# An Analysis

*by* Palmarudi Mappigau

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# An Analysis of Competitiveness and Government Policies Impact on Development of Cocoa Farming in Indonesia

**Andi Emelda**
Student; Agribusiness Study Program, Post Graduate Program, Hasanuddin University, Makassar, Indonesia

**Laode Asrul and Palmarudi Mappigau**
Lecturer; Agribusiness Study Program, Post Graduate Program, Hasanuddin University, Makassar, Indonesia

**Abstract**

Indonesian cocoa plantations from year to year increase, on the other hand decreased cocoa production andsome government policies have been carried out in order to increase exports and tried to occupy the first rank world cocoa exporting countries.This study aims to analyze (1) comparative and competitive advantages of cocoa farming in North Luwu, (2) the impact of government policies on development of cocoa farming in North Luwu.This is a descriptive analytic study. The sampling method used was purposive sampling of 40 farmers selected. Data collected through interviews, observation and documentation. Data were analyzed using the Policy Analysis Matrix (PAM).The results showed that the value of DRC and PCR of cocoa farming is respectively 0.03 and 0.04. The impact of government policies provide incentives to develop cocoa farming in North Luwu reflected NPCI value = 1.25; PCO = 1.12, and EPC = 1.09 are all positive values.

**Keywords:** Comparative, competitive, government policy, cocoa farming, policy analysis matrix

## Introduction

One of main commodity from planting sub-sector that has big potential as an export commodity is cacao. In Indonesian economy, cacao has an important role. First, cacao is one adventage agricultural commodity that has better prospect in national devise receiving. Second, cacao can create working field and continous income source for farmers in cacao central production.

Development of cacao planting area in Indonesia for last five years has improved from 1.379.280 acre in 2007 became 1.677.254 acre in 2011. In other side, production is decreased from 740.055 ton (2007) became 712.231 ton in 2011. World cacao production for last eight years has been growing averagely 3, 2% per year. In 2011/12, world cacao production decreased to level 4, 1 million metres ton from previous period in level 4, 2 million ton (Asrul, 2013). The decreasing is contributed by Ivory Coast and Ghana which is world largest cacao producer (60% of global cacao production). In Ivory Coast, the decreasing is caused by weather trouble – harmattan wind and low rain rate. In Indonesia, the decreasing is caused by cacao pest in almost Indonesia cacao production centre area.

Government has launched many policies to develop export and try to be number one of world cacao export country. The policies are intensification program – pest and disease control, credit package giving for farmer, plant maintenance and post -harvest processing such as processing facility, market system and

Corresponding author's
Name: email address: Andi Emelda
Email address: imel.emelda@gmail.com

counseling to farmer. Second, extensification program is expanding cacao planting area. Third, National Cacao Revitalization Movement is launched by Department of Agriculture Indonesia. The program is an innovative idea and is potential to improve cacao farmer welfare especially in Eastern Indonesia.

South Sulawesi relies on agricultural commodity especially cacao. Cacao has been adventage commodity in this area because it contributes largely in local economy structure and has roled as working field supplier for most farmers here. Aroun 70% of cacao export is from South Sulawesi make Indonesia as second largest world cacao producer after Ivory Coast. Therefore, South Sulawesi is called Indonesia Cacao Land. In 2011, total of cacao production was 173.555 ton in 270.060 acre. Cacao is planted farmer and spread in various regencies in South Sulawesi, one of it is North Luwu.

However, fact shows that many policies is not followed by cacao production and quality in world trade. Farmer is hard to improve cacao quality so it made their cacao is rejected in competitive export market. From total of national cacao production, only 60% is export quality and the rest is low quality and unacceptable for export. Volum of cacao export in November 2012 significantly decreased 58, 19% to 88.200 ton annually according to Indonesia Cacao Association (ICA). Volum of cacao export in November 2011 reached 210.000 ton. Cacao seed production is predicted to be reduced in 2013. Domestic cacao production has not changed – last year export of cacao seed 139.177,11 ton and this year cacao export is reduced 100.000 ton.

