ANALYSIS OF FACTORS AFFECTING THE INCOME OF BATIK INDUSTRY MSMEs IN PAMEKASAN REGENCY

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Abstract

This study aims to analyze the effect of capital, labor, financial inclusion, and financial literacy on the income of batik industry MSMEs in Pamekasan Regency. This research approach is quantitative using ordinal logistic analysis. The data in this study used primary data obtained through distributing questionnaires to batik business actors in Pamekasan Regency, and secondary data obtained from the Industry and Trade Office. The results showed that capital, labor, financial inclusion and financial literacy have a significant partial and simultaneous effect on MSME income in the Batik Industry in Pamekasan Regency. A one-level increase in the independent variable will increase to a higher income category. This study highlights the important role of capital, labor, financial inclusion and financial literacy in increasing the income of batik industry MSMEs. The increase in income of batik industry MSMEs is expected to improve community welfare and alleviate income inequality between rural and urban areas because the location of batik industry MSMEs in Pamekasan Regency is mostly in rural areas.

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INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are key to economic growth in Indonesia with a tremendous contribution to the national economic ecosystem (Abdul-Azeez et al., 2024). According to the Ministry of Economy of the Republic of Indonesia, in 2023 MSMEs contributed as much as 6 percent of Gross Domestic Product (GDP) worth 9,580 trillion rupiah and absorbed 97 percent of the national workforce. One type of MSME that has a great opportunity to be developed is the Batik Industry MSME (Widjajanti et al., 2022). The batik industry is one of the leading sectors of Indonesia's creative economy based on local culture classified in the fashion sector which has broad market potential and is able to absorb a lot of labor (Ully et al., 2022). Based on data on the realization of Indonesian batik exports issued by the Ministry of Trade of the Republic of Indonesia, in 2020 the value of batik exports reached USD 532.81 million, in the following year it increased to USD 604.46 million, and in 2022 the highest batik export realization was at USD 744.79 million.

Batik as a work of cultural heritage that has high artistic value has undergone changes in line with the times, and has become a market-oriented economic commodity (Chen et al., 2021). The batik industry in Indonesia is spread in several regions such as Pekalongan, Solo, Pamekasan and many others, where each region has its own characteristic motifs that reflect the culture, traditions, and history of each region (Supriyadi & Rahmawati, 2020). Table 1 shows number of batik industry MSMEs in Madura Island. According to data from the Office of Industry and Trade in 2022, Pamekasan Regency is the district with the largest number of batik industry MSME units on Madura Island.

Table 1.
Number of Batik Industry MSMEs in Madura Island

District	Number of Batik MSMEs
Bangkalan	220 Units
Sampang	60 Units
Pamekasan	270 Units
Sumenep	150 Units

Source: Industry Office data processed, 2022

Based on Online Single Submission (OSS) data, the number of batik industry MSMEs in the online licensing system continues to increase every year. This increase proves that the increasing interest and potential of the batik market has great opportunities. Thus, the development of batik industry MSMEs not only improves the economy and strengthens cultural heritage, but is able to absorb labor and increase individual and business income (Avisah, 2022).

Table 2.
Number of Batik Industry MSMEs in Pamekasan Regency

Year	Number of Batik MSMEs
2021	63 Units
2022	221 Units
2023	306 Units

Source: Industry Office data processed, 2024

Business income is one of the important components in determining the sustainability of MSME businesses (Cui *et.al.,* 2022). Increased MSME revenues also encourage increased local economic growth and improve community welfare (Rambe *et.al.,* 2024). The existence of MSMEs that cannot be doubted makes it evident that MSMEs are able to survive and become the main drivers in the economy (Nurhidayati & Maha 2023). However, despite having extraordinary potential, business actors are

often faced with various challenges that make MSME actors unable to develop and maintain their businesses. The problems faced by MSMEs include capital problems (Ha et al., 2022), the number of workers (Jalaliah et al., 2022), access to financial institutions (Goswami et al., 2024) and financial literacy (Sari et al., 2023).

