

RESEARCH ARTICLE

Factors affecting sustainability of SMEs in the culinary industry during the COVID-19 period

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ABSTRACT

This research attempts to investigate elements such as products, prices, shifting target markets, online advertising, capital, and accounting understanding of the sustainability of the food industry during the COVID-19 Period, Bintaro Modern Market. Micro-scale business players in the culinary industry at Bintaro Modern Market served as the study's population, and there were 129 participants. As a measurement analysis method with a structural model in this work, researchers employed partial least squares (PLS). A direct survey and the usage of a google form are the methods employed in this descriptive and quantitative research kind. The findings of this study show that the variables, such as products, prices, and changes in consumer preferences, are factors that impact the sustainability of small and medium-sized enterprises (SMEs) in the culinary industry. This research provides unique long-term value by analyzing how micro-scale culinary businesses adapted to the challenges of the COVID-19 period. Focusing on key elements like products, prices, shifting target markets, online advertising, capital, and accounting understanding, it identifies critical factors influencing the sustainability of SMEs in the food industry. The study fills a gap in the literature on the pandemic's impact on this sector and offers actionable insights for crisis management and sustainable practices in micro-scale enterprises, benefiting both policymakers and entrepreneurs globally.

Keywords: accounting understanding; online promotion; sustainability; target market change

1. Introduction

The COVID-19 pandemic, which impacted nations worldwide, including Indonesia, necessitated the implementation of strict government regulations to curb the virus's spread. These measures, such as those outlined in Government Regulation No. 21 of 2020 and the *Keputusan Presiden Penetapan Kedaruratan Kesehatan Masyarakat Corona Virus Disease 2019*, mandated national-scale restrictions, including social distancing and minimizing physical interactions^[1,2]. While these policies were crucial in managing public health, they also had unintended consequences on economic activities, severely disrupting various sectors. As seen by the infographic from Jayani^[3] in **Figure 1**, these regulations had a detrimental effect on economic growth.

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Figure 1. Negative impact due to COVID-19.

The economic impact of these regulations was particularly harsh on micro, small, and medium enterprises (MSMEs), which are integral to Indonesia's economy. The restrictions on operating hours and face-to-face interactions led to a significant decline in business activities and revenues, forcing many MSMEs to downsize or shut down operations entirely^[4]. According to data from the Central Statistics Agency in 2020, the worst affected were those in the Food and Drink Accommodation business at 92.47%, followed by other services at 90.90%, Transportation & Warehousing at 90.34%, Construction at 87.94%, Processing Industry at 85.98%, and Trade at 84.60%^[6]. **Figure 2** highlights the urgent need for attention to the sustainability of MSMEs, particularly in the Food and Beverage sector, which was the most severely impacted.

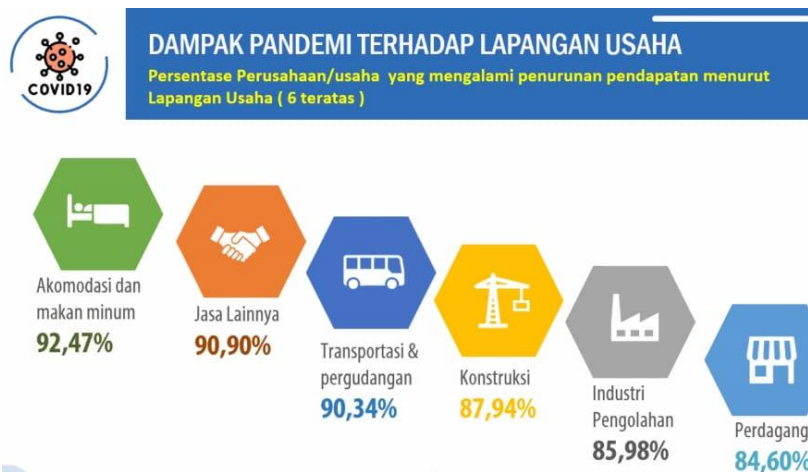


Figure 2. Impact of the pandemic affected by COVID-19^[6].

