It’s True The Effectiveness Of The Fertilizer Subsidy Policy And Its Effects On The Income Of The Farmers? (Case In Indonesia)

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Abstract: The purpose of this research is to analyse the effectiveness of the fertilizer subsidy policy with analyse the influence the effectiveness of the fertilizer subsidy policy against rice farmer income in Melati II Villages, Perbaungan District, Serdang Bedagai Regency, North Sumatera, Indonesia. The use a research method be used is primary data using questionnaires to farmers. The research method of used is descriptive method and multiple regression analysis. The results showed that the effectiveness of the fertilizer subsidy policy is measured based on five indicators of accuracy namely, right price, right amount, right time, right place and right kind of earn a percentage accuracy of 47.16%. Multiple linear regression analysis results, indicating that the variable expansive land, labor, the price of the grain real effect and positive income against rice. Whereas the effectiveness of the fertilizer subsidy policy provide a positive influence but is not a real against rice farmer income.

Keywords: the effectiveness of subsidies, right price, right amount, fertilizer, rice farmers, income.

1. INTRODUCTION

The development of the agricultural sector is currently faced with problems meeting food needs and welfare of farmers. The number the population continues to increase the need for food directly as well will increase. To meet continuing food needs increased demand for farmers to increase production. With an increase in agricultural production is expected to be the welfare of farmers increase (Benson and Mogues, 2018). The welfare of farmers as actors of food producers is not the target following from efforts to achieve food self-sufficiency, but also a prerequisite the main so that these efforts can be achieved and guaranteed sustainability. Fertilizer problems in Indonesia have always been a problem that touches directly on the needs and sustainability of farmers in managing their land/fields. Therefore, when fertilizers are scarce and the price is expensive, farmers are the main victims. In order to anticipate this, since 1969 the Indonesian government issued a fertilizer subsidy policy for farmers. This policy is expected to protect farmers who can ultimately increase productivity and improve the economic level of farmers. Through the Ministry of Agriculture Republic of Indonesia, the government has allocated fertilizer subsidies to farmers. This program is carried out as part of strengthening national food security. In order to support national food security, it is necessary to support the provision of fertilizers that meet the right principles, namely: type, quantity, price, place, time and quality. And in order to support the adequacy in the supply of fertilizers, the government allocated fertilizer subsidies Regulation of the Minister No.15/M-DAG/PER/4/2013 of trade of the procurement and distribution of subsidized fertilizer for agriculture is a concrete manifestation of the Government helps farmers in getting fertilizer at affordable prices, the Government looked at the need to provide subsidies fertilizer and regulation. In an attempt to encourage the improvement of farmers income, then the Government's economic policy is based on efforts to increase productivity. This low productivity problems as the cause of a low income. The fertilizer subsidy policy is present as a step in realizing the national food security, in which fertilizer was very instrumental in the improvement of productivity and the production of agricultural commodities, and embody the application of a balanced fertilizer. Subsidized fertilizer is fertilizer which the procurement and distribution gets subsidies from the Government for farmers' needs carried out on the basis of Government programs. Whereas non-subsidized fertilizers are those which are procured and distributed outside the Government program and are not subsidized. The type of fertilizer subsidy that has been implemented so far is indirect subsidies where the allocation of subsidized fertilizers that have been proposed by the regional government and determined by the central government is continued with shipments from producers assigned to distributors to retailers, to farmers and farmers groups. Currently at the market there are two fertilizer prices, subsidized prices and non-subsidized prices. The length of the distribution chain in subsidized fertilizers and the presence of two fertilizer prices on the market has triggered a number of problems and potential problems in the field which many people complain about, such as the occurrence of subsidized and non-subsidized fertilizers, falsification of subsidized fertilizers, and long distribution chains. From the government, the occurrence of smuggling of subsidized fertilizers, the occurrence of counterfeiting of quota fertilizers from regions that have cheap fertilizer prices to expensive areas (Resnick et al., 2018 and Nasrin et al., 2019). To overcome the problem of sub-fertilized fertilizer distribution, the idea arises to channel fertilizer subsidies directly to farmers who are entitled and no longer in the form of price subsidies/subsidies no longer/ input subsidies to fertilizer companies. The fertilizer subsidy policy as an attempt of the Government helps farmers in meeting the needs of fertilizer that's high, amid increasing fertilizer prices. With the determination of the HITTITES (Highest retail price) the fertilizer production costs of farming farmers could lightest. With fertilizer subsidy policy then the productivity of farmers can be maximized, which when enlarged productivity it will generate higher income and...
allows to save and accumulate capital. The improvement of livelihood achieved by way of revenue enhancement. Justification of the importance of fertilizer subsidy to farmers are: (1) supporting efforts to increase food security, (2) to prevent the decrease of agricultural productivity, (3) to protect farmers from the world fertilizer price increase, and (4) to support farmer welfare improvement. Indirectly, fertilizer aim to: (1) support efforts to increase economic growth, (2) support efforts to alleviate the people from poverty, and (3) support the maintenance of economic stability. Government policies that encourage increased production have been attempted, coupled with the determination of the base price on the pretext of keeping the grain farmers are not harmed. However, the basic policy is almost always preceded by the rising prices of its input. In other words rice farmers almost did not experience an increase in real income. The fertilizer subsidy policy emerged as the Government’s efforts in anticipation of it. Serdang Bedagai Regency is one of the rice production centers that exists in the Province of North Sumatera. Serdang Bedagai Regency has an area of 75,618.5 Ha of crop, with a total production reached 425,946.2 tons (BPS, 2017). While Perbaungan is subdistrict with rice production at Serdang Bedagai Rehgency largest. Melati II villages in the sub district of Perbaungan is the village with the largest rice field area compared to 27 other villages. Most of the people in the village are livelihood as rice farmers. This shows that the community of Melati II villages is the object of the implementation of the government’s fertilizer subsidy policy. Therefore, it should be examined how the effectiveness of the fertilizer subsidy policy and its effects on rice farmers in the area of research.

