



Effectiveness of the Management of Pajale Food Security Program (Rice, Corn, and Soybean) in West Aceh Regency

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Abstract

The purpose of this study was to analyze the effectiveness and impact of the Pajale (Rice, Corn, and Soybean) of the UPSUS (Special Effort) Program on the production of rice, corn, and soybean in West Aceh regency. This study conducted in West Aceh Regency. The method used to collect the data is the random sampling technique. The number of samples determined using Solvin formula. However, due to the limited time, energy, and cost, the researcher only took 188 samples from the total population of 584 respondents. The analytical method used to answer the first hypothesis is using the effectiveness formula, as follows: The Effectiveness of Program = $(R/T) \times 100\%$. The analytical method used to answer the second hypothesis is using the PAM (Policy Analysis Matrix) approach. This method used to determine the impact of the UPSUS Pajale Program. The matrix of PAM consists of two identities that are the profit identity and the deviation identity.

Based on references from Litbang Depdagri (Research and Development Agency, Indonesian Ministry of Home Affairs) year 1991, the effectiveness of the UPSUS Pajale Program in West Aceh for Rice and Soybean categorized as effective, which is within the range of $\geq 80 - 100$. Meanwhile for the commodity of corn categorized as quite effective, which is within the range of $\geq 60 - 80$. This shows that the UPSUS Pajale Program implemented in West Aceh can support sustainable food self-sufficiency targeted by the government for rice and soybean commodities. This can be done by increasing the harvested area and production of both commodities.

The impact of the program determined using the Policy Analysis Matrix (PAM). If the profit coefficient (PC) > 0 , then the government policies can increase profits obtained by producers, and vice versa. Based on the PAM calculation result on the impact of the program, it shows that the UPSUS Pajale Program implemented in West Aceh can increase profits achieve by producers for all three commodities, rice, corn, and soybean where is the PC > 0 .

Keywords: *Effectiveness; The Impact of UPSUS Pajale Program (Rice, Corn and Soybean)*

Introduction

Food is a basic human need and the national goal of a country. The importance of food as a basic human need can cause a country to be in a state of social conflict if the country does not have strong national food security. The study conducted by FAO (Food and Agriculture Organization) in 2000 stated that a country with a population of more than 100 million people is impossible or difficult to progress and prosper if their food needs depend on imports. The study shows that the cause of the dissolution of the Soviet Union as a superpower country on December 26, 1991, was alleged because the fulfillment of its food needs depended on supplies from NATO (North Atlantic Treaty Organization) countries. The problem faced by the Soviet Union can also be experienced by any country including Indonesia. This problem will happen if Indonesia is unable to meet national food needs. It was predicted by Prabowo Subianto that published in *kompas.com* on 03/28/2018 that if this happens Indonesia can disband in 2030 (Nasution and Hafindar, 2018).

The UPSUS (Special Effort) Pajale Program is the government's effort in food self-sufficiency. Furthermore, this program is also an effort in dealing with the substantive problem of accelerating the achievement of food self-sufficiency. There are seven substantive problems, as follows; the first is the change of function and fragmentation of agricultural land. The second, infrastructure damage/irrigation networks. The third, the decrease of agricultural labor, the expensive wages, and the lack of agricultural mechanization equipment. The fourth, the high yield shrinkage. The fifth, the site-specific fertilizers and seeds have not yet met the recommendation needs and the six-precise program has not yet been fulfilled. The sixth, the weak capital of farmers. The seventh, the price of food commodities falls and it is difficult to market the products during harvest season (Permentan No. 3 2015).

West Aceh is one of the districts on the west coast of Aceh. This district is one of the recipients of rice, corn, and soybean improvement program or better known as the Pajale Program. The Pajale Program aims to stimulate food improvement towards food self-sufficiency. However, the Pajale Program implemented in West Aceh in 2016 did not show an increase in the production of rice, corn, and soybean significantly.

