Unveil Factors That Influence The Soybean Of Farmer Exchange Rates (Fer)

Dedi Djuliansah, Trisna Insan Noor, Yosini Deliana, dan Meddy Rachmadi

Abstract: The research aims to analyze the factors affecting the exchange rate of soybean farmers, the average exchange rate of soybean farmers and the level of welfare of soybean farmers. The research method used as time series data and cross section for was conducted in Jatwangas District, Tasikmalaya Regency, Indonesia. The determination of the study area was carried out by two stage cluster random sampling with 185 population of farmers. The data used are primary data and secondary data. The data analysis method used in this study is multiple linear regression. The results showed that the factors affecting the exchange rate of soybean farmers in the study area were partially land area and selling price, while simultaneously land area, productivity, selling price, labor costs, and number of dependents affected the soybean farmer exchange rate. The average exchange rate of soybean farmers in the study area is 11.64 percent, meaning that the level of welfare of farmers in the study area is low (not prosperous) if seen only from the contribution of soybean farming income.

Index Terms: Unveil, Factors, Influence Soybean, Exchange Rates.

1.INTRODUCTION

The essence of agricultural development is aimed at improving the welfare of the people of the agricultural sector. Given the agricultural sector is a sector that is related to community life. The agricultural sector is a local resource-based economic sector that has a significant role in the development of a country, especially developing countries such as Indonesia (Crespi, et al., 2017). The orientation of agricultural development towards improving the welfare of farmers will be very relevant to assess the impact of development carried out on improving the welfare of farmers, so that it can be input for the implementation of further agricultural development (Johnson, et al., 2016). One indicator that can be used to look at the welfare of Farmer Exchange Rate (FER). FER is the relationship between the results sold by farmers and the goods and services purchased by farmers (Polimeni, et al., 2018). In other words, FER is a measure of the ability to exchange agricultural goods products produced by farmers with goods or services needed for household consumption of farmers and the need to produce agricultural goods (Yue, et al., 2017). The essence of agricultural development is aimed at improving the welfare of the community in the agricultural sector (Rahman, et al., 2016). Given the agricultural sector is a sector that is related to community life. The agricultural sector is an economic sector based on local resources that has a significant role in the development of a country, especially developing countries like Indonesia. The orientation of agricultural development towards improving the welfare of farmers will be very relevant to assess the impact of development carried out on improving the welfare of farmers, so that it can be input for the implementation of further agricultural development (McArthur, et al., 2014). One indicator that can be used to look at the welfare of FER. FER is a measure of the ability to exchange agricultural goods products produced by farmers with goods or services needed for household consumption of farmers and the need to produce agricultural goods (Leonardo, et al., 2015). The unique welfare markers for farm households are practically non-existent, so FER is the only choice for observers of agricultural development in assessing farmers’ welfare levels. Thus, FER is an indicator of the relative level of welfare of farmers. The higher the FER, the relatively more prosperous the level of life of farmers.

Government efforts through the Ministry of Agriculture to improve the welfare of farmers include launching assistance programs to facilitate farmer groups and recipient farmers in the development of three main food crop commodities through the UPSUS program (Rice, Corn, and Soybean) (Dinar, et al. 2019). Among the three commodities that became the main focus of the Ministry of Agriculture was soybeans, namely in the context of meeting domestic consumption, which increased every year and was not matched by domestic production so the government was forced to import see in Figure 1. The addition to the welfare of farmers, another objective of the launch of the aid program is to provide confidence to the community, especially farmers, that soybean commodities can be planted in all regions on various land typologies (Virah, et al. 2019). So that, farmers will be motivated to participate in the success of the soybean self-sufficiency.

Figure 1. Development of Soybean Production, Consumption and Imports in Indonesia, 2012-2016 (Source: Bappenas, 2014).