Given the critical role of MSMEs in driving national economic recovery, especially during crises, the sustainability of these enterprises has become a pressing concern. Business sustainability, defined as the ability to maintain continuous operation, growth, and strategic development, is essential for ensuring long-term viability in the face of such disruptions^[7]. For MSMEs, particularly those in the Food and Beverage

sector, this means adopting strategies that not only mitigate the immediate impacts of the pandemic but also position them for future resilience.

Product innovation is a critical driver of consumer purchasing decisions and, consequently, SME sustainability. Pratiwi and Andarini^[8] highlighted how digital marketing strategies, particularly product innovation, significantly influence consumer choices for Indonesian Iced Tea products. Their findings emphasize the importance of innovative products in enhancing market competitiveness, as consumers tend to favor products that stand out through novelty and creativity. This perspective aligns with broader research that consistently underscores product innovation as a key factor in sustaining SMEs, especially during challenging times. For instance, studies have shown that innovative and creative product packaging can substantially boost consumer interest, thereby supporting MSMEs' continuity^[9]. Moreover, the combination of affordable pricing, high-quality products, and effective marketing further strengthens SMEs' ability to build strong brands and establish a positive market presence^[10]. However, while the emphasis on innovation is well-founded, previous studies often focus narrowly on the marketing aspect without fully exploring how product innovation interacts with other factors such as pricing, distribution, and customer engagement in contributing to overall business sustainability. This gap indicates the need for a more holistic examination of how innovation in product design and presentation can be effectively integrated with other business strategies to enhance the resilience of SMEs.

Strategic adaptability is crucial for SMEs navigating the challenges posed by the COVID-19 pandemic. Hamilton^[11] underscores the importance of strategic management in ensuring business survival during crises, emphasizing that SMEs must implement key policies to enhance their resilience. Dwiyananda and Mawardi^[12] expand on this by highlighting the necessity for MSMEs to leverage critical factors such as product innovation, market segmentation, revenue models, and customer relationship management to sustain operations. These strategies align with the core principles of the 4Ps of marketing—Product, Promotion, Price, and Distribution Location—which are vital for maintaining business continuity and growth^[13].

The pandemic shifted consumer spending towards primary needs^[14], necessitating adjustments in SMEs' strategies, particularly in segmenting, targeting, and positioning their products. Research from Surabaya highlights the success of the SO (Strength, Opportunity) strategy within the SWOT framework in addressing these challenges^[15]. Additionally, targeting and positioning strategies have been shown to significantly influence purchasing decisions, which can enhance business sustainability^[16]. However, while these strategies are crucial, the pandemic has revealed that traditional approaches may not always suffice in rapidly changing environments. For example, some studies suggest that targeting and positioning strategies do not always significantly influence purchasing decisions, potentially compromising sustainability efforts^[17]. Moreover, Juergensen et al.^[18] and Ragazou et al.^[19] emphasize the necessity of digital transformation and innovation, particularly in adapting to new consumer behaviors and market conditions. This suggests that while traditional strategic frameworks like SWOT analysis remain valuable, they must be complemented by digital tools and innovative approaches to ensure SME resilience in the face of unprecedented challenges.

The COVID-19 pandemic has underscored the critical role of digital marketing in ensuring SME sustainability, particularly as direct consumer interactions have become limited. The surge in internet usage in Indonesia^[20] has driven a significant shift toward online platforms, making digital marketing indispensable for maintaining customer engagement and business continuity. Studies have shown that digital marketing not only improves information accessibility but also strengthens consumer interactions with brands, leading to enhanced sales at relatively low costs^[21]. For instance, Lee and Lee^[22] found that online marketing strategies significantly boosted customer engagement and sales for SMEs in South Korea, highlighting the importance

of effective online promotion in sustaining businesses during the pandemic. Similarly, Adam et al.^[23] demonstrated that online promotional strategies were crucial for the performance and sustainability of SMEs in Malaysia. However, despite the clear advantages of digital marketing, there remains a gap in the literature concerning the challenges SMEs face in adopting these strategies, such as limited digital literacy and financial resources. This gap highlights the need for further research into how SMEs, particularly in emerging markets, can overcome these barriers to fully leverage the benefits of digital marketing for long-term sustainability.

