UPLAND PROGRAM IN INCREASING THE INCOME OF HIGHLAND FARMERS IN PURBALINGGA REGENCY

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ABSTRACT

Indonesia has various types of plains that can be used to develop the agricultural sector, one of which is the highlands. The area of the highlands in Indonesia is recorded at 144.47 million hectares. Government policies are needed to increase productivity and income of upland farmers. The UPLAND program of the ministry of agriculture is expected to increase the productivity and income of upland farmers in Indonesia. The purpose of this study is to analyze the increase in the income of upland farmers in Purbalingga district. The analysis is carried out by comparing the productivity and income of farmers before the UPLAND program and after the UPLAND program, so that the significance of the increase can be known. The benefit of the results of this research is that it can be used as a reference for the government in designing and implementing programs related to agriculture. The average net income of farmers before joining the UPLAND program was IDR. 817500,- per month. After participating in the UPLAND program, the income of upland farmers can increase up to IDR. 110,000,-. The results of the paired t test analysis showed that the value of Sig. is 0.00 or <0.05, which means that there is a significant increase in income between before and after the UPLAND program. Respondents in this study were upland farmers who participated in the UPLAND program with the same area of land cultivated and agricultural commodities planted. There were 32 upland farmers working on the exact same land and commodities.

INTRODUCTION

One of the main driving factors for development in Indonesia is the agricultural sector (Nursan & Septiadi, 2020). Indonesia has various types of plains that can be used to develop the agricultural sector, one of which is the highlands. The area of the highlands in Indonesia is recorded at 144.47 million hectares. This is what prompted the government to develop The Development of Integrated Farming System in Upland Areas program or better known as the UPLAND program. The implementation of the UPLAND program is spread across 14 districts throughout Indonesia.

Source: UPLAND 2021 Guidelines

Figure 1.1 Distribution Map of the UPLAND Program Implementation

GDP in Indonesia is still dominated by the agricultural sector as the main shaper (Septiadi & Joka, 2019). Purbalingga Regency is one of the regencies in Central Java that has a large agricultural land area (Mahendra, 2021). In some countries, low farmer income is the main obstacle to aggregate economic growth (Severini et al., 2016). Asia and Africa are noted to be regions with low and fluctuating farmer incomes (Fanzo, 2018). Upland farmers' incomes are very low due to very large capital costs (Ashari & Hariani, 2018)

Products from agricultural products tend to have unstable prices, this makes profits at the farm level low (Naruetharadhol et al., 2022). Farmers who sell agricultural products must find solutions to increase profits from agricultural businesses. Government policies that focus on increasing farmers' income are currently starting to vary. Fertilizer subsidies, irrigation infrastructure assistance and assistance in improving human resources have been carried out. The fertilizer subsidy assistance program called the Kartu Tani program has helped farmers a lot in accessing subsidized fertilizers (Mahendra et al., 2021a). The government hopes that the UPLAND program which focuses on increasing the income and development of upland farmers in Indonesia can also be successful.

There are several ways to increase farmer profits, in research the application of good technology can have an effect on increasing income. In this study (Ehlers et al., 2021), discusses agricultural policies that are structured into a single unit of digital information. Integrated agricultural policies can also increase the income of upland farmers (He et al., 2022). Farming that is cultivated must think about environmental impacts so that increasing farmer resources towards green agriculture is very important (Wang et al., 2022). In this study, I would like to discuss the impact of the UPLAND program on increasing the income of upland farmers in Indonesia.

Government policies are urgently needed in increasing the productivity and income of upland farmers(Deuss, 2015). Strengthening capital for farmers will be very influential in poverty alleviation (PENG et al., 2021). There are two main factors in efforts to increase farmers' income and reduce poverty, namely agricultural technology and government policies in agriculture (Subramanian & Qaim, 2010), (Vandeplas et al., 2012) , (Ma et al., 2018), (Nakano et al., 2018). The UPLAND program of the ministry of agriculture is expected to increase the productivity and income of upland farmers in Indonesia.

The purpose of this study is to analyze the increase in the income of upland farmers in Purbalingga district. The analysis is carried out by comparing the productivity and income of farmers before the UPLAND program and after the UPLAND program, so that the significance of the increase can be known. The benefit of the results of this research is that it can be used as a reference for the government in designing and implementing programs related to agriculture.

