

# Intra-Industry Trade in Indonesia: A Case of the Textile and Textile Product Industry

Revinda Yonita Permata Sari, Lilis Yuliati, Siti Komariyah

*Faculty of Economics and Business, University of Jember, Indonesia*

**Abstract** —Trade is one of the instruments driving the economy that has a great dependence on global dynamics. Several trade policies in Indonesia have been carried out to encourage the performance of export imports through various collaborations with Indonesia's largest trading partner countries such as China. The trade intensity that occurs in both countries is certainly expected to have an impact on the economy. This study aims to see the intra-industry intensity of trade, especially in the textile goods sector between Indonesia and China. The result shows that Intra-textile textile trade intensity between Indonesia and China, from 2000-2013 based on the ISIC 321 category (textile industry) obtained by Indonesia and China intra-industry trade, because the overall intra-industry trade index is 53.9%. Suggestion to the The government is expected to be able to boost the performance of exports and consumption of the domestic community, because so far Indonesia's economic growth has been driven more by the performance of exports and household consumption which is still quite strong; Policies regarding investment licensing must be further simplified and there is a guarantee of the availability of energy supplies for the textile industry machinery. The government must also try to increase investment in the textile industry sector especially to modernize old or worn machines so that the textile industry can expand production.

**Keywords** –Export, Import, Intra industry, Textile, Trade

## I. Introduction

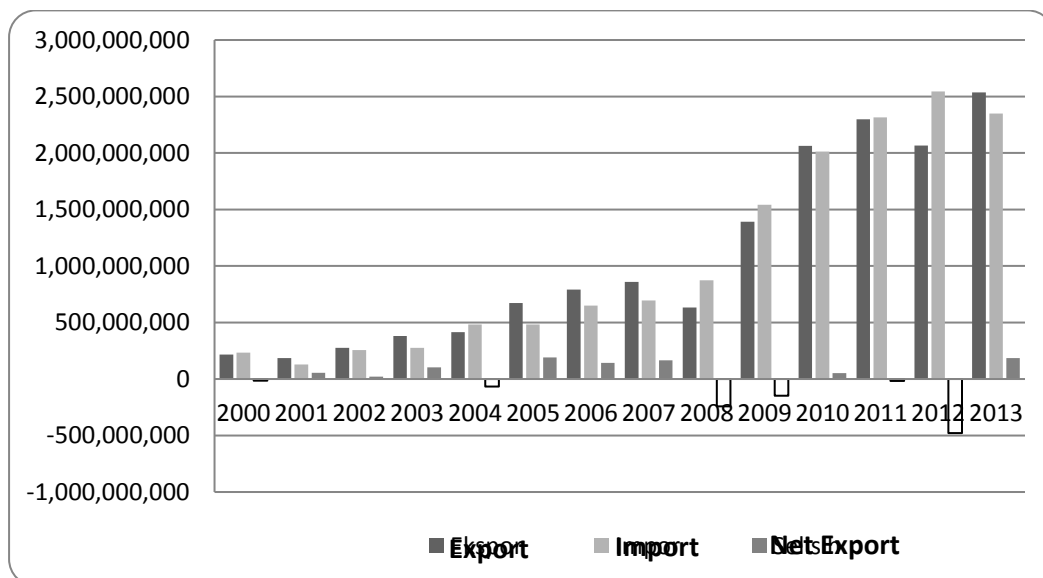
Global dynamics and developments especially in the trade sector are rapidly progressing and contributing to a country's economic growth. The high intensity of globalization has had an impact on increasing trade activities to the world market. The increasing mobility of goods and services especially for the world's largest trading partners between America and China requires various policy frameworks as a form of management and protection. So in this case, the role of the trade sector is one of the important priorities in advancing and improving the economy of a country (Dinovta, 2009). International trade carried out by a country is basically based on various backgrounds. This happens because of the theory of *comparative advantage* and *absolute advantage* in the Ricardian model (Kihc, 2002). In this model the economic element is prioritized to achieve production efficiency in producing goods and services (Yuliati, 2007: 1). In addition, geographical factors are different in each country which results in the state not being able to produce certain goods that require collaboration and cooperation with other countries so that these differences will be obtained *from trade gains*.