Access to capital is a fundamental determinant of SME sustainability, particularly during economic disruptions like the COVID-19 pandemic. Capital availability directly impacts SMEs' ability to sustain operations, manage transactions, and develop assets during crises^[24]. Alongside capital, a robust understanding of accounting practices is equally crucial, as it enables MSME owners to make informed financial decisions that are essential for their long-term survival and operational continuity^[25]. Enhancing financial literacy among SME owners emerges as a vital strategy for improving resource management and ensuring business resilience^[26]. Teresienè et al.^[27] underscore the significance of financial stability and access to credit in fostering sustainable economic growth during the pandemic, emphasizing that adequate credit and capital access are vital for maintaining SME sustainability. Despite the recognized importance of capital and financial literacy, there is a notable gap in the literature regarding the specific challenges SMEs face in accessing these resources, particularly in developing economies where financial systems may be less robust. Addressing these barriers is crucial for ensuring that SMEs can secure the necessary financial support to remain resilient in the face of future economic disruptions.

Accounting knowledge plays a critical role in determining the financial health and sustainability of SMEs. A lack of accounting understanding can lead to ineffective financial management, which may hinder business growth and sustainability^[28]. Low accounting understanding causes business actors to be unable to assess and make effective decisions regarding their business development^[29]. SMEs need to possess sufficient business acumen to implement strategies that improve their performance and ensure continuity. Enhancing financial understanding is one solution that can help SMEs better manage their resources and account for their firm's financial health^[30]. Ramli and Yekini^[31] found that micro-traders in Malaysia with strong cash flow management skills were better able to sustain their businesses during the COVID-19 pandemic, supporting the view that effective cash flow management is essential for business viability during crises. Similarly, Patma et al.^[32] highlighted the importance of accounting awareness in social media marketing for Indonesian SMEs, demonstrating that SMEs with strong accounting skills could make better decisions on marketing investments and resource allocation, thus enhancing their sustainability. However, despite the well-documented importance of accounting knowledge, there is a gap in the literature regarding accessible and practical financial education for SME owners. This gap underscores the need for targeted interventions to improve financial literacy among SME owners, ensuring they can make informed decisions that enhance business resilience and sustainability.

While the literature underscores the various strategies and factors SMEs must consider to sustain their operations during crises like the COVID-19 pandemic—such as product innovation, pricing adjustments, target market shifts, digital marketing, capital management, and accounting practices—there remains a significant gap in understanding how micro-scale businesses, particularly in the culinary industry, adapted to these unprecedented challenges in emerging markets like Indonesia^[33]. Current studies often overlook the nuanced strategies these businesses employed to maintain sustainability, particularly the roles of product innovation, pricing adjustments, target market shifts, and the adoption of digital marketing practices. This study aims to address this gap by providing a detailed analysis of the factors influencing the sustainability of

micro-scale culinary enterprises in the Bintaro Modern Market during the COVID-19 period. Specifically, it examines the interplay between products, prices, market dynamics, online advertising, capital management, and accounting practices. By employing partial least squares (PLS) as the structural model for analysis and gathering data through direct surveys and Google Forms, this research offers critical insights into how these businesses navigated the crisis, contributing valuable knowledge to the broader discourse on business sustainability in the MSME sector.

The key contribution of this study lies in its exploration of the adaptive strategies that enabled these micro-scale businesses to survive amid the pandemic's disruptions. This research not only enriches the existing literature by addressing the specific challenges faced by the culinary sector during the pandemic but also provides actionable insights for policymakers and entrepreneurs globally. The findings emphasize the importance of innovation, market adaptability, and financial awareness in ensuring the long-term sustainability of SMEs, particularly in the face of future crises. This study contributes significantly to the international discourse on crisis management and sustainable business practices within the SME sector, offering a model that could be replicated or adapted in similar contexts worldwide.

