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THE EFFECT OF CAPITAL AND TECHNOLOGY ON HOUSEHOLD SONGKET PRODUCTIVITY: A MASLAHAH PERSPECTIVE

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ABSTRACT

This study investigates the effect of capital and technology on the productivity of the household songket industry in Batu Bara Regency using a maslahah perspective. A quantitative associative approach was applied with a census of 62 business units. Data were collected through questionnaires and analyzed using multiple linear regression with SPSS 26. The results show that capital has a positive and significant effect on productivity ($\beta = 0.542$; $t = 4.676$; $p = 0.000$), while technology also has a positive and significant effect ($\beta = 0.290$; $t = 2.009$; $p = 0.049$). Simultaneously, capital and technology significantly influence productivity ($F = 28.342$; $p = 0.000$). The model explains 49% of the variation in productivity ($R^2 = 0.490$), indicating moderate explanatory power. These findings confirm that capital and technology are important determinants of productivity, although their effects remain limited due to the influence of other factors such as labor skills and market conditions. From a maslahah perspective, productivity improvement reflects not only economic gains but also contributes to business sustainability and artisan welfare.

1. INTRODUCTION

The home-based industry sector constitutes a strategic component of Indonesia's economic development, given its significant role in employment generation, income distribution, and the preservation of local cultural heritage (Zakaria, 2024). Within the framework of Islamic economics, production activities are not solely perceived as profit-oriented endeavors but also as a means of achieving *maslahah* (public benefit), encompassing the protection of religion (*hifz al-din*), life (*hifz al-nafs*), intellect (*hifz al-'aql*), lineage (*hifz al-nasl*), and wealth (*hifz al-mal*). Accordingly, productivity enhancement from an Islamic perspective should not be assessed merely in terms of output and financial returns, but also in relation to its broader impact on the holistic well-being of business actors and the surrounding community (Fatkhan & Chasanah, 2024).

Batu Bara Regency in North Sumatra Province is widely recognized as one of the key centers of Malay songket production, reflecting both cultural and religious significance. The songket industry in this region is predominantly operated by women on a household scale, particularly in Padang Genting Village, Talawi District (Wati, 2021).

Beyond its function as traditional attire for weddings and religious ceremonies, songket also serves as a representation of Malay Islamic cultural identity. Nevertheless, despite its strong cultural value and considerable economic potential, the songket industry in Batu Bara continues to face various structural challenges that constrain productivity and hinder business sustainability (Wati et al., 2022).

Based on a preliminary survey conducted in 2025 involving 40 household-scale songket enterprises in Padang Genting Village, capital constraints emerged as the primary issue. Approximately 45 percent of artisans reported having total business capital below IDR 100 million, 30 percent within the range of IDR 100–200 million, 15 percent between IDR 200–300 million, and only 10 percent possessing capital exceeding IDR 300 million (Wati et al., 2022). In most cases, such capital is derived from personal savings and retained earnings, while access to formal financing, including sharia-compliant funding, remains highly limited. This financial constraint restricts the ability of artisans to procure raw materials in bulk, limits product diversification, and reduces opportunities for investment in more efficient production equipment (Alpharizi, 2025).

In the context of household industries, capital refers to the entirety of production resources, including financial funds, equipment, and productive assets utilized in the production process (Razqa et al., 2025). Adequate capital availability enables business expansion, enhances product quality, and improves operational efficiency, thereby contributing to higher productivity and increased income among artisans (Puspa et al., 2022). In this study, capital is not merely assessed in terms of its magnitude but also through its structural composition, encompassing own capital and borrowed funds, the utilization of additional capital, constraints in accessing external financing, and business conditions following capital augmentation (Nugroho, 2011). Consequently, capital is positioned as a fundamental determinant in sustaining and developing household industry enterprises. This condition is consistent with findings in the Islamic MSME literature, which highlight access to financing as a critical determinant in expanding business scale and improving productivity among small enterprises (Zakaria, 2024).

