

# EFFECT OF EDUCATION LEVEL, GENDER ROLE, AND INFORMATION TECHNOLOGY ON MSME INCOME IN THE ERA OF COVID-19 (CASE STUDY ON FOOD MSMEs IN BANDUNG CITY)

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**Abstract.** The specific purpose of this study is to provide an overview to the food sector SMEs in the city of Bandung, that the influence of education level, gender roles, and information technology has a significant influence on their income. This study used 59 samples of food sector MSME business actors in the Bandung City area. The sampling technique chosen in this study was incidental sampling technique and data collection using questionnaires distributed to respondents, namely MSME owners. The data analysis technique used in this research is multiple linear regression. The results showed that there was an influence of education level, gender roles, and information technology on the income of MSME actors in the food sector in the city of Bandung. Hopefully this research can provide input to the food sector MSME administrators in the Bandung Raya area, especially the food sector MSME actors to continue to improve the quality of education both through formal and non-formal education, increase the existence of gender roles by not leaving their nature as women, and continue to upgrade information technology, which is useful for marketing the results of his business. Because based on research conducted by researchers, these three variables can increase the income of MSME actors.

**Keywords:** education level; gender roles; information technology; income

## I. INTRODUCTION

The city of Bandung is one of the municipalities that is developing in the MSME program. Therefore, local governments focus on developing MSMEs managed by the Ministry of Cooperatives by providing training, providing business assistance and even helping with some capital for MSMEs that have just opened a business. However, in reality, not all MSMEs in Bandung have high productivity. There are many MSMEs with low productivity. The low productivity of MSMEs can be seen from the low income, the number of goods production has not increased and the limited marketing area for MSME finished products. This situation is caused by internal problems faced by MSMEs, namely: the low quality of human resources, weak entrepreneurship of MSME owners, and limited MSME access to capital, information, technology and markets, as well as other production factors.

The Department of Cooperatives, Micro, Small and Medium Enterprises (KUMKM) noted that there was a 3.8% growth in MSMEs in Bandung in the last six years. Head of Section for Empowerment and Development of Micro Enterprises and Facilitation of the Bandung City KUMKM Office, Nuri Nuraeni, said the number of micro enterprises based on data from the Bandung City BPS data was 111,627 or 75% of the total number of MSME groups of 147,073. The number of assisted MSMEs registered with the KUMKM Service is 6,409. The existence of the Covid-19 pandemic has an impact on all countries in the world, not a few countries are experiencing a recession because of

negative growth. The global economy is contracting which results in high uncertainty. In Indonesia, GDP growth in the second quarter of 2020 contracted by 5.32% compared to the second quarter of 2019 (year-on-year), when compared to the first quarter of 2020 (quarter-to-quarter) the Indonesian economy contracted by 4.19% (BPS, August 2020). According to the Ministry of Cooperative SMEs, as of early June 2020, the most affected SMEs were culinary SMEs. This is of course also experienced by Food SMEs in the city of Bandung. The existence of prohibitions and restrictions on selling by the Bandung City Government, the existence of social distancing and the implementation of work from home during the initial three to four months of the Covid-19 pandemic resulted in people's purchasing power dropping and having an impact on the financial income of Food SMEs.

Nuri explained the obstacles faced by her party during the Covid-19 pandemic which had lasted for the past year. Starting from the lack of capital, to the lack of product innovation. "The lack of capital is a common problem for micro-enterprises. Inefficient financial management is also one of the obstacles that micro-enterprises are difficult to develop. The lack of product innovation, not maximizing online marketing, not having a permit, is one of the causes of the decline in turnover, especially during the current pandemic," he said to Jabar Ekspres, Wednesday (24/3). Seeing these obstacles, the education level factor plays an important role, in the city of Bandung itself based on statistical data in 2020 the owners of MSMEs were 61.02% with an educational background below S1. This is due to the lack of skills, experience and knowledge of MSME owners.