According to the background of the study and the previous studies above, the hypotheses of this research can be formulated as follows:

H1: Product (X1) positively influences business sustainability (Y).

H2: Pricing (X2) positively impacts business sustainability (Y).

H3: Target market change (X3) has a significant positive effect on business sustainability (Y).

H4: Online promotion (X4) positively affects business sustainability (Y).

H5: Capital (X5) has a positive and substantial effect on business sustainability (Y).

H6: Accounting awareness (X6) positively influences business sustainability (Y).

2. Materials and methods

2.1. Operational variables

This study determines a causal relationship using a causal research design^[34]. This design tests whether one variable can cause another variable to change. The researchers try to reveal one or more factors that cause the problem. In other words, this research is intended to be able to state that variable X causes variable Y. The following **Table 1** specifies the indicators of each operational variable.

2.2. Population and sample

This study's population is micro business actors in the culinary field in the Bintaro market, South Tangerang city, whose exact number is not yet known. However, in this study, not all of the population will be the research object, so further sampling is carried out. In parallel, the Structural Equation Model (SEM) analysis approach was applied by the study's sample. The SEM approach calls for at least 5 (five) times as many samples as there are indicator variables. This study complies with the suggested criteria: there are at least five times as many samples as there are indicator items in the questionnaire^[35]. The number of samples was 129, with the criteria of micro business actors engaged in the culinary field by selling food or drinks or selling food and beverages, and small businesses having their place of business located in Bintaro Modern Market, South Tangerang City, not traveling traders.

Table 1. Indicators of operational variables.

No	Variable	Indicator	Scale
1.	Product (X1)	<ol style="list-style-type: none"> 1. Product Diversity 2. Quality 3. Brand Name 4. Packaging 	Ordinal
2.	Price (X2)	<ol style="list-style-type: none"> 1. Affordability of prices 2. Price Match with Benefits Price Match with Product 3. Quality 4. Price competitiveness or ability-based pricing 	Ordinal
3.	Target Market Change (X3)	<ol style="list-style-type: none"> 1. Changing consumer segmentation from low to middle 2. Change by keeping the product clean 3. Reaching the millennial market 4. Prioritizing the health of the products offered 	Ordinal
4.	Online Promotion (X4)	<ol style="list-style-type: none"> 1. Selection of advertisements on social media that are easily accessible to potential consumers 2. Consumers find it easy to find the desired product 3. Consumer find it easy to find and buy products 4. Adding trust to the product purchased 	Ordinal
5.	Capital (X5)	<ol style="list-style-type: none"> 1. Capital affects the sustainability of the business in achieving profit. 2. Capital affects the progress of your business. 3. Businesses cannot develop because of obstacles to capital sources. 4. The addition of capital can affect the increase in sales. 	Ordinal
6.	Accounting Awareness (X6)	<ol style="list-style-type: none"> 1. Understanding of transaction recording 2. Understanding the function of financial records 3. Able to manage finances according to plan 4. Able to make financial accounting records according to standards 	Ordinal
7.	Sustainability Business	<ol style="list-style-type: none"> 1. Business Growth 2. Operating Income 3. Number of workers 4. Business environment conditions 	Ordinal

Variance-based structural equation modeling (SEM) is used in the study, and the PLS tool namely Smart-PLS version 3.3.3 is used for data processing. Both the assessment of the structural model, also known as the Inner Model and the assessment of the outer model, also known as the Measurement Model, are used in the implementation.

2.3. Data analysis techniques

Data analysis means simplifying data into a form that is easier to read and interpret. This study uses a variance-based SEM where the data processing uses the Smart-PLS version 3.3.3. The implementation uses two evaluation model evaluations, namely the assessment of the Outer Model or the Measurement Model and the assessment of the structural model or the Inner Model. IV.

