

Impacts of the COVID-19 pandemic on production and consumption: A case study in traditional bronze casting villages in Thua Thien Hue province

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ABSTRACT

Outbreaking in early 2020, the COVID-19 pandemic has severely affected the production and consumption of handicraft products, including bronze casting products of traditional craft villages in Hue. The impact of the pandemic on the economy on both the supply, and demand side, affecting labor, disrupting the supply chain of raw materials, severely affecting the logistics industry, production organization, and consumption market, others.

For the sustainable development of bronze castings, local authorities and workshops may need to consider more practical and effective solutions such as applying digital technology, supporting capital for producers through preferential credit programs. It is also essential to promote enterprises to invest, joint venture, and associate to establish complete supply chains from market research, design, input material supply, production, distribution, and consumption. The above solutions and orientations are crucial for preserving and promoting traditional bronze casting craft in Hue, thereby better meeting the needs of consumers, attracting domestic and foreign tourists.

Keywords: Impacts of the COVID-19 pandemic, COVID-19, bronze casting, traditional crafts, Phuong Duc Ward, Hue City, Thua Thien Hue province, Vietnam

JEL Codes: O11, M10

1. Introduction

The COVID-19 pandemic affects almost all economies around the world, including Vietnam. International organizations forecast that the global economy may lose about 1,000-2 trillion USD in 2020, global economic growth will decrease by 0.5 to 1.5% (Chuong, 2020). For our country, due to the impact of COVID-19, the economy in the first quarter of 2020 was dramatically affected, the growth rate of gross domestic product was only 3.82% - the lowest growth rate in 10 years. In recent years, the CPI in March and the average CPI in the first quarter of 2020 are both at the highest levels in the 2016-2020 period, the commodity trade rate has decreased for the first time in three recent years, capital FDI into Vietnam decrement in both quantity and total investment capital (Dat, 2020).

For the handicrafts, such as bronze casting in Hue is not an exception to those impacts. The products left behind by bronze casting in Hue have now become masterpieces of the heritage of our country as well as the world, such as the Imperial Bronze Cauldron (1659-1684), Thien Mu

Pagoda Bell (1710), Nine Dinh's placed in front of The Mieu (1835-1804), Cuu Vi Than Cong put before Ngo Mon (1803-1804), Dieu De Temple Bell (1846) and many traditional handicrafts made of bronze for worship and long-term development (Can, 1981). However, due to the impact of the COVID-19 pandemic, the production and consumption of products in the Hue bronze casting traditional craft village faced many difficulties: the supply of input materials stagnated, social distancing leads to arduousness in organizing production, reducing or canceling orders, and contracts, the number of domestic and international tourists decreased, leading to a narrow consumption market, which has heavily affected the production and consumption of products in the traditional bronze casting village of Hue.

To develop production and consumption of products, contribute to the development of the local economy, preserve national cultural identity, and attract domestic and foreign tourists, research into the impact of the COVID-19 pandemic on product production and consumption, particularly bronze casting products in Hue Bronze Casting Traditional Craft Village, Thua Thien Hue province is quite urgent and meaningful.

The purpose of this study is to assess the impact of the COVID-19 pandemic on product production and consumption, primarily in Hue Bronze Casting Traditional Craft Village, and to propose solutions to mitigate the epidemic's effect, as well as to develop enterprise and Hue Bronze Casting Traditional Craft Village production and consumption in the long term.

2. Theoretical basis and research methods

The situation of the COVID-19 epidemic is complicated, severely affecting the economy both on the supply side and on the demand side (Chuong, 2020), influencing input elements (raw materials, labor) to production results, output markets, and business performance (Shohini Roy, 2020) (Damasa B. Magcale-Macandog et al (2021)). In the framework of this article, we study the impact of the COVID-19 pandemic on the production and consumption of handicraft products, specifically bronze casting products in Hue Bronze Casting Traditional Craft Village, Thua Thien Hue province with the following contents:

- The impact of the COVID-19 epidemic on the number of business establishments' growth and development.
- The influence of the COVID-19 epidemic on production inputs, including raw materials, labor, and other crucial aspects.
- The COVID-19 pandemic's impact on production output, consumption, and market.
- The impact of the COVID-19 epidemic on production results and efficiency, as well as production facility business activities, etc. This study uses a qualitative research method to examine the impact of the COVID-19 pandemic on the economy on both the supply and demand sides, on the production and consumption of bronze products in the Hue Bronze Casting Traditional Craft Village 2020, to achieve the above purpose and content.

