POLICY IMPACT OF COFFEE PLANT DEVELOPMENT PROGRAM IN GARUT REGENCY

Tri Kusnari[1], Edmon Daris[2], Iwan Aminuddin[3]

[1,2,3,] Department of Magister Agribusiness, Faculty of Sains and Technology, State Islamic University Syarif Hidayatullah Jakarta, Banten, Indonesia
Email: -
Coressponding Autor

DOI : ***10.15408/aj.v17i1.36670***

Abstract

Most coffee plantations in Indonesia are community plantations in a damaged or poorly maintained state of coffee plants that are old and susceptible to disease and not quality coffee plants, so coffee commodities in Indonesia have a low level of productivity. To encourage the sustainability of a resilient national coffee commodity in the future, research and development activities are needed regarding coffee competitiveness, both in the domestic and world markets, as well as testing the impact of coffee plant expansion and rejuvenation programs that have been run by the government, such as in the Garut Regency area. This study aims to determine the competitiveness of coffee commodities after implementing the coffee plant development program and analyze the impact of coffee plant development program policies on the income level of coffee farmers in the Garut Regency area. This research was carried out at the location of coffee plantation development program activities in the Garut Regency of West Java Province. The sample number of 83 respondent farmers came from 4 villages in 4 sub-districts in Garut Regency. Data collection directly in the field through interviews using questionnaires to respondent farmers. Data analysis using quantitative descriptive methods and PAM (*Policy Analysis Matrix*) analysis methods with the help of *Microsoft Excel* software. The results of this study show that coffee farming in the Coffee Plant Development Program in Garut Regency has competitive and comparative advantages after government program intervention. Government policies in the Coffee Plant Development Program in the Garut Regency have a good impact on reducing input costs, increasing profits, and protecting coffee farmers in the Garut Regency.

Keywords: Impact, Policy, Farming, Coffee, Competitiveness

INTRODUCTION

Coffee is one of the leading commodities in the plantation subsector. This commodity has an essential role in the national economy, including as a foreign exchange earner, a source of income for farmers, a producer of industrial raw materials, and the provision of employment. In addition, coffee commodities also have a role in environmental conservation and regional development (Directorate General of Plantations, 2021). The area of coffee plantations in Indonesia reaches 1,250,452 hectares,

with production reaching 762,380 tons. Based on the coffee plantation area, around 98.14% or an area of 1,227,191 hectares is managed through People's Plantations (PR), and the rest are managed by State Large Plantations (PBN) and Private Large Plantations (PBS).

Meanwhile, coffee exports in 2020 were 379.35 thousand tons, with an export value of US$ 821.93 million. Based on these data, it can be said that coffee is a people's commodity because most of it is cultivated through community plantations. In detail, community plantations consist of robusta coffee plantations covering an area of 860,777 hectares (70.14%) with a production of 550,327 tons (72.67%) and arabica coffee plantations covering an area of 366,414 hectares (29.86%) with a display of 206,962 tons (27.33%). The number of farmers involved in smallholder plantations is quite large, with around 1.85 million heads of families (Directorate General of Plantations, 2020). One of the locations targeted by the coffee area development program is in Garut Regency, West Java Province. Garut Regency is one of the program locations because it has considerable coffee plant development potential in West Java.

Based on the Central Bureau of Statistics of West Java Province (2022), the planting area of coffee in the Garut Regency area occupies the third position in the West Java Province after Bandung Regency and Bogor Regency. The contribution of the coffee planting area of Garut Regency to the total coffee planting area in the West Java Province ranges from 10-13 percent. The scope of coffee planting in the Garut Regency area in 2019-2021 fluctuated. In 2019, the coffee planting area reached 5,885 hectares, then in 2020, it increased to 6,095 hectares, and in 2021, the coffee area was reduced to 5,140 hectares. The production of coffee plants in the Garut Regency area also occupies the third position in the West Java Province after Bandung Regency and Bogor Regency. The contribution of coffee plant production in Garut Regency to the total coffee crop production in West Java Province ranges from 13-14 percent. Coffee crop production in the Garut Regency area in 2019 and 2020 was 2,949 tons, then production in 2021 increased to 3,036 tons.