2.4. Applied method summary

The study employs a causal research design to explore the direct cause-and-effect relationships between variables impacting business sustainability among micro-business actors in the culinary field within the Bintaro Market, South Tangerang. The application of SEM, specifically using variance-based SEM with Smart-PLS, is a powerful approach that allows the analysis of complex relationships between multiple

variables simultaneously. This methodology is particularly well-suited for the study's relatively small sample size of 129 participants, as it is capable of handling reflective and formative measurement models effectively. Additionally, the comprehensive evaluation of both the Outer (Measurement) Model and the Inner (Structural) Model ensures the reliability and validity of the measurement tools, enhancing the credibility of the research findings. The flexibility of PLS-SEM in managing small to medium sample sizes is another significant advantage, allowing the researchers to derive meaningful insights despite the limited population size.

However, the study also faces certain limitations. The focus on a specific, localized population limits the generalizability of the findings, making them less applicable to other regions or sectors. The sampling method, which does not employ fully random selection, could introduce selection bias, potentially affecting the external validity of the results. Moreover, while the causal research design aims to establish clear cause-and-effect relationships, it cannot definitively prove causality without accounting for all possible confounding variables, leading to potential bias or misinterpretation. The complexity of SEM, particularly with the use of tools like Smart-PLS, requires a high level of statistical expertise to ensure accurate analysis and interpretation, which could be challenging if methodological errors occur. Lastly, given the small sample size relative to the number of variables modeled, there is a risk of overfitting, where the model may perform well on the sample data but poorly on new data, potentially undermining the predictive validity of the findings.

3. Results

3.1. Respondent characteristics

In this study, 129 different small and micro food business players serve as the correspondent characters. In the meanwhile, data from the Ministry of Cooperatives and SMEs shows that there are up to 90,000 SME players in the city of South Tangerang.

3.2. Validity test result

Indicator Validity: The loading factor results show the validity of the indicators for each variable, as follows (**Table 2**).

Table 2 shows that all indicators of product variables, prices, changes in target markets, online promotions, capital, accounting understanding, and business continuity have a loading value greater than 0.7, which indicates the correlation between constructs has a high level of validity.

The results of Average Variance Extracted (AVE) in **Table 3** show the validity of the variables. The AVE results indicate strong convergent validity for the constructs measured in the study, as all values exceed the acceptable threshold of 0.5. Specifically, the product (0.730), price (0.741), target market change (0.685), and capital (0.723) constructs show a high level of reliability in capturing their intended concepts. Online promotion (0.600) and accounting understanding (0.652) also demonstrate adequate validity, though the former suggests potential for improvement in measurement. The sustainability construct for SMEs in the food industry has an AVE of 0.584, indicating acceptable convergent validity but highlighting the need for refinement. Overall, these results affirm that the indicators effectively represent their respective constructs, providing confidence in the measurement approach used in the study.

Table 2. Indicators variable.

Variable	Indicator	Outer Loading	Terms	Description
Product (X1)	PRO1	0.750	>0.7	Valid

	PRO2	0.795	>0.7	Valid
	PRO3	0.740	>0.7	Valid
	PRO4	0.807	>0.7	Valid
Price (X2)	PRI1	0.925	>0.7	Valid
	PRI2	0.899	>0.7	Valid
	PRI3	0.805	>0.7	Valid
	PRI4	0.808	>0.7	Valid
Target Market Change (X3)	TMC1	0.767	>0.7	Valid
	TMC2	0.872	>0.7	Valid
	TMC3	0.795	>0.7	Valid
	TMC4	0.872	>0.7	Valid
Online Promotion (X4)	OP1	0.844	>0.7	Valid
	OP2	0.793	>0.7	Valid
	OP3	0.803	>0.7	Valid
	OP4	0.750	>0.7	Valid
Capital (X5)	CAP1	0.874	>0.7	Valid
	CAP2	0.867	>0.7	Valid
	CAP3	0.814	>0.7	Valid
	CAP4	0.845	>0.7	Valid
Accounting Understanding (X6)	AU1	0.735	>0.7	Valid
	AU2	0.736	>0.7	Valid
	AU3	0.883	>0.7	Valid
	AU4	0.865	>0.7	Valid
Sustainability SMEs Food Industry (Y)	SUS1	0.750	>0.7	Valid
	SUS2	0.833	>0.7	Valid
	SUS3	0.750	>0.7	Valid
	SUS4	0.787	>0.7	Valid

Table 2. (Continued).