The study primarily uses descriptive statistics, disaggregation, comparison, economic accounting, and expert and monograph methodologies to represent the aforesaid assumptions. Secondary data sources are collected from agencies and departments from central to local levels,

especially the General Statistics Office of Vietnam, Hue City Economic Office, and published works. The primary data source is collected by surveying all 55 copper casting establishments currently operating in the Bronze Casting Traditional Craft Village, Phuong Duc Ward, and Thuy Xuan Ward, Hue City in 2019 (pre-pandemic) and 2020 (pandemic outbreak), according to pre-designed questionnaires. The survey form of copper casting establishments collect information including basic characteristics of bronze casting establishments, the situation of production resource factors (labor, capital, assets, technology, etc), input elements investment, costs, production results, consumption, and product consumption markets; local advantages, challenges, and local support measures; the influences of the COVID-19 pandemic on production and consumption; measures to restore and develop production and product consumption of establishments in the coming time. The information was analyzed with SPSS 20.0.

WHO cautions that since the COVID-19 epidemic is still raging in many places throughout the world, including Vietnam, and the situation is mostly unknown (Government e-Newspaper, 2021), which this research is merely inductive. The primary goal is to detect early signs of the COVID-19 pandemic so that action and adaptation can be taken. As a result, this research is also regarded preliminary research within a limited scope of a certain subject (traditional handicraft) and during a specific time frame (2020), laying the groundwork for future studies on a bigger scale and over a longer period.

3. Research results and discussions

3.1. The impact of the COVID-19 pandemic on the number of production facilities

According to research by Vietnam's General Statistics Office, the COVID-19 outbreak has had a substantial impact on businesses and manufacturing facilities in general (GSO).

Table 1. Changes in facilities and workers in Hue bronze casting traditional craft village from 2018 to 2020

	Targets	Unit	2018	2019	2020*	Comparison (%)	
						2019/2018	2020/2019
1	Number of establishments	Establishments	56	55	55	-1.8	0.0
-	Cooperative	Cooperatives	1	0	0	-100.0	-
-	Enterprise	Enterprises	1	1	1	0.0	0.0
-	Individual households	Households	54	54	54	0.0	0.0
2	Number of employees	Employees	353	335	166	-5.1	-50.4
	Artisan	People	7	7	7	0.0	0.0

Source: Hue City Economic Department.

*Note: * 2020 is affected by the COVID-19 pandemic*

In the first 9 months of 2020, the whole country had 98,954 newly established enterprises, down 3.2% compared to the same period last year. This is the first time that the number of newly

established businesses has decreased at that time between 2015- 2020. Having 78.3 thousand enterprises were withdrawing from the market, an increase of 27.2% over the same period in 2019, of which 38.6 thousand enterprises registered to suspend their business, increased by 81.8% over the same period in 2019. Currently, micro-enterprises have access to raw materials and input materials to satisfy nearly 1/5 of their needs, this rate increases gradually according to the size of the enterprise to the group of large enterprises that is over one-third of the demand (General Department of Statistics, 2021).

In the years 2015-2016, Hue's copper casting industry grew rapidly, with 61 enterprises, 154 casting workers, and 150 foundry furnaces. In 2008, there were 56 remaining establishments with 353 employees. In 2019, Thang Loi Casting High-class Cooperative switched to casting tools and tools for people's livelihood, so in 2019 there were still 55 active copper casting establishments, including 1 private enterprise. In 2020, the number of bronze casting establishments in Hue Bronze Casting Traditional Craft Village is still 55 establishments; however, due to the impact of the COVID-19 pandemic, the number of employees has sharply decreased to 166 employees, which is a decrease of more than 50% (Table 1).

From 2007 to 2010, the President and Chairman of the People's Committee of Thua Thien Hue province awarded 9 bronze casting artisans in Hue; 2 people have lost so far, and 7 artisans are left. In which, there are 6 artisans over 65 years old, only artist Nguyen Truong Son is 53 years old. That shows, the number of skilled artisans, who have high skills, is disappearing.