2. LITERATURE REVIEW

2.1. Subsidized Fertilizers
Pratiwi and Hardyassti (2018) state the Fertilizer that supplies and distributes it regulated by the Highest Retail Price set at official line. Line is the location of the retailer’s warehouse or kiosk at sub-districts and or villages that are indicated or determined by distributor. Subsidized fertilizers are intended for the agricultural sector or sector related to food crop cultivation, horticulture. The targets of subsidized fertilizers are farmers, planters, and farmers cultivate the most land area of 2 hectares per planting season per family farmers except fish or shrimp cultivators with an area of 1 hectare. Fertilizer Subsidies are not intended for food crop companies, horticulture, plantation, animal husbandry, or aquaculture company. Determination of the allocation of subsidized fertilizers for each region is generally below the technical requirements proposed by the region due to the limited budget of subsidies, so that with a limited amount of subsidized fertilizer, it is expected that it can still be used optimally by taking into account the principle of priority, both to the regions assessed as production centers, as well as the types of commodities that will be seeded by the region (Nkhoma, 2018). In addition, it is hoped that the efficiency of using subsidized fertilizers can be implemented through the application of site-specific balanced fertilization and recommended technical standards along with the use of organic fertilizers.

2.2. Fertilizer Subsidy Policy
The short definition of the direct fertilizer subsidy policy is that a subsidy policy where farmers receive price subsidies directly from the government (Suryana et al., 2018) so that in a fertilizer purchase transaction, a farmer will be charged a market price, but the farmer only pays the net price at market prices reduced by subsidizing prices that farmers receive. Some of the potential benefits of the direct fertilizer subsidy policy are:

1. The price of fertilizer for a type of fertilizer in the market is only one type, so the potential for fraud in the problem of fertilizer supplies caused by the dualism of prices can be minimized;
2. The distribution mechanism will be simpler and more felt by farmers because fertilizer subsidies can be received directly;
3. The calculation of the amount of subsidies can be simpler if the data on the number of farmers entitled to receive and the volume of subsidized fertilizers can be obtained validly.