Education is a form of investment in human resources role in spurring economic growth. This investment is an investment long term because the benefits can only be felt after ten years [1]. According to Simanjuntak [2][3] the relationship between the level of income at the level of education is because by assuming that the higher the level of education the higher the level of employee productivity and in the end affect the level of income. Saraswati [4], states that education Simultaneous significant effect on employee income and education partially significant and positive effect on employee income.

Regarding the role of women in entrepreneurship, according to data from the Indonesian Entrepreneurs Association (IWAPI) that in 2015 the number of female entrepreneurs was 60% of the 49.9 million entrepreneurs in Indonesia and until 2019 experienced a growth of 20% [5]. Data from the Director General of Small and Medium Industries (IKM) and the various Ministries of Industry show that as of December 2019 the number of SMEs in Indonesia was around 4.4 million, of which 80% of them were engaged in the food and beverage sector. Of this amount, almost 90% are managed by women [6]. These data indicate that currently women have a strategic role in the family and national economy.

Technology is a tool used to accelerate productivity in a business [7]. With this tool, it is very easy for workers to produce goods and will increase the productivity of the labor will ultimately affect the level of income. MSME technology development influenced by many factors, including the ability of human resources to develop technology, availability of capital for technology procurement, the role of research institutions in support technology development as well as monetary and fiscal policies [8].

Suparmoko and Irawan [9], technology means a change in the production function that visible in existing production techniques. Therefore, technical changes are always sought so that there is maximum use.

#### *Level of education*

Investment in education has a direct effect on individual productivity and income [10]. There is a relationship between education level and income level where human resources are able to improve their quality of life through a process of education, training, and development that ensures increased work productivity. So that in the end it guarantees sufficient income and increasing welfare of life”

In theory, the higher the education of an entrepreneur, the higher the income earned. Education has an impact on business productivity as experienced by South African countries. Lower education from 2006 to 2011 has an impact on lower business activities in South African countries. Research in 2012 in Mdatsane, South Africa, with the research objects divided into the age of the business owner, the level of education and the length of the business. The data sample is 36 respondents who are the owners of the business. It was found that work experience, education level and length of business together had a significant impact on the income of the business [11].

Education is a form of investment in human resources role in spurring economic growth. This investment is an investment long term because the benefits can only be felt after ten years [1]. According to Simanjuntak [2] the relationship between the level of income at the level of education is because by assuming that the higher the level of education the higher the level of employee productivity and in the end affect the level of income. Utari and Dewi [12] stated that the level of education has a positive effect on MSME income, so the higher the level of education, the higher the income earned by MSMEs.

#### *Gender Role*

Liberal feminism was first popularized by Wollstonecraft (1792) in the 18th century. In the 19th century it was developed by Mill (1869) then in the 20th century by Friedan (1963) [13]. The basic concept of liberal feminist theory emphasizes that women and men are created equal and have the same rights, so they must have the same opportunities as well. What distinguishes humans from other creatures is because humans have minds, which can think rationally. Rational thinking has 2 (two) scopes, namely: morality-an autonomous decision-maker and prudential-self-fulfillment. Individual rights for liberals should take priority over “goods”. Each individual is given the freedom to choose what is "good" for himself as long as it does not harm others. Liberalism also emphasizes a just society that allows each individual to practice his or her autonomy in meeting their needs [13].

The phenomenon of gender equality has become a global issue, especially the role of women in entrepreneurship. In Indonesia, currently women have started entrepreneurship independently, both to help the family economy and indeed have the motivation to be entrepreneurship. When women in selling or trading can make a profit, it means that women have pioneered to become entrepreneurs. This means that women also have the ability to be entrepreneurs. Women can also play a role in the family economy and the national economy, although women have a dual role, namely as housewives but can also help the family economy, maybe even as the backbone of the family economy.