3.2. The impact of the COVID-19 pandemic on input factors for production

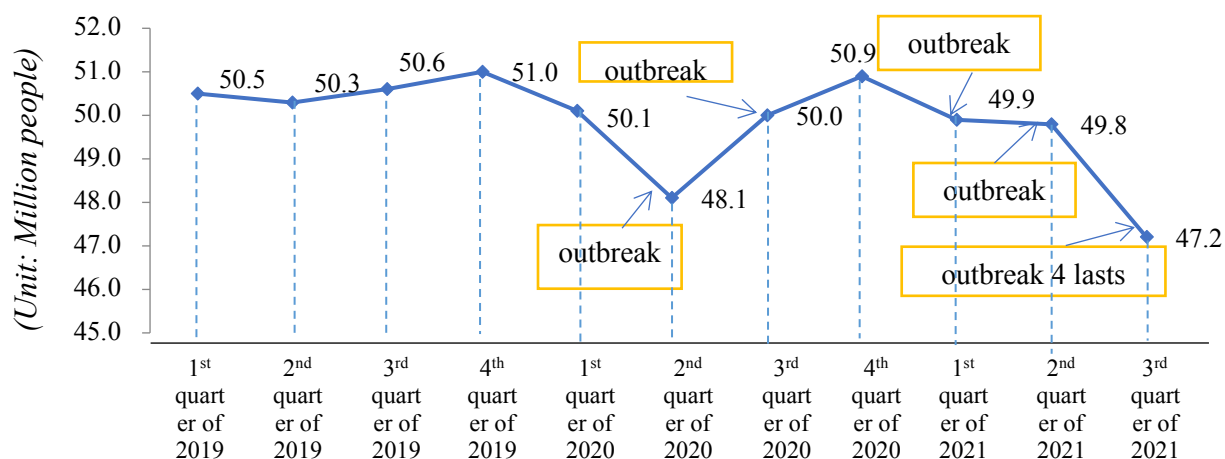


Figure 1: Employed workers in quarters, period 2019-2021

Source: General Statistics Office of Vietnam, 2021

The COVID-19 pandemic has had a wide influence on labor and employment in our country, according to the GSO's assessment on the influence of the COVID-19 epidemic on labor and employment. Figure 1 shows that the hardest hit is the 4th epidemic that lasts in the third quarter of 2021 and the first epidemic in the second quarter of 2020, respectively 47.2 million workers and 48.1 million employed workers. Compared to the time when there was no outbreak

of COVID-19 in the fourth quarter of 2019, there were 51 million employed workers, the fourth wave of epidemics reduced 3.8 million workers, and the first wave reduced 2.9 million workers.

In the third quarter of 2021 alone, more than 28.2 million people aged 15 and over were negatively affected by the COVID-19 pandemic, causing them to lose their jobs, reduce their incomes, and more. Previously, the number of employees adversely affected by the COVID-19 pandemic in the third quarter increased by 15.4 million. Most of the affected people are of working age, from 25 to 54 years old, accounting for 73.3% of the total affected workers (General Department of Statistics, 2021). Figure 2 shows that workers aged 15 and over in the North Central and Central Coast regions are also heavily affected by the COVID-19 epidemic, the unemployment rate of this force accounted for 31.5% in the third quarter of 2021.

The supply of input materials was also seriously affected. There are two initial stages of the impingement of the pandemic and the spread of the disease. In phase 1, production was forced to halt in China, and the global supply of raw materials was narrowed due to delayed export orders and decreased mainly in February and March. In Phase 2, supply and demand in the manufacturing supply chain are severely affected by the continued spread of COVID-19 globally. Many small and medium-sized businesses are in a larger danger of failure than they have ever been (Cai Min and Luo Jianwen, 2020).