To ensure the sustainability of food security while increasing the welfare of farmers, short and longterm policies are needed (Micahel et al., 2018). Short-term policies are still needed, namely by implementing farmers’ protection policies with restrictions on imports, but should be supported by policies that encourage increased domestic production through efforts to increase rice productivity and harvest area, both by expanding land and increasing cropping intensity per year with guaranteed availability of irrigation facilities and agricultural inputs.

3. MATERIALS AND METHOD
The population in this research is farmers who plant rice paddy fields using fertilizer subsidies in farming until the research is done. The population was 1,723 farmers. By using the method of Slovin at 10% error level then the large samples in this study of 95 farmers. To resolve the first problem, done using descriptive analysis method.

TABLE 1. Criteria Indicators Accuracy

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Right Price</td>
<td>- In accordance with the highest retail price (HET)</td>
</tr>
<tr>
<td>2</td>
<td>The Exact Number</td>
<td>- In accordance with the suggestion of the use of fertilizers by the Government. As many as 250 kg urea/ha, SP-36 of 150 Kg/Ha, ZA of 100 Kg/Ha, NPK of 150 Kg/Ha, and organic 500 Kg/ha</td>
</tr>
<tr>
<td>3</td>
<td>Right Place</td>
<td>- Farmers buy fertilizer subsidies in place of authorized retailers</td>
</tr>
<tr>
<td>4</td>
<td>Timely</td>
<td>- There are always any farmers need it</td>
</tr>
<tr>
<td>5</td>
<td>Exactly The Kind of</td>
<td>- In accordance with the needs of the fertilizer used by farmers.</td>
</tr>
</tbody>
</table>

Source: Center for economic and social analysis of agricultural policy, 2007.

Calculated percentage of all indicators and the overall average percentage of indicators created in the form of percent. If the average indicators of accuracy of equal to or more than 80 percent then it can be categorized as that the fertilizer subsidy policy is already effective (Kesuma et al., 2018, Nasrín et al., 2019). This can be explained in Table 2.
To resolve the second problem, used multiple linear regression analysis method, with the following equation:

$$PENN = \alpha + \beta_1 LL + \beta_2 TK + \beta_3 HG + \beta_4 DE + \epsilon_i$$

Where:
- PENN : The income of farmers in the rice fields (Rp).
- LL : Land area for farming rice (Ha).
- TK : The use of labor in one growing season (HKP).
- HRG : Harvest grain selling price (Rp).
- DEP : Dummy effectiveness fertilizer subsidies (1 = effective and 0 = not effective).

### 4. RESULTS AND DISCUSSION

#### 4.1. Result

Based on five indicators, just the right place and the right indicator types that meet the criteria are effective, with the percentage accuracy exceeded 80%. The average results of the indicator fifthly which States the right of 47.16% and stating no right of 52.84%. Which points out the precision of the indicator types that meet the criteria are effective, with the percentage accuracy exceeded 80%.

#### 4.2. Discussion

1) **The Influence of Land Area Rice Farmers Income**

The regression coefficient of 9,287,683,957 land area, meaning that if the land area increased by 1 Ha then will increase farmer income amounting to Rp 9,287,683,966, by partial test statistics, obtained a value of significance level $\alpha = 0.000$ at level 0.05. Where the value of significance smaller than $\alpha$, meaning influential real land area against the income of farmers in the area of research.

2) **The Influence of Labor Against the Income of Rice Farmers**

The regression coefficient of the workforce amounting to 339289.95, which means that if the use of the labor force increased by HKP 1 then will increase farmer income amounting to Rp 339,289.95. Partial test, statistically obtained the value of significance of $\alpha = 0.000$ at level 0.05. Where the value of significance smaller than $\alpha$, meaning the production of a real effect against the income of farmers in the area of research partially.

