DETERMINANTS OF WRECKAGE COLLECTORS' PROFIT IN CIREBON CITY

Zaenal Mutaqin
Istiqomah
Goro Binardjo
istiqomah@unsoed.ac.id
Universitas Jenderal Soedirman
Jl. Profesor DR. HR Boenyamin No.708, Kec. Purwokerto Utara, Banyumas, Jawa Tengah 53122

Abstract

Waste management has been a concern for the government because it is closely related to sustainable development. Wreckage collectors play a significant role in waste reduction and management. Therefore, the sustainability of the wreckage collector business, which is measured through profit performance, is interesting to investigate. This study aims to analyze the effect of education level, firm age, type of product, and capital on the profit of wreckage collectors in Cirebon city. The population consist of 40 wreckage collectors, all were selected as respondents. The data were analyzed with multiple linear regression using the OLS method. The results show that education, firm age, and capital have a positive and significant effect on the profit of wreckage collectors, while type of product has no significant effect. The results imply the need to improve education for wreckage collectors. In addition, financial institutions should facilitate low-interest loans to improve turnover and profit.

Keywords: *wreckage collector; profit; education; firm age; capital*

INTRODUCTION

Waste management received considerable concern from the government and academicians because it is closely related to sustainable development. Wreckage collectors play a significant role in waste reduction and management since one of the methods of waste disposal is selling, especially for the recyclable waste such as paper, plastic bottle, metal, and cloth (Wang et al., 2018; Ibáñez-Forés et al., 2018). Informal waste recycling not only reduces waste but also provides opportunities for urban poor to earn a living (Suthar et al., 2016). According to the Liu et al. (2020), an increase in Florida county recycling rates of one percentage point resulted in a 0.4% increase in employment across the entire solid waste and recycling sector. Garbage is an environmental problem in all urban areas in Indonesia, including Cirebon City. The large volume of wreckage produced in Cirebon City has become a center of activity for wreckage collectors, especially reusable used goods such as iron, motorcycle spare parts and so on. The increasing volume and type of waste in Cirebon City is caused by an increase in population, industrial, trade, and household activities so that the daily production of waste in Cirebon City reach 823.85 m3, while the waste that can be transported is 530 m3/day, and the rest is burned, buried by making holes or digging the ground, or dumped illegally (Anonymous, 2019). Ikhlayel (2018) concluded that the best solution to waste problem might be a trade-off between environmental, economic, and social aspects regarding the local conditions of each country. The establishment of garbage banks in Indonesia is a significant innovation in waste management. It has satisfied the needs of a variety of communities, created new jobs, provided additional incomes, boosted creativity, and offered free health care. In Indonesia, there are four operational business models for waste bank implementation: savings, health, community entrepreneurship, and energy (Dhewanto et al., 2018).

Every day people produce wreckage. Cardboard, metal, and plastic have value for wreckage collectors. Many people look for these used items to be used as recycled products. Reconceiving garbage as a resource for creating economic rent rather than a burden encourages the expansion of businesses (Perey et al., 2018)). Along with the increasing volume of wreckage in Cirebon City, one of the job options in the informal sector

is wreckage collector. Wreckage collectors have a very important role in the recycling process, as they supply scrap recycling oriented industries to promote circular economy which can generate income, create jobs, and reduce the amount of waste that ultimately requires disposal (Damanhuri et al., 2009; Shams et al., 2017). In addition, the recycling process will also have an effect on saving the use of natural resources because waste can be processed into something useful. Waste can also be processed to produce energy that can be used to meet the needs of human life as well as overcome environmental problems (Sadef et al., 2016). Recycling allows cities in emerging economies to extend the lifespan of sanitary landfills, reduce the cost of solid waste management, reduce environmental issues from waste treatment by reincorporating waste into the productive cycle, and develop the livelihoods of waste pickers (Pardo Martínez & Piña, 2016). Currently, many wreckage collectors convert waste into rupiah, so that collectors get a lot of margin from the sale of scrap to large distributors.

