

# The Path Choice of Mask Industry Development After Epidemic

Jie Pan

School of international trade and economics, Anhui University of Finance and Economics,  
China.

Pj13731879992@163.Com

## Abstract

**In early 2020, a global public health event - COVID 19 suddenly broke out. During the epidemic, masks were once regarded as scarce supplies. Not only China but also the whole world were full of demand for masks. This paper proposes the following solutions: first, export mask products to the world that meet the production standards of various countries; Second, the innovation design satisfies the consumer's differentiation psychology; Third, make full use of Chinese production, master the dominant right of China's mask industry.**

## Keywords

**COVID 19; Mask economic; Masks export; Made in China.**

## 1. Introduction

In recent years, the global air quality deterioration, go out wearing masks are no longer the privilege of patient or medical personnel, coupled with the beginning of 2020, a sudden COVID - 19 sensation all over the world, make masks, protective clothing and other medical supplies have become epidemic period out essential commodities, from material to work overtime production, start from the await order to return to work, although the outbreak ferocious range is larger, but due to the correct leadership of the party and the state, a series of policy control in time, numerous frontline staff's struggle, eventually the outbreaks are under control. During outbreaks, mask once concern, "a hood is hard to find" become a hot topic and common phenomenon, in the mask when the capacity of a serious shortage, not only the original mask manufacturers work overtime to expand production, a large number of amateur are cross-border production enterprises, affected by the epidemic masks economy gradually fanaticism, behind the legacy of problems cannot be ignored.

Large-scale production of masks, after can meet the market demand of the epidemic periods, excess capacity will cause the cross-border manufacturing masks quite sunk costs, countries have promised to all corporate excess capacity recovery after the outbreak, but as a Chinese enterprise should ponder the question from their own point of view, new trade routes through mining, for it can be done during production hindsight, find out the solution for the excess production capacity. Because of the influence of the new champions league outbreak, people never leave home for more than a month, not to mention its living habits change big or small, take the degree of dependence on the mask and other medical supplies, after the outbreak of the future, is expected to wear face masks are no longer a genus of patients and medical personnel, but people away from daily collocation, regular daily items in the home.

Through the study found that affected by the epidemic, mask industry development in our country at present stage is thriving, belongs to the sunrise industry of by the outbreak, the original outbreak early one day can only produce 70 million masks, only to become today's nissan one hundred million, the number is on the rise, but in the production of masks in the big three, only one is enterprise in China, the other two are from the United States, including the United States of 3 m company as early as five years ago will occupy the mask with a 90% share of the market, 3 m although dominates 90% of China's mask in the market, but production masks still belong to the company's business sideline, wants the outbreak of the crisis, Seize the opportunity to turn around the market, as soon as possible to help our local enterprises to grasp the dominant role in China's mask market.

Finally, this article on how to plan after the outbreak mask industry development to give the following Suggestions: one is to prevent overcapacity after the outbreak, encourage China to mask manufacturers to enter the international trade, exports to foreign countries to meet the standard of Chinese masks, collected the mask production standard of European and American countries such as China and Japan, obtained production filter efficiency more than 95% (i.e., to meet the standard of secondary and above level) of the mask can exports to these countries for daily protection type civil masks standards; Second, in order to improve the quality of life of consumers and meet the differentiated consumer psychology, it is suggested that manufacturers innovate design to achieve personalized production on the premise of not affecting the basic effectiveness of masks. Third, for domestic enterprises to recover the dominant right of mask market as soon as possible, it is suggested to increase the support to the domestic mask industry, improve the production standards of domestic masks, in strict accordance with the existing provisions of the level 2 or above the production of masks, cross-border production of enterprises to give financial subsidies, take incentive policies for downstream industries.

## **2. Current Situation Of Mask Industry Development**

### **2.1 Daily Production Capacity Change of Masks**

Before the outbreak, a mask machine with cost price of 185,000 can produce 100 masks in 1 minute, and work continuously 24 hours a day to produce 144,000 masks. With the improvement of the epidemic, the factory is gradually returning to work to restore capacity. The production number of masks in China has also increased from only 70 million a day in the early days of the epidemic, to today's production of 100 million is not a dream. Although the number of mask production is considerable, the quality is difficult to guarantee. Most of the enterprises are transformed from daily chemical products and medical products, which directly leads to the professional reduction in the production of masks. For example, the production of medical masks needs to be disinfected with ethylene oxide after production and left standing for 7 days to be qualified. some production workshop to improve the speed with practice of ultraviolet radiation, wet evaporate sweat evaporate, disinfection, serious damage to the filtering capacity of masks, even its filtering effect decreased by 35% compared with the original, These are problems that are emerging from the rapid development of some industries and need to be taken seriously by the outside world.

