THE EFFECT OF COST OF PRODUCTION ON DETERMINING THE SELLING PRICE OF ARABIC COFFEE WITH EXTERNAL FAILURE COSTS AS MODERATING VARIABLES FROM FARMERS TO PT VOLKOPI INDONESIA IN TAKENGON (CENTRAL ACEH REGENCY)

Yulisfan, Erlina, Isfenti
Universitas Sumatera Utara
yulisfan@gmail.com

Abstract: The main aims of this study is to analyse the effect of the cost of production on the determination of the selling price of “asalan” arabica coffee with external failure costs as a moderating variable from farmers to the company. This type of research is causal associative research. The research method uses secondary data collection techniques. The population in this study all farmers in Takengon who sell the “asalan” coffee to PT. Volkopi Indonesia in 2015 to 2018. The sampling method used in this study is to use the census method means that all farmers in Takengon who sell to the company. Data were processed using regression analysis with moderating variables using residual tests. The results of the multiple regression analysis used show that the effect of cost of production on the determination of the selling price of Arabica coffee origin simultaneously has a positive and significant effect on prices. But from the results of the study it can also be concluded that external failure costs are not able to significantly moderate the selling price.

Keywords: selling price, cost of production, the inspection result of moisture contents and number of defective beans and external failure costs

1. INTRODUCTION

Indonesia is one of the largest coffee producing countries in the world after Brazil, Vietnam and Columbia, where in 2016 contributed 7.41% of the total volume of world coffee production. More than 96% of the total plantations are cultivated by small-scale farmers, of which 72% are smallholder plantations for Robusta coffee and 28% are smallholder plantations for Arabica coffee.

In Indonesia we can find most of the Arabica coffee plantations in the mountainous regions of Toraja, North Sumatra, Aceh and in several areas on the island of Java. Currently in Aceh, there are two types of coffee that are cultivated, namely Arabica coffee and Robusta coffee. Two types of coffee are very well known, namely Gayo coffee (arabica) and Ulee Kareeng coffee (robusta). Arabica coffee is generally cultivated in the highland areas of “Gayo Land”, Southeast Aceh, and Gayo Lues, whereas in Pidie District (especially Tangse and Geumpang areas) and West Aceh more dominantly developed by the community here in the form of Robusta coffee.

The phenomenon of competition in the level of coffee prices at farmers can occur due to inefficient and ineffective processing processes that will cause the cost of production of the process that they do to vary both the quality of their products.
and the costs incurred. The quality constraint of coffee beans produced by farmers is a major factor affecting their selling price to entrepreneurs or exporters. Where coffee beans that have better quality will be able to be sold at a higher price compared to coffee beans with lower quality. In some cases farmers cannot sell the coffee beans they process or produce, this is due to the very low quality of the coffee beans they produce. The coffee beans offered by farmers, which were originally stated to be of good quality and ready to be sold to entrepreneurs or exporters at an agreed selling price, will have an impact on the decline in selling prices if after they are received by the buyer and the quality is not in accordance with what was originally promised, and this matter will have an impact on the decline in selling prices of these farmers due to the emergence of cost of quality (Cost of Quality or COQ), especially in the category of external failure costs (External Failure Costs) as a result of the inspection results of the quality of water content and a higher number of defective seeds after seeds coffee is sent and received by entrepreneurs or exporters.

According to Rahayu (2017) quality costs can be grouped into four groups, namely prevention costs, valuation costs, internal failure costs, and external failure costs. The class of quality costs incurred to prevent a product from damage is prevention and valuation costs, while internal failure costs and external failure costs are not incurred to prevent products from being damaged due to failure costs incurred after the product is finished. External failure costs are costs incurred to correct any discrepancies found after the product is shipped and received by the buyer.

The purpose of this study is to determine and prove the effect of the calculation of the cost of goods manufactured in Arabica coffee processing ranging from direct raw material costs, direct labor costs and overhead costs to the selling price of coffee products and to find out and prove External Failure Costs or external failure costs from the results of the examination of the quality of water content and the number of defective seeds moderate the relationship of the calculation of the cost of goods manufactured in processing Arabica Coffee starting from the cost of direct raw materials, direct labor costs and overhead costs to the selling price of coffee products.