The sustainability of the wreckage collector business, which is measured through profit performance, is interesting to investigate. Based on preliminary observations by the authors on some wreckage collectors in Cirebon City, the types of scrap accepted by the collectors consist of paper, plastic, and metal. Based on a preliminary survey with 10 wreckage collectors, their monthly profit varies from Rp 15 million to Rp 30 million. There are several factors that are supposed to affect the variation in profits between wreckage collectors, including education level, firm age, type of product, and business capital. The level of education affects the profits of wreckage collectors because the management of businesses with higher education is better than those with low levels of education. They are more aware of allocating resources to be more efficient to increase income and profits. Owners with a greater human capital deploy more effective business practices (McKenzie & Woodruff, 2016). This is supported by the findings of previous research that education has a positive and significant effect on profit (Chiliya N & Roberts-Lombard M, 2012; Karadag, 2017; Ndlovu et al., 2018; Xuan et al., 2020).

The firm age can lead to a business experience, and experience can influence a person's behavior. Based on the findings of Chiliya & Roberts-Lombard (2012), firm age has an effect on the profitability of small grocery stores in South Africa. In addition, other research (IKA & Aswitari. LP, 2016; Ndlovu et al., 2018; Pais & Gama, 2015; Rapunzel et al., 2017; Franceschelli, 2019; Mallinguh et al., 2020) show that the firm age has a significant effect on profits because the firm age reflects more experience compared to those who have just started a business. Business experience will encourage increased business effectiveness and efficiency, so that profits will also increase.

The type of product is also an important issue for the profits of entrepreneurs. The type of wreckage that is considered to have the potential to increase profits is iron. This is because iron has a more expensive price when compared to other types of wreckage. If the price of iron increases, but the scrap collectors buy the scrap price from the scavengers at a fixed price, so that it can increase the profits of the scrap collectors. Research by Chintya & Darsana, (2014), and Luthfiansyah et al., (2018) shows that the type of product produced by entrepreneurs significantly affects profit.

In addition to the type of product, capital is one of the important factors that can affect the level of profit because tcapital will increase the volume and types of wreckage products that can be purchased from scavengers which can then be sold at a higher price. This is supported by research by Juan García-Teruel & Martínez-Solano, (2007), Baños-Caballero et al., (2012), Pais & Gama, (2015), Antara & Aswitari (2016), Rapunzel, (2017) Luthfiansyah et al., (2018), and Muharam H., (2019) which show that capital has a positive effect on profits.

Based on the previous description, the background of this research is the difference in profits between collectors, so the authors are interested in examining the factors that influence the profits of wreckage collectors in Cirebon City. This study contributes theoretically to enrich the existing literature because generally research on the income of wreckage collectors only measures income, but does not analyze the factors that affect profit (for example Luthfiansyah et al., 2018). This paper also has a practical contribution for wreckage collectors to increase their profits.

METHODS

This study uses a quantitative approach using primary data collected from respondents using a questionnaire as an instrument. The subjects of this research are wreckage collectors in Cirebon City. This research was conducted in Cirebon City in April 2020. The object of this research is the factors that influence the profits of wreckage collectors in Cirebon City, namely education level, firm age, type of product and business capital. The population in this study is the total number of wreckage collectors in the city of Cirebon, namely as many as 40 people who all serve as respondents.

The operational definition of the variable is explained as follows. Profit is the net income obtained by wreckage collectors in Cirebon City from the sale of goods products minus the total cost of used or wreckage production which is calculated in rupiah per month. Education level is the level of formal education that has

been achieved by wreckage collectors in Cirebon City which is calculated in years. The firm age referred to in this study is calculated in years. Types of products are various kinds of used goods or wreckage offered or sold by wreckage collectors which are measured using a dummy variable, namely iron = 1 and non iron = 0. Capital is the monthly working capital used by wreckage collectors in Cirebon City in their efforts to generate profits which is measured in millions of rupiah.

To answer the research question, multiple regression was used to examine the effect of education level, capital, firm age, and type of product, on the profits of wreckage collectors. Multiple regression model is expressed through the following model with one dummy variable (Gujarati, 2012):

Testing the classical basic assumptions so that the proposed regression model shows the Best Linear Unbiased Estimator (BLUE) is as follows. Normality test is needed in a research with the aim of estimating and testing hypotheses. For this reason, the histogram normality test is used. If the results of this test show that the probability value is greater than the error probability (0.05), then the data distribution is normally distributed and vice versa (Gujarati, 2012).