Table 1. The Production of Rice, Corn, and Soybean in West Aceh

No.	Year	Production (Tons)					
		Rice	Growth (%)	Corn	Growth (%)	Soybean	Growth (%)
1	2012	49.007	0,00	356	0,00	19	0,00
2	2013	65.501	33,66	520	46,07	45	136,84
3	2014	83.226	27,06	489	-5,96	51	13,33
4	2015	149.844	80,04	306	-37,72	85	67,67
5	2016	93.342	-37,71	132	-56,86	0	-100,00
6	2017	153.777	64,75	186	40,91	92	9,200

Source: Statistic Bureau Agency of Indonesia (2018) and Department of Agriculture of West Aceh (2018)

Table 1 showed the data of rice, corn, and soybean production in West Aceh declined in 2016. In 2017, the rice and soybean production increased but corn production did not increase. This condition shows that the implementation of the UPSUS Pajale Program was not effective. Necessarily, after the Pajale Program, the production of these three commodities, rice, corn, and soybean, will increase.

The UPSUS Pajale Program, which implemented in 2015, is a national food improvement strategy to increase the farmer's production in West Aceh. It caused by the programs implemented in the UPSUS Pajale are an agricultural intensification and extensification activity. Generally, intensification and extensification activities are an effort to increase agricultural products including rice, corn, and soybeans

(Makarim and Ikhwani, 2013), however, the production of rice, corn, and soybean declined after the Pajale Program implemented.

To know the ineffectiveness of program management will help in improving program management. It can help to achieve program goals later. The condition of reversal of the decline in rice, corn, and soybean production because of the ineffective management of the UPSUS Pajale Program implemented is interesting to study. Based on the problems, it is interesting and necessary to research the effectiveness of the management of the UPSUS Pajale food security program in West Aceh.

Purpose of the Study

This study aims to analyze the effectiveness of the UPSUS Pajale Program in West Aceh and to analyze the impact of the UPSUS Pajale Program on rice, corn, and soybean production in West Aceh.

Methodology

This study was conducted in West Aceh, the determination of the location of the study was carried out intentionally (purposive sampling technique). In the consideration, that West Aceh was one of the regions that implemented the UPSUS PAJALE program with the widest planting area in the southwest coastal region of Aceh Province.

Population and Study Sample

The population in this study are farmers in the West Aceh who grow rice, corn, and soybeans based on the group of farmers. The method used in collecting data is a random sampling technique so that the data obtained were more representative. However, due to limited time, energy, and cost, the researcher only took 188 samples from the total population of respondents.

Source and Collecting Data

The data collected in this study using the survey method. A survey is an investigation conducted to obtain facts from the tendency that exists and look for information factually. The next step is a literature review. A literature review is studying and analyzing various kinds of literature in the form of books, articles, and/or journals that have relevance to the problem, which is being studied. The third step is a field study. Field study is collecting the data and information that carried out directly in the study area using various methods, as follows:

- a. Direct interviews with the interviewees that have been determined using interview guidelines.
- b. Documentations, which examines and studies various written reports that are relevant to this study.
- c. Field study (observations), to obtain data and information through direct observation of the object of this study.

Method of Data Analysis

The analytical method used to measure the effectiveness using the following formula (Subagyo, 2009).

$$\text{The Effectiveness of Program} = \frac{R}{T} \times 100\%$$

Description:

R = The increasing of the productivity of rice, corn, and soybean after the program implemented

T = The target of increasing productivity of rice, corn, and soybean after the program implemented

The reference standard for the effectiveness of the UPSUS Pajale Program is measured according to the Research and Development Agency, Indonesian Ministry of Home Affairs year 1991, as follows.

Table 1. Reference Standards for Effectiveness Measurement

The Ratio of Effectiveness	Description
<40	Very Ineffective
≥40 up to <60	Ineffective
≥60 up to <80	Quite Effective
≥80 up to 100	Effective

Source: Research and Development Agency of Indonesian Ministry of Home Affair (1991)

The next step is to analyze the impact of the UPSUS Pajale Program using the PAM approach. The PAM matrix consists of two identities, a profit identity, and a deviation identity. Further information about the PAM analysis can be seen below.