Table 3. Variable validity.

Variable	Condition	AVE
Product (X1)	>0.5	0.730
Price (X2)	>0.5	0.741
Target Market Change (X3)	>0.5	0.685
Online Promotion (X4)	>0.5	0.600
Capital (X5)	>0.5	0.723
Accounting Understanding (X6)	>0.5	0.652
Sustainability SMEs Food Industry (Y)	>0.5	0.584

3.3. Results of reliability tests

Table 4. Reliability test result.

Variable	Cronbach's Alpha	Reliability Composite	Description
Product (X1)	0.867	0.910	Reliable

Price (X2)	0.882	0.919	Reliable
Target Market Change (X3)	0.846	0.897	Reliable
Online Promotion (X4)	0.774	0.856	Reliable
Capital (X5)	0.873	0.913	Reliable
Accounting Understanding (X6)	0.833	0.882	Reliable
Sustainability SMEs Food Industry (Y)	0.760	0.848	Reliable

Table 4. (Continued).

Table 4 above displays the results of the variable reliability test. The construct is reliable if the composite reliability is above 0.7 because high construct reliability indicates internal consistency. This means that all measures consistently represent the same latent construct. Thus, it can be concluded that all the variables in this study are declared reliable or reliable.

3.4. Coefficient of determination

The table of coefficient of determination is shown below in **Table 5**.

Table 5. Coefficient of determination.

	R Square
Sustainability SMEs Food Industry (Y)	0.939

Based on the r-square value in **Table 5** above shows that the variables Product (X1), Price (X2), Changes in Target Market (X3), Online Promotion (X4), Business Capital (X5), and Accounting Understanding (X6) can explain the variability Business Sustainability (Y) is 93%. Other variables explain the remaining 7% outside of this study. The more the independent variable can explain the dependent variable, the higher the r-squared value, the better the structural equation.

3.5. Results of the hypothesis test

The outcomes of the hypothesis testing and justifications are shown in the following **Table 6**.

Table 6. Hypothesis Test Result.

No	Hypothesis	Coefficient	T Statistics	P Values	Results
H1	X1 -> Y	0.029	0.303	0.762	Received
H2	X2 -> Y	0.032	0.422	0.673	Received
H3	X3 -> Y	0.032	0.640	0.603	Received
H4	X4 -> Y	0.050	10.236	0.000	Received
H5	X5 -> Y	0.040	0.379	0.705	Received
H6	X6 -> Y	0.045	11.983	0.000	Received

Source: Processing results with SmartPLS (2022)

The results of statistical calculations obtained in **Table 6** for the structural model support the following hypotheses: Hypothesis 1 asserts that the product variable (X1) significantly and favorably affects the business sustainability variable (Y), as evidenced by a parameter coefficient of 0.029, a significant value of 0.029 (smaller than the 5% alpha level), and a T-statistic value of 0.303, which is greater than 1.96 (t-table). Therefore, the first hypothesis is confirmed. Hypothesis 2 posits that the pricing variable (X2) has a

favorable and considerable impact on the business sustainability variable (Y), supported by a parameter coefficient of 0.032, a significant value of 0.032, and a T-statistic value of 0.422, exceeding the t-table value of 1.96. Hypothesis 3 states that the target market change variable (X3) positively and significantly affects business sustainability (Y), indicated by a parameter coefficient of 0.032, a significant value of 0.603, and a T-statistic value of 0.640, all greater than the 5% neglect level. Hypothesis 4 suggests that the online promotion variable (X4) has a positive and significant effect on business sustainability (Y), with a parameter coefficient of 0.050, a significant value of 0.000, and a T-statistic value of 10.326, which is greater than 1.96 (t-table). Hypothesis 5 claims that capital (X5) has a favorable and substantial impact on business sustainability (Y), supported by a parameter coefficient of 0.040, a significant value of 0.001, and a T-statistic value of 0.379, all surpassing the t-table threshold. Finally, Hypothesis 6 indicates that knowledge of accounting (X6) significantly and favorably impacts business sustainability (Y), demonstrated by a parameter coefficient of 0.045, a significant value of 0.000, and a T-statistic value of 11.983, which exceeds the 1.96 t-table value. These findings confirm that all proposed hypotheses are accepted.

