Economic Value of Palm Plantation in North Sumatera and Contribution to Product Domestic Regional Bruto

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Abstract. This study aims to test the economic value chain of the palm oil industry in North Sumatera and the contribution to economic growth. This research type is explanatory survey with quantitative method. The data used is secondary data. Population and sample used are trade value and economic turnover in Rupiah and Dollar amount to economic growth of North Sumatera Province. The analysis used with statistical tool Structural Equation Modeling. The results show the palm oil industry has a large economic value chain and contributes to the economic growth of North Sumatra Province.

1. Introduction

Oil palm plantations and derivative products are able to give effect to economic growth and create significant jobs in Indonesia. Development activities the palm oil industry is an activity that has a value of attractiveness for banks and Financial institution, then what is needed is business development facilitation services and investment [1-6]. Business Development Aspects is less of a concern, because we often jump to the empowerment of the offender as a form Partiality. Investment and business development is a direct form of optimization Between promotional components and protection into the market system mainstream. If Countries present in the form of direct or indirect will provide value More for the stability of the role of market cooperation, the ideal form through participation [7]. Palm Investment is Indonesia's flagship product. Palm oil is also the largest agricultural export commodity. Palm Oil became a means of seeking the income of the people of Indonesia after the oil boom in the 70s era. The Indonesian palm oil industry will continue to grow rapidly. The world's palm oil demand has grown rapidly in recent decades with palm oil production currently estimated at more than 42 million tones. Indonesia is one of the largest producers and exporters of palm oil in the world, with production of more than 19 million tons of palm oil per year. From these data, we can conclude how important the industrial sector and oil palm plantations for stability and economic progress [1]. Palm oil is the main raw material of cooking oil, so the sustainable supply keeps the price stability of the world's needed cooking oil. Cooking oil is one of the 9 basic needs of society so that the price must be reached by all layers of society so that economic stability can be maintained.

Palm oil processing is a process of fresh fruit bunches into yellow CPO and palm kernel oil. CPO and PKO are widely used as food industry cooking oil and margarine, soap industry (foam material),
steel industry (lubricant), textile industry, cosmetics, and as alternative fuel (biodiesel). Palm oil is one of the most consumed and produced oils in the world. This cheap, easy-to-produce and highly stable oil is used for a wide variety of foods, cosmetics, hygiene products, and can also be used as a source of biofuel or biodiesel. Most palm oil is produced in Asia, Africa and South America because palm trees require warm temperatures, sunlight, and high rainfall to maximize their production [1]. In the long term, world demand for palm oil shows an increasing trend in line with the world's growing population and Thereby increasing the consumption of products with palm oil raw materials such as food products and cosmetics. Meanwhile, governments in many countries are supporting biofuels. Based on data of foreign exports of North Sumatra is still dominated by export of palm oil with a share of 33.1% of the total export value, followed by commodities Rubber with a share of 8.7% and coffee 5.0% [1]. Height Dominance of extractive products in export commodities Causing high commodity market influence.

To the export performance of North Sumatra. Major Indonesian companies have been or are investing in increasing refining capacity of palm oil. This is in line with the Government of Indonesia's ambition to earn more incomes from domestic natural resources. Indonesia has been focusing and depending on exports of crude palm oil and other raw material, but over the past few years it has been encouraging the processing of natural resources products to have higher selling prices and which serve as a buffer during price slips Palm oil. The model developed from the theories was:

![Figure 1. Research Model](image-url)

2. Methods
This study uses secondary data the research sites were at from 2000 to 2015 from Indonesia Board Statistic. The data used in this research were time series secondary data. The hypothesis was tested using Structural Equation Modelling (SEM) with the aid of AMOS software. The data analysis technique in this research employed Structural Equation Modelling (SEM). SEM is a set of statistical techniques allowing testing of a series of relationships simultaneously [2], [2], [3] & [5]. Furthermore, in the data processing, the writer used the aid from software AMOS Structural Equation Modelling, which was one of the multivariate analyses capable of analyzing the variable relationships in complex manner [8], [9]. The definition of research variable is as the following:
Table 1. Operational Variable

| Variables                                      | Operational Definitions                                           | Indicator               | Scale   |
|------------------------------------------------|-------------------------------------------------------------------|-------------------------|---------|
| Economic Growth (Y)                           | The added value generated by all business units within a given region in Million Dollar. | Annual Product Domestic Regional Bruto in Rupiah Years of 2000-2015 | Ratio   |
| The palm oil industry from Palm Oil Fatty Oil (X₁) | Oil derived from palm oil is exported in US dollars                | Net Export Palm Oil in US Dollar | Ratio   |
| The palm oil industry from Palm Oil Product (X₂) | Derived products from palm oil plantations which are recycled and used as commodities. | Derived products from palm oil in US Dollar | Ratio   |