Table 2. The PAM Analysis Matrix

Items	Revenue	Cost		Profitability
		Tradable Input	Domestic Factor	
Private	A	B	C	D
Social	E	F	G	H
Divergence	I	J	K	L

Source: Pearson, 2005

Symbol Description:

A: Private Income

B: Input Cost of Tradable Private

C: Input Cost of Non-Tradable Private

D: Private Income

E: Social Income

F: Input Cost of Social Tradable

G: Input Cost of Non-Tradable Social

H: Social Profit

I: Output Transfer

J: Tradable Input Transfer

K: Transfer Factor

L: Net Profit

Formula:

- Private Profitability (D) = A – (B + C)
- Social Profitability (H) = E – (F + G)
- Output Transfers (I) = A – E
- Input Transfer (J) = B – F
- Factor Transfer (K) = C – G
- Net Transfer (L) = I – (K + J)
- Private Cost Ratio (PCR) = C/(A – B)
- Domestic Resource Cost Ratio (DRC) = G/(E – F)
- Nominal Protection Coefficient on Tradable Output (NPCO) = A/E
- Nominal Protection Coefficient on Tradable Input (NPCI) = B/F
- Profit Coefficient (PC) = D/H(Pearson, 2005)

Result and Discussion

The Effectiveness of UPSUS Pajale Program

The Agriculture Department of West Aceh did socialization and classified the prospective farmers who will receive assistance from the UPSUS Pajale Program in the sub-district related area. This was done so that the respective farmers will know, understand, and participate in the UPSUS Pajale Program. Besides, the Department of Agriculture in collaboration with Bintara Pembina Desa (non-commissioned law enforcement officer posted in villages and ward, and affiliated with the civilian administration), or BABINSA, assists the respective farmers. Assisting is starting from the distribution of seeds, tools, and machinery to the respective farmers. The assistance provided before the program implemented in 2015 and after the implementation of the program in 2018. The program assistances also provided by the universities by placing new graduates to accompany the participant of UPSUS Pajale Program.

The effectiveness of the program calculated by comparing the productivity after and before the program implemented. In this case, the researcher collected the data before the program implemented in 2015 and after the implementation of the program in 2018. The following Table 4 shows the data of rice, corn, and soybean in West Aceh.

Table 3. Data of Production, Harvested Area, and Productivity of Pajale in 2015 and 2019

No.	Commodities	2015			2019		
		Production (Tons)	Harvested Area (Ha)	Productivity (Tons/Ha)	Production (Tons)	Harvested Area (Ha)	Productivity (Tons/Ha)
1	Rice	149.844,71	24.850,00	6,03	114.356,27	18.375,10	6,22
2	Soybean	84,83	42,00	2,02	61,30	29,00	2,11
3	Corn	306,00	116,00	2,64	639,50	177,90	3,59

Table 4 showed the number of production of rice, soybean, and corn in 2015 and 2019. Based on Table 4, the effectiveness of the UPSUS Pajale Program analyzed, and the outcome obtained shown in Table 5 below.

Table 4. The Result of Calculation on the Effectiveness of UPSUS Pajale Program in West Aceh

No.	Commodities	2015		2019	
		Productivity (Tons/Ha)	T (Tons/Ha)	R (Tons/Ha)	Effectiveness (%)
1	Rice	6,03	6,33	6,22	98
2	Soybean	2,02	2,22	2,11	95
3	Corn	2,64	3,64	3,59	99

Description:

R = The increasing of the productivity of rice, corn, and soybean after the program implemented

T = The target of increasing productivity of rice, corn, and soybean after the program implemented

The effectiveness of the UPSUS Pajale Program measured using the standard reference of Research and Development Agency, Indonesian Ministry of Home Affairs (1991). Divided into four indicators, that are Very Ineffective, Ineffective, Quite Effective and Effective. The measurements show that the effectiveness of the UPSUS Pajale Program in West Aceh for Rice and Soybean commodities categorized as effective, which is within the range of $\geq 80 - 100$.

The Impact of UPSUS Pajale Program

The impact of the UPSUS Pajale Program in this study determined using the Policy Analysis Matrix (PAM). The PAM analysis begins with analyzing the farming business. The data needed is revenue, production costs, and trading costs. Then, the analyzed-cost from the farming business separated based on the private and social cost based on the life of crop production. Each of these data calculated based on private and social costs (shadow). Also, each private and social cost from the production cost divided into tradable input cost and domestic factor. The analysis of farming business based on the private and social cost (shadow) for the rice, corn, and soybean commodities shown in Table 6 below.

