Research Article

The Analysis of MSME Empowerment: The Impact of Financing Support and Training on the Output Value of Micro and Small Enterprises in Sumatra Island

Bernadeth Y Priskilla Br Simangunson*, Agus Tri Darmawanto, Muhammad Rizky Adrian
Faculty of Economics, Development Economics, Universitas Borneo Tarakan
*Corresponding email: bernadeth_priskilla@borneo.ac.id

Abstract: Micro, Small, and Medium Enterprises (MSMEs) play a vital role in the Indonesian economy. This study aims to examine the influence of financial support and training on the output of MSMEs. The research model employs a dynamic panel model, with the Sys. GMM model. Empirical results show that, in the short term, the MSME credit variable has a significant impact on both micro and small enterprises. The sensitivity to changes in output for micro-enterprises is 0.676%, while for small enterprises, it is 1.788%. Furthermore, short-term results indicate that only the MSME credit variable is significant, but for the output of small enterprises, both MSME credit and training variables show significant effects on their output changes. In the long term, the findings indicate that the output of micro-enterprises is influenced solely by MSME credit, whereas the output of small enterprises is influenced by training.

Keywords: MSME empowerment, ultra-micro financing, MSME credit, training

INTRODUCTION

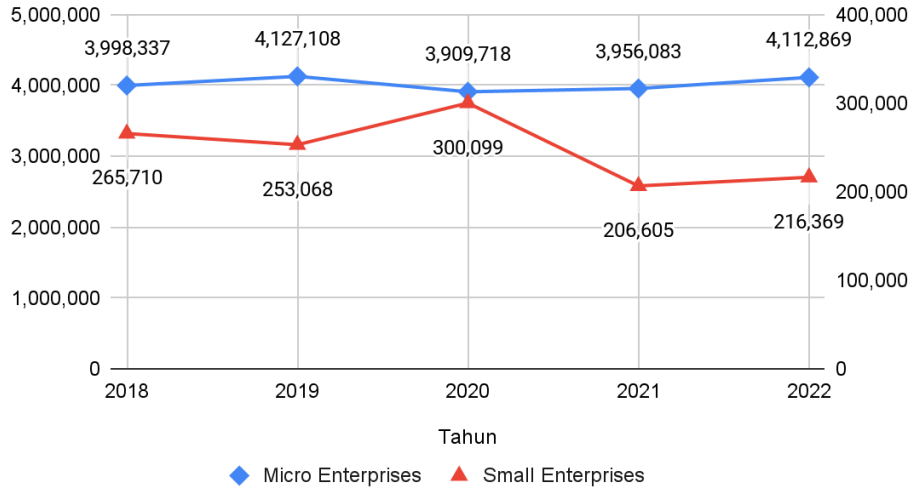
Micro, Small, and Medium Enterprises (MSMEs) play a crucial role in Indonesia's economy. Up until now, MSMEs have been the backbone of national economic development. They are considered a vital driver of Indonesia's economy, with the potential to support economic growth, increase operational capital, and boost economic development (Sondakh, 2019). In addition to contributing to economic growth and job creation, MSMEs play a role in distributing development benefits to remote areas, helping to reduce the economic gap between urban and rural regions.

The dominance of MSMEs in Indonesia's economic landscape demands special attention to fully leverage their potential. Empowering MSMEs provides a platform for entrepreneurs to grow. MSME empowerment can also drive innovation and creativity, enhancing the competitiveness of local products in the global market. Empowering MSME actors is crucial as it can increase their productivity and business sustainability. With the right support, MSMEs can become more innovative and adaptive to market changes, thereby having a broader and more inclusive economic impact. The empowerment of SMEs in Indonesia is essential because of their significant role in the national economy, providing around 97% of employment and contributing 57.8% to GDP (Tan et al., 2019).

The development of MSMEs in Indonesia, based on data from BPS (Statistics Indonesia), shows an increasing trend for micro-enterprises. However, small enterprises

have experienced the opposite trend, with the number of active businesses significantly declining by 2022. This can be seen in Figure 1.

Figure 1
Number of Micro and Small Enterprises in Indonesia



Source: Statistics Indonesia (BPS), 2024

Data from Statistics Indonesia (BPS) shows a significant growth trend in micro-enterprises, whereas small businesses have experienced a notable decline through 2022. Figure 1 illustrates a decrease of 449,341 small business units between 2018 and 2022, highlighting a key issue raised in this background: the reduction in the number of active small enterprises. The Indonesian market is now dominated by micro-enterprises, as shown in the micro and small industry profile published by BPS in 2022 (BPS, 2022).

