



THE URGENCY OF MARKET SIZE EVALUATION AND PRODUCT DIVERSIFICATION: EVIDENCE FROM THE BRICK INDUSTRIES IN BIREUEN REGENCY

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ARTICLE INFO

Article history:

Received

Received in revised form

Accepted

Available online

Keywords:

Market Size; Product Diversification;
Brick Industries; Bireuen Regency.

ABSTRACT

The brick industry in Bireuen Regency has grown and developed as a home-based business. The average lifespan of these businesses is more than 3 years. The fixed cost burden borne is relatively low where the industrial location area is owned by the company. This shows that the brick business is relatively easy if it want to entry the market, especially in Bireuen. The purpose of this study is to highlight market size and product diversification as important aspects to be reviewed in an effort to develop the brick industry leading to a more profitable business venture in Bireuen Regency. This research was conducted using experimental-based primary data obtained from 199 business units in the Peusangan, Kota Juang, and Jeumpa sub-districts as production centre areas. The methods of data and analysis with using the approaches; (i) Total Addressable Market (TAM), (ii) Serviceable Available Market (SAM), and (iii) Share of Market (SOM). Research shows that each brick business controls less than 2 percent of the market share. To expand the market size to the Regency's Pidie Jaya and Bener Meriah, and even to Aceh Tengah and Pidie Regencies, it is necessary to diversify brick products by offering a variety of sizes and textures and adding additives. Thus, the brick industry has a competitive advantage over other products, such as lightweight bricks or concrete blocks.

1. Introduction

The main indicator commonly used to measure the extent of economic progress in a region can be seen through Gross Regional Domestic Product (GRDP) data. The contribution of various economic sectors to a region's total GRDP comes from the agricultural sector, the manufacturing industry, and the services sector. GRDP growth obtained over time reflects the condition and level of progress of economic activity. Bireuen Regency, is one of the regions in Aceh Province. Since October 12, 1999, it has become an autonomous region as a result of the division of North Aceh Regency. According to

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<https://doi.org/10.56806/jh.v6i2.251>

(BPS, 2024), Bireuen Regency's economic growth over the past five years has increased and is above 4.5 percent on average per year.

Geographically, Bireuen Regency has a strategic location, bordered by 3 (three) other regencies, namely; Pidie Jaya, Aceh Utara, and Bener Meriah and is a market destination area. This certainly represents a market potential that can be achieved through the development of various types of community businesses such as the brick industry. Market size is determined based on the percentage of the controlled market share ratio, usually calculated from the number of products based on consideration of certain characteristics (Régnier & Ridley, 2015). It should be noted that almost all brick (red brick) industrial businesses in Bireuen Regency are types of individually owned manufacturing businesses concentrated in 3 sub-districts. The existence of red brick industrial businesses in Bireuen is relatively large when compared to other regencies in Aceh Province. However, the distribution of these businesses is not evenly distributed, and is only concentrated in (i) Peusangan Sub-district, (ii) Kota Juang Sub-district, (iii) Jeumpa Sub-district. (Cramer in Mukhlis et al., 2024) stated that the Concentration Ratio is the sum of the highest market shares achieved by four industries in a region.

Although the industrial sector is not a leading contributor to Bireuen Regency's GRDP, the red brick industry (due to its unique characteristics) still adds value to the local economy. Therefore, this industry is known as a type of business that creates jobs for women in Bireuen Regency, who generally have little education (Dilham et al., 2019). On the other hand, the brick industry is a type of business that requires readily available raw materials and is mobile. However, the production methods and technology used are still very rudimentary, and product innovation is relatively low. Brick business development in Bireuen needs to be continuously improved along with market expansion efforts. Ultimately, the Bireuen region is expected to gain a market advantage based on its geographic location.

The growth of the red brick business in Bireuen Regency offers promising economic prospects if the market can be penetrated. The relatively long-term survival of the business can be used as an indicator of its stability (Shakir et al., 2018). On average, each brick business has been operating for more than five years. In Bireuen Regency, in particular, the red brick business has been able to survive market competition. Therefore, analyzing the market scale of the brick industry is an interesting topic for further study, even though production centers are limited to a few specific areas.

