# The Effect of Export Tax on Indonesia's Cocoa Export Competitiveness

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**Abstract**

The government of Indonesia implemented an export tax policy on cocoa beans since April 2010 in order to develop cocoa processing industry. The objective of this article is to analyze the effect of export tax on Indonesia's cocoa export competitiveness. The results indicate that with the implementation of export tax, cocoa export product composition shift from cocoa beans to processed cocoa products. On the other hand, Indonesia's cocoa export growth is lower than the growth of cocoa world demand which is mainly caused by the decrease of competitiveness. Comparing the three cocoa beans producer, Ghana has gain competitiveness in 2011 compare to 2009.

**Keywords**: cocoa, export tax, competitiveness

## Introduction

Cocoa beans is one of the major exporting agricultural commodity of Indonesia besides palm oil, natural rubber, coffee and others. According to International Cocoa Organization (ICCO), in 2010 Indonesia is the third largest producer of cocoa beans with market share of 13.6 percent. The largest cocoa beans producer is Ivory Coast followed by Ghana with market share of 38.3 percent and 20.2 percent, respectively.

In 2012, ICCO predicted that world cocoa beans production reach 3.99 million ton meanwhile consumption will reach 3.993 million therefore deficit will occur. The deficit is predicted to occur on coming more years. World production growth has the tendency to decline with the average growth of 8.1 percent annually meanwhile consumption growth is 0.4 percent annually with the tendency to increase (ICCO, 2012). The consumption increase trend is a chance for cocoa beans from Indonesia to expand its market. Indonesia is predicted in 2020 to produce two million ton of cocoa beans.

As one of the cocoa beans producer, Indonesia is still exporting in the form of cocoa beans, although the European market demanded more on the intermediate products such as cocoa paste, cocoa butter or cocoa powder. The government realize the potential in developing the cocoa intermediate products, therefore in April 2010 the government imposed the export tax policy on cocoa beans through the Ministry of Finance Regulation No 67/PMK.011/2010 and further revised in the Ministry of Finance Regulation No 75/PMK.011/2012. The objective of the policy is to guarantee the domestic availability of cocoa beans and increase the competitiveness of domestic cocoa industry. This policy will

eventually develop the domestic cocoa industry and increasing the cocoa beans product which has higher value added.

The objective of this article is to analyze the competitiveness of Indonesia's cocoa beans and cocoa products before and after the implementation of export tax policy. In addition, the competitiveness is also compared with the other two cocoa beans largest producer, Ivory Coast and Ghana.

Many scholars have analyzed the effect of export tax on specific commodities,those articles can be classified into two groups. The first group calculates the optimum export tax (Akiyama, 1992; Trivedi and Akiyama, 1992; Yilmaz, 1999; Burger, 2008; Permani, Vanzetti and Setyoko, 2011). For the commodity, the second group of papers analyzes the effect of export tax on welfare and the economy (Marks, Larson and Pomeroy, 1998; Hasan, Reed and Marchant, 2001; Warr, 2003; Susila, 2004; Rifin, 2010; Nyein et.al, 2010; Pradiptyo et.al, 2011). All of these studies indicate that export tax will have negative effect on the economy and also decrease its competitiveness.

The study of the effect of export tax on cocoa in Indonesia is limited as the export tax was only imposed in April 2010. From the few Pradiptyo et.al (2011) conducted the effect after the policy was imposed. However since the idea of export tax on cocoa beans was discussed for several years, several scholars have analyzed the theoretical effect of export tax on cocoa beans before it was adopted but only a few articles have analyzed the actual impact of the policy. Articles that analyzed the policy before it was imposed include Rifin and Nurdiyani (2007), Arsyad (2007) and Arsyad, Sinaga and Yusuf (2011) and only Pradiptyo et.al (2011) analyzed when the actual impact.

Pradiptyo et.al (2011) analyzed the effect of export tax on farmers and found that the cocoa beans export tax was borne by the farmers fully or partially. This is because by exporters are price takers in the world market therefore they can not transfer the export tax on the international market but to the domestic market which is the farmer. In addition, after the implementation of export tax, cocoa beans export did not decrease significantly therefore the research concluded that the policy had no affect on the cocoa beans exports.