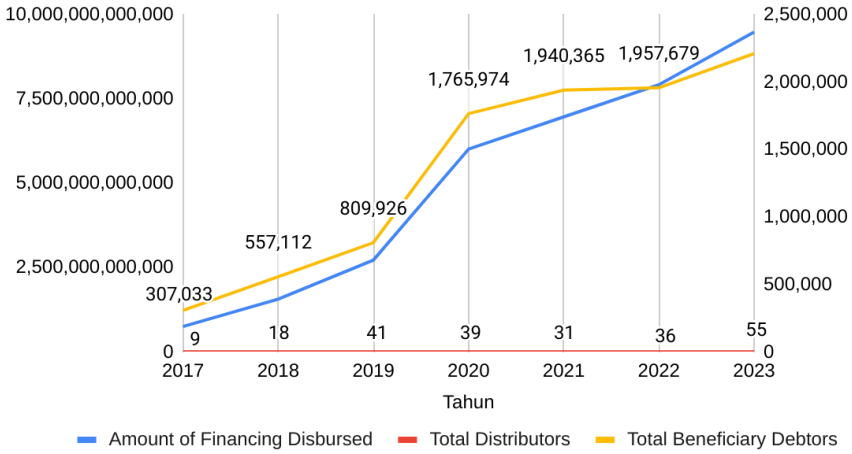
In a regional context, particularly on the island of Sumatra, MSMEs are essential for driving regional economic growth, job creation, income enhancement, and innovation. MSMEs contribute significantly to both local and national income, especially in provinces such as North Sumatra and West Sumatra (Mandasari & Arif, 2022; Setiawan et al., 2021). The development of MSMEs in Sumatra, particularly in key sectors such as culinary, creative industries, and tourism, has a substantial impact on the regional economy (Erwansyah et al., 2022; Silalahi, 2024; Thamrin et al., 2023). The strategic orientation and performance of MSMEs in Sumatra, particularly in these key sectors, underscore their importance in driving economic growth and regional development (Septrizola, 2021). The additional potential of these MSMEs will undoubtedly encourage local entrepreneurship, boost economic competitiveness, and foster business innovation (Rahmi et al., 2020; Sari et al., 2022)

Micro, Small, and Medium Enterprises (MSMEs) are an integral part of economic vitality in regions like Sumatra, Indonesia. This study highlights the importance of empowering MSMEs, particularly on the island of Sumatra, through the strengthening of financial support and training programs. Financial support mechanisms, including financing for MSME entrepreneurs, are crucial for MSME growth, sustainability, and competitiveness. Previous studies have examined several MSME empowerment efforts through flexible financing sources, such as loans from family and friends, as well as informal financial sector loans, which are commonly chosen by MSMEs. These sources contribute a significant portion of their funding due to their accessibility and less stringent

requirements (Adeosun et al., 2023). Furthermore, government assistance remains a fundamental financial support for MSMEs, offering loans. These programs are designed to address various challenges faced by MSMEs, from initial capital to expansion funds (Prihastiwi et al., 2021).

Indonesia's government initiatives mainly focus on sectors essential for economic growth, such as agriculture, manufacturing, and services. Financing is channeled through the well-known People's Business Credit (KUR) program, primarily disbursed by banks. Another financing form is the Ultra Micro Financing scheme. Introduced in 2017, this type of financing is provided by the government for ultra-micro enterprises, as a follow-up to social assistance programs targeting the smallest micro businesses that are not accommodated by the KUR program. The government has appointed the Government Investment Center (PIP), a Public Service Agency (BLU), as the coordinated fund manager for UMi financing. Aggregate data shows that ultra-micro financing has increased, accompanied by a simultaneous rise in the number of beneficiaries. Data from the Government Investment Center (PIP) publications highlights the development of ultra-micro financing, as shown in the image below:

Figure 2
Amount of Ultra Micro Financing Disbursed, Total Distributors, and Beneficiary Debtors



Source: Government Investment Center, data.umi.id (2024)

Based on the data from Figure 2, it can be observed that the financing injections provided by the government have increased year by year. This is part of public financial policy aimed at empowering entrepreneurs. However, ironically, in 2022, this increase was not reflected in the number of small businesses, which declined that year, as seen in Figure 2. Financing is a crucial aspect of MSME empowerment, with the expectation that such financing will significantly contribute to Gross Domestic Product (GDP) and job creation.

Not only financing, but additional empowerment efforts are also needed, such as training programs or capacity-building initiatives. These programs are essential for enhancing the competencies, skills, and knowledge of Micro, Small, and Medium Enterprises (MSMEs). Such initiatives allow MSMEs to operate more efficiently, optimize their operations, and make more informed decisions. Empirical studies, as reviewed by Sutrisno et al. (2023), have highlighted that education and training are vital

for developing MSME expertise, enhancing competencies, and equipping them with the necessary skills for efficient operations and smarter decision-making.

Unlike previous studies, such as Beck (2013), which emphasized the importance of financial deepening to drive MSME growth globally, this research focuses on the specific conditions in Sumatra and reveals that the impact of financing and training varies between micro and small enterprises. This approach offers new insights into the misallocation of credit, which frequently occurs in small enterprises that tend to use credit for non-productive purposes—an area that has not been extensively explored in prior research (Khan et al., 2020).

The novelty of this research lies in its deep focus on the empowerment efforts for MSMEs in Sumatra, which encompass not only financial assistance but also capacity-building training. Furthermore, an interesting trend emerges, showing a disparity between micro and small-scale MSMEs, where micro-enterprises demonstrate higher growth, contrasting with a decline in small businesses. Financing and training serve as the driving force impacting the outcomes of MSMEs. These outcomes can be comprehensively evaluated in terms of productivity, such as output per unit input, efficiency, as well as the quality and quantity of production. Productivity improvement is often a result of targeted training programs and capacity-building initiatives that enhance the skills and competencies of MSME employees.