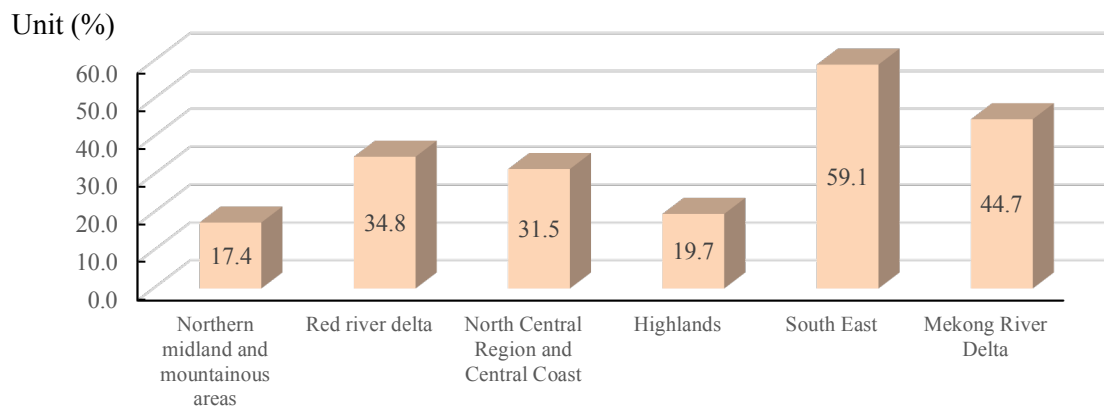


Figure 2: Proportion of people aged 15 years and older who are negatively affected by socio-economic regions, third quarter of 2021

Source: General Statistics Office of Vietnam, 2021

Domestically, the phenomenon of "breakout" in supply also appeared due to the impact of the pandemic. According to Hieu N. T. and his associates, the difficulties of Vietnamese businesses began in the first quarter of 2020, when China fell into a crisis because of the COVID-19 epidemic, the supply of raw materials to foreign customers was interrupted, this caused the production activities of Vietnamese enterprises to almost stagnating in recent times because of a shortage of raw materials. Enterprises hardly have a backup plan and do not have enough time to look for other sources of supply (Hieu, 2020).

The copper casting facilities in Hue are also not outside of those impacts. Table 2 shows that, compared to 2019, the number of employees in 2020 decreased sharply, down 169 people (or 50.4% reduction), of which there were 68 regular employees and 101 seasonal employees. Nearly

30 molders are among the 68 temporary hires. Even though the decrease of 30 casting laborers is not significant in terms of numbers, these casting workers have been with the facilities for many years; because of the current tight market, there is a multitude of stuff in stock, hence the casting employees have to lay off. Bronze casting is an arduous job with a high salary, but workers must have endurance such as heat, dust, toxic vapors, many movements, and restrictive postures for a certain period during the casting process, and more while training a skilled foundry, experience is troublesome and takes a long time. Therefore, it will be very complicated to re-hire bronze casting workers when there is a resumption of production.

Besides, the number of overriding materials such as gold, red copper, tin, iron, cream, and more in 2020 also dropped sharply compared to 2019. Raw materials had a vast decrease in quantity such as gold coin (down 151.8 tons, or 58.2%), red copper down 49.8 tons (or 50.4% decrease), other materials also decreased significantly.

Table 2. Impact of the COVID-19 pandemic on some key inputs of investigated copper casting establishments in 2019-2020

	Targets	Units	2019	2020*	Comparison 2020/2019	
					+/-	%
1	Number of copper casting establishments	Establishments	55	55	0,0	0.0
2	Labor	Laborers	335	166	-169.0	-50.4
-	Family	Laborers	107	107	0.0	0.0
-	Regular rental	Laborers	124	56	-68.0	-54.8
-	Part-time	Laborers	104	3	-101.0	-97.1
3	Main material					
-	Gold copper	1,000 Kg	260.70	108.90	-151.8	-58.2
-	Red copper	1,000 Kg	98.90	49.10	-49.8	-50.4
-	Zinc	1,000 Kg	24.70	9.37	-15.3	-62.1
-	Tin	1,000 Kg	13.23	6.44	-6.8	-51.3
-	Iron	1,000 Kg	120.20	65.60	-54.6	-45.4

Source: Survey data.

*Note: * 2020 is affected by the COVID-19 pandemic*

Besides, the prices of these raw materials have also increased significantly in recent years. Survey data shows that the cost of prime materials such as gold and red copper in 2020 increased compared to 2019. The price of raw materials of gold copper from 107,000 VND/kg in 2019 to 125 thousand VND/kg in 2020 (up 16.8%); the expenditure of red copper raw materials from 140,000 VND/kg in 2019 to 170,000 VND/kg in 2020 (an increase of 21.4%). Apart from the impact of the COVID-19 pandemic, raw material scarcity is thought to be a significant factor in the rise in raw material prices.