The hypotheses were tested using Structural Equation Modeling (SEM) with AMOS software tools. The equation is formed as follows:

\[ Y = \alpha + b_1 X_1 + b_2 X_2 + e \]

Where:
- \( Y \) = Economic Growth
- \( L MN \_X_1 \) = The palm oil industry from Palm Oil Fatty Oil (USD Dollar)
- \( O MLSN \_X_2 \) = The palm oil industry from Palm Oil Product (USD Dollar)
- \( b_1, b_2 \) = Coefficient
- \( \alpha \) = Constant
- \( e \) = Error

This phase is done to test the suitability of the model to evaluate the goodness-of-fit index.

3. Results and discussion

3.1. Measurement Model

The measurement model links between latent variables with manifest variables as follows:

Figure 2. Standardization Coefficient
3.2. Evaluation of Regression Weight for Causality Test
The processing of data with analysis structural equation model using the AMOS tool obtained the results of the analysis on the relationship between variables as listed in the following Table:

| Table 2. Regression Weights | Estimate | S.E. | C.R. | P | Label |
|-----------------------------|----------|------|------|---|-------|
| EG_Y <- LMN_X1              | .031     | .022 | 1.397 | .162 | par_1 |
| EG_Y <- OMLN_X2             | .799     | .135 | 5.931 | *** | par_2 |

Sources : AMOS result test. (2017).

An evaluation of regression weight for causality is using the value of CR. The test results show that all the regression coefficients are significantly different from zero, therefore the null hypothesis that the regression weight is equal to zero is rejected, and accept the alternative hypothesis that each indicator has a causal relationship which means that the model can be accepted [4] [5].

1. LMN_X1 insignificantly affects to the Economic Growth (Y) with the value of the critical ratio is 1,397.
2. OMLN_X2 significantly influences to the Economic Growth (Y) with the value of the critical ratio is 5,931.

The strength of the dimensions that make up the latent factors can be tested using the Critical Ratio of the regression weight generated by the model. CR identity is seen by t value in the regression analysis. CR greater than 2.0 showed that the variables significantly the factors of dimension [10][11][12]. It is also indicated by the results of the AMOS output with *** signs, indicate the probability of below 5% alpha.

The palm oil industry in North Sumatra has grown rapidly and spread widely to various provinces in Indonesia are able to open employment in the local regency, both immediate and long term. Palm Oil Differentially is a must because the current CPO product cannot be sold directly to the export market but must go through domestic processing. Success in utilizing the derivative products of palm oil creates good foreign exchange for the Province of North Sumatra and even for the state of Indonesia. Smallholder plantations play a large role, but these developments are not followed by industrial processing mastery. Whereas the industry unity for the palm oil industry is the key to efficiency and competitiveness. In addition, palm optimization is done through the creation of information systems from the time of planting to CPO production. Improved performance of foreign exports of North Sumatra Occurs in CPO and rubber commodities as prices in the international market begin Improved. Price increases are mainly due by reduced supply as a result of El Nino in 2015 in a number of areas as well Domestic CPO absorption for mandatory program Biodiesel [9]. The readiness of human resources is needed. In addition, the role of local government contributes. Hope for the future of palm can give contribution to Local Original Revenue [15], [16], [17], [18]. So far, the palm oil industry is only enjoyed by the central government and does not provide revenue sharing for the regions. Therefore, the development of more participatory processing industries by raw material producers will be an important agenda and should be accompanied by support for investment facilitation, adequate ports and strong corporate services [13] [14]. While the macro policy instrument to maintain the balance of domestic and export consumption orientation needs to be developed with a market-friendly approach.

4. Conclusion
The results show the palm oil industry has a large economic value chain and contributes to the economic growth of North Sumatra Province. The palm oil industry from Palm Oil Fatty Oil insignificantly affects to the Economic Growth and the palm oil industry from Palm Oil Product significantly influences to the Economic Growth.
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