The productivity of Indonesian coffee plantations on a national average is 817 kg/ha per year. Still far below Vietnamese coffee plantations, whose productivity reaches 2.3 tons/hectare per year, and Brazil, whose productivity comes to 1.3 tons/hectare per year. This is because the development of community coffee plantations is still experiencing various obstacles, such as low production, productivity, and product quality, weak coffee farmer institutions, and limited business partnerships between farmers and industry (Directorate General of Plantations, 2021). In addition, most coffee plantations in Indonesia are community plantations with plantation conditions in a damaged or poorly maintained state. Age coffee plants are old and susceptible to disease and not quality coffee plants, so coffee commodities in Indonesia have a low level of productivity (Directorate General of Plantations, 2014). To encourage the sustainability of resilient national coffee commodities in the future, research and development activities are needed regarding coffee competitiveness in both the domestic and world markets, as well as testing the impact of coffee plant expansion and rejuvenation programs that have been run by the government such as in Garut Regency. In this case, it is necessary to research the Policy Impact of the Coffee Plant Development Program in Garut Regency.

RESEARCH METHODOLOGY

Location and Time of Research

This research was carried out at the location of coffee plantation development activities in the Garut Regency of West Java Province. The reason for choosing the site of this research is that the Garut Regency area is one of the coffee plantation centers in West Java Province, as well as one of the locations for coffee plant development programs in the form of coffee plant rejuvenation for farmers. This research was carried out for 6 (six) months, from February - July 2023.

Data Types and Sources

The data used in this study are primary and secondary. Data collection directly in the field through interviews using questionnaires to respondent farmers. Data analysis using quantitative descriptive methods and PAM (*Policy Analysis Matrix*) analysis methods with the help of *Microsoft Excel* software. The population in this study is farmers who are members of farmer groups implementing coffee plant rejuvenation development activities in 2019. The people of coffee farmers is 435 farmers who are members of 18 farmer groups. Sample determination in this study uses the Slovin formula. Using this formula will determine the number of samples the researcher needs. From a population of 435 farmers, a representative of 83 respondents was selected.

Analysis Tools

PAM (*Policy Analysis Matrix*) is an analytical tool that can be used to see the level of economic efficiency and measure the amount of incentives or impacts of interventions in overall and systematic farm management. The analysis can be used in various locations, farms, and commodity system technologies. PAM analysis can also be used to see whether a policy can improve the competitiveness of a commodity resulting from business efficiency and income growth (Monke and Pearson, 1989).

Table 1. Matriks PAM

Information	**Acceptance**	**Cost**		**advantage**
		Input Tradable	***Input Nontradable***	
Private Pricing	A	B	C	D = A-B-C
Social Pricing	E	F	G	H = E-F-G
Pricing Policy	I = A-E	J = B-F	K = C-G	L = D-H = I-J-K

Source: Monke and Pearson (1989)

Information:

A = Coffee Farm Revenue at Private Prices
B = Total Tradable Cost of Coffee Farming at Private Price
C = Total Nontradable Cost of Coffee Farming at Private Price
D = Profit Rate on Private Price
E = Coffee Farm Revenue at Social Prices
F = Total *Tradable* Cost of Coffee Farming at Social Prices
G = Total *Nontradable* Cost of Coffee Farming at Social Prices
H = Rate of Profit on Social Prices
I = *Failed To; (* OT)
J = *Transfer Input* (IT)

