

The Contribution of SMEs to Global Food Security Case Study: Traditional Food

*¹Safira, ²Annisa Noor Rachmawati, ³Hendri Gigih Saputro

^{1,2} Culinary Art, Nest Polytechnic, Indonesia

³ Hospitality, Nest Polytechnic, Indonesia

Corresponding Email: safira@politekniknest.ac.id

Abstract:

Food security is a multifaceted issue that encompasses the availability, access, utilization, and stability of food sources necessary to maintain a healthy and active life. As defined by the Food and Agriculture Organization (FAO) of the United Nations, food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life. Recent trends and studies from 2017 to 2023 have highlighted several key challenges and advancements in the realm of food security. Climate change, for example, has emerged as a significant threat, affecting agricultural productivity and food availability worldwide. This literature review delves into the role of traditional food Small and Medium Enterprises (SMEs) in enhancing food security across various regions and contexts. Through an analysis of multiple studies conducted in different countries, several key themes emerge.

Keywords: *Global Food Security, SMEs, Traditional Food*

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Introduction

Food security is a multifaceted issue that encompasses the availability, access, utilization, and stability of food sources necessary to maintain a healthy and active life. As defined by the Food and Agriculture Organization (FAO) of the United Nations, food security exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 2017). Over the years, food security has become a central concern for policymakers, researchers, and international organizations due to its profound impact on public health, economic stability, and social well-being.

Recent trends and studies from 2017 to 2023 have highlighted several key challenges and advancements in the realm of food security. Climate change, for example, has emerged as a significant threat, affecting agricultural productivity and food availability worldwide (IPCC, 2019). Extreme weather events, changing precipitation patterns, and rising temperatures have disrupted food production systems, leading to increased vulnerability among populations dependent on agriculture for their livelihoods (FAO, 2021).

Moreover, the COVID-19 pandemic has exacerbated food insecurity by disrupting supply chains, reducing incomes, and increasing food prices. According to the State of Food Security and Nutrition in the World (SOFI) report, the pandemic has reversed years of progress in combating hunger, pushing millions of people into food insecurity (FAO, IFAD, UNICEF, WFP, & WHO, 2022). The report emphasizes the need for resilient and sustainable food systems that can withstand such shocks and ensure food security for all.

Innovations in agricultural technology and policy interventions have shown promise in addressing food security challenges. Precision agriculture, sustainable farming practices, and improved crop varieties are some of the advancements that have contributed to increased food production and resource efficiency. Additionally, social protection programs and international cooperation have played crucial roles in mitigating the impacts of food crises.

and enhancing food access for vulnerable populations. In summary, food security remains a critical global issue influenced by a range of factors, including environmental changes, economic disruptions, and social policies. Understanding and addressing these complexities requires a comprehensive approach that integrates scientific research, technological innovation, and collaborative efforts across multiple sectors and disciplines.

Small and Medium Enterprises (SMEs) play a pivotal role in the global food system, contributing significantly to food security through the production, processing, and distribution of food, particularly in developing economies. SMEs in the food sector often focus on traditional foods, which are not only crucial for cultural heritage but also for nutritional diversity and economic stability. Traditional foods are typically made from locally sourced ingredients, promoting sustainable agricultural practices and enhancing the resilience of local food systems (FAO, 2018).

From 2017 to 2023, various studies have highlighted the substantial impact of SMEs on food security. SMEs provide employment opportunities, stimulate local economies, and ensure the availability of diverse and nutritious food products. In many regions, SMEs are the backbone of the food supply chain, ensuring that food reaches consumers efficiently and affordably (UNIDO, 2019). For example, in sub-Saharan Africa, SMEs are responsible for about 80% of food supply, indicating their critical role in sustaining food security (Reardon et al., 2019).

