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# Institutional and Infrastructural Roles in Fostering the Advancement of Micro, Small, and Medium Enterprises at the Village Level in Aceh Province, Indonesia

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## Abstract

*This article examines whether the presence of impoverished individuals influences the number of Micro, Small, and Medium Enterprises (MSMEs) and explores solutions for transforming them into entrepreneurs with income. It aims to understand the role of institutions in fostering an entrepreneurial climate in each village and investigates the impact of economic, educational, and health infrastructure on entrepreneurship development in these areas. The practical goal is to contribute significantly to poverty alleviation while supporting the growth of MSMEs and examining the role of institutions in providing community services, along with the availability of educational, health, and economic infrastructure for supporting economic activities by MSMEs in Aceh Province. Quantitative research utilizes panel data analysis with the Common Effect Model as the preferred analytical tool. The data from the Central Statistics Agency, released in the Village Potential of Aceh Province for the years 2011, 2014, and 2018, constitute 19,355 observations from 6,505 villages in Aceh Province. The study finds that small and medium industries can be influenced by impoverished populations, institutions, and village infrastructure. The number of poor people has a proven impact on the number of SMEs. Institutions comprise three variables affecting MSMEs numbers: distance from the village to the hospital, distance from the village to the health center, and distance from the village office to the regent's office. Infrastructure factors influencing MSMEs numbers include the number of elementary schools, high schools, health workers, and cooperatives. Other independent variables do not significantly affect the number of MSMEs in Aceh Province villages. Recommendations include: (1) The government should involve the poor in encouraging the emergence of new entrepreneurs through its programs. (2) Government institutions must provide excellent services and convenience for SMEs in terms of health and administration. (3) Educational, health, and economic infrastructure significantly influence the development of small and medium industries. Therefore, the government needs to enhance the quality and quantity of this infrastructure.*

***Keywords:*** *Micro, Small, and Medium Enterprises (MSMEs), fostering entrepreneurial climate, Infrastructure.*

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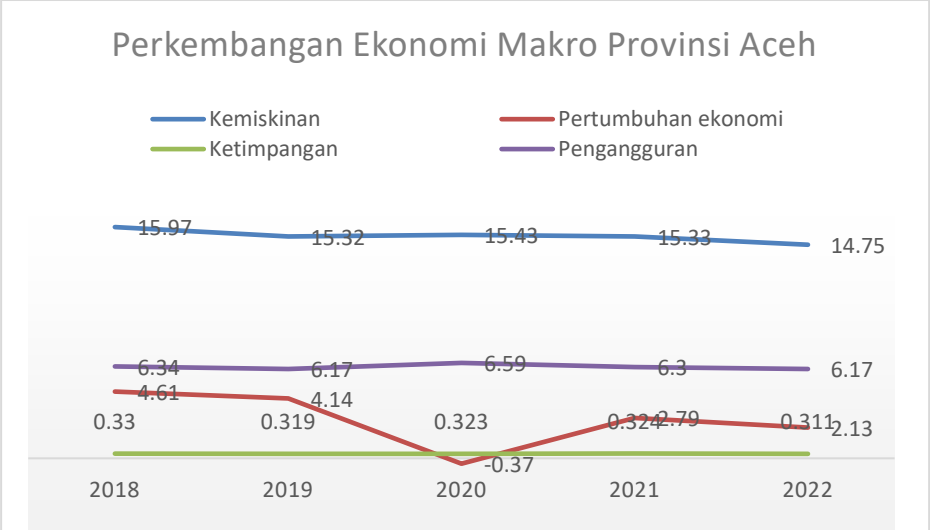
## Introduction

MSMEs play a significant role in the economic development of both regions and countries. The positive impact of MSMEs on economic development can create new opportunities for work and stimulate increased business, especially in the development of products and services. MSMEs that incorporate innovation can contribute to the expansion of employment opportunities, economic growth, and economic dynamics. (Keizer et al., 2001; Tambunan 2005). The government must proactively engage with MSMEs in various regions and extend diverse programs aimed at supporting their activities. This proactive approach is essential to enable MSMEs to capitalize on these initiatives and foster their development (Gupta & Nanda, 2015). Presently, it is evident, as reported by the Bank Indonesia MSME Development Department (2016), that the contribution of Indonesian MSMEs to the economy is notably lower compared to that of ASEAN countries. This disparity is particularly pronounced in terms of productivity, export contribution, added value contribution, and MSME involvement in global transactions.

The meager contribution of MSMEs, coupled with its stagnation, can be attributed to several factors, including limited access to financing, non-competitive market prices, restricted capacity to access information about market opportunities, intricate bureaucratic procedures in establishment, inadequate business operations and growth, suboptimal infrastructure conditions, ineffective institutional structures, and limited resources (Dewi & Mahendrawathi, 2019). To address these challenges and stimulate MSME growth, it is imperative for the government to initiate comprehensive interventions and create an enabling environment for their sustained development.

Graph 1. Macro Economic Development of Aceh Province




Source: BPS, 2022

In Graph 1 it is evident that the unemployment rate has exhibited fluctuations and has not demonstrated a significant decrease over the past four years. The average unemployment rate in Aceh Province stands at six percent. Micro, Small, and Medium Enterprises (MSMEs) serve as a vital source of employment for local residents facing challenges in securing formal sector employment. Gibson and Olivia (2010) stated that the rural non-agricultural economy, or non-agricultural entrepreneurship, is emerging as a substantial contributor to economic growth, job creation, livelihood diversification, and poverty alleviation in developing countries. MSMEs play a crucial role in mitigating unemployment and poverty by generating employment opportunities, thereby contributing to the enhancement of people's welfare and the alleviation of poverty. Furthermore, MSMEs have the potential to bolster the economies of their respective

villages by facilitating the circulation of money within the region. This, in turn, invigorates the local economy, fostering increased production of goods and services. The positive effects of this economic cycle resonate with local residents in rural areas, thereby elevating economic activity from the regional to the national level.

The proliferation of Micro, Small, and Medium Enterprises (MSMEs) in regional contexts affords a nation the opportunity to enhance its export capacity and global competitiveness, particularly in comparison with developed countries. Presently, MSMEs in developing countries encounter formidable challenges in sustaining economic viability, primarily attributed to insufficient government support. As posited by Gupta and Nanda (2015), a substantial proportion of MSMEs in developing and transitional economies struggle to harness the benefits of globalization, facing additional pressures, including foreign competition leading to lower prices for imported products, both in local and domestic markets. Consequently, there is a critical imperative for the government to diligently address the potential of MSMEs in fostering entrepreneurial endeavors within local communities. Governmental support may manifest through the establishment of facilitating institutions for MSMEs, accompanied by infrastructural provisions.

