



## Determinant of SMEs Income using Structural Equation Model (SEM)

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**Abstract:** Small and Medium Enterprises (SMEs) are business activities that can be carried out by everyone, as long as that person can manage and develop the business. SMEs also have a role in economic independence, which can later lead to national independence. SMEs in running their business are sure to be pursued is related to income and profits. The purpose of this study was to analyze how the direct effect of length of business and level of education on the income of Furniture SMEs in Menganti, Gresik, and the indirect effect of financial behavior as intervening variables. The study used 155 furniture SMEs in Menganti Gresik with financial behavior as an intervening variable. The exogenous variable uses the length of business and education level, and the endogenous variable is SME income. using *Structured Equation Model* (SEM). Based on the results of the study, it shows that each variable for its direct effect shows that all variables have an effect on endogenous variables, while for indirect it shows that financial behavior is capable of intervening between business length and income, and education level and income.

**Keywords:** Financial Behaviour; Income Business; Length of Business; Level of Education; Structural Equation Model (SEM)

### INTRODUCTION

The role of MSMEs in the Indonesian economy is shown in several indicators, including 1) MSMEs are quite numerous and cover the economic sector. 2) The potential for MSMEs in absorbing a large number of workers. 3), has a moderate impact on the influence of national income (Afriza, 2021). This is because in general MSMEs in Indonesia are still traditional and use local-based resources, and do not depend on loans from abroad, or materials obtained from imports (Dai et al., 2021), (Wardati & ER, 2019). If you look at it, even though MSMEs have an important position in the economy, MSMEs themselves have several shortcomings and obstacles, one of which is related to capital, human resources, limited technology, and management that is still simple (Eggers, 2020), (Serrasqueiro et al., 2020). Thus, MSMEs must be able to compete with other businesses to be able to maintain their existence to contribute to the economy (Amri, 2020).

MSMEs in terms of running a business or business some things need to be considered, namely about the length of the business or the length of time the entrepreneur runs his business. The duration of opening a business or business can affect the level of income of these MSMEs, so this can have an impact on the length of time for a business or business actor in his field of business to know abilities and improve skills in seeing consumer tastes (Mabenge et al., 2020).

Based on the description above, this also applies to furniture SMEs in Gresik. The furniture center is one of the UKM centers in Gresik, one of which is the furniture center in Menganti. This center was chosen because the focus of this study was on one SME center scope. The level of education can also affect the income level of MSMEs. The educational level of employees and/or business owners has an impact on the competitiveness and productivity improvement of the company (Eniola, 2018). This is

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supported by a statement from Marfuah & Hartiyah (2019) that the higher the level of education of MSME actors, is hoped that it will have the impact on MSME actors to be able to understand the applicable provisions and laws, and regulations. With the length of time, the business has been running and the level of education of MSMEs, it is hoped that later this will also have an impact on the financial behavior of these MSME actors.

According to Arianti (2018), income is the value of overall production in the economy which is obtained by adding up the income of all production factors used in the production process. In a business, revenue is the amount of money earned or received by a company from an activity, almost all from selling products or services to customers. For investors, income is less important than profit which is the amount of money received after deducting expenses.

Yoon & Dustin (2021) revealed that several things determine whether a person is experienced or not at work, namely the length of time/working period, level of knowledge and skills possessed, and mastery of work and equipment. The length of time in which a business is opened can affect the level of income, and the length of time a business person pursues his line of business will affect his productivity (professional ability/expertise) so that he can increase efficiency and be able to reduce production costs to a lesser extent than sales results. The longer it takes to pursue the trade business field, the more knowledge will be gained about consumer tastes or behavior (Khaddafi et al., 2021), (Setiaji & Fatuniah, 2018).

Education is one of the elements that can change attitudes and behavior, improve and develop mindsets, and insights, and make it easier for entrepreneurs to absorb information that can bring renewal and progress to their businesses so that they can increase the income received (Widyastuti et al., 2020). Segura & Zamar (2019) says how business owners' education and work experience of business owners can affect the growth of SMEs in terms of profit, sales, number of employees, and number of customers. The level of education in society affects the level of understanding, the higher the level of education, the higher the level of understanding.

