. Deviations in getting goods to attain a good place at a good time can lead to reduced (or non-existent) profits for industry textile owners. Clothing collections also vary frequently because their life cycles are short (as perishable goods) and their marketing is marked by peak seasons. Textile logistics is characterized by limited inventories and short delivery periods in this regard. Land, sea, and air routes are typically used to deliver these items and raw resources. Strong multimodal links are critical in the context of trade logistics to ensure on-time delivery.

However, due to Covid-19, Indonesia is also experiencing problems in its export share. One of the obstacles is logistics or delivery. Indonesia's geographical location is below, while exports to upper countries such as America and Europe require very expensive costs. The cost of shipping containers for shipping every year also always increases and even increases by 200 percent to 300 percent. Regarding global logistics issues, it is still a big challenge for the sector of domestic manufacture. This impact can be seen from the skyrocketing logistics costs to the extended grace period so that it has an impact on the supply of raw materials and export barriers.

In fact, in addition to the need for capital, textile and fashion sector business actors also need market access. Currently, many textile and apparel fashion industry business actors complain about the high cost of freight costs to export destination countries. This year (2021), the increase is up to 4 times. Seeing this sad reality, the Indonesian Textile Association (API) urges the government to immediately implement the Safeguard Measures Import Duty (BMTP), aka safeguard for imported garment products. This is due to the surge in cheap imported products has caused deep losses to the domestic textile and textile product (TPT) industry. Illegal imports circulating in various modes will not only harm domestic producers but will also harm the government because it increases the loss of potential taxes that will be received by the government.

Two strategies can be used in dealing with a pandemic: collaboration and flexibility (Shekarian and Parast, 2020). First, according to a recent review collaboration strategy (Duong and Chong, 2020), they identified seven collaborative practices used by supply chains to adapt and recover from a pandemic: (1) contracting and economic practices; (2) joint practice; (3) relationship management; (4) technology and information sharing practices; (5) governance practices; (6) appraisal practices; and (7) supply chain design (integrated operations).

The second strategy is to use several or numerous sources of flexibility: product and process flexibility ((Pujawan & Bah, 2022); (Ivanov & Das, 2020)). While redundancy programs are more typically recommended than flexible plans, the latter is applicable across different types of supply chains ((Hakovirta & Denuwara, 2020). For example, flexibility in procurement plans taking into account sourcing, price, consumption, and shipping patterns is effective for managing the impact of disruptions on the cruise ship supply chain (Wang & Zhao, 2020)

6. CONCLUSION

Covid-19 has hit most countries in the world and one of them is Indonesia. It has impacts on both large-scale industrial sector and small-scale industry, especially the textile and fashion industries which are not directly related to health needs. In terms of marketing, the textile and fashion industry experienced a decrease in demand due to stay-at-home regulations and shopping closures. The decrease in demand was followed by a decrease in the amount of revenue; thus, it disrupted the company's financial turnover. Disrupted finances make it difficult for many companies to pay debts and employee salaries. To solve this problem, the company restructured its debt and cut the number of employees in addition to demand issues that have an impact on finances. Another problem arised is in the supply chain. It is related to the policies of several countries that temporarily close their international trade activities. Moreover, some of the main raw materials are obtained from other countries and some domestically produced products are sold abroad. From the problems above, the government has provided support to revive the economy by facilitating debt payments and making policies to facilitate the distribution of goods abroad.

The Covid-19 pandemic has greatly affected the fashion and garment sector in Indonesia. To support the textile sector industry affected by the Covid-19 pandemic,

companies and small media enterprises must use collaboration and flexibility strategies that can be used in dealing and recovering from a pandemic. The government must support cooperation between small and medium industries and large industries so that large industries can provide easy access to raw materials for garment SMEs. The government provides security for the domestic garment market which is in line with the increase in imports of this sector in the last three years. It also encourages the supply chains in Indonesia and implements the import substitution policies.

7. ACKNOWLEDGEMENTS

Alhamdulillah Rabil 'Alamin, the researcher, expresses his highest gratitude to Allah subhanahu wa ta'ala for blessing, love, opportunity, health, and mercy to complete this journal article. In arranging this article, many people have provided motivation, advice, and support for the researcher. In this valuable chance, the researcher intended to express his gratitude and appreciation to all of them. Finally, we would like to thank everybody to the successful realization of this article. This journal article is still far from perfect, but it is expected to be useful; not only for the researcher, but also for the readers. For this reason, constructive thoughtful suggestions and critics are welcomed.

8. REFERENCES

- Albertzeth, G., Pujawan, I.N., Hilletoft, P., Tjahjono, B., (2020). Mitigating transportation disruptions in a supply chain: a cost-effective strategy. *Int. J. Logist. Res. Appl.* 23, 139–158. <https://doi.org/10.1080/13675567.2019.1648640>.
- Chakraborty, S., & Biswas, M. C. (2021). Impact of COVID-19 on the Textile, Apparel and Fashion Manufacturing Industry Supply Chain: Case Study on a Ready-Made Garment Manufacturing Industry. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3762220>
- Choi, T.M., (2020). Facing market disruptions: values of elastic logistics in service supply chains. *Int. J. Prod. Res.* ahead-of-print 1–16. <https://doi.org/10.1080/00207543.2020.1722861>.
- Chowdhury, P., Paul, S. K., Kaiser, S., & Moktadir, M. A. (2021). COVID-19 pandemic related supplychain studies: A systematic review. *Transportation Research Part E: Logistics and Transportation Review*, 148(February), 102271. <https://doi.org/10.1016/j.tre.2021.102271>
- Covid map: Coronavirus cases, deaths, vaccinations by country - BBC News.* (n.d.). Retrieved February 17, 2022, from <https://www.bbc.com/news/world-51235105>
- Duong, L.N.K., Chong, J., (2020). Supply chain collaboration in the presence of disruptions: a literature review. *Int. J. Prod. Res.* 58, 3488–3507. <https://doi.org/10.1080/00207543.2020.1712491>.
- Gaur, J., Amini, M., Rao, A.K., 2020. The impact of supply chain disruption on the closed-loop supply chain configuration profit: a study of sourcing policies. *Int.*