Regional governments play a pivotal role in shaping economic policies and influencing the trajectory of Micro, Small, and Medium Enterprises (MSMEs) within their jurisdictions. According to Yuliarmi and Marhaeni (2020), regional regulations enacted by local authorities can impose transaction costs, thereby diminishing the efficiency of economic activities. Elevated transaction costs resulting from governmental policies, along with diminished social capital, can impede the development of small industries. Empirical findings by Trisnawan and Yuliarmi (2021) reveal that infrastructure and investments exert a positive and significant impact on the proliferation of MSMEs, whereas transportation costs exhibit a negative and statistically insignificant effect on MSME numbers. This underscores the substantial influence of government institutions and infrastructure on fostering an environment conducive to the growth of MSMEs. As suggested by Gupta and Barua (2016), the government should stimulate and implement various measures, such as considering the relaxation of certain policies. These measures include offering tax cuts, facilitating access to affordable land, providing technology training for employees, and creating a supportive environment for the sustainable growth of MSMEs. Additionally, governments can extend tax benefits and subsidies to MSMEs, with many state governments offering tax breaks to encourage their expansion and development, along with providing training initiatives for the MSME workforce.

The government can adopt various measures to foster the development of Micro, Small, and Medium Enterprises (MSMEs). These measures include enhancing access to financing and financial facilities across regions, facilitating easy access to markets, improving community skills and knowledge through educational facilities, and ensuring seamless communication between the community and government. Additionally, the government can enhance the investment climate by streamlining licensing procedures, reducing bureaucratic hurdles, and alleviating administrative burdens for MSMEs. Simplifying these processes will facilitate the initiation, operation, and growth of MSMEs. To further support MSMEs, the government can establish partnerships with private sector entities, financial institutions, universities, and other organizations to offer technical assistance, facilitate market access, or provide financing to MSMEs. Such collaborations can contribute to the creation of an ecosystem conducive to the growth and development of MSMEs. As emphasized by Joseph Ng (2018), government support is essential for MSMEs, given their challenge of competing with larger multinational companies while operating within constraints of limited resources and economic production volumes.

Moreover, as noted by Khurana et al. (2019), eight factors determine the viability of MSMEs in conducting economic activities. These factors encompass government initiatives, mentorship guidance, company scale, financial resources, technology

utilization, collaboration abilities, entrepreneur capacity enhancement, and sustainable innovation. Government backing for MSMEs can manifest through targeted investments in infrastructure, specifically tailored to support MSME activities. Infrastructure investments may include the establishment of business centers, incubators, educational and health facilities, market accessibility, convenient proximity to government centers, and banking facilities, all aimed at fostering the robust development of MSMEs.

Aceh Province in Indonesia faces elevated levels of unemployment and poverty, stemming from historical conflicts between Acehnese community groups and the central government that persisted from 1957 to 2005. These conflicts were driven by demands for improved welfare due to prevailing inequalities in the region during that period (Hasballah, 2021). The onset of these conflicts coincided with the aftermath of the devastating Tsunami disaster that struck Aceh Province on December 26, 2004. Initiated by a magnitude 9.1 earthquake on the Richter scale, the earthquake and ensuing tsunami obliterated various aspects of life in Aceh, including economic infrastructure, education, physical and mental health, and community cohesion. The catastrophic event resulted in a death toll exceeding 230,000 people, with 500,000 people rendered homeless.

Samantha (2018) asserts that the direct and indirect impacts of natural disasters have profoundly detrimental effects on business activities and their continuity. The micro and SME sectors are particularly vulnerable in an economy significantly affected by disasters, given that MSMEs are relatively resource-limited and less resilient. The aforementioned disaster played a role in the escalation of conflict in Aceh Province, ultimately leading to a point of peace. The Helsinki Memorandum of Understanding (MoU) evolved into a peace agreement, symbolizing the understanding between the Government of the Republic of Indonesia and the Free Aceh Movement, signed in Helsinki, Finland on August 15, 2005. Consequently, as a result of this peace accord, Aceh Province obtained asymmetric decentralization in the form of special autonomy. Positioned as a middle-ground solution to achieve social welfare and resolve armed conflicts necessitating separation from the Independent Unitary State (Suharyo, 2018).

The realization of special autonomy for Aceh, encompassing infrastructure development, economic empowerment, poverty reduction, education, social programs, and healthcare, has not been fully achieved in attaining prosperity (Sanur, 2020). The designated period and amount of special autonomy funds allocated to Aceh indicate that the Special Autonomy Fund is applicable for 20 years, with the following details: (1) from the first year to the fifteenth year, the amount is equivalent to 2% of the national General Allocation Fund (DAU) ceiling, and (2) from the sixteenth to the twentieth year, the amount is equivalent to 1% of the national DAU ceiling (Badan Akuntabilitas Keuangan Negara 2020). It is anticipated that the utilization of special autonomy funds will bring about positive and substantial changes to the economy of Aceh Province, particularly in the realm of micro, small, and medium enterprises. This, in turn, is expected to generate employment opportunities and income for the residents of the region.

Following the conflict and tsunami disaster in Aceh, there were substantial changes in regional economic conditions. Over time, efforts for recovery and enhancement have been underway, focusing on the development of the Micro, Small, and Medium Enterprises (MSME) sector and the overall improvement of economic conditions. Key factors influencing Aceh's economic landscape and MSMEs post-conflict and tsunami include prioritized reconstruction and infrastructure development. The MSME sector assumes a crucial role in supplying goods and services for the reconstruction of destroyed infrastructure. Governmental support, coupled with assistance from international institutions, involves financial backing, training initiatives, and technical support directed towards MSMEs as integral components of post-disaster economic recovery initiatives. These programs aim to augment MSME capacity, facilitate market access, and fortify the sector as a whole. The combined support from the government, institutions, and society

has played a pivotal role in the reconstruction of the economy and the creation of opportunities for MSMEs in Aceh.

Institutions and infrastructure serve as the fundamental pillars for the advancement of the Micro, Small, and Medium Enterprises (MSME) sector in Aceh. The presence of MSMEs is anticipated to foster increased opportunities for local economic growth and enhance the welfare of the people of Aceh. Presently, there are apparent factors contributing to inadequate infrastructure conditions in Aceh, subsequently impacting MSMEs in the region. MSMEs in Aceh may encounter challenges in accessing the necessary financing for constructing, expanding, or improving business infrastructure. Insufficient knowledge and awareness regarding available financial resources, coupled with stringent criteria, pose obstacles to enhancing MSME infrastructure. Addressing these challenges necessitates collaborative efforts from local governments and stakeholders to formulate comprehensive and sustainable infrastructure development plans.

Villages in Aceh harbor potential in various sectors, including agriculture, fisheries, crafts, tourism, and other areas related to Micro, Small, and Medium Enterprises (MSMEs). MSMEs within these villages hold promise as sources of income and avenues for economic recovery, particularly for underprivileged village communities. By directing specific attention toward the development and empowerment of MSMEs in villages, employment opportunities can be generated, unemployment rates reduced, and poverty alleviated in the region.