The role of women is currently proven to be able to compete with men in economy. Not only at the family level, but also at the national and even global level. Not a few women who manage their own businesses, by establishing micro, small and medium enterprises (MSMEs). With passion, creativity, innovation and ability, women can become strong entrepreneurs in business. According to Febriani [14] women's success in entrepreneurship is also supported by the advantages they have, including: thorough, diligent, serious, painstaking, tenacious, honest, patient, strong willed, high dedication, and discipline in administration. and manage finances. This description is in accordance with studies from Sumantri [15] and Sumarwati and Rachman [9] which show that gender, in this case women entrepreneurs, can improve MSME performance. Gender roles, namely women entrepreneurs will play a very important role in all conditions, both in conditions before the

Covid-19 pandemic and during the Covid-19 pandemic. This is because women have two roles, namely as housewives as well as entrepreneurs.

#### Information Technology

The technology acceptance model (TAM) was first introduced by Davis [12]. TAM is a development of the theory of reasoned action (TRA) which was popularized by Ajzen and Fishbein [12]. Davis developed the TAM model by adding two main constructs to the TRA model, namely usability perception and ease of use of perception. This is because a person's acceptance of information technology systems is determined by the usefulness of perception and the ease of use of perception. The usefulness of perception and the ease of use of perception have an influence on behavioral intention. Technology users are interested in using technology (behavioral interest) if the technology used is easy to use and can provide benefits [12]. In the current era of disruption, MSMEs are also required to use information technology to increase their income.

Gender who has a level of education, in this case women entrepreneurs can increase their income if they are supported by the use of information technology, especially in the current digitalization era. The development of information technology, both software such as the internet network and the applications used, as well as hardware such as smartphones and laptops, is very possible to be used by MSMEs to increase their income by mobile. Moreover, currently there are many social media applications such as WhatsApp, Instagram, Facebook and others as well as available marketplaces such as Shopee,

Bukalapak, Tokopedia and others that can be used by MSMEs to promote and sell their products. In addition, MSMEs can also use applications to record business transactions or make financial reports. The results of research by Eller [16] shows that digitalization or information technology has a positive effect on the income of MSMEs in Austria. The same results were also found by research by Azam [17] which showed that the adoption of information technology by MSMEs in India had a significant positive effect on MSME income in Bangladesh. Research by Odoom [18] also found the effect of using information technology, in this case, social media had a significant positive effect on increasing MSME income in Ghana. Kurniawati's study [19] in East Java also found that gender, namely women entrepreneurs have used information technology in the form of e-commerce for competitive strategies so that they can improve the performance of MSMEs. The use of information technology is very important to improve the performance of MSMEs, especially during the Covid-19 pandemic like now.

#### Income/Business Income

One goal that every trader has is to achieve maximum profit so that income increases, welfare will also increase as well. The definition of income or operating income according to the Banking Business Economics Dictionary is equated with operating income, namely operating income from the results of operations/business activities. Sadono Sukirno [20] income of entrepreneurs is an advantage. In the

company's activities, profits are determined by reducing the various costs incurred from the sales obtained. Therefore, the benchmark for a business to succeed or fail is the value of the income received by the owner.

## II. RESEARCH METHODS

This research was conducted in West Java Province, especially the Bandung City area, the main reason for choosing this location is the large number of micro, small and medium enterprises in the city of Bandung based on data from the Head of the Section for Empowerment and Micro Business Development and Facilitation of the Bandung City KUMKM Office, Nuri Nuraeni said, the number of Micro-enterprises based on data from BPS Bandung City are 111,627 or 75% of the total number of MSME groups of 147,073. The number of assisted MSMEs registered with the KUMKM Service is 6,409 (data as of September 20, 2021). The population taken as many as 144 MSMEs assisted by the food MSME sector.

The subject of this research is the owner of food SMEs in the city of Bandung. The object of this research is the development of the influence of the level of education, gender roles, and information technology used on the income of micro, small and medium enterprises in the city of Bandung.