Although in essence, imports by the government with a zero percent tariff policy will actually only trigger local soybean prices to fall, so some farmers make a strategy to create diversity in their sources of income. Sources of income of farmers are no longer solely derived from soybean farming, but develops as by doing other farming (non-soybean), working as farm laborers and activities outside the agricultural sector that have a significant role in the development of a country, especially developing countries such as Indonesia.
sector non-farm (Berre, et al., 2017). This relates to the driving factors that come from within the farmer to meet the increasing and varied consumption needs. On the other hand, opportunities for non-soy farming and jobs outside the agricultural sector are increasingly open, which are more comfortable and more promising to improve the level of income and livelihoods for farmers, an attractive factor that comes from outside the farmer (McClintock, & Simpson, 2017). Factors affecting soybean commodity FER are distinguished by internal factors and external factors. Internal factors are meant in the form of factors that exist or can be controlled as well as farmers' decisions in determining the extent of arable, use of production facilities, and the adoption of a technological innovation. Overall, internal factors will be related to one another. While external factors are factors that cannot be controlled by farmers, such as seasons, pest or disease attacks, market mechanisms that are difficult to predict farmers, the capital owned by farmers and the risk of crop failure that is fully borne by farmers. All this time, the weak bargaining position of farmers has caused farmers to receive selling prices, which are solely determined by traders (Aga, 2018). Furthermore, the land area, productivity, product selling price, number of family dependents, and labor costs significantly affected the exchange rate of food farmers. FER is the ratio between the price received by farmers and the price paid by farmers. The price received by farmers is the producer price Farm gate from the farmers’ production. Meanwhile the price paid by farmers is the retail price of goods or services consumed or purchased by farmers both to meet the needs of the household itself as well as for the needs of production costs and additional agricultural capital. Household needs include food, prepared food, housing, clothing, health, education, recreation, and sports, as well as transportation and communication. While the need for production costs and addition of capital goods includes seeds, medicines and fertilizers, land rent and taxes, transportation, additional capital, and wages for farm laborers. The effect of changes in prices can be grouped into the effect of price changes received by farmers and the effect of price changes paid by farmers. Analysis of the factors affecting FER can be traced to the analysis of its constituent components, in the form of marginal value and price elasticity (Tongpun, et al., 2019). The research aims to determine the factors that affect soybean FER in the study area and analyze the average exchange rate of soybean farmers and the level of welfare in the study area.

1. RESEARCH METHODS

The method in this research use time series data and cross section in 2015. Data derived from the Central Statistics Agency (CSA) is data on inflation of various agricultural products both soybeans and capital goods and also inflation from non-farm products spent by food crop farmers, in addition to other relevant supporting data from various sources. In accordance with the existing data coverage in BPS. It uses a survey method on soybean farmers in Jatiwaras District, Tasikmalaya Regency, West Java Province, Indonesia. The location of this research is a center for potential soybean development in West Java. The sampling technique was done by simple random sampling of 185 population of farmers in it, then for the determination of sample size calculated using the Slovin Formula, a sample size of 65 farmers was obtained (Indarti., et al., 2017). Data collected in this study are primary data and secondary data. Primary data is data obtained from interviews with each soybean farmer using a questionnaire that was prepared in advance. Secondary data are supplementary data obtained from the relevant Agency or Service. Analysis of the data used to look at the factors that affect farmers’ exchange rates with the multiple linear regression method uses the following equation:

\[ Y = a + b1X1 + b2X2 + b3X3 + b4X4 + b5X5 + e/\mu \]

Information:
- \( Y \) = Soybean FER
- \( a \) = coefficient fixed
- \( X1 \) = Land area (Ha)
- \( X2 \) = Productivity (Kg / Ha)
- \( X3 \) = Selling price (IDR / kg)
- \( X4 \) = Labor costs (IDR)
- \( X5 \) = Number of dependents (Soul)
- \( b1, b2, b3, b4, b5 \) = Regression coefficients for each variable
- \( e / \mu \) = Interference error

The hypothesis used:
- H0: Land area, productivity, selling price, labor costs, and number of dependents have no effect on FER.
- H1: Land Area, Productivity, Selling Price, Labor Costs, and Number of Dependents affect FER.