2. LITERATURE REVIEW
To set the selling price, it is important for companies to know the amount of costs needed to produce the goods to be sold. These costs are often referred to as the cost of production. The definition of cost of goods manufactured (according to Hansen & Mowen) is: “The cost of goods manufactured represents the total cost of goods completed during the current period. The only costs assigned to goods completed are the manufacturing costs of direct materials, direct labor, and overhead.” Most manufacturing companies separate production costs into 3 (three) major parts: direct material, direct labor and production overhead (manufacturing overhead).

The method of determining the cost of goods manufactured is how to calculate cost elements into the cost of goods manufactured. In calculating costs into the cost of production there are two factors approach, namely:
a. **Full Costing**: Is a method of determining the cost of production that takes into account all elements of production costs into the cost of production, which consists of raw materials, direct labor costs, and factory overhead costs, both behaving variable and fixed.

b. **Variable Costing**: Is a method of determining the cost of production that only takes into account the cost of production that behaves variable into the cost of production, which consists of raw material costs, direct labor costs, and variable factory overhead costs.

Quality products are products that can meet consumer expectations. An industry will not exist if the product made is not in accordance with the wishes of consumers (Buchori, M. Khuwarismi, 2012). Quality control is a process control activity to measure product quality characteristics, compare with specifications or requirements, and take appropriate health measures if there is a difference between the actual appearance and the standard. Underlying the control of quality costs is the lack of management attention to things that can cause product damage. A way that can be done by companies for quality control is to identify the costs included in the quality costs.

According to Retno et al. (2014) Quality costs are divided into four categories namely prevention costs, appraisal costs, internal failure costs, external failure costs. Prevention and appraisal costs are costs incurred or used in control activities, i.e. activities carried out in order to prevent or detect poor quality. While the costs of internal failures and external failures are costs incurred in activities due to failure of a product, namely activities carried out to respond to poor quality.

The cost of an external failure is one component of the cost of quality, and occurs if a defective product reaches the customer and fails during use. The most common components of this fee are warranty work and returns. However, lawsuits from customers can also be a component. Some individuals also believe that a measure of lost goodwill costs should be included as a component of external failure costs. In fact, it may be difficult to accurately estimate the true cost of external failures.

External failure costs include costs for shipping damaged products to customers, such as returns (returns) by the customer, and the costs incurred to meet the warranty, price discounts due to products produced not in accordance with customer expectations. This fee after the customer knows the damage or defect in the product received.

Coffee beans are declared to have passed the test if they meet the requirements of both general and specific requirements for each type of coffee bean and how to process it, unless there is an agreement between the seller and the buyer, specifically regarding the size of the beans that is accompanied by a buyer's statement. Physical testing is a system that is used to assess the quality of coffee beans based on physical, either using tools or using the human senses in accordance with applicable standards.
Stage of Examination Physical tests conducted on coffee beans are:

a. Moisture Test (moisture content test)

The water content in coffee beans can be measured by using a moisture meter known as “TESTER” of various brands, so that it can be known what percentage of water is contained in the coffee bean. Besides ‘TESTER” the water content can also be done using a drying oven with the weighing method. The coffee bean water content recommended by SNI and SCAA is 12-13%.

- High > Moisture Content = Poor quality
- Low < Moisture Content = Good quality

b. Triage Test

Triage is the percentage of defective beans in 100 grams of coffee beans. Triage testing is carried out by weighing which will be separated between the defective seeds and normal seeds, the results of weighing the defective seeds are referred to as the percentage of triage, the triage test is carried out on asalan coffee beans (rice coffee). High or low triage indicates whether or not the quality of the coffee beans.

- High > triage = Poor quality
- Low < triage = Good quality

c. Defect Value Test

Defect is the amount of defect value of coffee beans, the defect test is carried out on coffee beans ready for export to determine the quality or grade of the coffee. The determination of the value of the defect seeds is guided by the Indonesian National Standard (SNI).

d. Color / Odor Test

This test is done by using the senses in the form of foresight in seeing the color and smell the coffee beans. Good coffee beans have a fresh odor and bright color and are not contaminated with foreign materials either that cause discoloration or odor.

e. Seed Size Test

This test is carried out to determine the size of coffee beans, namely the size of large seeds (L), medium seeds (M), small seeds (S) and very small seeds / screens / shells. This test is done by using a sieve consisting of several minimum level 4 levels with each hole size of 1/64 inch namely: 18, 16, 14 and <14. Good coffee beans have uniformity in size depending on their respective sizes.