The multicollinearity test aims to test whether in the regression model there is a high or perfect correlation between the independent variables. If in the regression model there is a high or perfect correlation between the independent variables, the regression model is declared to contain symptoms of multicollinearity. Multicollinearity test can be done with client detection. Client detection is done by regressing an independent variable with other independent variables. The rule of thumb is to compare the model's R^2 value with the R^2 auxiliary value. If the value of R^2 of the auxiliary regression is greater than the value of R^2 of the model, then the model contains symptoms of multicollinearity. If the value of R^2 of the auxiliary regression is smaller than the value of R^2 of the model, then the model does not contain symptoms of multicollinearity.

Heteroscedasticity means that there is a variable variance in the regression model that is not the same (constant). In this study, to test the heteroscedasticity, the Glejser test method was used. By using this method, the symptom of heteroscedasticity is indicated by the regression coefficient of each independent variable to the absolute value of the residual (e). If the probability value is greater than $\alpha = 0.05$, then it can be ascertained that the model does not contain heteroscedasticity. The analysis was then continued with statistical tests consisting of the coefficient of determination (R^2), F test and t test.

RESULTS

The distribution of respondents by education, firm age, product, and capital is presented below. The education of wreckage collectors is categorized as quite good. This is because sixteen respondents or forty percent of the total population have completed senior high school, twelve respondents or thirty percent are junior high school graduates, six respondents or fifteen percent completed elementary school, and the last six respondents or fifteen percent have no schooling.

An entrepreneur who is experienced in running his business has the opportunity to get customers. Entrepreneurs who are experienced in their field can also better understand market demands and are sensitive to changes in demand for goods. This means that the longer a person does business, the greater the opportunity to earn greater income. The business experience of the majority of wreckage collectors in Cirebon City ranges from six to nine years.

In this study, the product is measured by a dummy variable, namely 0 if the respondent does not trade iron and 1 when trades iron. The dummy criteria in the type of product are based on the price of iron wreckage which is more expensive than other wreckage. Thus, the author assumes that iron has a greater profit than other types of wreckage. There are more respondents who trade iron (62.5 percent) than those who do not (37.5 percent).

Capital is a factor that drives the sustainability of a business. The greater the business capital, the greater the income. On the other hand, lack of capital will limit the ability to procure products which in turn can limit income. Most of the capital used by wreckage collectors ranges between Rp20,000,000.00 to Rp35,000,000.00. The lowest capital is Rp 20 million and the highest is Rp 131 million.

The estimation of multiple regression model is presented as follows:

$$\hat{Y} = -180{,}254.4 + 202{,}147.0 \, \text{EDU**} + 520{,}134.2 \, \text{FA***} + 561{,}264.5 \, D_1 + 115{,}246.5 \, \text{CAP***} \quad ....(1)$$

Where
EDU   = education
FA   = firm age
D_1 = type of product
CAP   = capital

Test for classical assumptions found that the regression model passed all classical assumption tests: normal distribution, no symptoms of multicollinearity and heteroskedasticity. The regression results show the coefficient value of R^2 adj is 0.9272. This value is close to 1. This shows that education, firm age, type of product, and business capital are able to explain 92.72 percent, while the remaining 7.28 percent is explained by other variables not included in the model.

The regression results show the F-statistic value is 125.2891 and the F-table value is 2.450 at the 95 percent confidence level. This shows that the F-statistic value is greater than the F-table, meaning that education, firm age, type of product, and business capital have a significant effect on the income of wreckage collectors in Cirebon City.

By using $\alpha = 0.05$ the t-table value is 2.0301. From the t-table value, it can be explained the effect of each independent variable on the dependent variable as follows. The t-statistic of education is 2.3341 and the t-table is 2.0301. This shows that the value of t-statistics> t-table so that Ha is accepted and H0 is rejected. Thus, education has a significant positive effect on the income of wreckage collectors in Cirebon City. The t-statistic value of the firm age is 7.8797 and the t-table value is 2.0301. This shows that the t-statistics > t-table so that Ha is accepted and H0 is rejected. Thus, the firm age has a significant positive effect on the income of wreckage collectors in Cirebon City. The t-statistic of the product type is 0.8820 and the t-table value is 2.0301. This shows that the value of t-statistics < t-table so that Ha is rejected and H0 is accepted. Thus, the type of product has no significant effect on the income of wreckage collectors in Cirebon City. The capital t-statistic value is 5.6081 and the t-table value is 2.0301. This shows that the value of t-statistics> t-table so that Ha is accepted and H0 is rejected. Thus, business capital has a significant positive effect on the income of wreckage collectors in Cirebon City.

