









# COVID-19 Pandemic: Impacts, Craftsmen's Living Strategies, and Economic Recovery of Bamboo Handicraft Enterprise in Gunungkidul, Indonesia

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## ABSTRACT

The COVID-19 pandemic has affected the household bamboo handicraft industry in rural areas. A comprehensive study was conducted to identify impacts, living strategies, and economic recovery; the findings will be used as a basis to recommend supporting policy to create a more resilient bamboo handicraft business. This study applied phenomenological approach to interpret the social impacts of the COVID-19 pandemic. In December 2021, 30 bamboo craftsmen in Semin Village, Gunungkidul, Yogyakarta Special Province were interviewed. Results show that 96.7% of bamboo craftsmen experienced a decrease in profit, with 46.6% reporting no order for a long period. The profit earned by craftsmen decreased by 76.50%. Bamboo craftsmen adapted to the COVID-19 pandemic by minimizing capital expenses, creating innovations marketing in options (i.e., direct sales, selling online) and focusing on alternative income sources (farming, hunting and gathering, selling food, and becoming laborers) to survive. As the spread of the virus was controlled, leading to the relaxation of restrictions on economic activities, the bamboo industry in Semin has entered an economic recovery phase. Currently, the average profit has reached 66.18%, compared to the profit earned in normal pre-pandemic situation. We believe the government should facilitate craftsmen to build their capacity in e-commerce, export mechanism, market network creation, tool acquisition, and English proficiency. This would enhance the bamboo handicraft industry in Semin to be more resilient facing future challenges.

## KEYWORDS

COVID-19 pandemic; bamboo handicraft; impact; livelihood strategy; economic recovery; Gunungkidul

## 1. INTRODUCTION

It has been almost two years since the COVID-19 outbreak became a global pandemic. Government policy has repeatedly tightened and relaxed the public movement to overcome the dynamics of the spread of coronavirus in Indonesia. Since it was declared as a pandemic in March 2020, lockdowns were not implemented in Indonesia because it was considered incompatible with the existing socio-economic-cultural conditions. Efforts by the Directorate General of Disease Prevention and Control focused on managing crowd size and movement during the operating time of economic and public facilities, as well as prohibiting non-essential activities. Economic disruption, however, still occurs as a consequence of restrictions on public movement and economic activities that helped mitigate the spread of the pandemic. Globally, the COVID-19 pandemic has reduced income, caused layoffs, and limited commercial operations, affecting all levels of business (Davila et al., 2021; Widiyanto et al., 2021; Yazdanpanah et al., 2021). The implementation of restrictions on public activities and movement has influenced the small business sector the most (Fabeil et al., 2020).

At the time of this manuscript, Indonesia seems to have succeeded in limiting the spread of COVID-19. The success of Indonesian government actions raises the question of how the loosening of economic and public activities might impact micro-small-medium enterprises (MSMEs) which are often able to recover quickly from the economic crisis (Rosavina, Rahadi, Kitri, Nuraeni, & Mayangsari, 2019). MSMEs are the backbone of Indonesia's economy (Feranita et al., 2020; Rosavina et al., 2019).

A common type of MSME in Indonesia is the bamboo industry. Bamboo is a well-known wood substitute material, which provides environmental, social, and economic benefits (Clark et al., 2015; Indrajaya et al., 2016; Liese et al., 2015; Pande et al., 2012). Various handicraft products are created from bamboo, which have a good market demand and value. Several studies have proven that the bamboo-based sector creates large employment opportunities, especially in rural areas (Aryani, 2014; Barnawi, 2020; Sasmitha & Ayuningsasi, 2017; Utomo et al., 2017; Wijaya & Utama, 2016; Wilanda & Rustariyuni, 2019). Non timber forest products (NTFPs) represent significant economic and social contributions for households by providing job opportunities and alleviating poverty (Ambrose-Oji, 2003; Bhattacharya & Hayat, 2004; Fu et al., 2009; Mekonnen et al., 2014; Mekonnen et al., 2013; Quang & Anh, 2006; Schreckenberget al., 2006; Tewari, 1998).

This study seeks to validate the positive impact of COVID-19 control on the recovery of MSMEs, through the case study of bamboo-based businesses in Semin District, Gunungkidul Regency, Yogyakarta Special Province, Indonesia. Bamboo MSMEs have a big role in driving the wheels of the local economy, especially from farmer nodes to artisans in Gunungkidul (Utomo, 2021). These MSMEs survived from the economic crisis of 1997-1998 and 2008 (Utomo et al., 2021), however, the shock of the COVID-19 pandemic seems to have had a more profound economic impact (OECD, 2020; OECD/FAO, 2019). Therefore, understanding the response of the bamboo sector to the COVID-19 pandemic is important, particularly considering that studies in Indonesia have focused on the impact of the COVID-19 pandemic on various types of MSME (e.g. Baker & Judge, 2020; Lutfi et al., 2020; Njurumana et al., 2021; OECD, 2020; Setiawan, 2020; Sugiri, 2020; Widiyanto et al., 2021), but have not yet addressed the revival or recovery or rebound phase that potentially occurs in a post pandemic period. The expanding phase of the economy following a period of crisis is known as the rebound phase (Harley, 2020; Hayes, 2021).

