

# Rural Agri-Food Industry Resilience in Indonesia

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**Submission date:** 14-Dec-2021 11:23PM (UTC+0700)

**Submission ID:** 1730310736

**File name:** Rochman\_2021\_IOP\_Conf.\_Ser.\_Earth\_Environ.\_Sci.\_830\_012063.pdf (625.94K)

**Word count:** 4216

**Character count:** 23241

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To cite this article: Gina Puspitasari Rochman *et al* 2021 *IOP Conf. Ser.: Earth Environ. Sci.* **830** 012063

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## Rural Agri-Food Industry Resilience in Indonesia

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**Abstract.** The agri-food industry faces shocks to global and local socio-economic conditions. They are micro, small, and medium-sized enterprises (MSMEs) that absorbed a lot of labor during the Indonesian economic crisis and stood for decades. This industry may provide safety nets, especially for low-income communities carrying out productive economic activities in rural. Therefore, this study examines the extent of the agri-food industry's resilience in rural areas by focusing on industrial and business structures and labor market conditions factors. This study used a case study approach through in-depth interviews with business owners. The rural agri-food industry made adaptations and innovations in production and financial management to resilience. This strategy raises the difference in its market segment. The difference in company size reduces local competition also. On the one hand, the management and control capabilities of family firms and the kinship or historical relationship between company owners and workers tend to increase this industry's resilience. On the other hand, this industry has attached to local values and culture, making the demand for this agrifood-industrial product stable. The labor profile does not require high qualifications and is also dominated by housewives, and the flexibility of time and wages of the agri-food industry may suit rural conditions so that it can survive. In this regard, the proximity of locations between companies and between companies and workers is important for this industry's resilience. Although the MSMEs scale agri-food industry is vulnerable, it could survive and recover as a driving force for the household economy in rural. Lessons and strategies are also presented for entrepreneurs and policymakers to increase the resilience of the agri-food industry.

*Keywords: resilience, agri-food industry, rural, Indonesia, MSMEs*

### 1. Introduction

Micro, small, and medium-sized enterprises (MSMEs) are crucial to any country's development [1]. In Indonesia, it has a significant contribution to the expanding employment opportunities, the formation of gross domestic product (GDP), and providing safety nets, especially for low-income communities carry out productive economic activities. MSMEs workers are dominated by primary school graduates [2]. MSMEs have a workforce absorption rate of around 97 percent of the entire national workforce and contribute to the product gross domestic product (GDP) of around 57 percent [3]. Based on data from Indonesia's Statistics Agency [2], the number of MSMEs in Indonesia was recorded at 4.26 million businesses/companies among them 3.99 million micro-enterprises and 266 thousand small enterprises. The contribution of MSMEs is insufficient to encourage economic growth and increase



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people's income higher [4]. Nevertheless, MSMEs have the potential to drive the household economy in rural areas.

Changes in local and global socio-economic conditions test the resilience of MSMEs. MSMEs face challenges related to access to productive resources and markets, capacity and quality of human resources, and access to finance and business development [3,4]. The development of innovation and technology also increases business competition and changes in market demand [4,5]. Under these conditions, MSMEs are able to resilient. MSMEs are proven not to be affected by the Indonesian crisis that hit the period 1997 - 1998. MSMEs have been proven unaffected by the Indonesia crisis when the crisis hit the period 1997 – 1998. Data from Indonesia's Statistics Agency [3] shows that the number of MSMEs continues to increase, even able to absorb 85 million to 107 million workers during the post-1997-1998 economic crisis to 2012.

The agricultural sector still dominates economic activity and the food industry is mostly MSMEs in Indonesia. As much as 1.7 million of the food industry absorbs 38.29 percent of workers and more than half of the working children and the elderly over 65 [2]. Therefore, the agri-food industry might potentially develop to increase the added value of agricultural products in rural areas. Rural areas produce locally processed food products from agricultural products and have been established for a long time. Some of these food products have become regional specialties or traditional foods, like mochi from Japan or bitterballen from the Netherlands. Indonesia has many regional specialties that may be better known at the national and even regional levels. The rural agri-food industry produces local food products processed from agricultural products. This industry has been around for a long time and can withstand shocks or socio-economic changes. Apart from the Indonesian economic crisis's shock as explained earlier, the agri-food industry is also facing the current of food modernization and instability in the supply of agricultural products due to climate change. Therefore, this study examines the extent to which the rural agri-food industry resilience or recover from these shocks. The results of this study provide learning and input for policymakers and help entrepreneurs formulate strategies in maintaining or increasing the resilience of the food industry or business, especially in rural areas.