RESEARCH METHODS

This research method is descriptive quantitative. The variables analyzed in this study were farmers' income before and after the UPLAND program. Where the income calculated is income from the agricultural sector with the formula = TR-TC (Soekartawi, 2002) TR is income from agricultural products and TC is all costs incurred in farming. The determination of the research location was taken intentionally, there are 14 districts from all districts in Indonesia which are the locations of the UPLAND program including Purbalingga Regency which is located in Central Java Province. The locations chosen were 2 sub-districts where the UPLAND program was implemented, namely Pengadegan District and Kejobong District. The selected sample is farmers from the 2 sub-districts who work as farmers with a uniform area of land and agricultural commodities.

Method of Collecting Data

From field observations, it was found that the Krida Tani farmer group in Nangkasawit Village became the selected farmer group to be the population. Determination of the population is based on the criteria of farmers who cultivate the same commodity, namely pepper and also at almost the same altitude, namely at 800MASL. From the total group of 69 members, there are 32 pepper farmers with the same land area of $500m^2$. The number of samples used in this study were 32 pepper farmers with ownership and planting pepper on $500m^2$ of land. This research was conducted from July to September 2022 in Purbalingga Regency, Central Java Province.

Data Analysis Method

Empirical Model

In this study, descriptive analysis was used by presenting the results of interviews and questionnaires from respondents(Martin et al., 2022). Then to prove the research hypothesis that there are differences in the income of upland farmers before and after the UPLAND program. The test parameter in this study is the net income of farmers from the results of farming with an area of 500m^2. To perform the paired t test, the data used must be normally distributed (Ohlson et al., 2013). By testing the average income of upland farmers before and after the UPLAND program using the paired t test, it can be seen clearly whether the difference in income is significant or not(Leiva & Roy, 2022), (Roy et al., 2015) Statistical testing in this study was assisted by IBM SPSS software, which is software that can help calculate statistics (Čaplová & Švábová, 2020) Paired t test using the statistical formula:

$$t=\frac{\overline{X_1}-\overline{X_2}}{\sqrt{\frac{S_1^2}{n_1}+\frac{S_2^2}{n_2}-2r\left(\left(\frac{S_1}{\sqrt{n_1}}\right)\left(\frac{S_2}{\sqrt{n_2}}\right)\right)}}$$

Description:
$\overline{X_1}$= Sample mean before the program
$\overline{X_2}$= Sample mean after the program
S_1= Standart deviation before the program
S_2= Standart deviation after the program
n_1= Sum of sample before the program
n_2= Sum of sample after the program

The decision making of the paired t test is:
1. $t_{test > }t_{table}$ There is a significant difference between farmers' income before and after the UPLAND program (H_0 rejected)
2. $t_{test < }t_{table}$ There is no significant difference between farmers' income before and after the UPLAND program (H_0 received)

RESULTS AND DISCUSSION

The UPLAND program was designed by the Ministry of Agriculture of the Republic of Indonesia through the Director General of Facilities and Infrastructure. This program utilizes aid funds from abroad, namely from the IsDB Islamic Development Bank and the IFAD International Fund for Agricultural Development. The amount of funds allocated was 120 million USD, which was implemented in 14 districts in Indonesia. The UPLAND program designed by the government is a unified program for improving agricultural technology, improving on-farm to off-farm management and improving the quality of agricultural institutions(Pertanian, 2021). Farmers in the highlands have several inhibiting factors including; low human resources, limited technology, lack of guidance, limited infrastructure, lack of role from farmer groups to low participation in institutions (Pujiharto, 2011).

Several government programs related to the agricultural sector have seen success in increasing farmers' income and agricultural productivity(Mahendra et al., 2021b). Farmers in the highlands should receive special attention, this is because they mostly rely on rainfall and have low incomes (Mahmoodi & Nojedeh, 2016). Highland farmer households are households that must be protected by government policies in order to develop and be independent (Sa'diyah & Pudjiastuti, 2017). Several factors that determine the success of a public policy are; environmental conditions, existing resources and facilitators who drive the policy itself (Pitakpongjaroen & Wiboonpongse, 2015). Land area, human resources and production costs are very important factors on farmers' income (Pujiharto, n.d.).