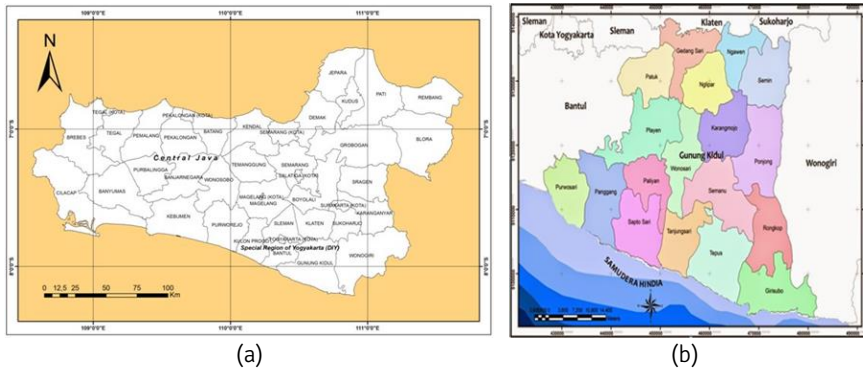
Estimates of the long-term effects of pandemic outbreaks on the economies and society have not been studied extensively (Donthu & Gustafsson, 2020). Moreover, the impacts of the pandemic on bamboo handicraft businesses in tourist locations (such as Bali, Yogyakarta) are limited. It is urgent to answer on how the pandemic has changed the industry, how the industry adapts to change with innovative techniques and can set new norms (Donthu & Gustafsson, 2020).

The main objective of this research is to describe the impact and the recovery phase of bamboo MSMEs following the COVID-19 pandemic. To provide a complete understanding, this paper includes a: 1) description of the business profile of bamboo handicrafts and the marketing chain of bamboo products; 2) description of the impact of the COVID-19 pandemic on the income of craftsmen, the causes of the impact, the response of the government, and the adaptation of craftsmen during the pandemic; and 3) assessment of the recovery stage of the handicraft business after the spread of COVID-19 was suppressed, which led to the relaxation of business-economic activities.

## 2. MATERIALS AND METHODS

### 2.1 Location

The research was conducted in December 2021 when the spread of COVID-19 virus in Indonesia had decreased drastically, and movement restrictions were relaxed. The study was conducted with household bamboo craftsmen in Semin Village, Semin District, Gunungkidul Regency, Yogyakarta Special Province, Indonesia (see Figure 1 below). The majority of the villagers are involved in the bamboo handicraft business.



**Figure 1.** (a) Map showing the location in Central Java and Special Region of Yogyakarta (Nurbandi et al., 2016), (b) the specific site of Semin Sub-District, Gunungkidul District, Yogyakarta Special Province, Indonesia

### 2.2 Questionnaire Design

The questionnaire was developed based on literature review, including the authors' previous research (i.e. Oblak et al., 2020; Widiyanto et al., 2021). We collected the data over three evaluation periods: i) before the COVID-19 pandemic (pre-COVID-19), ii) during the COVID-19 pandemic, and iii) the current situation, after the COVID-19 pandemic had decreased and restrictions on economic activity had been relaxed (during November-December 2021). The contents of the questionnaire focused on respondent profile, market chain structure, profits of bamboo craftsmen, the impacts of COVID-19 pandemic, and current conditions of the bamboo industry.

### 2.3 Sampling and Data Collection

There are around 200 bamboo business units in Semin District, Gunungkidul Regency, Yogyakarta Special Province. Craftsmen are concentrated in Ngepoh Hamlet and Mandesan Hamlet in Semin Village, Semin District, Gunungkidul. Each bamboo business represents a household as these enterprises are run as family businesses.

The COVID-19 is not only a health issue but also a social phenomenon (Ferreira et al., 2020; Rosenfeld et al., 2021; Teti et al., 2020), therefore phenomenology is essential to understand individual's experience during the phenomenon (Neubauer et al., 2019). In the phenomenological study, the minimum or maximum number of respondents was not pre-determined. However, it was projected that 30-35 respondents was the number required to reach saturation (Fusch & Ness, 2015); accordingly the study included 30 participants. Since this was a phenomenological study, face to face in depth interview was applied for data collection (Moser & Korstjens, 2018). The research was conducted using mixed methods involving a concurrent design and identical samples for both quantitative and qualitative instruments (Onwuegbuzie & Collins, 2007). It means that respondents as sources of both qualitative and quantitative data are exactly the same.

In a social phenomenon study, understanding social conditions is a beneficial capital for researchers in sample selection, especially to avoid bias because

phenomenology applies criterion sampling (Moser & Korstjens, 2018). The researchers have worked in study site since 2016, continuing through 2018–2021, providing them a deep understanding of the bamboo craftsman industry. Moreover, the availability of information from local key actors helped in deepening the socio-economic understanding and dynamics of the COVID-19 pandemic. These two things were helpful in predefining the criteria applied, which then become the basis for selecting respondents. Sampling criteria was based on the craftsman business model, which differs depending on the experience of each respondent during the pandemic. In phenomenological study, respondents giving meaning of their experience is the goal (Starks & Trinidad, 2007).