MSMEs play a crucial role in diminishing reliance on the informal sector and jobs outside the region, thereby fostering opportunities for balanced growth across the Aceh region. Establishing economic centers in villages contributes to mitigating economic concentration in major cities and facilitates the development of economic potential in overlooked rural areas. To harness the full potential of MSMEs in villages, it is imperative to formulate policies and programs supportive of the MSME sector. Infrastructure becomes a pivotal focus, encompassing elements such as education, healthcare, accessible financing, streamlined market access, and easy interaction with governmental entities. Given the outlined context regarding MSMEs and the factors influencing them, the research questions in this article are:

1. Can the presence of impoverished individuals impede the expansion of small and medium enterprises?

2. Do institutions contribute to fostering an environment conducive to the proliferation of small and medium enterprises?

3. Can investments in education, healthcare, and economic infrastructure promote the growth of Micro, Small, and Medium Enterprises (MSMEs) in each village?

The objective of this research is (1) to investigate whether the existence of impoverished individuals influences the prevalence of MSMEs and to propose solutions for transforming individuals in poverty into income-generating entrepreneurs. (2) to ascertain the role of institutions in cultivating an entrepreneurial climate within each village. (3) to examine the impact of economic, educational, and health infrastructure in supporting the advancement of entrepreneurship in each village.

## Literature Review

An institution plays a role in facilitating entrepreneurship by providing infrastructure (Ebner, 2005). When political and economic institutions are structured to reward productive entrepreneurial activities and the creation of new innovations, long-term economic growth will occur (Elert et al., 2017). According to Williams (2017), institutional failure is related to the misallocation or inefficiency of resources, caused by a lack of modernization in government organizations and/or because formal institutions act

corruptly to protect or maximize economic benefits for elites rather than serving society at large. Misallocation and inefficiency of resources lead to a lack of redistributive justice, and governments that have not modernized tend to lack procedural justice. Consequently, institutions often provide benefits that primarily enrich the elites who support them politically and economically (Acemoglu & Robinson, 2012). Institutions have many functions, but among the most crucial are reducing uncertainty and providing meaning, which are significant factors for small and young companies. The presence of institutions can play a role in shaping the regulation, cognition, and culture of young entrepreneurs in micro, small, and medium enterprises (Busenitz et al., 2000).

Institutions must ensure the optimal provision of public services to Micro, Small, and Medium Enterprises (MSMEs) by facilitating easy access, thereby fostering the well-rounded development of these enterprises. Furthermore, institutions should contribute to the growth of human resources within MSMEs by providing essential infrastructure, including educational facilities, health services, and high-quality markets for product promotion. Previous research conducted by McNamara et al. (2017) and Wang et al. (2023) has highlighted the impact of various factors, such as information, legal, judicial, banking, social, tax, and regulatory infrastructure, on SME finance. The presence of robust banking systems, transparent information flows, and streamlined regulatory processes significantly influences SME finances, ensuring their sustained existence. Moreover, the study underscores the pronounced effect of financial development on SMEs' access to external funding, particularly in nations with robust investor protection, such as those following a common law system. In contrast, countries adhering to a civil law system exhibit less evident impacts, emphasizing the crucial role of the legal framework in facilitating SME financing. Policymakers should, therefore, consider strengthening investor protection to foster the growth and development of SMEs.

Yao & Liu's research (2023) demonstrates a negative and significant correlation between micro-enterprises and financial problems, highlighting the necessity for the government to persist in providing tailored financial assistance programs for SMEs. These programs should aim to facilitate access to working capital, bridge funding gaps, and support company survival during crises. The effectiveness of these initiatives is contingent upon their accessibility, simplicity, and responsiveness to the evolving demands of SMEs.

Moreover, Malik et al. (2012) posit that the effective transfer, diffusion, and development of market-based organizational learning capabilities significantly impact company quality. Education and political communication play pivotal roles in aiding the development and survival of small companies in the economy (Bengtson et al., 2009). Institutions rooted in specific geographical locations, focusing on education and innovation, contribute significantly to enhancing the performance of Micro, Small, and Medium Enterprises (MSMEs) (Audretsch et al., 2023). Furthermore, Timothy's (2022) research reveals that MSME owners with extensive experience prioritize technological innovation more than those with limited experience. Additionally, SME owners possessing higher educational qualifications achieve greater productivity than those with lower education levels, with marketing innovation partially mediating this relationship.

Empirical evidence on health dimensions was conducted by Gopang et al. (2017), and Unnikrishnan et al. (2015) discovered that occupational health and safety measures exhibit a positive correlation with MSME performance. Financial constraints, lack of awareness, resistance to change, and insufficient training for employees were identified as the primary obstacles for MSMEs. Institutional support, aimed at enhancing MSME capabilities and facilitating market access, can foster innovation in MSMEs (Zhang & Merchant, 2020).

In light of the aforementioned information, it becomes intriguing to examine the influence of poverty on the development of small and medium-sized businesses. Poverty reduction holds great significance in motivating individuals to achieve greater

independence and venture into businesses, particularly in the form of small and medium enterprises. Moreover, institutional openness significantly supports communities in initiating economic activities. The synergy between government and private institutions plays a crucial role in shaping the quality of society, enabling self-development in economic activities. Additionally, the presence of educational, health, and economic infrastructure contributes to the facilitation of MSMEs in developing their businesses, as it ensures that every necessary facility for the workforce is readily available.

Hypotheses:

a) Is it suspected that individuals facing economic hardships could impede the growth of small and medium-sized enterprises?

b) Do you believe that institutions play a significant role in fostering the proliferation of small and medium enterprises?

c) Is there a suspicion that the availability of education, health, and economic infrastructure can promote the growth of MSMEs in each village?

Research Objective:

This study aims to examine the significance of poverty alleviation in supporting the development of small and medium enterprises. Additionally, it seeks to investigate the role of institutions in providing essential services to the community, along with the impact of accessible educational, health, and economic infrastructure on supporting economic activities carried out by MSMEs in Aceh Province. This research contributes to the existing literature by exploring the role of institutions in providing infrastructure to enhance the economy led by MSMEs in Aceh Province. The contribution is crucial in reducing poverty levels and enhancing community productivity through direct involvement in economic activities in the form of MSMEs in Aceh Province.

## Methodology and Data

A panel data approach to econometric modeling, incorporating impact evaluation techniques, will be employed to investigate the infrastructure and institutions affecting micro and small industries in Aceh Province. This research utilizes raw data from the Aceh Province Village Potential Data Collection (PODES) released by the Central Statistics Agency (BPS) in 2011, 2014, and 2018. The analysis is conducted at the village level, with a household-level analysis unit. The study includes a sample of 23 districts/cities in Aceh Province, with a total of 19,488 observations from 6,514 villages. The research leverages a village potential census, providing insights into the potential and challenges of village development in Indonesia, specifically in Aceh Province.

