

# Research on the Causes and Effects of Chinese Mask Price Fluctuation During COVID-19

Xintong Chen\*

Jiangsu Tianyi High School, Wuxi, Jiangsu, China, 214000

\*Corresponding author. Email: 2698307889@qq.com

## ABSTRACT

Around 2019, COVID-19 broke out rapidly in world. The infectious disease spread immediately and the whole world was influenced. The economy, one of the victims, was largely influenced and went through a recession. However, mask industry adversely received an increase in its production. Therefore, this paper aims to study the masks' prices fluctuations during pandemic especially in China. By referring to previous paper and conclude their opinions, the research finds out that masks' prices increase during COVID-19 in China. In addition, establishing raw material factories, eliminating limits on trading and government control should be potential solutions to stabilize the fluctuations.

**Keywords:** COVID-19, mask industry, price fluctuations

## 1. INTRODUCTION

In January 2020, COVID-19 broke out. The respiratory disease, which can be infected by inhaling droplets in the air, prevents people from getting too close, and everyone has to stay at home to avoid catching the virus [1]. Instantly, panic was all around. The economy, as a victim, was seriously influenced during the pandemic. Singh, a scholar at the Central University of Jammu, states that “[t]he Organization for Economic Cooperation and Development (OECD) also revealed that they cut their expectation for global growth to 2.4% from 2.9%, and warned that it could fall as low as 1.5%.” However, there are some industries receiving benefits from the pandemic instead of profit losses, for instance, the gold and oil industries [2]. According to Li Zheng Zheng and several other scholars in China, “[t]he ordinary medical mask price has skyrocketed, from less than 0.5 Yuan to 5 Yuan, and at least until March 2020, was in short supply”. [3] The mask industry, which is one beneficiary, also gains more benefits from the pandemic. Therefore, the purpose of this study is to give a summary of previous studies done related to mask prices' fluctuations during the COVID and give some potential solutions to the fluctuation phenomenon. Moreover, potential solutions provided to stabilize the mask market can be considered using in the future and researchers who do similar research can also refer to this study.

## 2. PREVIOUS STUDY

Previously, many studies related to the topic have been done. The first study was conducted by Victor Chernozhukov, Hiroyuki Kasahara and Paul Schrimpf, scholars from different universities in the major of economy. In the study they discovered that by requiring all people to wear face masks, the cumulative number of deaths by the end of May would have been smaller by as much as 19 to 47%, which is almost 19 to 47 thousand lives. Moreover, with the policy of asking people to wear face masks, the risks can reduce more. Therefore, due to the policy, most people would begin buying face masks which contributes a lot to the industry.

The second study was done by Zhixing Xiao, a scholar in the Social Science Department. By setting up some graphs, the author found out that before the COVID-19, masks were not necessities in life. As a result, most shops did not prepare enough masks for sale. So when COVID-19 broke out, face masks were in shortage which raised the prices of masks a lot. Though the increasing demand should lead to a decreasing price in supply, the shortage in raw materials raised prices to a much higher level than the influences of demand.

In conclusion, though the government already set limits on the prices of masks to balance the market, the prices still went up a lot [4].