There are three business models for bamboo products at the research site: 1) product manufacturing based on personal initiatives and direct consumer orders. The craftsmen using this business model make crafts as their main job. The other business models are 2) manufacture of products based on orders from other craftsmen, here craft activities are only a side job; and 3) craftsmen do not make bamboo products, rather they make supporting ornaments on bamboo products, such as batik and holes in flutes. The first model is dominant, reflected by the largest number respondents (22) using that business model and 4 respondents each for the other two models. This proportional allocation was made based on data maintained by the local bamboo craft administrator.

## 2.4 Data Analysis

Data analysis was performed with descriptive statistics (SPSS Statistics 18 and Microsoft Excel) and descriptive analysis (Lawless & Heymann, 2010). The narrative description of the bamboo industry at the research site was based on the actual conditions and references. Comparison of profit earned by bamboo craftsmen before the pandemic, during the pandemic and current condition was analyzed using ANOVA with a 95% confidence level.

## 3. RESULTS

### 3.1 Bamboo Handicraft Business in Research Site

The bamboo industry is scattered in each district in Gunungkidul. Each bamboo business usually is a family entity with the head of the household having the role of craftsman and the manager. The bamboo businesses in the research site use simple tools with the materials processed manually. These industries are categorized as micro-small enterprises.

The development of the bamboo industry in Gunungkidul intensified the demand for bamboo raw materials. Before the pandemic, some bamboo raw materials were imported from East, Central and West Java such as Sidoarjo, Purworejo, Magelang, Wonogiri, Madiun, and Ciamis districts. However, during the pandemic the supply of raw materials from outside the area was disrupted. In response, household industries started sourcing bamboo raw materials from local community forests and farms. This encouraged local people in Gunungkidul and in Semin Village in particular to cultivate and manage bamboo in their gardens.

Semin Village is unique in Gunungkidul where most of the households are engaged in bamboo handicrafts, especially utilizing *Apus* bamboo (*Gigantochloa apus*) and *Wuluh* bamboo (*Schizostachyum blumei*). The bamboo industry in Gunungkidul has been an established economic sector for more than 40 years. These family bamboo-based businesses have survived across generations; the youngest study respondent was 27 years old and the oldest was 70 years old. The respondents had an average of at least 10 years of experience working as craftsmen, with the ability to make crafts generally learned from an early age. Although the head of the family is usually the main worker,

the businesses take the form of a family business with family members engaged in various activities, albeit in smaller portions of work. Adequate skill is not an issue in this village, which indicates that human capital is strong.

The rural economy at the research location is strongly influenced by the performance of the bamboo business. Moreover, most rural communities rely on the bamboo handicraft sector as a main source of income. Although most of their businesses remain at the micro scale and categorized as private business, some of the enterprises had grown and were able to provide job opportunities for the surrounding community. These craftsmen have proven to be a motor of the rural economy in Gunungkidul.