Several steps and efforts have been made to achieve a level of efficiency and effectiveness in international trade activities. One of them is through economic integration of countries within the scope of regionalist, either a free trade agreement, customs union (*customunion*) or a higher level of integration. Forms of trade agreements between countries as a form of regional cooperation are also carried out as stated in Mercury, NAFTA, *South Asian Free Trade Area* (SAFTA), ASEAN, *Central American Free Trade Area* (CAFTA), *Caribbean Community* (CARICOM) and so on. Regional trade agreements formed are part of the establishment of *free trade areas* (FTA). One of the implementations of Indonesia's policy strategy with its largest trading partners such as China (China) is contained in the *China-ASEAN Free Trade Area* (CAFTA). Within the framework of the CAFTA agreement, countries that are members of mutual agreements provide *preferential treatment* in three sectors including goods, services and investment. This aims to accelerate the flow of goods, services and investment among member countries so that a free trade area can be formed. *Preferential treatment* is special treatment that is more profitable than treatment given to other non-member trading partner countries in general. In agreement in the goods sector, the main component is the *preferential tariff* (Setiawan, 2012: 2).

An empirical study from Turkey conducted by Kilavuz et al. (2013) in his study concluded that the trade value of intra-industrial countries tended to have lower quality but had high intra-industrial values. Meanwhile Ito and Umamoto (2004) conducted a study on the automotive industry and automobile parts in ASEAN-4 countries. The results show that the main source of intra-industry trade growth is driven by market size, the difference in decreasing market size and the increase in the size of the automotive industry itself. Another

empirical study highlighting the intra-industry trade index was carried out by Thu, et al (2015). Its analysis shows that trade in ASEAN + 3 has experienced a significant increase over the past decade. However, global fluctuations also impacted a decline in the growth rate in 2010 and the proportion of intra-regional trade also declined in 2014. Meanwhile, the intra-industry trade index showed a relatively high number in most ASEAN + 3 countries, especially in manufacturing, equipment transportation, and food drinks. So that it can be concluded that the complexity of intra-regional trade performance is also inseparable from various aspects both internally and externally.

The form of intra-industry cooperation is also reflected in the formation of CAFTA and the work of the inter-nation between Indonesia and China as its biggest trading partners. Indonesia's trade and economic cooperation with China CAFTA has major implications for the domestic industry. CAFTA first surfaced at the 7th ASEAN Summit in Bandar Seri Begawan, Brunei Darussalam in November 2001 with several fundamental objectives. These objectives include strengthening and enhancing the economic, trade and investment cooperation of both parties, liberalizing trade in goods, services and investment, seeking new areas and developing economic cooperation that is mutually beneficial to both parties and facilitates more effective economic integration with ASEAN countries. During 1987, the dominance of Indonesia's export and import trade, which was dominated by oil and gas commodities, is currently experiencing a shift which is dominated by the non-oil and gas industry sector. This shift occurred after the government issued a series of policies and deregulations in the field of exports and imports, allowing producers to increase exports and imports. The non-oil and gas export commodity whose rapid growth rate is a commodity produced by the manufacturing (manufacturing) sector. At present Indonesia has 10 main export main products which can contribute around 50% of Indonesia's total non-oil and gas exports. Included in the top 5 categories of Indonesia's mainstay export products include Textile and Textile Products (TPT), electronics, rubber and rubber products, palm oil and forest products. Other products are footwear, automotive, shrimp, cocoa and coffee (Mutakin, Salam, and Driyo, 2008). The performance of Indonesia's export and import during the entry into CAFTA tends to be more volatile as seen from the movement of import exports in the Indonesian textile and textile products industry in Figure 1.