Government policy only focused on increasing of the cacao production but does not pay attention on improving price of cacao in farmers level . Consequently, many farmers change their cacao plantation to other commodities and also they did not interest to improve their cacao quality. The current cacao world trade is highly influenced by the competitiness, not only in terms of competitive adventage (price) but also comparative adventage of exportable cacao (Tambunan, 2001).

This paper is an attempt to analyze the competitiveness and government policy impact on developlment of cacao farming. This comprehensive analysis is helpful in identifying strength and weaknesses of the cacao competitivenesss of Indonesia and assist cacao trading policy makers in redesigning their strategies.

## Research method

The research is conducted in August – November 2012 in North Luwu, one of the centra production cacao areas in South Sulawesi. . The collected data consists of primary and secondary data. Primary data is obtained by direct interview to respondent including respondent identity, production, cost, and income (physical input structure, output volum, after harvest, input and output price), implementation of government policy in the research location. Secondary data is obtained from various sources, volum data, cacao production value, exchange rate value, export and import value data, and cacao import and export tax.

Policy Analysis Matrix (PAM) can be used to analyze business profit privately or socially, competitive and comparative adventage, and the impact to the commodity system on business activity, processing and marketing systematically. (Sadikin, 1999; Saptana, dkk, 2001; Saptana, dkk, 2005; Saptana, dkk, 2006). PAM can answer the research objective – to analyze government policy and cacao competitive and comparative adventage.

Analysis of comparative adventage is conducted with Domestic Resource Cost (DRC). DRC is used to measure amount of devise can be saved if a commodity is domestically produced.

$$DRC = \frac{\text{Input Cost Not Tradable Social (G)}}{\text{Profit Social (E)} - \text{Input Cost Tradable Social (F)}}$$

Reference of DRC (comparative adventage) is commodity has comparative adventage if DRC < 1, means that the effort worked economically in the using of domestic resource so the fulfillment of domestic demand is more profitable with

domestic production improvement. Commodity does not have comparative adventage if DRC > 1, means that the effort did not work well in using domestic resource so the fulfillment of domestic demand is more profitable by importing. DRC coefficient can be obtained by multiplying DRC value and shadow exchange rate.

Competitive adventage can be analyzed with Domestic Resource Cost Coefficient (PCR). PCR shows the ability of commodity system to finance domestic factor at private price. If PCR 1 and smaller, means the commodity system is able to finance its domestic factor at private price and the ability is increasing.

$$PCR = \frac{\text{Input Cost Tradable Private (C)}}{\text{Profit Private (A)} - \text{Input Cost Tradable Private (B)}}$$

Reference of PCR is commodity has competitive capacity if PCR < 1, means that the efficient effort worked financially in using domestic resource so the fulfillment of domestic demand is more profitable with domestic production improvement. Commodity does not have competitive capacity if PCR > 1, means the effort did not work financially in using domestic resource so the fulfillment of domestic demand is more profitable by importing. From PCR coefficient can be obtained Private Cost Ratio by multiplying PCR value with Exchange value Bank of Indonesia.

## Result

Tabel 1 show that the number of private income on cacao farming was IDR.30.176.000, IDR.4.581.750 sold input cost, and unsold cost is IDR. 902.000 So the private profit is IDR 24.692.250. Estimation of social profit or competitive capacity in comparative adventage that reflected from social profit is showed on second line of PAM table. Social income number of cacao farming was IDR 27.057.031, sold input cost was IDR 3.665.400 and unsold cost was IDR.727.750 so the social profit was IDR 22.663.881.