### 3.2 Marketing Chain of Bamboo Products

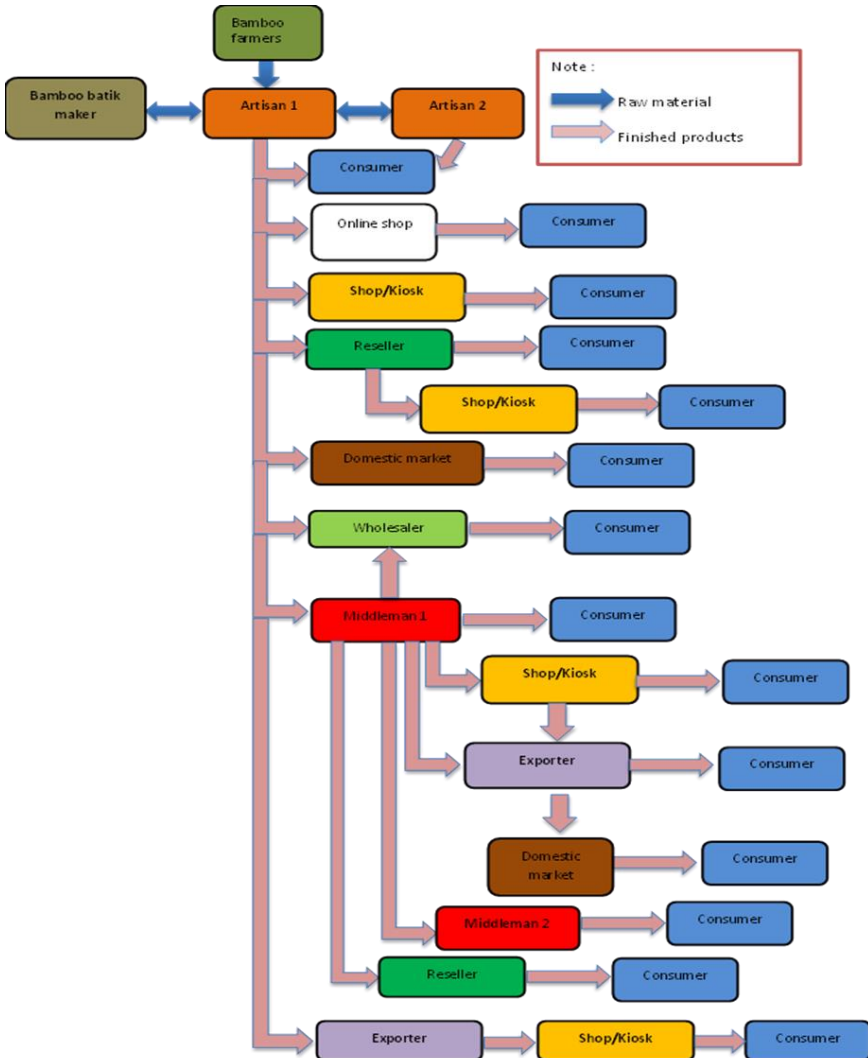


Figure 2. Bamboo products market chain

Marketing is the process of delivering goods/services to consumers (Saleh & Said, 2019; Wirapraja et al., 2021). The market flow of bamboo handicrafts in Gunungkidul is

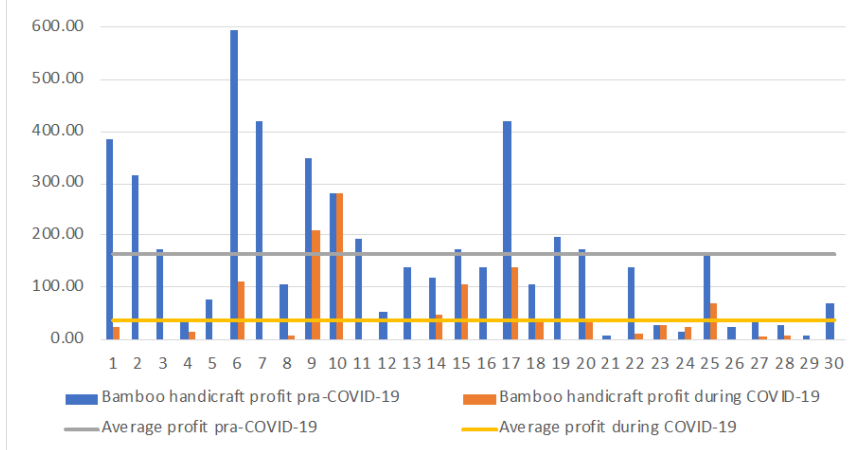
conducted directly and indirectly (Figure 2 below). Direct marketing means the craftsmen sell the products directly to the consumer. While indirect marketing means the craftsmen sell the products through intermediaries/other market players such as through other artisans (artisan 2), online shops, resellers, shops/kiosk, wholesalers, middlemen, and exporters in the domestic market for outward sale to consumers.

In direct marketing, sales are made at the craftsmen's business location or at the meeting place such as domestic markets or arranged locations and sometimes involve traveling to other areas. The online shop is currently undertaken only by a limited number of artisans, as online commerce requires the availability of a reliable Internet network connection, which remains limited and relatively costly.

Handicraft products from Semin are also sold to big cities or outside provinces such as Bali and Jakarta, as well as in restaurants, counters, and shops in Yogyakarta by resellers or middlemen. In this marketing channel, middlemen have a big role as handicraft's distributors or as first buyers. Artisans usually make products according to the orders from middlemen. Most middlemen have a wide market network that can channel them to various other market players such as wholesalers, resellers, and even exporters.

### 3.3 Impacts of the COVID-19 Pandemic on Bamboo Handicraft Business

Bamboo household enterprises in Gunungkidul provides a good case study regarding how MSMEs in creative industries passed through the hard economic shocks of the 1997-1998 and 2008 economic crises (Utomo et al., 2021), and how they might react to the COVID-19 pandemic. Narula (2020) asserts that MSMEs which are located in rural areas would be less affected by COVID-19 pandemic compared to urban economy. This view applies at the research site. Figure 3 below illustrates the profit fluctuation earned by craftsmen before and during the COVID-19 pandemic.