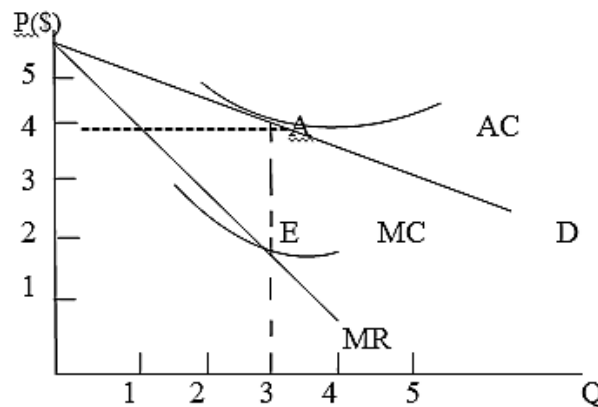
**Figure 1.1** Developments of the Value of Exports and Imports of Textile and Textile Products (TPT) for 2010-2013 (Source: BPS, 2015, processed)

Based on the above data, it can be concluded that the CAFTA agreement brought Indonesia's economy tended to be unstable, this was seen from the ups and downs of the level of surplus that Indonesia had achieved. With the blow of the CAFTA agreement, it has pushed more Chinese products into Indonesia. With the CAFTA agreement, the prices of imported goods from China tend to be cheaper compared to domestic goods. This is one of the losses received by Indonesia so that Indonesia's trade balance in China is getting deficit every year. If Indonesian industries often experience deficits, this means a decline in production due to reduced income, this

will impact on the reduction of labor and the worst impact of the industry will go bankrupt and eventually the industry will be closed. This cycle not only affects government revenues but as a whole also affects Indonesia's economic stability which leads to Indonesia's instability. So from the above phenomenon and empirical explanation, this study aims to determine the intensity of trade, especially in the textile and textile products (TPT) industry between Indonesia and China.

## II. Literature Review

Intra-industry trade occurs when a country exports and imports the same classification product. This type of trade is different from Inter-industry trade, that is, a country exports and imports different classifications of products. Traditional trade theory only includes Inter-industry trade but Intra-industry trade is an important part of international trade. Appleyard and Field (1995: 4) suggest that the reasons for Inter-industry trade include product differentiation; transportation costs and geographical location; dynamic economy scale; the degree of product aggregation; the difference in income distribution; the level of intra-industry trade.



**Figure 2.1** Formal Model of Intra-industry Trade (Source: Salvatore, 2013)

In Figure 2.1, D represents the demand curve faced by a company selling differentiated products. Because many other companies sell similar products, the demand curve faced by the company is quite elastic (slope or bias D is relatively small). That means that only a small price change can cause a big change in the company's sales volume; whereas MR is a marginal income curve. D points down because the product is differentiated. As a result, MR is smaller than P. The best level of output; or the most profitable for monopolistically competitive companies is three units. And that is represented by point E, where MR is equal to MC. At output or  $Q = 3$ , the prevailing price is  $P = AC = 4$  (point A) and at that point, the company experiences the amount obtained exactly the amount that has been spent as production and investment costs. AC is the average cost curve for the company. AC leads down because of the principle of economies of scale.

There are a number of empirical studies that form the basis of this study mainly related to trade activity. Oktaviani, Widyastutik and Tanti Novianti (2008) examine the "Trade Integration and Dynamics of Indonesian Exports to the Middle East". Rina et al. Found that the volume of Indonesian trade to Middle Eastern countries (Turkey, Tunisia and Morocco) always rose from year to year, which occurred in the commodity of animal fat, / vegetable oil and other oils despite decomposition differences from export growth in each country. The general dynamics of export growth are more influenced by the effects of import growth compared to the effects of commodity composition and competitiveness.

