



Analysis on the Impact of the COVID-19 Epidemic on the Plastics Industry

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Abstract. The Covid-19 pandemic started at the beginning of 2020 has negatively affected the world for various aspects, ranging from health, economic and social issues. This paper examines the impact of the Covid-19 pandemic on the plastics industry in China based on the developments in the plastics market and aims to provide information for those companies both inside and outside the plastic industry. Through analysis it finds that while the epidemic has a partial negative impact on the plastics industry, it also brings new opportunities. This paper hopes to offer some references for the developments of small and medium enterprises.

Keywords: Covid-19 pandemic, Plastics industry, Impact

1 Introduction

The plastics industry is growing rapidly worldwide, even with the pandemic [1], and China is no exception. The Covid-19 pandemic started at the beginning of 2020 has negatively affected the world for various aspects, ranging from health, economic and social issues. In particular, the epidemic has reduced foreign trade demand orders as well as the production capacity, increased the barriers for personnel entry, exit, and cross-border logistics. Moreover, the inspection and quarantine imposed on both business and personal activities lead to more financial distress to the economy as a whole. The global industrial chain, supply chain and capital chain have been affected in terms of some serious challenges. The spread of the Covid-19 around the world has also affected the production volumes, the quantity supplied, the sales revenues, and the exports orders of plastics industry companies to varying degrees [2]. Similar to other industries, the plastics industry is facing new challenges.

With the continuous implementation of the domestic epidemic prevention and control, such as periodical Covid-19 test and the compulsive policies of wearing facial masks in the public areas, the resumption of work and production in the plastics industry chain has been solidly advanced, resulting in the increasing demand of plastic products as compared to the pre-pandemic period. Moreover, the economic activities have

been improved in terms of more frequent trading activities and increasing market orders. This paper believes that the development of the industry predicts a steady development trend in the future of the plastic industry.

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2 Current status of the plastics industry in China

The production of plastic products has been increasing steadily in China. However, from January to March 2020, the cumulative output of the plastic products in the country was 15 million tons, illustrating a decrease of 22.91% compared to that of last year.

The operating income of 16,226 enterprises above designated size was 334.934 billion yuan, representing a year-on-year decrease of 21.03%, and the growth rate was 29.91% lower than that of the same period of the previous year. The profit was 14.545 billion yuan, down 19.38% compared to that of last year, and the growth rate was 35.45% lower than that of the same period of the previous year. The operating income profit rate was 4.34%, which was also decreasing. The cumulative export value of plastic products was 14.458 billion US dollars, a year-on-year decrease of 9.46%, and the growth rate was 17.04% lower than that of the same period of the previous year [4]. From Figure 2, most of the global sales of plastic products declined in 2020, and the sales revenue of the China decline by about 1.1 million (Table 1).

Table 1. The comparison of Plastics Industry 2019 & 2020 Production [3]

Program		January - March 2019		January - March 2020	
		Cumulative production for the month (million tons)	Growth rate for the same period (%)	Cumulative production for the month (million tons)	Growth rate for the same period (%)
Total plastic products		1400.45	3.52	1514.65	-22.91
Foam		65.06	5.59	43.10	-37.43
Synthetic leather & artificial leather		75.36	1.06	50.15	-31.95
Other plastics		843.68	1.72	998.29	-25.47
Daily use plastics		115.68	2.00	122.81	-12.96
Plastic film products	Total	300.67	9.83	300.30	-12.11
	Agricultural film	26.04	-6.81	20.01	-9.29

3 Analysis of the existing problems in the plastics industry

The companies in the plastic industry are facing many difficulties during this period. This paper mainly focuses on the following issues.

3.1 Weak demand and reduced orders

The Chinese government adopted a series of restrictive measures such as isolation policies. These policies provide more difficulties for employees to return to work. The industrial chain and supply chain have not fully recovered, and the economic cycle is not smooth.

