



# Profit Efficiency Of Small Medium Enterprises And Its Effect On Labor Absorption In Malang City

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**Abstract.** Small and medium enterprises are a real sector that has an important role in economic development. There are 64 million SMEs that contribute 97% of total employment and 60% of Indonesia's GDP in 2021. Based on these data, SMEs have an important role in absorbing labour and economic development. However, in practice, SMEs have problems in terms of managerial and financial performance. This study uses an efficiency analysis statistical approach with a transcendental logarithmic profit efficiency model and multiple linear regression analysis to investigate the effect of performance efficiency and income levels as indicators of the quality of work of SMEs on employment. The results showed that the average efficiency score of UKM in Malang City was only 26%, which means that the performance of UKM in terms of efficiency is still very low. Furthermore, based on multiple regression analysis, it was found that the performance efficiency variable has a negative effect on the labour absorption variable. In contrast, the income level variable significantly positively affects employment. The results of this regression explain that efficient SMEs tend not to employ many workers, while SMEs with high-income levels tend to use a lot of workers.

**Keywords:** Efficiency, UKM, Income, Labour.

## 1 Introduction

[12] explained that SMEs are a business sector that can encourage the economic development of a region. The SME sector has a role in the distribution process of increasing and equalizing income in Indonesia [5]. Press conference data from the Ministry of BUMN show that approximately 64 million SMEs contribute to the employment of 97% of the total and 60% of the total national GDP (public.bumn.go.id). Based on these data, SMEs have an essential role in absorbing labor and economic development.

However, [16] stated that the large number of SMEs tends not to be balanced with performance efficiency, so the problem faced by SMEs is performance efficiency. Efficiency can explain the number of results from physical production activities that can be obtained from the unity of production input factors. [17] states that efficiency occurs when producers can make the marginal product value for an input equal to the

price of the input. In addition, efficiency can be used as a benchmark for the production performance of a business unit.

Permatasari (2018) states that SMEs cannot maximize their production. This means that SMEs cannot achieve optimal output capacity in the production process. This problem is caused by problems with financial management and poor production managerial systems. The structure of SMEs is straightforward, consisting on average of only one owner and a few workers. As a result, the entire task will be assigned to only one person, affecting the quality of the production output.

[6] explained that SMEs have an important role in employment absorption. His research states that SMEs have a higher labor absorption than large businesses. However, the occurrence of the industrial revolution 4.0 encouraged the creation of business efficiency by using machines and technology. This can have a negative impact on the workforce through termination of employment (PHK). One type of layoff is redundancy, namely termination of employment because the company is developing using new machines and technology [11].

In the era of industrial revolution 4.0 and social society 5.0, the SME sector negatively and positively impacted the economy. The positive impact is the abundance of information and technological developments that can help technical business activities. In contrast, the negative impact is sacrificing labour through layoffs and then being replaced with new technology and machines. So, it is essential to prove it empirically through this research, namely by measuring the performance of SMEs with an efficiency approach and then identifying its relationship to employment.

## 2 Literature Reviews

### 2.1 Production Theory

[18] explained that production is a series of activities intended to turn input into output. So, production activities are interpreted as combining various inputs to produce output. The production function, according to [13], is expressed in the form of the equation:

$$Q = f(K, L, R, T, S) \quad (1)$$

Soekartawi (2003) states that efficiency occurs when producers can make the marginal product value for an input equal to the price of the input. Efficiency is the ratio between output and input related to achieving maximum output with several inputs owned. Efficiency can explain the number of results from physical production activities that can be obtained from the unity of production input factors.

Profit efficiency is defined as a measurement of efficiency that uses profit as an output variable and the amount of primary income, other income, and the price of production inputs as input. The output in the production function is constant, while the input varies freely and affects the profit generated [3].

## 2.2 Previous Research

[2] measured the efficiency level of small, medium, and large-scale banking in America from 1995-2001. The results conclude that small banks (75%) are less profitable than medium banks (82%) and large banks (86%). Kolawole (2006) examined the determinants of profit efficiency in small-scale rice farmers in Nigeria using the stochastic Cobb-Douglas profit frontier model. The results show a profit efficiency of 61% and are positively related to age, education level, farming experience, and household size.

[9] examined the efficiency of 31 tofu SMEs in Salatiga using data envelopment analysis. The results showed that only two SMEs were efficient overall, four were efficient in scale, and eight were technically efficient. The remaining 23 SMEs are not efficient. [12] research calculate profit efficiency and its determinants in small and medium enterprises. Stochastic boundary methodologies and models are used to determine the impact of technological and environmental differences between SMEs to achieve efficiency. The results showed that the average efficiency of food SMEs was 49.37%.