The main issue highlighted in this background is the need to strengthen financial support and training for MSMEs. The research objective, which focuses on analyzing government empowerment programs through direct financing and training, directly addresses these issues. This research aims to analyze empowerment programs conducted by the government and public sector in the form of financial support and training for MSMEs in Sumatra, Indonesia, and to assess the effectiveness of existing programs in improving MSME performance, or in other words, maximizing the output potential of both micro and small enterprises. A comprehensive scope and a robust methodological approach, integrating both descriptive and quantitative analysis, are employed to achieve the outlined research objectives.

LITERATURE REVIEW

Empowering MSMEs through financing and training is crucial for the growth and sustainability of these businesses. Financial deepening plays a vital role in reducing financing constraints for MSMEs, enabling better business entry, entrepreneurship, and resource allocation, which are essential for economic development and poverty alleviation (Beck, 2013). In developing countries, aligning MSME strategies with international supply chains and providing government-subsidized education and training infrastructure are critical for technological advancement and attracting business from multinational corporations (Boocock et al., 1994). The digital transition further underscores the need for capacity building in technical and management roles, especially for manufacturing MSMEs, to navigate challenges and leverage the benefits of digitalization. Ultimately, the significant role of SMEs in driving productivity, economic growth, job creation, and innovation highlights the need for adequate funding to enable them to effectively contribute to these areas and access international markets. Thus, a holistic approach that combines financial support and comprehensive training programs is essential for the empowerment and sustainable development of MSMEs.

Access to finance significantly impacts the empowerment and performance of small and medium enterprises across various dimensions, as evidenced by multiple studies. In Nigeria, for instance, access to finance has been shown to positively and significantly influence MSME performance, indicating that financial resources are crucial for their growth and sustainability (Anthony et al., 2023). This is echoed in broader studies in developing countries, where better financial accessibility allows MSMEs to invest in technological upgrades and expand operations, thereby enhancing labor productivity and overall company performance (Boocock et al., 1994).

The role of government in empowering MSMEs is multifaceted, encompassing regulatory, facilitative, and catalytic functions. As a regulator, the government creates policies and legal frameworks that support SME development, such as Indonesia's Law No. 20 of 2008, which provides guidelines for MSME empowerment through various means, including business licensing, trade promotion, and institutional support (L et al., 2022; Maulana, 2023). The government's regulatory role also involves creating a conducive business environment by revising and enforcing regulations that support MSME activities, thereby fostering a stable and predictable business climate. As a facilitator, the government provides essential services such as access to finance, infrastructure, and training programs. For instance, in Palopo City, the government, through the Cooperative and MSME Office, offers access to finance, promotion, coaching, and mentoring, which are crucial for sustaining and enhancing business operations (Maulana, 2023). The facilitative role also extends to providing infrastructure and marketing support, as seen in Laut Dendang Village, where the government has successfully implemented financial and infrastructure assistance to facilitate marketing outcomes (Polem & Sudiarti, 2022). As a catalyst, the government stimulates SME growth by encouraging innovation and economic diversification. Additionally, the government collaborates with educational institutions and stakeholders to enhance entrepreneurial skills and support diversification efforts (Hasayotin et al., 2024).

Stakeholder engagement, including universities and the private sector, is essential in providing comprehensive support through coaching, training, mentoring, and funding, which significantly enhances MSME performance (Maulana, 2023). In North Luwu Regency, government efforts to empower MSMEs include providing facilities and infrastructure, business information, partnerships, and opportunities to enter modern retail markets, thereby enhancing business potential and protecting MSMEs from competition (L et al., 2022). Overall, the government's role in MSME empowerment is comprehensive, involving creating a supportive regulatory environment, facilitating access to resources and services, and acting as a catalyst for innovation and economic diversification, all of which are essential for sustainable growth and MSME resilience.

Previous researchers have also examined more complex metrics of digitalization, such as the adoption of Information and Communication Technology (ICT), digital output, and online presence, to measure the level of technology integration in MSME operations. Hanggraeni (2021) highlighted that digital transformation enables MSMEs to reach broader markets, enhance customer engagement, and improve operational efficiency. Metrics that track innovation outputs, such as new product development, patents, and investment in research and development (R&D), assess the level of innovation within MSMEs. Nustini et al. (2024) emphasized the importance of evaluating the innovative capabilities of MSMEs. Higher innovation outputs indicate successful integration of new ideas and technologies, often facilitated by financial support and training programs.

This research emphasizes the role of training as a key factor in enhancing small business output in the long term. While previous studies, such as (Boocock et al., 1994), highlighted the importance of training in boosting MSME competitiveness, this study specifically demonstrates how managerial training and technology adoption in small businesses can significantly improve performance. This underscores the importance of continuous training to enhance management skills, marketing strategies, and the capacity to adopt new technologies in small enterprises.

On the other hand, whereas previous studies like (Prayogi et al., 2024) primarily focused on enhancing entrepreneurial skills through training, this research reveals that training also has a long-term effect on the sustainability of small business output, particularly in addressing financial challenges and technology adoption. The unique contribution of this study lies in providing a more detailed understanding of how training impacts the competitiveness and productivity of small businesses, showing that training has a more significant effect on small enterprises compared to micro-enterprises.

METHOD

This study uses a quantitative approach with panel data, which is a combination of cross-sectional and time series data, at the provincial level in Sumatra Island. The data used covers 10 provinces in Sumatra for the period between 2017 and 2022. In general, this empirical study employs secondary data obtained from Statistics Indonesia (BPS), Bank Indonesia, and the Government Investment Center. The study uses variables such as ultra micro financing, MSME credit, the number of MSMEs receiving training, and the output produced by Micro and Small Enterprises.