3.3. The impact of the COVID-19 pandemic on production output and consumption market

The domestic consumption market is shrinking, when over two-thirds of enterprises think that the domestic consumption market has decreased sharply. The rate of enterprises facing difficulties due to the narrow export market is pretty high. The larger the export enterprises, the higher the proportion of enterprises facing difficulties due to the narrow export market (General Department of Statistics, 2021).

Table 3. The impact of the COVID-19 pandemic on the production and consumption of copper casting facilities surveyed in 2019-2020

Unit: Items

	Targets	2019				2020*			
		Total	Small size	Medium size	Large size	Total	Small size	Medium size	Large size
I	Production quantity	8,882	2,643	6,180	59	5,312	1,664	3,636	12
1	Bronze bells	613	309	245	59	357	169	176	12
2	Worship products	5,154	1,339	3,815	0	3,245	860	2,385	0
3	Fine Arts	3,115	995	2,120	0	1,710	635	1,075	0
II	Consumption amount	6,339	2,015	4,265	59	3,171	1,093	2,066	12
1	Bronze bells	613	309	245	59	357	169	176	12
2	Worship products	3,610	1,015	2,595	0	2,115	620	1,495	0
3	Fine Arts	2,116	691	1,425	0	699	304	395	0
III	The difference between production into money	2,543	628	1,915	0	2,141	571	1,570	0
1	Bronze bells	0	0	0	0	0	0	0	0
2	Worship products	1,544	324	1,220	0	1,130	240	890	0
3	Fine Arts	999	304	695	0	1,011	331	680	0
IV	Average of 1 establishment								
1	Production quantity	161.5	48.1	112.4	1.1	96.6	30.3	66.1	0.2
2	Consumption amount	115.3	36.6	77.5	1.1	57.7	19.9	37.6	0.2

Source: Survey data;

*Note: * 2020 is affected by the COVID-19 pandemic*

According to the owners of bronze casting establishments in Hue, general bells of multiple kinds are the major manufacturing products of bronze casting establishments; items for adoring

various types of individuals (bronze urns, incense bowls, three stories, five services, bells, gongs); Fine art objects (statues of famous people, mascots, bronze drums, vases, typical cultural symbols of Hue and the country, etc). Except for bronze bells, which are often created to order and contract numbers, worship products and handicrafts are typically consumed substantially in December and Lunar New Year (January and February each year), therefore, production and consumption in December are quite stable; thus, it is forecasted that by the end of December 2021, consumption of this item will increase but not significantly, especially by the end of November 2021, the COVID-19 epidemic is complicated and dangerous in Hue city. As of December 7, 2021, there have been 5.575 F0 cases reported in Thua Thien Hue province, with 2.525 F0 cases being treated. Consequently, according to the author's opinion, the results of production and consumption activities in the first 11 months of 2021 of copper casting establishments can be used for analysis and comparison with 2020.

Table 3 shows that the number of products manufactured in 2020 is 5,312 items, only 59.8% of the production output in 2019 of 8,882 items of all kinds, down 3,570 items, or 40.2%. Handicrafts fell the highest, by 45.1%, followed by all types of bronze bells, which fell 41.8%, and religious products, which fell 37%. In comparison to 2019, the number of products consumed in 2020 declined by 3,168 units, a 50% decrease. Handicraft items plummeted by 67%, bronze bells fell by 41.8%, and religious items fell by 41.4%.

Consumption volume in 2020 compared to 2019 before the pandemic occurred, except for general all kinds of rose bells produced under contracts, so they were sold out, the rest of worship products and handicrafts, the quantity consumed was only equal to 59.7% of production, of which fine arts products only reach 40.9% and worship products reach 65.2%. Compared to 2019 and earlier, the consumption situation is difficult, but the percentage of products sold is pretty high, over 70% of production. In 2020, the number of orders decreased, the number of canceled orders increased, so many establishments actively reduced production, but the consumption situation decreased seriously. However, many establishments believe that their production and consumption in 2020 is much better than in 2021. The epidemic predicament in 2021 is more unpredictable; until the outbreak is under control, the disease has a significant impact on the southern provinces in the first part of the year. Another outbreak in Hue with a very heightened hazard, notably many F0 cases in the community scattered throughout the province, has made the product consumption situation difficult, if not impossible, in the last few months of the year.