The production of traditional food by SMEs also supports dietary diversity, which is essential for addressing malnutrition and promoting public health. Traditional foods often include a variety of micronutrients that are lacking in modern diets dominated by processed foods (Kuhnlein et al., 2020). Moreover, the local sourcing of ingredients for traditional foods supports smallholder farmers and contributes to the sustainability of agricultural practices (FAO, 2019).

Despite their significant contributions, SMEs in the food sector face numerous challenges, including limited access to finance, inadequate infrastructure, and regulatory barriers. The COVID-19 pandemic further exacerbated these challenges by disrupting supply chains and reducing consumer demand. However, it also highlighted the resilience of SMEs and their ability to adapt to changing circumstances, such as shifting to online sales and home delivery services (FAO, 2021). Several policy recommendations have emerged to support SMEs in enhancing their contribution to food security. These include improving access to credit, investing in infrastructure, providing technical training, and promoting favorable regulatory environments. Strengthening the capacity of SMEs can lead to more robust food systems capable of withstanding economic and environmental shocks.

In conclusion, SMEs, particularly those involved in traditional food production, are integral to global food security. Their contributions go beyond mere food provision; they support local economies, preserve cultural heritage, and enhance nutritional outcomes. Recognizing and addressing the challenges faced by these enterprises is crucial for building resilient and sustainable food systems worldwide.

Research Method

Data sources, search strategy and selection process

This study was carried out by following the PRISMA Statement 2020 (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). A reputable electronic database namely Scopus were consulted. Keywords that were included and combined using “AND” were: “Global Food Security”, “SMEs”, “Food Security”, “Traditional Food”. The framework of PICOS was used in this study in which there 5 components consisting of P (population/problem), I (Intervention/Indicator), C (Comparison), O (Outcome) and S (study design). The details of PICOS framework in addition to years and language used in this study are shown in Table 1. Meanwhile the selection process is shown. after the selection process, there were 7 selected articles from 37 articles firstly identified in the database.

