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LINKING THE SUPPLY CHAIN OF THE PROCESSING AND MANUFACTURING INDUSTRY IN VIETNAM IN THE CONTEXT OF THE COVID-19 PANDEMIC

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In recent years, the industry of processing and manufacturing (PMIs) in Vietnam has been considered as the leading industry in attracting FDIs, promoting exports, creating jobs, etc. However, the operational efficiency of enterprises in the industry is still very limited, links between enterprises are still weak. Along with that, the Covid-19 pandemic took place and continues to cause significant impacts on the supply chain of the processing and manufacturing industry in the country. By employing different methods such as synthesizing both the theories and practice, analysis, comparison, evaluation, and Input-Output (I-O) tables, the paper focuses on reviewing and assessing the effects of covid-19 on the supply chain of the PMIs in Vietnam, assessing the current situation and the role of supply chain linkages in responding to the pandemic and proposing some solutions in the new context.

Keywords: *inkage, supply chain, processing and manufacturing industry (PMI), Covid-19 pandemic.*

JEL Classifications: *D57, L60, L69, O14, Y10.*

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1. Introduction

The COVID-19 pandemic is having a strong impact on economies around the world, as well as on global supply chains a nd value chains (Chakraborty and Biswas, 2020; Meier and Pinto, 2021; Paul and Chowdhury, 2020; Xu et al, 2020; Magableh, 2021; etc). When the pandemic broke out, social distancing measures were implemented, and many production activities halted (Chakraborty and Biswas, 2020). That the links between components in the supply chains were broken seriously affects global investments, production and trade activities, thereby reducing the growth of the world economy in general (Xu et al, 2020; NICOLA et al., 2020; Karmakera et al., 2020, TODO et al., 2021, Belhadi et al., 2021) and many countries and regions in particular, including Vietnam. Recently, there have been a number of domestic and foreign studies considering different aspects of the pandemic's impacts on linkages of global supply chain

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in general and some PMIs' supply chains in countries in particular Chakraborty and Biswas, 2020; Meier and Pinto, 2021; Dohale et al, 2021; Nhan and Toan, 2021, etc). In recent years, PMIs in Vietnam is always considered as an industry with high growth rate and has been creating the main driving force for Vietnam's economic growth. However, in the pandemic context, the disruption of global supply chains has also caused many difficulties and challenges for the operation of processing and manufacturing enterprises in Vietnam. The shortage of input materials and components due to the broken links between suppliers causes the cost of industrial production to increase. At the same time, on the demand side, the pandemic caused a decrease in the demand for industrial products manufactured by Vietnamese enterprises (General Statistics Office, 2021). Besides, the pandemic also promotes the trend of investment shifting, to avoid the dependence of the world industry on China; from there, bringing opportunities to welcome a new wave of investment, promoting existing and new linkages for the processing and manufacturing industry of Vietnam (Ministry of Industry and Trade, 2021).

The objective of the article is to study the effects of the Covid pandemic on the linkages in the supply chain of the processing and manufacturing industry (PMI) in Vietnam, and examine the role of supply chain linkages in the process of developing the civil engineering industry; from there, propose solutions to promote the development of the industry in the next period.

Research questions: the paper aims at finding the answer for these following questions:

- How does the Covid-19 pandemic affect the world's manufacturing supply chains and what aspect of the pandemic has greatest impact in Vietnam?

- What are the solutions to strengthen the linkages between the supply chains of Vietnam's PMIs in the context of the pandemic?

To solve the objectives and questions raised, the authors have employed the qualitative methods, starting with reviewing and synthesizing prominent documents and researches in the world to clarify the different aspects of the impacts on the PMIs in general, as well as manipulating methods of analysis, inference, comparison, contrast, etc. combining with secondary statistics and data in Vietnam to outline the pandemic's impact on Vietnam's PMIs. At the same time, the Input-Output method is used to clarify the current situation of the industrial linkages in the period before the pandemic occurrance in Vietnam.

Research results show that the Covid-19 pandemic affects the supply chain of Vietnam's PMIs in three main aspects: the lack of input materials and components; the lack of capital and labor; and the increase in other production costs. A number of solutions proposed in the study contribute to strengthening the linkage in the supply chain of the PMIs in the next period.

As for clarifying the objectives and research questions, the article is structured in four parts: (1) General introduction; (2) Overview of the theoretical background and research methods; (3) Main research results; and (4) Conclusions and suggested solutions.

2. Overview of the theoretical background and research methods

2.1. Theoretical backgrounds of PMI supply chain linkages under the impact of the Covid 19 pandemic

The COVID-19 pandemic is considered one of the most devastating events in the history of the world because it was an exogenous shock that not only affected the world's health system but also caused serious damage to the world economy. There have been a number of studies analyzing and making assessments about the impacts of the pandemic on linkages in supply chains and production chains of PMIs.