K = *Transfer Factor* (TF)
L = *Net Transfer* (NT)
C/(A-B) = *Private Cost Ratio* (PCR)
G/(E-F) = *Domestic Resource Cost Ratio* (DRCR)
A/E = *Nominal Protection Coefesien on Output* (NPCO)
B/F = *Nominal Protection Coefficient input* (NPCI)
(A-B)/(E-F) = *Effective Protection Coefficient* (EPC)
D/H = *Profit Coefficient* (PC)
L/E = *Subsidy Ratio for Producers (SRP)*

RESULTS AND DISCUSSION

Competitiveness of Coffee Farming Business

PAM (*Policy Analysis Matrix*) is an analytical tool that can be used to see the level of economic efficiency and measure the amount of incentives or impacts of interventions in overall and systematic farm management. PAM analysis is used to see whether a policy can improve the competitiveness of a commodity resulting from business efficiency and income growth (Monke and Pearson, 1989). The calculation of the PAM Matrix analysis is prepared using data on receipts, production costs, and other costs whose measures come from coffee farmers' farming. The following are the constituent components of coffee farming costs at social and private prices in units per hectare.

Table 2. Components of Input Preparation on Private Pricing and Social Pricing

No	Component	*Tradable Input Cost* (Rp.)		*Non Tradable Fee* (Rp.) (Domestic Factors)	
		Private	Social	Private	Social
1	Benih/bibit	0	2.500.000		
2	Pupuk	2.541.950	3.729.450		
3	Pestisida	504.900	504.900		
4	Equipment				
	- Cangkul	597.000	597.000		
	- Parang	192.000	192.000		
	-Constant	65.000	65.000		
	-Sheeting	170.000	170.000		
	- *Hand Sprayer*	351.000	351.000		
5	Workforce				
	- Tillage			1.180.000	1.180.000
	-Planting			501.600	501.600
	-Fertilization			497.600	497.600
	- Weed handling			468.000	468.000
	- HPT Handling			190.000	190.000
	-Harvesting			645.000	645.000
	Total	**4.421.850**	**8.109.350**	**3.482.200**	**3.482.200**

Source: Primary Data

The input preparation component of private and social prices, divided into tradable and *nontradable* segments, can be seen between secret and social input prices. This is in line with research (Koerdianto, 2008) that says that one approach to seeing the impact of a policy is to analyze the difference between input prices, domestic and foreign (*tradable*), and financial and economic revenues. By analyzing the differences in financial and economic prices, the level of competitiveness of a commodity and the

impact of government policies on the competitiveness of agricultural commodities can be known. The effect of government policies on coffee development programs is analyzed using the *Policy Analysis Matrix* (PAM) Table shown in the following table.

Table 3. *Policy Analysis Matrix* (PAM) Coffee Farm Business

	Income (*Output*)	Input Cost		Advantage
		Tradable	Non- Tradable	
Private	(A) 14,153,000	(B) 4.421.850	(C) 3,482,200	(D) 6.248.950
Social	(E) 14.153.000	(F) 8,192,825	(C) 3,482,200	(H) 2,477,975
Policy Impact	(I) 0	(J) 3.770.975	(K) 0	(L) 6.243.150

Source: Primary Data

*Private Cost Ratio (*PCR) analysis and competitive advantage using *Domestic Resource Cost Ratio* (DRCR) are used to determine the competitive advantage. This ratio measures the competitiveness at the private price level of a commodity system. This system is said to have competitiveness if PCR < 1. From the PAM table data above, the competitive advantage can be calculated from the *Private Cost Ratio* value given the PCR code, as follows.

Table 4. *Private Cost Ratio* (PCR) and *Domestic Resource Cost Ratio* (DRCR)

No.	**Subject**	**Value**
1	*Personal Cost Ratio* (PCR)	0,36
2	*Domestic Resource Cost Ratio* (DRCR)	0,98

Source: Primary Data (Processed)

PCR value obtained is 0.36 or PCR<1, which shows that coffee farming has a competitive advantage or has competitiveness after intervening with government programs. This indicates that the coffee plant development program in Garut Regencan impacts competitive advantage or competitiveness. The direct and natural effects felt by coffee farmers are the value of savings from the cost of purchasing coffee seeds and fertilizers in the first year. A commodity with a competitive advantage can be seen from the allocation of resources in achieving financial efficiency. According to Koerdianto (2008), the procedure can be maintained if existing policies can provide competitive advantages to the commodities analyzed.