3.4. The impact of the COVID-19 pandemic on production and business results and efficiency

Difficulties not only for exporters but also for domestic consumers due to a sudden drop in market demand. Many customers who booked an appointment canceled the schedule, causing the business's revenue to decrease by nearly 70% compared to the same period last year. The survey report of the Private Economic Development Research Board (Advising Council on Administrative Procedure Reform of the Prime Minister) showed that if the epidemic lasts up to 6 months, there will be more than 60% of surveyed enterprises with a reduction of more than 50% in revenue, nearly 29% of enterprises with a reduction of 20-50% in revenue (Hieu, 2020).

Table 4. Impact of the COVID-19 pandemic on the results and production efficiency of the investigated copper casting facilities in 2019-2020
(Average / 1 copper casting establishment)

	Targets	Units	2019		2020*		Comparison 2020/2019	
			Value	Ratio (%)	Value	Ratio (%)	+/-	%
I	GO)	Million VND	1,763.88	100.0	1,211.50	100.0	-552.38	-31.32
II	IC	Million VND	937.82	53.2	483.4	39.9	-454.42	-48.45
1	Spending on raw materials	Million VND	893.27	50.6	459.5	37.9	-433.77	-48.56
-	Gold copper	Million VND	508.91	28.9	241.6	19.9	-267.31	-52.53
-	Red copper	Million VND	256.89	14.6	143	11.8	-113.89	-44.33
-	Zinc, tin, iron, etc.	Million VND	127.47	7.2	74.9	6.2	-52.57	-41.24
2	Expenses for fuel, electricity, water, and other	Million VND	44.55	2.5	23.9	2.0	-20.65	-46.35
III	VA	Million VND	826.06	46.8	728.10	60.1	-97.96	-11.86
IV	Production efficiency							
1	GO/IC	Times	1.88	-	2.51	-	0.63	33.25
2	VA/IC	Times	0.88	-	1.51	-	0.63	71.00

Source: Survey data.

*Note: * 2020 is affected by the COVID-19 pandemic*

Thus, compared with 2019, the average production results and efficiency of 55 copper casting establishments surveyed in 2020 decreased significantly, in terms of production value, an average of 1 establishment decreased by more than 552 million VND, or 31.3%; in terms of income, on average, it lessened by nearly 98 million VND or 11.86%. In terms of economic efficiency, the index of production value/intermediate cost and added value/intermediate cost, on the contrary, in 2020 is more efficient in added value than in 2019. On average, a facility in 2019 spent VND 1 in intermediate costs, earning VND 1.88 of production value and VND 0.88 of added value. Meanwhile, in 2020, if the establishment spends VND 1 of intermediate costs, it will get back VND 2.51 of production value and VND 1.51 of intermediate costs. The explanation for this is that in 2020, the COVID-19 pandemic has slowed down production facilities, scarce raw materials, difficult to buy, but production and consumption are quite good because output prices are much higher than before the 2019 pandemic. However, if deducting depreciation of fixed assets, hiring labor costs, family labor costs, and paying some other fees, many establishments are no longer profitable, due to labor prices, especially hire molders increased.

Regarding the consumption market, the survey showed that, before the COVID-19 pandemic in 2019, 55 bronze casting establishments all sold directly to local consumers (accounting for 24.73% output), sold by order (taking up 28.49% of the total volume), and sold by

contract (accounting for 42.15% output). There are 35 establishments selling directly to domestic visitors (representing 6.83 percent of total output) and 8 establishments selling directly to foreign tourists (accounting for 2 percent of output). However, in 2020, the number and volume of sales of orders and contracts have decreased markedly. In comparison to 2019, the quantity of orders and contracts in 2020 is just 44.98 % and 26.79 %, respectively (Figure 3). Furthermore, the number of establishments selling directly to tourists in 2020 will be quite minimal, with no facilities selling to foreign tourists.