Several research has been conducted on cocoa beans and cocoa products competitiveness such as Widodo (2000), Is (2008), Rahmanu (2009) and Lubis and Nuryanti (2011). These articles analyze the cocoa beans and cocoa beans product using various methods such as revealed comparative advantage (RCA), constant market share (CMS) and regression. These research reveal that Indonesia's cocoa beans and cocoa products have comparative advantage over several periods.

The difference with previous research is the analyzing the effect of export tax policy on competitiveness. Meanwhile previous research mostly analyze the effect of export tax on welfare and analyzing competitiveness without relating to the export tax policy. The method utilized is the constant market share (CMS).

**Methods**

The data utilized is the secondary data from the International Trade Center. The data is analyzed using the constant market share (CMS) analysis. The analysis was applied for the first time in the international trade flow by Tyszynski (1951). The analysis basically decomposed export growth into four components (Richardson, 1971): the market size effect, the market composition effect, the commodity composition effect and the competitive effect.

The market size effect shows that the country's export growth is caused by the increase in market destination imports. The market size effect results from a shift in world demand. The market composition effect indicates that the country can concentrate on a relatively growing market compared to the world market. The commodity composition effect shows whether a country has concentrated on a commodity whose market is expanding

rapidly. Lastly, the competitiveness effect is the residual of the CMS, which is not explained by the other three effects. It is also assumed that the role of domestic factors of the exporting countries is dominant.

The formula for the constant market share is as follows (Tyers, et.al, 1985):

$$\frac{E_{(t)\cdot\cdot} - E_{(t-1)\cdot\cdot}}{E_{(t-1)\cdot\cdot}}$$

$$= g + \frac{\sum_i(g_i - g)E_{(t-1)i}}{E_{(t-1)\cdot\cdot}} + \frac{\sum_i \sum_j(g_{ij} - g_i)E_{(t-1)ij}}{E_{(t-1)\cdot\cdot}} + \frac{\sum_i \sum_j(E_{(t)ij} - E_{(t-1)ij} - g_{ij}E_{(t-1)ij})}{E_{(t-1)\cdot\cdot}}$$

With:

$$\frac{E_{(t)\cdot\cdot} - E_{(t-1)\cdot\cdot}}{E_{(t-1)\cdot\cdot}} \qquad \text{export growth}$$

$$\frac{\sum_i(g_i - g)E_{(t-1)i}}{E_{(t-1)\cdot\cdot}} \qquad \text{commodity composition}$$

$$\frac{\sum_i \sum_j(g_{ij} - g_i)E_{(t-1)ij}}{E_{(t-1)\cdot\cdot}} \qquad \text{market composition}$$

$$\frac{\sum_i \sum_j(E_{(t)ij} - E_{(t-1)ij} - g_{ij}E_{(t-1)ij})}{E_{(t-1)\cdot\cdot}} \qquad \text{competitive effect}$$

$$g = \frac{W_{(t)\cdot\cdot} - W_{(t-1)\cdot\cdot}}{W_{(t-1)\cdot\cdot}}$$

$$g_i = \frac{W_{(t)i} - W_{(t-1)i}}{W_{(t-1)i}}$$

$$g_{ij} = \frac{W_{(t)ij} - W_{(t-1)ij}}{W_{(t-1)ij}}$$

$E_{(t)\cdot\cdot}$ = Indonesia's total cocoa export value at year t

$E_{(t-1)\cdot\cdot}$ = Indonesia's total cocoa export value at year t-1

$E_{(t)i}$ = Indonesia's cocoa export value at year t for cocoa commodity i

$E_{(t)j}$ = Indonesia's total cocoa export value at year t to country j

$E_{(t)ij}$ = Indonesia's cocoa export at year t for commodity i to country j

$W_{(t)\cdot\cdot}$ = world's total export value for all cocoa product at year t

$W_{(t)i}$ = world's total export value at year t for cocoa commodity i

$W_{(t)j}$ = world's total export value at year t to country j

$W_{(t)ij}$ = world's total export value at year t for commodity i to country j

The analysis of Indonesia's market position in the world is conducted by comparing with the other two cocoa beans producer, Ivory Coast and Ghana. The time period is 2009, which represent the period before the implementation of export tax and 2011 after the implementation of export tax in Indonesia. The cocoa products covered in the analysis consists of six 4 digit HS code (Table 1).