Research Variables

In this study, the dependent variable is Micro and Small Industries (IKM), which is operationalized through the dataset representing the number of Micro and Small Industries. The independent variables include:

1. The number of individuals classified as impoverished, measured by the count of individuals receiving Jamkesmas/Jamkesda/BPJS health contribution assistance (PBI).
2. The quantity of public elementary schools within the village.
3. The quantity of State Middle Schools in the village.
4. The quantity of public high schools in the village.
5. Distance from the village to the nearest hospital.
6. The level of ease of access to hospitals.

7. Distance from the village to the health center.
8. The level of ease of access to Community Health Centers.
9. The number of Village Health Posts.
10. The number of health workers, encompassing doctors, nurses, midwives, and other relevant personnel.
11. Distance from the village office to the sub-district office.
12. Distance from the village office to the regent's office.
13. The number of permanent market establishments.
14. The number of markets without buildings.
15. The number of cooperatives in the village.
16. The number of bank facilities in the village.

Research Model Specifications

This research employs panel data regression analysis, with model specifications referencing those presented by (Rahayu et al., 2019), (Gujarati & Porter, 2009), (Baltagi, 2005), and (Hsiao, 2003). The research model used to analyze infrastructure and institutions for micro and small industries in Aceh Province is outlined as follows:

$$Y = \beta_o + \beta_1 X_1 + \beta_2 X_2 + \beta_n Xn + \varepsilon \text{ ..... } (3.1)$$

To enhance linearity between the dependent and independent variables, the equation undergoes the following transformation:

Formulated as:

$$IKM_{ij} = \beta o_{ij} + \beta 1\ Pov_{1ij} + \beta 2\ SD_{ij} + \beta 3\ SMP_{ij} + \beta 4\ SMA_{ij} + \beta 5\ JDRS_{ij\ ij} + \beta_6\ KARS_{ij\ ij} + \beta 7\ JDP_{ij} + \beta 8\ KAP_{ij} + \beta 9\ PKD_{\ ij} + \beta 10\ JTK_{0ij} + \beta_{11}\ KDC_{ij} + \beta_{12}\ KDB_{ij} + \beta 13\ JPP_{ij} + \beta 14\ JPTB_j + \beta 15\ JK_{ij} + \beta 16 JFB_{ij} + \varepsilon \ldots (3.2)$$

The definition of variables can be explained as follows:

| | | |
|---|---|---|
| IKM_ij | : | Number of micro and small industries (with a workforce of less than 20 workers) based on the main raw materials, in Units. |
| Pov_ij | : | Number of Poor People, proxied by the number of recipient communities receiving Jamkesmas/Jamkesda/BPJS health contribution assistance (PBI), represented as a percentage. |
| SD_ij | : | Number of Public Elementary Schools in the village, in units. |
| SMP_ij | : | Number of State Middle Schools in the village, in units. |
| SMA_ij | : | Number of public high schools in the village, in units. |
| JDRS_ij | : | Village Distance to Hospital, in km/hour. |
| KARS_ij | : | Ease of Access to Hospital, categorized as (1 = Very Difficult, 2 = Difficult, 3 = Easy, and 4 = Very Easy). |
| JDPS_ij | : | Distance from the village to the health center, in units of km/hour. |
| KAP_ij | : | Ease of Access to Puskesmas, categorized as (1 = Very Difficult, 2 = Difficult, 3 = Easy, and 4 = Very Easy). |
| PKD_ij | : | Number of Village Health Posts, in Units. |
| JTK_ij | : | Number of health workers (Doctors, Nurses, Midwives), in units. |
| KDC_ij | : | Distance from the village office to the sub-district office, in units of |

| | | |
|---|---|---|
| | | km/hour. |
| KDB_ij | : | Distance from the village office to the regent's office, in units of km/hour. |
| JPP_ij | : | Number of Permanent Market Presences, in units. |
| JPTB_ij | : | Number of Market Existences Without Buildings, in units. |
| JK_ij | : | Number of Cooperatives in the village, in units. |
| JFB_ij | : | Number of Bank Facilities, in units. |
| ε | : | error term. |
| | | |

This research employs panel data regression (panel pooled data), which is a combination of time series and cross-sectional data, capable of providing more information and thereby increasing the degrees of freedom. By merging time series data with cross-sectional data, it can address issues arising from omitted variables (Gujarati, 2009). In panel data regression, the use of Ordinary Least Squares (OLS) can establish conditions for the best linear unbiased estimator (BLUE) through the OLS method. However, when employing panel data OLS regression, the results obtained are generally not BLUE. In such cases, the generalized least squares (GLS) method is utilized.

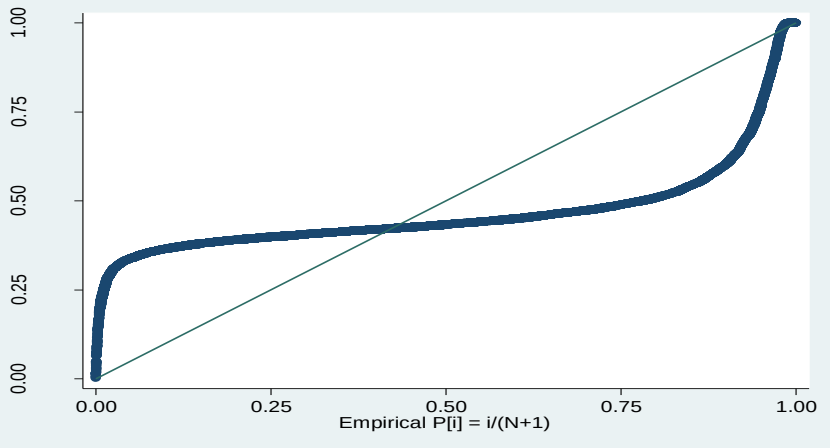
There are three approach techniques for utilizing panel data, namely the common effect model, fixed effect model, and random effect model. When selecting a model among these three, several testing techniques are necessary, including the F-test, Hausman test, and Lagrange multiplier (LM) test. The LM test becomes essential if the F-test results indicate that the common effects model is suitable while the Hausman test suggests a random effects model is appropriate (Widarjono, 2009).

## Research Findings

Classical Assumption Violation Testing

The normality test examines whether the residual values of the formed model adhere to a normal distribution. The concept of normality testing utilizes the Norm Probability Plot approach.

Figure 3.1. Results of Normality Test




Data Processing Results, (2023)

Based on the test results above, it can be observed that the distribution of points or residual data values follows a diagonal line. Therefore, it can be concluded that the data in this model is normally distributed.