One of the most important decisions taken in business is product pricing. If the price is too high, there will be no demand and if the price is too low, the organization will generate lower profits than it can achieve.

The definition of price according to Bearden, Ingram, and Laforge is: “Price is the amount of a customer pays for a product or the sum of the values that consumers exchange for the benefits of having or using a product or service.”

The method for pricing depends on economic factors. If the business has a monopoly position (where one supplier has control over the market), the company can determine its own price. However, the higher the price, the greater the
attractiveness of migrants to break up the power of monopolies in an effort to share profits enjoyed by monopolists.

In a business that is a market leader (market leader), the company can set its price by referring to the full costs (full costs) and generate satisfactory profits. If there are only a few large sellers, each with a significant market share, the situation is described as an oligopoly. Some of these big sellers might compete with each other over prices or they might prefer to set their prices at a level that includes all costs and keep prices constant while competing with non-price factors such as product quality.

There are 6 (six) pricing methods according to Kotler and Keller (2012) stating markup pricing (price markup), prices with expected return (target-return pricing), prices based on perceived value (perceived-value pricing), value price, price according to going price (going-rate pricing), and auction-type pricing.

**Conceptual Framework**

In this study used an independent variable, namely the cost of direct raw materials, direct labor costs and overhead costs, while the selling price as the dependent variable where external failure costs or external failure costs as a moderating variable.

The conceptual framework used as a basis in this study is as follows:

3. **RESEARCH METHODS**

This research was conducted to analyse the effect of cost of goods manufactured (direct raw material costs, direct labor costs and overhead costs) on selling prices with external failure costs as a moderating variable.

**Definition of Variable Operations**

a. Direct Raw Material Costs

Raw material costs are the overall costs of acquiring raw materials that are directly used in the production process in producing an item. This direct raw material becomes a physical part of the product and there is a direct relationship between the input of raw materials and the whole in the form of final or finished products.
The parameter of direct raw material costs is the amount of costs incurred by farmers to get direct raw materials in the period of 1 (one) year of the harvest season.

b. Direct Labor Costs

Labor costs are costs that are charged for the use of human labor that is directly related to the production process. The parameter of direct labor costs is the amount of direct labor costs incurred by farmers in the period of 1 (one) year of the harvest season.

c. Overhead Costs

Factory overhead costs as indirect raw materials, indirect labor and all other production costs that cannot be clearly identified with or charged directly to orders, products or other specific cost objects. The direct labor cost parameter is the amount of indirect costs for processing coffee beans into coffee beans in 1 (one) year of the harvest season.

d. External Failure Costs

External Failure Costs or external failure costs are costs incurred to correct any discrepancies found or discounted prices because the product does not match the quality expected after the product is shipped and received by the buyer. The parameter used is the price reduction as a result of the results of the examination of Water Content and Amount of Defective Seeds, which as a standard price reference is 15/15 meaning 15% moisture content and 15% the number of defective seeds.

e. Selling Price

Price is the amount paid by the customer / buyer for a product or the amount of value that consumers exchange for the benefit of owning or using a product or service. The selling price parameter is the amount of the sale price decided by the farmer for each transaction.

Population and Sample

One that is needed in a study is the population that will be used as a source of data for research information. Population is a generalization area that consists of objects or subjects that have certain qualities and characteristics determined by researchers to be studied and then drawn conclusions. (Sugiyono, 2007). The population in this study is the financial data of all farmers who sell "asalan" coffee beans to PT. Volkopi Indonesia in the book period of 2015 to 2018. Sampling technique in this study using the census method means taking all farmers in Takengon (Central Aceh Regency) who sell to PT. Volkopi Indonesia in the period of 2015 to 2018.

Data Analysis Techniques

In this research the data analysis method used is multiple regression analysis and moderating regression analysis with residual test. Suliyanto (2011: 231) states moderating regression with the assumption of intercepts and slope coefficients is
constant over time. This assumption is the simplest by ignoring the dimensions of time and space, directly doing Ordinary Least Square (OLS) regression. After multiple regression testing, regression testing with moderating variables is carried out using the residual test. All analyzes were carried out using SPSS (Statistical Package for Social Science).