3.2 The price of raw materials fluctuates, increasing the risk of enterprise operation

A combination of COVID-19 driven demand, catastrophic weather and logistical challenges has created supply shortages pushing prices up for plastics manufacturers. The domestic styrene price has dropped by 3,000 yuan/ton. On the other hand, plastic products for epidemic prevention, such as breathable films, have experienced explosive growth in demand. The demand for special materials is blowout, resulting in a sharp rise in the price of some polypropylene (PP) raw materials.

3.3 High operating costs have resulted in tight cash flow of the company

During the epidemic, the company's income dropped sharply without the shrink of the costs. The extension of the downstream fund withdrawal period brought difficulties to the cashflows for the companies. A slowdown in international imports throughout 2020 led to a reliance on U.S. manufacturers that typically sell 40% of production into the export market. While this increased domestic sales, the demand for resin still outstrips the supply by a significant margin.

3.4 The export trade situation is severe

With the spread of the pandemic, especially in western developed countries such as the United States, Spain, Italy, Germany, the United Kingdom, and France, most of the related construction was suspended, and the global international trade supply chain has been broken. Take the situation of "two refunds and continuous reductions", which refers to the cancellation of contract orders, and the continuous reduction of foreign orders. Many manufacturers relying on export heavily believe that market demand cannot recover quickly. At the same time, the outbreak of the epidemic has led to aggravated sentiment in various countries to reconstruct an independent industrial chain model, increased uncertainty in trade security, and the situation of foreign trade will become more severe.

To sum up, the demand of plastic products decreases because of the reduced sales revenues and block of most of the cities in China, which leads to the decrease in tight cash flows. Also, the fluctuating costs of raw materials increases the operational risks for firms. Last, but not least, the international trade has also been negatively affected.

4 Suggestions on solving above difficulties

In order to solve these problem, there are some relevant preferential tax policies suggested during the epidemic.

4.1 Corporate income tax

The first policy is one-time deduction for newly purchased equipment for epidemic control. The newly purchased equipment of key production enterprises is allowed to be included in the current cost at one time and deducted before corporate income tax. The purpose is expanding related equipment that can be newly purchased [4].

The second policy is extending the loss carry-forward period of enterprises in the industries that have been affected by the epidemic. The longest carry-forward period of losses incurred by enterprises has been extended from 5 to 8 years, helping the enterprises in terms of transportation, catering, accommodation, and tourism to make up for the operating losses as much as possible. Enterprises with difficulties will be judged in accordance with the current "National Economic Classification of Industries" implementation criteria, and their main business income must account for more than 50% of their total income in 2020 [5].

4.2 Accumulation fund

On the one hand, the companies that are negatively affected by the pandemic have difficulties in paying for their rents and utilities because they are not even allowed to open their in-person stores or offices. To help these businesses, the Chinese government impose new policies that the business could apply for lowering the contribution ratio of housing provident fund to 3% in accordance with the law, and the period shall not exceed 12 months. On the other hand, the business could also apply for deferring the housing provident fund for a period not exceeding 12 months.

4.3 The social security

Due to the financial hardship caused by Covid-19, there are many employers facing difficulties paying out the corresponding welfare payments, such as the pension, the unemployment insurance, and the work-related injury insurance. To relieve this issue, the government allows the payment to be postponed to three months after the end of the pandemic without any forms of late-payment fee.

To sum up, firstly, the government used corporation tax to help the industry compensate for any potential losses incurred. Secondly, the accumulation fund is used to

reduce the cost including utilities and rents of plastic industry. Thirdly, the social security is imposed to ensure the welfare status of employee.

5 The prospect of the plastics industry

There are some opportunities for the plastics industry in the context of the pandemic. First, seize the opportunity of "new infrastructure" projects to expand the market demand. Secondly, the renovation of old communities also plays a significant role. Thirdly, the construction of public health facilities is another important process during this period. The epidemic shows that the existing medical and public health systems in the country are insufficient. After the epidemic, the state will invest part of the money in the construction of public health facilities. These will provide new market opportunities for the plastic products industry [6].