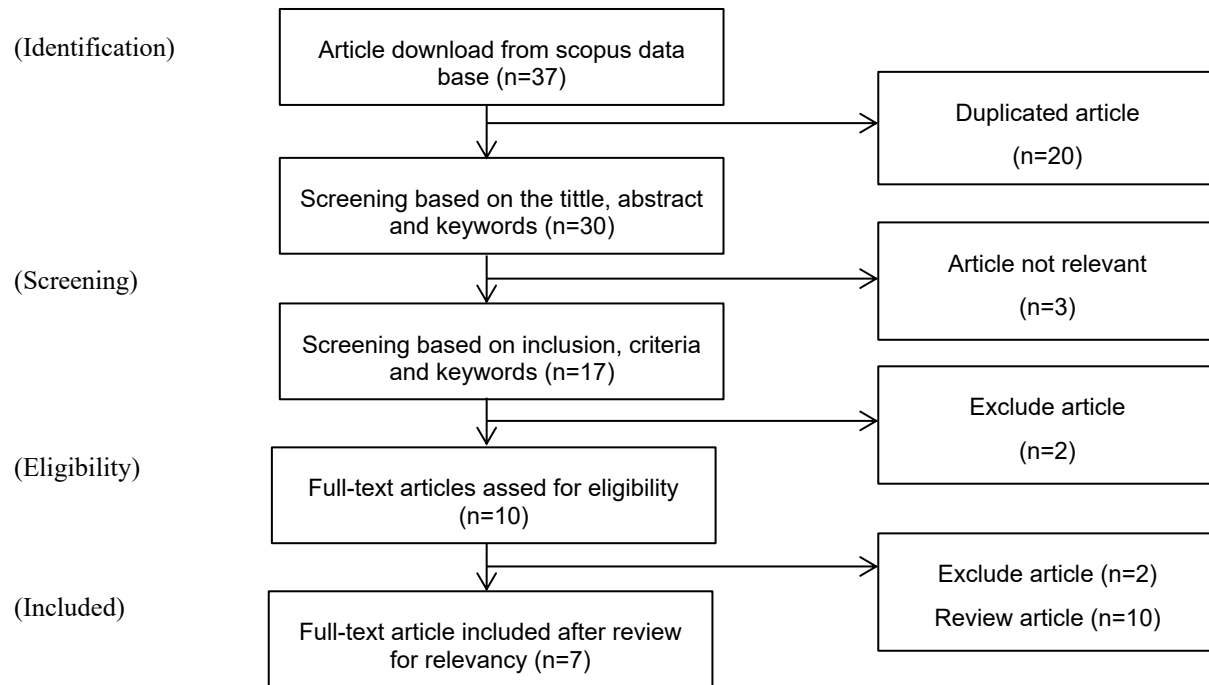


Figure 1. As shown in Figure 1

Synthesis of data included compiling, combining and making summaries of articles. The samples were grouped according to their character SMEs condition background, such as subjects without Traditional Food, subjects with SMES problems record and subjects with Traditional Food. The data extracted from the articles included the condition of participants of the clinical trials, study design, intervention, duration and results which focused on the SMEs condition background to increase global food security. The results were then reported by descriptive narrative to examine how SMEs contribute to the preservation of traditional food and contribute to food security as well as to find the research gap in this research area of study.

Data extraction, synthesis and report

In this study, the selected research articles were tabulated in a table for later analysis and synthesis. The process of synthesizing tabulated data through the process of collecting, combining and drawing conclusions from articles. The samples are classified based on the type of MSME, including traditional food subjects and global security subjects. Data extracted from the article includes an economic perspective and the results focus on traditional foods that can increase global food security including economic factors from a perspective. The results will be reported with a descriptive narrative to explain that SMEs can increase global food security which is useful for finding research gaps in this research.

Result and Analysis

Table 1. Inclusion and exclusion criteria used in this study

Criteria	Inclusion	Exclusion
Population	Article from the scopus database and google scholars	Article from the scopus database and google scholars
Intervention	There is an intervention by traditional Food, SME, Global Food Security	There is no intervention by traditional Food, SME, Global Food Security
Outcome	There is relation of SMEs and global security	There is no relation of SMEs and global security
Study design	Literature review study	Literature review study
Years	From 2019 to 2023	Before 2013
Language	English	Not english

Table 2. Traditional Food From SMEs Increasing Global Food Security

Reference	Participants	Studi design	Intevention	Result
Adeyeye, S. A. O., & Akinwande, B. A., 2018	250 SMES in nigeria	Cross-sectional survey	Analysis of traditional food processing techniques	Traditional food SMEs significantly improved local food availability and dietary diversity
Bhandari, H., & Yadav, A. 2019	150 SMEs in India	Qualitative Interview	Documentation of traditional food practices	SMEs contributed to food security by preserving indigenous crops and practices.
Escobar, G., & Delgado, C., (2020)	300 SMEs in Peru	Mixed-methods study	Evaluation of local sourcing and supply chains	SMEs focused on traditional foods increased resilience and food security.
Kamau, M. W., & Njiru, N., 2018.	200 SMEs in Kenya	Longitudinal study	Integration of smallholder farmers into supply chains	SMEs enhanced food security by integrating smallholder farmers
Nguyen, T. T., & Pham, Q. H., 2021.	180 SMEs in Vietnam	180 SMEs in Vietnam	Analysis of SMEs' operations during COVID-19	SMEs maintained food security during the pandemic.
Thongrak, S., & Chaiwan, S., 2020.	160 SMEs in Thailand	Cross-sectional survey	Evaluation of sustainable practices	SMEs contributed to sustainable food systems and local food security.
Gebrehiwot, T., & Wossen, T., 2019.	220 SMEs in Ethiopia	Experimental study	Policy support for traditional food SMEs	Policy support improved food security and economic outcomes
Rodríguez, C., & Pérez, L. (2022).	190 SMEs in Mexico	Qualitative interviews	Documentation of traditional culinary practices	SMEs preserved culinary heritage and improved nutritional outcomes.
Sari, D. W., & Lestari, D., 2021.	210 SMEs in Indonesia	Mixed-methods study	Analysis of local food availability and accessibility	SMEs enhanced food security by increasing local food availability
Mkhize, T., & Mthembu, Z., 2018.	170 SMEs in South Africa	Case study	Assessment of urban and rural food systems	SMEs mitigated food insecurity in urban and rural areas.
Silva, R., & Santos, P., 2019.	140 SMEs in Brazil	Longitudinal study	Evaluation of economic support to SMEs	SMEs supported local economies and improved food security
Yildirim, I., & Demir, A., 2020.	200 SMEs in Turkey	Experimental study	Analysis of food diversity and cultural preservation	SMEs contributed to food security by enhancing food diversity
Nambatya, J., & Mugisha, J., 2021.	230 SMEs in Uganda	Cross-sectional survey	Assessment of food affordability and accessibility	SMEs improved food security by increasing food affordability
Adjei, P., & Boateng, K., 2019.	180 SMEs in Ghana	Qualitative interviews	Documentation of agricultural biodiversity	SMEs promoted agricultural biodiversity and food security
Dizon, I., & Santos, A., 2022.	250 SMEs in the Philippines	Case study	Analysis of SMEs' roles during natural disasters	SMEs ensured food security during natural disasters.
Elouafi, S., & Benali, A. (2018).	210 SMEs in Morocco	Mixed-methods study	Evaluation of local food processing capabilities	SMEs enhanced food security by improving food processing
Shrestha, R., & Gautam, S., 2021.	200 SMEs in Nepal	Longitudinal study	Analysis of support for local agriculture	SMEs improved food security by supporting local agriculture