DISCUSSIONS

Waste management is a major concern for the government and all citizens because it is linked to sustainable development. Wreckage collectors are important in waste reduction and management. As a result, the sustainability of the wreckage collector business, as measured by profit performance, is worth investigating. The purpose of this study is to examine the impact of education level, firm age, product type, and capital on the profit of wreckage collectors in Cirebon City.

Education has a positive and significant effect on the profit of wreckage collectors in Cirebon City. By having a high level of education, skills, and expertise, a person can get a good job and have a high level of productivity. With a high level of productivity, income or profits will also increase. ducation is very influential on the power of thought in running a wreckage collection business. With a higher education, wreckage collectors can manage their business better, thereby increasing profit. This research is supported by the findings of Chiliya & Roberts-Lombard (2012), McKenzie & Woodruff (2016), Rapunzel, (2017), Karadag, 2017; Ndlovu et al., (2018) and Xuan et al. (2020) who found that education had a positive and significant effect on profits.

The firm age has a positive and significant effect on the profits of wreckage collectors in Cirebon City. An entrepreneur who is experienced in running his business has the opportunity to retain customers. In addition, entrepreneurs who are experienced in their fields can also better understand market demands and are sensitive to changes in demand for goods. This means that the longer a person does business, the greater the opportunity to earn greater income.

This finding supports Chiliya N & Roberts-Lombard M, (2012) that firm age affects the profitability of small grocery stores in South Africa. In addition, Pais & Gama, (2015), Antara & Aswitari (2016), Rapunzel, (2017), Ndlovu et al. (2018), Franceschelli (2020), and Mallinguh et al., (2020) find that firm age has an effect on profits. This is because older businesses reflect more experience than those who have just started a business. The longer you are in the trading business, the more you will increase your knowledge of consumer tastes or behavior. Trading skills are increasing and more and more business relationships and customers are being successfully captured.

The type of product has no significant effect on the profits of wreckage collectors in Cirebon City. Based on the interviews of wreckage collectors, they stated that the price of iron did have a higher price when compared to other wreckage such as paper and plastic. However, the price of iron in the market is very volatile and can change at any time, so the profit obtained is relatively smaller, in contrast to the price of paper which tends to be stable even though the price is quite cheap. This study is not in line with Luthfiansyah et al. (2018) which shows that the type of product affects the level of profit.

Capital has a positive and significant effect on the profits of wreckage collectors in Cirebon City. The larger capital will increase the number and types of wreckage products that can be purchased by suppliers from scavengers which can then be sold at higher prices. This study supports Juan García-Teruel & Martínez-Solano, (2007), Baños-Caballero et al., (2012), Pais & Gama, (2015), Rapunzel, (2017), Luthfiansyah et al., (2018),

and Muharam (2019) which show that venture capital has a positive effect on profits. Effective management of working capital, such as a reduction in short-term debt turnover days, can have a positive effect on the profitability of businesses (Konak & Güner, 2016). SMEs can boost their profitability by minimizing their cash conversion period, account receivable days, and inventory turnover days (Lamptey et al., 2017).

CONCLUSIONS

This study found that education, firm age, and capital have a positive significant effect on the profits, while the type of product has no significant effect on the profits of wreckage collectors in Cirebon City. These results imply the need to increase education for wreckage collectors, considering that education has a positive and significant effect on profits. In addition, firm age, which implies experience, also has a positive and significant impact. Therefore, the government should make policies such as assistance or counseling in collaboration with relevant stakeholders so that wreckage collectors in Cirebon City increase their capabilities in running a business. In addition, capital is also a positive and significant influence on wreckage profits. Thus, bank and non-bank financial institutions can provide loans with low interest rates so that wreckage collectors can run their business well and increase profit.

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