**Table 1: Policy analysis matrix (PAM) of dried Cacao seed in North Luwu (IDR/Ha) 2012**

| Explanation | Income | Cost | | Profit |
|---|---|---|---|---|
| | | Sold Input | Unsold Input | |
| Private Price | 30.176.000 | 4.581.750 | 902.000 | 24.692.250 |
| Social Price | 27.057.031 | 3.665.400 | 727.750 | 22.663.881 |
| Divergence | 3.118.969 | 916.350 | 174.250 | 2.028.369 |

**Source**: Processed primary data, 2013

On the third line PAM Matrix is a gap between first line and second line that showed divergence. A divergence will cause actual price differ with efficient price. Divergence emerges because of the government policy or market distortion. Distortive policy is government intervention that caused the market price is different with efficient price such as tax, subsidize, and market obstacle or price regulation. Market failure occurs if market fails to create an efficiency of price. For examples, monopoly and imperfect unsold market. However, weakness of PAM method is only putting into one factor namely price. Therefore, other factor is necessary to analyze comparative and competitive adventage especially on cacao farming like infrastructure, marketing and quality.

Table 2 showed exchange value price used is exchange value of BI IDR.9.641 US$. Exchange value of social price is IDR.9.545 US$. DRC value obtained from cacao farming is 0, 03. Cacao farming has PCR value < 1 0, 04.

**Table 2: Social profit, private profit, DRC and PCR respondent of Cacao in North Luwu 2012**

| Explanation | Producing Dried cacao seed |
|---|---|
| DRC | 0,03 |
| Social Profit (IDR/Ha) | 22.663.881 |
| PCR | 0,04 |
| Private Profit (IDR/Ha) | 24.692.250 |

**Source**: Processed primary data, 2013

Tabel 3 indicates that NPCO value is 1.12 means that the price received by producers 12 percent higher than they should be accepted and NPCI value of 1.25 means that the market price of inputs imported 25% more expensive than the price of its economy.

**Table 3: Indicator of impact of government policy on Cacao farming in North Luwu 2012**

| Policy Indicator | Formula | Value |
|---|---|---|
| Output Transfer (OT) | I = A – E | 3.118.969 |
| Input Transfer (IT) | J = B – F | 916.350 |
| Factor Transfer (FT) | K = C – G | 174.250 |
| Transfer (NT) | L = D – H | 2.028.369 |
| Nominal Protection Coefficient Output (NPCO) | = A / E | 1,12 |
| Nominal Protection Coefficient Input (NPCI) | = B / F | 1,25 |
| Effective Protection Coefficient (EPC) | = (A – B) / (E – F) | 1,09 |
| Profit Coefficient (PC) | = D / H | 1,09 |
| Subsidize ratio for Producer (SIDR) | = (D – H) / E | 0,07 |

**Source**: Processed primary data, 2013

## Discussion

Comparative adventage is analyzed from DRC coefficient which can be obtained by multiplying DRC value with shadow exchange rate. DRC is ratio between unsold input cost with output extra value from unsold input cost at social price (without government policy). An economy activity was efficient if DRC < 1 so the fulfillment of domestic demand was more profitable with domestic production improvement. DRC > 1 showed that the use of domestic resource was getting bigger so the fulfillment of domestic demand is more profitable by importing. According to Affif (1994) and Soetriono (2006), comparative adventage is superiority of a country by specializing things that determine price lower than other countries.

Social profit is a gap between incomes and whole cost spent on cacao farming per acre at shadow price, price is not influenced by government policy such as subsidize and tax. Analysis result stated that cacao farming in North Luwu regency has comparative adventage. It means to save a unit of devise (1 US$) needs 0, 03 dollar of domestic resource, IDR. 286. Comparative adventage on cacao farming in North Luwu was high caused by lower of local input cost used in production process. Labors cost were lower than other sectors. Besides labors, other factor that caused high comparative adventage was production and transportation in the location which eased farmer and trader to market dried cacao seed so the cost spent was lower.

Financially, competitive adventage analysis used to measure properness The result of analysis stated that cacao farming in North Luwu has competitive adventage. It means to save a unit of devise (1 US$) needs 0, 04 dollar or IDR.386. The lower PCR value, the higher competitive capacity of the product. From the result of the research showed that cacao farming has high competitive capacity, it is approved when PCR value is lower under 0, 5 so the dried cacao seed in North Luwu can compete to be sold. Other things can be showed on comparative and competitive adventage is cacao farming has higher competitive adventage than the comparative, 0, 04 and 0, 03. It means cacao farming in North Luwu will make big profit for farmers individually.

