Agricultural Production and Access to In-kind Finance from Government: A Study of Banana Farms in Cianjur District, West Java

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Abstract. Finance can be accessed from many sources of finance, for instance from government. One of the forms of finance provided by government in Indonesia is in-kind finance such as seeds, fertilizer and harvesting tools. The objective of this study is to analyse the agricultural production related to access to in-kind finance from government. Survey method was used to collect data especially from fifty banana farmers in Cianjur District in 2017. The collected data were analysed using independent t-test. The results showed that access to in-kind finance from the government had helped farmers in growing bananas. Having access to in-kind finance from the government, farmers have higher production of bananas compared to the farmers who did not have access to similar in-kind financing. This study suggests the need to enhance access to in-kind finance from Indonesian government for farmers. To increase the opportunities for farmers to obtain the in-kind finance from the government, this study further suggests among others, to encourage farmers take part in the membership of farmers’ group.

1. Introduction
In general, farmers financing has been provided from several financial sources such as from banks and cooperatives [1], micro finance institutions (MFIs) [2], and from government [3-6]. Finance from government has been distributed through farmers’ association in the form of subsidy and in-kind finance such as seed, fertilizer and harvesting equipment [6].

Farmers can access sources of funds from different financial sources, including banana farmers. Banana has been determined by the agricultural ministry of Indonesia as one of the important products for the development of horticulture in Indonesia. Banana production in Indonesia from 2012 to 2016 is presented in Table 1.

Table 1. Banana production in Indonesia from 2012 to 2016

| Province    | Production (tonnes) | Average  | Growth 2016 over 2012 (%) |
|-------------|---------------------|----------|---------------------------|
|             | 2012    | 2013    | 2014   | 2015    | 2016    |         |              |
| West Java   | 1192860 | 1095325 | 1237171| 1306287 | 1204083 | 1207145 | 0.94          |
| East Java   | 1362881 | 1527375 | 1336685| 1629437 | 1865772 | 1544430 | 36.90         |
Data from Table 1 shows that banana production in Indonesia has a positive growth from 2012 to 2016 as much as 13.22%. On average, the production of banana in Indonesia has reached 6,727,453 tonnes during the last five years. West Java is one of the centre of banana production in Indonesia that also has a positive growth as much as 0.94%. The production of banana in West Java from 2012 to 2016 is presented in Table 2.

| District     | 2012  | 2013  | 2014  | 2015  | 2016  | Average  |
|--------------|-------|-------|-------|-------|-------|----------|
| Cianjur      | 341162| 200238| 201317| 201317| 191561| 227119   |
| Sukabumi     | 128818| 78595 | 192639| 192639| 165319| 151602   |
| Tasikmalaya  | 107817| 115589| 91022 | 91022 | 121255| 105341   |
| Ciamis       | 102963| 132405| 204862| 204862| 213971| 171813   |
| Garut        | 96980 | 116761| 110290| 110290| 120323| 110929   |
| Others       | 415120| 451737| 437041| 506158| 391654| 440342   |
| West Java    | 1192860|1095325|1237171|1306288|1204083|1207145  |

Source: Indonesian statistics (2013, 2014, 2015, 2016, 2017).

The Table 2 shows an increase of banana production in West Java from 2012 to 2016. During the last five years, on average, Cianjur had the highest production of banana, which produced 227,119 tonnes. The average banana production in Cianjur contributed 19 percent of the total production of banana during the last five years.

Previous studies have found that finance from government had contributed to better innovation performances [5] and to an increase of agricultural production by motivating farmers in technology application [7]. Furthermore, finance provided by government has positively associated with productivity improvement [8] and horticultural technical efficiency [6].

Government has provided financial support for farmers distributed in different forms such as subsidised credit, agricultural equipments, agricultural inputs aid such as seed and fertilizer [3]. Existing literatures mostly explore the importance of subsidised credit from government. However, only few studies assessed the role of in-kind finance from government. Therefore, the objective of this study is to analyse the agricultural production related to farmers access to in-kind financing from government. Results of this study provide insights to the government about the importance of in-kind finance from the government to farmers in supporting the production of agriculture.