Financial behavior is a situation regarding individual opinions of funds used in financial behavior. Adiputra (2021) defines a financial attitude as a response to the financial conditions experienced by individuals, whereas a financial attitude is a manifestation of applying proper financial principles to maintain value through making the right decisions and managing resources.

## METHODS

This research is quantitative research, to look for the causes and effects of a particular factor (Sugiyono, 2019). This study used 155 respondents. Respondents in this study were furniture SMEs in the furniture center in the Menganti area, Gresik. This study uses an intervening model. The intervening variable in this study is *financial behavior*, with exogenous variables being business *length* and level of *education*, while the endogenous variable is *business income*. To complete the model in this study using *Structured Equation Model* (SEM) Analysis using the AMOS 21 tool (Ghozali, 2019). SEM was chosen because SEM can explain a series of relationships built between several exogenous variables and endogenous variables that form the construct of indicators that are measured directly. The steps for SEM testing include the researcher conducting validity tests, reliability tests, normality tests, outlier tests, the goodness of fit tests, and hypothesis tests, producing path diagrams and structural equations

Describe the method in detail. If the method refers to a standard procedure, write the standard (reference library). And describe and explain the types of related research,



the subject, and objects of the study, the time and location of the study, and how to take samples, collect data, and analyze data.

## RESULTS AND DISCUSSION

### Validity Test

The Validity test is used to find out between the data obtained and the actual data from the object under study. The validity test uses Confirmatory Factor Analysis (CFA) with the criteria of having a valid loading value > 0.5 and a critical ratio (CR) value as seen from the regression weight value with a value above 2.0, the p-value is less than 0, 05 (Ghozali, 2019). The following is the calculation result for confirmatory factor analysis (CFA).

**Table 1. Validity Test Results**

Indicator	Standardized Regression Weights	P-value	Description
X1.1 → Length Business	0,747	0,000	Valid
X1.2 → Length Business	0,803	0,000	Valid
X1.3 → Length Business	0,760	0,000	Valid
X1.4 → Length Business	0,909	0,000	Valid
X1.5 → Length Business	1,000	0,000	Valid
X2.1 → Level Education	1,000	0,000	Valid
X2.2 → Level Education	0,868	0,000	Valid
X2.3 → Level Education	0,759	0,000	Valid
X2.4 → Level Education	0,841	0,000	Valid
X2.5 → Level Education	0,944	0,000	Valid
Z1 → Financial Behaviour	0,903	0,000	Valid
Z2 → Financial Behaviour	0,941	0,000	Valid
Z3 → Financial Behaviour	1,000	0,000	Valid
Z4 → Financial Behaviour	0,981	0,000	Valid
Z5 → Financial Behaviour	0,889	0,000	Valid
Y1 → Income Business	0,860	0,000	Valid
Y2 → Income Business	0,804	0,000	Valid
Y3 → Income Business	0,833	0,000	Valid
Y4 → Income Business	0,905	0,000	Valid
Y5 → Income Business	1,000	0,000	Valid

Source: Data AMOS (2022)

Based on the data above it can be seen that for the validation test for all indicators, it can be seen that the construct variable length business (X1), level of education (X2), financial behavior (Z), and income business has a value significant regression weight with a value above 2 and a p-value of less than 0.05. So, it can be concluded that all indicators can form the construct of all variables declared valid because the *loading factor* is above 0.5.

### Reliability Test

The criteria for construct reliability of data are declared valid if the construct reliability value is more than 0.7. While the reliability of 0.6 - 0.7 is still acceptable (Ghozali, 2019). The following is the formula for obtaining *construct reliability*:

$$\text{Construct Reliability} = \frac{(\sum \text{Std. Loading})^2}{(\sum \text{Std. Loading})^2 + \sum \epsilon_j}$$

Based on construct reliability calculations with AMOS, the following results are obtained:



**Table 2. Test Results Construct Reliability**

Variable	Construct Reliability	Information
Length Business (X1)	0.74	Reliability
Level Education (X2)	0.67	Reliable
Financial Behavior (Z)	0.70	Reliable
Income Business (Y)	0.65	Reliable

Source: Data AMOS (2022)

Based on the results obtained from testing the reliability of the research instrument because the *construct* > 0.6 - 0.7 it can be stated that the research instrument is reliable.

