



Measure the Readiness of Food MSME System to Save Food System through the Market System During Pandemic COVID-19 (Case Study: SME Snack Food Cluster in Temanggung Regency)

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Abstract

The COVID-19 pandemic has had an impact on the global economy, especially for businesses. One of the business actors and sectors that are most directly affected are the MSMEs (Micro, Small, and Medium Enterprises) actors. MSMEs have a vital role in this situation because they can directly affect local villages' food systems and economic movement. One of them is the production of snacks, namely the business activity of processing raw materials (commodities) into food products up to the marketing stage. Snack SMEs are expected to adapt during a pandemic, considering that food is a crucial need quickly. The location studied in this study is Temanggung Regency as a district with high local potential and running many micro and small businesses such as snack food MSMEs in Central Java, Indonesia. This research aims to measure the readiness and adaptation so that snack MSMEs can survive. The analysis method is carried out with a market system framework approach starting from raw materials, processing, and marketing stages. The data of this study were obtained from primary data collected through interviews and questionnaires of MSME cluster actors in Temanggung District. This study indicates that the readiness of business actors with a new market system framework through the use of technology in SME snacks makes business actors survive in the era of the COVID19 pandemic.

Keywords: adaptation; clusters; covid19; market system; MSMEs

1. Introduction

The Covid-19 coronavirus pandemic is a human tragedy that affects billions of people around the world. This plague also negatively impacted the global economy, industry, and companies, especially for small and medium enterprises (SMEs). As a result, economists expect a slowdown in the momentum of economic activity from March 2020 onwards without a specific end date (Segal & Gerstel, 2020). One that is affected and is vital is the food system. Changes in market demand and consumer behavior have been observed by several countries (consumers prefer staples and canned foods with longer shelf lives) (FAO, 2020). The whole world is at risk of being vulnerable to the effects of COVID-19, which is worse in developing countries with weaker health and food systems making the impact to date unpredictable (Orden, 2020). As a result, commodities in the form of fruit and vegetables are at risk of being hampered by market absorption.

This means that the income of small farmers will decrease, which will have a negative impact on the resilience of their households. Facing this condition, it is necessary to take mitigation measures against

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things that threaten the food system and economy by turning challenges into opportunities with the role of the government and related stakeholders. Efforts to save the food system require optimal utilization of all raw materials produced by the local food system at all stages of the food chain. Efforts started with reducing losses at post-harvest and then shifted to processing and retail, applying technologies that ensure food safety (Deng et al., 2015) to reuse processed products in the food chain (Galanakis, 2012).

One of the stakeholders that play a role in processing and marketing is MSMEs. Currently, saving MSMEs is imperative to maintain economic conditions and livelihoods (Liu et al., 2013). The sooner the businesses recover after this disaster, the faster the community will be able to access products, services, jobs, and market systems that return to normal, thus accelerating the recovery process for the community is mainly needed (Ergun, Heier Stamm, Keskinocak, & Swann, 2010). The importance of business recovery during the COVID 19 pandemic has also become a concern of the government by issuing policies related to economic recovery aimed at business actors so that they do not experience an ever-increasing deterioration (Government Regulation no 23/2020 concerning National Economic Recovery). One of the efforts to save businesses is adapting the MSME framework to the needs during the COVID 19 pandemic. This is important because the crisis has created "environmental shocks" which create uncertainty in various businesses, so it is necessary to change the "rules of the game" in Tushman & Romanelli (1985) and Wright et al. (2005). The food supply chain is divided into five stages: agricultural production, post-harvest handling, and processing to distribution/retail/services (Aday & Aday, 2020). Based on these conditions, an adaptation to the market system framework is needed, where this adaptation can comprehensively accommodate all stages (raw materials, processing, and marketing) from the SME snack cluster.

Based on the various problems and conditions faced, several current studies have not yet sharply identified the interrelationships of the food system. Several studies have tried to link the food system with transportation (Gray & Torshizi, 2021), food value chain during a pandemic (Hobbs, 2020), food industry (Nakat & Bou-Mitri, 2021), and food safety in the pandemic era were from Béné (2020), where frameworks were found in vulnerability assessment. From the literature results those other researchers have not widely discussed; it is the linkage of food security in the pandemic era with MSMEs as local actors that survive in an area in a developing country. This research aims to measure the readiness and adaptation so that snack MSMEs can survive. Researchers want to measure MSME readiness to survive and save food systems during the COVID-19 pandemic through market system criteria in Temanggung Regency.

2. Research Methods

This research method is carried out with a quantitative approach with quantitative descriptive methods. The basic concept of this research is to use the market framework as a criterion to measure the readiness of MSMEs during the Covid-19 pandemic. The research stages begin with literature collection, review, survey, data tabulation, presentation, and conclusion drawing. At the survey stage, a census was carried out on the performance of the MSME market system in Temanggung Regency with each village entity. This research is also supported by secondary data from both statistics and local government policies. The next stage is an analysis that begins with a value chain analysis followed by a market system. This is followed by an analysis of the adaptation process used as a criterion to measure the readiness of Snack SMEs in Temanggung Regency. The results of the analysis of the readiness of the MSME market system in Temanggung Regency will be realized spatially.

3. Result and Discussion

3.1. Adaptation of Market System Framework

The market system framework is a workflow consisting of raw materials, production to marketing and other supporting components (Figure 1). This market system framework approach shows that MSMEs cannot be separated from the three components: raw materials, production processes, and marketing/distribution. The existence of MSMEs as producers of raw materials is in the production process, so that MSMEs have an essential role in maintaining local economic stability, especially during the COVID 19 pandemic. There are several adaptation steps through the market system framework approach, from raw material processing and processing to product marketing.

