

Enlightenment from the performance of pork processing industry during the COVID-19 epidemic

Haoxuan Zhang^{1,a*}, Huaiyu Chen^{2,b}, Zhentao Hong^{3,c}, Zhiran Li^{4,d}, Zhandong Xu^{5,e}

¹Zhejiang University of Technology, Hangzhou City, Zhejiang Province, China

²Beijing NO.35 High School, Beijing City, China

³Tianjin University of Science & Technology, Tianjin City, China,

⁴Xiamen University Tan Kah Kee College Xiamen, Zhangzhou City, Fujian Province, China

⁵New Chanel International Education Group Limited, Hangzhou City, Zhejiang province, China

^a201906051729@zjut.edu.cn,

^b3514535501@qq.com,

^c18204403@mail.tust.edu.cn,

^d2647697439@qq.com, ^eDavidxzd010@gmail.com

*Corresponding author: 201906051729@zjut.edu.cn

These authors contributed equally to this work

Abstract: The outbreak of COVID-19 epidemic has a great impact on the global economic security and development. By analyzing the existing literature, the epidemic has a deep influence on the pork processing industry, resulting in a decline in the overall profits of the industry. However, through the financial statement analysis of typical enterprise, the profits during the epidemic in COVID-19 has increased, which is closely related to the opening of trade during the epidemic. It can be seen that trade offsets the impact of rising costs caused by the epidemic, so we should avoid the emergence and intensification of trade wars. Therefore, we should safeguard the world economic security together and recover the economies of various countries from the impact of the new epidemic gradually.

Keywords: COVID-19 Epidemic, Pork, Globalization

1. Background

The global pandemic of COVID-19 has affected more than 200 countries and regions to varying degrees. In addition, the outbreak of COVID-19 in India in recent months and the spread of mutated strains of the virus have also made the situation of global prevention and control of the pandemic more tough.

The adverse impact of COVID-19 on the economy is directly reflected in the logistics industry and supply chain (Alvaro Espitia, Nadia Rocha, Michele Ruta, 2020). Even after the pandemic is initially and effectively controlled, logistics companies are still affected and have a low rate of resumption of work and large areas of re-recruitment problems (Shi Qi, 2020). As the circulation industry, the main problems faced by retail companies are sharp decline in sales performance, tight cash flow, inventory and employee issues (Ye Wenfei, 2020). For example, some traditional offline industries and stores that sell fresh products rely more on offline passenger flow. Therefore, the impact of the pandemic on the profits of these retail industries and stores should be significantly greater than the impact on revenue. (Wang Gangchao, 2020).

While the pandemic has disrupted global supply chains and international trade, it has also had a significant impact on domestic livestock product consumption and livestock production and processing activities in various countries. Due to labor shortages caused by the pandemic, the operating capacity of some pork and beef processing plants is lower than normal. The decline in pork and beef processing capacity is reducing the supply of beef and pork at the wholesale and retail levels, while reducing the demand for live animals by processors. Consequently, the reduction in the supply of meat to consumers has further increased the wholesale price of beef and pork (James Mintert).

China's hog industry is huge, with pork consumption accounting for 49.6% of the world's total pork consumption, and raw pork consumption and output accounted for more than 60%. Pork is a vital source of protein supplement for Chinese people (Chen Qiao, 2020).

This paper mainly studies the impact of the pandemic on China's pork food processing industry, and

analyzes the beneficial enlightenment for economic development based on the performance of the pork processing industry during the pandemic.

2. Methodology

This study focuses on the financial statements of Henan Shuanghui Investment & Development Co.LTD. listed companies in 2020 and 2021. The report data source is Juchao Information Network. Search for the keyword Henan Shuanghui Investment & Development Co.LTD. 2020 financial statement, and the financial statement in the first quarter of 2021 and the report in the whole year of 2020 is available to check.

Combined with literature research, this paper studies the impact of epidemic situation on Chinese pork food processing industry from four dimensions: feed, processing, logistics and economic security. Literature research tools include Google scholar, Baidu Academic and HowNet.

See the following table for keyword selection and search results.