The income of farmers studied in this study is the net income of farmers from pepper harvests on a land area of $500m^2$. The average net income of farmers before joining the UPLAND program was IDR. 817500, - per month, this amount was obtained from the reduction of all farmers' income with all costs incurred by farmers. Farmers' harvests with an area of $500m^2$ can produce an average of 150kg of wet pepper, this is in accordance with the results of research (Al-Harbi et al., 2020), (Purkaystha et al., 2022).

After participating in the UPLAND program, the income of upland farmers can increase up to IDR. 110,000,-. This increase in the income of upland farmers occurs because there is a decrease in costs incurred by farmers. Improvements to facilities and infrastructure of access roads to farmers' fields have been repaired and some rebuilt with funds from the UPLAND program. The UPLAND program also helps the development of water distribution which functions to water the fields for upland farmers so that the costs that should be borne by upland farmers can be reduced.

Table 1. The process of implementing the UPLAND Program

Component	Type of Activity	Description
Land and Infrastructure Development	Almost all activities are carried out using the CPP method	Solar wells, sprinkler irrigation and drip irrigation are carried out using the NCB method and carried out by Distan
Agricultural Production and Management	Procurement of agricultural machinery equipment for land processing and harvesting is carried out using the CPP method	Procurement of production inputs is carried out by local shopping, procurement of organic fertilizer processing equipment is carried out using the NCB method and carried out by the Distan
Marketing infrastructure support	Procurement of transportation facilities and procurement of machine tools for processing products agriculture is carried out using the CPP method	Warehouse construction is carried out using the NCB method and carried out by the Distan

Source: Primary Data Processed 2022

Description:
CPP: Community Participatory Procurement The implementation of which involves farmer groups.
NCB: National Competitive Bid Procurement in which only domestic suppliers may participate in the tender.

From table 2 it can be clearly seen that there is an increase in the average income of farmers by IDR. 290000, - per month. Increased income for upland farmers is urgently needed, given that upland farmers have to pay more than lowland farmers(Akite et al., 2022), (Holt & Morris, 2022). This finding is directly in line with research results (Iversen et al., 2022), (Nguyen et al., 2021), (van Thanh & Yapwattanaphun, 2015). The government through related agencies can help ease the burden on upland farmers directly or indirectly.

Table 2. Descriptive Analysis

	N	Minimum	Maximum	Mean
Before Program	32	700000	850000	817500.00
After Program	32	900000	1300000	1107812.50
Valid N (listwise)	32			

Source: Primary Data Processed

The government in a country can play a direct role in the world of agriculture in the country itself. The agricultural sector is important because it can support other sectors whose impact is an increase in the macro economy. Economic improvements that can directly touch remote rural communities are urgently needed in Indonesia (Kuswanto et al., 2019). It is hoped that the UPLAND program which is realized in 14 districts throughout Indonesia will have a significant impact on the welfare of upland farmers.

Table 3. Paired T Test Result

Paired Differences		
Pair 1 Before Program –	Sig. (2-tailed)	
After Program		.000

Source: Primary Data Processed

From table 3 it is known that the value of Sig. is 0.00 or <0.05, which means that there is a significant increase in income between before and after the UPLAND program. Increased income for upland farmers will increase the ability of upland farmers to develop their agricultural businesses (Hepp et al., 2019). The equitable development of agricultural businesses will increase food security for a region.

In Purbalingga Regency, almost 70% of the people are farmers, so that if the UPLAND program is actually intended for highland farmers, it will be a trigger for other farmers to innovate and develop. The development of both lowland and highland farming will have an impact on overall national development. Agricultural sustainability depends on the ability to develop farming by farmers and also increase the effectiveness of agriculture, especially for upland farmers (Dubois & Carson, 2019).

CONCLUSIONS AND POLICY IMPLICATIONS

Conclusions

The UPLAND program was designed by the Ministry of Agriculture of the Republic of Indonesia through the Director General of Facilities and Infrastructure. The UPLAND program designed by the government is a unified program for improving agricultural technology, improving on-farm to off-farm management and improving the quality of agricultural institutions. There was an increase in the average income of farmers of IDR. 290000, - per month, it increase 35% income from before the program in Purbalingga Regency. The increase in upland farmers' income can be said to be significant between before and after the UPLAND program.

Suggestion

Assistance programs aimed at improving the welfare of farmers, especially upland farmers, are urgently needed for most farmers in Indonesia. The benefits of government assistance programs can be felt directly and indirectly. We ask that programs that are well-intentioned such as UPLAND can be implemented in more locations in the future.

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