Research by Aturupane (1997) on Determinants of Intra-Industry Trade between East and West Europe that the share of intra-industry trade (IIT) of total trade between Eastern European countries and the European Union is one of the highest of all EU bilateral trade flows. IITs are broken down into horizontal and vertical components and each determinant is investigated. Vertical IITs are found to account for 80-90% of the total IIT and are positively related to product differentiation, production labour intensity, economies of scale, and foreign direct investment (FDI). The results showed a statistically significant positive relationship was found between horizontal IIT (substitute exchange near the same quality) and FDI, product differentiation, and industry concentration; a

significant negative relationship was found for scale and labour intensity. This result does not apply if state effects are not controlled, indicating that country-specific factors are the main determinant of horizontal IIT.

The next study by Johnson (2011) on Trade Liberalization and Inter-Industry Reallocation in Indonesia with the findings that the tariff rates imposed on each output and input can be determined by matching manufacturing data with import data through the 5-digit ISIC industry code. Import prices dropped significantly for the majority of industries in Indonesia between 1991 and 2000. If Indonesia reduces tariffs on industries that sell products, then domestic industries that are more exposed to foreign competition. Therefore, *ceteris paribus*, investment or work in Indonesia in the industry is less attractive. If Indonesia reduces imports to an industrial input, then the cost of a decline in that industry, and, *ceteris paribus*, investment or work in Indonesia in a more attractive industry.

Wahyuningsih (2012) examines the Analysis of Intra-Industry Trade in Indonesia's Manufacturing Sector with ASEAN-4: Based on Hypotheses Industry Specific and Policy Based. Intra-ASEAN and 5-Indonesia intra-industry trade research with ASEAN-4 countries, analyzing dominant international trade patterns, dominant manufacturing products and the influence of labour intensity, market structure, economies of scale, product differentiation and reduced tariffs on the intra-trade industry. This research began in 1998 to 2009. This study conducted a study or literature review of the theory of international trade and made a general assessment of the performance of industrial commodity exports which focused on measuring the intensity of Intra-industry trade. Secondary data used included data on exports and imports of group commodities. Indonesia's manufacturing industry with ASEAN-4 (Singapore, Malaysia, Philippines and Thailand). The data is derived from data from the Large and Medium Manufacturing Industry, Indonesian Foreign Trade Statistics, Indonesian Statistics; Economic Indicators published by the Central Statistics Agency several editions. This study provides some conclusions as follows: 1) From the results of the calculation of the index based on product groups, the results show that most of Indonesia's manufacturing industry commodities are still Intra-industry trade. 2) For 12 consecutive years Intra-industry trade between Indonesia and Malaysia is the chemical industry and goods from chemicals (ISIC 24); non-metal excavated goods (ISIC 25); base metal (ISIC 27); metal goods, except machinery and equipment (ISIC 28); machinery and equipment (ISIC 29) and medical equipment, measuring instruments, navigation equipment, optical equipment, clocks and bells (ISIC 33).

Intra-industry trade between Indonesia and Thailand is the chemical industry and goods from chemicals (ISIC 24); non-metal excavated goods (ISIC 25); metal goods, except machinery and equipment (ISIC 28); machinery and equipment (ISIC 29) and recycling (ISIC 37). 3) Intra-ASEAN 5 Indonesia intra-industry trade for 12 consecutive years is the chemical industry and goods from chemicals (ISIC 24); non-metal excavated goods (ISIC 25); base metal (ISIC 27); metal goods, except machinery and equipment (ISIC 28); machinery and equipment (ISIC 29) and medical equipment, measuring instruments, navigation equipment, optical equipment, clocks and bells (ISIC 33) and motorized vehicles (ISIC 34). 4) Higher concentration ratios occur in companies that export (import) to (from) countries in ASEAN-4. 5) Increased demand was responded to by increasing production based on economies of scale in trade between Indonesia and Malaysia, Thailand and Singapore. Whereas the Philippines does not respond to requests, it can be proven that economies of scale do not affect Intra-industry trade. 6) Product differentiation does not affect intra-industry trade, this occurs because the products produced are almost the same so they cannot compete between countries in the ASEAN region. The manufactured products tend to use technology more than human labour; this is evidenced that the increased labor intensity will reduce Intra-industry trade.