Table 1

Key word	Research tools	Related literature
Pig feed and covid-19	Google Scholar、Baidu Scholar	1.Yan Yantao, 2020 [11] 2.Wang Yubin,2020 [12] 3.Alfons Weersink,2021 [13]
Covid-19 China's logistics supply-chain and the change in logistics under Covid-19	CNKI、Baidu Scholar	1.Shi Qi,2020 [1] 2.Wang Gangchao,2020 [2] 3.Ye Wenfei,2020 [3] 4.James Mintert,2020 [4] 5.Alvaro Espitia,2020 [6]
Covid-19 hog and international economic security	CNKI、Baidu Scholar	1.Yu Nanping,2021 [7] 2.Yao Zhizhong,2020 [8] 3.A group of Sunshine Asset Management Corporation Limited,2021 [9]
Covid-19, hog price and hog production	CNKI、Baidu Scholar	1.Shi Qi,2020 [1] 2.Chen Qiao 2020 [5] 3.Wang Zili,2020 [10] 4.Yang Yantao,2020 [11]

3. Conclusion

3.1. Influence of the COVID-19 epidemic on pig feed industry

The epidemic caused the price of pig feed to rise, and the market price of agricultural materials generally rose. Table 2 shows that in mid-February, the price of pesticides directly increased by 600 yuan/ton. The price increase of urea and compound fertilizers is not obvious, but as the epidemic situation continues to worsen, the prices of urea, compound fertilizers and pesticides have risen rapidly since late February. Compared with late February, the prices of pesticides and urea rose sharply in early March, rising by 3.7% and 3.5%, respectively, while compound fertilizers rose relatively slowly, at 0.3%. Due to the difficulty of transportation during the period, the market price of corn has been rising. In the Northeast, North China, southern urban areas and port urban areas, the market price of corn from January 7, 2020 to April 7, 2020 Generally speaking, it is rising continuously. In addition, my country's corn imports continue to increase.

In 2019, China imported 4.791 million tons of corn, an increase of 36% over the previous year. In addition, due to the impact of the epidemic, some logistics company personnel estimate that their service prices may increase by nearly 40%, and ocean transportation costs continue to rise (Shi Qi). We can see that the prices of international logistics will rise due to the epidemic. This will lead to imported corn. The increase in the cost of feeding pigs has led to an increase in the overall price of feed for pigs.

*Table 2 Changes in market prices of agricultural materials from January to April 2020 (unit: yuan/ton)**Source: According to data compiled by the National Bureau of Statistics.*

Agricultural materials	Late January	Early February	Late February	Early March	Late March	Early April
Urea	1777	1768	1821	1885	1820	1786
Compound fertilizer	2405	2405	2418	2425	2425	2425
Pesticides	20300	20300	21400	22200	21507	21127

Table 3 Changes in corn market prices in major production areas and sales areas from January to April 2020 (unit: yuan/ton)

area		July 1st	February 6th	March 3th	April 7th
North-east area	Suihua, Heilongjiang	1640	1660	1680	1800
	Changchun, Jilin	1700	1720	1740	1840
	Shenyang, Liaoning	1740	1740	1830	1870
North China	Shijiazhuang, Hebei	1930	1950	1910	2010
	Zhengzhou, Henan	1880	1880	1920	2020
	Weifang, Shandong	1940	1960	1990	2050
North and South Area	Changsha, Hunan	2020	2070	2020	2080
	Nanchang, Jiangxi	1980	2050	2010	2070
	Chengdu, Sichuan	2070	2150	2180	2160
Port area	Guangzhou, Guangdong	1950	2060	1980	2030
	Dalian, Liaoning	1850	1900	1930	1990

Source: According to data compiled by the National Bureau of Statistics

3.2. Influence of the COVID-19 epidemic on pork logistics industry

The recovery rates of LTL(less than truckload) logistics and vehicle logistics after the Spring Festival were 0.9% and 19%, far lower than the 92% and 87% of last year. During the Spring Festival, the container throughput of the eight major container trunk ports in the coast dropped by 16% year-on-year, and the container throughput of the Yangtze River trunk port dropped by more than 20% year-on-year (Wang Zili).

From these aspects, we can see that the transportation efficiency during the epidemic was lower than last year, and In the face of the epidemic, each logistics salary must purchase a large number of epidemic prevention products to prevent employees from contracting the epidemic during transportation, which greatly increases transportation costs.