MSME efforts to maintain local economic stability can be made by ensuring that raw materials from local farmers are optimally absorbed. This is an effort to maintain the food system cycle that plays a role in connecting agriculture with its market to reconnect the food chain in rural areas and connect consumers with what they consume and how it is produced (Curry et al., 2002). At this stage, MSMEs can function to process non-durable raw materials into products with more extended durability. Thus, it can avoid wasted agricultural commodities so that the farmer household economy can continue to rotate.

Adaptation of the market system, which is also important, is the suitability of the products needed during the COVID19 pandemic. It needs changes in the "rules of the game" during the COVID 19 pandemic due to consumer awareness of bioactive content in foods that can support body health and improve the immune system (Charis, 2020 - journal foods). Some foods can encourage the immune system to help the body fight viruses, one of which is rich in vitamins (Gibson et al., 2012; Naik et al., 2010). Vitamins are a group of fat-soluble compounds (including retinol, retinoic acid, and Betha carotene) that play an important role in immune function and are known to reduce susceptibility to infection (Huang

et al., 2018). One of them is foods rich in vitamin C, namely citrus fruits, kiwi fruit, and guava. Apart from fruit, vegetables are also suitable for boosting the immune system, such as carrots, spinach, and tomatoes rich in vitamin A.

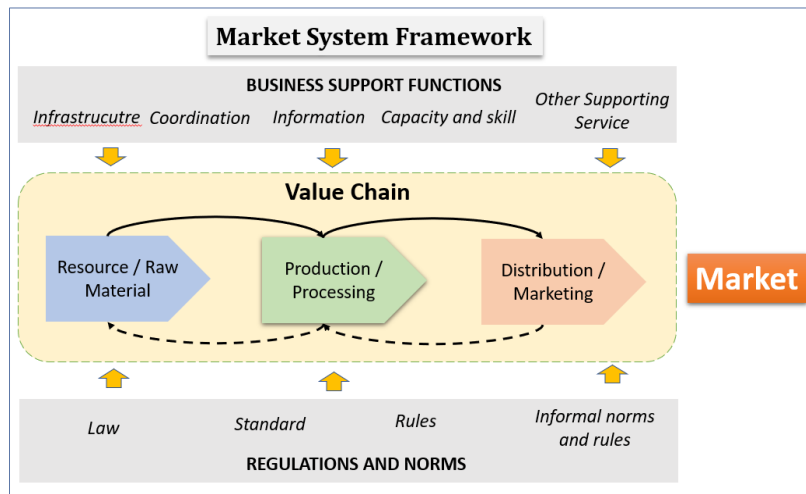


Figure 1. Market System Framework

The emergence of public panic about the spread of COVID19 with the common symptoms that are often encountered increases public awareness that people choose several raw materials that function to reduce symptoms. Raw materials often used to reduce symptoms are spices such as ginger, cinnamon, and black pepper. Some of the raw materials for spices have been used by several households in Asia, including Pakistan, which is used to fight the symptoms of COVID19 another important thing is that the safety of food consumed is a consumer's concern in order to avoid the spread of the virus during the production process between producers and traders until it reaches consumers (Galanakis, 2012).

As the final stage of the market system framework, namely marketing, it is important to pay attention to marketing methods during the COVID19 pandemic. Based on the experience of Chinese authorities in the early days of being affected by COVID19, they began directing product providers and buyers to use popular shopping applications (for example, the Pinduoduo platform, an e-commerce application by JD.com and the Alibaba Group) also used to find providers commodity or processed products with alternative buyers. Such intervention measures target producers closer to the collection center and facilitates e-commerce platforms, thereby reducing mobility (Cullen, 2020). The use of online media in marketing will minimize the spread of COVID19 in areas that produce commodities to maintain food security. The advancement of information and communication technology between SMEs will create collaborative relationships between trading partners and facilitate the virtual manufacturing process (Chiu, Lin, Nagalingam, & Lin, 2006). It is expected that with increased service and collaboration with trading partners through information technology, helping cooperative relations between companies through shared learning, knowledge creation, and knowledge can "overflow" between local business actors due to (informal) contacts between them (Wolters, 2003).

Through various literacy from each stage of the market system framework, the MSME adaptation process can be carried out at every stage of the market system framework (Figure 2). The adaptation process can be carried out by MSMEs by utilizing local raw materials, meeting needs according to market demand during the COVID19 pandemic, and marketing methods using online media. From the adaptation process, it can be concluded that the adaptation of the market system framework is shown in Figure 2. The next step is to ensure that the adaptation of the market system framework can be a benchmark for the SME snack cluster in Temanggung Regency. Through various adaptations of each stage in the MSME production process, it is known how the food market framework can work sustainably (Figure 2).

3.2. Snacks Cluster in Temanggung Regency

The development of MSMEs in Central Java is generally developed in a traditional manner that absorbs local contexts, such as raw materials, culture, history, and other endogenous characteristics around it (Astuti et al., 2016). Business clusters in rural areas play a role in growing seeds in developing rural MSMEs both partially and in general (Weijland, 1999). The clustering process can occur in a situation related to business agglomeration: cooperation and reciprocal interaction to carry out collective business performance (Phelps & Wijaya, 2016). In addition, the cluster has formed work coordination between businesses and the physical closeness between businesses so that many producers compete and encourage innovation (Porter, 1998). The formation of the MSME cluster is a potential place for rural entrepreneurs to develop and impact the local economy, so selecting the cluster as an object of study is a strategic substance.