Yuliati (2007) examined Trade Intra-Industry as an Alternative in Overcoming the Impact of the Global Crisis in Indonesia. The issue of intra-industry trade (IIT) busies discussed since the concept was introduced by Grubel Lloyd 1975. Empirically, IIT concept was developed in the 1980s in modern industrialized countries which incidentally has the of endowment same factors, which tend to be capital intensive. The purpose of the study was to obtain an overview of the intensity of IIT between Indonesia ASEAN-4, and to obtain empirical evidence, test and explain the factors that affect the intensity of IIT Indonesia with ASEAN-4. This study uses the Grubel-Lloyd Index method and data panel analysis. The results of data analysis show First, Indonesian manufacturing IITs into the ASEAN-4 market in the 1985-2009 period based on the SITC code tended to experience a shift. Commodities which were previously high in the following year declined. The share of IIT intensity between Indonesia and ASEAN-4 was included in the non-IIT category because the index was <40. Second, the intensity of IIT manufacturing based on the ISIC code was included in the IIT category because the index was = 40%, precisely 47.65% and the rest 52.35 % non-IIT category. Third, the estimation of the econometric model using the FEM method shows the following results: labor intensity shows positive, not significant, positive market structure, positive economic scale not significant, positive product differentiation is significant, and dummy positive economic integration is significant.

### III. Methodology

This research used secondary data and in the form of data time series that can be obtained from the literature studies of Bank Indonesia, the Central Statistics Agency (BPS). Data period in this study is during the period 2000-2013. This analysis will be applied to the textile and textile product export-import product group based on the International Standard Industrial Classification (ISIC) 321 which will be converted into Standard International Trade Classification (SITC) 651, 659, 845, 846. The research method used is a calculation method made by Grubel and Lloyd (1975) to calculate the index of intra-textile trade in Indonesia with China. Based on the level of SITC (Standard International Trade Classification) 3 digits using the following formula:

$$IIT = 1 - \frac{X_j - M_j}{X_j + M_j} \times 100\% \quad (3.1)$$

where:

$ITT_j$  : index of Intra-industry trade in industry j

$X_j$  : value of exports from industry j

$M_j$  : import value from industry j

Based on the above equation, the vertical lines in the numerator in formula (3.1) show that the value is absolute numbers (always positive). While the Grubel-Lloyd index value will vary from 0-1 or 0% - 100%, with the following explanation:

- a. if the index value = 0, it means what happens in the industry j is only inter-industry trade.
- b. if the index value is = 1, it means that in industry j is just intra-industry trade (perfect intra-industry trade).

The Grubel-Lloyd Index is said to be high if the value is greater than 40%, meaning that the trade that occurs is Intra-industry trade. Vice versa, if the Grubel-Lloyd index is less than or equal to 40%, then the trade that occurs is Intra-industry trade.

This research is a study of Intra-industry trade, so data based on the SITC classification are then converted into the industrial code classification of ISIC 321 (textile industry). In discussing these issues, the intensity of Intra-industry trade will be analyzed based on SITC and ISIC classification with the adoption of the analysis method Grubel-Lloyd Index. The following below are data on the development of export and import values of the textile industry in the period 2000-2013 based on the classification of SITC 651, 659, 845, 846 used in the study.

**Table 1. Operational definitions of variables**

Variable	Unit	Description
Exports	US dollar per year	It is goods sold to residents of other countries, coupled with the hosted services to residents of the country in the form of transport by ship
Imports	US dollar per year	It is goods purchased from overseas, accompanied by procedures that accompany
The Intra-industry trade index	Index	the export value of an industry from a country that is precisely balanced by the same import of industries from other countries (in this case the textile industry and textile products). The index value of Intra-industry trade ranges from zero to one (0-1 or 0% -100%). The Intra-industry trade index = 0 means that only Intra-industry trade occurs. Conversely, if the intra-industry trade index = 1 means that only Intra-industry trade occurs between countries involved in trade