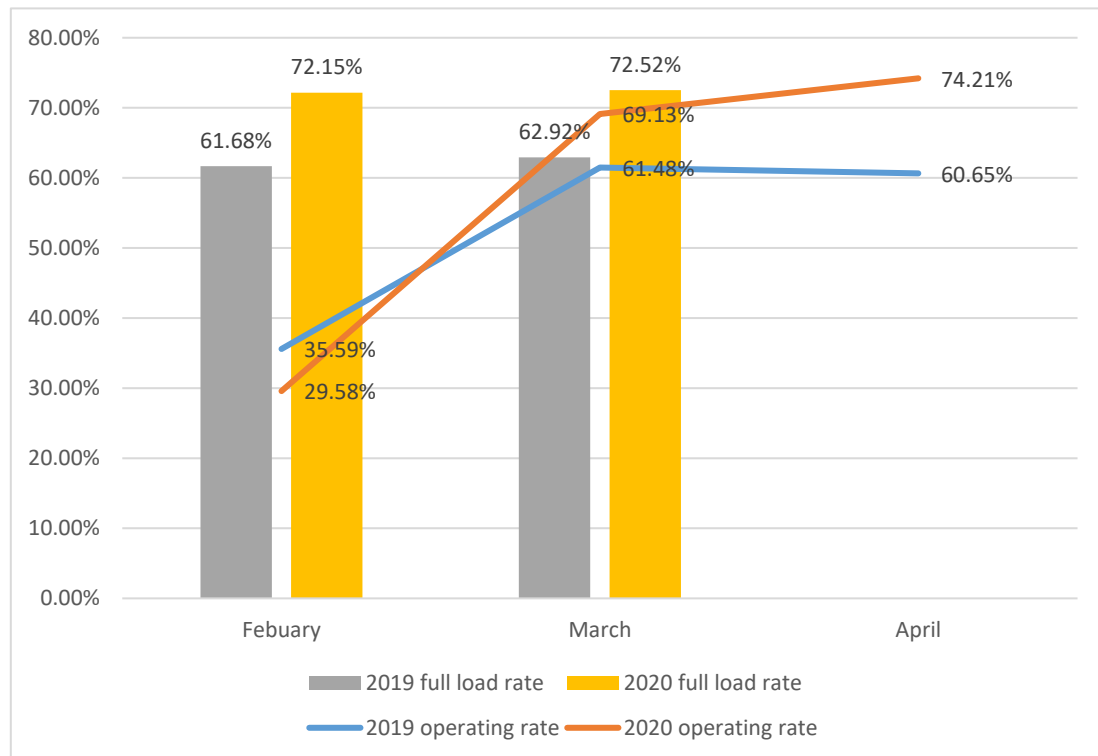


Figure 1 :Comparison of China's truck operating rate and full load rate from February to April 2020 and the same period in 2019

Source: China's public supervision and service platform for road freight vehicles

3.3. Influence of the COVID-19 epidemic on economic security

From the perspective of the new elements of the global value chain structural adjustment caused by the epidemic, the outbreak of the epidemic led to sudden global supply chain disruption and shortage of public health supply, which made countries around the world begin to further examine the security and supply accessibility of the supply chain.(Yu Nanping, 2021)

After the outbreak of the global financial crisis in 2008, the world GDP growth rate dropped from 5.7% in 2007 to 3.0% in 2008. Even in 2009, at the height of the crisis, world GDP grew by 0.01% rather than slipping into negative territory. But as a result of the outbreak, the International Monetary Fund expects world GDP growth to fall from 2.9% in 2019 to -4.9% in 2020, a drop of nearly 8 percentage points. Unemployment peaked at 15m in 2009; The number of Americans out of work jumped to 23 million in April 2020 from 7 million the previous month. Both the global economy and the U.S. economy are likely to suffer a deeper recession than during the 2008-2009 global financial crisis. The global economy plunged into a deep recession as a result of the outbreak. The "Great Blockdown" under COVID-19 in 2020 resulted in major overseas economies.(Yao Zhizhong, 2020)

In the second quarter of 2020, the economy contracted on a 1930s-style scale. Supported by ultra-loose monetary and fiscal policies, the lock-down measures were gradually lifted in the middle of the year, leading to a better-than-expected economic recovery in the third quarter. For the whole year, major overseas economies will show deep economic recession in 2020. The annual real GDP of the United States will decline by 3.5% year-on-year, the weakest since the Second World War, and the annual real GDP of the United Kingdom will decline by 9.9% year-on-year, the weakest since 1709.