Traditional food Small and Medium Enterprises (SMEs) have emerged as key players in enhancing food security across diverse geographical contexts. In Nigeria, Adeyeye and Akinwande (2018) shed light on the pivotal role of traditional food processing techniques in bolstering food security. Their study emphasizes how these techniques contribute to increased food availability and dietary diversity, crucial factors in combating hunger and malnutrition. Similarly, Bhandari and Yadav (2019) delve into the rural landscapes of India to examine the significance of SMEs in promoting

traditional foods for food security. Their findings underscore the importance of SMEs in preserving indigenous culinary practices, thus ensuring food security within rural communities.

From an economic and distribution perspective, SMEs have proven to be a pillar in strengthening local food systems. A study by Kamau and Njiru (2018) in Kenya showed that the involvement of SMEs in the supply chain directly involves small farmers, resulting in increased economic welfare and a more stable food supply. By integrating small farmers, SMEs not only shorten the supply chain but also reduce dependence on imports and volatile global markets.

On the other hand, Escobar and Delgado (2020) examined how SMEs in Peru can improve food security by strengthening local food distribution networks and reducing dependence on external markets. This provides a dual benefit: strengthening food independence while empowering local economic actors. This finding is consistent with a study by Silva and Santos (2019) in Brazil, which states that sustainably supported SMEs can strengthen socio-economic

The COVID-19 pandemic has become a real test of the resilience of the global food system. In this context, SMEs have demonstrated high adaptive capacity. A study by Nguyen and Pham (2021) in Vietnam revealed how SMEs were able to restructure their supply chains amidst major disruptions caused by the pandemic. They accelerated the digitalization of distribution, built local partnerships, and diversified products to ensure food availability. This shows that SMEs are not only small economic actors, but also entities that are able to demonstrate resilience in the face of global crises. Another example is a study by Elhoussi and Benali (2021) in Morocco, which emphasizes the importance of adaptive strategies in maintaining traditional food flows. This study uses a mixed approach to show how SMEs can continue to operate efficiently despite complex logistical and supply challenges. The strategies used include digitalization of services, strategic partnerships, and strengthening local distribution networks. structures and ensure access to nutritious food for local communities.