In addition to capital constraints, technological factors also play a crucial role in influencing artisans' production performance. The preliminary survey findings indicate that approximately 75 percent of artisans continue to rely on traditional non-mechanized looms (ATBM) made of wood (locally known as *okik* or *bedeng*), while 17.5 percent utilize semi-modern modified equipment, and only 7.5 percent have adopted more advanced machinery or production technologies. Although the use of traditional looms helps preserve the authenticity of motifs and fabric quality, it requires a relatively long production time, ranging from 7 to 14 days for a single piece of cloth. On average, traditional artisans produce only 4–6 pieces per month, whereas those using semi-modern tools can generate 6–10 pieces, and machine-assisted producers are capable of reaching 10–15 pieces per month. This condition indicates a significant productivity gap arising from differences in technological use (Arlinta Christy Barus, 2015), suggesting that technology utilization is a key determinant of efficiency and production capacity in the household songket industry.

Furthermore, in the context of household industries, technology extends beyond the mere use of production tools; it also reflects the ability of business actors to adopt methods and innovations that enhance work efficiency. Technology serves as a crucial component in industrial activities, as it facilitates production processes, data management, and information dissemination, thereby generating added value (Ghobakhloo, 2020; Bai et al., 2020) Technological advancement also carries broader implications for transformations in human life patterns, as articulated by Jacques Ellul in his concept of technocracy (Ellul, 1964). Moreover, technology can be understood as practical knowledge (know-how) that possesses both functional and economic value (Ngafifi, 2014).

In practice, the utilization of technology, including digitalization, has been shown to enhance the productivity and competitiveness of MSMEs through product innovation, improved operational efficiency, and expanded market access (Zikri, 2024). Therefore, in this study, technology is not solely assessed based on the presence of tools, but also through the dimensions of

availability, performance, and quality, which reflect the extent to which technology is accessible, functional, and capable of supporting business operations (Seiichi Nakajima, 1998). Previous studies have also demonstrated that technology adoption exerts a positive influence on MSME efficiency and output, although it remains relatively underexplored from the perspective of *maqashid al-shariah*. Previous studies have demonstrated that technology adoption exerts a positive effect on improving efficiency and output in creative MSMEs; however, such analyses have not yet been extensively examined within the framework of *maqashid al-shariah*.

Based on the issues related to capital and technology, productivity serves as the primary indicator for assessing the performance of the household songket industry. Fundamentally, productivity represents the ratio between output (results) and input (resources) utilized in the production process (Busro, 2018). Improvements in productivity can be achieved through more efficient use of time, materials, and labor, as well as through enhancements in work systems, production techniques, and workforce skills (Pasaribu & Anshori, 2021).

Conceptually, productivity reflects a firm's capability to generate outputs, both tangible and intangible, as an indicator of its success in achieving business objectives. In the context of household industries, productivity is not solely measured by production volume but also by the effectiveness of resource management and the outcomes generated. Accordingly, in this study, productivity is evaluated through the management of working hours, the assignment of tasks aligned with workers' competencies, and improvements in business outcomes as reflected in financial performance (Sutrisno, 2017).

In terms of production patterns, approximately 60 percent of artisans operate under a made-to-order system, 25 percent engage in seasonal production, particularly in anticipation of traditional ceremonies or weddings, and only 15 percent maintain regular production for inventory. This heavy reliance on order-based and seasonal demand contributes to income volatility and undermines the economic stability of artisans' households. Over time, such conditions may hinder business sustainability and limit the regeneration of younger weavers. Empirical studies on weaving-based MSMEs in various regions suggest that production stability is closely associated with the availability of working capital and the integration of digital marketing strategies (Muktarruddin et al., 2023).