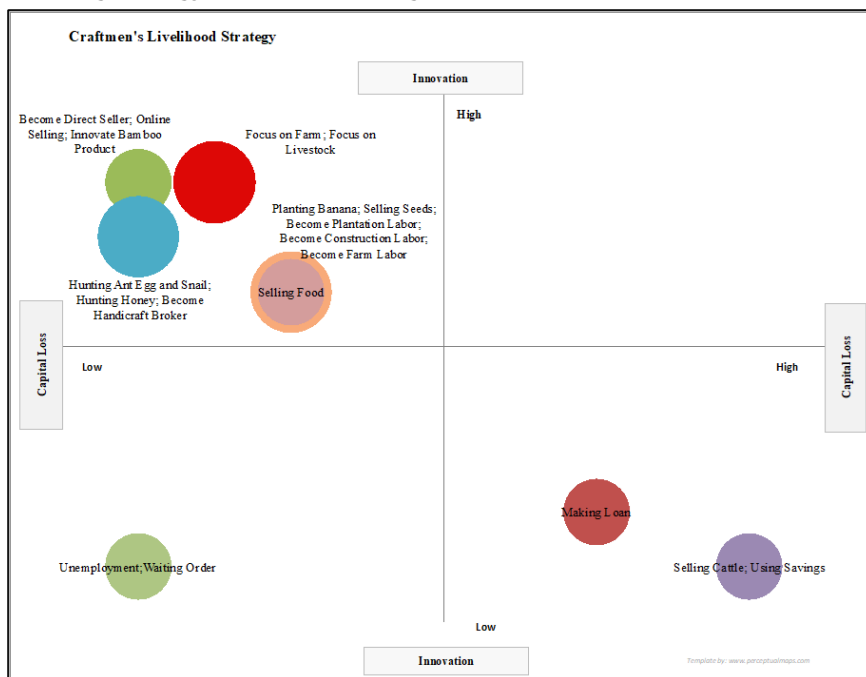
**Figure 3.** Profit fluctuations before and during the pandemic

Generally, the nominal assets and capital invested by the craftsmen are on a small scale so that the potential loss of assets remain small. However, while 'small' these investments can be considerable for rural craftsmen. For craftsmen, for whom the bamboo MSME is their main source of livelihood, the pandemic strongly impacted their economy. The average profit during COVID-19 was US\$ 38.93, representing on average decrease of 76.50 %. The highest profit was US\$ 279.72. Around 96.7% of craftsmen experienced a decrease in turnover and almost 50% of respondents experienced a long period without any order during the peak of the pandemic. This resulted from a frail sales network, specifically where (1) production was based of orders and contracts

received from other craftsmen and when demand decreased during the pandemic, those other craftsmen were able to meet demand themselves; and (2) those who focused on one stage of crafting, such as bamboo batik and flute holes makers, were highly dependent on orders from other craftsmen.

There were some craftsmen who managed to generate income from the bamboo business during the peak of the COVID-19 pandemic. They were able to maintain their business operations because of stronger sales networks compared to other craftsmen. Even though demand was low during the height of the pandemic, craftsmen with strong sales networks were able to still produce and sell products to support the household economy. To deal with the difficult sales environment, some craftsmen changed their sales pattern. While usually only focused on producing handicrafts, those craftsmen expanding to direct selling, even off-island to locations such as to Sulawesi, Kalimantan, and Sumatra. Those craftsmen secured stocks of raw materials and products by arranging with supplier partners delivery via package services. This was the case with one craftsman whose profit remained steady before and after COVID-19 pandemic.

### 3.4 Living Strategy of Craftsmen During the Pandemic



**Figure 4.** Craftsmen’s response during the economic hardship of COVID-19 pandemic

In facing the tough situation during the pandemic, the craftsmen sought various ways to survive. Despite the decline in the handicraft business, many craftsmen had to pay credit payments to the bank. Fortunately, the banks took a supportive policy by providing concessions to reduce the amount that must be paid in monthly installments because of the trust that has been built. In efforts to meet daily needs, various economic activities were conducted such as making additional or diverse products, shifting focus, and/or changing livelihoods. Most of the craftsmen remained ready to receive orders, although a few lacked production capitals. Figure 4 below, identifies and organizes these various activities into four quadrants classified according to the level of

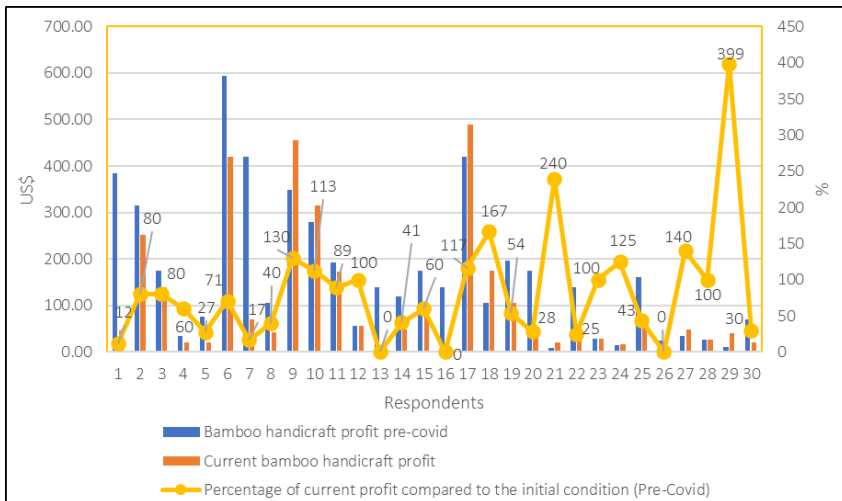
innovation and capital loss.