The find out the exchange rate of farmers using testing with the formula of the subsistence concept. The concept of subsistence is the value of commodity yields produced by farmers that can be exchanged for a number of items needed by farmers to meet their daily needs with their household. This concept is formulated as follows:

\[ FER_{cb} = \left( \frac{\sum PxQx}{PyQy + PzQz} \right) \times 100 \]

Information:
- \( FER_{cb} \) : Exchange rates of soybean farmers
- \( Px \) : The price of soybean produced by farmers
- \( Qx \) : Amount of soybean produced by farmers
- \( Py \) : Price of soybean production input paid by farmers
- \( Qy \) : Amount of soybean production input farmers
- \( Pz \) : Price of commodities that farmers pay
- \( Qz \) : The number of commodities farmers pay

2. RESULTS AND DISCUSSION

Factors That Affect Exchange Rates of Soybean Farmers. Based on the results of multiple linear analysis test factors that affect the exchange rate of soybean farmers in the study area, the following results are obtained:

<table>
<thead>
<tr>
<th>Description</th>
<th>Coefficient</th>
<th>t-count</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-14.88</td>
<td>-2.97</td>
<td>0.004</td>
</tr>
<tr>
<td>Land area</td>
<td>38.16</td>
<td>3.60</td>
<td>0.001</td>
</tr>
<tr>
<td>Productivity</td>
<td>4.18</td>
<td>1.67</td>
<td>0.100</td>
</tr>
<tr>
<td>Selling price</td>
<td>0.002</td>
<td>4.70</td>
<td>0.000</td>
</tr>
<tr>
<td>Labor wages</td>
<td>-5.14</td>
<td>-0.86</td>
<td>0.38</td>
</tr>
<tr>
<td>The number of dependents</td>
<td>0.501</td>
<td>0.94</td>
<td>0.35</td>
</tr>
<tr>
<td>F = 161,427</td>
<td></td>
<td></td>
<td>0.000</td>
</tr>
<tr>
<td>R = 0.932</td>
<td></td>
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</table>
Based on Table 1 it can be concluded that partially the area of land area and the selling price affect the exchange rate of soybean farmers. This is indicated by the t-count of 3.608 and 4.705, respectively, where the value is greater than the value of the table (2.001). While simultaneously variable land area, productivity, selling price, labor costs, and number of dependents affect the exchange rate of farmers. This can be seen from the results of F-count (161.427)> F-table (2.36) with a P Value of 0.0 less than α 0.05 value. The coefficient of determination (R2) of 0.926 indicates that the independent variable (land area, productivity, selling price, labor costs, and number of dependents) is able to explain the dependent variable (soybean farmer exchange rate) of 92.6 percent while another 7.4 percent influenced by other factors not included in the model. Soybean Farmers Exchange Rates, The based on the calculation of the exchange rate of soybean farmers in Jatiwaras District, Tasikmalaya Regency, Indonesia the following results are obtained:

**Table 2. Percentage of Farmers Exchange Rate Calculation Results in Jatiwaras District**

<table>
<thead>
<tr>
<th>FER value</th>
<th>Papayan Village (%)</th>
<th>Jatiwaras Village (%)</th>
<th>Jatiwaras District (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>&gt; 100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>100.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Based on Table 2 shows that respondent farmers in it have FER <100, where the average exchange rate of soybean farmers in Papayan Village is 4.95 percent, Jatiwaras Village is 16.34 percent, and for the average exchange rate of soybean farmers in the District Jatiwaras by 11.61 percent. This means that the level of welfare of farmers in the District of Jatiwaras is still relatively low (not prosperous). This is because the total expenditure for consumption (food and non-food) and production costs for soybean farming incurred by farmer households is IDR 19,336,684. The greater than the revenue from soybean farming which only reaches IDR 2,575,769. So they can be said to not be able to meet their needs just rely on soybean farming.

3. CONCLUSIONS

The analysis that has been carried out regarding the factors that affect the exchange rate of soybean farmers in Jatiwaras District, Tasikmalaya Regency, Indonesia the following conclusions are obtained. The Factors that affect soybean farmer exchange rates, partially are land area and selling price, while simultaneous land area, productivity, selling price, labor costs, and number of dependents affect soybean farmer exchange rates. The most dominant factor is the selling price. The average exchange rate of soybean farmers it Regency is 11.61. The suggestions for this research are is the soybean farmers are advised to pay more attention to aspects of selling prices, namely by selling their soybeans in groups so that farmers have a bargaining position which will in turn affect farmers' income. The government is expected to make certain of the basic price for soybeans so that the selling price is not too low at any given moment. The next researcher, It is hoped that further research can measure the welfare of farmers by not only calculating the index received from soybean farming, but also from side jobs in order to obtain an overall FER.

REFERENCES