From the perspective of Islamic economics, the concept of *maslahah* serves as a fundamental basis for evaluating economic activities, including production processes. According to (Abu Hamid Al-Ghazali, 1997), *maslahah* refers to efforts to realize benefits and prevent harm for human beings; thus, economic activities are not solely oriented toward material profit but also toward comprehensive welfare. In this context, *maslahah* aims to establish a balance between individual and societal interests, as well as among economic, social, and spiritual dimensions. Consequently, economic decisions should incorporate values of justice, equity, and fair distribution (Azzuhri & Fadhil, 2022). Conversely, decisions that are not grounded in *maslahah* risk generating inequality and broader social harm (Widiyanto et al., 2024), underscoring the need to balance benefits and risks in every economic policy (Ulya et al., 2025).

Furthermore, the concept of *maslahah* is classified into three principal levels: *daruriyyat* (primary needs), which relate to the preservation of the five objectives of *maqashid al-shariah*; *hajiyyat* (secondary needs), which function to provide ease and remove hardship in life; and *tahsiniyyat* (tertiary needs), which serve to enhance moral and aesthetic values (Zuardi et al., 2025). Accordingly, the *maslahah* approach in this study is employed to assess whether improvements in productivity genuinely generate holistic benefits for artisans and the wider community.

Based on this perspective, issues of capital and technology in the household songket industry extend beyond economic performance and carry broader implications for social, cultural, and business sustainability dimensions. At the *daruriyyat* level, limited capital may disrupt household economic stability (*hifz al-mal*) and the well-being of artisans (*hifz al-nafs*) (Hayat, 2020). At the *hajiyyat* level, restricted access to technology constrains opportunities to improve production efficiency and expand market reach. Meanwhile, at the *tahsiniyyat* level, poorly

managed technological adoption may diminish the aesthetic value and cultural authenticity of songket motifs. Therefore, productivity enhancement should be analyzed comprehensively not only in relation to output growth, but also in ensuring the preservation of ethical values, business sustainability, and cultural heritage (Purwati et al., 2023).

Despite the growing body of literature on MSME productivity and the cultural significance of the Batu Bara songket industry, existing studies remain fragmented. Prior research predominantly employs qualitative approaches focusing on cultural and institutional dimensions (Maswita, 2022), while quantitative analyses of productivity rarely address traditional household-based industries such as songket weaving (Wati et al., 2022). Moreover, although capital and technology are widely recognized as key determinants of productivity, their effects have not been rigorously examined within a formal production framework, such as the Cobb-Douglas model, in this context (Alpharizi, 2025). At the same time, the concept of *maslahah* in Islamic economics has largely remained normative and has yet to be operationalized within empirical production analysis. Consequently, there is a lack of integrated empirical evidence that simultaneously examines the effects of capital and technology on productivity using a quantitative production approach while incorporating a *maslahah* perspective, which this study aims to address.

Accordingly, this study contributes by integrating a quantitative production function approach to examine the effects of capital and technology on productivity, while simultaneously evaluating these relationships within a *maslahah* framework. By moving beyond conventional output-based measures, this research provides empirical evidence on whether productivity improvements generate broader socio-economic benefits for household-based artisans, thereby advancing the application of Islamic economic principles in the context of local creative industries.

2. RESEARCH METHODS

This study focuses on the songket weaving industry in Batu Bara Regency. It adopts a quantitative perspective, employing a research design that examines how money and technology influence the volume of work performed. The entire songket weaving industry in Batu Bara Regency consists of 62 officially recognized units, according to statistics from the Ministry of Industry. The census method, which is a total sampling approach, involves every individual in the group answering the questions (Sugiyono, 2019). Accordingly, the sample consists of 62 respondents, allowing the findings to reflect the actual conditions of the songket industry in the region, although with limitations in broader generalization.

This study uses primary and secondary data sources. We collected primary data by distributing a questionnaire via Google Forms, and we obtained secondary data from relevant institutions and supporting literature. The study's instrument uses a 5-point scale to measure how people feel about various factors in this study. Capital refers to the money and assets a company uses to produce goods or services, and we can determine how much they have by looking at factors such as how much cash they possess, how they allocate it, and how easily they can obtain more (Nugroho, 2011). Technology is defined as the level of utilization of tools and production methods in business activities, measured through indicators of availability, performance, and quality (Nakajima, 1998). Meanwhile, productivity is conceptualized as the firm's ability to generate output relative to the inputs used, measured through indicators including production volume, time efficiency, and increases in business income (Sutrisno, 2017). These measures serve as proxies for productivity, given the limited availability of objective quantitative data in household industries.