4. **RESULTS AND DISCUSSION**

Based on the classic assumption test that has been done in the multiple regression model, the regression model has met the classical assumption test requirements so that it is feasible to be used in analysing the effect of cost of production on the determination of the selling price of Arabica coffee.

The results of the research from the multiple regression model with a confidence level of 95% and a significant level of 5% for the multiple regression analysis used to answer the hypothesis that the effect of cost of production on the determination of the selling price of Arabica original coffee simultaneously had a positive and significant effect on prices.

4.1. **The Effect of Direct Material Costs on Sales Prices**

Based on the results of raw material research shows an error point t of 69.290 where the significance of the raw material variable is 0.000, which means it is smaller than the probability of 0.05 with a coefficient value (β1) 1.267, it can be concluded that the raw material variable has a positive and significant effect on price (Y).

Thus it can be explained that the increase in direct raw material costs will have a significant effect on the selling price, but the problem arising for farmers is how much the increase in direct raw material costs can be covered by raising the selling price because the selling price set by the farmer is also strongly influenced by market mechanism.

4.2. **The Effect of Direct Labor Costs on Selling Prices**

Based on the results of the TK research directly showed an error point t of 2.920 where the significance of the raw material variable was 0.004, which means it was smaller than the probability of 0.05 with a coefficient value (β2) 0.466, it can be concluded that the TK variable directly had a positive and significant effect on price (Y).

Thus it can be explained that the increase in direct labor costs will have a significant effect on the selling price, but the problem that arises for farmers is how much the increase in direct labor costs can be covered by raising the selling price because the selling price set by the farmer is also strongly influenced with market mechanisms.

4.3. **The Effect of Overhead Costs on Selling Prices**

Based on the results of research overhead shows the error point t of 0.232 where the significance of raw material variables is 0.817 which means greater than the probability of 0.05 with a coefficient value (β3) 0.053, it can be concluded that
the overhead variable has a positive effect and does not significantly influence the price ($Y$).

Thus it can be explained that the increase in overhead costs will have an insignificant effect on the selling price considering that these costs are mostly fixed costs that do not have much effect on volume, with a small volume, these costs will be greater so that they can affect prices so they must be considered carefully what is the minimum volume that can be processed so that it will get the optimum overhead.

4.4. **Direct Material Costs, Direct Labor Costs and Overhead Costs on Selling Prices with External Failure Costs as a moderating variable.**

Based on the results of the study the value of the interaction of raw materials, direct TK and overhead on each t-count as follows:

a. the raw material t-value is 0.48 with a significance value of 0.632 or greater than 0.05 with an unstandardized beta coefficient of 0.003
b. the direct TK t-test is 0.205 with a significance value of 0.838 or greater than 0.05 with an unstandardized coefficient beta coefficient of 0.016
c. t-count overhead of 0.126 with a significance value of 0.9 or greater than 0.05 with an unstandardized beta coefficient of 0.004

From these results it can be concluded that both the cost of direct raw materials, direct labor and overhead costs are not able to significantly moderate the effect on the selling price.

5. **CONCLUSION AND SUGGESTION**

5.1. **Conclusion**

Based on the results of research and discussion, conclusions can be drawn according to the formulation of the problem as follows:

a. Direct raw material costs and direct labor costs have a positive and significant effect on the selling price of ‘asalan’ coffee beans from farmers. However, overhead costs have a positive and not significant effect on the selling price of ‘asalan’ coffee beans from farmers.
b. External failure costs are not able to moderate the effect of direct raw material costs, direct labor costs and overhead costs on the selling price of ‘asalan’ coffee beans from farmers.

5.2. **Limitation**

There are several limitations in this study, namely:

a. The population taken is only farmers who sell asalan coffee beans to PT. Volkopi Indonesia.
b. Farmers taken are only farmers in the Takengon or Central Aceh regency who sell to PT. Volkopi Indonesia.
c. The selling price taken as a benchmark is only the selling price of farmers to PT. Volkopi Indonesia by ignoring selling prices to other exporters.
5.3. **Suggestion**

Based on the conclusions and limitations stated above, suggestions can be taken as follows:

a. For further researchers, a sample of the population can be applied but by expanding the location of farmers who do as well as the number of companies that buy ‘asalan’ coffee beans to farmers.

b. Samples of the population can also be applied to collectors who sell ‘asalan’ coffee beans to exporters.

**Reference:**