According to Chakraborty and Biswas (2020), the disease outbreak has a global impact due to

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travel restrictions and causes shortages of raw materials, increasing production costs for manufacturing industries. Similarly, Meier and Pinto (2021) also said that it is increasingly difficult for businesses to find sources of raw materials and necessary spare parts to maintain production lines. Overdependence on China, along with the implementation of strict epidemic prevention measures, border closures, contact restrictions, etc. has caused production and processing activities of manufacturing industries in other economies severely affected. According to Paul and Chowdhury (2020), when the pandemic occurred, the demand for essential products increased markedly; on the other hand, the supply of raw materials decreased significantly due to limited production capacity. Dohale et al. (2021) pointed out that uncertain demands and pandemic disruption risks are the most important factors impacting the Indian garment manufacturing industry. Similarly, research by Xu et al. (2020) indicates that the COVID-19 pandemic has led to unprecedented disruptions to most of the global supply chains such as pharmaceuticals, food, electronics, auto industry, etc. COVID-19 has adversely affected all stages of the supply chain with major uncertainties in production, processing, transportation and logistics, as well as significant shifts in demand. In addition, the response of governments and countries to the pandemic is also changing supply chain operations (Magableh, 2021).

On the other hand, according to B.V. Kapparashetty (2020), more and more workers stop working due to government directives, thus reducing the scale of operations, resulting in impact on quality, cost and volume of manufacturing. For a period of time, this hurt sales and caused revenue to slow down to a trickle. Similarly, according to Nhan and Toan (2021), many workers leave their hometowns to avoid the spread of disease and difficulties in traveling and moving between localities due to the blockade and social distancing, causing many businesses a serious shortage of labor. The deficiency of human resources has limited the recovery of production capacity at enterprises, exacerbating the problem of supply chain disruption. Making a similar argument, Agrawal et al. (2020) said that there are three main areas affected by the pandemic, namely: labor force, product demand and costs. The same view is further confirmed in the study of Biswas and Das (2020).

B.V. Kapparashetty (2020) also argues the pandemic causes logistical uncertainties such as increased transportation costs and long waiting times. Slower banking speeds, shorter working hours, congested and overloaded communication lines lead to delayed currency transactions, thus increasing currency risks. The pandemic also caused a sudden increase in logistics costs, significantly increasing the production costs of enterprises (Cai and Luo, 2020). The same view is further confirmed in the studies by Agrawal et al. (2020).

The Covid-19 pandemic also clearly shows the benefits of bringing different sections of the business closer together, and supply chains closer to the retail market; to build and maintain a more resilient and sustainable production and consumption network. The pandemic can act as a catalyst for the changes taking place in supply chains - by accelerating the relocation of supply and production networks to closer countries and regions, deeper digitalisation, as well as having more sustainable production networks and methods. (NICOLA et al., 2020; Karmakera et al., 2020, TODO et al., 2021, Belhadi et al., 2021)

Similarly, according to Pujawan and Bah (2022), solutions to mitigate the negative impacts of the pandemic on supply chain disruptions include the increasing importance of safety in production, digitalization, localization, the need to reconsider the implications of efficacy, and the production and distribution of COVID-19 vaccines.

In short, the aspects of the pandemic's impacts on the supply chain linkages of the PMIs are as follows:

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No.	Aspects of impacts	Sources
1	Shortage of raw materials and components	*Chakraborty and Biswas, 2020; Meier and Pinto, 2021; Paul and Chowdhury, 2020;* Xu et al., 2020
2	Shortage of labor and capital	*B.V.Kapparashetty, 2020; Nhân and Toàn, 2021; Agrawal et al., 2020; Biswas and Das, 2020*
3	Increased shipping costs and longer waiting times	*B.V.Kapparashetty, 2020;Cai and Luo, 2020; Agrawal et al., 2020*
4	Promoting the moving of supply and production networks closer together.	*NICOLA et al., 2020, Karmakera et al., 2020, TODO et al., 2021, Belhadi et al., 2021; Pujawan and Bah, 2022*

Sources: The authors compilation

2.2. Data sources and research methods

To clarify the aspects of the impact of Covid-19 on PMIs and the current situation of PMIs' supply chain linkages in Vietnam, the study mainly uses secondary data taken from various sources of information like the General Statistics Office, reports of the Ministry of Industry and Trade, Foreign Investment Agency, World Bank, etc.