The most important things to pay attention to in developing an industrial business are market, marketing and competition aspects (Hanuarsyah & Susena, 2024). According to (Basalamah et al., 2018), We can distinguish two types of competitive systems: perfect market competition and imperfect market competition. Characteristics of a perfect market include the availability of complete information and a large number of producers. The number of buyers and sellers, product diversity, market share, and barriers to entry and exit determine the type of market. Certain parties cannot manage the market in a perfectly competitive system. Meanwhile, in imperfect competition, there are no competitors, for example, in a monopoly market. Market structure is influenced only by a particular industry and is unique. Various forms of decision-making can be implemented by industries that control full market share (Basalamah et al., 2018). Meanwhile, in a monopolistic competitive market, the market structure is a combination of pure competition and monopoly. Manufacturing industries have the freedom to enter the market.

Every market is limited by two dimensions: product type and geographic market. In fact, the brick industry has the freedom to enter any market it chooses. This implicitly indicates that potential market demand is expected to be high. The question is, does this still apply to the brick industry in Bireuen Regency? This requires careful consideration, as the ability to expand market share by offering a diverse range of products presents both opportunities and challenges in meeting consumer

needs in the construction sector. Another economic challenge frequently faced by all businesses is market competition among producers. The sheer number of business units contributes to a competitive market. Achieving optimum efficiency through production techniques is essential for gaining market share and facing competition.

Furthermore, marketing is crucial for achieving success in the manufacturing industry. Industry behavior and performance reflect the competitive business climate and the level of efficiency achieved within the market system through innovation and technological methods implemented by each industry. This research was conducted to explain the market share of the brick industry, both individually and as a group. This low market share encourages businesses to diversify their products to avoid monotony in consumer choices. This will ensure the sustainability of the brick industry and increase the expected total revenue. (Shakir et al., 2018).

2. Literature Review

Market structure is a market condition that displays market aspects that can have a significant influence on the realization of industrial market behavior, which ultimately leads to manufacturing industry performance. The main key to forming a market structure lies in market share as the initial determining element (Régnier & Ridley, 2015). Furthermore, market concentration is an element of market structure that can influence behavior and the level of competition within the market. High levels of market concentration, or concentration in a particular region, create greater power for the manufacturing industry, and the market system often operates imperfectly.

The concept of market size refers to the potential sales of a product or the magnitude of demand over a given period. A larger market size can generate higher profit (Gonzalez-Benito et al., 2005). Understanding market size is crucial for business decision-making, marketing strategy, and product development. Steady profits will make a business more attractive. The market share of other manufacturing industries is a key consideration for competitiveness.

On the other hand, the distribution of production factors, such as raw materials, in a perfectly competitive market is easily shifted. Therefore, the development and presence of new industrial ventures offers significant opportunities in the brick industry. If substitute raw materials or other products are unavailable, this leaves a particular industry as the market price setter. Monopoly market product pricing tends to exploit the market and often leads to waste, even if other economic factors change (Basalamah et al., 2018). In response to wasteful behavior that can harm consumers and the wider community, the government is expected to intervene in the monopoly market system as a form of protection for the community.

If the products offered have product diversity and innovation (Zahara & Suci, 2024). Thus, producers have less power to influence the market. As a result, the market system operates more efficiently and market performance is more secure. The presence of various industries, each with diverse product offerings and unique characteristics, provides consumers with a wide range of choices. (Basalamah et al., 2018). Despite the diversification of brick products, they still have the same functionality as other products. This will create a more competitive market and increase the opportunity to capture market share and expand the market.

3. Methodology

This research is a qualitative descriptive study interpreting data and information obtained from brick (red brick) industries in Bireuen Regency. Data collection was conducted through in-depth interviews and supported by literature-based information relevant to the research topic, based on experiments and field observations. This study involved three steps: 1) collecting primary information and data regarding market size, 2) critiquing data sources based on experimental observations, 3) projecting research results, and 4) formulating evaluations, analyses, and recommendations.

The number of brick industries observed was 199 in the Peusangan, Kota Juang, and Jeumpa Sub-districts of Bireuen Regency, based on purposive sampling. The characteristics of the brick industry are homogeneous and generally use clay as the primary raw material. Therefore, stratified sampling was not necessary. The method for calculating and analyzing market size refers to several approaches: (i) Total Addressable Market (TAM), which is a market size that includes all potential consumers of brick products without considering geographic boundaries. (ii) Serviceable Available Market (SAM) is the portion of the TAM that can be reached by a brick business with existing resources and capabilities. (iii) Share of Market (SOM) is the percentage of total brick sales in the market controlled by the industry unit. (Régnier & Ridley, 2015).