The multicollinearity test involves examining the correlation values between independent variables. The results of the multicollinearity test, obtained by examining the correlation values between independent variables, are presented in Table 3.2 below.

Table 3.2 Multicollinearity Test Results

| Variable | VIF | 1/VIF |
|---|---|---|
| JDRS | 2.34 | 0.426518 |
| KDB | 2.00 | 0.499770 |
| KARS | 1.56 | 0.639026 |
| KAP | 1.40 | 0.714125 |
| JTK | 1.39 | 0.717578 |
| SD | 1.29 | 0.773394 |
| SMP | 1.25 | 0.798210 |
| Pov | 1.25 | 0.801834 |
| JDPS | 1.19 | 0.838513 |
| JDPS | 1.18 | 0.844669 |
| SMA | 1.16 | 0.858555 |
| JFB | 1.16 | 0.858887 |
| JPP | 1.03 | 0.972060 |
| JK | 1.03 | 0.972203 |
| PKD | 1.02 | 0.976060 |
| JPTB | 1.02 | 0.983650 |
| KDC | 1.00 | 0.995299 |
| Mean VIF | 1.31 | |

Data Processing Results (2022)

From that table, upon examining the correlation values among the independent variables, it is evident that none of the variables has a value greater than 7. Therefore, it can be concluded that the variables do not exhibit multicollinearity.

Heteroscedasticity typically arises in cross-sectional data due to the characteristics of panel data regression. Therefore, there is a possibility of heteroscedasticity occurring. Among the three panel data regression models, only CEM and FEM permit heteroscedasticity. The test employed in this research is the Glacier test.

Tabel 3.3 Result Heteroscedasticity Test

| Source | SS | Df | MS | | | |
|---|---|---|---|---|---|---|
| | | | | Number of obs | = | 19,488 |
| | | | | F(16, 19471) | = | 300.75 |
| Model | 1.0449e | 16 | 65304427 | Prob > F | = | 0.0000 |
| Residual | 4.2278e | 19,471 | 217135.35 | R-squared | = | 0.1982 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Adj R-squared | = | 0.1975 |
| Total | 5.2727e | 19,487 | 270.575934 | Root MSE | = | 465.98 |

Source: Data Processing Results (2023)

Based on the heteroscedasticity results, it is evident that the Prob>F value of 0.0000 is smaller than the α value of 0.05. Consequently, it can be concluded that there is a suspicion of heteroscedasticity in the data used in the regression. Next, the Autocorrelation Test is conducted to examine whether the regression model incorporates errors with confounding variables in Year T with residuals in Year T-1. The test employed is the Run Test. The Run Test results are as follows:

Figure 3.2 Autocorrelation Test Results

. *3. Conduct an autocorrelation test using the Runs test

runtest save_data_residual

N(save_dat~l <= -3.509182333946228) = 9744

N(save_dat~l > -3.509182333946228) = 9744

obs = 19488

N(runs) = 7581

z = -31

Prob>z = 0

Source: Data Processing Results (2022)

Based on the results of the autocorrelation test with the Run Test, the value of Prob>|z| is 0. Therefore, it can be concluded that autocorrelation occurs in the regression model.

Regression Model Testing

There are three analytical techniques for using panel data, namely common effects, fixed effects model, and random effects model. To select the appropriate model from the three techniques mentioned above, several tests need to be conducted, including the F test (Chow test) and the Hausman test. The estimation results using these three methods can be observed in the following table:

Tabel 3.4 Estimation Results with Common Effect, Fixed Effect, and Random Effect Models.

| Variable | CEM | FEM | REM |
|---|---|---|---|
| $Pov_{ij}$ | 0.005*** | 0.001* | 0.002*** |
| $SD_{ij}$ | 0.903*** | -0.242 | 1.063*** |
| $SMP_{ij}$ | -0.196 | 0.231 | 0.105 |
| $SMA_{ij}$ | 1.367* | 0.446 | 1.433* |
| $JDRS_{ij}$ | -0.070*** | 0.006 | -0.055*** |
| $KARS_{ij}$ | 0.249 | -0.010 | -0.034 |
| $JDPS_{ij}$ | 0.019 | 0.017 | 0.143 |
| $KAP_{ij}$ | 0.391 | 0.308 | 0.367 |
| $PKD_{ij}$ | 0.467 | 0.275 | 0.374 |
| $JTK_{ij}$ | 0.131*** | 0.024 | 0.0812** |

| | | | |
|---|---|---|---|
| $KDC_{ij}$ | -0.038 | -0.005 | -0.030 |
| $KDB_{ij}$ | -0.029** | -0.010 | -0.033*** |
| $JPP_{ij}$ | -0.124 | -0.076 | -0.104 |
| $JPTB_{ij}$ | 0.240 | 0.386 | 0.340 |
| $JK_{ij}$ | 0.412* | 0.150* | 0.348* |
| $JFB_{ij}$. | 0.034 | 1.217 | 0.751 |
| _cons | 4.628*** | 4.357*** | 4.648*** |
| N | 19488 | 19488 | 19488 |
| r2 | 0.037 | 0.002 | |
| r2_a | 0.036 | -0.50 | |

Source: Stata 14.2 Data Processing Results, 2023

Tabel 4.1 above still requires testing to choose the most appropriate model. In this test, the method used is the Chow Test between CEM and FEM, and the Hausman Test to choose between REM and FEM.

Model Selection in Panel Data Processing

The F test or Chow test is employed to compare the Common Effect Model (CEM) with the Fixed Effect Model (FEM), with the results as follows:

Tabel 3.5 Chow Test Results

Fixed-effects (within) regressionNumber of obs = 19,488

Group variable: Desa Number of groups = 6,514

R-sq: Obs per group:

Within = 0.0019 min = 1

between = 0.0201 avg = 3.0

overall = 0.0110 max = 3

F(17,12957) = 1.44

corr(u_i, Xb) = 0.0799 Prob > F = 0.1067

Source: Chow Test, processed using Stata 14.2 (2023)

The Chow Test is conducted with the hypothesis:

H0: Common Effects Model (CEM)

H1: Fixed Effects Model (FEM)

Based on the results from Table 3.5 of the Chow Test observed in the Fixed Effect model regression, the F-test and Chi-square values are significant (P > F = 0.1067), which is greater than the alpha value of 0.05. Therefore, H0 is accepted, and H1 is accepted. Thus, the CEM is preferable over the FEM model. Subsequently, in choosing the best model between the Fixed Effects Model (FEM) and the Random Effects Model (REM), the Hausman test is conducted. The results of the Hausman test are as follows:

Tabel 3.6 Hausman Test Results

Test: Ho: difference in coefficients not systematic

chi2(16) = (b-B)'[(V_b-V_B)^(-1)](b-B)

= 82.47

Prob>chi2 = 0.0000

Source: Hausman Test, processed using Stata 14.2 (2023)

The Hausman Test is conducted with the hypothesis:

H0: Random Effect Model (REM)

Ha: Fixed Effects Model (FEM)

Based on the analysis results, it can be concluded that the Chi-square value is 82.47 with a probability of 0.000 or smaller than the alpha value of 0.05 or 5 percent. Therefore, we accept Ha and conclude that the Fixed Effect Model is the best model. Based on the results of the Chow Test and the Hausman Test, it can be inferred that the Common Effect Model is the most suitable analysis technique for this panel data.