The global economy is expected to recover slowly after the outbreak. However, the growth hub of the global economy will remain low due to factors such as slowing trade and aging population. The global economy is likely to experience a brief period of high growth in 2021 due to the roll-out of COVID-19 epidemic, the gradual containment of the epidemic, and continued support from the loose monetary and fiscal policies of major overseas economies. However, due to high public and private sector debt, anti-globalization, aging population and other factors, the growth hub of the global economy will be low in the next five years.(Research Group of Sunshine Asset Management Co, 2021)

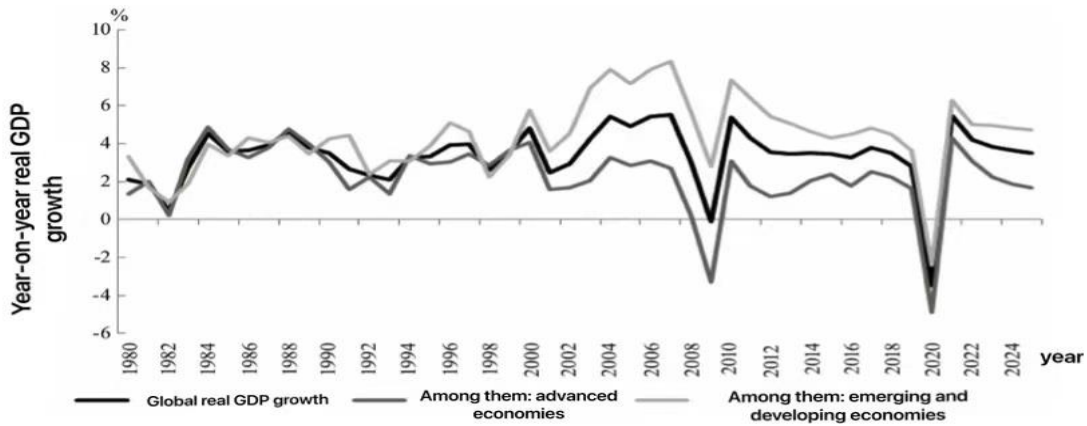


Figure 2 Global real GDP growth from 1980 to 2024

Note: The forecasts for 2021 and 2022 are updated in January 2021 in the IMF World Economic Outlook, and the forecasts for 2023 ~ 2025 are October 2020 in the IMF World Economic Outlook
 Source: IMF

3.4. Performance of representative enterprise in the COVID-19 epidemic

In 2020, influenced by the epidemic, Henan Shuanghui Investment & Development Co.LTD. 's total foreign sales of meat products (including poultry products) reached 3.05 million tons, down 3.06% compared with that of 2019.

Table 4

classification of industry	project	2020 (10000 tons)	2019 (10000 tons)	Year-on-year increase or decrease
fresh product	sales volume	138.07	148.49	-7.02%
	production	81.34	146.61	-44.52%
	inventory	10.85	20.91	-48.13%
Packaged meat products	sales volume	158.69	160.16	-0.92%
	production	157.73	159.53	-1.12%
	inventory	1.28	2.24	-42.64%
Poultry products	sales volume	8.12	5.85	38.84%
	production	13.6	10.7	27.13%
	inventory	0.22	0.28	-20.07%

Source: Henan Shuanghui Investment & Development Co.,Ltd. 2020 Annual Report

Due to the tight supply of live pigs, live pig prices have increased significantly, which has a certain inhibiting effect on consumer consumption. The price of live pigs remains high and the price has been maintained at a high level, which makes the sales volume and profit of fresh products of the company decline year-on-year, and the cost of packaged meat products rise year-on-year. But the company give full play to the synergistic effect between China and foreign countries, through the combination of trade and processing, a variety of forms such as frozen goods sold and combining, makes imported meat sales continue to increase, its sales, revenue, profits, also hit a record high, effectively made up for the export of domestic meat gap, at the same time, through effective control on both ends of the spreads, frozen goods duly organized outbound, raise some samples sales proportion, We introduced new products and adjusted the structure of packaged meat products, effectively coping with the adverse impact of rising pig and meat prices. The final revenue reached 73.9 billion yuan, up 22.51% year on year; Net profit attributable to shareholders of the parent company reached 6.3 billion yuan, up 15.04% year on year.

Table 5

	2020year	2019year(before adjustment)	2019year(after adjustment)	More or less than last year (after adjustment)	2018year(before adjustment)	2018year(after adjustment)
operation revenue(100 million yuan)	739	603	603	22.47%	488	487
Net profit attributable to the shareholders of the listed company(100 million yuan)	63	54	54	15.04%	49	49

Source: Henan Shuanghui Investment & Development Co.,Ltd. 2020 Annual Report

In the first quarter of 2021, the total export sales of meat products (including poultry products) reached 750,000 tons, up 9.66% year on year; Its total revenue reached 18.3 billion yuan, up 4.13% year on year; Net profit attributable to shareholders of the parent company was 1.4 billion yuan, down 1.61% year on year.