Table 5. Data Analysis of Agricultural Business Based on Private and Social Cost

Description	Commodities	Private	Social
Revenue (Rp. 000)	Rice	40.848	76.957
	Corn	25.000	23.766
	Soybean	5.390	5.562
Tradable Inputs (Rp. 000)	Rice	2.851	2.851
	Corn	2.797	2.708
	Soybean	759	679
Domestic Profit (Rp. 000)	Rice	14.798	14.798
	Corn	10.258	10.258
	Soybean	2.623	2.259
Profitability (Rp. 000)	Rice	23.134	59.308
	Corn	11.945	10.800
	Soybean	2.008	2.259

Based on Table 6, both the private and social cost show score that bigger than zero. It means that financially the government's policy and the commodities are profitable economically in a perfectly competitive market condition. The commodities cultivation can be continued because it is profitable. The outcome of the PAM analysis presented in Table 7 below.

Table 6. The Outcome of PAM Analysis of Rice, Corn, and Soybean Commodities

Description	Commodities	Private	Social	Divergence
Revenue (Rp. 000)	Rice	40.848	76.957	- 36.109
	Corn	25.000	23.766	1.234
	Soybean	5.390	5.562	- 172
Tradable Input Cost (Rp. 000)	Rice	2.916	2.851	65
	Corn	2.797	2.708	88
	Soybean	759	679	80
Domestic Factor Cost (Rp. 000)	Rice	14.798	14.798	-
	Corn	10.258	10.258	-
	Soybean	2.623	2.623	-
Profitability (Rp. 000)	Rice	23.134	59.308	- 36.174
	Corn	11.945	10.800	1.146
	Soybean	2.008	2.259	- 252

Commodities		Rice	Corn	Soybean
Private Cost Ratio (PCR)	$C/(A-B)=$	0,39	0,46	0,57
Domestic Resource Cost Ratio (DRC)	$G/(E-F)=$	0,20	0,49	0,54
Nominal Protection Coefficient on Tradable Output (NPCO)	$A/E=$	0,53	1,05	0,97
Nominal Protection Coefficient on Tradable Input (NPCI)	$B/F=$	1,02	1,03	1,12
Profitability Coefficient (PC)	$D/H=$	0,39	1,11	0,89
Effective Protection Coefficient (EPC)	$(A-B)/(E-F)=$	0,51	1,05	0,95
Subsidy Ratio to Producer (SRP)	$L/ (A-B)=$	(0,95)	0,05	(0,05)

Table 7 shows the value of Profit Coefficient (PC). If the $PC > 0$, that means the government's policies provide incentives to producers and vice versa. Through the UPSUS Pajale Program, the government gave incentives to the producers, for example, the policy of fertilizer subsidies for food crops, and credit assistance for food farmers. These policies provide positive results for the farmers. For example, the corn farmers can pay Tradable Input at a cheaper price. The calculation result for all three commodities is $PC > 0$. Through the UPSUS Pajale Program, the government policies such as providing fertilizer, providing medicines for free (subsidies), and other than that the government also providing seed for free. Hoping that the profit of the farmers gets will increase.

The government policies related to output have positive impacts on farmers. This can be seen from the number of sale of commodity prices for rice, corn, and soybeans, which are higher than the social

price. Therefore, farmers get a bigger profit. The impact of government policies on inputs and outputs simultaneously can be seen from the Net Transfer and Effective Protection Coefficient (EPC). The Net Transfer value shows the impact of government policies on inputs and outputs on rice, corn, and soybean farming businesses. The EPC value illustrates to what extent the government policies protect or inhibit the domestic production on inputs and outputs. Out of all the three commodities, only the corn commodity shows positive value toward the government protection to production, where $EPC > 1$.

Conclusion and Suggestion

Conclusion

The implementation UPSUS Pajale Program in West Aceh is already effective. It can be seen from the effective value of rice that is 98% and soybean that is 95%, while corn commodity is still relatively effective with an effective value of 99%. PCR and DRC calculation results show that all three commodities, rice, corn, and soybean, have competitive and comparative advantages. Furthermore, the government policies in UPSUS Pajale Program have positive impacts on farmers. It can be seen from the PC value obtained, that the government policies in UPSUS Pajale Program provide incentives to farmers from the commodity program.

Suggestion

Based on this study the suggestion can give is to continue the UPSUS Pajale Program in West Aceh. This program is effective in increasing the yield obtained by farmers. Furthermore, it is expected that the government, especially the regional government, can fully support the UPSUS Pajale Program which will be carried out in the future.

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