According to the production function concept, capital and technology are taken as the input factors whereas productivity is treated as output. This study methodology grounded in the same idea. However, an empirical estimation is done using a multiple linear regression model. Due to these issues, we reject log-linear specifications like the Cobb–Douglas production function. This is because the type of measurement of the data, which is perceptual and measured on the Likert scale. Hence, the chosen model is a simplified empirical approach to the production function with respect to perceptions and is however, suitable for input-output relations in household industries.

The data will be analysed using IBM SPSS Statistics version 26. The tests covered in the analysis will be the validity and reliability test of the research instrument as well as classical assumption test which is the normality multi-collinearity and heteroscedasticity test. Multiple linear regression is used in the principal analysis to analyze the partial and simultaneous impact of all independent variables on the dependent variable. The t-test and F-test hypothesis is used in this study along with R^2 analysis.

Moreover, this study recognizes acute and potential methodological limitations, including the potential for endogeneity, specifically reverse causation between productivity and capital. Consequently, the results are interpreted cautiously, given the theoretical framework under which they were obtained. To make results more robust limited additional analysis was accomplished through sensitivity testing by comparing estimates from different model specifications.

In Islamic economics, maslahah is not an independent variable that is quantitatively measured in this study. However, it will be used as an analytical perspective in the discussion to interpret the findings of the study with regards to daruriyyat, hajiyyat and tahsiniyyat.

3. RESULTS AND DISCUSSION

3.1. RESULTS

In this study, validity testing is conducted using the Pearson product–moment correlation analysis. The obtained *r-calculated* values are compared with the corresponding *r-table* values at a significance level of 5 percent. A higher level of validity indicates that the instrument is more accurate in measuring the intended constructs.

Table 1. Results of Validity Testing

Variable	Item	r-calculated	r-table	Remark
Capital (X1)	X1.1	0.341	0.254	Valid
	X1.2	0.482	0.254	Valid
	X1.3	0.472	0.254	Valid
	X1.4	0.409	0.254	Valid
	X1.5	0.628	0.254	Valid
	X1.6	0.568	0.254	Valid
	X1.7	0.385	0.254	Valid
Technology (X2)	X2.1	0.529	0.254	Valid
	X2.2	0.675	0.254	Valid
	X2.3	0.655	0.254	Valid
	X2.4	0.667	0.254	Valid
	X2.5	0.671	0.254	Valid
Productivity (Y)	Y.1	0.704	0.254	Valid
	Y.2	0.713	0.254	Valid
	Y.3	0.734	0.254	Valid
	Y.4	0.725	0.254	Valid
	Y.5	0.524	0.254	Valid

Source: Primary data processed using IBM SPSS 26 (2026)

As per the validity test result (Table 1), the critical r-table for this study is r-table 0.254 at 5%. All items are valid for this study as all the r-calculated values for all indicators of all variables exceed r-table. This finding is consistent with the validity criteria proposed by Sugiyono (2019), indicating that all questionnaire items are fit to measure what they wanted to measure.

Accord a research instrument is considered to have a high level of reliability if the obtained coefficient value exceeds 0.60. In this study, reliability testing is conducted using the Cronbach's Alpha method with the assistance of SPSS version 26.

Table 2. Results of Reliability Testing

Research Variable	Cronbach's Alpha	Remark
Capital (X1)	0.749	Reliable
Technology (X2)	0.834	Reliable
Productivity (Y)	0.861	Reliable

Source: Primary data processed using IBM SPSS 26 (2026)

As evidenced in Table 2, the values of Cronbach's Alpha for the variables Capital (X1), Technology (X2), and Productivity (Y) are all above 0.60. It means all measurements possess a considerable amount of internal consistency. It is concluded that the variables used in the study are reliable for further statistical analysis.