The research methods employed in this article include quanlitative methods such as statistical methods, synthesizing, selectively inheriting reputable research works and documents in the field both domestically and abroad to clarify the directions (aspects) of impacts of the pandemic on linkages in industrial supply chains; using comparative and contrasting analysis methods, etc. to clarify the actual situation of production activities and the linkages in the supply chain of Vietnam's PMIs; as well as using deductive methods to analyze and explain the impact of Covid-19 on the linkages in the supply chain of Vietnam's PMIs in recent times.

The quantitative method used is the Input - Output (I - O) method of the General Statistics Office 2012 and 2016 to clarify the status of linkages in the supply chain of the PMIs before the pandemic. The authours will calculate the backward and forward linkage coefficients of the PMIs and spillover effects on imports. In which, Table I - O 2012 is assumed to represent the fluctuations of the economy in the period 2011 - 2015, and I - O 2016 represents the period 2016 - 2020. 164 product codes are grouped into 18 industry groups to calculate and compare the linkage coefficient of the PMIs with the rest of the economy.

Basic relationship:

$(A^d + A^m).X + Y^d + Y^m - M = X$

$=> A^d.X + Y^d + A^m.X + Y^m - M = X$ (1)

In which:

$A^d.X$ is the vector of intermediate costs for domestically produced products;

$A^m.X$ is the vector of intermediate costs for imported products;

Y^d is the final demand vector for domestically produced products;

Ym is the final demand vector for imported products (including individual final consumption demand, State final consumption, asset accumulation and exports).

Import demand is divided into 2 purposes: for production ($A^m.X$) and for final consumption (Y^m) or:

$A^m.X + Y^m = M$,

Then, equation (1) is rewritten as:

$A^d.X + Y^d = X$

$=> X = (1 - A^d)^{-1}.Y^d$ (2)

Thus, relation (2) returns to Leontief's standard relation in non-competitive form, Leontief's inverse matrix $(I - Ad)^{-1}$ reflects much better the sensitivity and spread of industries in the economy.

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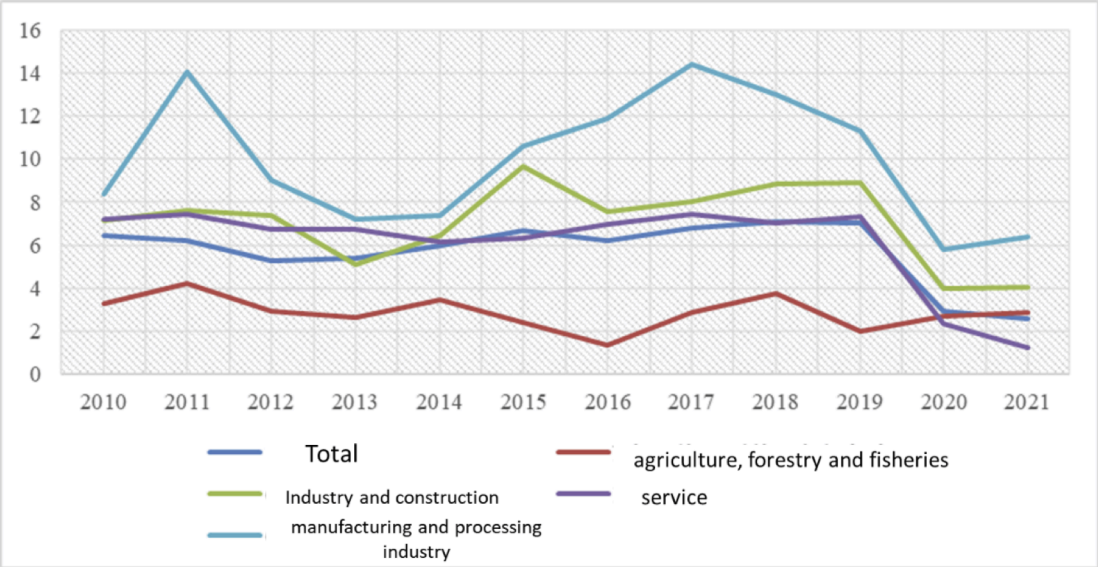
3. The situation of pmis supply chain linkages in vietnam in the context of the covid-19 pandemic

3.1. Overview of production and business situation of PMIs in the context of the pandemic

In recent years, *PMI has always been the industry that plays a key role in Vietnam's economic growth, the industry that has made the leading contribution to economic growth, export growth and FDIs attraction.* In the period of 2015 - 2021, PMIs had an average growth rate of 10.46%, higher than the period of 2010 - 2015 (9.46%). When considering the growth rate of industries, PMI is the dominant industry. In the last 5 years, the PMI industry has had the highest growth rate among economic sectors. This shows the positive role of the PMI industry in contributing to Vietnam's economic growth.