2. Materials and methods
The Indonesian Ministry of Agriculture has identified banana as one of the important crops for the development of horticulture in Indonesia [9]. Based on the identification, this study chose to focus on banana farming and financing. This study used survey technique to collect data from May to September 2017.
The data were collected from 50 banana farmers in Cianjur District, West Java, Indonesia. Cianjur district was chosen for study area as it has contributed a significant number of banana production in Indonesia. The data needed for this study included the experience of farmers in obtaining in-kind finance from the government, the amount of in-kind financing from government in the region of Cianjur that farmers had received, and the number of farmers’ group that received in-kind finance from government.

The collected data were analysed using descriptive statistics and independent t-test. The independent t-test was used to investigate the difference of banana production between two groups of farmers, i.e. farmers who had access to in-kind finance from government and those who did not have any access to in-kind financing from the government. The results of the analysis were interpreted and discussed involving relevant literatures that supports the findings of the study.

3. Results and discussion

Cianjur district is known to become the largest banana crop produces in West Java. The average production of banana in Cianjur has reached 227119 tonnes from 2012 to 2016. Among the subdistricts within Cianjur, Sukaresmi has the highest production of banana during the last five years, in which it contributed 35% of the whole banana production in Cianjur. Following Sukaresmi is Cibeber, that has the second highest production of banana crops during the years, in which Cibeber contributed 13% of banana production in Cianjur. The production of banana in Cianjur from 2012 to 2016 is presented in Table 3.

Table 3. The production of banana (tonnes) in Cianjur

| Sub-districts   | 2012  | 2013  | 2014  | 2015  | 2016  | Average |
|-----------------|-------|-------|-------|-------|-------|---------|
| Agrabinta       | 1123  | 2105  | 1096  | 4104  | 2685  | 2223    |
| Leles           | 2133  | 2097  | 2714  | 2876  | 3582  | 2680    |
| Sindangbarang   | 15831 | 14294 | 7646  | 1929  | 1325  | 8205    |
| Cidaun          | 17136 | 15187 | 10428 | 16817 | 23205 | 16555   |
| Naringgul       | 4160  | 1661  | 2582  | 1679  | 1876  | 2392    |
| Cibinong        | 480   | 683   | 486   | 594   | 1227  | 694     |
| Cikadu          | 7998  | 14467 | 10351 | 10990 | 11196 | 11000   |
| Tanggeung       | 12509 | 4835  | 5861  | 10115 | 7247  | 8113    |
| Pasirkuda       | 268   | 349   | 182   | 84    | 86    | 194     |
| Kadupandak      | 12    | 52    | 110   | 217   | 215   | 121     |
| Cijati          | 22    | 55    | 45    | 64    | 40    | 45      |
| Takokak         | 249   | 224   | 200   | 206   | 144   | 205     |
| Sukunagara      | 246   | 3576  | 173   | 1805  | 453   | 1250    |
| Pagelaran       | 191   | 213   | 2264  | 670   | 798   | 827     |
| Campaka         | 8921  | 8934  | 8982  | 9053  | 9074  | 8993    |
| Campaka mulya   | 115   | 214   | 120   | 68    | 71    | 117     |
| Cibeber         | 28282 | 28243 | 33849 | 41018 | 31183 | 32515   |
| Warungkondang   | 3025  | 90    | 89    | 29    | 66    | 660     |
| Gekbrong        | 2439  | 3241  | 2842  | 1772  | 2115  | 2482    |
| Cilaku          | 483   | 551   | 334   | 181   | 201   | 350     |
| Sukaluyu        | 234   | 127   | 90    | 69    | 202   | 144     |
| Bojongpicung    | 4999  | 6026  | 1875  | 937   | 2689  | 3305    |
| Haurwangi       | 837   | 859   | 1909  | 6755  | 6278  | 3327    |
To support banana production in Cianjur, Indonesian government has provided finance for farmers. These agricultural finance subsidies by government or other types of incentive are stimulants for farmers to improve their agricultural production [4]. Finance distributed for banana farmers in Cianjur was in form of in-kind finance including seed, fertilizer and harvesting equipment. The distribution of in-kind finance for Cianjur farmers in the period of 2015 and 2016 is presented in Table 4.

| Description               | 2015   | 2016   |
|---------------------------|--------|--------|
| Number of farmers’ groups | 5      | 6      |
| Number of sub-districts   | 4      | 4      |

The Table 4 shows that the government distributed in-kind finance through 5 farmers’ groups in 2015 especially for banana farmers. The government increased the number of farmers’ groups receiving in-kind financing to 6 farmers’ groups in 2016. This implies that the government has paid more attention to farmers’ group to improve farmers’ performance in agricultural production. The study of Indraningsih [10] concluded that farmers’ group has important role in improving the performance of farmers especially in communicating farming innovation. Zakaria [11] further showed the benefit of government aid, which would be more appropriate if distributed through farmers’ association. The Cianjur Government distributed the in-kind finance to similar number of sub-districts in 2015 and 2016.