Classical assumption testing was conducted to ensure the estimated regression model met the required statistical criteria, resulting in reliable and unbiased estimates. The normality test using the One-Sample Kolmogorov-Smirnov Test showed an Asymp. Sig. (2-tailed) value of 0.069 which was greater than the significance level of 0.05, so it can be concluded that the data was normally distributed and the normality assumption was met. Furthermore, a multicollinearity test was conducted by examining the Tolerance and Variance Inflation Factor (VIF) values, where the test results showed that the capital (X1) and technology (X2) variables each had a Tolerance value of 0.652 which exceeded 0.10 and a VIF value of 1.533 which was below 10, so it can be concluded that there was no multicollinearity between the independent variables in the regression model. Finally, the heteroscedasticity test was conducted using the Park test, which resulted in a significance value of 0.068 for the capital variable (X1) and 0.180 for the technology variable (X2), both of which were greater than the 0.05 significance level. It was concluded that the regression model was free from heteroscedasticity and the homoscedasticity assumption was met. With all of these classical assumptions met, the regression model used in this study was declared feasible and could produce valid and efficient estimates.

The explanation of the dependent variable's variability by the independent variable(s) is shown by the coefficient of determination (R^2). It suggests how well the regression model can explain. The outcome table of R2 test is explained below.

Table 3. Results of Coefficient of Determination (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.700[a]	.490	.473	2.321

Source: Primary data processed using IBM SPSS 26 (2026)

Table 3 presents the results obtained when regressing natural logarithm of productivity on capital and technology. The R-squared is 0.490 implying that 49% of variation in productivity can be explained by variation in capital and technology; the rest of 51% is attributed to other factors that have not been incorporated in this study.

Hypothesis test used in this study were t-test (partial test) and F-test (simultaneous test). t-test was used to test the effect of each independent variable to the dependent variable separately with significant level 5%.

Table 4. Results of t-Test (Partial Test)

Model	B	Std. Error	t	Sig.
(Constant)	-1.703	3.024	-.563	.575
X1	.542	.116	4.676	.000
X2	.290	.144	2.009	.049

Source: Primary data processed using IBM SPSS 26 (2026)

Based on the partial t-test results presented in Table 4, both independent variables are proven to have a significant effect on the productivity of the songket industry. The capital variable (X1) obtained a t-count value of 4.676 with a significance level of 0.000, where the t-count value is greater than the t-table value (4.676 > 1.670) and the significance value is smaller than 0.05 (0.000 < 0.05), so that the first alternative hypothesis (H1) is accepted and it can be concluded that capital has a significant effect on the productivity of the songket industry. Similarly, the technology variable (X2) obtained a t-count value of 2.009 with a significance level of 0.049, where the t-count value is greater than the t-table (2.009 > 1.670) and the significance value is smaller than 0.05 (0.049 < 0.05), so that the second hypothesis (H2) is also accepted and it can be concluded that technology has a significant effect on the productivity of the songket industry.

Table 5. Results of F-Test (Simultaneous Test)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	305.290	2	152.645	28.342	.000[b]
Residual	317.758	59	5.386		
Total	623.048	61			

Source: Primary data processed using IBM SPSS 26 (2026)

Based on the results of the simultaneous F test presented in Table 5, the calculated F value was 28.342 which was much greater than the F-table value (28.342 > 3.29) with a significance level of 0.000 which was smaller than 0.05, so it can be concluded that the capital (X1) and technology (X2) variables together had a significant effect on the productivity of the songket industry and the third hypothesis (H3) was accepted.