Through the survey of copper casting households, the form of direct sale to local consumers accounts for a large proportion of output. However, most copper casting establishments now have product display points, but the space is narrow, the display and layout of products are pretty simple, completely spontaneous, lacking in aesthetics, unscientific; especially, there is almost a lack of marketing knowledge in the layout and display of products. Therefore, promotion and advertising through the exhibition and product layout are almost very weak. In addition, the promotion, advertising, product display, sales organization on the State's product exchanges, on the trading floors, online sales such as Lazada, Shopee, Sendo, Tiki, and more are almost no. Promotion, advertising, and online sales on Facebook, Zalo, Twitter, LinkedIn, and other social media platforms are likewise scarce and unprofessional. In Hue's traditional bronze casting artisan hamlet, these would be the implementation challenges limitations of copper casting facilities.

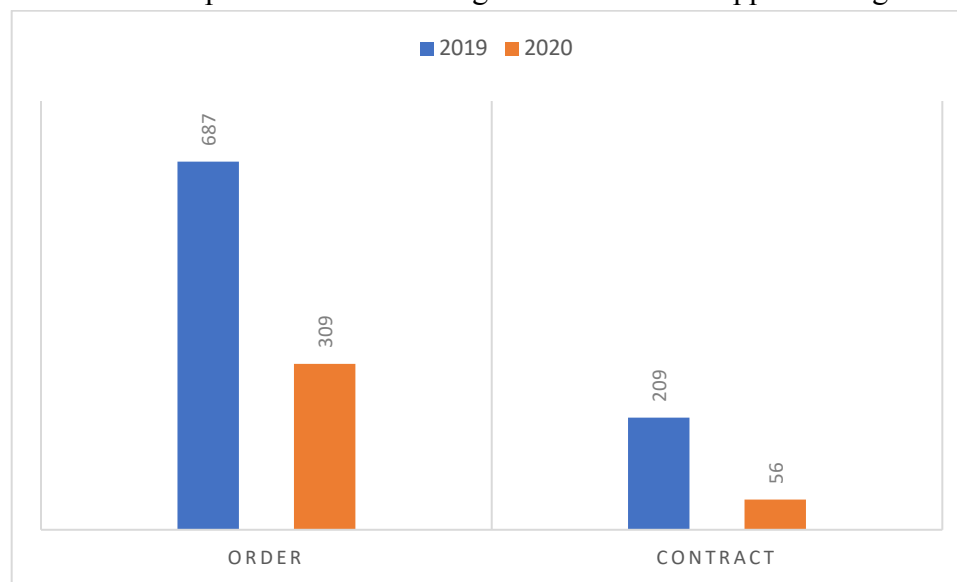


Figure 3. Changes in orders and sales contracts of copper casting establishments surveyed in 2019-2020

*Note: * 2020 is affected by the COVID-19 pandemic*

The investigation also found that the COVID-19 pandemic has affected the organization of product production due to long distances and moderate production. In the last months of 2021, when the pandemic broke out aggressively in Hue, 55 investigative facilities were stated to be affected, with average output falling by 45.09 percent compared to normal.

4. Solutions to minimize the impact of COVID-19 on the production and consumption of bronze products and goods at Hue Bronze Casting Traditional Craft Village

Proposed solutions to help the economy and businesses respond to the pandemic and develop are:

- The Government should have timely measures and policies to support production and business establishments, such as credit support with preferential interest rates or principal repayment after 3-5 years; rescheduling repayment terms and debts, etc. It is recommended that banks take measures to support customers such as debt transfer, debt rescheduling or interest exemption, or reduction on bank loans.

- Large enterprises, especially those operating in the field of transportation, Logistic have timely rescue solutions for handicraft production establishments if there is a need such as preservation, storage, promoting consumption is blocked due to epidemics and social distancing, etc.

- Establishments need to take efficacious measures to organize negotiations with business establishments and order businesses to extend the delivery time and reduce business losses. Negotiating with reputable suppliers also aids businesses in obtaining difficult sharing from suppliers to obtain better pricing and other terms, among other things.