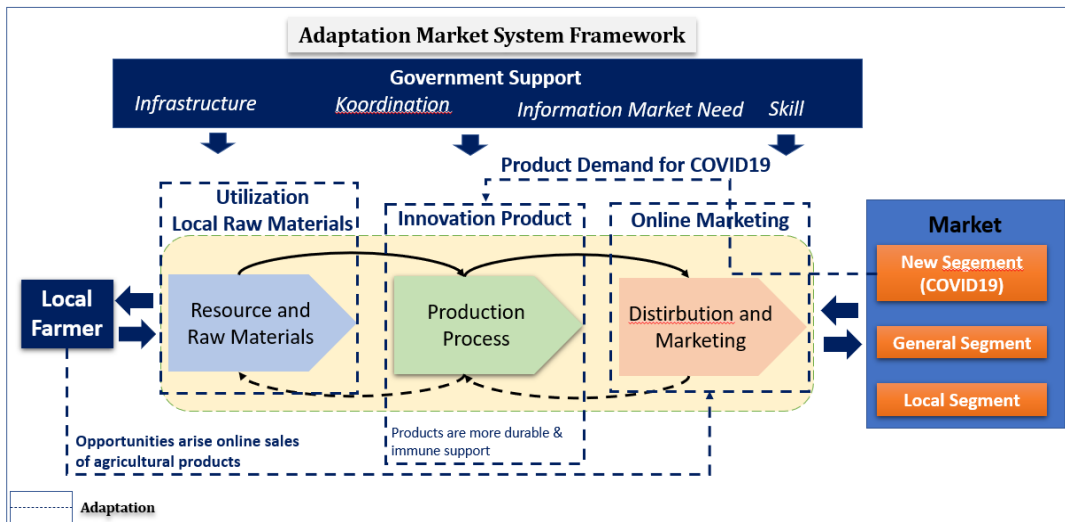


Figure 2. Snack SMES Adaptation Market System Framework

This study determined a cluster by reviewing the number of businesses with the same raw material and product with a minimum number of 3 businesses in each village. The clusters formed at SMEs for Snacks consist of various product categories in processed food, packaged food, and beverages. In the classification of raw materials, there are 12 types of processed classifications, namely processed cassava, wheat flour, banana, taro, rice & sticky rice, corn, fruit (general), nuts, vegetables, beverage processing, meat, and other processed classifications. Based on the survey results, the number of businesses and workers who formed the cluster in 2019, totaling 1,775 businesses by empowering the workforce, reached 6,041 workers (Figure 3).

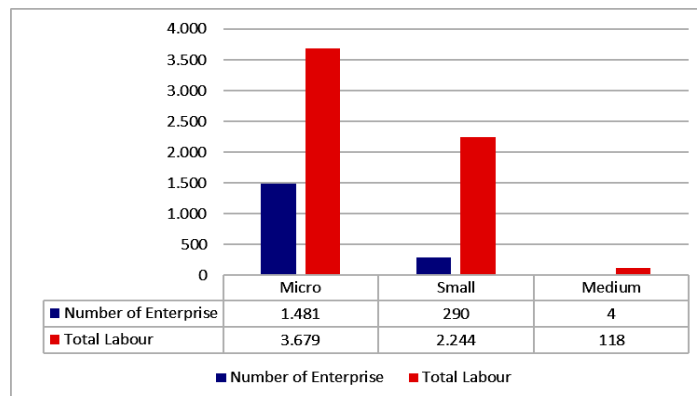


Figure 3. The Number of SME Snacks in Temanggung Regency

The ratio of labor and SME businesses snack food processing is 1 to 3, which means that every business has an average of three workers. The majority of snack food businesses in Temanggung Regency are micro-scale businesses, reaching 1,481 micro snack businesses (Figure 3). The distribution of MSME clusters is quite significant in the Candiroto, Gemawang, Kandangan, Temanggung and Parakan Districts (Figure 4). The contribution of the number of SMEs in snack food processing reached 7.05% of the total number of MSME clusters in Temanggung Regency, with the workforce contribution to the total MSME workforce reaching 8.24%.

3.3 Utilization of Local Raw Materials by the SME Snack Food Cluster

To maintain local economic activity, one of them is by ensuring that the circulation of agricultural commodity products at the local level continues. This understanding briefly explains that the food industry has a role in bridging various agricultural sector entities with the market. Figure 4 shows the number of MSME clusters that use local raw materials.