The purpose of Multiple Linear Regression analysis is to find and measure the influence of the independent variables capital (X1) and technology (X2) on the dependent variable productivity (Y). Based on the results of the multiple linear regression analysis presented in Table 4, the following regression equation was obtained:

$$Y = 1.703 + 0.542X_1 + 0.290X_2 + \varepsilon \quad \text{.....(1)}$$

The constant value of -1.703 indicates that when the capital (X1) and technology (X2) variables are zero, the productivity of the songket industry is still influenced by other factors not included in this research model. The regression coefficient of the capital variable (X1) of 0.542 with a positive sign indicates that any increase in capital will be followed by an increase in productivity, where adequate capital supports the efficient use of inputs and optimal production scale and contributes to business sustainability and the welfare of craftsmen from a maslahah perspective. Meanwhile, the regression coefficient of the technology variable (X2) of 0.290 with a positive sign indicates that the use of appropriate technology can accelerate the production process, reduce obstacles in the production process, and increase the productivity of the household-based songket industry in Batu Bara Regency, thereby supporting sustainable development and providing broad benefits for industry players from a maslahah perspective.

3.2. DISCUSSION

Comparative results of t-test between t-value obtained by test and critical t-value in t-table showed that t-value obtained by test was 4.676 with significant level 0.000. It meant that capital had positive and significant effect on industrial productivity. In practice, every increase of capital owned by entrepreneurs would facilitate business actors to carry out production process more optimally, therefore it would enhance productivity, broadened scale of production and facilitated to acquire factors of production. But this effect should not be perceived in a linear way. Capital owned by singers might only function to ease the production constrain such

as scarcity of raw materials and small scale of production which dominated in songket industry largely depended on manual skill. Thus, the increment of productivity was slow and only occurred gradually.

The findings of this research were in line with the theory that capital is intended to be used to finance the needs of production of materials, facilities, and expenditure. Adequate capital is therefore necessary to support the production process which will be efficient and continuously running. Conversely, the limited capital owned by the artisans resulted in the small quantity of purchase of raw materials and production that was also small and increased gradually. However, if the artisans got sufficient capital, then they would be able to purchase raw materials in large quantities and also improve the facilities and production with greater productivity.

This condition shows that capital is important for the production processes, but its effect on productivity is not absolute. It is affected by the characteristics of the industry, which is still very dependent on the skills of the labor. So, increases in capital do not always result in proportional increases in output. The result in this case is consistent with previous research (Irmeilyana & Desiani, 2018; Khoiriyah et al., 2021) that capital has a positive relationship with productivity. This study, however, highlights the contextual-specificity of such effects, with the labor skills being the dominant determinant in traditional craft industries and capital not always being a predominant factor.

In the view of Islamic economics, capital not only acts as a factor of production, it also acts as an amanah or trust which has to be managed and utilized productively and justifiably. The rise in capital during this research not only enhances productivity but also business sustainability and sustainability of artisan's income, illustrating the element of maslahah in maintaining economic well-being (hifz al-mal) in terms of daruriyyat that benefits should be lasting rather than momentary. Therefore, capital-induced productivity is not simply a drive for profitability but also a drive to balance economic efficiency with the welfare of business participants. Beyond economic gain, Islamic economics emphasizes justice, social well-being, and the need for morality in conducting the economy. Education helps individuals adopt a moral behavior in business, such as being truthful, responsible, and concerned towards others (Muhammad Yafiz, 2021).

Based on these findings, industry actors are advised not to rely solely on personal capital or bank loans, but also to explore alternative financing mechanisms, such as partnerships with investors through equity participation or profit-sharing schemes, to enhance production capacity. In addition, collaboration with buyers through purchase agreements (e.g., pre-order systems or supply contracts) can provide demand certainty while creating opportunities for order-based financing. Support through business incubation and mentoring programs is also essential to optimize capital utilization, both in production and managerial aspects. This approach aligns with Islamic economic principles that promote a fair, inclusive, and sustainable economic system (Puspa et al., 2022). Furthermore, these findings indicate that factors beyond capital also influence productivity, which will be more clearly examined in the subsequent simultaneous analysis.