- Enhance digital transformation by incorporating digital technology into product design stages, organizing the production of some stages with machinery and equipment for mass production, promotion, advertising, and e-commerce. Establishments must decide whether this is the right moment for digital transformation, which includes using digital technology to digitize products, promote, advertise, and attract local and international customers, among other things.

For Hue bronze casting traditional craft village to restore and develop production and product consumption shortly, in the immediate context of the current epidemic, local authorities and facilities need to take the following solutions:

- Solutions for marketing and developing consumer markets using digital technologies. Shortly, the municipality will support the invitation of technology and marketing experts to collaborate with bronze casting establishments to digitize trade village brands, product brands, types, models, sizes, images, even manufacturing processes, orders, e-commerce contracts, and on and on. Additionally, consumers and transporting establishments, units, and individuals can submit orders, contracts, joint ventures, and online links by registering and participating in the promotion, advertising, and online sales on social networking sites such as Facebook, Zalo, Twitter, LinkedIn, and others.

- The COVID-19 pandemic is growing increasingly problematic, with many more hazardous new strains emerging, such as Delta and Omicron, posing particular supply chain difficulties. The supply of input materials for copper casting is particularly impacted; raw resources are becoming increasingly limited, transportation is difficult and slow, and costs are rising. To address these issues, facilities and communities must work together to identify sources of high-quality, consistent raw materials, including sources from other communities, imported supplies, and so on.

- In terms of investment in and equipping modern machinery and equipment in the product manufacturing process, it is vital to have a strong and practical solution. The present copper manufacturing process can be divided into two stages: "hot stitching" (mold making, molding,

casting, and so on) and "cold stitching" (turning, filing, and polishing, among other things) (Can, 1981). Despite major developments in recent years, all of the following operations are still regarded as manual with usual extremely basic instruments. Investing in new machinery and technology throughout the "hot stage" of the manufacturing process is critical to increasing productivity, freeing up labor, gradually improving and safeguarding the environment, and ensuring more efficient, uniform, and mass-produced products.

- It is necessary to have a solution to apply digital technology to connect designers and creators with artisans in the product design and manufacturing process. The process of designing new models and new products is still mainly based on the creativity and experience of the artisans. Ideas about the design of new models and products currently do not come from users, consumers, and have not relied on new and unique ideas from designers and artists so the aesthetics, uniqueness, and suitability for consumers are not high. Product categories are too monotonous, old models, lack of attractiveness in consumption.

- Strengthening measures for association and the joint venture between copper casting establishments and enterprises, input suppliers, businesses, and consumers, forming a chain of links, product supply from market research, product design to raw material supply, production, distribution, and consumption. Create all favorable conditions to encourage enterprises to invest in attracting artisans, artists, product designers, training, foster skilled and skilled craftsmen involved in the chain of production and consumption of products. Local authorities need to make more efforts, well implement policies to support the development of the copper casting industry such as policies on capital, credit, land, infrastructure, tax, science and technology, and environmental protection, and more.

5. Conclusion

The COVID-19 pandemic has impacted and left severe consequences for countries, world economies, and Vietnam. The impact of the pandemic on the economy on both the supply and demand side, affecting labor, disrupting the supply chain of raw materials, severely affecting the logistics industry, production organization, and consumption market, etc. All of those impacts are huge, causing many consequences for businesses and production and business establishments in the country and the world, including handicraft production facilities.

For bronze casting establishments in Hue Bronze Casting Traditional Craft Village, due to the impact of the COVID-19 pandemic, the production and consumption situation here faced many difficulties, the number of production facilities is only 55 establishments. The challenges that establishments face include increasingly scarce and expensive raw resources; outmoded technology; insufficient promotion, advertising, and digital conversion; and a daily decline in the number of orders and contracts, resulting in low competitiveness and a narrow market.

To solve the above problems, production development, the State, localities, and the copper casting establishments themselves need practical and effective solutions such as applying digital technology to marketing and developing product consumption markets; supporting capital, encouraging banks and credit institutions to support preferential credit; encourage organizations and enterprises to invest, enter into joint ventures, and form a chain of links, product supply from

market research, product design to raw material supply, production, distribution, and consumption. Implement the above solutions, contribute to the development of production, preservation, and promotion of the traditional craft of bronze casting in Hue, meeting consumer demand and attracting domestic and foreign tourists.

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