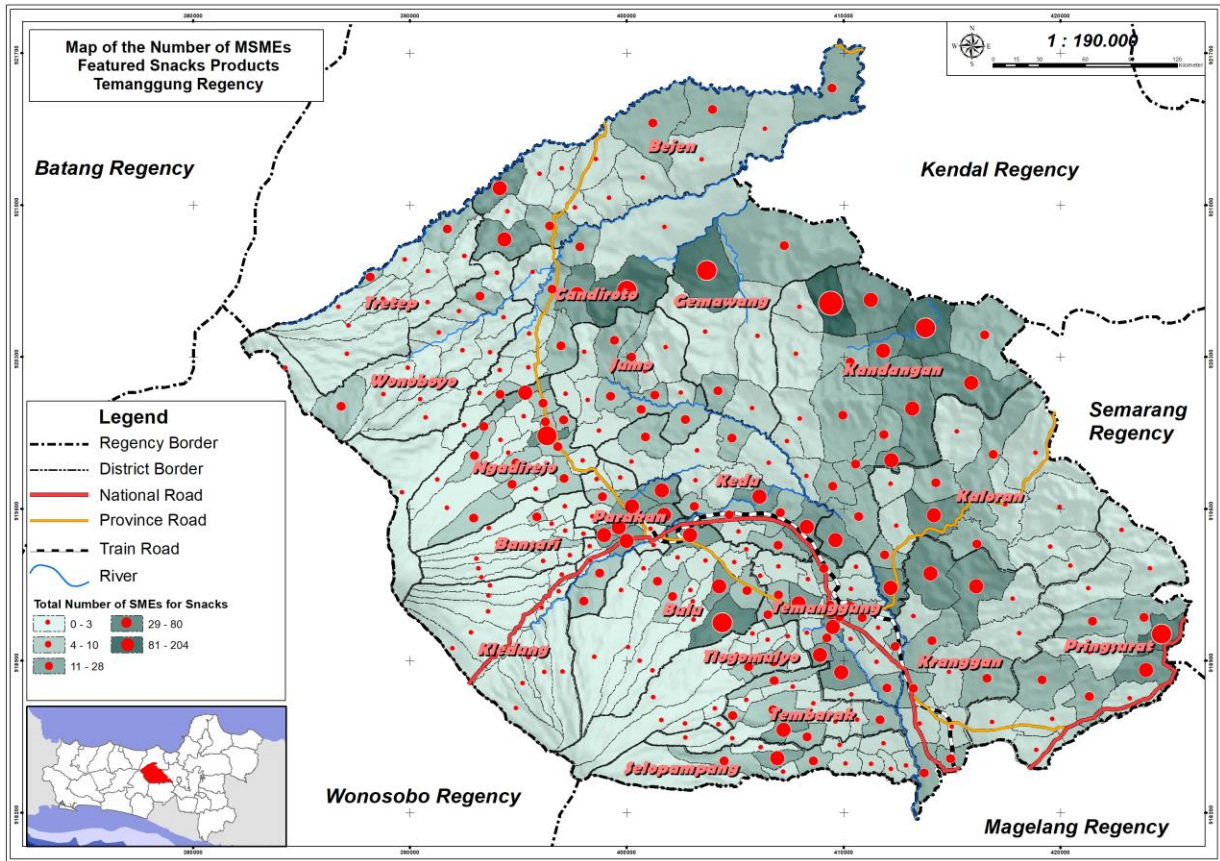


Figure 4. Distribution of Snack Food MSME Clusters in Temanggung Regency

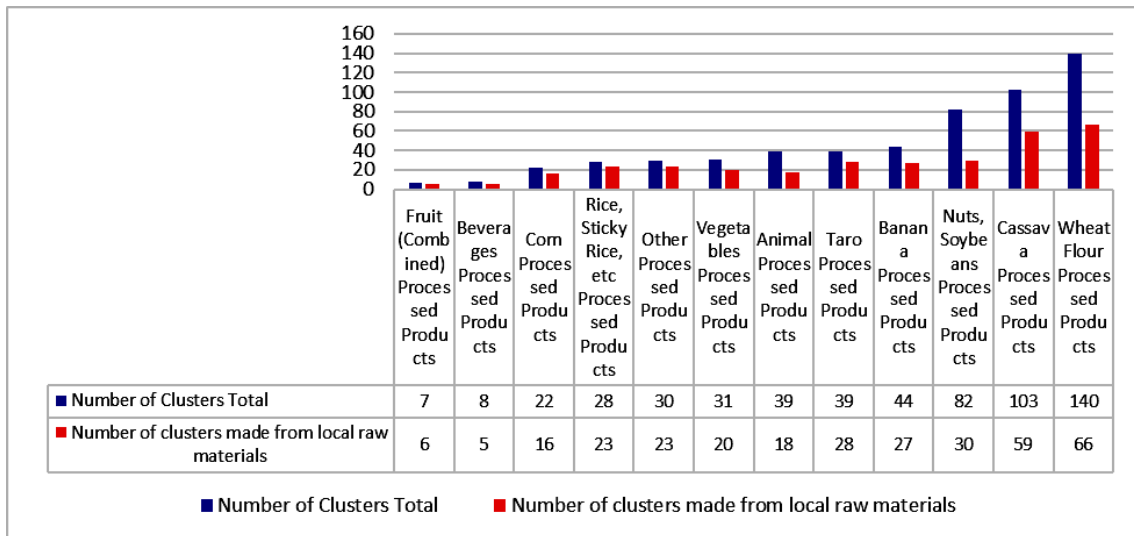


Figure 5. The Number of Clusters and the Number of SME Snack Clusters Using Local Raw Materials

Figure 5 shows that the majority of MSME clusters use local raw materials as raw materials for production. This indicates that Temanggung Regency can provide raw materials according to the needs of the SME snack cluster. This condition can drive the local economy by absorbing agricultural commodity products by the MSME cluster as raw material for production. The distribution of MSME clusters that utilize local raw materials can be seen in Figure 6. Figure 6 depicts the distribution of MSME clusters that use local raw materials in the Candiroto, Gemawang, Kandungan, and Kaloran districts. The distribution of MSMEs that use local materials tends to be in the rural areas of Temanggung Regency. This indicates that in the village, there are agricultural commodities that are absorbed by the MSME cluster.