Table 1
Variables and Data Sources

No	Variable	Definition	Monetary Unit	Data Source
1	Ultra Micro Financing	Financing facility program for Ultra Micro Enterprises	Rupiah	data.umi.id, Government Investment Center (PIP)
2	MSME Credit	Credit provided to business operators meeting the criteria of Micro, Small, and Medium Enterprises	Rupiah	Bank Indonesia
3	MSME Training	Number of MSMEs that have participated in training	Unit	Statistics Indonesia (BPS)
4	Micro Enterprise Output	Value of the output produced by micro enterprises in one year	Rupiah	Statistics Indonesia (BPS)
5	Small Enterprise Output	Value of the output produced by small enterprises in one year	Rupiah	Statistics Indonesia (BPS)

The estimation method used in this study is the dynamic panel model. The term "dynamic" refers to a situation where the value of a variable is influenced by the values of other variables in the current period and is also related to past values (Arellano & Bond, 1991). There are two common estimations in dynamic models used to estimate linear autoregressive models, namely first difference GMM and system GMM. This study

utilizes the Stata statistical application. The analysis procedure using GMM requires several tests to specify the model in order to provide valid results. The equation is presented in the following functional form:

$Output\_usaha\ mikro_{i,t} = \delta y_{i,t-1} + x'_{i,t}\beta + u_{i,t}$; i =1,2……, N ; t = 1, 2, …, T……(1)
$Output\_usaha\ kecil_{i,t} = \delta y_{i,t-1} + x'_{i,t}\beta + u_{i,t}$; i =1,2……, N ; t = 1, 2, …, T …….(2)

explanation:
$x'_{i,t}$ = vector of independent variables for cross-sectional unit i in period t, with a dimension of 1×kl
$u_{i,t}$ = error term
δ = scalar

The model analysis in this study will go through three stages, starting with a validity test using the Sargan test, followed by a goodness-of-fit test, and a bias test. The selection of the best model in the bias test is conducted to determine the best model between the two dynamic panel data models: the First Difference Generalized Method of Moments (FD GMM) or the System Generalized Method of Moments (SYS GMM). To determine which model is best, it is essential to evaluate whether the estimator is biased or inaccurate. If one model is biased, then the other model is considered the best and most appropriate for use. To assess the unbiased estimator, the coefficient value of the lagged dependent variable in the FD GMM or SYS GMM model is compared. The model is considered unbiased if the lagged dependent variable coefficient in the FD GMM or SYS GMM model lies between the lagged dependent variable coefficients in the Fixed Effects Model (FEM) and Pooled Least Squares (PLS) models.

RESULT

In this study, the data is estimated using a dynamic panel data method. There are two approaches in dynamic panel data: FdGMM (First Differences Generalized Method of Moments) and SysGMM (System Generalized Method of Moments). The model that can be used in the study is the best model, which meets the criteria of goodness-of-fit tests, including instrument validity or the Sargan test, consistency, and bias of the data. The following are the results of data processing using Stata17 software. The selection of the best model in this study is based on and begins with the validity and consistency tests, as shown in the following table

Table 2
Valid Instrument and Consistency Tests

No.	Research Model	Sargan Test		Consistency Test (Arellano-Bond)		< / >	Sig	Description
		FDGMM	SysGMM	FDGMM	SysGMM			
1	Model 1 (Micro Enterprise Output)	0.25124	0.7764	0.7516	0.8908	>	0.05	fulfills the criteria
2	Model 2 (Small Enterprise Output)	0.2880	0.9638	0.7738	0.9123	>	0.05	fulfills the criteria

Source: Processed using STATA (2024)

Based on the results in Table 2, it can be stated that the models have met the requirements for validity and consistency, both for FdGMM and SysGMM. To determine the accuracy of the model between the two, the analysis is continued with a bias test. The results of the bias test are shown in Table 3.

Table 3
Unbiased Test

No	Model	FEM	Coefficient Lag from FDGMM or SYSGMM	PLS	Conclusion (FEM < FDGMM/ SYSGMM < PLS)
For FDGMM Model					
1	Model 1 (Micro Enterprise Output)	-0,06288304	-0,11525894	0,71841053	Bias (-0,115 < -0,06)
2	Model 2 (Small Enterprise Output)	-0,1681614	-0,27730147	0,49262715	Bias (-0,277 < -0,06)
For SYSGMM Model					
1	Model 1 (Micro Enterprise Output)	-0,06288304	0,0955638	0,71841053	Not Bias (-0,06 < 0,095 < 0,718)
2	Model 2 (Small Enterprise Output)	-0,1681614	0,23004405	0,49262715	Not Bias (-0,168 < 0,230 < 0,492)

Source: Processed using STATA (2024)

Based on the results in Table 3, it is concluded that the suitable model for further analysis is the System Generalized Method of Moments, as it meets the requirements, specifically that the model is not biased. This qualified model is then followed by the estimation step and goodness of fit test to identify variables that have a significant effect. The estimation results for the short-term and long-term models are explained in more detail below (see Table 4).