4. Discussion

Products significantly and positively impact the business sustainability of micro and small culinary business actors in the modern market of Bintaro, South Tangerang City, during the Covid-19 pandemic. The hypothesis testing confirms that products have a beneficial influence on business sustainability, leading to the acceptance of H1. The sustainability of these enterprises increases with the quality of the products sold. During the pandemic, business actors are required to create appealing products to attract customers and ensure business sustainability. Enhancing product quality, with a focus on cleanliness and packaging, is also crucial for boosting sales and ensuring the long-term viability of the business. This outcome aligns with studies indicating that product quality significantly impacts business sustainability^[8,36]. Research further supports that product excellence is a key component of sustaining a business^[29]. Additional studies show that the product greatly enhances the viability of traditional retail operations.

Price also has a substantial and positive impact on the sustainability of micro and small culinary businesses in the Bintaro Modern Market, South Tangerang City, during the COVID-19 pandemic. The hypothesis testing reveals that pricing significantly influences business sustainability, leading to the acceptance of H2. The sustainability of these businesses improves when they offer competitive prices that meet consumer expectations. If the price aligns with market expectations, it can boost sales and contribute to the long-term viability of the business. The positive impact of price in this study underscores the importance of maintaining a competitive pricing strategy. Research by Panggabean et al.^[37] supports the notion that pricing is closely related to the sustainability of SME companies. Price is a critical factor in achieving business sustainability^[25]. However, poor pricing strategies can negatively affect business sustainability, contrasting with studies that suggest price has a favorable but not significant effect on the business sustainability of business^[38].

Changes in the target market during the COVID-19 pandemic have a major and positive impact on the sustainability of micro and small culinary businesses in Bintaro, South Tangerang City. Hypothesis testing confirms that changes in the target market significantly influence business sustainability, leading to the acceptance of H3. The sustainability of these businesses improves as they effectively adjust their target market. This finding is consistent with studies by Juergensen et al.^[18] and Ragazou et al.^[19]. Shifting the target market during the pandemic is crucial, particularly for moving from a lower-market segment to an upper-middle-class one. Hygiene has become a primary consideration for consumers, who are now more conscious of healthy lifestyles. Evolving the target market is essential for maintaining business sustainability.

Online advertising has a significant and positive impact on the sustainability of micro and small culinary businesses in the Bintaro Modern Market, South Tangerang City, during the COVID-19 pandemic. Hypothesis testing indicates that online promotion significantly influences business sustainability, leading to the acceptance of H4. The more effectively these businesses promote themselves online, the more sustainable they become. This suggests that expanding online marketing efforts is crucial for reaching consumers more efficiently during the pandemic^[39]. Micro and small businesses should leverage online promotional tools to enhance brand visibility and ease the purchasing process for consumers^[40]. As technology advances, online promotion becomes increasingly important for maintaining and improving business sustainability. Prior studies show that online marketing and e-commerce positively impact the survival of SME businesses during the pandemic^[41]. Studies by Zulfikar et al.^[42] and Coviello et al. in Yulianti et al.^[43] also highlight the significant impact of e-commerce and digital marketing on business sustainability. This aligns with research indicating that online advertising influences the survival of SMEs during the pandemic^[22,23]. Digital transformation through online advertising has been shown to enhance the performance of SMEs in Bali Province during the pandemic^[44].