Based on the Daily Social Innovate (DSInnovate) survey in the "MSME Empowerment Report 2022" with 1500 business respondents, it was found that 51.2 percent of respondents found it difficult to obtain capital. Whereas the availability of adequate capital can optimize the operational activities of a business (Osei & Agyemang, 2022). Sufficient capital allows entrepreneurs to invest in raw materials and technology, which ultimately increases production and has an impact on business income (Laili & Setiawan, 2020).

Not only capital but also labor is likely to affect the income of Batik Industry MSMEs. Labor is one of the main driving factors, and is an important input in the production process. Increasing labor productivity will encourage an increase in production which in turn will increase income (Habriyanto et al., 2021). Labor is one of the factors that significantly affect MSME income (Jalaliah et al., 2022).

Finance is always considered as one of the important parameters of growth for any economic activity, this economic growth can be expanded by using financial inclusion as a bridge that will facilitate financial issues (Goswami et al., 2022). Access to finance is one of the most important challenges for business establishment, survival, and development (Amadasun & Mutezo, 2022; Purniawati et al., 2024). Financial inclusion not only opens access to financial resources for individuals and businesses but is recognized as one of the main goals in the Sustainable Development Goals (SDGs) agenda promoted by the United Nations, as it has an important role in reducing poverty and improving welfare (Hasibuan & Marliyah, 2024). Therefore, the higher access to financial institutions is likely to make it easier for MSME actors to deal with capital problems so that in the end it can encourage increased MSME income.

Financial literacy is an ability that needs to be possessed by MSME actors because it has a good impact on managing finances (Agatha et al., 2023). Amidst the variety of financial products available today, financial literacy is essential for making wise financial decisions (Agatha et al., 2023). For MSMEs, a lack of financial literacy can prevent them from efficiently managing cash flow, financing, and financial planning, resulting in lower revenue and business growth (Bahiu et al., 2021). Improving financial literacy among MSMEs is crucial to help them manage their finances well, which in turn leads to business sustainability. In addition, financial literacy is also one of the ways to achieve the goals of the Sustainable Development Goals (SDGs), especially in overcoming the problem of poverty, by increasing people's income and economic welfare. Therefore, financial literacy is not only important for MSMEs, but also for society in general (Laili & Setiawan, 2020). Based on this, the following hypothesis is obtained:

H_1: Capital affects the income of batik industry MSMEs in Pamekasan Regency.

H_2: Labor affects the income of batik industry MSMEs in Pamekasan Regency.

H_3: Financial Inclusion affects the income of batik industry MSMEs in Pamekasan Regency.

H_4: Financial Literacy affects the income of batik industry MSMEs in Pamekasan Regency.
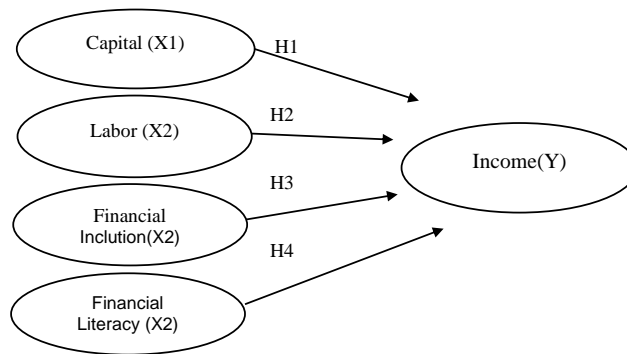
Source: Developed by autor, 2024

Figure 1. Research Framework

METHODOLOGY

This research uses a quantitative approach with cross-sectional data, which aims to study the relationship or correlation between risk factors and their impact. This approach also includes observation and data collection at a certain time (point-in-time approach). The population in this study were all Batik Industry MSMEs in Pamekasan Regency. The number of samples in this study using the Roscoe formula obtained was 50, to facilitate researchers in processing the data, 80 samples were taken with the sampling technique in this study was Non probability sampling with purposive sampling technique. The type of data used is primary data, which is obtained through distributing questionnaires prepared by researchers. The primary data obtained in this study will be grouped into five categories that fall within the ordinal scale. Therefore, since the aim of this study is to analyze the influence and the independent variables are ordinal data, the analytical technique used in this study is ordinal logistic regression analysis.