4. Results and Discussion

4.1 Data Distribution

The brick industry offers promising profits for businesses in Bireuen Regency. The region boasts abundant natural resources, including clay, the primary raw material for brick production. This natural resource is relatively scarce in neighboring regencies, including Pidie Jaya and Bener Meriah. This presents significant opportunities for brick industry development in Bireuen Regency. However, the use of traditional technologies and production methods often results in a product being unable to compete effectively with similar products. (Shakir et al., 2018). For example, products offered in the construction sector other than bricks include lightweight bricks or batako (clay blocks). Lightweight bricks and batako are common construction materials used for wall construction. So that, the identification and business profile of the brick industry in Bireuen Regency can be seen in Figure. 1a and Figure. 1b below:



Fig. 1 (a) Activities brick industry, (b) Activities brick industry
 (Source: Result of research, 2025.)

Based on observations in Figures. 1a and 1b, the brick industry in Bireuen Regency is predominantly home-based and operated by individuals. Most brick businesses are classified as small-scale and home-based industries. The workforce is predominantly middle-aged women. These

businesses thrive in rural areas close to densely populated settlements. The strategic location of these businesses, allowing easy access for consumers, has led to the spread of the brick industry across three sub-districts: Peusangan, Kota Juang, and Jeumpa. In general, the kiln equipment used consists of logs and tree branches found in the forests, as shown in Figure 1b above. This contrasts with the brick industry in India, which uses coal as a kiln (Abbas et al., 2023).

The brick industry, particularly in Bireuen, continues to thrive despite the emergence of new building materials. Brick products are used to meet construction needs, such as for homes, shops, and government and private buildings. The primary raw material for brick making is clay. Some industries own land that produces clay, while others obtain it from suppliers. The brick-making process involves molding and firing the clay until it hardens. The use of relatively simple technology, low product innovation, and a tendency for inefficiency present challenges for the brick industry, particularly in efforts to expand market share. This contrasts with the lightweight brick and concrete block industries, which also thrive in areas with low-quality clay. Both businesses, while competing, also provide common building materials for walls. The lightweight brick industry uses more complex materials, which are easier to obtain and process through the development of more sophisticated technology (Haque, 2017).

The production capacity and market size obtained by the 199 brick industries studied are presented in Figure. 2a and Figure. 2b as follows;

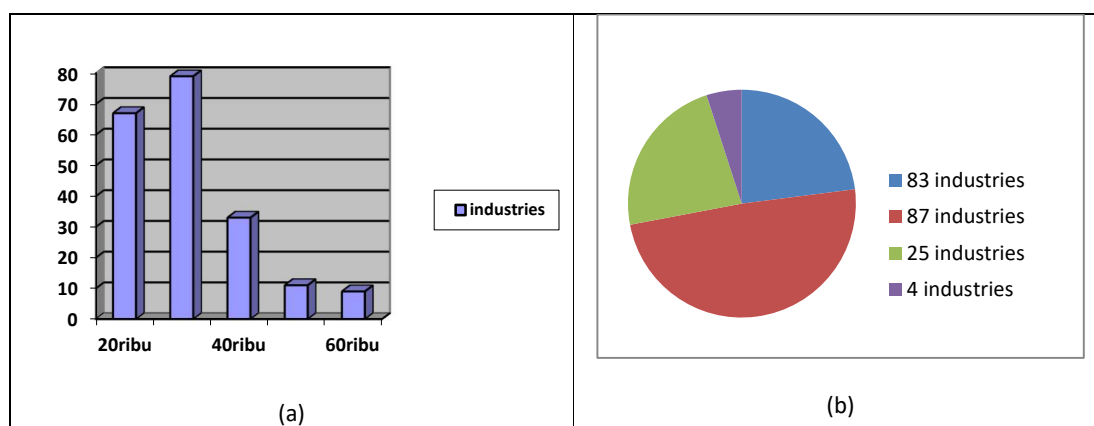


Fig. 2 (a) Capacity of product (b) Share of market
 (Source: Result of research, 2025)

Figure 2a shows that the brick production capacity of the industry ranges from 20,000 to 60,000 bricks. The large number of industrial units indicates that the brick industry operates in a monopolistic market. There are 146 industries with a production capacity of only 20,000–30,000 bricks. Meanwhile, 53 business units have a relatively large production capacity of 40,000–60,000 bricks. Figure 2b shows the market share controlled by a group of industries. 87 industries control a market share of approximately 49 percent with an average production intensity of 300,000 bricks. Only 4 brick industries produce an average production of 700,000 bricks with a market share of 5 percent. This indicates that the brick industry market in Bireuen is monopolistic competition market. Each industry holds less than 2 percent of the market share, and no single company dominates the market.