Application of the Application of the Study of Objects Primary data in this study is data collected by spreading questionnaire and supported by the results of interviews with respondents and secondary data [21]. This research is data from Disperindang Povinsi West Java. The population in this study is all micro, small and medium enterprises located in the city of Bandung. The sampling technique chosen in this study was by incidental sampling technique, namely the procedure for determining the sample based on chance, anyone who coincidentally/incidentally meets the researcher can be used as a sample, if it is seen that the person who happened to be met is suitable as a data source. The method of determining the number of sample members from a population in this study uses the Slovin formula [21]. The number of population taken in this study was 144 food SMEs and the number of samples was 59 food SMEs. Data collection methods used in this study were interviews, observations, and questionnaires. This study uses linear regression data analysis techniques multiple [22].

## III. RESULTS AND DISCUSSION

From the calculation results, the regression equation is obtained as follows:

$$Y = -17.421 + 0.553X_1 + 0.276X_2 + 0.220X_3 + e$$

The basis for decision making is done by comparing the value of tcount with t table as well as by looking at the significance value. If tcount > ttable or sig < 0.05 then Ha is accepted and Ho is rejected. If tcount < t table or sig > 0.05 then Ha is rejected and Ho is accepted. In this study, for = 0.05% and degrees of freedom = 55, the t table is 2.005.

*Effect of education level (X1) on income (Y)*

Based on the regression equation generated from the output of Table 5, it is known that the tcount value of X1 is 2,969 and the significance level is 0.005. This shows that the value of  $t_{count} > t_{table}$  is  $2,969 > 2,005$ , and the significance value is less than 0.05, which is  $0.005 < 0.05$ , so the decision is to accept  $H_a$  and reject  $H_o$ . It can be concluded that based on the results of the study there is a significant positive effect of Education Level (X1) on Income (Y).

#### *The influence of gender roles (X2) on income (Y)*

Based on the regression equation generated from the output of Table 5, it is known that the value of tcount X2 is 2.196 and the significance level is 0.037. This shows that the value of  $t_{count} > t_{table}$  is  $2.196 > 2.005$ , and the significance value is less than 0.037, which is  $0.037 < 0.05$ , so the decision is to accept  $H_a$  and reject  $H_o$ . It can be concluded that based on the results of the study there is a significant influence between Gender Roles (X2) on Income (Y).

#### *The effect of information technology (X3) on income (Y)*

Based on the regression equation generated from the output of Table 5, it is known that the value of tcount X3 is 2.170 and the significance level is 0.035. It can be concluded that the  $t_{count} > t_{table}$  is  $2.170 > 2.005$ , and the significance value is less than 0.05, i.e.  $0.035 < 0.05$ , so the decision is to accept  $H_a$  and reject  $H_o$ . It can be concluded that based on the results of the study there is a significant positive effect of Information Technology (X3) on Revenue (Y), so that if the value of the Information Technology variable increases by 1 unit, the value of the Income variable will also increase by 2,170 assuming the other independent variables are constant.

In the t-test, it is known that the level of education (X1) has a significant influence on the income (Y) of SMEs in the city of Bandung ( $t_{count} = 2,969$ ,  $sig = 0.005$ ), so the higher the level of education, the greater the income obtained. This shows that MSME income is influenced by the education level of MSME actors. In accordance with previous research conducted by According to Simanjuntak [2] the relationship between the level of income at the level of education is because by assuming that the higher the level of education, the higher the level of employee productivity and ultimately affect the level of income. Utari and Dewi [12] also stated that the level of education has a positive effect on MSME income, so the higher the level of education, the higher the income earned by MSMEs.

Furthermore, the t-test shows that the Gender Role (X1) has a significant influence on the income (Y) of SMEs in the city of Bandung ( $t_{count} = 2.196$ ,  $sig = 0.037$ ), so the greater the gender role, the greater the income obtained. This is in accordance with previous research conducted by Febriani [14] which proved that women significantly choose micro-enterprises because of gender inequality in the labor market and time flexibility and economic opportunities in business.