### Variance Extract

The *variance extracted* value comes from the sum (total) squared *standard loading* value divided by the total squared *standard loading* value plus the total error value. The complete formula is presented below.

$$\text{Variance Extracted} = \frac{\sum \text{Std. Loading}^2}{\sum \text{Std. Loading}^2 + \sum \epsilon_j}$$

**Table 3. Variance Extracted**

Variable	Variance Extracted	Description
Length Business (X1)	0.591	Reliable
Level Education (X2)	0.535	Reliable
Financial Behavior (Z)	0.529	Reliable
Income Business (Y)	0.514	Reliable

Source: Data AMOS (2022)

The *cut of test variance extracted* is > 0.50. The *Extracted Variance* (VE) value in this study is more than 0.50 so this indicates that the total variance of the indicators extracted by the latent construct is more than the variance.

The number of respondents used in this study was 155 respondents. Where the respondents used were SMEs engaged in furniture to be precise in furniture centers in Menganti, Gresik. The number of respondents for SEM analysis using the AMOS tool is 100-200 for the maximum likelihood method with the assumption that normality is met. In this study, 155 respondents were used so that they were considered to have met the required minimum number so that they could proceed with the outlier test.

In this study, because the number of research samples already amounted to 155 samples and met the requirements for SEM analysis, the sample was deemed capable of producing fit and normal data so that researchers no longer needed to reduce the sample again, this would be proven by the normality test on this research.

The next test for SEM analysis is to use the normality test. The criteria used for the normality test in this study were the values *critical ratio* (cr) *skewness* and *kurtosis* which were normal in both univariate and multivariate. The *critical ratio* (cr) for *skewness* and *kurtosis* of each variable is not greater than  $\pm 2.58$  so the data is declared normally distributed for the *univariate level*. At the *multivariate* kurtosis level, the cr value is not more than  $\pm 2.58$  so the data is normally distributed at the multivariate level.



**Table 4. CFA Test Results**

Indicator	Standardized Regression Weights	Description
Length Business		
X1.1 → Length Business	0,747	Used
X1.2 → Length Business	0,803	Used
X1.3 → Length Business	0,760	Used
X1.4 → Length Business	0,909	Used
X1.5 → Length Business	1,000	Used
Level Education		
X2.1 → Level Education	1,000	Used
X2.2 → Level Education	0,868	Used
X2.3 → Level Education	0,759	Used
X2.4 → Level Education	0,841	Used
X2.5 → Level Education	0,944	Used
Financial Behaviour		
Z1 → Financial Behaviour	0,903	Used
Z2 → Financial Behaviour	0,941	Used
Z3 → Financial Behaviour	1,000	Used
Z4 → Financial Behaviour	0,981	Used
Z5 → Financial Behaviour	0,889	Used
Income Business		
Y1 → Income Business	0,860	Used
Y2 → Income Business	0,804	Used
Y3 → Income Business	0,833	Used
Y4 → Income Business	0,905	Used
Y5 → Income Business	1,000	Used