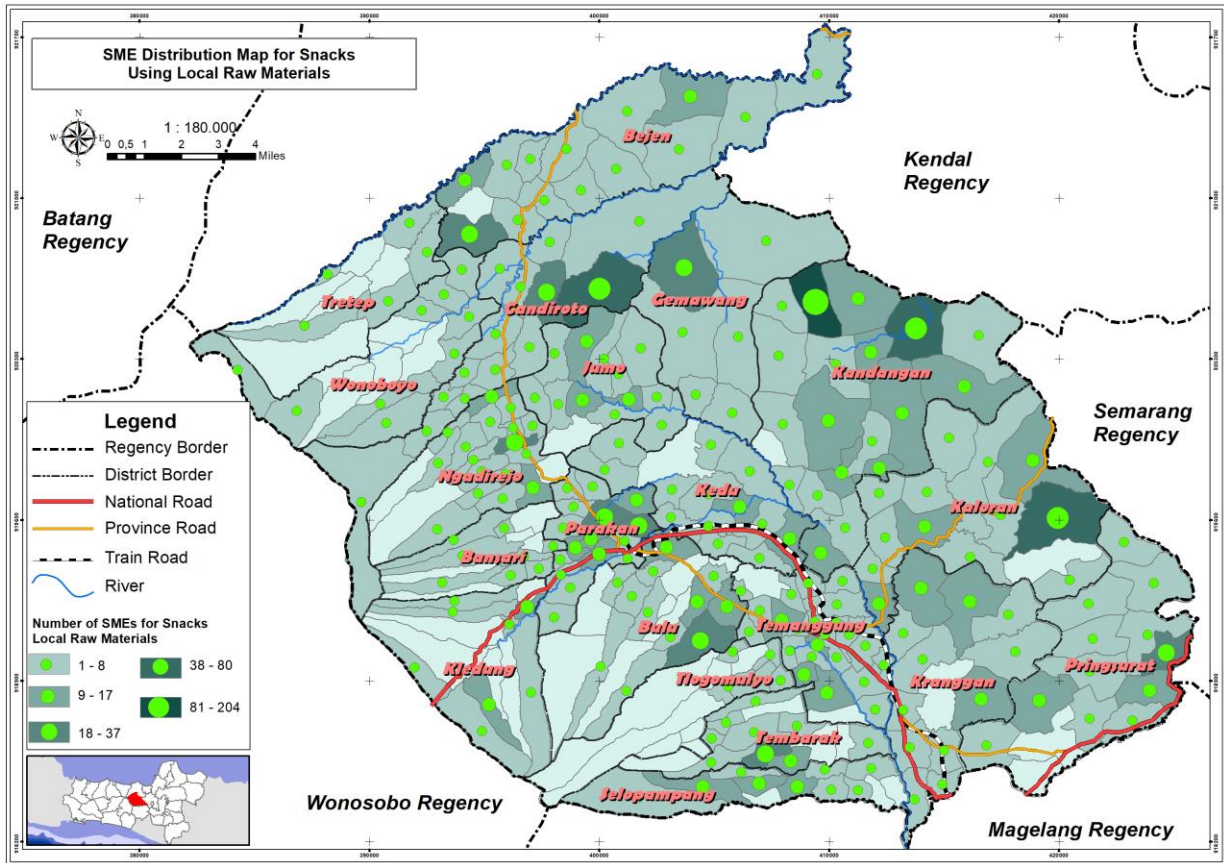


Figure 6. Distribution of Snack Food MSME Clusters Using Local Raw Materials

3.4 Suitability of MSME Products with the Needs of COVID19

During this pandemic, there are several issues related to the food industry and supply chain: changes in market demand for food content to be consumed. This changes the pattern of consumers, and the market will look for foods that can protect themselves and increase the immune system by choosing raw materials and healthy nutritional content. Based on these needs, processed fruit, vegetables, and spices are ingredients that match market needs/demands during a pandemic (Figure 7).

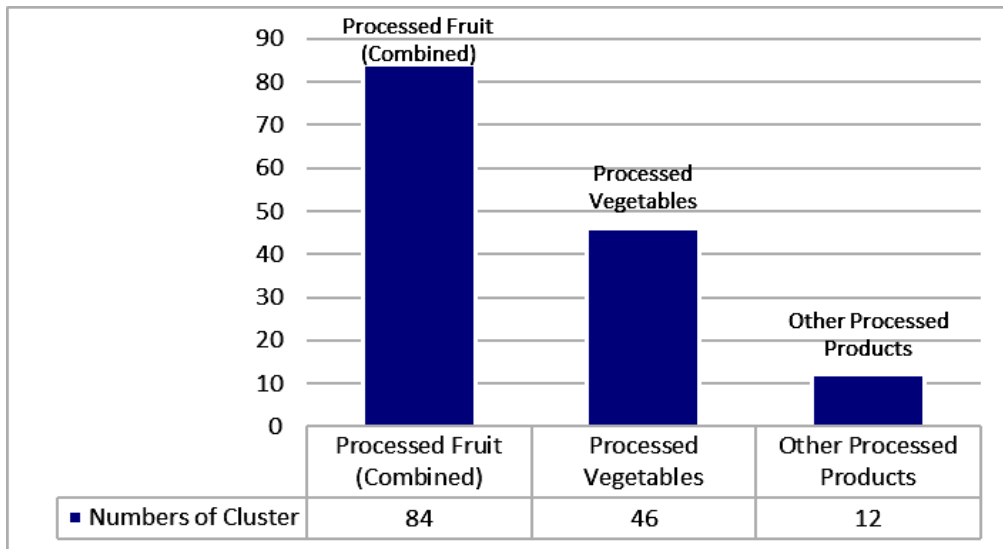


Figure 7. The Number of Snack Processing Businesses that Can Increase Immunity in Temanggung Regency

Based on the distribution of the number of MSME clusters based on food processing, the most processed fruit cluster is the type of raw material that suits market needs and demands (Figure 7). The processing of these three raw materials answers market needs and acts as a preventive measure to

extend the life of raw materials after harvest. This is to avoid damage to commodity products so that they are not wasted. The following is the distribution of processed snack MSMEs following the needs during COVID19, in Figure 8.