Regression Analysis Results

After obtaining the best model, which is using the Fixed Effect Model Weighted (FEM), hypothesis testing is conducted. The hypothesis testing involves t-tests, F-tests, and the coefficient of determination (R2) from the equation obtained from the data analysis results in Table 3.7.

Table 3.7 Regression Estimation Results for the Common Effect Model

| Source | SS | df | MS | Number of obs | = | 19,488 |
|---|---|---|---|---|---|---|
| | | | | F(16, 19471) | = | 46.29 |
| Model | 324.622.754 | 16 | 202.889.221 | Prob > F | = | 0.0000 |
| Residual | 8533559.68 | 19,471 | 438.270.232 | R-squared | = | 0.0366 |
| Total | 8858182.44 | 19,487 | 454.568.812 | Adj R-squared | = | 0.0359 |
| | | | | Root MSE | = | 20.935 |

| IKM_ij | Coef. | Std. Err. | t | P>t | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| Pov_ij | 0,005 | 0,001 | 14,79 | 0,000 | 0,004 | 0,005 |
| SD_ij | 0,903 | 0,249 | 3,63 | 0,000 | 0,416 | 139,075 |
| SMP_ij | -0,196 | 0,442 | -0,44 | 0,658 | -1,061 | 0,671 |
| SMA_ij | 1,367 | 0,603 | 2,27 | 0,023 | 0,185 | 2,549 |
| JDRS_ij | -0,071 | 0,011 | -6,19 | 0,000 | -0,093 | -0,048 |
| KARS_ij | -0,249 | 0,275 | -0,90 | 0,366 | -0,788 | 0,291 |
| JDPS_ij | 0,019 | 0,01 | 1,80 | 0,072 | -0,002 | 0,039 |
| KAP_ij | 0,391 | 0,283 | 1,38 | 0,167 | -0,163 | 0,946 |
| PKD_ij | 0,467 | 0,362 | 1,29 | 0,197 | -0,243 | 1,178 |
| JTK_ij | 0,131 | 0,026 | 4,98 | 0,000 | 0.079 | 0,182 |
| KDC_ij | -0,038 | 0,025 | -1,51 | 0,130 | -0,087 | 0,012 |
| KDB_ij | -0,029 | 0,009 | -3,28 | 0,001 | -0,046 | -0,012 |

| | | | | | | |
|---|---|---|---|---|---|---|
| JPP_ij | -0,124 | 0,107 | -1,16 | 0,246 | -0,333 | 0,085 |
| JPTB_ij | 0,240 | 0,331 | 0,73 | 0,468 | -0,408 | 0,888 |
| JK_ij | 0,412 | 0,179 | 2,30 | 0,021 | 0,061 | 0,762 |
| JFB_ij | 0,034 | 0,369 | 0,09 | 0,926 | -0,689 | 0,757 |
| _cons | 4,628 | 1,029 | 4,50 | 0,000 | 2,610 | 6,645 |

Source: Data Processing Results, (2022)

Partial significance tests (t-tests) are conducted to examine the influence of independent variables on the dependent variable at confidence levels between 90% and 95%. The results are as follows:

1. The number of poor people (P > |t| > Alpha value of 5 percent or 0.00 > 0.05) indicates that the number of poor people significantly affects micro and small industries at a 95% confidence level.

2. The number of Elementary Schools (P > |t| > Alpha value of 5 percent or 0.00 > 0.05) implies that the number of Elementary Schools significantly influences micro and small industries at a 95% confidence level.

3. The number of Junior High Schools (P > |t| > Alpha value of 10 percent or 0.658 > 0.1) suggests that the number of Junior High Schools does not significantly affect micro and small industries.

4. The number of Senior High Schools (P > |t| > Alpha value of 5 percent or 0.023 > 0.05) indicates that the number of Senior High Schools significantly influences micro and small industries at a 95% confidence level.

5. Distance from the village to the hospital (P > |t| > Alpha value of 5 percent or 0.000 > 0.005) signifies that the distance from the village to the hospital significantly affects micro and small industries at a 95% confidence level.

6. Ease of access to the hospital (P > |t| > Alpha value of 10 percent or 0.366 > 0.1) implies that ease of access to the hospital does not significantly affect micro and small industries.

7. Distance from the village to the health center (P > |t| > Alpha value of 10 percent or 0.072 > 0.1) suggests that the distance from the village to the health center significantly influences micro and small industries at a 90% confidence level.

8. Ease of access to the health center (P > |t| > Alpha value of 10 percent or 0.167 > 0.1) indicates that ease of access to the health center does not significantly affect micro and small industries.

9. Village health post (P > |t| < Alpha value of 1 percent or 0.197 > 0.001) implies that the village health post does not significantly affect micro and small industries.

10. Number of health workers (P > |t| > Alpha value of 5 percent or 0.000 < 0.005) suggests that the number of health workers significantly influences micro and small industries at a 95% confidence level.

11. Distance from the village office to the sub-district office (P > |t| > Alpha value of 10 percent or 0.130 > 0.1) implies that the distance from the village office to the sub-district office does not significantly affect micro and small industries.

12. Distance from the village office to the regent's office (P > |t| > Alpha value of 5 percent or 0.001 < 0.005) indicates that the distance from the village office to the regent's office significantly influences micro and small industries at a 95% confidence level.

13. Presence of a permanent market (P > |t| > Alpha value of 10 percent or 0.246 > 0.1) suggests that the presence of a permanent market does not significantly affect micro and small industries.

14. Number of market locations without buildings (P > |t| > Alpha value of 10 percent or 0.468 > 0.1) implies that the number of market locations without buildings does not significantly affect micro and small industries.

15. Number of cooperatives (P > |t| > Alpha value of 5 percent or 0.001 < 0.005) indicates that the number of cooperatives significantly influences micro and small industries at a 95% confidence level.

16. Number of bank facilities (P > |t| > Alpha value of 10 percent or 0.926 > 0.1) suggests that the number of bank facilities does not significantly affect micro and small industries.

A simultaneous significance test (F-test) is conducted to observe the simultaneous or joint influence of independent variables on the dependent variable at a confidence level of 95 percent. Based on the results of the regression test, the probability value of the F-statistic is 0.000, which is smaller than the alpha value of 5 percent, as 0.00 < 0.05. Therefore, it can be stated that infrastructure and institutions significantly influence small and medium industries in the Aceh Province.