Business capital significantly and positively impacts the sustainability of micro and small culinary businesses in the Modern Bintaro, South Tangerang city market during the COVID-19 pandemic. Hypothesis testing confirms that venture capital significantly influences business sustainability, leading to the acceptance of H5. The productivity and sustainability of SMEs are closely linked to effective capital management, particularly during the pandemic. This outcome is consistent with research showing that capital significantly impacts a company's ability to remain in business^[26,27]. Other studies also indicate that financing greatly enhances business viability^[28].

Finally, accounting knowledge has a significant and positive impact on the sustainability of micro and small culinary businesses in South Tangerang City's Bintaro modern market during the COVID-19 pandemic. Hypothesis testing shows that accounting expertise significantly influences business sustainability, leading to the acceptance of H6. Improved financial management, based on sound accounting knowledge, positively impacts the sustainability of SME actors. Business actors are expected to have a solid grasp of financial reporting and management during the pandemic. This outcome aligns with studies by Jondo & Demu^[28], Ramli & Yekini^[31], and Patma et al.^[32], which suggests that strong accounting knowledge significantly contributes to business continuity.

This study's findings highlight the crucial importance of several factors—namely, product quality, pricing, target market adaptation, online promotion, business capital, and accounting knowledge—in maintaining the sustainability of micro and small culinary businesses, especially during challenging times like the COVID-19 pandemic. Each of these elements has proven to be essential for enhancing business resilience and ensuring long-term success, emphasizing the need for strategic management in these areas. The positive effects observed across these variables underscore the necessity for ongoing innovation and adaptability by business actors to effectively navigate external challenges. These insights enrich the understanding of business sustainability within the SME sector and offer practical guidance for entrepreneurs and policymakers focused on supporting this vital economic segment. Future research should investigate these dynamics in diverse contexts and industries to further validate and expand on these findings.

5. Conclusion

This paper makes a significant contribution to the field of SME sustainability by providing a nuanced understanding of the factors that enabled micro and small culinary businesses in the Bintaro Modern Market, South Tangerang City, to withstand the disruptions caused by the COVID-19 pandemic. By empirically

demonstrating the positive influence of key variables such as product innovation, competitive pricing, target market adjustments, online advertising, and capital management, this study offers actionable insights into the strategic practices that foster business resilience in crisis situations. The findings underscore the critical importance of adaptability and innovation, not only for surviving immediate challenges but also for ensuring long-term business sustainability in a volatile economic environment.

The broader implications of this study extend to both policymaking and business strategy. For policymakers, the research highlights the need for supportive frameworks that facilitate access to capital, encourage digital transformation, and promote market adaptability for SMEs. Such policies could be instrumental in enhancing the overall resilience of small businesses, particularly in the face of future crises. For business practitioners, the study provides a strategic blueprint for navigating turbulent times, emphasizing the importance of aligning product offerings, pricing strategies, and marketing efforts with evolving market demands. In terms of sustainability theory, the study contributes to the discourse by integrating crisis management with sustainable business practices, suggesting that sustainability is not just about long-term environmental or economic goals, but also about the ability to adapt and thrive in the face of unforeseen challenges.

The social context of these findings is equally important. The survival and sustainability of SMEs, particularly in the culinary sector, play a vital role in local economies by preserving jobs, supporting local supply chains, and maintaining community vitality. The study's insights into how these businesses navigated the pandemic can inform broader strategies aimed at safeguarding the social and economic well-being of communities during times of crisis.

For future research, it would be valuable to explore the long-term effects of these adaptive strategies on business sustainability post-pandemic, particularly as market conditions stabilize. Additionally, expanding the scope of the study to include SMEs from other sectors or regions could provide a more comprehensive understanding of the factors influencing business resilience. Investigating the role of digital transformation in greater detail, particularly the integration of e-commerce and online marketing, could also yield important insights for enhancing SME sustainability in the digital age.

Author contributions

The authors confirm their contribution to the paper as follows: study conception and design: Franky Okto Bernardo; data collection: Erick Lauren Ray. Both Author do the data analysis and interpretation of results. All authors reviewed the results and approved the final version of the manuscript.

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Conflict of interest

The authors declare no conflict of interest.

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