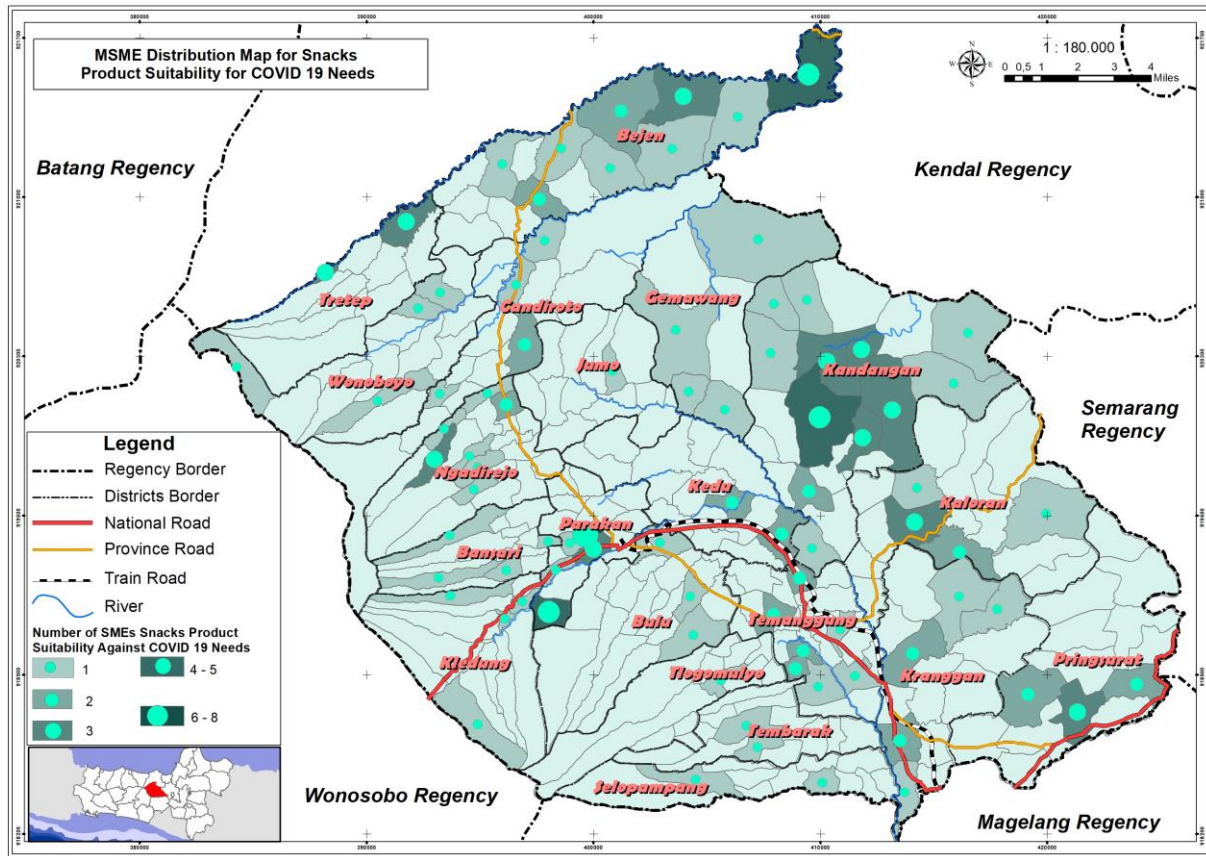


Figure 8. Distribution of Processed Food Following the Needs of Covid19

In Figure 8, it can be seen how the distribution of MSME clusters that carry out food processing is made from fruit, vegetables, and others. The distribution pattern of these preparations tends to spread across several villages in each sub-district. This indicates that processed fruit, vegetables, and other raw materials already exist in Temanggung Regency.

3.5 SMEs Adaptation of Snacks in Product Marketing

The impact of the COVID19 pandemic requires limiting activities so that the snack MSME cluster is expected to survive by ensuring every component of the production chain endures. Another potential long-term trend that may emerge from the COVID-19 pandemic is the way consumers buy food and drink how they buy fruit and vegetables (Richards & Rickard, 2020). One of them is doing the proper marketing according to current conditions. During the limitation of activities, the use of technology will significantly help keep the production chain running. Most authorities are aware of the spread of the virus through food between populations (Baran & Adiguzel, 2020). The use of technology in the SME Snack Food Cluster in Temanggung District still has a tiny portion (Figure 9).

The SME snack cluster data that uses online media is only 6.6% of the entire MSME cluster as a medium for product marketing. This not optimal use of Information Technology in the routine of MSME clusters is undoubtedly caused by several factors, namely limited human resources, customer unpreparedness, the unpreparedness of business partners, delays in IT resources, and supporters (Dubelaar, Sohal, & Savic, 2005). The minimal use of online media in marketing can hamper the marketing function of MSME products during a pandemic. Due to various limitations, the government needs to pay attention to providing guidance to increase the capacity of MSME actors to be friendlier in the use of information technology.

It can be seen that the distribution of MSMEs is in Bejen, Kandangan, Tlogomulyo, Tembarak, and Kedu Districts (Figure 10). The distribution pattern of MSMEs tends to be spread out but not evenly distributed across districts in Temanggung Regency. This distribution shows that the distribution of clusters that use online media as marketing is a problem for MSME clusters in urban and rural areas throughout Temanggung Regency.