RESULT AND DISCUSSION

In this study, one of the requirements in the ordinal logistic regression analysis is that the data is not multicollinearity, so from this, the classic assumption test carried out at this time is only a multicollinearity test. The multicollinearity test aims to identify whether there is a high correlation in the regression model.

Table 3.
Results of the Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	X1	0,139	7,683
	X2	0,187	5,337
	X3	0,199	5,025
	X4	0,259	3,865

Source: Primary data processed, 2024

From the multicollinearity test, it is known that the VIF value of the Capital variable (X_1) is 7.683 < 10 and the Tolerance value is 0.139> 0.10 while the VIF value of the Labor variable ($X_{2)}$ is 5.337 < 10 and Tolerance is 0.187> 0.10 on the VIF value of the Financial Inclusion variable (X_3) 5.025 < 10 and a Tolerance value of 0.199 > 0.10 and the VIF value of the Financial Literacy variable

(X_4) 3.865 < 10 and a Tolerance value of 0.259 > 0.10, it can be concluded that there are no symptoms of multicollinearity and can proceed to the next test because it has met the requirements.

Table 4.
Results of the Parallel Lines Test

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	55,813			
General	51,058	4,755	12	0,966

Source: Primary data processed, 2024

The Parallel Lines Assumption Test is one of the important steps in ordinal logistic regression analysis. This test aims to ensure that the relationship between the independent variable and the dependent variable is consistent across all categories of the dependent variable. Based on the parallel lines test results, the chi-square value is 4.755 with a p-value of 0.966. Based on this, because the p-value> α. This means that at the 95 percent confidence level it can be said that the model has the same slope regression coefficient for all respondent variables and the ordinal logistic regression model is valid for use. Therefore, the proportional odds model (ordinal logistic regression) is suitable for use.

Table 5.
Results of the Parameter Estimates Test

		Estimate	Sig.
Threshold	[Y = 1,00]	5,979	0,000
	[Y = 2,00]	10,306	0,000
	[Y = 3,00]	14,817	0,000
	[Y = 4,00]	20,255	0,000
Location	X1	3,776	0,000
	X2	2,491	0,000
	X3	2,039	0,003
	X4	2,009	0,028

Source: Primary data processed, 2024

Ordinal logistic regression analysis in this study was used to determine the effect of capital, labor, financial inclusion (independent variables) on the dependent variable, namely income. The ordinal logistic regression equation is as follows:

$$\text{logit}[P(\leq 1|x)] = 5.979 + 3.776X_1{}^* + 2.491X_2{}^* + 2.039X_3{}^* + 2.009X_4{}^*$$
$$\text{logit}[P(\leq 2|x)] = 10.306 + 3.776X_1{}^* + 2.491X_2{}^* + 2.039X_3{}^* + 2.009X_4{}^*$$
$$\text{logit}[P(\leq 3|x)] = 14.817 + 3.776X_1{}^* + 2.491X_2{}^* + 2.039X_3{}^* + 2.009X_4{}^*$$
$$\text{logit}[P(\leq 4|x)] = 20.255 + 3.776X_1{}^* + 2.491X_2{}^* + 2.039X_3{}^* + 2.009X_4{}^*$$

Table 6 .
Results of the Model Fitting Information Test

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	200,940			
Final	55,813	145,127	4	0,000

Source: Primary data processed, 2024

The Fitting Information model test is used in evaluating the effectiveness of the variables applied in the study in influencing the dependent variable. In this Fiting Information Model Test, it can

be measured by comparing the -2 log likelihood value (*intercept only*) with the model (*final*), and if there is a decrease in value this indicates that the model is good to use. Based on the results of the Fitting Information model test above, it can be seen that there is a decrease in -2log likelihood from intercept only to final, namely 200.940 to 55.813 with a Sig value level of 0.000 ≤ α (0.05), meaning that the independent variable contributes significantly and the effectiveness of the applied variables affects the dependent variable.