4.2 Discussion

The brick production centers in Bireuen Regency are located in the Peusangan, Kota Juang, and Jeumpa sub-districts. These three sub-districts are located in the central part of the regency, with a bustling population and economic activity. Nearly 40 percent of Bireuen's population resides in these sub-districts. The demand for bricks, particularly in Bireuen, is significant and correlates with the rapid growth in the number of permanent buildings in the construction sector (Gupta, 2018). Bireuen Regency, with an area of 1,796.32 Km², represents a spatial market potential that the brick industry must optimally utilize. The increasing construction of various types of buildings, such as houses, shops, and offices, indicates that the demand for bricks is increasing over time (Shakir et al., 2018).

The availability of key raw materials for the brick industry in Bireuen provides a market advantage in meeting construction and building needs. The further, understanding market size is crucial because it helps businesses identify target markets and allocate resources effectively and efficiently. Market reach needs to be expanded to include Pidie Jaya and Bener Meriah Regencies, and even to Aceh Tengah and Pidie Regencies. These areas are known to have limited brick production capacity. Market size must encompass all potential consumers, regardless of geographic boundaries.

Total brick production by 199 business units is 53,850 million bricks per production cycle. This figure is expected to increase with economic growth and development in each region (Gupta, 2018). When the intensity of brick production can be increased, the industry's competitiveness would improve and its ability to influence the construction market would be further enhanced. This finding, which shows that no manufacturer is able to achieve a market share above 2 percent, is a characteristic of a monopolistic market, allowing each brick industry to compete and develop product innovation (Hizazi et al., 2024). A large market size is one factor that can increase profit potential. Businesses need to understand the relationship between market size and profitability to make informed strategic decisions (Gonzalez-Benito et al., 2005). However, profits do not only depend on market size, but also on other factors, such as selling price, fixed production costs, and operational cost efficiency.

Although brick businesses in Bireuen can survive for more than three years, this is not due to high profit margins. However, fixed production costs are very low, with production areas generally owned by the company. This makes the brick industry very easy for entrepreneurs to run. Brick production activities occur when orders are received from customers. To maximize the utilization of the potential resources in Bireuen Regency, both geographically and demographically, entrepreneurs need to take steps to develop the brick industry, leading to sustainable business ventures through the creation of innovative and diverse products (Wilujeng & Fauzan, 2016).

The brick industry has long been established in Bireuen. However, diversification of brick products is still rare. Product sizes are standardized, and this applies to almost all business units. Ideas for diversifying brick products beyond rectangular shapes include creating trapezoidal, triangular, or other shapes for unique design applications on building walls. Adding additional materials such as rice husk ash to brick production can improve weather resistance and reduce water absorption (Bilgin et al., 2021). To face products from competitors, the brick industry can develop derivative products from bricks for decorative elements.

Market expansion efforts to other regions, including Pidie Jaya and Bener Meriah, are urgently needed. Success will be achieved if business actors are willing to improve production methods and increase product innovation by offering attractive and more elegant products, both in terms of texture, size, and quality. Ultimately, this will be able to replace products with similar functions, such as lightweight bricks and concrete blocks. Developing a more innovative and inventive brick industry

requires the involvement of stakeholders, including the government, educational institutions, the private sector, and the entrepreneurial spirit of brick industry players.

In principle, the necessary government support and policies are directed at organizing accommodating economic activities. Specifically, program policies that encourage the creation of a business climate in the brick industry need to be formulated to facilitate access to financing institutions, the use of innovative technologies, and market expansion. Thus, the role of the small and home industry sector (particularly the brick industry) can make a more strategic contribution to realizing the structure of the Regional Gross Domestic Product (J. Khaja Mohinuddeen, 2023).

5. Conclusions

The brick industry plays a vital role in improving community welfare by providing jobs, increasing workers' incomes, and contributing to regional Gross Domestic Product (GRDP). This industry utilizes clay as its primary raw material, which is then fired to produce products for the construction sector. The growth of economic activity across various sectors has stimulated the interest of brick entrepreneurs in expanding their businesses, with the hope of sustainability. The primary raw material, clay, is abundant in Bireuen Regency. Clay can be easily obtained near brick production sites or transported from nearby locations. Easy road and transportation access are key advantages, rare in other areas, for the continued development of the brick business.