Table 4
Estimation Output Short Term Effects

No / Model	Variable	Coefficient	Std. Error	z-statistic	Prob.
Model 1. Dependent: Micro Enterprise Output					
1	cons	7,395504	7,304186	1,01	0,311
2	outpumikro L1.	0,0955638	0,0998433	0,96	0,338
3	pbiayaumikro	-0,0694194	0,565954	-1,23	0,220
4	kredumkm	0,6760935	0,2923463	2,31	0,021
5	platihan	0,0197526	0,0909202	0,22	0,311
Model 2. Dependent: Small Enterprise Output					
1	cons	73,37934	32,25783	2,27	0,023
2	outpuk L1.	0,2300441	0,1827719	1,26	0,208
3	pbiayaumikro	0,0160852	0,0775576	0,21	0,836
4	kredumkm	-1.788687	1,081675	-1,65	0,098
5	platihan	0,282488	0,0954268	2,96	0,003

Based on the estimation results above, it is evident that the estimation model was conducted for two separate dependent variables, namely Y1 representing micro-enterprise output (outpumikro) and Y2 representing small-enterprise output (outpuk). The independent variables are the same for both models, consisting of ultra micro financing (pbiayaumikro), MSME credit (kredumkm), and training (platihan). The mathematical equations for the short-term effects in the models are as follows:

outpumikro = 7,3955 + 0,09556 outpmikroL1 - 0,0694 pbiayaumikro + 0,6760935 kredumkm + 0,01975 platihan
outpuk = 73,379 + 0,230 outpukL1 - 0,016 pbiayaumikro - 1,788687 kredumkm + 0,282 platihan

The estimation results show that MSME credit has a significant impact on both micro and small enterprises. It is observed that MSME credit contributes to a sensitivity change in micro-enterprise output by 0.676% and significantly explains small-enterprise output with a sensitivity of 1.788%. Furthermore, the short-term results justify that only the MSME credit variable is significant in influencing micro-enterprise output. On the other hand, for small-enterprise output, both MSME credit and training variables provide significant results in affecting the changes in their output. The size of the loans provided to MSMEs can also influence their business output. For micro-enterprises, MSME credit has a positive impact on output, whereas, for small enterprises, MSME credit has a negative impact on output.

Table 5
Estimation Output Long-Term Effects

No/ Model	Variable	Coefficient	Std. Error	z-statistic	Prob.
Model 1. Dependent: Output Small					
1	pbiayaumikro	-0,0767544	0,0603845	-1,27	0,204
2	kredumkm	0,7475303	0,314241	2,38	0,017
3	platihan	0,0218397	0,0995832	0,22	0,826
Model 2. Dependent: Output Micro					
1	pbiayaumikro	0,0208911	0,1037154	0,20	0,840
2	kredumkm	-2,323103	1,4813	-1,65	0,117
3	platihan	0,366885	0,167467	2,19	0,028

Based on the estimation results above, the mathematical equations for the long-term effects in the models are as follows:

outpumikro = - 0,07675 pbiayaumikro + 0,7475303 kredumkm + 0,0218397 platihan
outpuk = 0,0208911 pbiayaumikro - 2,323103 kredumkm + 0,366885 platihan

The long-term estimation results indicate that micro-enterprise output is only influenced by MSME credit, while small-enterprise output is influenced by training. In the context of Micro, Small, and Medium Enterprises (MSMEs), credit has a significant impact on the output of micro-enterprises

DISCUSSION

In the short term, MSME credit has a positive impact on the output of micro-enterprises, whereas, for small enterprises, MSME credit has a negative impact on output. There is a contrasting directional difference between these two types of businesses. The fact that micro-credit allocation is generally focused on working capital for production, which is more dominant compared to other allocation purposes, means that credit is more effective in increasing business output. On the other hand, small enterprises, which have a scope of operations far above that of micro-enterprises in terms of company size, capital, and number of employees, tend to have more dominant business development activities, such as expansion, enlargement of business premises, and others. As a result, the loan allocation is divided not only for production but also for other purposes, which is one reason why MSME credit may have a negative effect.

This is consistent with previous research, which suggests that the limited access to credit can lead to reduced investment in production, technology, and marketing, ultimately affecting the output of small enterprises because small loans may not be sufficient to meet the financial needs of MSMEs to expand their operations, purchase necessary equipment, or hire skilled labor, thereby limiting their output potential (Khan et al., 2020). The findings of this study align with previous empirical research, revealing that the relationship between MSME credit and business output is not always positive. Misallocation of credit often occurs when the funds received are not used for productive purposes or when small enterprises lack the managerial capacity to effectively manage the additional capital. Beck and Demirguc-Kunt (2006), in their study, showed that although access to finance is considered an important factor for growth, its effectiveness largely depends on the appropriate use of the credit.

Previous studies by Beck (2013); Boocock et al. (1994) provide a strong theoretical foundation regarding the importance of access to financing and training for MSMEs in developing countries. Beck highlights that financial deepening is crucial in overcoming the financial constraints faced by MSMEs, facilitating a more efficient allocation of resources. This contribution underscores the essential role of government support in accelerating MSME growth, emphasizing that targeted financial and training initiatives can significantly empower MSMEs and enhance their economic impact.

Furthermore, the empirical results of this study confirm that training significantly enhances the output of small enterprises. These findings are consistent with previous research that explains how training can improve the performance and development of small enterprises by providing the necessary understanding, skills, and knowledge to entrepreneurs (Prayogi et al., 2024; Sari et al., 2019; Yani et al., 2021). Other research findings indicate that management, information technology, and entrepreneurship training have a positive impact on MSME performance and entrepreneurial orientation (Husnah & Nurhayati, 2018; Prayogi et al., 2024; Yani et al., 2021).