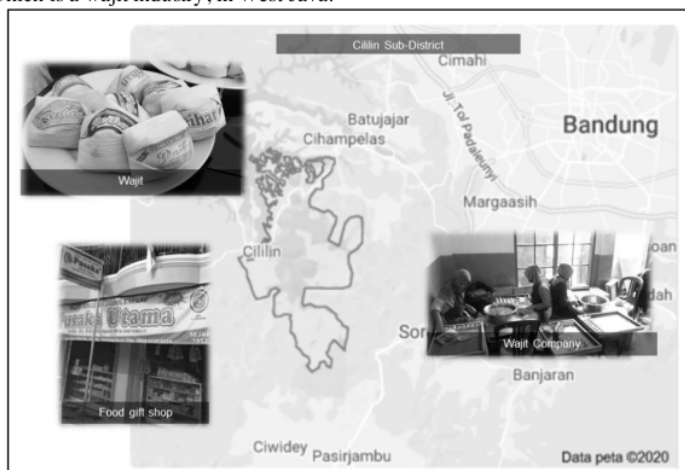
## 2. Methods

To examine rural agri-food industry resilience, we employed a depth-qualitative approach based on a case study. We chose the agri-food industry in Cililin Village, West Java, Indonesia as the case study. This village has a micro and small agri-food industry that has survived for three generations or 30 years. This industry resilient and recover during and after the crisis in 1998, and resist the other socio-economic shock. We conducted an in-depth interview with key actors/key informants. There were 10 firm owners, ahead of sub-district, actors in the Department of Cooperatives, SMEs, Industry, and Trade of Bandung Regency Government. We asked the key informant for the determinant of the rural agri-food industry resilience.

We follow and modify the determinant of regional economy resilience by Martin & Sunley [6] appropriate to this study's context. We examine the industrial and business structure, and labor market condition variable. Industrial and business structure factors consist of firm size and ownership, specialization economy, market orientation, innovativeness, supply-chains, debt structure, and financial strength. Furthermore, labor market condition factors involve workers' skill and gender profile, labor mobility, occupational flexibility of workers, alternative job opportunities, and wage and hours flexibility. We processed data from in-depth interviews with key informants and related documents. In addition, we also observe the conditions and interactions of the actors. This analysis method is used to study and analyze communication systematically and objectively with due regard to the research context [7]. In the process, we first sort the relevant data. Then we rearranged the data that involved choices, such as what points were taken from existing quotations, how the variables relate, and how the patterns were. At this stage, we examine the interview excerpt and then look for the meaning contained in the message or text and interpret it. at the final stage, we formulate conclusions based on the patterns found [7–9]. To prevent bias, we carried out three procedures in the analysis process: comparing information between different key informants, observing and reconstructing findings that looked similar but did not fit the flow of analysis, and looking for alternative explanations.

### 3. Overview

Cililin village is in a remote area and is located in West Bandung Regency, West Java, Indonesia. This village quite far from the trade center and the central government at the regional level. Economic activities in this village are rice farming, trade, and micro (or home), and small industry. This village is known as one of the agri-food industry centers, which is a wajit industry, in West Java.



**Figure 1.** Wajit Industry in Cililin Village, West Java, Indonesia

Wajit is a traditional food in Indonesia and is known as a souvenir from West Java, especially from Bandung. This food is made from glutinous rice, coconut, palm sugar, and typical is wrapped in dry corn leaves. Wajit is also found in other areas with different names, such as Wajik, which is known in Central Java; in Sumatera, it is called Pulut Manis; in Sulawesi, it is called Baje. The distinctive difference of the Cililin wait is its conical shape. This food is usually served at special occasions such as celebrations, weddings, thanksgiving, holidays, etc. Until 2019, there are ten companies with various brands in Cililin village. During the economic crisis, few companies resist, and some companies went bankrupt and then recovered.

### 4. Result and Discussion

Resilience is the outcome of complex factors. In economic case, the geographical economic theory emphasizes the importance of innovation capacity, and institutional arrangements, local productivity, the role of regional externalities, mobility of labor and capital, environmental selection, the role of local externalities, firm fitness, and sectoral variety [6, see 10]. How a local firm responds to a major shock will depend on the nature of the shock itself, the company sector and market the firm is located in, the intensity and skills of employees, company size, organization and ownership, wage structure, and labor availability. How a local firm responds to a major shock will depend on the nature of the shock itself. This study focuses on rural agri-food industry resilience factors, specifically industrial and business structure, and labor market conditions. Besides the company sector and market's firm is located in, the skills' employees, company size, organization and ownership, wage structure, and labor availability affect the firm resilience. And then, firm resilience is also influenced by innovative ability in terms of financial situation and then networked inside local economy and the broader economic system with competitors, collaborators, and suppliers, both national and international [6]. So, these factors used to explain the industrial and business structure and labor market conditions in this study.