Source: General Statistics Office, 2022

Figure 1: *Growth rate of sectors in the economy*

Regarding the industrial production index and the industrial consumption index:

PMI is currently the industry with the highest industrial production index among industries and higher than the general industrial production index of the whole economy. In 2021, the PMI production index reached 105.9%, higher than the general level of the whole industry (104.7%); however, much lower than its average rate for the period 2015-2019 (111.82%). On the other hand, the product consumption index of PMI continued to increase in recent years. By 2019, the product consumption index of the whole industry reached 109.5 percent, with a high concentration on a number of industries such as metal manufacturing; production of coke and refined petroleum products; records printing and copying; rubber and plastic manufacturing products; etc. In the period of 2020-2021, the consumption index of the whole industry achieved a low growth rate of 3.3% and 4.5% compared to the previous year, respectively, due to the impact of the pandemic. Meanwhile, the average inventory rate of the whole processing and manufacturing industry in 2020-2021 is 71.9% and 79.1%, respectively; increased compared to the previous period.

About attracting FDI and contributing to exports

Among economic sectors, PMI is the industry that attracts the majority of FDI capital and contributes mainly to Vietnam's export turnover. Before and during the Covid-19 pandemic, the processing and manufacturing industry was always the field where foreign investors concentrated the

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largest source of FDIs. This is also the field that accounts for a large proportion of the registered capital for both new investment projects, expansion investment projects and capital contribution and shares purchase. In 2019, FDI capital into PMI reached USD 24.56 billion, accounting for 64.6% of total registered investment capital, bringing the total accumulated investment capital into this field to USD 214.2 billion; accounting for 59.1% of total investment capital. In 2020, due to the impacts of the Covid-19 pandemic, the number of foreign investment projects in our country decreased sharply, reaching only 2,610 projects, down 35.2% compared to 2019; total registered capital reached 31,045.3 million USD, down 20.3%; in which PMIs attracted 828 projects with a total registered capital of 14,786.7 million USD, accounting for 31.7% of projects and 47.6% of registered capital in economic sectors. By the end of 2020, the total accumulated capital into PMIs reached 228.6 billion USD; accounting for 59.17% of total investment capital.

However, it is easy to see that FDI into Vietnam is mainly in simple labor-intensive industries such as garment and footwear. FDI enterprises mainly focus on processing and assembling activities, and raw materials are mainly imported from abroad, so the added value is still low and cannot create close linkages with enterprises. in the country.(GSO, 2021)

In addition, by the end of 2021, the PMI industry's exports accounted for 96.18% of the total export value. In general, the export proportion of some key products still belongs to the FDI sector. Some major export items include electronic goods, computers and components; phones and accessories; footwear; textiles and raw materials of the textile industry; etc. However, PMI is also currently the industry that accounts for a large proportion of the economy's import value, accounting for 88.34% in 2021. This shows a great dependence on imports in activities. production of PMIs.

3.2. Situation of supply chain linkage in the PMIs of Vietnam

Regarding the backward and forward linkage coefficients of the PMI industry (table 1):

One highlight is, PMI is the industry with the largest coefficient of forward linkage among 18 industry groups and the coefficient of backward linkage ranks second. In particular, the forward linkage coefficient of the PMI industry has a relatively large value (3.89 in the period 2011-2015 and continues to increase to 4.67 in the period 2016-2020), showing a large supply role of PMI for all remaining manufacturing industries in the economy. Besides, the backlink coefficient of PMI is also greater than 1 (corresponding to the values of 1.16 and 1.18 in the two periods), industries with the backlink index greater than 1 will be considered as industries with large spillover effects. Thus, an increase or decrease in the final demand for products of PMIs will significantly affect other sectors and the whole economy. Thus, it can be assessed that, PMI has a large linkage impact with sectors in the economy, the development of PMIs has a great impact on production activities of the remaining sectors in the economy.

Regarding spillover effects on imports, it can be seen that PMI is currently an industry with a relatively large spillover coefficient to imports (respectively 1.82 and 1.65 in two periods); however, the direction is descending. Thus, Vietnam's PMI production is currently still heavily dependent on the import of capital goods and raw materials from abroad, making the industry's contribution to the economy's added values still low, leading to limited production. increasing incomes, increasing living standards for workers, hindering social sustainability in the process of sustainable development of the industry. This makes it necessary to develop supporting industries in the country to improve the localization rate, thereby increasing PMIs' contribution to the economy's added values, which is also to Vietnam's economic growth in the following years.