The results of the t-test showed that the calculated t-value (2.009) was significant at the 0.049 level of significance since the calculated t-value was greater than the critical value from the t-table (2.009 > 1.670). Thus, it can be concluded that technology has a positive and statistically significant effect upon the productivity of the household songket industry in Batu Bara Regency. More specifically, the more appropriate and effective the implementation of technology within the household songket industry, the higher the level of productivity of that industry. However, the significance value also indicates that the impact of technology upon the productivity of the songket industry is relatively limited. Thus, technology is not yet the main factor in increasing the productivity of the songket industry, though it does have a positive impact upon the industry’s productivity. Overall, these conclusions relate to the issue of the low

level of technology adoption within the songket industry, leading to the relatively low level of productivity of the industry altogether.

From a practical point of view, technology can increase productivity by limiting production time, reducing error and increasing efficiency and effectiveness of labor (Marliyah et al., 2022). Although many songket artisans already use some technology, the technology still needs to be improved to support their work effectively. Most of the artisans in Batu Bara Regency use a traditional weaving method that requires more time than high technology does. Using the traditional tools for weaving can be very helpful to keep the classic motifs and maintain characteristics of the fabric, however, this tool is less able to increase the output level. Therefore, even if the output is stable, it is still unable to reach its maximum level due to low productivity. This indicates that technology availability is not enough, what is needed is the ability of business actors to adopt and use the technology optimally (Sari & Kornitasari, 2024).

The findings obtained from this study were also supported by similar research finding that use of technology can increase production efficiency of MSME (Ningsih, 2024). In addition, this study also supported the findings by Samsuri et al., (2019) who stated that the use of production technology can increase production without decreasing quality of songket produced. In the same line, modernization of production technology in traditional weaving industries greatly influence the competitiveness of product in market (Sukandar & Hermawan, 2022). Even though the impact of technology to household songket industry is still slow and limited, but the implementation can be a good stepping stone to improve efficiency.

Application of technology from the Islamic economic perspective is meaningful because technology is not only meant to increase productivity but also to achieve a greater benefit, i.e., maslahah. Technology can be used wisely to boost production without losing local and cultural identities. That means technology can bring economic benefits but at the same time retain cultural sustainability. In addition, the use of technology is also related to the hifz al-mal (safeguarding of wealth) at the daruriyyat level and the enhancement of quality and aesthetic at the tahsiniyyat level. Empowering MSME within the Islamic economics framework means that empowerment of small enterprises will bring more equitable economic welfare (Isnaini Harahap, 2021).

The findings of this study indicate that productivity can be increased through technology adoption and utilization, but this will require not only accessible technology but also adequate financing and supportive business environments. Thus, improving technological capacity requires a more holistic approach to financing beyond conventional means. Potential alternatives could be the establishment of partnerships with technical partners from the industrial design sector or with creative communities. Funding for the songket craft can be channeled through collaboration with stakeholders that need to procure songket from the artisans, such as brands, fashion designers or creative MSMEs that require songket raw materials. This funding can be channeled through co-development and financing schemes such as pre-sales or offtake financing which enables the buyer to provide financing for the production to the artisans. In addition to funding, technology incubation programs or grants, including mentoring and guidance & matching services, are equally important. The funding must be followed by effective use of the funding through the transfer of skills and knowledge such as how to operate non-machine looms (ATBM), use of computer-aided design (CAD), production management and digital marketing.

Based on simultaneous F-test results showed that capital and technology have significant effect together on household songket industry productivity in Batu Bara Regency. F value 28.342 significant 0.000. It means that the two variables together can improve the productivity of songket. The same thing with production theory that stated production result comes from interaction and combination of all factors that productively contributive. In this research, capital and technology are two variables that enter simultaneously in the same time and can improve the production capacity of songket.