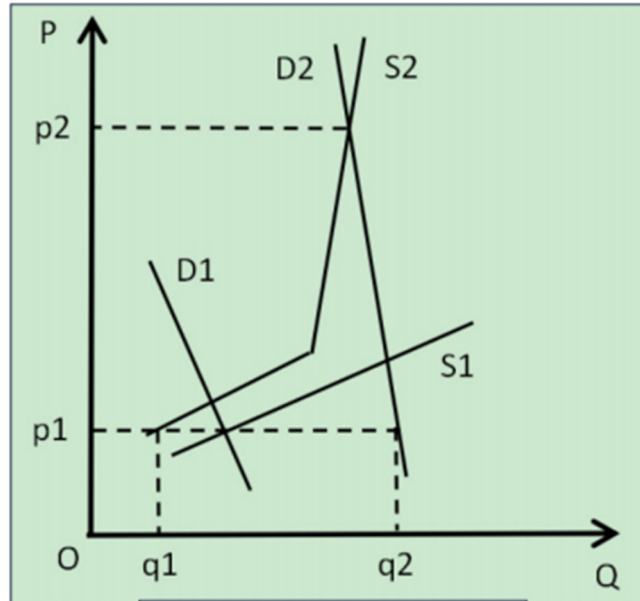


Figure 1 The mask market before COVID-19

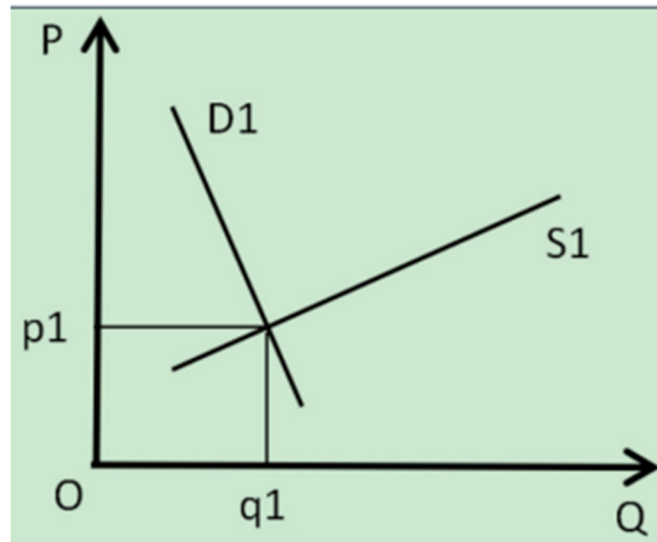


Figure 2 The mask market during COVID-19

### 3. ANALYSIS OF THE REASONS FOR PRICE FLUCTUATIONS OF MASKS

Previous studies have proved and shown that the masks industry went through an increase during the pandemic, so there must be some reasons that caused such phenomenon. This part will divide reasons into three categories to give some explanations for such fluctuations.

Firstly, the shortage of resources is leading to a spike in prices. According to Park [5] in the Economic Research Department (ERD) and several other scholars, a surge in demand for N95 led to a shortage of its key component, nonwoven polypropylene. Moreover, China, one of the largest markets for PPE products that take up almost 50% of the global production with East Asia also experienced the phenomenon of a shortage of melt-blown fabric, which caused stagnation in

production. The lack in raw materials, prevented and slowed down many producers' pace of providing consumers with what they needed. Based on basic economic concepts, a shortage of raw materials can lead to a growth in the prices of supply. Suppliers of masks, therefore rise their selling prices, which finally forms a fluctuation compared with previous prices.

The second reason can be explained by the limits of trade. According to Van Assche [6], at the beginning of COVID-19, some countries enacted policies that banned the export of medical facilities to prevent the shortage of medical facilities in their own countries. Most countries, on a global scale, closed their doors to foreign nationals during the pandemic. OECD (2020), Organization for Economic Co-operation and Development, in their article also asserts that many shopping containers were stuck in ports [7]. As a result, restrictions on containers' movement led to the shortage of some products at their

destinations. For instance, the global food prices just increased between 2 and 6 percentage on average because of the trading limits.[13]. The price of cargo was influenced. Especially China, which was in large need of face masks in the pandemic, actually only produced masks locally in a range of about tenth of residents' needs. With such effects and restrictions, the prices of masks went up.

In addition, since the pandemic was coming suddenly which meant people did not prepare for it. Therefore, not many people had enough eligible masks at home. According to the Ai Media Data Center, mask production increased immediately after the beginning of the pandemic in 2020. The pandemic has naturally led to increased demand for masks. However, the output and production speed of masks before 2020 simply cannot meet this huge sudden demand. Therefore, the occurrence of COVID-19 has also exacerbated the imbalance between supply and demand. This has further contributed to the sharp rise in the price of masks.

#### 4. POTENTIAL SOLUTIONS

The first solution should be to establish more raw material factories. Related to the first reason, shortages in resources increased the prices of masks to some extent. If more factories, such as factories that produce nonwoven can be set up, the costs of producing masks will decrease, which lowers the mask prices in the end. According to two scholars, Song-Yi Kim and Louis Kuijs, when concerning the profits of a product, the prices of raw material becomes one of the most vital influence factor. The higher the price of raw material, the fewer profits producers will make [8]. As a result, in order to ensure that prices do not rise due to raw material shortages, establishing raw material factories will provide significant assistance in lowering mask prices.

Secondly, eliminating limits on trading is another potential solution. Supported by Van Assche [6], during COVID-19, countries enacted laws that limited the trade between countries. As a result, China lacked enough materials to produce masks to control its prices. If governments in different countries are willing to open the market that enables producers to trade with other suppliers, the prices will be improved to a large extent. According to Niroomand and Bahmani-Oskooee, there is a positive relationship between open markets and economic growth in the long run [9]. In other words, if the government is willing to open the export markets, the mask industry will gain opportunities to import raw materials abroad that causes an economic growth. With economic growth, price fluctuations will be stabilized and it will be easier to control the mask prices [10]. In addition, to better achieve the goal of asking government to open the market, influences from world institutions are essential. Marrett, an American

sociologist, stated that organizations are helpful in strengthening women's social identities [11]. On the other hand, if organizations such as the WTO are willing to help with propaganda to encourage governments to open trading, mask prices will be better controlled in China.