Regarding the link between businesses in the PMIs' production and supply chain: Basically, after

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Table 1: *Impact coefficients of PMI industry and the rest of the economy in the period 2011-2015 and 2016-2020*

		2011-2015			2016-2020		
		Back ward linkage	**forward linkage**	**Coefficient of spillover to imports**	**Back ward linkage**	**forward linkage**	**Coefficient of spillover to imports**
1	Agricultural, forestry and fishery products	1,06	1,38	1,12	1,13	1,45	1,20
2	Mining products	1,10	0,93	1,57	0,97	0,86	1,28
3	**PMI products**	**1,16**	**3,89**	**1,82**	**1,18**	**4,67**	**1,65**
4	Electricity, gas, hot water steam and air conditioning	0,93	0,83	0,63	0,87	0,77	0,67
5	Natural water; waste management and treatment services	0,91	0,69	0,96	0,94	0,62	1,04
6	Construction products	1,10	0,77	1,46	1,20	0,71	1,48
7	Wholesale and retail services; repair services for cars, motorcycles, motorbikes and other motor vehicles	0,88	0,98	0,57	0,95	0,96	0,75
8	Transportation and warehousing services	1,03	0,99	1,25	1,13	0,96	1,31
9	Information and communication services	1,74	1,01	2,43	1,05	0,92	1,28
10	Financial services, banking and insurance	0,93	1,03	0,52	0,96	0,99	0,64
11	Real estate	0,80	0,82	0,31	0,89	0,81	0,52
12	Professional services, science and technology	1,02	0,81	0,93	1,00	0,83	0,93
13	Administrative services and support	0,85	0,68	0,58	1,03	0,62	0,92
14	Services of the Communist Party, socio-political organizations, state management, security and defense, etc.	0,79	0,61	0,42	0,87	0,54	0,68
15	Education and training services	0,80	0,63	0,36	0,84	0,56	0,54
16	Medical services and social assistance	0,94	0,62	1,52	1,00	0,54	1,43
17	Arts, entertainment and entertainment services	1,01	0,70	0,62	1,00	0,62	0,64
18	Other services	0,95	0,63	0,93	0,98	0,55	1,02

Source: Processing and calculating from I-O table 2012, 2016, General Statistics Office

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more than 30 years of development, Vietnam's PMI is still in a state of assembly for foreign brands. Domestic enterprises still almost only exploit old products, profits are very low and added value is only estimated to increase 5-10%/year. Meanwhile, FDI enterprises are facing pressure to reduce the cost of spare parts and increase the added values of domestically produced products. Because the number of supporting enterprises is still very small compared to the number of assembling enterprises, the quality of components is not guaranteed, so most FDI enterprises have to import components and accessories from surrounding countries.

in all industries, sectors, and economies will make the link between components in the PMI supply chain even weaker.

3.3. The impact of the Covid pandemic on the supply chain of the PMIs in Vietnam

The Covid-19 pandemic affects the links in the Vietnam PMIs supply chain in the following aspects:

First, there is a serious shortage of input materials and components in the market. Many manufacturing industries following the supply chain model such as telephones, electronics, computers, etc. are negatively affected by the disruption of the global supply chain, causing a shortage of input supply. Because Vietnam's industrial production sector is still heavily dependent on imported raw materials and fuel, mainly from China, Korea and Japan (accounting for about 56% of Vietnam's intermediate goods supply in 2019). Diversifying the supply for many manufacturing industries is not easy, for example, for Vietnamese electronics enterprises, despite the remarkable development in recent years, they are still mainly just a link in the supply chain and must depend on the assignment, link in the supply chain and must depend on the assignment and design of the supply of raw materials from leading brands in the chain. On the other hand, electronic components are high-tech and must comply with

Table 2: *Rate of use of domestic components by assemblers in Vietnam*

Downstream fields	Domestic supply rate (%)
Motorbikes	85-90%
Cars	7-55%
Electronics and telecommunications industry	15%
Specialized electronics and high-tech industry	5%
Textile	40-45%
Leather and footwear industry	40-45%

Source: General Statistics Office, 2021

It can be seen that the rate of domestic supply for assemblers is low, supporting industry products that are mainly manufactured or imported by FDI enterprises. Products by domestic enterprises are of low quality and high cost thanks to outdated technology and slow innovation resulting from limited resources and poor production process. That is why those domestic products can only be sold within home enterprises.