Previous studies that support the findings of this research include those by Prayogi et al. (2024); (Sutrisno et al., 2023), which emphasize the need for an inclusive approach to MSME training. These studies highlight the importance of entrepreneurial and managerial training as key factors in improving MSME performance. This research enriches the literature on how targeted training can enhance management skills and encourage the adoption of new technologies by MSMEs. Thus, training is one of the key factors that can contribute positively to the output and performance of small enterprises, as well as help in the development and growth of MSMEs overall.

In the long term, in the context of Micro, Small, and Medium Enterprises (MSMEs), credit has a significant impact on the output of micro-enterprises. Previous research shows that the People's Business Credit (KUR) can play an important role in increasing the income and profitability of MSMEs. KUR provides easier financial access for MSMEs, enabling them to expand their businesses and improve their welfare (Adha, 2023). Additionally, credit can influence the overall growth of MSME credit, which in turn can affect the output of micro-enterprises (Perdana et al., 2023). In the context of MSME development, credit plays a crucial role in supporting the growth and sustainability of micro-enterprises. With adequate access to credit, MSMEs can increase their output, expand their markets, and create a positive impact on the overall economy.

Furthermore, in the long term, financing, whether in the form of credit or ultra micro financing, does not significantly affect the output of small enterprises. However, training for MSMEs is what influences the output of small enterprises, similar to the short-term effects previously presented. Training can help small business owners and managers improve their managerial skills. With better managerial skills, small enterprises can manage their resources more efficiently, plan more effective business strategies, and make better decisions. Training can also help small enterprises adopt new technologies and innovations. In many cases, small enterprises may not be aware of the latest technologies that can help improve efficiency and productivity.

Business owners can also learn through training about new technologies and how to implement them in their businesses. For example, the use of inventory management software or data analysis tools can help small enterprises optimize operations and increase output. Additionally, with the right training, small enterprises can enhance their competitiveness in the market. Training focused on marketing, customer service, and sales strategies can help small enterprises better understand customer needs and tailor their products or services accordingly. By enhancing competitiveness, small enterprises can attract more customers and increase sales, which contributes to increased output. The empirical results also simultaneously reveal that all independent variables significantly affect the business output of both micro and small enterprises.

A key limitation of previous research, compared to this study, is the lack of differentiation between micro and small MSMEs. Most prior studies have combined MSMEs into a single category without distinguishing between micro and small enterprises, as seen in (Boocock et al., 1994). This approach fails to capture the unique dynamics of each category, where micro-enterprises are often production-focused, while small enterprises may encounter distinct challenges, such as business development and expansion.

CONCLUSION

The feasibility of the dynamic panel model shows that the appropriate empirical model for this study is the System Generalized Method of Moments. This model aligns with the Sargan test, consistency, and bias tests, and is used to analyze both short-term and long-term effects. The empirical results indicate that MSME empowerment is crucial for increasing business output. This is evident from the short-term effects, where the MSME credit variable significantly impacts both micro and small enterprises. The sensitivity to output changes for micro-enterprises is 0.676%, while for small enterprises, it is 1.788%. Furthermore, the short-term results justify that only the MSME credit variable is significant in influencing the output of micro-enterprises. On the other hand, for small enterprises, both MSME credit and training variables significantly affect output changes.

The short-term effects indicate that MSME credit leads to differing conclusions in empirical results, where MSME credit positively impacts the output of micro-enterprises but has a different impact on small enterprises. The empirical results explain that, in the short term, MSME credit negatively impacts the output of small enterprises. Additionally, training is also concluded to benefit the output of small enterprises. Referring to the estimation results in this study, the long-term effects show that micro-enterprise output is only influenced by MSME credit, while small enterprise output is influenced by training.

There are many training schemes that various institutions can offer to MSMEs, such as entrepreneurship, financial literacy, marketing, management, and others. It is important to understand that training is not only the domain of local departments and ministries, such as the Department of Industry, Cooperatives, and MSMEs. Instead, there must be synergy between private companies and other sectors. Therefore, synergy among various stakeholders is necessary. Training can help small business owners and managers improve their managerial skills. Business owners can also learn about new technologies through training and how to implement them in their businesses. For example, using inventory management software or data analysis tools can help small enterprises optimize operations and increase output.

Implication

This empirical research can serve as a reference in decision-making related to the urgency of MSME empowerment in financing and training. The policy implication offered is the need for synergy between stakeholders, including financial institutions, training institutions, and local governments, in efforts to empower MSMEs. The results of this study indicate the importance of appropriate financing access and training to enhance MSME output. Therefore, the government should expand financing programs, such as the People's Business Credit (KUR) and ultra-micro financing, with a focus on production capital and sustainable growth. Given the sensitivity of micro and small business output to MSME credit, the government needs to ensure that financing programs, such as People's Business Credit (KUR) and ultra-micro financing, can be widely accessed and directed to support production capital and sustainable growth.