### IV. Results of Analysis and Discussion

Analysis of the intensity of textile trade between Indonesia and China in 2000-2013 was carried out by using two standards namely the *Standard International Trade Classification* three digit (SITC) (651,659,845 and 846) and *International Standard Industrial Classification* (ISIC) which were then analyzed by using the method *Grubel-Lloyd Index* (GL-Index). Based on the results of data analysis using the SITC standard shows that in the

period 2000-2013 the textile commodity with the SITC 845 standard has the longest intra-trade trade intensity, namely ten years of research while the remaining three years the commodity with the SITC 845 standard is in the Inter-Industry category. As shown in Table 4.1. in Table 4.1 also shows that commodities with SITC 651 and SITC 846 standards have the same intensity i.e. four years of research are in the category of Intra-Industry and Nine years of research in the category of Inter-Industry. While other commodities, namely the SITC 659 commodity in the study period, have a two-year Intra-Industry trade index, which means that in the period of research Indonesia and China continue to trade, but traded commodities are not included in the category of Intra-Industry trade.

**Table 2 The Indonesia-China intra-textile trade index with the three-digit SITC classification**

No.	SITC	Total IIT *
<b>1</b>	<b>651</b>	<b>4</b>
<b>2</b>	<b>659</b>	<b>2</b>
<b>3</b>	<b>845</b>	<b>10</b>
<b>4</b>	<b>846</b>	<b>4</b>
<b>Total</b>		<b>20</b>

\* = Number of IITs in the period 2000-2013 (unit of year)

Source: secondary data processed

Based on Table 4.1 it can be concluded that in the period 2000-2013, all commodities with SITC standards have a trade intensity of 40% with a total GL-Index value of 20 IIT, which means 40% of trade carried out by Indonesia and China in the period 2000-2013 in the Intra-Industry category, while 60% of trade is carried out by Indonesia and China in the Inter-Industry category. Based on the results of the analysis in Table 4.1 it can be concluded that the overall trade in the textile industry between Indonesia and China in the period 2000-2013 was Inter-industrial trade. This is in accordance with the GL-Index calculation guidelines which say that an Industrial trade can be said to be Intra-Industry if it has an IIT value of 40% more ( $40 <$ ), whereas if the IIT value is equal to or less than 40% then the industrial trade is included in Inter-Industry trade category. The results of this study are consistent with the research conducted by Yuliati (2007) and Suryaningsih (2012) who say that the IIT value of the GL-Index which is below or equal to 40% is Inter-Industry trade. On the other hand, the results of analysis using the ISIC 321 standard show different results as shown in Table 4.2.

**Table 3 Index of intra-industry trade between Indonesia and China textile with ISIC classification 321 in 2000-2013**

Year	IIT *	Year	IIT*
2000	11.78754542	2007	<b>88.4018143</b>
2001	19.76006494	2008	18.55464637
2002	16.58678478	2009	<b>60.34567049</b>
2003	8.714465175	2010	<b>86.03284537</b>
2004	<b>82.46776292</b>	2011	<b>87.08567855</b>
2005	21.69848606	2012	<b>56.35451884</b>
2006	27.72722938	2013	<b>54.62446536</b>

\* = IIT value in units of%,

Bold =Intra-Industry

Unbold= Inter-Industry Trade

Source: processed secondary data

Based on the GL-Index analysis of commodities classified as 321 shown in Table 4.2 shows that in 2000 - 2013 textile industry trade between Indonesia and China has an Intra-Industry index for seven years, namely in 2004, 2007, 2009, 2010, 2011, 2012, and 2013 with each percentage of IIT values different as shown in Table 4.2. Of the seven years of trade included in the Intra-Industry category, 2007 had the largest percentage IIT value of 88.40% while the smallest Intra-Industry value occurred in 2013 with an IIT value of 54.62%. Then seven other years of textile industry trade between Indonesia and China are included in the category of Inter-Industry.