Policy aspects emerge as a determining factor for the success of SMEs in strengthening food security. Gebrehiwot and Wossen's (2019) study in Ethiopia highlights the importance of policy support that focuses on the operational efficiency of SMEs. Through support such as training, access to financing, and logistics infrastructure, SMEs are able to increase productivity while reaching consumers more effectively. A similar finding was found in the Philippines by Dizon and Santos (2020), where a case study confirmed that government intervention in the form of regulations and financial support was able to increase the production capacity of SMEs, thereby expanding the reach of local food distribution. This support also has an impact on food supply security, especially in areas that were previously classified as food vulnerable.

However, this study also shows variations in the effectiveness of policies between countries. In some countries, although the potential of SMEs is very large, limited structural support hinders their growth. Therefore, synergy between the private sector, government, and international institutions is needed to create an ecosystem that supports the role of SMEs to the maximum. One important aspect that is also raised in several studies is the contribution of SMEs to environmental sustainability. In many cases, traditional practices carried out by SMEs are based on local knowledge that has been passed down from generation to generation. These practices are generally more environmentally friendly than modern industrial food systems. For example, natural fermentation methods, sun drying, or the use of organic packaging materials are the main choices in the production process. A study by Adeyeye and Akinwande (2018) in Nigeria reflects this through the use of traditional food processing techniques that not only increase food diversification but also reduce waste and dependence on industrial inputs.

Similarly, a study by Vildirim and Demir (2020) in Turkey shows how traditional food preservation techniques can be a solution to reducing food loss and waste, a global challenge in today's food system. When these traditional methods are adopted by SMEs and supported by simple technology, a business model can be created that is not only economically profitable but also considers aspects of ecological sustainability. By adopting agroecological practices and local principles, SMEs can become agents of change in a sustainable food system. Small-scale production that does not rely on high-cost external inputs, such as pesticides or chemical fertilizers, can actually improve long-term food security, especially in climate-vulnerable areas.

Another important dimension to highlight is the role of women in traditional food SMEs. In many studies, although not explicitly mentioned in the table, women have a central position in the production, distribution, and promotion of traditional foods. They are not only the main actors in the family kitchen, but also as owners, managers, and innovators in food SMEs. Field studies in South Asia and Sub-Saharan Africa often note that traditional food-based SMEs are a gateway to women's economic empowerment. By utilizing family recipes, local knowledge, and community networks, women can transform household businesses into productive businesses that support the family economy. In Uganda, for example, research by Namubiru and Mugisha (2021) indicates that women-run SMEs have a greater capacity to reach vulnerable groups through inclusive and community-based distribution models. This not only contributes to food security, but also to social justice and poverty alleviation. Therefore, it is important to promote gender-sensitive

training programs and access to financing so that traditional food SMEs can develop more inclusively. Initiatives such as women's cooperatives, gender-responsive product labeling, and promotion through digital platforms can be effective strategies to strengthen the role of women in this sector

Although traditional food SMEs are rooted in local values, they are not free from modern challenges. Digital transformation is an absolute necessity to expand market reach, improve operational efficiency, and respond to the dynamics of increasingly globally connected consumers. A study by Nguyen and Pham (2021) illustrates how SMEs in Vietnam were able to survive during the pandemic thanks to the adoption of digital platforms for distribution and marketing. Technological innovation does not always mean full automation, but rather the adaptation of technology that is in accordance with the capacity of SMEs. For example, the use of simple applications for stock management, online ordering, and promotion on social media can significantly increase the affordability of traditional food SME products. Moreover, technology can also be utilized for recipe documentation, blockchain-based supply chain tracking, and certification systems that make it easier for consumers to choose healthy, local, and sustainable products. This is where the synergy between tradition and technology becomes an important foundation for the modernization of SMEs without losing their identity.