3) **Influence the Price of Paddy Rice Farmers Income**

The regression coefficient of grain prices 3978.72, meaning that if the price of grain increased byRp 1 then will increase farmer income amounting to Rp 3,978.72. In a partial test of statistic, obtained a value of significance of $\alpha = 0.000$ at level 0.05. Where the value of significance smaller than $\alpha$, which means the price of the grain effect real income of the farmers in the area of research.

4) **Influence the effectiveness of the fertilizer subsidy policy against rice farmers income**

The regression coefficient of the effectiveness of the fertilizer subsidy policy dummy amounting to 1544331.987, which means that if farming fertilizer subsidy policy implemented effective then it can generate income higher than the application of fertilizer subsidies are ineffective, with the difference of Rp.1,544,331.987. From partially test, test $t$ significance value obtained of 0.117. Where the value is greater than the value of significance of $\alpha$ that is used that is 0.05. then the effectiveness of the fertilizer subsidy policy take effect is not real against rice farmers income in the area of research.

### TABLE 2.

Criteria for the Assessment of the Effectiveness

<table>
<thead>
<tr>
<th>Interval the percentage effectiveness (k)</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>k ≤ 40%</td>
<td>Not Very Effective</td>
</tr>
<tr>
<td>40% ≤ k ≤ 60%</td>
<td>Not Effective</td>
</tr>
<tr>
<td>60% ≤ k ≤ 80%</td>
<td>Quite Effective</td>
</tr>
<tr>
<td>80% ≤ k ≤ 90%</td>
<td>Effective</td>
</tr>
<tr>
<td>90% ≤ k ≤ 100%</td>
<td>Very Effective</td>
</tr>
</tbody>
</table>

*Source: Permendagri in Bakkara, 2014.*

### TABLE 3.

Analysis of the influence of the land area, labor, the price of grain, and the effectiveness of the Fertilizer Subsidy Towards the income of Rice Farmers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Regression Coefficient</th>
<th>$t_{count}$</th>
<th>Sig.</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constanta</td>
<td>-24730000</td>
<td>-5,455</td>
<td>0.00</td>
<td>s</td>
</tr>
<tr>
<td>Land area</td>
<td>9287683,957</td>
<td>4,424</td>
<td>0.00</td>
<td>s</td>
</tr>
<tr>
<td>Labor</td>
<td>339289,954</td>
<td>4,257</td>
<td>0.00</td>
<td>s</td>
</tr>
<tr>
<td>The price of grain</td>
<td>3978,720</td>
<td>4,340</td>
<td>0.00</td>
<td>s</td>
</tr>
<tr>
<td>Dummy effectiveness fertilizer subsidies</td>
<td>1544331,987</td>
<td>1.581</td>
<td>0.11</td>
<td>ns</td>
</tr>
</tbody>
</table>

*Source: The primary data were processed by, 2018.*

The results of the analysis show that the coefficient of determination $R^2$ of 0.835 or which means that 83.5% variation of the variable income farmers are able to be explained by variations of variable land area, labor, the price of grain and the effectiveness of subsidized fertilizer, and the rest 16.5% is explained by other variables that are not included in the model. $F_{count}$ results obtained that the $F_{count}$ of 114.272 with the significance of 0.000 at the level of $\alpha = 0.05$. Because the value of significance smaller than $\alpha$, then simultaneously variable land area, labor, the price of grain and the effectiveness of the subsidized fertilizer effect real rice farmer income.
5. CONCLUSION AND SUGGESTIONS

5.1. Conclusion
1) The fertilizer subsidy policy can be categorized not as effective, with the percentage accuracy of 47.16%.
2) Variable labor, land area, and priced grain positive and significant effect against the income of rice farmers, while the fertilizer subsidy policy effectiveness dummy effect positive and insignificant against the income of rice farmers.

5.2. Suggestions
1) Need to add more types of subsidized fertilizers such as manure and NPK KCl Pearls because fertilizer use have been able to improve the productivity of the land. The Government also needs to keep the grain price stabilization as the order increases the income of rice farmers.
2) To examine the effectiveness of the fertilizer subsidy policy by adding the appropriate quality indicators as part of the measurement of effectiveness.

REFERENCES