Finally, the government in China should put stricter control on the mask market. Since the disease broke out in a country at a fast speed and could hardly be controlled, the pandemic was an event that the government needed to pay special attention to. Therefore, the chaotic mask market during COVID should be controlled and supported by the government. According to Badar Nadeem Ashraf, a researcher from Jiangxi University, government interventions have a positive impact on the financial market [12]. With the help of the government such as the establishment of a price ceiling, mask prices can be limited to some extent and become more stable.

#### 5. CONCLUSION

In conclusion, it is proved that mask prices did fluctuate and increase because of the COVID-19. In addition, potential solutions such as establishment of raw material factories, eliminating limits of trade and stricter control from governments should be considered to quiet down such fluctuations. Researches who are doing relevant study or firms that have problems can also refer to the paper to find out some useful information. For the limitations in the study, since the article mainly concluded other paper's ideas, novelty is lacked in paper. Secondly, not many paper did research on mask industry's price fluctuations, available sources are limited. For future study, scholars can research on the mask industry in a global scale.

#### REFERENCES

- [1] Singh, Jaspreet, and Jagandeep Singh. "COVID-19 and its impact on society." *Electronic Research Journal of Social Sciences and Humanities* 2 (2020). <https://ssrn.com/abstract=3567837>
- [2] Mensi, Walid, et al. "Impact of COVID-19 outbreak on asymmetric multifractality of gold and oil prices." *Resources Policy* 69 (2020): 101829. DOI: <https://doi.org/10.46557/001c.22976>
- [3] Li, Zheng Zheng, Yidong Xiao, and Chi-Wei Su. "Does COVID-19 Drive Stock Price Bubbles in Medical Mask?." *Asian Economics Letters* 2.4 (2021): 22976. DOI: <https://doi.org/10.46557/001c.22976>
- [4] Chernozhukov, Victor, Hiroyuki Kasahara, and Paul Schrimpf. "Causal impact of masks, policies, behavior on early covid-19 pandemic in the US." *Journal of econometrics* 220.1 (2021): 23-62. DOI: <https://doi.org/10.1016/j.jeconom.2020.09.003>
- [5] Park, Cyn-Young, Kijin Kim, and Susann Roth.

- Global shortage of personal protective equipment amid COVID-19: supply chains, bottlenecks, and policy implications. No. 130. Asian Development Bank, 2020. DOI: <https://dx.doi.org/10.22617/BRF200128-2>
- [6] Van Assche, Ari, and Sarianna Lundan. "From the editor: COVID-19 and international business policy." *Journal of International Business Policy* 3.3 (2020): 273-279. DOI: <https://dx.doi.org/10.1057/s42214-020-00065-7>
- [7] OECD. "Covid - 19 and International Trade: Issues and Actions." (2020). <https://www.oecd.org/coronavirus/policy-responses/covid-19-and-international-trade-issues-and-actions-494da2fa/>
- [8] Song-Yi, Kim, and Louis Kuijs. Raw material prices, wages, and profitability in China industry: how was profitability maintained when input prices and wages increased so fast?. No. 41861. The World Bank, 2007. <https://documents1.worldbank.org/curated/en/309541468743120293/pdf/418610NWP0Raw0material0wp801PUBLIC1.pdf>
- [9] Bahmani-Oskooee, Mohsen, and Farhang Niroomand. "Openness and economic growth: an empirical investigation." *Applied Economics Letters* 6.9 (1999): 557-561. DOI: <https://doi.org/10.1080/135048599352592>
- [10] Berggren, Niclas. "The benefits of economic freedom: a survey." *The independent review* 8.2 (2003): 193-211. <http://www.jstor.org/stable/24562685>
- [11] Marrett, Cora Bagley. "Influences on the rise of new organizations: The formation of women's medical societies." *Administrative Science Quarterly* (1980): 185-199. DOI: <https://doi.org/10.2307/2392451>
- [12] Ashraf, Badar Nadeem. "Economic impact of government interventions during the COVID-19 pandemic: International evidence from financial markets." *Journal of behavioral and experimental finance* 27 (2020): 100371. DOI: <https://doi.org/10.1016/j.jbef.2020.100371>
- [13] Espitia, Alvaro, Nadia Rocha, and Michele Ruta. "Covid-19 and food protectionism: the impact of the pandemic and export restrictions on world food markets." *World Bank Policy Research Working Paper* 9253 (2020). [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3605887](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3605887)