In a difficult economic situation, craftsmen tenaciously pursue various activities to support their household livelihoods. Efforts to sell assets or use savings were usually a first step to deal with the urgent need for cash. The assets that were commonly sold first are livestock and vehicles. Other than using it for daily needs, this liquidity capital was used as capital for operating new business activities. This also happens with teak farmers and livestock farmers in order to raise cash in times of need (Perdana et al., 2012; Seruni, 2018). Beyond selling assets, seeking loans was another option to obtain capital.

During times of crisis, market orientation provides better survival compared to a needs orientation (Eggers, 2020). Moreover, entrepreneurial orientation facilitates the observation of market opportunities during a crisis (Beliaeva et al., 2018; Wales et al., 2021). Some bamboo industries were able to survive by initiating or expanding online marketing. Due to the pandemic, many consumers preferred online marketing to avoid public crowds. Online marketing for the furniture sector was also successful (Barčić et al., 2021). However, the number of craftsmen in the research site who used online marketing was limited, due to the limited capacity to use information technology.

Some craftsmen were very innovative in their efforts to deal with the pandemic. Waiting for orders is a practical option, but some craftsmen followed the local ancestral philosophy of “*ora obah, ora mamah*”, viz. “without work there will be no food” (Martono & Armanda, 2021; Wardhani & Narimo, 2018; Wuryantoro & Budiwibowo, 2017). Three craftsmen developed new products that are still selling well, including boba straws and bento boxes. Others started selling directly to customers outside of Java Island. Some craftsmen shifted their focus to farming, animal husbandry, forest honey collection, or red ant egg and snail collection (which are salable), as well as being laborers for various activities. The tenacity of the craftsmen allowed them to survive the difficult conditions during the pandemic.

**3.5 Current Bamboo Handicraft Business: Recovery Phase**



**Figure 5.** Profit fluctuations before the pandemic and current situation

As of September 2021, the spread of the virus has been controlled, bringing a positive impact to bamboo handicraft business. Although a third wave has come, viz. the omicron variant, the response of the government is not as strict as when delta variant boomed. Thus, more positive effects are being felt by the business sector and on social



activities. The Figure 5 below shows the current profit earned by craftsmen.

Compared to profits earned under normal situations, the average current profit has reached 66.18% of pre COVID-19 conditions. Seventeen respondents have earned profits above 60% of normal conditions, with only 3 respondents who have not made a profit. Those respondents have not yet resumed their handicraft business, primarily due to capital constraints. A total of 11 respondents have reached normal profit rates, 7 respondents have enhanced their profits compared to before pandemic period.

#### 4. DISCUSSION

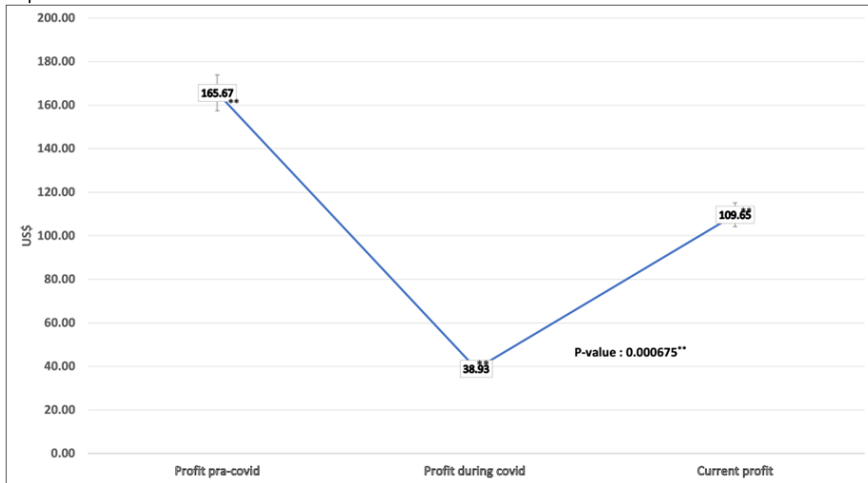
The process of selling bamboo handicrafts from Semin is closely related to public movement and access, especially in tourist areas, schools, and community entertainment centers. These three areas were the focus of government's concern to control the spread of the COVID-19 virus, so craftsmen's sale networks were directly impacted. On site school activities were also closed and replaced online learning. The cessation of this activity caused the markets of toy traders, who usually retail bamboo handicrafts near schools, to collapse. Likewise, the prohibition of activities that attract crowds, such as night fairs, restricted sale opportunities. Government policies to contain the pandemic had a great impact on the economy of the craftsman community.