The next test shows that Information Technology (X3) has a significant influence on the income (Y) of MSMEs in the city of Bandung ( $t_{count} = 2.170$ ,  $sig = 0.035$ ), where the higher the application of information technology, the greater

the income obtained. This is very likely to happen considering that in an increasingly sophisticated era, information technology certainly plays a role in supporting business. This information technology is like social media that makes it easier for MSMEs to market their products, capture information about products that are still needed by consumers, get convenience to participate in various kinds of training and attachments to improve the quality of human resources and the quality of products sold by MSME actors. So that it can produce higher quality products in greater quantities and in accordance with market demand and reach more people in a shorter time, less cost and wider scope. Research results support research previously by Utari and Dewi [12] which stated that the more modern information technology is adopted, the greater the income received by MSMEs.

From these data, it can also be seen that the results of regression analysis and the coefficients for the Education Level variable (X1) are 0.553, the Gender Role variable (X2) is 0.276, and the Information Technology variable (X3) is 0.220 with a constant of -17.421 so that the regression equation model obtained is:

$$Y = -17.421 + 0.553X_1 + 0.276X_2 + 0.220X_3 + e$$

This equation can be interpreted as follows:

Constant (a): -17.421, the value of the constant is negative, meaning that if the variable score of education level, gender role and information technology is considered non-existent or equal to zero, then the income score will decrease.

Coefficient b1: 0.553, the variable coefficient of education level is positive, meaning that the effect of education level on income is positive and quite strong. If the education level score increases, the income will be higher.

Coefficient b2: 0.276, the coefficient of the gender role variable is positive, meaning that the influence of gender roles on income is positive and quite strong. If the gender role score increases, the income will be higher.

The coefficient b3: 0.220, the variable coefficient is positive, meaning that the influence of information technology on income is positive and quite strong. If the score of information technology increases, the income will be higher.

Based on the explanation above, it is clear, the results of the study show that there is an influence of level of education, gender roles, and information technology on the income of MSME actors in the food sector in the city of Bandung. Hopefully this research can provide input to the food sector MSME administrators in the Bandung Raya area, especially the food sector MSME actors to continue to improve the quality of education both through formal and non-formal education, increase the existence of gender roles by not leaving their nature as women, and continue to upgrade information technology. which is useful for marketing the results of his business. Because based on research conducted by researchers, these three variables can increase the income of MSME actors.

#### IV. CONCLUSION

That during the Covid-19 pandemic, the higher the level of education, the higher the level of income received

by MSMEs, this is probably due to the higher Education Level, MSME actors in the food sector are becoming more creative in finding solutions to the problem of the COVID-19 pandemic, and it is possible that the MSME actors will become leaders in their organizations to invite other MSME actors to get out of the pandemic problem zone. The role of gender during the Covid-19 pandemic, in this case, is that women entrepreneurs can increase the income received by MSMEs in the food sector because women are used to using their free time to do work that is not time-bound. In this pandemic condition, the role of women entrepreneurs can help and even become a solution to financial problems, especially family finances. Gender roles, women entrepreneurs in the food sector during the covid-19 pandemic became heroes for their families. Information technology has a significant positive effect on increasing food MSME income during the Covid-19 pandemic.

That is, if Food SMEs want to increase their income, so food SMEs must use information technology, especially by utilizing social media in promoting, selling or looking for new products that are needed by consumers. In this study, the variables studied included only 3 independent variables, namely education level, gender roles, and information technology and 1 dependent variable, namely income. It is hoped that in further research, variables can be added Other variables that have not been observed in this study are the use of more research samples. Variables that can be investigated further include the influence of business capital, business location, length of business, employee wages, working hours, type of merchandise, number of sales and marketing strategies on MSME income.

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