In addition, continuous training, particularly in management, financial literacy, and technology, is crucial to enhance the capacity of small businesses. Digitalization and market access should also be strengthened through digital technology training, helping MSMEs reach wider markets and improve efficiency. Looking ahead, trainers are expected to provide ongoing support, rather than limiting assistance to a single training session. This continuity is essential to ensure that MSMEs consistently strengthen their business frameworks. Empowerment for entrepreneurs should be based on the primary needs of MSMEs themselves. Furthermore, to optimize MSME output, there needs to be a linkage between MSMEs and market access. MSME empowerment policies should be complemented by regular guidance to enable MSMEs to adapt to market changes and reinforce their business structures, increasing their potential for sustainability. Furthermore, stakeholders can create opportunities for entrepreneurs to become QRIS merchants, as consumers increasingly adopt cashless payments for their transactions. In addition, entrepreneurs must develop financial reporting skills so that they can maintain orderly business records and have a clear view of financial circulation, thereby increasing efforts to increase production and sales output.

Limitation and Future Direction

The empirical research conducted by the researcher has limitations in terms of the variables used to explore the types of empowerment and public financial support, as well as the limited observation period, which only extends up to 2022. The researcher only had access to data on ultra micro financing, MSME credit, and training. These limitations could serve as recommendations for future research, not only in a quantitative sense but also through survey-based research and a more descriptive qualitative approach to explore other variables related to MSME empowerment.

The continuous empowerment of MSMEs is still necessary, but the focus is not only on training and financing. In the future, empowerment for entrepreneurs needs to be further strengthened and empirically studied through an empowerment approach by providing convenience, including better market access and digitalization of business development. In addition, business network strengthening programs, the formation of industrial areas (agglomeration) needs to be given more attention in addressing the empirical limitations of this study.

REFERENCES

Adeosun, O. T., Shittu, A. I., & Ugbede, D. (2023). Disruptive financial innovations: The case of Nigerian micro-entrepreneurs. *Journal of Business and Socio-Economic Development*, *3*(1), 17–35. https://doi.org/10.1108/JBSED-01-2021-0006

Adha, R. B. (2023). Dampak Kredit Usaha Rakyat (KUR) terhadap kesejahteraan penerima KUR di Indonesia. *Bappenas Working Papers*, *6*(2), 240–253. https://doi.org/10.47266/bwp.v6i2.215

Anthony, U. A., Shamsudeen, M. S., Aminu, U., & Nura, M. B. (2023). Access to finance and its impact on small and medium enterprise (smes) performance in Kano State. *Gusau Journal of Economics and Development Studies*, *4*(1), 199–210. https://doi.org/10.57233/gujeds.v4i1.13

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*(2), 277. https://doi.org/10.2307/2297968

Beck, T. (2013). Bank Financing for SMEs – Lessons from the Literature. *National Institute Economic Review*, *225*, R23–R38. https://doi.org/10.1177/002795011322500105

Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, *30*(11), 2931–2943. https://doi.org/10.1016/j.jbankfin.2006.05.009

Boocock, G., Lauder, D., & Presley, J. (1994). the role of the tecs in supporting smes in England. *Journal of Small Business and Enterprise Development*, *1*(1), 12–18. https://doi.org/10.1108/eb020928

Erwansyah, E., Saragih, R., & Purba, T. O. H. (2022). Pendampingan pemilihan merek, pentingnya merek dan nilai yang dihasilkan melalui merek" bagi pelaku UMKM di Desa Lau Bakeri, Kecamatan Kutalimbaru, Kabupaten Deli Serdang, Sumatera Utara. *Jurnal Pengabdian Pada Masyarakat METHABDI*, *2*(1), 26–31. https://doi.org/10.46880/methabdi.Vol2No1.pp26-31

Hanggraeni, D. (2021). Information and communication technologies (ICTs) adoption by MSMEs and local poverty: An empirical evidence from Indonesia. *Jurnal Keuangan dan Perbankan*, *25*(2), 225–239.

https://doi.org/10.26905/jkdp.v25i2.5343

Hasayotin, K., Setthaji, R., Ratchatakulpat, T., Naburana, W., & Supanut, A. (2024). Empowerment of SMEs and entrepreneurial ecosystems: A qualitative study on diversifying Pattaya's Economy. *Revista de Gestão Social e Ambiental*, *18*(7), e05608. https://doi.org/10.24857/rgsa.v18n7-070

Husnah, J., & Nurhayati, T. (2018). analisis pengaruh pelatihan dan iklim organisasi terhadap kinerja UKM. *Jurnal Riset Ekonomi dan Bisnis*, *11*(2), 154–173. https://doi.org/10.26623/jreb.v11i2.1083

Khan, M. A., Siddique, A., Sarwar, Z., Minh Huong, L. T., & Nadeem, Q. (2020). Determinants of entrepreneurial small and medium enterprises performance with the interaction effect of commercial loans. *Asia Pacific Journal of Innovation and Entrepreneurship*, *14*(2), 161–173. https://doi.org/10.1108/APJIE-11-2019-0079

L, A., Setiawan, E. I., & Damayanti, A. (2022). The role of local government in empowering micro, small and medium enterprises in North Luwu Regency. *Dinamis : Journal of Islamic Management and Bussiness*, *5*(1), 1–10. https://doi.org/10.24256/dinamis.v5i1.3326

Mandasari, S. P., & Arif, M. (2022). Analisis meningkatkan simpan pinjam koperasi dan UKM (Usaha Kecil Menengah) pada Masa Covid-19 di Provinsi Sumatera Utara. *VISA: Journal of Vision and Ideas*, *2*(2), 252–259. https://doi.org/10.47467/visa.v2i2.1224