Thus, from the above generalizations, it can be seen that, before the pandemic, Vietnam's PMIs had a high growth rate, making a great contribution to the overall export turnover; however, the link in the industry-wide supply chain is very weak. In the context of the pandemic, the disruption of supply chains

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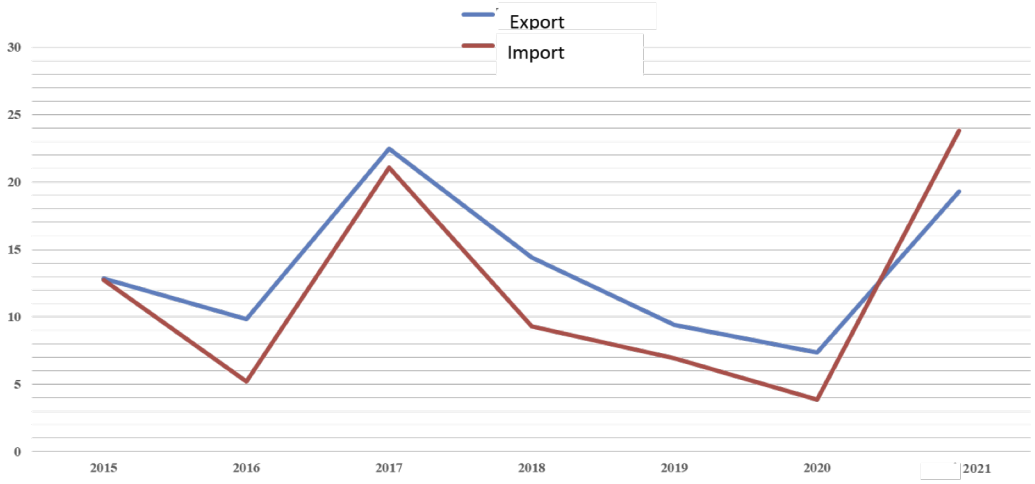
and meet many very strict standards, making it even more difficult to adjust the supply.

Dependence on imported raw materials and auxiliary materials causes the growth of import and export turnover of PMIs to decrease sharply in 2020, the growth rates of export and import turnover will only reach 7.37% and 3.88%, respectively; lowest level in seven years. However, entering 2021, when Vietnamese PMI enterprises have become more proactive in input sources, PMIs have grown strongly again.

the overall growth rate of the investment capital of the whole economy. In particular, in the period of 2020 - 2021, the capital growth rate of the PMI industry decreased significantly, at 0.41% and 0.06% respectively in 2020 and 2021.

Enterprises also face a shortage of labor force due to blockade, isolation or travel restrictions for workers and experts from partner countries. According to the General Statistics Office (2022), in 2020, the growth rate of the labor force working in the PMI industry is only 0.13%; by 2021, the total



Source: General Statistics Office, 2022

Figure 2: *Growth in import and export turnover of Vietnam PMIs industry*

Second, the shortage of capital and labor for production and business. According to the survey results of GSO (2020), up to 45.4% of surveyed enterprises are facing a shortage of capital for production and business. This is one of the leading difficulties of enterprises today and This is also the general situation of the entire business sector. Industry and construction enterprises have a capital shortfall rate of 52.1%, ranked second after agriculture, forestry and fishery enterprises. Also according to the General Statistics Office (2022) (GSO, 2022), the growth rate of realized social investment capital of the PMI industry has tended to decrease continuously in the past 7 years and is always lower than

number of employees working in the PMI industry will continue to decrease to 11209.1 thousand people; corresponding decrease of 0.8% compared to the previous year.

Third, the burdens of businesses due to the impact of the Covid-19 epidemic. The Covid-19 epidemic has made the whole country's economic situation difficult, production and business activities of enterprises have stalled, besides, businesses are also under pressure from huge expenses to maintain their operations such as: land renting costs, bank loan interest payment, payment of labor, other recurrent costs, etc. Along with that, transportation, logistics, and storage costs also increased sharply in the con-