Table 1.  Cocoa Product according to 4 digit HS Code

| No | HS Code | Specification |
|----|---------|---------------|
| 1 | 1801 | *Cocoa beans, whole or broken, raw or roasted* |
| 2 | 1802 | *Cocoa shells, husks, skins and waste* |
| 3 | 1803 | *Cocoa paste* |
| 4 | 1804 | *Cocoa butter, fat, oil* |
| 5 | 1805 | *Cocoa powder, unsweetened* |
| 6 | 1806 | *Chocolate and other foods containing cocoa* |

## Results and Discussion

### *Export Tax Policy*

According to the Ministry of Finance Regulation No 67/PMK.011/2010, export tax of cocoa beans is calculated as follows:

Export Tax = Export Tax Tariff x Check Price x Export Volume x Exchange Rate

This calculation is similar to the export tax policy of palm oil products. The export tax tariff and check price are announced on a monthly basis. The export tax tariff is based on the reference price which is tied to the world price (Table 1). The reference price and check price are usually announced by the Ministry of Trade at the end of every month to be applied on the coming month. The reference price determines the export tax tariff based on the Ministry of Finance Regulation No 75/PMK.011/2012 which states that a higher reference price will induces a higher tariff (Table 2).  The reference price is based on the average international price for the previous month.For example the export tax for April 2012 was announced at the end of March 2012 based on the average international price for February 2012.

Table 2. The Relation between Reference Price and Cocoa Beans Export Tax Tariff

| Reference Price (US$) | Tariff (%) |
|-----------------------|------------|
| < 2000 | 0 |
| 2000 – 2750 | 5 |
| 2750 – 3500 | 10 |
| >3500 | 15 |

Source: Ministry of Finance, 2012

During the period of April 2010 until June 2012 the highest tax rate is 15 percent in April 2011 when the reference price was US$ 3516. Therefore the export tax was US$ 480.45 per ton of cocoa beans.The lowest export tax value occurred in February 2012 when the export tax was 5 percent and the check price was US$ 1918 making the export tax value was US$ 95.9 per ton (Figure 1).
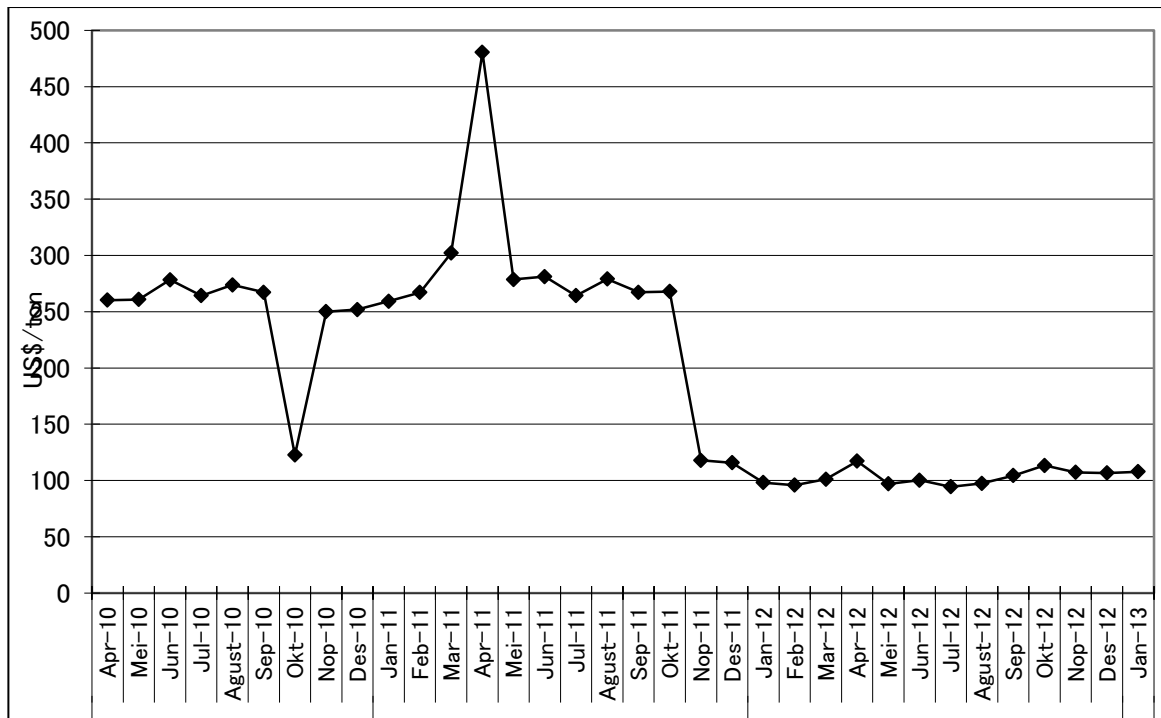
Figure 1. Export Tax Value of Cocoa Beans, April 2010-January 2013