The market share controlled by each brick business unit is less than 2 percent, resulting in suboptimal profits. Relatively low fixed production costs and operational efficiency, particularly in Bireuen Regency, hinder the industry's continued operations. To expand market share and increase profitability, brick entrepreneurs need to evaluate market share and develop competitive product quality by offering innovative products. Diversification of brick industry products such as creating variations in shape and size, adding additives, and developing brick derivative products needs to receive attention from the government, educational institutions, including brick business actors in the Bireuen Regency area.

References

- Abbas, A., Sajid, M. B., Sajid, J., & Ahmed, N. (2023). Forecasting Environmental and Social Benefits of Adopting Cleaner Technologies in Indian Brick Manufacturing Industry. *Energy for Sustainable Development*, 72, 202–211.
- Basalamah, M. R., Athia, I., & Jannah, M. (2018). STRATEGI PEMASARAN YANG TEPAT GUNA DALAM MENGHADAPI PERSAINGAN PASAR UMKM Muhammad. *Jurnal Ketahanan Pangan (JU-Ke)*, 2(2), 190–197.
- Bilgin, N., Yeprem, H. A., Arslan, S., Bilgin, A., Günay, E., & Mars, M. (2021). Use of Waste Marble Powder in Brick Industry. *Construction and Building Materials Journal*, 29, 449–457.
- BPS. (2024). Pertumbuhan Ekonomi Kabupaten Bireuen. bps.go.id/ diakses pada Maret 2025.
- Mukhlis, Musrizal, Nova, & Akbar, N. (2024). What are the Market Types and Barriers to Entry for the Brick Industry in Bireuen Regency, Province of Aceh ? : Emperical evidence based on the SCP approach and CR4 Analysis. *Proceeding, MICESHI 2023, Lhokseumawe*, 1(1), 1–6.
- Dilham, A., Umar, M., & Putra, M. (2019). Social Economic Brick Home Industry Community Mapping. *CEMAB 2017, North Sumatera*. 1–7.
- Gonzalez-Benito, O., Munoz-Gallego, P. A., & Garcia-Zamora, E. (2005). Entrepreneurship and Market Orientation as Determinants of Innovation: The role of business size. *International Journal of Innovation Management*, 19(4).

- Gupta, R. (2018). Labour Market Dynamics & Industrial Relations in Brick Kiln Industry. Centre for Education and Communication. New Delhi, India.
- Hanuarsyah, D., & Susena, K. C. (2024). Strategi Pemasaran Batu Bata Di Kelurahan Sidomulyo. *Jurnal Kewirausahaan & Bisnis*, 6(1), 29–34.
- Haque, N. (2017). Technology Mandate for Greening Brick Industry in Bangladesh: A policy evaluation. *Clean Technologies and Environmental Policy*, 19(2), 319–326.
- Hizazi, A., Mansur, F., Kumalasari, D., & Fazri, A. (2024). Diversifikasi Produk Bata Estetik Di RT 26 Desa Tangkit, Kecamatan Sungai Gelam, Kabupaten Muara Jambi. *Jurnal Inovasi Teknologi Dan Dharma Bagi Masyarakat*, 6(3), 59–61.
- J. Khaja Mohinuddeen. (2023). ECONOMICS OF BRICKS MANUFACTURING : A CASE STUDY. *INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)*, 11(12), 643–652.
- Régnier, S. A., & Ridley, D. B. (2015). Forecasting Market Share in the United States: Pharmaceutical Market. *Nature Reviews Drug Discovery*.
- Shakir, A. A., Mohammed, A. A., & Mohammed, A. A. (2018). Manufacturing of Bricks in the Past, in the Present and in the Future : A state of the Art Review. *International Journal of Advances in Applied Sciences (IJAAS)*, 2(3), 145–156.
- Wilujeng, S., & Fauzan, F. (2016). Pengembangan Sentra Industri Batu Bata di Kabupaten Bangkalan dengan Pendekatan Diversifikasi dan Inovasi Produk. *Jurnal Abdimas*, 20(1), 47–53.
- Zahara, V. M., & Suci, S. C. (2024). Innovation and Efficiency of Brick MSME Products to Realize the One Village One Product. *MOVE: Journal of Community Service and Engagement*, 3(6), 125–131.