The results of research by [6] show that the role of SMEs in absorbing labour is very large. This is caused by SMEs, which continue to experience a significant increase in number, which will affect employment levels. Based on this research, further research should be carried out regarding the role of SMEs in employment absorption.

Research by [19] aims to analyse the factors that influence employment opportunities and the most dominant factors influencing employment in micro and small, and medium enterprises (SMEs) in Jambi City. The results of the analysis show that real wages have a significant negative effect on employment opportunities. Furthermore, the amount of capital positively and significantly affects employment opportunities. Interest rates have a negative effect, and real regional wages have a significant positive effect.

Research by [4] examines and describes the role of SMEs in absorbing labour. A research method is a qualitative approach with data sources in documents. Data analysis techniques use qualitative techniques, including data presentation, data reduction, and conclusion. The results show that the small and medium business sector in Pontianak City absorbs labour as much as 36.33% of the entire workforce. The most absorbed labour force is the uneducated, low-educated, and unskilled workforce. SMEs also play a role in improving the workforce's skills through an intensive mentoring process.

## 3 Research Methods

### 3.1 Research Approach

This study uses a quantitative approach using efficiency analysis statistical methods stochastic frontier analysis, and multiple linear regression analysis.

### 3.2 Data and Samples

The data sample used is 100 data from fast food and beverage SMEs spread across Malang City, which were obtained by distributing questionnaires and interviewing owners and employees.

### 3.3 Data Analysis

Calculation of profit efficiency stochastic frontier analysis is carried out using the model owned by Pilar et al. (2018), which is written as follows:

Profit Efficiency Model Transcendental Logarithmic

$$\begin{aligned}
 &Ln \left[ \left( \frac{\pi}{w_5} \right) + \left| \frac{\pi}{w_5} \right|^{min} + 1 \right] \\
 &= \alpha_0 + \sum_{j=1}^2 \alpha_j Ln y_{j,i} + \sum_{l=1}^4 \beta_l Ln \left( \frac{w_{s,i}}{w_{5,i}} \right) \\
 &+ \frac{1}{2} \sum_{j=1}^2 \sum_{k=1}^2 \alpha_{jk} Ln y_{j,i} Ln y_{k,i} + \frac{1}{2} \sum_{s=1}^4 \sum_{r=1}^4 \beta_{s,r} Ln \left( \frac{w_{s,i}}{w_{5,i}} \right) Ln \left( \frac{w_{r,i}}{w_{5,i}} \right) \\
 &+ \sum_{j=1}^2 \sum_{s=1}^4 \rho_{js} Ln y_{j,i} Ln \left( \frac{w_{j,i}}{w_{5,i}} \right) + v_i - u_i
 \end{aligned}
 \tag{2}$$

Where:

- $\theta_n$  Minimum Absolute Value Profit SMEs n. Constant  $\theta_n = |(\pi_n)^{min}| + 1$
- $\pi_n$  Total Profits of SMEs n
- $w_i$  Input Cost of SMEs n
- $w_5$  Asset SMEs n
- $y_i$  Total Output of SMEs n
- $u_i$  Controllable error factor
- $v_i$  The random error factor cannot be controlled

Furthermore, regression analysis was carried out to determine the effect of profit efficiency variables and income variables on labor absorption variables with the following equation:

$$y = \alpha + \beta_1(x_1) + \beta_2(x_2) + \varepsilon
 \tag{3}$$

Where y is the labor absorption variable,  $\alpha$  is a constant,  $\beta$  is the coefficient of the efficiency variable,  $x_1$  is the efficiency variable,  $x_2$  is the business income variable, and  $\varepsilon$  is the error or disturbance variable.