#### 4.1. Industrial and Business Structure

Industrial and business structures emphasize size, ownership, and innovation as resilience factors of the firm [5,6,11,12]. If we refer to Indonesia's regulations [see 13,14], there are three medium and five small companies out of 10 wajit companies in Cililin village, and the rest are micro-enterprise. The wajit industry has at least four workers and 30 workers with an investment value of about 1 billion rupiahs. Small companies may be less able

than large companies to quit large companies prolonged economic contraction [6]. In a recession, medium and small wajit companies are more resilient than micro-companies. The way they survive, medium and small companies generally reduce production capacity. Still, some maintain the quality of materials and products, some use raw materials that are cheaper so that the lower their production costs, some take new opportunities by developing other food products that are fewer production costs.

Meanwhile, micro-companies tend to go bankrupt or they become makloon. However, we found that larger companies could liquidate because they were unable to manage their finances. Micro-companies tend to go bankrupt or they become makloon. However, we found that larger companies liquidate because they were unable to manage their finances. In this regard, although almost all companies get business capital from banks, those who persist in innovating in financial management. Resistant's company holding savings activities together with employees so that at times of urgency they can become temporary capital. Then, entrepreneurs have adequate personal savings and were able to utilize finance and other resources. They tend to avoid borrowing from banks and prefer to get capital from the company's financial turnover. This condition makes this industry stagnant, but they were able to withstand shocks.. They tend to avoid borrowing from banks and prefer to get capital from the company's financial turnover. This condition makes this industry stagnant, but they were able to withstand shocks.

Wajit industry is a local and family-owned company. Family firms may be vulnerable to disruption due to limitations in their ability to access human and financial capital. They appear to have an advantage in the development and utilization of social capital [15–17]. However, family companies can survive and thrive for a very long period [18]. We found that in the third generation, the wajit companies tended to split up so that the descendants had their own wajit companies under different brands. A resilient family company has a manager who has managerial talent and control and may balance economic and non-economic goals among family members. Thus, internal social capital in the family firm has an effect on firm resilience.

The economic structure of a region affects the exposure and vulnerability to various shocks [6], so it may also shape the agri-food industry's resilience. Likewise, places with diverse economies in socio-economic terms are more resilient than sites with a narrow economic base [19]. Hence, the statements imply that the agri-food industries will be stronger and more resilient if different business products have strong local ties, not just supply chain connections or input-output relationships. Wajit industries usually produce modified foods from similar ingredients, such as dodol and angleng, or develop a different flavor variant of wajit such as strawberry, pandan, and chocolate flavors. Only a few companies produce a variety of food products with different ingredients. Futher, corn leaves to wrap the wajit that are not produced locally but companies access it in the local market. Wajit entrepreneurs are local residents so that the reliability of the supply chain of local companies, and scope to switch to an alternative supplier (maybe more stable or cheaper), whether locally or elsewhere, also increase their resilience. If there is a scarcity, especially in the local market, small firms are more resilient than micro enterprises because they tend to have capital capacity and networks to producers. In addition, several micro companies have become makloon especially when raw material prices are very expensive.

Each company in the wajit industry has a different market segment, quality, and product price. Small companies still maintain the family heritage recipe so that it may have better product quality. These products have the price is higher and the market is more exclusive. These companies tend to sell their products only in their shop located in Cililin and some of them have well-known product brands. Meanwhile, there are small companies that modify the quality of their products. These companies have a wider market reach and they sell their products through agents and gift shops. Then, micro-companies tend to modify their products' quality so that prices can be lower and then sell their products in local markets.

Moreover, local and regional tourism activities influence the market and there is always a demand for wajit. Wajit is a typical food souvenir from West Java, especially Bandung. Tourists traveling to and from Bandung and its surroundings usually look for and buy wajit. In local communities, wajit is usually the food served during certain events, even daily meals.

To sum up, the wajit industry may be vulnerable to shocks. However, they are resilient through adaptation and innovation in production and financial management. They are selected so that each company has its market segment by considering the capacity and capability. In addition, agrifood companies that are family-owned and also residents increase the resilience of agri-food companies. This agri-food industry is unique and has local values that make the demand for its products exist economically. Regardless, different company sizes and market segments reduce local competition in the wajit industry and make the firm resilient to shocks.