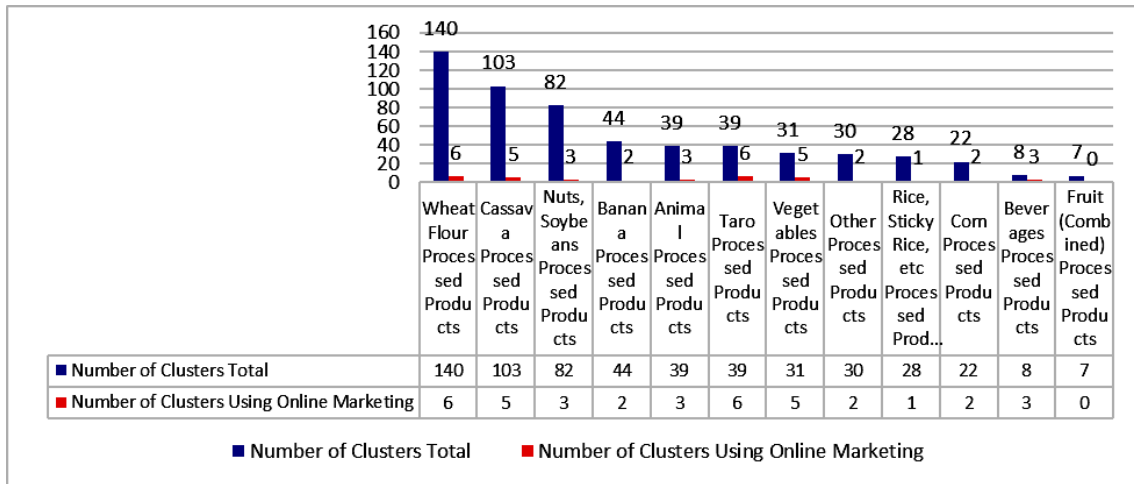


Figure 9. Number of SMEs Snacks that use Online Media for Marketing

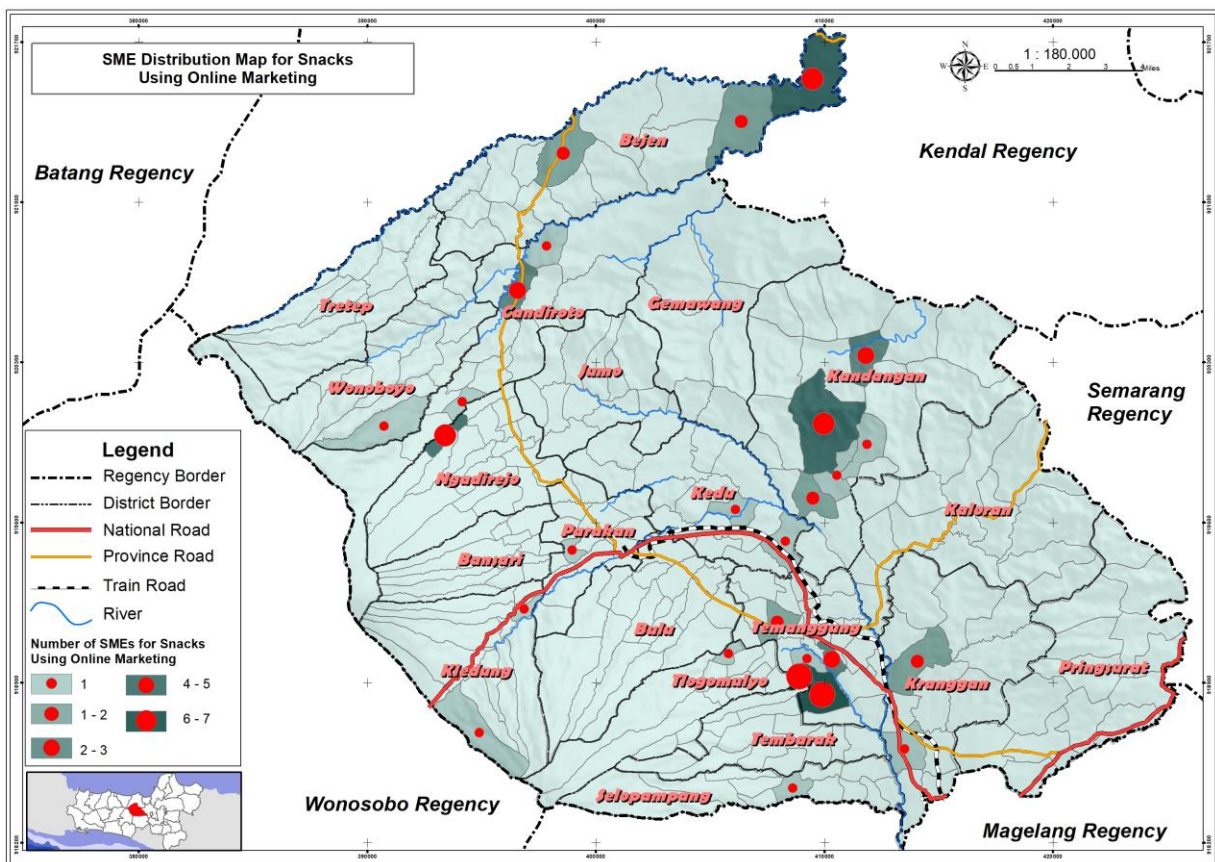


Figure 10. Active Snack Processed Cluster Uses Online Marketing

3.6 Adaptive SMEs for Snacks during COVID 19

Based on the adaptation to the market system framework, it is accumulated to be used as a measuring tool for the SME snack clusters that are considered to survive during the pandemic. Through this data accumulation, it can be assumed that several MSME clusters can adapt to a pandemic. Figure 11 shows a map of the MSME distribution of snacks measured based on the number of stages of adaptation to the market framework (raw materials, production, and marketing).