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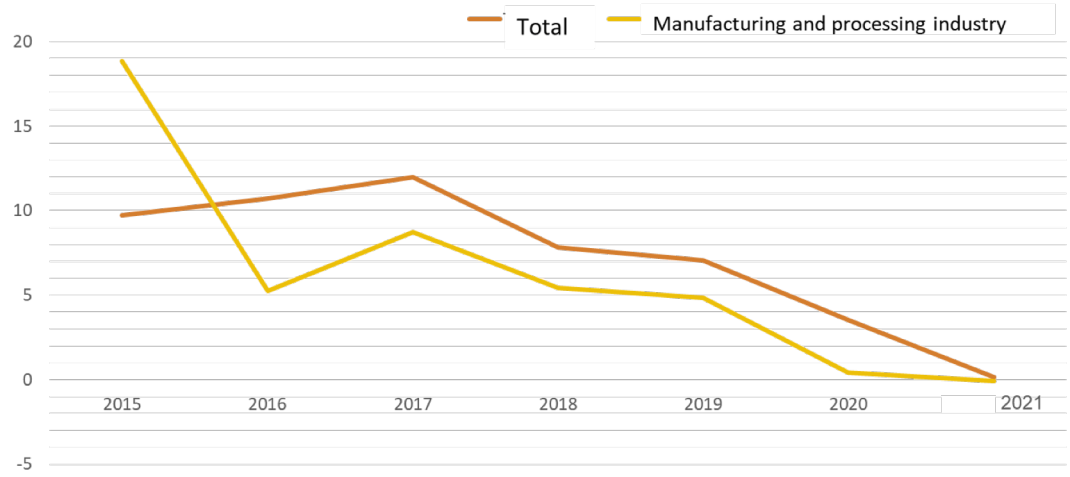
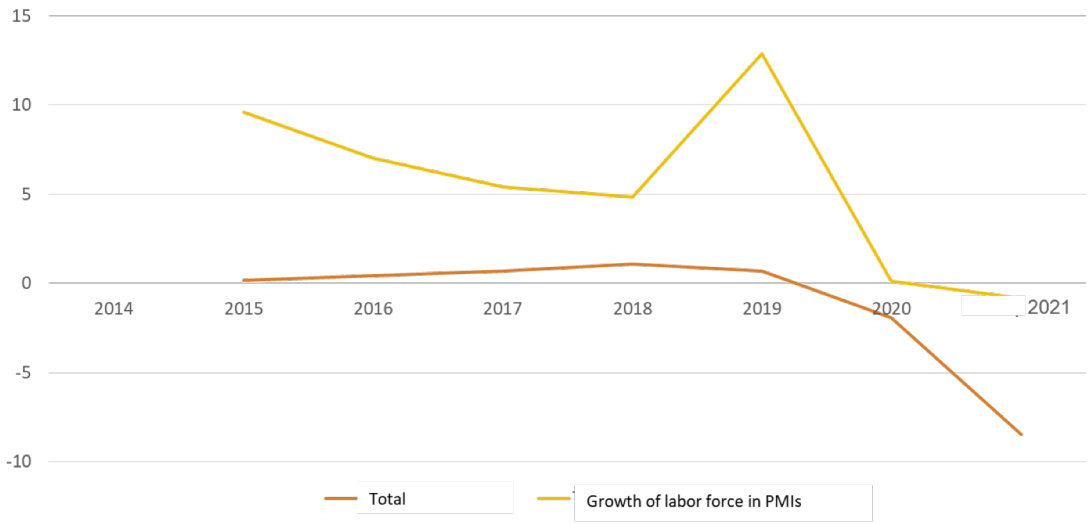


Source: General Statistics Office, 2022

Figure 3: *Growth rate of social investment capital implemented in Vietnam PMIs industry*



Source: General Statistics Office, 2022

Figure 4: *Growth rate of labor force working in Vietnam PMIs industry*

text of a series of localities and countries implementing social distancing and blockade measures to prevent the epidemic.

The shortage of empty containers, the high cost of logistics and international shipping (5-10 times higher) occurring since 2020 have not returned to normal, plus the long shipping time makes working capital costs leapt. The trend of increasing sea freight rates did not take place as soon as the Covid-19 epidemic broke out in the first quarter of 2020 but started in July 2020 and continued to increase sharply until September 2021 and showed no sign of stopping. The increase in world freight rates led to a record increase in Vietnam's shipping costs in 2021. For example, before the escalation, the average freight rate for a 40-feet container from Vietnam was about 1,500 - 1,800 USD going to the US West

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Coast ports; and about 2,200 - 2,500 USD to go to the main ports on the east coast. Rates have skyrocketed in February at 3,000 - 4,000 USD (main port on the west coast); 5,000 - 6,000 USD (for East coast ports), at 5,000 - 6,000 USD in March (west coast main ports); 8000 - 9,000 USD (for East Coast ports). By September 2021, it had kept a record of 11,000 - 17,000 USD (main West Coast port); 18,000 - 22,000 USD (for East Coast ports). (Ministry of Industry and Trade, 2021).

In the country, transportation services by road, waterway, railway, air, etc. will all seriously decrease in 2021 due to the impact of the epidemic. In the first nine months of 2021, there were 2,509 transportation and warehousing enterprises that had to temporarily suspend operations, up 14.1% over the same period in 2020, accounting for 5.56% of the total number of temporarily suspended enterprises in the country. At the same time, 571 enterprises completed dissolution procedures, an increase of 17.7% over the same period in 2020, accounting for 4.46% of the total number of dissolved enterprises in the country. (Ministry of Industry and Trade, 2021).