Although the F-test revealed that the F-statistic (4.778) is significant at 1%, the coefficient of determination (R^2) at 0.490 only explained 49% of the variation in productivity, indicating that other factors accounted for the remaining 51%. Thus, while the finding is statistically significant, it must be interpreted cautiously as it only demonstrates the presence and significance of the relationship between capital and technology and productivity, and not necessarily strong substantive explanation. Productivity in the songket industry is a complex and multidimensional phenomenon and therefore cannot be fully explained by mere application of capital and technology. The constraint appears is related with the characteristics of traditional craft industries that are household based and skill dependent. The output produced by the traditional craft industries are mostly influenced by the skillfulness and experience of the artisans themselves. Thus, the increased use of capital and technology is unlikely to result in significant increases in productivity because the skills related to accuracy, experience, and design are the main constraint factors. Wulandari (2024) found that in craft industries, the labor skills factor was the most dominant factor compared to other factors influencing the production.

The songket industry also lacks extensive use of technology in its production processes. The technological application in the industry is still very basic and based on non-mechanized looms which require the skillfulness of human hands. Even improvements in the production facilities do not significantly increase production. This result is in line with the results of Mizar (2010) and Dita (2023), which states that the technological adoption in small-scale industry, especially in traditional industry, develops slowly and is not maximally effective in improving the productivity.

Other factors such as market demand conditions and and marketing networks also influenced productivity. As household industries are demand-driven, when market demand drops, then activities of production also decreased, although capital and technology were available. As (Savitri & Kurniawati, 2025) explained that small business productivity is influenced by factors from within and outside the business. “It is true that external factors could affect the performance of MSME, since external factors could affect the outcome of performance that have been managed internally,” explained them. This phenomenon supported by other researches. In fact, external factors were stronger in influencing the productivity. As revealed by Karsani (2018) and Wijayanto et al. (2025) that labor factors, innovation in product, and market were the most factors affecting MSME productivity.

Business management from Islamic economics perspective is not limited to maximize the production output; the justice, sustainability, and benefits for overall society also become a primary goal in carrying out business operations (Imsar et al., 2023;Nurbaiti et al., 2023). The interaction of capital and technology, which is believed to bring benefits in terms of maslahah, still has their strategic value to generate increased income, ongoing business, and jobs. Nevertheless, the moderate R squared value of the study indicates that there are still other variables needed to support optimal maslahah. Islamic economic concept refers that economic activities in order to achieve greater prosperity must aim for the sake and the benefits of the entire society in achieving fair and sustainable social welfare (Agung et al., 2024; Raniya & Marliyah, 2022).

Productivity in the songket industry is influenced by many factors. These findings therefore suggest that future studies should include more variables, which are related to the use of labour skills and business experience, as well as efforts to innovate products or to gain better market access. These household-based craft industries are traditional industries and therefore require a more holistic approach in explaining their productivity. Productivity in SMEs cannot solely be enhanced by an influx of capital. It can also be significantly improved by creating an ecosystem which fosters greater productivity. Collaboration with investors or brands through production partnership schemes, the use of order-based financing, and start-up business incubation programs which utilize technology, train personnel, design and digital marketing are effective ways to maximize the utilization of capital and technology for increased productivity.

4. CONCLUSION

Capital and technology both positively and significantly influenced productivity of the household songket industry in Batu Bara Regency. Both partial and simultaneous results indicated that capital and technology explained 23.1% of productivity variation. However, the coefficient of determination (R^2) indicated that only 49.0% of variation in the productivity was explained by independent variables, while other factors such as skills of family members and market factors played a role as well. From theoretical perspective, these findings supported argument that in small traditional craft industries like songket industry, productivity is determined not only by capital and technology but also skill-based characteristics. In terms of general concept of maslahah, improvements in productivity can also bring about economic benefits, besides contributing to business sustainability and artisans' well-being. Industrialization from a maslahaht perspective could thus be conceptualized as an integrated process aimed at strengthening three capitals (human, social and natural) and enhancing the competencies of business actors including those made of physical capital and modern technology. Future research is needed as this study has its limitations and focuses only on certain variables and certain aspects of research. Other variables could also be considered and explored to gain a more comprehensive analysis.

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