This shows that overall the textile industry trade between Indonesia and China has two categories, namely Intra-Industry and Inter-Industry; this is indicated by each category having a percentage of 50% (seven years).

Export-import activities have a very important role in driving economic growth of a country; besides that export-import activities also have an important role in maintaining the stability of the country's economy (Ministry of Trade of the Republic of Indonesia, 2016; Research and Development Center for Foreign Trade, Republic of Indonesia, 2009). The condition of the past few years has been a trade war between China and America, which has had a significant impact on trade partner countries, one of which is Indonesia (Bank Indonesia, 2016). China is one of Indonesia's main trading partner countries, one of the main trade commodities between China and Indonesia, namely textile industry commodities. On the other hand, the textile industry is one of the commodities that has a major contribution in generating foreign exchange and is also a contributor to economic growth in terms of non-oil and gas exports (Bank Indonesia, 2016; Ministry of Trade of the Republic of Indonesia, 2016). Data from the Indonesian economic report shows that the export value of the textile industry in 2000-2013 is higher than its import value, this indicates that the international trade in the textile industry is worth a surplus, but it is not owned by all export commodities from textile products, this is appropriate with the results of data analysis showing that textile commodities with the SITC 845 category are included in the Intra-Industry category within ten years of the study. The industrial commodities in the SITC 846, 651 and 659 categories were dominated by Inter-Industry trade. The Ministry of Commerce in 2016 revealed that the export products of the textile industry were dominated by apparel and yarn products.

On the other hand, the size of exports carried out was influenced by several factors both internal and external. Some internal factors are product quality, technology used, capital level which will also have an impact on the price of goods and various other factors. Whereas external factors, namely market demand, in this case, are the demand for exports of textile products in China, which will affect the amount and value of Indonesian exports. In addition, the increasing level of competition between the TPT industry products also affects the demand for Indonesian exports. On the other hand, the economic conditions of trade destination countries also affected the demand for textile exports in the textile industry (Bank Indonesia, 2016). The increasing competitiveness of textile products in several textile manufacturing countries such as Bangladesh and India also affected the number of textile products exports, making trade relations between Indonesia and China in the textile industry products dominated by Inter-Industry relations as shown in the results of analysis with SITC standards and ISIC (Agarwal, Kaur, & De, 2017; Bank Indonesia, 2016). This shows that there are other potential commodities that can be increased in maintaining and improving trade relations between Indonesia and China to increase the surplus value of Indonesia's trade balance. In addition, the lack of intensity of the textile industry trade activities between Indonesia and China is also caused by the potential of other countries which are also one of the main destination countries for export of textile products such as America and Japan (Ministry of Trade of the Republic of Indonesia, 2014; Research Center for Foreign Trade, Ministry of Trade Republic of Indonesia, 2009). On the other hand, business actors with the government must also increase the competitiveness of the textile industry by finding market shares that still have considerable opportunities and potential to be entered (Ministry of Trade of the Republic of Indonesia, 2014; Ministry of Trade of the Republic of Indonesia, 2016), this is due the market share that China has entered is impossible for Indonesia to enter, on the other hand, the market share of Bangladesh and India has also entered quite a lot, so the Indonesian PTP industry must choose other market segments that have great potential to improve the competitiveness of textile products Indonesia

## **V. Conclusion**

Based on the results of data analysis and discussion, some conclusions were obtained. Namely: Intra-textile textile trade intensity was observed between Indonesia and China, from 2000-2013 based on the ISIC 321 category (textile industry) obtained by Indonesia and China intra-industry trade, because the overall intra-industry trade index is 53.9%. Suggestion to the government is expected to be able to boost the performance of exports and consumption of the domestic community, because so far Indonesia's economic growth has been driven more by the performance of exports and household consumption which is still quite strong. Policies regarding investment licensing must be further simplified and there is a guarantee of the availability of energy supplies for the textile industry machinery. The government must also try to increase investment in the textile industry sector especially to modernize old or worn machines so that the textile industry can expand production.

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