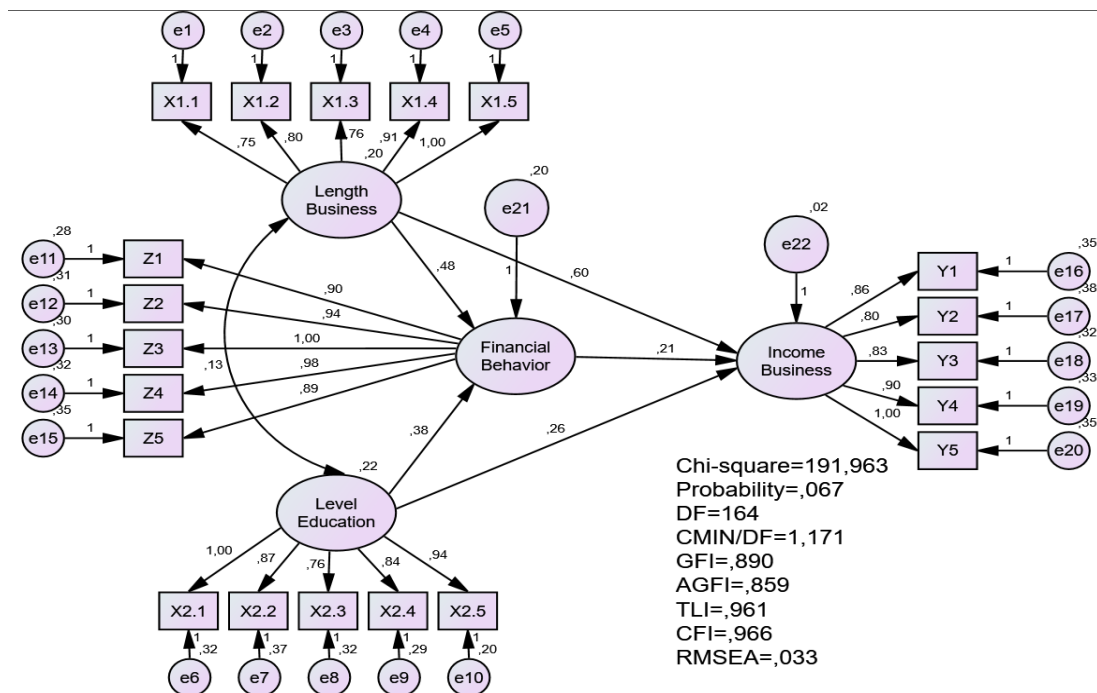
Source: Data AMOS (2022)

Based on the table above shows that all indicators in this study can be used in data analysis, because of the *loading factor* above 0.5, which means it can be used as a measurement variable in this study. The following table *confirmatory factor analysis* (CFA) results.

**Table 5. Evaluation of Estimated Parameter**

	Estimate	SE	CR	P	description
Financial Behaviour ← Level of Education	0,379	0,176	2,156	0,031	significant
Financial Behaviour ← Length of Business	0,482	0,194	2,479	0,013	significant
Income Business ← Length Business	0,595	0,161	3,697	0,000	significant
Income Business ← Level Education	0,263	0,128	2,052	0,040	significant
Income Business ← Financial Behaviour	0,208	0,09	2,258	0,024	significant

Source: Data AMOS (2022)



**Figure 1. Structural Model Test**  
 Source: AMOS output results (2022)

Structural equation models formed between variables based on path analysis that have been used are:  
 $income\ business = 0.595\ length\ business + 0.263\ Level\ education + 0.208\ financial\ behavior + \zeta_1$   
 $Financial\ behavior = 0.379\ level\ education + 0.482\ length\ business + \zeta_1$

**Table 6. Goodness of Fit**

Index Goodness of Fit	Criteria	Outcome in Model	Description
Chi-Square	Small Expected	191.963	Good
Probability	$\geq 0.05$	0.067	Good
GFI	$\geq 0.90$	0.890	Marginal Fit
AGFI	$\geq 0.90$	0.859	Marginal Fit
CFI	$\geq 0.95$	0.966	Good
TLI	$\geq 0.95$	0.961	Good
RMSEA	$\leq 0.08$	0.033	Good
CMIN/DF	$\leq 2.00$	1.171	Good

Source: Data AMOS (2022)

The conclusion is that this research model is acceptable because it meets the criteria of *Goodness of Fit*.