Discussion

Based on the results of the regression estimation data above, an analysis is conducted to provide insights into the following research questions:

a. The impact of the existence of poor people on the growth of small and medium enterprises

The presence of poor people can influence the development of small and medium industries in each village of Aceh Province, as explained in the following regression results: the coefficient of the number of poor people (Povij) being 0.005 indicates that the number of poor people has a positive and significant impact on the number of small and medium industries. This implies that an increase in the number of poor people by one person results in a 0.5 percent increase in the number of small and medium industries.

The variable representing the number of poor people (Povij) was found to have a positive and significant impact on the number of small and medium industries in the villages of the Province. This indicates that small and medium industries tend to be situated in areas with higher poverty rates. Poor individuals, lacking the capital to start their own businesses, often find employment in small and medium enterprises (SMEs), receiving relatively low wages. SMEs, in turn, can utilize the available labor force from the pool of poor individuals. Besides providing cost-effective labor, individuals facing poverty often lack the freedom to pursue alternative employment opportunities, thus accepting low-wage work with a sense of resignation.

The regression results provide an answer to the first research question, contrary to the initially hypothesized relationship. The findings indicate that an increase in the number of poor people is associated with a rise in the number of MSMEs in each village in Aceh Province. It emphasizes the need for the government to focus on more targeted efforts to ensure that the presence of MSMEs contributes to the improvement of the welfare of the surrounding community, thereby reducing the prevalence of poverty in every village in Aceh Province. This study's results diverge from research by Hutajulu et al. (2021), which suggests that poverty is negatively influenced by small and medium industries. However, it is essential to underscore that poor people indeed have an impact on the development of small and medium industries. When poor individuals secure employment in the entrepreneurial sector, the growth of small and medium industries is fostered, providing these individuals with income and an opportunity to escape the poverty cycle.

B. The Role of Institutions in Increasing the Number of Small and Medium Enterprises

The role of institutions in increasing the number of small and medium enterprises (MSMEs) in each village consists of several variables as follows:

1. Distance from the village to the hospital (JDRS) with a coefficient of -0.071 indicates that the distance from the village to the hospital has a negative impact on the number of small and medium industries. This implies that a 1 km/hour decrease in the distance from the village to the hospital will result in a 7.1 percent increase in the number of small and medium industries.

2. Ease of access to the hospital (KARSij) with a coefficient of -0.249 suggests that ease of access to the hospital has a negative influence on the number of small and medium industries, although it is not statistically significant.

3. Distance from the village to the health center (JDPSij) with a coefficient of 0.019 illustrates that the distance from the village to the health center has a positive impact on the number of small and medium industries. This means that a 1 km/hour decrease in the distance from the village to the health center will result in a 1.9 percent increase in the number of small and medium industries.

4. Ease of access to the health center (KAPij) with a coefficient of 0.391 indicates that ease of access to the health center has a positive influence on the number of small and medium industries, although it is not statistically significant.

5. Distance from the village office to the sub-district office (KDCij) with a coefficient of -0.038 suggests that the distance from the village office to the sub-district office has a negative impact on the number of small and medium industries, although it is not statistically significant.

6. Distance from the village office to the regent's office (KDBij) with a coefficient of -0.029 illustrates that the distance from the village office to the regent's office has a negative impact on the number of small and medium industries. This means that a 1 km/hour decrease in the distance from the village office to the regent's office will result in a 2.9 percent increase in the number of small and medium industries.

Based on the explanation above, the variable "Distance from the village to the hospital" (JDRS) has a significant negative impact on the number of small and medium industries in the villages of Aceh Province. This indicates that the distance from the village to the hospital affects the presence of small and medium industries. The presence of a hospital near the village has the potential to become a center for economic growth due to its numerous economic activities and transactions. Consequently, small and medium industries may emerge to meet the needs of the community around the hospital. It is highly relevant that the distance from the village to the hospital has a significant negative impact on the number of small and medium enterprises. Thus, the government needs to carefully select locations for the development of public facilities with multiplier effects in the economic sector.

The variable "Distance from the village to the health center" (JDPSij) has a significant negative impact on the number of small and medium industries in the villages of Aceh Province. This suggests that the farther the distance from the village to the health center, the fewer the number of small and medium industries in that village. This illustrates that besides public facilities, health and occupational safety facilities are crucial for the sustainability of business activities. Workers facing health issues during work can promptly visit health facilities such as health centers. This leads to an increase in the number of small and medium industries if there are more health facilities in each village in Aceh Province.

The variable "Distance from the village office to the regent's office" (KDBij) has a significant negative impact on the number of small and medium industries in the villages

of Aceh Province. This indicates that the closer the village is to the regent's office, the faster the administrative processes for the business activities of small and medium enterprises (MSMEs). Thus, the number of MSMEs increases when they are closer to the regent's office, which serves as the center of government. The effectiveness of using technology to handle administration to support activities is estimated to be ineffective because the number of MSMEs located further from the regent's office is higher compared to villages closer to the regent's office. In the pursuit of economic equality, the government institutions need to play a role in facilitating administrative access without discriminating based on the distance between villages.

C. The role of education, health, and economic infrastructure can promote the growth of Micro, Small, and Medium Enterprises (MSMEs) in every village.

As for the role of education, health, and economic infrastructure in driving the growth of MSMEs in each village, it consists of several variables as follows:

1. The number of Elementary Schools (SDij) at 0.903 illustrates that the number of elementary schools has a positive influence on the number of small and medium industries. This means that an increase in the number of elementary schools by 1 unit will result in an increase in the number of small and medium industries by 90.3 percent.

2. The number of Junior High Schools (SMPij) at -0.196 indicates that the number of junior high schools has a negative impact on the number of small and medium industries, but it is not statistically significant.

3. The number of Senior High Schools (SMAij) at 1.367 describes that the number of senior high schools has a positive influence on the number of small and medium industries. An increase in the number of senior high schools by 1 unit will lead to an increase in the number of small and medium industries by 136.7 percent.

4. The presence of village health posts (PKDij) at 0.467 illustrates that the number of village health posts has a positive impact on the number of small and medium industries, but it is not statistically significant.

5. The number of health workers (JTKij) at 0.131 depicts that the number of health workers has a positive influence on the number of small and medium industries. An increase in the number of health workers by 1 unit will result in an increase in the number of small and medium industries by 1.31 percent.

6. The presence of permanent markets (JPPij) at -0.124 indicates that the presence of permanent markets has a negative impact on the number of small and medium industries, but it is not statistically significant.

7. The number of locations without building markets (JPTBij) at 0.240 illustrates that the presence of markets without buildings has a negative impact on the number of small and medium industries, but it is not statistically significant.

8. The number of cooperatives (JKij) at 0.412 describes that the number of cooperatives has a positive influence on the number of small and medium industries. An increase in the number of cooperatives by 1 unit will lead to an increase in the number of small and medium industries by 41.2 percent.