On the contrary, with policies that inhibit or reduce competitive value, these policies need to be reviewed. The DRCR value of coffee farming in the Garut Regency is 0.98 or DRCR<1, which shows that coffee farming in the Garut Regency has a comparative advantage after intervening with government programs. Based on the results of PCR and DRCR value analysis that has been carried out, it shows that government policies in the coffee farming business development program in Garut Regency have competitive advantages and comparative advantages, which can be interpreted that the coffee farming business development program in Garut Regency provides high competitiveness and provides positive value for local coffee farmers.

Impact of Coffee Plant Development Program Policy

Policy Impact on Output

The impact of government policy on output can be seen from two calculations using PAM, namely the calculation of the value of Transfer Output (*TO) and the calculation of the* nominal *value of Protection Coefficient on Output* (NPCO). The results of the Transfer *Output (TO) calculation and the* Nominal *Protection Coefficient on Output (NPCO) calculation are as follows.*

Table 5. *Transfer Output* (TO) dan *Nominal Protection Coefesien on Output* (NPCO)

No.	Subject	Value
1	*Transfer Output* (TO)	0
2	*Nominal Protection Coefesien on Output* (NPCO)	1

Source: Primary Data (Processed)

A TO value of 0 was obtained because coffee farmers' private and social acceptance in the Garut Regency had the same value. A TO value of 0 indicates no government policy on output, so there is no difference between private and social output prices (Monke and Pearson, 1989). A TO value of 0 also indicates that there is no public incentive to producers, meaning that the price paid by consumers to producers is an average price. The NPCO value is 1, indicating that there is no additional revenue due to the absence of government policies that affect output prices (divergence effect) or no government protection. Although there is no protection from the government on the output of coffee farming, it is not an obstacle to the sustainability of coffee farming in the Garut Regency.

Policy Impact on Inputs

The impact of input policy in PAM analysis can be seen from 3 calculations, namely the calculation of Transfer input (TI) value, *Transfer Factor (TF) value* calculations, and Nominal Protection *Coefficient put* (NPCI) value calculation. The calculation results of *Transfer input (TI)*, Transfer Factor *(TF), and* Nominal Protection Coefficient input *(NPCI) are as follows.*

Table 6 *Transfer input* (TI), *Transfer Factor* (TF), day *Nominal Protection Coefficient Input* (NPCI) (NPCI)

No.	Subject	Value
1	*Transfer input* (TI)	- 3.770.975
2	*Transfer Factor* (TF)	0
3	*Nominal Protection Coefficient input* (NPCI)	0,54

Source: Primary Data (Processed)

Obtained IT value of - Rp 3,770,975 or TI<0, it shows that there are subsidies from the government on inputs, so farmers do not pay the complete social sacrifice (*social opportunity*) that should be paid. This result is in line with the reality on the ground because, through this program, the government provides coffee farmers subsidies in the form of coffee seeds and fertilizers in the first year. The TF value of Rp 0 is obtained, indicating no government subsidy for domestic inputs. This result is in line with the reality on the ground because, through this program, the government does not provide other contributions besides coffee seeds and fertilizers to coffee farmers. Obtained NPCI value of 0.54 or NPCI<1, it shows that government policy protects inputs by providing subsidies for tradable social inputs to farmers. As a result, farmers incur lower input costs than they should. This result is in line with the reality on the ground because, through this program, the government provides *free tradable input* subsidies to coffee farmers in the Garut Regency through coffee seeds and fertilizer in the first year.