#### *4.2. Labour Market Condition*

In the discussion of old industrial estates to revive, the existence of an attached workforce built directly due to previous locality development pathways is as important as financial capital and local economic governance arrangements [20]. We found that skill in wajit processing was hereditary. This means workers have a relationship with their parents' history who are also workers in a wajit company. These skills include the skills in processing or scraping the wajit dough and wrapping the wajit. Although they have no historical connection and are unskilled, skilled workers or business owners train workers to become skilled. The skills are quite simple, but it requires patience.

Meanwhile, workers' education level is low on average, only up to elementary school or junior high school. Thus, skills are the main factor compared to academic education in the wajit industry. Moreover, workers whose skills were passed on by their parents have helped business owners maintain the distinctiveness of the wajit their company produces. Concerning the condition, the wajit industry absorbs a lot of female workers, namely housewives. Their average age is over forty years. The female worker wraps the wajit, while the male worker works processing the wajit dough. The number of workers who wrap is much more than those who process the dough. In general, companies only need about one until three people processing the dough depending on the company's production capacity, while the rest are workers who wrap wajit. Of course, the production capacity of medium companies is greater than small and micro-companies. They produce seven until ten quintals per day with a turnover of around eighteen million rupiahs per day.

Generally, workers have family ties or have historical relationships with business owners, and/or residents who live in the company's vicinity. The location of the wajit company is quite close together and is in a residential and commercial area. A quite old company is on the main road, where the production and selling sites are in the same location. This condition makes it easier for companies to find workers, where there are many locally available, and it is also easy and cheap for workers to reach workplaces, where they can also move from one wajit company to another, depending on the demands of the company. In the face of shocks, wajit companies tend to reduce production capacity and retain their workforce, except for companies that go bankrupt. Expenditures for wages depend on the company's production capacity because workers are paid daily or weekly and the amount depends on the amount of dough cooked or the amount of dough wrapped. Also, workers are not bound by a contract. Medium and small companies usually have permanent workers. They work part-time which is generally morning to noon. Even in micro-enterprises, workers can adjust the time between them doing household chores. However, based on our interviews with workers, the wages earned can help them meet their family needs.

In summary, the relationship and history between the company and workers, the match between the worker profile required by the company and the profile of the workforce available locally, and the flexibility of working time and wages make this agribusiness food industry survive in the countryside. Besides, there are factors of company location that are close to each other, the proximity of the site between the company and workers, and the characteristics of workers who cannot be absorbed by other alternative employment opportunities tend to increase the company's resilience.

#### **5. Conclusion**

This study shows the resilience of the rural agri-food industry from shocks. Medium, small and micro industries have developed a lot in rural areas as a driving force for the local economy, the agri-food industry. The agri-food industry can survive and recover after experiencing several shocks, such as the Indonesian economic crisis in 1998, the scarcity of agricultural products as raw material for the agri-food industry, and instability or changes in socio-economic conditions. Despite these shocks, the agri-food (wajit) industry has at least been able to rise and survive for three generations or thirty years. According to company size, this industry tends to be vulnerable to shocks [6,10]. Based on this study's results, we conclude that companies or family businesses can increase the resilience of the agri-food industry, as stated by Bertrand & Schoar [18] that companies or family businesses tend to last long naturally. Regardless, we emphasize the importance of internal social capital and the role of family members who have management and control skills in managing a family company. This agri-food industry is unique and has local values that make demand for its products economically. However, an important factor for the resilience of this industry is different company sizes and market segments so as to reduce local competition. Companies withstand shocks through adaptation and innovation in production management and financial management by optimizing their financial resources and not relying on banks' capital. This strategy allows them to remain

competitive in the market. The reliability of a local firm's supply chain, and the ability to switch to alternative suppliers (which may be cheaper or more stable), either locally or elsewhere, are critical to their resilience. The existence of a relationship and history between the company and workers, the match between the worker profile required by the company and the profile of the workforce available locally, and the flexibility of working time and wages make the agri-food industry survive in rural areas. Also, the company's location tends to form clusters, and the proximity of the company to the workers tends to increase the company's resilience. Learning from this study emphasizes the importance of a company's ability to adapt and innovate in financial management and analyze the company's business model. However, it is more important that companies are able to increase access to information and knowledge regarding regional and local economic conditions, supply chains, and infrastructure that support adaptation and innovation processes to increase industrial resilience in rural areas. Although it cannot be denied that historical factors and the type of agrifood industry's uniqueness attached to local values and culture are sufficient to support this industry to remain in shocks.

## 6. Acknowledgments

Thanks to Dr. Fikri Zufahmi and Dr. Dewi Sawitri from Institut Teknologi Bandung.

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