9. The number of bank facilities (JFBij) at 0.034 illustrates that the number of bank facilities has a positive impact on the number of small and medium industries, but it is not statistically significant.

Based on the explanation above, the variable "Number of Elementary Schools" (SDij) has a positive and significant impact on the number of small and medium industries in the villages of Aceh Province. This indicates that basic education facilities play a crucial role in providing individuals with essential knowledge, motivating them to become entrepreneurs rather than remaining inactive or discontinuing their education. This aligns

with the findings of research by Putra & Yuliarmi (2021), which suggests that education has a positive and significant effect on the income of MSME business actors. Education is recognized as a vital factor influencing income, providing individuals with knowledge, skills, noble character, and personality development necessary for themselves and society. Elementary school facilities, besides serving as educational centers for future generations, can act as hubs for selling locally produced goods, with children as potential consumers. Therefore, the presence of school facilities significantly contributes to economic development and triggers the growth of MSMEs around schools.

On the other hand, the variable "Number of SMA" (SMAij) has a negative and significant impact on the number of small and medium industries in the villages of Aceh Province. This implies that individuals face a choice between pursuing education or initiating a business, resulting in villages with high school facilities having fewer MSMEs. This finding contrasts with research conducted in China by Bu et al. (2023), which identified policy support and education from school institutions as two key factors shaping entrepreneurial intentions among young people. Educational institutions play a vital role in encouraging entrepreneurship and innovation among the younger generation. Furthermore, educational institutions can focus on developing human, social, and psychological capital, fostering entrepreneurship, and tolerating failure in business ventures. In summary, the interaction between educational institutions and MSME development is integral, where the growth of MSMEs is significantly influenced by innovations rooted in knowledge, particularly at the high school level.

The variable "Number of Health Workers" (JTKij) has a positive and significant impact on the number of small and medium industries in the villages of Aceh Province. This indicates that MSMEs will be more productive when health and occupational safety are ensured by the government. One form of support for the health and occupational safety of entrepreneurs is the presence of a certain number of health workers in each village. Therefore, an increased number of health workers in each village alleviates entrepreneurs' concerns about the effectiveness and efficiency of time and finances when facing health conditions. This result is consistent with the research of Dinh et al. (2020), stating that investing in health and environmental standards can enhance the wages of workers in small and medium enterprises (MSMEs) in Vietnam. Furthermore, certified SMEs are more likely to provide non-monetary benefits to their employees, such as paid sick leave, health insurance, social benefits, accidents, and formal contracts. These impacts stem from higher profitability, greater labor productivity, government financial support, and lower competition levels when companies adopt environmental standards. This emphasizes the crucial need for an adequate number of health workers in each village for continuous growth in MSMEs.

The variable "Number of Cooperatives" (JKij) has a positive and significant impact on the number of small and medium industries in the villages of Aceh Province. This implies that cooperatives contribute to increasing the number of small and medium industries in each village. Cooperatives can serve as an appropriate social capital platform for MSMEs to develop and sustain themselves in the local economy due to intense competition. This finding aligns with the research of Ghauri et al. (2023), stating that members and managers agree that cooperatives provide networking opportunities for members to talk, share information, and knowledge through social/community events. SME members can view each other as a community with shared goals rather than competitors. This allows the network to be more directed in building long-term relationships and simultaneously becoming collective owners of the cooperative. Cooperatives, apart from economic purposes, can facilitate networking events to enable SME members to engage in communication to enhance strength in relationships manifested through social capital networks. The presence of cooperatives is highly necessary to boost the number of small and medium industries in every village of Aceh Province.

## Conclusion

Based on the estimation and analysis results, several conclusions can be drawn as follows:

a. Small and medium industries are influenced by factors such as the presence of poor populations, institutions, and village infrastructure. It is evident that the number of poor people has a significant impact on the number of MSMEs. Institutions, comprising variables like the distance from the village to the hospital, the distance from the village to the health center, and the distance from the village office to the regent's office, contribute to influencing the number of MSMEs. Additionally, infrastructure factors, including the number of elementary schools, the number of high schools, the number of health workers, and the number of cooperatives, also play a role in determining the number of MSMEs. Other independent variables, however, do not exhibit a significant effect on the number of MSMEs in villages in Aceh Province.

b. The presence of poor people leaves them with limited options, compelling them to become workers in small and medium enterprises (MSMEs) due to a lack of capital to start their own businesses. Consequently, they receive relatively low wages, which can be sustained by MSMEs.

c. Health institutions, such as hospitals and community health centers, located in close proximity to villages have the potential to become centers of economic growth, given their numerous economic activities and transactions. Hence, it is noteworthy that the distance between the village and the hospital has a negative and significant influence on the number of MSMEs. These institutions, besides serving as public facilities, offer opportunities to become centers of growth. Workers facing health issues during work can promptly access health facilities like community health centers. Regarding government institutions, villages closer to the regent's office experience faster administrative procedures for small and medium business activities. However, the anticipated effectiveness of using technology in administrative management to support activities is deemed less effective, considering the distance of MSMEs located farther from the regent's office compared to those in villages nearby.

d. Basic education infrastructure is crucial for individuals to acquire fundamental knowledge and be motivated to pursue entrepreneurship rather than disengaging from education. The existence of elementary school facilities serves not only as a gathering place for the next generation to acquire knowledge but also functions as an integral part of the local economy, allowing for the sale of goods produced within the school and turning children into consumers. Essentially, school facilities significantly contribute to economic development, meeting educational needs while stimulating the growth of small businesses around schools. Educational institutions play a vital role in fostering entrepreneurship and innovation among the younger generation. Additionally, they can focus on developing human, social, and psychological capital to encourage entrepreneurship and cultivate resilience in the face of entrepreneurial failure. This underscores the interconnectedness of educational institution development and MSMEs. The growth of MSMEs is closely tied to innovations, with knowledge from educational institutions, particularly at the high school level, being a primary source of innovation. Furthermore, the presence of health workers is essential for SME development. MSMEs become more productive when occupational health and safety are assured by the government. The existence of health workers in each village supports the health and safety of entrepreneurial work.

e. This research contributes to the examination of small and medium industry development, considering the influence of the number of poor people, institutions, and infrastructure. This examination is based on village-level data from 2011, 2014, and 2018 in Aceh Province, a perspective not explored by previous researchers.

f. The weakness of this research lies in its lack of yearly data, hindering a detailed explanation of small and medium industry development. Additionally, the use of a static panel data analysis tool limits the depiction of the dynamic development of small and medium industries. The research did not test the model's robustness.

g. The analysis model employs static panel data regression. Considering the longitudinal nature of the data, further development using a dynamic analysis model, such as the Generalized Method of Moments (GMM) or other approaches, is recommended.

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