Policy Impact on Input-Output

The input-output policy is the government influencing production inputs and outputs. The impact of government policy on input-output in the PAM analysis matrix can be seen from 4 calculations, namely *the value of Effective Protection* Coefficient (EPC*), Net Transfer* value (NT), *Profit Coefficient* (PC) value, and *Subsidy Ratio for*

Producers (SRP) value. The calculation results of the *Effective Protection Coefficient (*EPC), *Net Transfer (NT),* Profit Coefficient *(PC), and* Subsidy Ratio for Producers *(SRP) are as follows.*

Table 7. *Effective Protection Coefficient* (EPC), *Net Transfer* (NT), *Profit Coefficient* (PC), and *Subsidy Ratio for Producers* (SRP)

No.	Subject	Value
1	*Effective Protection Coefficient* (EPC)	1,63
2	*Net Transfer* (NT)	3.770.975
3	*Profit Coefficient* (PC)	2,52
4	*Subsidy Ratio for Producers (SRP)*	0,27

Source: Primary Data (Processed)

Obtained EPC value of 1.63 or EPC >1, showing that the government protects producers effectively through subsidizing input prices (coffee seeds and fertilizers). The EPC value of 1.63 can also be interpreted that government subsidies through the provision of coffee seeds and fertilizers result in the added value received by coffee farmers in Garut Regency being 1.63% higher when compared to those without government subsidies. The NT value obtained is 3,770,975 or TB>0, indicating that the additional producer surplus is caused by government policies applied to inputs and outputs. This is because the government provides input subsidies to coffee farmers in the Garut Regency through coffee seeds and fertilizers. Obtained a PC value of 2.52 or PC>1, it shows that government policy causes the profits received by coffee farmers in Garut Regency to be greater than 1.45 times compared to the benefits if there is no policy. The SRP value is 0.27 or SRP>0, indicating that the government's policy of subsidizing inputs causes the production costs incurred by coffee farmers in Garut Regency to be 27% lower than social costs.

CONCLUSION AND ADVICE

Coffee farming in the Coffee Plant Development Program in Garut Regency has competitive and comparative advantages, which can be interpreted that the coffee farming business development program in Garut Regency provides high competitiveness and positive value for local coffee farmers. Government policies in the Coffee Plant Development Program in Garut Regency have an impact on reducing input costs, increasing profits, and protecting coffee farmers.

The government needs to continue the coffee plant development program for farmers because it positively impacts coffee farmers. The government should facilitate capacity building of farmers' ability to farm intensively and sustainably through various training, technical guidance, and assistance from extension workers.

REFERENCES

Badan Pusat Statistik Provinsi Jawa Barat. (2022). Data Perkebunan Menurut Wilayah Kabupaten Kota Propinsi Jawa Barat. https://www.bps.propinsijabar.go.id/indicator/54/131/1/luas-tanaman-perkebunan-menurut-kabupaten kota.html. Diakses pada 30 Januari 2022.

Direktorat Jenderal Perkebunan. 2014. Peraturan Menteri Pertanian Nomor 49/Permentan/ Ot.140/4/2014 Pedoman Teknis Budidaya Kopi Yang Baik (Good Agriculture Practices/Gap on Coffee) Kementerian Pertanian, Jakarta.

Direktorat Jenderal Perkebunan. (2020). Buku Saku Statistik Pembangunan Perkebunan

Indonesia 2019. Bagian Evaluasi dan Layanan Rekomendasi, Jakarta.

Direktorat Jenderal Perkebunan. (2021). Kawasan Kopi: Pengembangan Kawasan Tanaman Tahunan dan Penyegar. Direktorat Jenderal Perkebunan, Jakarta.

Koerdianto, E. Z. (2008). Analisis Daya Saing dan Dampak Kebijakan Pemerintah terhadap Komoditas Sayuran Unggulan. [Skripsi]. Fakultas Pertanian Institut Pertanian Bogor.

Monke, E. A. and Pearson, E. S. (1989). The Policy Analysis Matrix for Agricultural Development. Cornel University Press, London.