Table 6

	The current report	the same period of last year	The current report is more or less than the same period last year
operation revenue(100 million yuan)	183	176	4.00%
Net profit attributable to the shareholders of the listed company(100 million yuan)	14	15	-1.61%

Source: Henan Shuanghui Investment & Development Co.,Ltd. Report of the first quarter of 2021

4. Discussion

With the deepening of globalization, the COVID-19 epidemic has had a great impact on the world economy. By analyzing the existing literature, we found that the COVID-19 epidemic had a great impact on the pork industry, and had a great impact on the logistics industry, feed industry and aquaculture industry related to its industrial chain. The main impact on the pork industry came from port logistics, and then extended to slaughtering and processing end and production end, at the same time, it had an impact on feed raw materials such as corn.

The impact of the epidemic on the retail price of pork is transmitted down with the pork industry chain, which has a great impact on the market, resulting in a sharp rise in pork prices during the epidemic period. Due to the rising of various costs, the overall profit of the industry has also dropped significantly. However, from the financial statement of Henan Shuanghui Investment & Development Co.LTD. in 2020, it can be seen that the operating income and net profit of Henan Shuanghui Investment & Development Co.LTD. did not fall but rose. Thanks to the improvement of trade, the company successfully offset the impact of rising costs caused by the epidemic, and its profits still increased compared with previous years.

Generally speaking, the epidemic will slow down the pace of globalization to a certain extent, and even show the trend of "anti-globalization". Pork economy reminds us that only by readjusting trade policies, reducing tariffs and encouraging trade can we inject new impetus into the global economic recovery and provide a good trade environment, so as to offset the impact of the COVID-19 epidemic on various industries and make the economies of various countries gradually recover from the impact of the new epidemic.

References

- [1] Shi Qi. (2020). *Analysis on the development of logistics industry under the new crown pneumonia epidemic*. *China Logistics & Purchasing*. (16), 88-89.
- [2] Wang Gangchao. (2020). *Discussion on the influence of COVID-19 on China's retail industry and its countermeasures*. *Chinese Commerce*. 14, 21-23.
- [3] Ye Wenfei. (2020). *Challenges and countermeasures of retail industry under COVID-19*. *Trade Fair Economy*. 04, 32-34.
- [4] James Mintert, (April 28, 2020) *Purdue Center for Commercial Agriculture*, <http://ag.purdue.edu/commercialag/home/resource/2020/04/covid-19-impacts-on-pork-and-beef/>, June 2, 2021.
- [5] Chen Qiao. (2020). *Research on the impact of epidemic situation on pork price—Analysis of the impact of new coronary pneumonia on swine industry and suggestions*; *Swine Industry Science*.37(07), 126-129.
- [6] Alvaro Espitia, et al.(2020). *The Impact of the Pandemic and Export Restrictions on World Food Markets*. *Policy Research Working Paper*. 9253, 4.
- [7] Yu Nanping.(2021)*Characteristics and future challenges of structural adjustment of global value chains under COVID-19*.*Studies of International Relations*.3-21+154.
- [8] Yao Zhizhong.(2020)*COVID-19 and economic globalization*. *The contemporary world*.11-16.
- [9] A group of Sunshine Asset Management Corporation Limited, Qiu Xiaohua.(2021)*A study on China's External Environment and Economic Growth in the Post-pandemic Period* Project group of Sunshine Asset Management Corporation Limited.*Insurance research*.3-13.
- [10] Wang Zili. (2020). *Development of Logistics and Express Delivery Industry under Covid-2019 Pneumonia Pandemic*.*Logistics Technology*. 39(12), 18-20.
- [11] Yang Yantao. et al.(2020). *Risk and Countermeasures of Corn Supply Chain System in China under Global Epidemic Situation*.*Economic Review*. (05), 58-65.
- [12] Yubin Wang. (2020) *COVID-19, supply chain disruption and China's hog market: a dynamic analysis*, <https://www.emerald.com/insight/1756-137X.htm>.
- [13] Alfons Weersink. (2021) *COVID-19 and the agri-food system in the United States and Canada* *Agricultural System*.188(2021) 103039,1-14.