### *Indonesia's Cocoa Export*

Cocoa beans and cocoa product export value Indonesia to the world in 2009 reach US$ 1,469,157,944 meanwhile in 2011 the number decrease to US$ 1,364,170,460 which decrease by 7.15 percent. Meanwhile the world demand for cocoa beans and cocoa product in the same period increase by 5.33 percent. In terms of market share, Indonesia holds 3.53 percent of cocoa beans and cocoa products in 2011 which decrease significantly from 4.46 percent in 2009 (Table 3). Looking at the products, the decrease in Indonesia's market share is mainly contributed by the decrease in market share of cocoa beans which decrease significantly from 13.21 percent in 2009 to only 7.26 percent in 2011. Meanwhile the other five products increase its market share (Table 3).

Table 3. Indonesia's Market Share in Cocoa Beans and Cocoa Products

| Product | Market Share (%) | |
| --- | --- | --- |
| | 2009 | 2011 |
| Cocoa beans, whole or broken, raw or | 13.21 | 7.36 |
| Cocoa shells, husks, skins and waste | 2.76 | 12.35 |
| Cocoa paste | 1.58 | 5.85 |
| Cocoa butter, fat, oil | 6.38 | 8.89 |
| Cocoa powder, unsweetened | 3.45 | 4.59 |
| Chocolate and other foods containing | 0.13 | 0.13 |
| Total | 4.46 | 3.53 |

Source: International Trade Center, 2012

Cocoa beans has dominated the Indonesia's cocoa product export with the contribution of 75.30 percent in 2009 followed by cocoa butter, powder, paste, chocolate and husks. In 2011, cocoa beans contribution decrease significantly to 51.76 percent meanwhile the other products the contribution increase significantly especially cocoa paste and powder (Table 4). This indicates with the implementation of cocoa beans export tax, cocoa beans export contribution decrease significantly meanwhile the other processed product contribution increase although still can not offset the decrease in cocoa beans export value.

Tabel 4. Indonesia's Cocoa Products Export, 2009 and 2011

| Cocoa Products | 2009 | | 2011 | |
|---|---|---|---|---|
| | Value (US$) | % | Value (US$) | % |
| Cocoa beans, whole or broken, raw or roasted | 1,106,324,944 | 75.30 | 706,080,070 | 51.76 |
| Cocoa shells, husks, skins and waste | 1,186,552 | 0.08 | 8,776,003 | 0.64 |
| Cocoa paste | 32,729,759 | 2.23 | 189,178,155 | 13.87 |
| Cocoa butter, fat, oil | 259,753,395 | 17.68 | 294,750,219 | 21.61 |
| Cocoa powder, unsweetened | 47,503,941 | 3.23 | 139,602,770 | 10.23 |
| Chocolate and other foods containing cocoa | 21,659,353 | 1.47 | 25,783,243 | 1.89 |
| Total | 1,469,157,944 | 100.00 | 1,364,170,460 | 100.00 |

Source: International Trade Center, 2012

Looking at the export destination, Malaysia is the largest market destination for cocoa beans. In 2009 the value reach US$ 530,277,843 which is 47.93 percent of Indonesia's total cocoa beans export. In 2011, the country still the main export destination although the value decrease to US$ 459,279,424 but the share increase to 65.05 percent.