4. Conclusion and some recommendations

Thus, it can be seen that, in recent years, the civil engineering industry has made rapid development steps and significant contributions as well as is considered the main driving force for Vietnam's economic growth, promoting exports and attracting FDI inflows. However, the reality of the industry's development process also shows that some major limitations still exist, especially the weak linkage in the production process that makes it difficult for the PMIs industry to increase added values and contribute to the growth of the industry. This is exacerbated by the Covid-19 pandemic. In the following years, the PMIs industry is still considered as the main driving force for Vietnam's economic growth. To be able to promote the sustainable development of the PMIs industry, it is necessary to have solutions to promote linkages and improve connectivity for processing and manufacturing enterprises, especially Vietnamese enterprises with these advantages as follows:

First, domestic enterprises need to actively make more efforts in improving production capacity to meet the requirements of FDI enterprises, multinational corporations, and participate in supply chains and value chains globally, thereby enhancing added value and promoting sustainable development for the entire PMIs industry. To do this, the solution of efforts to innovate technology and renovate the organization of production activities, focusing on environmental protection issues will be of great significance.

Second, promoting the development of supporting industries and gradually becoming self-sufficient in domestic sources of raw materials and components is one of the key issues contributing to the sustainable development of Vietnamese industry in long term. It is necessary to actively expand foreign markets, create conditions for supporting industrial enterprises to receive favorable technical processes and production skills from abroad to improve production capacity. Materials industries must also be focused on developing in order to increase autonomy in input materials for production, reduce dependence on imported sources, thereby improving added value and competitiveness. of Vietnamese products and enterprises in the global value chain.

Third, the Government also needs to have policies to develop industrial zones and clusters in an intensive direction to form production chains and supply chains, thereby promoting linkages between domestic and foreign enterprises. between domestic enterprises and FDI enterprises, multinational corporations; create favorable conditions for the application of environmental standards in the production process.

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Fourth, actively improve the business environment to promote the connection of enterprises at the top of the global supply chain; improve the efficiency of trade promotion, diversify import and export markets and find new markets. At the same time, actively exploiting opportunities of Free Trade Agreements (FTAs); It is necessary to orient FDI inflows in the direction of strengthening linkages with domestic enterprises, increasing FDI attraction in supporting industries to increase the localization rate, applying advanced technology to the production process to increase the localization rate. limit environmental pollution, improve environmental sustainability.

On the other hand, it is necessary to strengthen the coordination and linkage between enterprises and state management agencies, organizations, centers and associations to support enterprises so that they can promptly exchange and provide information and procedures. regulations related to the implementation of the Agreements, information on the market, information on preferential policies, support policies, policies related to the environment... for businesses.

In addition, in the context that the pandemic is still ongoing and prolonged, and the end time has not been accurately predicted, the State as well as the business community in general and FDI enterprises in particular need to take some measures. measures to limit and deal with the prolonged epidemic situation. Firstly, the State and enterprises have to guide and regularly take measures to inspect and supervise the application of safe production organization conditions in the new situation of localities so that enterprises can take the initiative in business projects. Secondly, relevant ministries, branches and localities continuously review and eliminate regulations that are putting pressure on costs for businesses, simplifying the current administrative process, or consider applying priority import and export processes for processed and manufactured industrial products; speeding up the process and procedures for importing essential goods and exporting key export groups, to help businesses optimize time and costs at domestic stages; promulgating detailed and specific instructions to help businesses easily and quickly access the State's support policies. Third, quickly deploy support and preferential policy packages for businesses to promote enterprises to promote investment and production development in the new situation.◆

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Summary

Trong những năm vừa qua, ngành công nghiệp chế biến, chế tạo Việt Nam luôn được coi là ngành đứng đầu trong thu hút FDI, thúc đẩy xuất khẩu, tạo việc làm… tuy nhiên, hiệu quả hoạt động của doanh nghiệp trong ngành vẫn còn rất hạn chế, liên kết giữa các DN còn yếu. Cùng với đó, đại dịch Covid-19 diễn ra, tiếp tục gây ra sự đứt gãy các chuỗi cung ứng trong ngành công nghiệp chế biến, chế tạo (CN CBCT) trong nước. Bằng các phương pháp tổng hợp lý thuyết và thực tiễn, phân tích, so sánh, đánh giá… và phương pháp bảng cân đối liên ngành, bài viết tập trung xem xét, đánh giá sự ảnh hưởng của covid-19 đến chuỗi cung ứng ngành CN CBCT Việt Nam, đánh giá thực trạng và vai trò của liên kết chuỗi cung ứng trong việc ứng phó với đại dịch và đề xuất một số giải pháp trong bối cảnh mới.