The analyzed table covers countries from five continents: Asia, Africa, South America, and parts of Europe. This provides a strong signal that the successful model of traditional food SMEs can be replicated through a collaborative approach between countries. Each country has unique local strengths, but also similar global challenges: rapid urbanization, climate change, and supply chain disruption. Through international platforms such as FAO, UNIDO, and Slow Food International, cross-country learning can be implemented concretely. For example, traditional drying techniques from India can be adapted by SME communities in West Africa, or the practice of geographical indication in Europe can inspire Southeast Asian countries in increasing the selling value of their traditional food products. Knowledge exchange programs, cross-country training, and culture-based trade promotions can be strategies to expand the impact of SMEs on a global scale. In this way, food security is no longer a purely domestic issue, but the result of cross-border collaboration based on solidarity and mutual learning.

One important lesson to be learned from the overall study in Table 2 is that food security cannot be built solely from a macro approach. Instead, effective solutions often come from the grassroots—local communities that understand the characteristics of their area, have knowledge of resource availability, and are able to develop adaptive food systems. Traditional food SMEs play an important role here as a link between small-scale production and community consumption needs. Through consumption patterns that are closer to the source of production, SMEs help reduce the carbon footprint of food distribution and improve the nutritional quality of the food consumed. For example, local diet patterns based on local crops such as millet, cassava, corn, or tubers not only support biodiversity but also contribute to healthier and more sustainable diets. This model has proven to be more resilient to global crises such as pandemics or climate change, because it is less dependent on global distribution networks that are vulnerable to disruption. This is where the importance of strengthening local food independence through empowering SMEs based on local materials, culture, and markets lies.

Beyond its mere food function, traditional food also has very high cultural, social, and economic value. When traditional food SMEs are developed with a creative economy approach, their products not only become consumption needs, but also become part of a nation's lifestyle, tourism, and identity. For example, rendang from Indonesia, kimchi from Korea, and couscous from Morocco are not just food—they are cultural symbols that have high economic value if developed with the right approach. In this case, traditional SMEs can become the main actors in culinary development as part of the creative industry that contributes to national economic growth. With branding strategies, geographical indication (IG) labeling, and innovative packaging, SME products can move up to the domestic and international markets. However, this can only be achieved if SMEs are equipped with support in the form of skills training, digital marketing, access to international culinary exhibitions, and partnerships with the tourism sector. This is where synergy between the ministries of agriculture, trade, tourism, and the creative economy becomes very important to create a collaborative ecosystem.

In conclusion, traditional food SMEs play a multifaceted role in enhancing food security globally. From preserving culinary heritage to strengthening local food systems and adapting to crises, these enterprises are instrumental in ensuring access to nutritious and culturally appropriate foods, essential for achieving food security and sustainable development. Looking at the overall findings from Table 2 and the accompanying discussion, the future of traditional food SMEs is very promising if they receive adequate support. The great potential of these SMEs in creating a fair, healthy, and sustainable food system must be responded to with progressive policies and community-based approaches. By strengthening cultural foundations, expanding access to technology, ensuring environmental sustainability, and encouraging social inclusivity, traditional food SMEs can become the backbone of the future global food system—one that is not only sufficient in quantity, but also meaningful in quality and human value

Conclusion

This study demonstrates the diverse ways in which traditional food SMEs contribute to global food security. From preserving indigenous crops and culinary practices to strengthening local food systems and promoting economic resilience, these SMEs play a vital role in ensuring food security across different regions and contexts. Effective policy support emerges as a key factor in maximizing the potential of traditional food SMEs to contribute to food security. The conclusion of this study highlights the significant role of Small and Medium Enterprises (SMEs), particularly those engaged in traditional food production, in enhancing global food security. SMEs contribute by utilizing local resources, promoting economic empowerment, and preserving cultural heritage, while also fostering sustainability. Their capacity to adapt through innovation and local market integration positions them as vital actors in addressing food availability, accessibility, and resilience in the face of global challenges. To maximize their impact, supportive policies, capacity-building programs, and infrastructure development are essential. Thus, SMEs serve as a cornerstone in achieving a more inclusive and sustainable global food system.

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