In addition, the tourism sector was greatly affected during the early stage of the pandemic (Budastra, 2020) and also impacted its derivatives, viz. hotels, restaurants, transportation, aviation services, and MSME (Bayu, 2020). The decline in the number of tourists and a corresponding decline in retail souvenir sales occurred during this pandemic (Nhamo et al., 2020). The tourism sector has a multiplier effect on the Indonesian economy (Cushnahan, 2004; Kartiko, 2020) and COVID-19 had prolonged effects on the tourism sector in Asian countries (Cahyadi & Newsome, 2021; Jaisingh, 2021; Kenny & Dutt, 2021; Noorashid & Chin, 2021). The provinces of Bali and Yogyakarta Special Province as tourist centers and also the main destinations of handicraft supply from Semin also experienced economic decline. Tourist areas such as Malioboro were closed or operating during limited hours. From April to December 2020 there were no foreign tourist visits to Yogyakarta Special Province (Statistic Indonesia of DIY Province, 2021). Meanwhile in Bali in 2020, the number of domestic tourist arrivals decreased by 56.41% (Statistic Indonesia of Bali Province, 2021a) and 82.96% for foreign tourists (Statistic Indonesia of Bali Province, 2021b). Border closures by several countries that import bamboo products from Semin are also a problem during the pandemic.

The decrease in profit by 76.50% had a very large impact on craftsmen, but the impact was also experienced by other actors in the bamboo handicraft value chain. The minimum number of orders reduces the flow of money in rural areas, especially for upstream actors in the chain, from raw material providers to craftsmen. So when compared with the results of the central bank study, the bamboo handicraft industry in Mandesan Village is included in the 15.6% group of SMEs whose profits have fallen to more than 75% (Victoria, 2021).

As of early January 2022, when this paper was drafted, the COVID-19 pandemic, including the delta variant, has diminished. This variant, considered the peak of the COVID-19 spread, caused the second wave which occurred in the middle of 2021 (Wahyudiyono et al., 2021). The severity caused by the delta variant was very high, exceeding that of the first wave (Velarosdela, 2021). Many businesses that initially began to bounce back were ravaged due to the delta variant. A stricter policy of constraints on community activities was adopted during this period. Finally in early September 2021 this second wave was under control, as was previously projected by a modeling study by Joyosemito & Nasir (2021).

When this second wave ended, a relaxation of travel and community restrictions was implemented to revitalize economic activities. According to Eggers (2020), small entrepreneurs have limited range of responsibilities and exposure, so a crisis may create resource availability and potentially liquidity problems for MSMEs. However, limited resources can also encourage innovation in times of crisis, supporting business survival (Marino et al., 2008). Cook (2015) stated that the micro entrepreneur business could recover during a crisis after a cycle of four stages (responding, resuming, recovering and restoring). The fluctuation in the craftsmen’s net-profit in three periods of time is illustrated in Figure 6 below and the statistical analysis of the craftsmen profit is provided in Table 1.



**Figure 6.** Profit recovery in bamboo handicraft industry

**Table 1.** ANOVA of Craftsmen’s profits during the three stages

| ANOVA               |          |    |          |            |            |          |
|---------------------|----------|----|----------|------------|------------|----------|
| Source of Variation | SS       | df | MS       | F          | P-value    | F crit   |
| Between Groups      | 4.95E+13 | 2  | 2.47E+13 | 7.94789913 | 0.00067576 | 3.101296 |
| Within Groups       | 2.71E+14 | 87 | 3.11E+12 |            |            |          |
| Total               | 3.2E+14  | 89 |          |            |            |          |

According to the observations, there was a significant difference (P value = 0.000675) in craftsman’s profit between the three stages (pre-covid pandemic, during pandemic, and current situation). The p value is 0.000675, is smaller than the significant level of 5%, demonstrating that there were differences in the craftsman’s profit across the three stages. The average monthly revenue plummeted six months after the COVID-19 outbreak in Indonesia (from March 2020 to August 2020). However, the craftsmen stated that by the end of October and early November 2021 orders for bamboo handicrafts in Semin started to increase. This was caused by a resurgence of normalized social, business, and tourism activities following the lifting of restrictions on community activities in Java and Bali (known as PPKM social activity restriction) (see Pieter et al., 2022). Even though the craftsmen’s profit almost tripled compared to the during COVID-19 phase to current phase (January, post-delta), the current profit earned has not reached the levels of pre-COVID-19 profit. However, this trend indicates that the post-COVID-19 recovery phase for the micro-small bamboo enterprise in Gunungkidul is developing. For SMEs in general, as of mid-October 2021, around 84% of SMEs are back in business (Ministry of Communication and Informatics, 2021). This

is a perfect time for the government to thoroughly identify and then implement suitable approaches to boost the business recovery as a part of the national economic recovery acceleration program set up by the Central Government.

The rise of the bamboo handicraft industry in Gunungkidul, once again shows that the presence of SMEs is significant for the Indonesia national economy. SMEs, 64.19 million business units nationally (Coordinating Ministry of Economic Affairs, 2021), have truly become the backbone of the national economy, especially after the extraordinary disruption at the national and global levels. In improving the condition of the national economy, the Government of Indonesia makes SMEs one of the main pillars (Capital Investment Coordinating Board, 2021; Coordinating Ministry of Economic Affairs, 2021). This support includes relaxation of lending and flexibility in interest payments, which has also been prevailing at the research site. The banking credit ratio for SMEs as of March 2022 is 21.17% (Rahman, 2022).