J. Prod. Res. 58, 5380–5400.
<https://doi.org/10.1080/00207543.2019.1657244>.

Guan, D., Wang, D., Hallegatte, S., Davis, S.J., Huo, J., Li, S., Bai, Y., Lei, T., Xue, Q., Coffman, D.M., Cheng, D., Chen, P., Liang, X., Xu, B., Lu, X., Wang, S., Hubacek, K., Gong, P., (2020). Global supply-chain effects of COVID-19 control measures. *Nat. Hum. Behav.* 4, 577–587. <https://doi.org/10.1038/s41562-020-0896-8>.

Hakovirta, M., Denuwara, N., (2020). How COVID-19 redefines the concept of sustainability. *Sustainability* 12, 3727. <https://doi.org/10.3390/su12093727>.

Industri Pakaian Sempit Melorot, Bagaimana Nasib Pekerjaannya? (n.d.). Retrieved

February 17, 2022, from

<https://tirto.id/industri-pakaian-sempit-melorot-bagaimana-nasib-pekerjanya-glXz>

International Monetary Fund. (2020). *World Economic Outlook: A Long and Difficult Ascent*. In

International Monetary Fund.

Ivanov, D., Dolgui, A., Sokolov, B., Ivanova, M., (2017). Literature review on disruption recovery in the supply chain. *Int. J. Prod. Res.* 55, 6158–6174.
<https://doi.org/10.1080/00207543.2017.1330572>

Ivanov, D., (2020). Predicting the impacts of epidemic outbreaks on global supply chains: a simulation-based analysis on the coronavirus outbreak (COVID-19/SARS-CoV-2) case. *Transp. Res. Part E Logist. Transp. Rev.* 136, 101922
<https://doi.org/10.1016/j.tre.2020.101922>

Kumar, V., & Kumar, S. (2021). *Impact of Covid-19 on Textile and Fashion Industry India : Impact of Covid-19 on Textile and Fashion Industry India : Economic Perspective*. February.

Lathifah, A. N. Y. and. (2020a). *Peluang New Normal Dalam Disrupsi Rantai Pasok Indonesia* (A. N.

Y. and Lathifah, Ed.; Pertama). Forbil Institute.

Leitheiser, E., Hossain, S. N., Sen, S., Tasnim, G., Moon, J., Knudsen, J. S., & Rahman, S. (2020a). *Early impacts of coronavirus on Bangladesh apparel supply chains*. April, 25.

McMaster, M., Nettleton, C., Tom, C., Xu, B., Cao, C., & Qiao, P. (2020). Risk Management: Rethinking Fashion Supply Chain Management for Multinational Corporations in Light of the COVID-19 Outbreak. *Journal of Risk and Financial Management*, 13(8), 173. <https://doi.org/10.3390/jrfm13080173>

Misbahul, M., Ahmad, B., & Dwi, S. (2020). Perubahan Penjualan Produk Home Industri Garment dalam Menghadapi Pandemi Covid-19. *Jurnal Pengabdian Masyarakat*, 2(September), 7.

Rodrigue, J.P., Wang, G.W.Y., (2020). Cruise shipping supply chains and the impacts of disruptions: The case of the Caribbean. *Res. Transp. Bus. Manag.*
<https://doi.org/10.1016/j.rtbm.2020.100551>.

Safitri, Y., Nugroho, L., Permana, S. D. H., Zonyfar, C., Purnia, D. S., Napitulu, D., Septiani, R., Sari, D. P., Utama, A. A. G. S., Kennedy, P. S. J., Kuncara, T., Fikri, Z., Siregar, E., Maulana, A. E., Lika, K., Purnomo, A., & Tallo, A. J. (2020). *Gotong Royong Menghadapi COVID-19: Ide dan Solusi*.158.

Sari, R. N. (2021). Dampak Pandemi Covid-19 Terhadap Umkm Batik Di Kabupaten Sumenep.

RISTANSI: Riset Akuntansi, 1(1), 45–53.
<https://doi.org/10.32815/ristansi.v1i1.347>

Shekarian, M., Nooraie, S.V.R., Parast, M.M., (2020). An examination of the impact of flexibility and agility on mitigating supply chain disruptions. *Int. J. Prod. Econ.* 220, 107438 <https://doi.org/10.1016/j.ijpe.2019.07.011>.

Tao, Y., Lai, X., Zhou, S., (2020). Information sharing in a transparent supply chain with transportation disruptions and supplier competition. *Ann. Oper. Res.* ahead-of-print 1–23. <https://doi.org/10.1007/s10479-020-03724-3>.

Wahyu, A. M., Chusna, A., Zahra, A., Iqbal, M., Firdaus, F., & Widyatno, A. (2021). Perilaku PanicBuying Mengiringi Kemunculan COVID-19? Sebuah Studi pada Awal Pandemi di Indonesia. *Humanitas*, 5(1).

WTO | 2020 Press Releases - Trade set to plunge as COVID-19 pandemic upends global economy -Press/855. (n.d.).

Wulandari, N. L. P. T., & Darma, G. S. (2020). Textile Industry Issue in Pandemic of Covid-19. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(7), 8064–8074.