### **2.2 Many Manufacturing Companies Cross-Border Production**

Due to the extreme shortage of first-line medical supplies, the national demand for masks and other daily supplies only increased, coupled with government policy support, a number of large manufacturers have switched to the production of masks, such as the famous byd, foxconn and other big-name enterprises, and melt-spraying cloth as the core material of masks was in short supply for a time, in this crisis, the old state-owned sinopec took the lead in investing 200 million yuan to build melt-spraying cloth and non-woven production lines. Crossover is not only a kind of "wisdom", but also a kind of ability and responsibility. The cross-border production of masks not only provides sufficient medical supplies for front-line doctors and patients, but also wins the opportunity for their resumption of work and production.

### **2.3 Relevent Masks' Production Standards in China**

《Daily technical specification for protective mask》 is China's first civilian respirators national standards, was born on November 1, 2019, including implementing or will improve the civil protection masks can be depended on without the standard market phenomenon, according to the standard, mask protection level from high to low was divided into four levels: A, B, C, D, corresponding to different air quality situation, such as grade A mean PM2.5 concentration at the level of 500 micrograms per cubic meter, means "serious pollution"; Grade D corresponds to "moderate or below pollution" and is applicable to PM2.5 concentrations less than or equal to 150 micrograms per cubic meter. In addition to the civil protective masks, the relevant standards for medical masks in China include 《the disposable surgical mask》 issued in 2013, 《the medical surgical

mask》 released in 2011, and 《the technical requirements for medical protective masks》 announced in 2010.

### 3. The Path Choice of Mask Industry

#### 3.1 Export Masks That Meet Production Standards of Various Countries

At present, the production of masks in China has the hidden danger of excess production capacity after the epidemic, so export to foreign countries is one of the effective ways to solve the problem of excess production capacity. Mask manufacturers need to meet national standards to enter the international market, so this paper collected the classification and production standards of masks in some countries, compared with the production requirements of masks in other countries, in order to find out the production standards conducive to the export of masks. Taking the production of daily protective masks as an example, by comparing China with the European Union, the United States, Japan in such indicators as mask types, filtration efficiency, protective function and effect time, Chinese manufacturers need to meet the requirements of China to export at least two or above the filtration level.

Related indicators of production standards are shown in table 1 and table 2:

Table1 production standards of masks in Europe, America and Japan

Masks Variety	USA Standards			EU Standards			Japan Standards		
	N95	N99	N100	FFP1	FFP1	FFP3	DS1	DS2	DS3
Filter Efficiency	95%	99%	99.97%	80%	94%	97%	95%	99%	99.90%
Protection function	Non-oil suspended particles			None and sweat oil suspended particles			Respiratory protection		
Action aging	No time limit			No time limit			No time limit		

Table 2 China Daily Protective Mask Production Specification

《GBT 32610-2016 Daily Protective Mask Technical Specifications》				
Filtration efficiency level		LEVEL 1	LEVEL 2	LEVEL 3
Filtration efficiency (%) ≥	Salt medium	99	95	90
	Oil medium	99	95	80
Protection level	LEVEL A	LEVEL B	LEVEL C	LEVEL D
Protective effect (%) ≥	90	85	75	65
Protection effect above level A, filtering effect should be above level 2				
Protective effect of B, C, D, filtering effect should be more than level 3				
Saline media: biological particles, such as influenza virus, bacteria, etc				
Oily medium: reduce electrostatic interactions of particles, such as pollen, dust, etc				