In distributing in-kind financial support, the government required farmers to join with a farmer group. This policy is congruent with previous studies that found the role of farmers’ association in financial access [12]. Farmers’ association has important role in farming development [13]. Joining farmers’ association benefits to farmers. Through farmers’ association, farmers can improve their attitude, knowledge and skills in farming [14]. Being a membership of farmers’ association, farmers can share experiences and information in agriculture [15]. Furthermore, farmers who are members of farmers’ association have positively associated with the technical efficiency of farm [16].

In-kind finance program provided by government implies that the government supports farmers to develop their crop production to increase their income [11]. The descriptive statistics of banana produced by the respondents in 2016 is presented in Table 5. The Table 5 shows that, overall, banana was produced by the respondents as much as 3.27 tonnes in 2016. Table 5 further shows that the banana production of the respondents who obtained in-kind finance from the government is about twice higher than the banana produced by the respondents who did not obtain in-kind finance from the government.

| Sub-districts | 2012   | 2013   | 2014   | 2015   | 2016   | Average |
|---------------|--------|--------|--------|--------|--------|---------|
| Ciranjang     | 3533   | 4645   | 1099   | 3897   | 2573   | 3149    |
| Mande         | 300    | 888    | 330    | 546    | 456    | 504     |
| Karangtengah  | 7031   | 19880  | 24465  | 15618  | 13040  | 16007   |
| Cianjur       | 29     | 48     | 97     | 401    | 135    | 142     |
| Cugenang      | 5242   | 8019   | 3761   | 14199  | 11193  | 8483    |
| P acet        | 6      | 7      | 12     | 19     | 11     | 11      |
| Cipanas       | 58     | 7      | 9      | 5      | 8      | 17      |
| Sukaresmi     | 183961 | 54925  | 45206  | 50400  | 53634  | 77625   |
| Cikalongkulon | 29308  | 3737   | 3277   | 4200   | 4457   | 8996    |

Source: Agricultural Office of Cianjur
Table 5. Descriptive statistics of banana (tonnes) produced by the respondents in 2016

| Description                          | Access to in-kind finance from government | Overall |
|--------------------------------------|------------------------------------------|---------|
|                                      | Have access                              | No access|        |
| Mean                                 | 4.39                                     | 1.99    | 3.27   |
| Minimum                              | 0.60                                     | 0.10    | 0.10   |
| Maximum                              | 18.00                                    | 12.00   | 18.00  |
| Variance                             | 18.21                                    | 7.67    | 14.17  |
| Std. deviation                       | 4.27                                     | 2.77    | 3.77   |

The mean of banana production in Cianjur from two groups of farmer, i.e. farmers with and without in-kind finance from the government is presented in Table 6. Based on the results of the different test, the test shows that there is a significant difference of banana production between the two groups of farmers implying that the farmers who obtained in-kind finance from the government had a higher banana production compared to the farmers who did not receive in-kind finance from the government. This may happen because the government has distributed high quality of banana seeds, which lead to higher banana production. Muchtar et al. [7] revealed that in-kind finance from government increased the production of agriculture.

Table 6. The mean banana production for the different test

| Access to in-kind finance from government | Banana production (tonnes) |
|------------------------------------------|----------------------------|
| Have access                              | 4.36*                      |
| No access                                | 1.99*                      |
* significantly different at 5% level

4. Conclusion
The results showed that access to in-kind finance from the government had helped farmers in increasing their banana crop production, compared to the farmers who did not have access to the in-kind finance. This study suggests the need to enhance access to in-kind finance from Indonesian government for farmers. To increase the opportunity of farmers to obtain the in-kind finance from the government, therefore, this study also suggests farmers to be member of farmers’ group.

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