USA is the second largest market destination of Indonesia's cocoa beans export in 2009 which contribute 23.35 percent of Indonesia's cocoa beans total export value but the in 2011 Singapore replace USA as the second largest market destination of Indonesia's cocoa beans export. Malaysia and Singapore are the largest Indonesia's market destination since in the two countries exist cocoa butter factories with the capacities of 480,000 ton per year which needs cocoa beans as their main raw materials.

In the European market, Indonesia's cocoa beans and cocoa product export is relatively small since the region mainly import the product from Africa and the product is mainly in the form of fermented beans. In the European market, cocoa beans from Indonesia is utilized as a mixed since it has unique taste and flavor different from cocoa beans coming from other countries.

Cocoa shell is the outer part of the cocoa beans. In processing the cocoa beans, the cocoa shell is thrown away and the inner part of the beans is processed into othe products meanwhile the shell is utilized as fertilizer or soil conditioner. In 2009, Indonesia's main cocoa shell export destination is Malaysia which contribute 95.67 percent of the total export. But in 2011, the destination shift significantly to Singapore which contribute 87.14 percent and Malaysia only contribute 3.94 percent.

For cocoa paste product, Indonesia's main market destination is European market. In 2009 Indonesia's main market destination is Germany which contributed 27.2 percent of the total export followed by Spain by 17.45 percent. In 2011, the main export destination shift to Spain with 24.6 percent followed by Germany with 24 percent.

For cocoa butter, USA is the main Indonesia's export destination in 2009 and 2011. The percentage export to USA increase from 36.4 percent in 2009 to 47.8 percent in 2011.

Cocoa butter beside utilized in the making of chocolate, the product is also used in the making of cigarette, soap and cosmetics. Traditionally, cocoa butter is utilized in healing burn, cough, malaria, rhematic, snake bites and others.

For cocoa powder, the main Indonesia's market destination is Philippines followed by China. In 2011, cocoa powder export Indonesia to Malaysia increase significantly from 3.4 percent in 2009 to 11.5 percent in 2011. In 2011, Indonesia also expand its cocoa powder market to England, Spain, Switzerland, Slovakia and Czech Republic. Cocoa powder is mainly utilized as an additional flavor in biscuit, ice cream, drinks and cakes. In addition the product is used in candies and frozen sweets.

For chocolate, Malaysia is the main destination. The contribution increase from 15.9 percent in 2009 to 21.2 percent in 2011. Followed by Singapore although the contribution decrease from 10.5 percent to 8.8 percent in the same period. In 2011, Indonesia also expand its chocolate market to Italy and Russia.

### Cocoa Beans and Cocoa Product Export

During the period of 2009 and 2011, cocoa beans and cocoa product export decrease by 7.15 percent. On the other hand the world demand increase by 5.33 percent. Using the constant market share (CMS) by comparing the data in 2009 and 2011, the decrease in Indonesia's export can be decomposed into four parts (Table 5). With the implementation of export tax in 2010 it shows that the decrease in cocoa beans and cocoa products export is mainly caused by the commodity composition effect (-0.043) and competitive effect (-0.282). This shows that the implementation of export tax has made the competitiveness of cocoa beans and cocoa product decrease. In addition, the negative value of commodity composition reveals that Indonesia still depend on cocoa beans export as its main export product which on the other hand suffers from the implementation of export tax.

Meanwhile the positive value of market composition shows that in 2011 Indonesia has expanded its market to several countries which has positive demand growth. The positive market size effect indicates that cocoa beans and cocoa products world demand has positive trend during the period of 2009 and 2011.