#### 3.2 Innovative Design to Increase Consumer Experience

As early as in 2007 the global PM2.5 exceeds bid badly haze, masks had become a people go out of one of the necessary items, in addition to the problem of the environment is more and more serious in recent years, the world's public health events frequently, especially in the early 2020 outbreak of COVID - 19, its influence is no. One hundred, masks become this period people extremely dependent on the survival of supplies, and dependence on masks exist not only in the special period in outbreaks and fog haze, in recent years, several big events for the habits of the people also had an indelible influence, masks will frequently used in everyday life in the future. Public health events, such as air pollution and sudden epidemic, have triggered the craze for masks, which makes consumers have a new definition of the appearance of masks in pursuit of individuality. Therefore, how to innovate the design to increase consumers' sense of experience has become a new problem for businesses to think

about. Except in blue surgical masks for standard color, daily protective mask ratio more than seventy percent of the total number of production, not only and the most frequently used by people, so manufacturers should focus on the daily protective mask style design, to the basic purpose of increase consumer experience at the same time, at present, there are many customer service businessmen publicity, said accept custom mask meet the demand of the diversity of the consumer psychology. Innovative mask style design is not only conducive to the stable development of the mask industry because of the existence of demand, but also conducive to its vertical development driven by personality and differentiation.

### **3.3 Make Full Use of Chinese Production, Master Masks Industry Dominance**

As we have learned, 3M company of the United States occupies the market share of 90 percent of Chinese mask, more make a person reflect is, old company 3M company is engaged in electron, automobile and chemical energy and so on numerous fields, mask industry also is just one of its subsidiary industries. From the perspective of the composition of masks, a mask is mainly composed of three layers of non-woven fabric, one of the most important and major on filtering effect of which is the middle layer of melt-blown fabric, in short supply during the outbreak, melt-blown fabric prices from the original 20000 yuan per ton rose to 15-200000 a tonne, not only the special time in the production of masks raw materials rise in price, if not during the period of the outbreak, fixed costs such as production equipment used for the production of a mask is not a small number, is a domestic melt-blown fabric production equipment price is in 5 million yuan, compared with 10 million yuan in imported equipment, the huge cost to improve the mask industry barriers to entry, However, China has a large number of energy and chemical industries, with sufficient advantages in mask production materials, and abundant production resources are not fully utilized by local enterprises, so that foreign non-mainstream industries occupy the leading position in the mask market. For the interests of local enterprises in China, to occupy the market share of mask industry, this paper suggested that the government according to the number of single enterprise nissan masks to give a percentage of the cost of subsidies, especially for the cross-border production of chemical industry, they have the advantages of the resources is reducing production cost of the mask, so on the premise of meet the production standard, encourage cross-border masks production energy chemical industry, the government should take the lead in confidence on policy to the outside world.

## **4. Conclusion**

Based on the face mask economy which is hot again because of COVID-19, this paper puts forward three problems: how to turn the corner to develop China's face mask industry with the help of the epidemic, how to resolve the excess capacity of the face mask industry after the epidemic, and how to extend the consumption dependence of people on face masks during the epidemic to the future. The article is divided into three parts, the first part is the introduction, the main text of the introduction of the mask economy topic; The second part mainly reflects the changes of mask industry during the epidemic, introduces the changes of daily output and production capacity of mask industry, the intelligent performance of cross-border production of some manufacturing enterprises during the epidemic, and the latest production standards according to the classification of mask types in China. The third part discusses the path selection method for the development of China's mask industry after the epidemic. First, it summarizes the production standards of masks in Europe, America, Japan and other countries, and finds out the intersection standards that can meet the export standards of these countries and meet the production levels of masks in China, so as to provide another solution to the problem of excess capacity after the epidemic. Second, the epidemic has an impact on people's living habits, especially the dependence on mask products. Therefore, it is suggested that manufacturers add personalized design elements in the production of daily protective masks to meet the differentiated psychological needs of consumers. Third, in view of the small market share of local enterprises in China's mask market, the government is encouraged to develop the local mask industry with the help of the outbreak of warped plate, strive for a unified brand, and regain the dominant power of China's mask industry.

## References

- [1] N.Lang, Y.yuan, J.Zhou. Comparison of domestic and international standards of medical individual protective equipment, Occupational health and emergency rescue, Vol.38(2020) No.2, p.112-115.
- [2] Y.B Wang, J.Y. Zhang. Where does the anti-epidemic confidence of Chinese enterprises come from? Entrepreneur daily, 2020-04-01 (003).
- [3] <https://finance.sina.com.cn/roll/2020-03-03/doc-iimxyqvz7345235.shtml>"the Beijing news - the mask can nissan production are 100 million breakthrough"
- [4] J.Pei. "cross-border" is a kind of wisdom, Quzhou daily, 2020-03-26 (001).