Compared to large industries, SMEs tend to revive more quickly from crisis conditions. This is related to flexibility, which ultimately affects the speed of decision-making related to innovation and business strategy. In addition, a relatively small business scale with relatively much lower capital and maintenance requirements, so that losses during the crisis are relatively smaller and capital to return to operations is relatively easier to obtain. Furthermore, the small amount of profits obtained still have a meaning for the entrepreneurs because the scale is at the household business level.

The cultural aspect is also the reason why the craftsmen are loyal to this work. Work that has decades of roots in family traditions has been integral to the culture of the people in Mandesan Village. The income crisis for almost 2 years does not necessarily change the roots of the craftsman's culture. Several craftsmen who are currently on hiatus also indicated that they will return to their activities as craftsmen when they feel ready to return.

Many regions in Indonesia have unique villages with a large number of people who depend on a single profession or craft, this includes in Yogyakarta Special Province. Disruption of the market chain will result in the weakening of the economy of the village. Therefore, it is necessary to anticipate if a shock like pandemic could occur again in the future. Various steps can be initiated by the government to increase the resilience of craftsmen. Although MSMEs are more flexible in decision-making (Eggers, 2020) and adapting to new business situations (Soriano & Dobon, 2009), providing MSMEs with higher survival power (Liñán et al., 2019), big-scale shocks such as pandemics continue to disrupt business life of MSMEs.

Creating more resilient MSMEs relies on developing greater entrepreneurship and support from external parties, especially from the government. External support is required because home industries have limited resources, are conservative, adverse to risk taking, and are less focused on growth and long-term planning (Habbershon et al., 2003; Xi, Kraus et al., 2013). The success of any business essentially depends on the entrepreneur capacity (Utomo et al., 2021). The pandemic reveals the capacity of each craftsman to deal with a business shock and it can be an entry point to evaluate which nodes need to be strengthened, modified, and/or changed. Governments, which can function as facilitators, can serve to identify approaches to foster a more resilient bamboo handicraft industry. We argue that the government should be more adaptive in terms of money spending and become more responsive to deal with sudden change. For example, during the pandemic the demand for some products increased but craftsmen required special tools to facilitate enhanced production. Appropriate government agencies could have bought and distributed these tools, even if the process required adjusting existing budget allocations.

The programs directed by the government should change, from top-down to be more bottom-up. Top-down programs are often routine and do not comply with current challenges and opportunities. We argue that this approach is obsolete, ineffective, and inefficient. Today, the government should provide solutions for challenges faced by the craftsmen are crucial. The government should also adapt to the dynamic change in business environment and increase their capacity to respond in timely manners. A more reliable government would be able to empower craftsmen with more skills to face the current and future challenges especially in the 4.0 industrial era. In such an approach, craftsmen must also be proactive seeking government support and facilitation to grow their businesses and become more resilient. Entrepreneurship is a foundation strong business development (Liñán et al., 2019; Singh & Belwal, 2008; Spence et al., 2011).

We identify the facilitation and capacity building required by craftsmen as knowledge of e-commerce, export mechanisms, market network creation, English proficiency and access to tools. In general, digitalization is a challenge in small-micro enterprises (Bartik et al., 2020). Whereas, in the industrial 4.0 era, the ability of bamboo craftsmen to modernize their technology and develop product, output, and marketing systems will make craftsmen more well-prepared to face the competition (Barnawi, 2020). Craftsmen's ability to speak English is also important because those who have started collaborating with foreign buyers will experience communication as a barrier. The facilitations mentioned above would enable a better environment for innovation, a key of industrial performance (Forsman & Temel, 2011; Hernández-Espallardo & Delgado-Ballester, 2009; Lee et al., 2015). Innovations in Pekalongan Batik small enterprise and Tasikmalaya bamboo handicraft micro enterprise are examples of how product innovation survived the business shocks of the COVID-19 pandemic (see Rosyada & Wigiawati, 2020; Widiyanto et al., 2021). When craftsmen are equipped with those capacities, the bamboo handicraft industry in Semin will be more resilient in the near future.

## 5. CONCLUSIONS

The COVID-19 pandemic led the government to impose regulations regarding movement and transportation restrictions, decreasing the demand for bamboo handicraft products. The impact of the COVID-19 pandemic was severe with almost all bamboo craftsmen experiencing a decrease in profit and nearly half receiving no order for an extended period. Various adaptations were made by craftsmen to cope with COVID-19, including minimizing capital expenses, creating innovative marketing options and focusing on alternative income sources. Some bamboo craftsmen were forced to borrow or sell livestock and assets to meet their daily needs. Currently, the pandemic has diminished greatly, allowing business activities to flourish, resulting in a positive impact for bamboo handicraft business. Although the profit earned by craftsmen has not returned to the level of the pre COVID-19 normal situation, the profit significantly increases compared to the period of the second wave of COVID-19 pandemic, which was the hardest time for the craftsmen. Government facilitation to build craftsmen's capacity is essential to create a more resilient bamboo handicraft industry in Semin, especially in e-commerce, export mechanism, market network creation, tool acquisition, and English proficiency.

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