Table 5. Indonesia's Cocoa Beans and Cocoa Product Export Growth Component, 2009 and 2011

| Component | Value |
|---|---|
| Export growth | -0.071 |
| Commodity composition | -0.043 |
| Market composition | 0.079 |
| Competitive effect | -0.282 |
| Market size | 0.175 |

### Indonesia's Cocoa Beans and Cocoa Product Market Position

The market position analysis is conducted by comparing Indonesia's export growth by the two other cocoa beans produce, Ivory Coast and Ghana. Indonesia's export growth is below the other two cocoa beans producer (Table 6). Ivory Coast and Ghana enjoys a positive export growth during the period of 2009 and 2011. Ghana has the highest export growth which is mainly caused by the increase in competitiveness, on the other hand the country has negative market and product composition. The same case also occur in Ivory Coast, the

positive export growth is mainly responsible by the increase of competitivess and different from Ghana , Ivory Coast has positive market and product composition. This shows that Ivory Coast has focus on product and market that has positive growth.

Comparing the three countries, Indonesia has the highest market composition which shows that Indonesia market destination has the higher positive growth compare to the other two countries. This can be explained that the main export destination of the two African countries is the European countries which suffer an economic crisis in 2011. For the product composition, Ivory Coast has positive value this shows that Ivory Coast has exported product that has positive growth meanwhile Ghana and Indonesai still depend on exporting cocoa beans. For the competitive effect, Ghana has the highest value showing that the country gain competitiveness especially in cocoa beans since the country depend mostly on cocoa beans export (Table 6).

Tabel 6.Cocoa Beans and Cocoa Products Export Growth Components of Three Exporting
    Countries, 2009 and 2011

| Components | Exporting Countries | | |
|---|---|---|---|
| | Indonesia | Ghana | Ivory Coast |
| Export Growth | -0.071 | 0.646 | 0.304 |
| Commodity Composition | -0.043 | -0.013 | 0.022 |
| Market Composition | 0.079 | -0.030 | 0.000 |
| Competitive Effect | -0.282 | 0.514 | 0.107 |

Comparing the three countries product composition, Ghana has the highest dependency on cocoa beans meanwhile Indonesia has the lowest dependency on cocoa beans. (Table 7). The implementation of cocoa beans export tax has decreased Indonesia's dependency on cocoa beans export although the product still dominates the cocoa product export.

Tabel 7.Cocoa Export Composition of Three Cocoa Beans Producer, 2009 and 2011.

| | 2009 | | | | | |
|---|---|---|---|---|---|---|
| Exporting Countries | Cocoa Beans (%) | Cocoa Shell (%) | Cocoa Paste (%) | Cocoa Butter (%) | Cocoa Powder (%) | Chocolate (%) |
| Ivory Coast | 67.12 | 0.39 | 16.51 | 12.08 | 1.99 | 1.91 |
| Ghana | 81.56 | 0.24 | 7.91 | 8.99 | 1.14 | 0.15 |
| Indonesia | 75.30 | 0.08 | 2.23 | 17.68 | 3.23 | 1.47 |
| | 2011 | | | | | |
| Exporting Countries | Cocoa Beans (%) | Cocoa Shell (%) | Cocoa Paste (%) | Cocoa Butter (%) | Cocoa Powder (%) | Chocolate (%) |
| Ivory Coast | 73.80 | 0.72 | 16.15 | 5.30 | 2.91 | 1.13 |
| Ghana | 85.21 | 0.19 | 9.26 | 2.34 | 2.60 | 0.40 |
| Indonesia | 51.76 | 0.64 | 13.87 | 21.61 | 10.23 | 1.89 |

## Conclusion

The implementation of cocoa beans export tax has shifted the cocoa product export composition which in 2009 75.30 percent of the export is in the form of cocoa beans meanwhile in 2011 the contribution decrease to on 51.76 percent. Meanwhile the contribution of cocoa butter, paste and powder increase significantly.

The implementation of export tax has decreased the competitiveness of Indonesia's cocoa beans and cocoa product export compared with the other two producer, Ivory Coast and Ghana. On the other hand, Indonesia gain positive market composition effect which shows that Indonesia has expand on growing market. In the future, Indonesia must increase its cocoa product export rather than cocoa beans by expanding on fast growing market.

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