Table 7.
Results of the Goodness-of-Fit Test

	Chi-Square	df	Sig.
Pearson	51,971	100	1,000
Deviance	34,984	100	1,000

Source: Primary data processed, 2024

The logistic regression model feasibility test is carried out using Goodness of Fit. This test aims to assess how well the logistic regression model describes the data. If the test value shows that the model fits the data, then the model is considered feasible. Based on the results of the Goodness of Fit test above, the Chi-square value of the Pearson test is 51.971 and a P-value of 1.000 (p-value> α) and the deviance test is 34.984 and a p-value of 1.000 from the results of these two tests, the regression model used is suitable because (sig. value> α).

Table 8.
Results of the Pseudo R-Square Test

Cox and Snell	0,837
Nagelkerke	0,881
McFadden	0,607

Source: Primary data processed, 2024

The Pseudo R-Square test is used to assess the extent to which the independent variables can explain variation in the dependent variable in the context of a logistic regression model. In logistic regression, the Pseudo R-Square Test provides information on how strong the relationship is between the predictor variables and the outcome predicted by the model. Based on the results of the Pseudo R-Square Test above, the R-square value generated by Nagelkerke is the highest, which is 0.881. This shows that the independent variables can explain 88.1 percent of the variation in the dependent variable, while the remaining 11.9 percent is influenced by variables not included in this study.

Table 9.
Results of the Simultaneous Test

Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	200,940			
Final	55,813	145,127	4	0,000

Source: Primary data processed, 2024

This test is used to assess the extent to which the independent variables simultaneously affect the dependent variable. Based on the test results above, there is a decrease in the chi-square value of 145.127 with a significance level of 0.000 <0.05. This shows that simultaneously, the independent variables, namely capital (X1), labor (X2), financial inclusion (X3), and financial literacy (X4) have a significant influence on the income of batik industry MSMEs in Pamekasan Regency.

Table 10.
Results of the Wald Test

Variabel	Wald	p-value
X1	13,663	0,000
X2	13,548	0,000
X3	12,966	0,003
X4	12,713	0,028

Source: Primary data processed, 2024

This test aims to test the effect of the independent variable on the dependent variable. The results of the Wald test can be seen in the parameter estimates, especially in the Wald value and significance value. The basis for decision making is if the p-value <0.05 then the independent variable is considered to have a significant effect on the dependent variable. According to the Wald test results, the three variables have a p-value <0.05, meaning that at a 95 percent confidence level it can be said that each independent variable, namely capital (X1), labor (X2), financial inclusion (X3), and financial literacy (X4), has a significant effect on the income of MSMEs in the batik industry in Pamekasan Regency.

Table 11.
Results of the Odds Ratio

Variables	*Odds Rassio*
X1	43,629
X2	12,0682
X3	7,680
X4	10,902

Source: Primary data processed, 2024

The calculation of the odd ratio value aims to produce an interpretation that is easier to understand. Based on the results of the analysis, the Odds Ratio value for each variable was obtained as follows, capital Variable (X1): Value exp(3,776) = 43.63. This means that every increase of one level of capital will increase to a higher income category by 43.63 times more. Labor Variable (X2): Value exp(2,491) = 12.07. This means that every increase of one level of capital will increase to a higher income category by 12.07 times more. Financial Inclusion Variable (X3): The value of exp(2.039) = 7.68 means that every increase of one level of capital will increase to a higher income category by 7.68 times more. Financial Literacy Variable (X4): Value exp(2,009) = 10.90. This means that every increase of one level of capital will increase to a higher income category by 10.90 times more.