Secondly, the epidemic has led to the development of new forms of business and accelerated the transformation of traditional industries.

The response to the epidemic has boosted the rapid development of new industries supported by big data, artificial intelligence and other digital technologies. The pandemic popularized remote jobs with a rapid increasing number of remote employees [7]. More importantly, since China is one of the country with the greatest number of exports, the block of the country lead to a negative demand shock to the whole country [8].

On the other side, the awareness of social distancing and protective policies have been implemented. Moreover, the number of companies in the health industry, as well as some other industries that related to disease resistance will continue to rise [9, 10]. Such strong demand provides more opportunities for the plastics industries in terms of the related products, such as food processing, medicine packaging products, and the protective clothing.

6 Conclusion

Overall, the Covid-19 pandemic has led to some negative impacts on the plastics industry. With the pandemic, the plastic industry has encountered difficulties such as reduced orders, increased operational risks and rising costs. Although the COVID-19 epidemic had a certain impact on the economic indicators of the plastic industry in the first quarter of 2020, the country has adopted monetary policy so that the industry becomes more adaptive to the pandemic, and recover more soon [10]. These policies includes the decrease of corporate income tax, the provision of provident fund, and the alleviation of social security. From the transformation of the real economy to investment in fixed assets, from stimulating market consumption to orderly opening of the capital market, we will enter a relatively active and relaxed state. With the control of the epidemic, the society will be back to the same as the pre-pandemic period: the staff will return to work, the national infrastructure construction gradually restored, the normal demand for plastic products will continue to rise, and the long-term positive trend of the plastic industry has not changed.

References

1. Inc, Grand View Research. Plastic Compounds Market Size Worth \$98.65 Billion by 2028: Grand View Research, Inc. www.prnewswire.com, Dec. 2, 2021, www.prnewswire.com/news-releases/plastic-compounds-market-size-worth-98-65-billion-by-2028-grand-view-research-inc-301435918.html.
2. Anton Pak, Oyelola A. Adegboye, Adeshina. Adekunle, Kazi M. Rahman, Emma S. McBryde and Damon P. Eisen, Economic Consequences of the COVID-19 Outbreak: the Need for Epidemic Preparedness, May 29, 2020 <https://www.frontiersin.org/articles/10.3389/fpubh.2020.00241/full>.
3. Zhongguoxiesu, Analysis of the impact of epidemic on plastic industry, June, 11, 2021 <http://www.cppia.com.cn/front/article/609/1>.
4. State taxation Administration, Circular of the State Administration of Taxation of the Ministry of Finance on tax policies supporting the prevention and control of novel Coronavirus Pneumonia, January 1, 2020, <http://www.chinatax.gov.cn/chinatax/n810356/n3010387/c5155562/content.htm>.
5. State taxation Administration, Notice on Tax Policy in support of prevention and control of pneumonia in novel Coronavirus Infections, January 1, 2020, <https://www.chinaacc.com/kuaijishiwu/zzjn/you2>.
6. IBIS world. "IBISWorld - Industry Market Research, Reports, and Statistics." www.ibisworld.com, 20 July 2022, www.ibisworld.com/china/market-research-reports/plastic-parts-manufacturing-industry/.
7. Greg Iacurci, Pandemic pushes search for remote jobs up 460%, AUG 26, 2021, <https://www.cnbc.com/2021/08/26/covid-pandemic-pushes-hunt-for-remote-jobs-up-460percent.html>.
8. Eurostat. Which Country Imported the Most Face Masks? ec.europa.eu, Oct. 6, 2020, ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20201006-1.
9. S. A. Sarkodie, P. A. Owusu, Impact of COVID-19 pandemic on waste management. *Environ. Dev. Sustain*, 2020, pp.7951–7960.
10. Peter Iglinski, Monetary policy vs. fiscal policy: Which is more effective at stimulating the economy? January 5, 2022, <https://www.rochester.edu/newscenter/monetary-policy-vs-fiscal-policy-which-is-more-effective-at-stimulating-the-economy-507112/>.

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