### **The Effect of Length Business on Income Business**

Testing the direct effect of the Variable *Length Business* on *Income Business* obtained significant results as evidenced by a CR value of 3.697 which meets the requirements because the value is more than 2. The p-value is 0.000 which fulfills the criteria which are less than 0.05. So, it can be concluded that the variable *Length of Business* influences *Income Business*. The length of a business is a benchmark for success in running a business or business, and SMEs are no exception. The longer the UKM has been established, the more it has experienced various kinds of conditions, both good and bad conditions, so that UKM is better prepared in the future in dealing with various possible uncertainties that can occur that can befall the UKM itself. So these UKM are better prepared and can prepare strategies that can be done to maintain income and even to increase their income.

### **The Effect of Business Length on Financial Behavior**

Testing the direct effect of the Length Business on Financial behavior obtained significant results as evidenced by a CR value of 2.479 which fulfilled the requirements because the value was more than 2. The p-value was 0.013 which fulfilled the criteria, namely less than 0.05. Variable Length Business influences financial behavior. The longer a business/business has been running, it can also have an impact on the financial behavior of SME owners.

### **The Effect of financial behavior on Income Business**

Testing the direct effect of the variable financial behavior on Income Business obtained significant results as evidenced by a CR value of 2.252 which fulfilled the requirements because the value was more than 2. The p-value was 0.024 which fulfilled the criteria, namely less than 0.05. Variable financial behavior influences Income Business. Better financial behavior can have an impact on the income of a business or business, why is because the better one's understanding of finances can also affect one's behavior toward finances. Because the more you understand about finance, the wiser you are in using money. Good financial management can also boost income because funds can be managed effectively and efficiently.

### **The Effect of Level of Education on Income Business**

Testing the direct effect of the variable Level of education on Income Business, significant results were obtained as evidenced by a CR value of 2.052 which met the requirements because the value was more than 2. The p-value was 0.040 which met the criteria, which was less than 0.05. So it can be concluded that the variable Level of education influences Income Business.

Education is an important thing in life, the higher the education, the higher one's understanding of something, including the understanding of managing a business or business. Where better business management can have an impact on increasing income. Someone who has a good education is more able to think and prioritize according to needs, including for his business, so someone who has a good education will have a good financial attitude, with a good financial attitude which can later increase income.

### **The effect of education level on financial behavior**

Testing the direct effect of the education level on financial behavior obtained significant results as evidenced by a CR value of 2.156 which fulfilled the requirements because the value was more than 2. The p-value was 0.031 which fulfilled the criteria, namely less than 0.05. variable level of education influences financial behavior.



The better a person's education, the better a person's understanding will be, including an understanding of finance. A good understanding of finance will also have an impact on a person's better attitude about finances and will be wiser in using money.

### **The Effect of Business Length on Income Business with financial behavior as a mediating variable**

The test to determine the direct effect requires assistance using the Sobel test. According to Ghozali (2019), testing the mediation hypothesis can be carried out using the procedure developed by Sobel (1982), namely the Sobel test. The calculations are as follows:

$$a = 0.482$$

$$b = 0.208$$

$$Sa = 0.104$$

$$Sb = 0.092$$

The results show that the statistical test value is 2.032, the standard error value is 0.049, and the p-value is 0.042. These results illustrate the direct tidal effect of long business on income business through financial behavior, it turns out that financial behavior is considered capable of mediating between length business and income business as evidenced by the p-value of 0.042.

### **The effect of education level on Income Business with financial behavior as a mediating variable**

The next test is for the second model path analysis, to test the indirect effect also using the sobel test.

$$a = 0.379$$

$$b = 0.208$$

$$Sa = 0.176$$

$$Sb = 0.092$$

The results show that the statistical test value is 1.966, the standard error value is 0.040, and the p-value is 0.049. directly *education level* on *business income* through *financial behavior*, it turns out that financial behavior is considered capable of mediating between *education level* and income business as evidenced by the p-value of 0.049.

## **CONCLUSION**

The conclusions obtained from the results of this study are that for the direct effect (direct effect) it can be concluded that all variables have a significant influence, which means that these variables can be a determining factor for endogenous variables, as evidenced by the table below. Based on the research results for the indirect effect (indirect) shows that for the first model variable financial behavior can mediate the length of the business to the income business and the financial behavior variable can mediate the education level to the income business.

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