The amount of capital spent by each batik industry MSME in Pamekasan Regency varies. The amount of capital has a positive effect on the income of these MSMEs. Without adequate capital, MSME actors will find it difficult to meet market demand or compete with competitors, which in turn can limit the income earned. Capital has a significant positive effect on MSME income (Ully et al., 2022). The average capital spent by batik industry MSMEs in Pamekasan Regency is around IDR 31,000,000, with the largest capital reaching IDR 75,000,000. Batik industry MSMEs in Pamekasan Regency have capital that tends to be large. MSMEs that have larger capital tend to be able to produce higher output. This is due to an increase in capital that can increase the quantity of production and add equipment, which can have an impact on a significant increase in income. The majority of batik produced by MSMEs in the Pamekasan Regency industry will be marketed in the 17 Agustus market, which is the largest written batik market in Indonesia, which provides a great opportunity for MSMEs

to reach consumers more easily. With the increase in high product quality, MSMEs can meet consumer needs.

The number of workers is one of the factors that affect the income of MSMEs (Syah et al., 2024). An increase in the number of workers in a business can increase production capacity, which in turn has the potential to increase income. In the Cobb-Douglas function theory, labor is one of the factors affecting production quantity. Several studies, including those conducted by Dewi (2019), show that labor is one of the factors affecting MSME income. The number of workers in the batik industry in Pamekasan Regency varies from 4 people to 25 people with an average of 13 people. Industries that only have 4 workers are only able to produce 50 pieces of batik cloth per production, batik industries that have more workers (25 people) are able to produce more as many as 300 pieces of batik cloth per production. This shows that the more labor involved, the more output (batik) is produced, which certainly has an impact on increasing the income of the batik industry. The production process of hand-drawn batik that does not use machines, but rather relies on the skills of craftsmen, makes the need for labor very high. Most of the workers in this batik industry are housewives, so the existence of the batik industry not only increases production capacity, but also contributes to increasing household income, providing employment opportunities, and improving family economic welfare.

The factor that affects income is financial inclusion (Suárez et al., 2024). Access to finance is an important issue that needs to be addressed (Goswami et al., 2022). With better access to financial services, MSMEs can obtain the necessary resources to grow their businesses. The majority of batik industry MSMEs in Pamekasan Regency have used financial service products from both banks and non-banks such as savings, credit, savings and loans, and pawning. MSMEs that use financial service products find it easy to access financial service products because there are several financial service products that can be accessed via mobile phones. On the other hand, financial service products make it easier for them to conduct buying and selling transactions for consumers who cannot visit the market directly and who do not carry cash. The existence of financial service products also allows batik industry MSMEs to increase production capacity with increased access to capital, which in turn affects income. This is in line with Juniyar (2023) that financial inclusion has an important role in increasing income.

Financial literacy is a factor that affects MSME income (Agatha et al., 2023). Financial literacy is very important in increasing the income of batik industry MSMEs. With a high level of financial literacy, businesses can make better decisions regarding investment, spending, and financial planning in their businesses. Currently, many batik industry MSMEs in Pamekasan Regency are well aware of the types of financial service products and their use. Increased financial literacy makes batik industry MSMEs feel safe and confident in financial service products, causing them to access financial service products without hesitation. Another advantage of increasing financial literacy is that it makes MSMEs better able to manage business finances, by setting aside money from business proceeds as savings which can later be used if MSMEs as additional business capital so that output increases which will have an impact on increasing income. This is in accordance with (Laili & Setiawan, 2020), which states that financial literacy affects MSME income.

CONCLUSIONS AND RECOMENDATION

Penelitian ini menyimpulkan bahwa variabel Modal, Tenaga Kerja, Inklusi Keuangan dan lierasi This study concludes that the variables of Capital, Labor, Financial Inclusion and financial lieration have a significant effect on the income of batik industry MSMEs. An increase in each of these variables will contribute to an increase in MSME income. Therefore, to increase the income of batik

industry MSMEs, it is important for batik industry MSMEs in Pamekasan Regency to increase capital, labor, and financial inclusion which will ultimately increase income and have a positive impact on the overall economy.

The limitation of this study lies in the use of cross-sectiohnal data, so it cannot describe changes that occur over time. Future research is recommended to use the longitudinal method in order to analyze the long-term impact of increasing these variables. In addition, a broader study involving batik industry MSMEs in various regions will provide a more comprehensive picture of the factors that affect the income of industrial MSMEs as a whole.

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