The distribution of SME snack clusters which have 1 part of the market system adaptation, is 159 clusters. For the MSME cluster with two parts of the market system adaptation, there are 84 clusters. The MSME cluster with three parts of the market system adaptation is 7 clusters so that the cluster is assumed to be able to survive and adapt during the pandemic period.

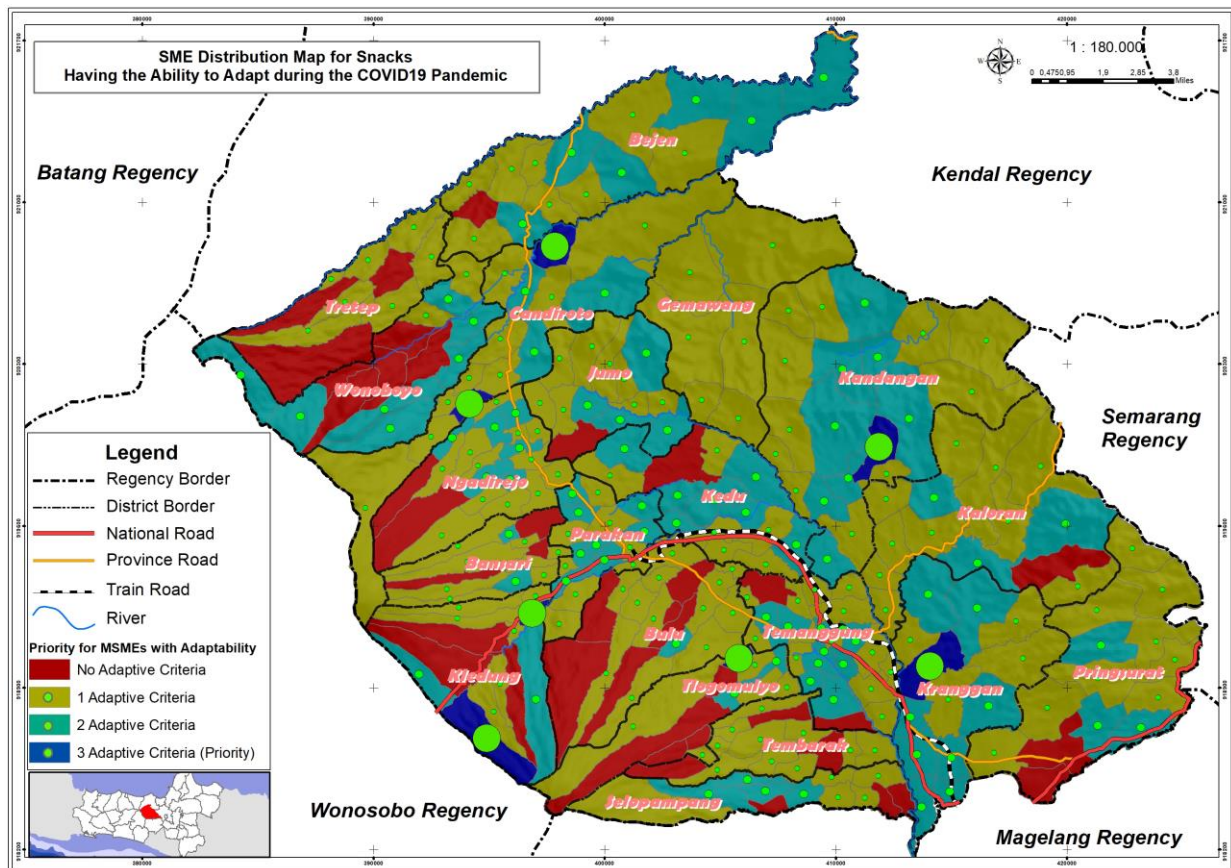


Figure 11. The Distribution of the SME Snack Clusters is Following the Adaptation Criteria During the COVID19 Pandemic

4. Conclusion

Based on the adaptation approach to the market system framework, which is used as a benchmark in assessing the resilience of the SME snack clusters in Temanggung Regency, several things can be concluded: In the adaptation of the supply of raw materials, the number of snack SMEs that use local raw materials tends to be significant. The majority of snack SMEs in Temanggung Regency use local raw materials to be processed into products. This indicates that SME snacks can play a role in the absorption of local raw materials so that they can play a role in the rotation of the local economy. In the component of the compatibility of MSME products with market needs in the era of the COVID19 pandemic. In this criterion, only a few MSMEs use raw materials in the form of fruits, vegetables, spices, and other products that benefit from increasing the body's immune system.

The availability of MSMEs that have processed products according to the needs of COVID19 indicates that SME snacks in Temanggung Regency can answer the challenge of making product innovations following market demand in the COVID19 era. The last component is the downstream process of the market framework, namely marketing. Of the entire MSME cluster, only a tiny proportion has actively used social media to market products. This shows that there is still little awareness of MSMEs in using technology, so there needs to be a role for the government to guide MSMEs. This shows that marketing limitations can have an impact on hampering the circulation of the food system. From the overall criteria for the adaptation of the market system framework that has been carried out, it is found that 7 clusters meet the three criteria, so it is assumed that the MSME cluster and circulation food system can survive a pandemic. This is because the three components of the market system framework in the cluster can adapt to pandemic conditions.

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