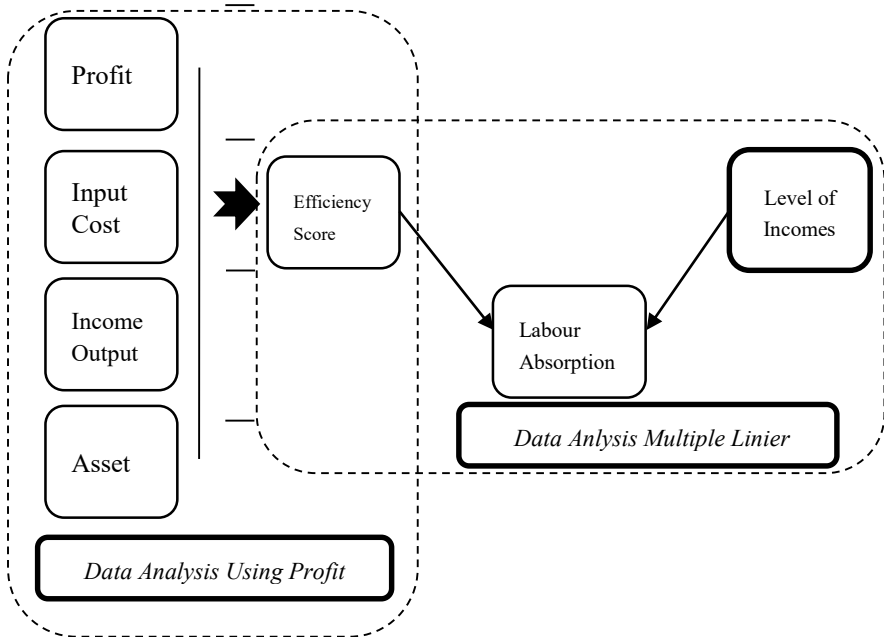


Fig. 1. Research Framework Data Analysis Using Profit Efficiency and Data Analysis Multiple Linier Regression

## 4 Result and Discussion

### 4.1 Analysis of Profit Efficiency.

Table 1. Maximum Likelihood Estimate (MLE)

Var.	Coefficient/Sig.	Var.	Coefficient/Sig.
$lny1$	51.86***	$lny1 * lnw1$	1.32***
$lny2$	100.52***	$lny1 * lnw2$	-1.49***
$lnw1/w5$	-22.95***	$lny1 * lnw3$	1.21**
$lnw2/w5$	62.91***	$lny1 * lnw4$	0.19***
$lnw3/w5$	61.63***	$lny2 * lnw1$	-2.18***
$lnw4/w5$	129.22***	$lny2 * lnw2$	0.02
$\frac{1}{2}ln(y1)2$	1.19**	$lny2 * lnw3$	2.27***
$lny1 * lny2$	-1.08***	$lny2 * lnw4$	0.05
$\frac{1}{2}Ln(y2)2$	-0.11	$T$	-592.29***
$\frac{1}{2}ln(w1)2$	-0.44	$\frac{1}{2}(t)2$	17813.84***
$lnw1 * lnw2$	-0.98***	$t * y1$	-826.17***
$lnw1 * lnw3$	3.72***	$t * y2$	-1094.68***
$lnw1 * lnw4$	0.21**	$t * ln(w1/w5)$	-74.40***
$\frac{1}{2}ln(w2)2$	1.90***	$t * ln(w2/w5)$	-428.03***
$lnw2 * lnw3$	-1.05*	$t * ln(w3/w5)$	-1049.35***

$\ln w_2 * \ln w_4$	-0.27***	$t * \ln(w_4/w_5)$	-1565.46***
$\frac{1}{2} \ln(w_3)^2$	-3.67***	$\text{Sigma}^2$	11.28***
$\ln w_3 * \ln w_4$	-0.02	$\text{gamma}$	1.00***
$\frac{1}{2} \ln(w_4)^2$	-0.05**	Likelihood	-203.18

Source: Data processed using the Frontier 4.1 application

The MLE table above is the result of calculations to measure efficiency scores. Efficiency measurement involves 35 transformation variables from profit, input costs, assets, income, and other income variables, which are transformed using a transcendental logarithmic approach, an efficiency approach used to check input substitution, a separateness between inputs, and aggregation between inputs for the best output results. In addition, using the translog model can also solve multicollinearity problems [7].

These results show the coefficient and significance level of each variable's estimated frontier used to calculate the efficiency score. MLE is only used as statistical evidence of data processing results and is not used for data interpretation. Furthermore, data interpretation is carried out using the efficiency score table below:

Table 2. Efficiency Score

SMEs	Score	SMEs	Score	SMEs	Score	SMEs	Score	SMEs	Score
1	0,253	21	0,530	41	0,784	61	0,085	81	0,056
2	0,323	22	0,169	42	0,204	62	0,999	82	0,089
3	0,795	23	0,396	43	0,002	63	0,221	83	0,069
4	0,009	24	0,122	44	0,006	64	0,533	84	0,007
5	0,012	25	0,025	45	0,090	65	0,001	85	0,999
6	0,072	26	0,827	46	0,043	66	0,131	86	0,541
7	0,042	27	0,011	47	0,680	67	0,074	87	0,016
8	0,412	28	0,026	48	0,176	68	0,397	88	0,493
9	0,246	29	0,457	49	0,001	69	0,203	89	0,371
10	0,070	30	0,784	50	0,001	70	0,332	90	0,565
11	0,029	31	0,186	51	0,142	71	0,352	91	0,223
12	0,426	32	0,186	52	0,001	72	0,001	92	0,910
13	0,055	33	0,314	53	0,101	73	0,539	93	0,042
14	0,463	34	0,042	54	0,005	74	0,246	94	0,189
15	0,625	35	0,493	55	0,170	75	0,237	95	0,908
16	0,001	36	0,009	56	0,012	76	0,001	96	0,159
17	0,294	37	0,751	57	0,072	77	0,339	97	0,165
18	0,067	38	0,076	58	0,756	78	0,472	98	0,532
19	0,021	39	0,313	59	0,015	79	0,130	99	0,070
20	0,933	40	0,015	60	0,001	80	0,103	100	0,017

Source: Data processed using the Frontier 4.1 application

The highest efficiency score for food and beverage SMEs in Malang is 99%, and the lowest is 1%. While the average efficiency score for SMEs in Malang is only 26%, the level of efficiency or performance from a production point of view, namely from the

use of inputs to produce output, is only 26%. The efficiency level can be influenced by several factors, such as the length of time the business has been established and the characteristics of the business owner [5]. However, this calculation has yet to be investigated in this paper.

The results of these varying efficiency scores mean that some SMEs have been operating optimally, namely managing their production inputs to maximum output. However, on the other hand, some SMEs need to maximize the use of their production inputs to the fullest. SMEs that are 99% efficient, meaning that their business can use up to 99% of inputs from raw material costs, operational costs and assets to produce quality products and get maximum profit. Conversely, SMEs with a score of 1% mean that the business can only use 1% of its production inputs to produce output.

**Table 3.** Multiple Linear Regression

	<i>Unstandardized Coefficients</i>	<i>Std. Error</i>	<i>Standardized Coefficients</i>	<i>t</i>
<i>(Constant)</i>	3,373	0,612		5,515
<i>Efisiensi_Kinerja</i>	-1,692	1,369	-0,116	-1,236
<i>Omset</i>	8,25E-08	0	0,39	4,163

*Source: data processed with SPSS 25 application*

Multiple linear regression analysis found that the level of efficiency has a negative effect on employment. That is, the lower the efficiency, the less the number of workers employed. An efficient business unit means that the business only uses minimal inputs (costs, raw materials and labour). The concept of profit is income minus costs. The lower the costs incurred to produce a certain output (income), the more efficient the business will be. SMEs must work efficiently because this business has a fast financial flow. The financial flow in question is from spending costs for production and producing products that generate income quickly. If SMEs cannot minimize costs or maximize income, it will affect the survival of their businesses. This is what often happens to SMEs in Indonesia; even though their number and growth continue to increase, many SMEs have also had to go out of business.

Furthermore, the income variable has a positive and significant influence on labor absorption, this indicates that the higher the income, the higher the labor absorption. Income has a different influence on labor absorption compared to efficiency. Efficiency describes the use of input to produce output, while income only describes the output side, therefore it can be interpreted that if a business is able to generate high income then the business can expand its business unit and increase the number of employees. This business expansion activity can have an impact on the large number of employees used.

## 5 Conclusion

The average efficiency score of SMEs in Malang City is 26%, indicating that the performance of SMEs with an efficient input-use approach in maximizing the resulting

output still needs to improve. SMEs in Malang City require special attention from the local government. Several formulations, such as money management and managerial training, are significant for SMEs' future resilience.

Efficiency can be used as an indicator of a business's performance quality. The higher the efficiency, the better the quality of performance. However, an efficient business tends to hire only a few employees to minimize costs.

This demand for efficiency has the opposite relationship with the absorption of labour which is one of the instruments of macroeconomic success. Thus, there is a level of trade-off between production efficiency and unemployment that must be discussed in depth by stakeholders. The alternative is that the workforce must have exceptional skills in mastering technology. Furthermore, determining the minimum wage for workers is an alternative that has been carried out in Indonesia. A fair decision between the interests of business and workers must be made through policies that are right on target.

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