The impact of government policy to the cacao seed output can be seen from the output transfer value. Output transfer (OT) is a gap between income which is counted by private price and income which is counted based on social price. Positive OT value showed that amount of community intensive to producer in which

farmers buy and accept higher price from the price paid. If OT is negative means the decreasing of income from producer. Saptana (2000) and Pearson (2005) explained that classification of income group is policy for producer and consumer. Farmers purchase and producer accept with higher price from price should be paid. So OT happened from consumer to producer. It means there is government policy, tax at output price. Government policy caused income obtained by producer is bigger. It will give advantage for producer because production and productivity increase.

By looking indicator value; Nominal Output Protection Coefficient (NOPC) in ratio between income according to actual price and incone according to social price, cacao producer received output price 1, 12 which means price accepted by producer is higher 17%. It is because cacao from North Luwu has high quality which makes chocolate enjoyer interested.

Impact of government policy to soldable input showed by Input Transfer which is a gap between input cost at social price. If IT value is positive means there is negative subsidize policy or tax on production input. If IT value is negative means there is subsidize policy on production input. NPCI value as indication from IT is ratio between input cost according to private price with input cost according to social price. NPCI value showed the protection on sold input. If NPCI value is > 1 means there is protection policy to the input producer and input to the tax, sector that used input is loss by the higher of production cost. If NPCI value is < 1 means there is obstacle or subsidize to the input. Amount of NPCI value is 1, 25 means input price import is 25% more expensive than its economy price. It showed that there is policy of input export limitation of domestic production. The policy means that the input production is to fulfill domestic needs not to export.

Factor transfer showed government policy to domestic inut that use private price with domestic input cost and domestic input cost that use private price and domestic input cost with social price. FT value is 174.250. Positive FT value means there is policy government to domestic input that caused producer must purchase with higher price that the normal price. It will lose producer because it reduces producer's insentive to keep producing.

To see amount of additional producer suIDRlus or reductional producer suIDRlus which are caused by policy government, it can be used New Transfer (NT) which is gap between producer's profit with economy's profit. Positive NT value showed that the intensive policy make the suIDRlus increase. Negative NT value showed that disintensification which caused the suIDRlus reduced.

NT value is 2.028.369. Profit Coefficient (PC) is ratio between actual profits with economical profit. The ratio is used to see the impact of policy that showed the different rate of private profit and economic profit. PC obtained is 1, 09 means the received profit is 9% of economic profit.

Effective Protection Coefficient (EPC) is used to see how far the impact of policy can push or block producer to produce. If EPC is bigger than 1 (> 1) means there is intensification of government policy for producer to produce. If EPC< 1 so the governmene policy is now effectively working and has blocked producer to produce. EPC value obtained is 1, 09 mean the protection is quite good.

Subsidize ratio for producer is ratio between Net Transfer (NT) and economic income. SIDR ratio showed the subsidize or net intensive to the producer income because of government policy. SIDR value obtained is 0, 07 means that the government policy make producer pay higher production fee from the balance cost to produce ot positive subsidize (tax).

## Conclusion and recommendation

According to findings and discussion, the research concludes that cacao farming in the location has comparative and competitice superiority, the DRC is 0, 03 and PCR is 0, 04. Government policy has supported the development and improvement of comparative and competitive adventage of cacao farming in North Luwu, which was marked by positive

indicator value means that cacao farmers receive profit and the policy runs well.

According to discussion and conclusion, the research suggests that Government of North Luwu need to determine policy that can improve adventage commodity in North Luwu by repairing infrastructure, marketing and quality started from good seed picking, maintenance and processing system. Second, there is dependency to collector trader in marketing cacao that caused the bargaining position low. Therefore, farmer must take part in farmer group acivity so they have bargaining position when they sell cacao to get competitive price. Third, the research only explains how government policy influence comparative and competitive adventage from the price factor, if there is someone interested to do following research can discuss about quality, marketing, infrastructure, and strategy of cacao competitive capacity development in facing free trade era.

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