Maulana, L. H. (2023). Improving SMEs performance based on strategy management. *Technium Business and Management*, *4*, 67–76. https://doi.org/10.47577/business.v4i.10173

Nustini, Y., Arwani, A., Budiana, E., Maidani, Wahyundaru, S. D., & Putra, R. A. (2024). CSR in MSMEs: A systematic literature review and future research agenda. *PaperASIA*, *40*(3b), 22–32. https://doi.org/10.59953/paperasia.v40i3b.28

Perdana, M. A. C., Sulistyowati, N. W., Ninasari, A., Jainudin, & Mokodenseho, S. (2023). Analisis pengaruh pembiayaan, skala usaha, dan ketersediaan sumber daya manusia terhadap profitabilitas UMKM. *Sanskara Ekonomi dan Kewirausahaan*, *1*(03), 135–148. https://doi.org/10.58812/sek.v1i03.120

Polem, R. I., & Sudiarti, S. (2022). Analysis of SMEs empowerment and assistance in Laut Dendang Village. *Jurnal Ekonomi, Manajemen, Akuntansi Dan Keuangan*, *3*(4). https://doi.org/10.53697/emak.v3i4.1013

Prayogi, D., Hendri, E., Damayanti, R., & Ilhamsyah, I. (2024). Pengaruh kompetensi dan training terhadap kinerja karyawan di Hotel BATIQA Palembang. *Jurnal Media Wahana Ekonomika*, *21*(1), 79–90. https://doi.org/10.31851/jmwe.v21i1.14866

Prihastiwi, D. A., Sunaningsih, S. N., & Nugraheni, A. P. (2021). Between expectation and reality: factors determining financing sources preferred and used by MSMEs. *Jurnal Analisis Bisnis Ekonomi*, *19*(2), 74–85. https://doi.org/10.31603/bisnisekonomi.v19i2.3927

Rahmi, S., Fauziati, P., Harahap, E. F., Novianti, N., & Puttri, D. (2020). Analysis of e-commerce and e-entrepreneurship challenges on digital economic development in west sumatra in supporting national economic growth. *Humanities & Social Sciences Reviews*, *8*(2), 808–814. https://doi.org/10.18510/hssr.2020.8289

Sari, P., Rozak, D. A., & Kasman, K. (2019). Pelatihan manajemen bagi kelompok usaha kecil. *Prosiding Seminar Nasional Program Pengabdian Masyarakat*. https://doi.org/10.18196/ppm.23.422

Sari, Y., Oktarina, Y., Munajat, & Kenamon, M. (2022). The Role of Innovation Capability in MSME sustainability during the Covid-19 Pandemic. *International Journal of Social Science and Business*, *6*(4), 502–511. https://doi.org/10.23887/ijssb.v6i4.46158

Septrizola, W. (2021). *Strategic orientation and business performance in West Sumatera:* Sixth Padang International Conference on Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA 2020), Padang, Indonesia. https://doi.org/10.2991/aebmr.k.210616.064

Setiawan, N., Wakhyuni, E., & Setiawan, A. (2021). Balance scorecard analysis of increasing MSME income during the Covid 19 Pandemic in Samosir District. *Ilomata International Journal of Social Science*, *2*(4), 233–245. https://doi.org/10.52728/ijss.v2i4.357

Silalahi, H. (2024, April 3). *Women's empowerment in the super premium tourist destination area of Lake Toba, North Sumatera*. Proceedings of the 3rd Economics and Business International Conference, EBIC 2022, 22 September 2022, Medan, North Sumatera, Indonesia. https://eudl.eu/doi/10.4108/eai.22-9-2022.2337481

Sondakh, O. (2019). Measuring the organizational innovation capabilities (A case study of SMEs Food Industry in Surabaya-Indonesia). *Information and Knowledge Management*. https://doi.org/10.7176/IKM/9-6-05

Sutrisno, S., Permana, R. M., & Junaidi, A. (2023). Education and training as a means of developing MSME Expertise. *Journal of Contemporary Administration and Management (ADMAN)*, *1*(3), 137–143. https://doi.org/10.61100/adman.v1i3.62

Tan, J. D., Supratikno, H., Pramono, R., Purba, J. T., & Bernarto, I. (2019). Nurturing transgenerational entrepreneurship in ethnic Chinese family SMEs: Exploring Indonesia. *Journal of Asia Business Studies*, *13*(2), 294–325. https://doi.org/10.1108/JABS-04-2018-0132

Thamrin, Septrizola, W., & Indrayeni, W. (2023). MSMES culinary business performance in West Sumatera. In P. Susanto, D. F. Handayani, J. E. Marna, Y. P. Sari, R. S. Lasmini, R. Sofyan, & H. Ardi (Eds.), *Proceedings of the Ninth Padang International Conference on Economics Education, Economics, Business and Management, Accounting and Entrepreneurship (PICEEBA 2022)* (Vol. 672, pp. 381–385). Atlantis Press International BV. https://doi.org/10.2991/978-94-6463-158-6_34

Yani, N. M. M., Fauzi, A. K., & Yuliati, N. N. (2021). Pengaruh pemanfaatan teknologi informasi, penggunaan informasi akuntansi dan pelatihan terhadap kinerja UMKM di Kecamatan Mataram. *Jurnal Akuntansi dan Keuangan Syariah - ALIANSI*, *4*(1), 13–24. https://doi.org/10.54712/aliansi.v6i1.188