



## Analysis Trade Integration of Indonesia and Turkey Non-Oil Sector

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### Abstract

*The development of the economy and the increasingly rapid level of world economic integration have an impact on the high intensity of trade dynamics between countries which then has an impact on increasing trade in the same sector (Intra-Industrial Trade) so that a market diversification strategy is needed in the form of market alternatives. The purpose of this study was to determine how much the intensity of trade integration and the dynamics of non-oil and gas exports between Indonesia and Turkey during the period 2001-2016. The results of the analysis using the Gruble Lloyd Index (GLI) show the intensity of trade between Indonesia and Turkey is classified in the category of Weak Integration with a percentage of 66% of the total commodities traded. This shows that the trade that occurs tends to be one-way. While the Constant Market Share (CMS) analysis shows that each trading period has fluctuated. In the trading period of 2002 to 2007 then in 2010 and 2013 experienced positive changes in the value of exports, while in 2008, 2009, 2011, 2012 and 2014 until 2016 experienced a change in negative export values. This indicates that the market share Indonesia's Natara and Turkish trade tends to weaken.*

**Key words :** Economic Integration, Intra-Industry Trade, Constant Market Share

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## INTRODUCTION

The open economy is a world economy that is carried out through two important paths, namely the financial path where there has been a lending and borrowing process in the world capital market in the form of capital flow, namely capital flows. The second path through international trade channels consisting of imports and exports of both goods and services carried out between one country and another. Basically there are two types of international trade, namely inter-industry trade and intra-industrial trade (Stern, 2009). Inter-industrial trade is a trade between different industries whose trade is motivated by classical trade theories, namely the theory of absolute excellence (Absolute Advantages), the theory of comparative advantage (Comparative Advantages), and the Heckscher-Ohlin theory (Sen, 2008). Whereas the concept of trade with endowment factor which is relatively the same is called intra-industry trade (IIT), which is trade in the same sector, where the export value of an industry from a country is appropriately balanced by the same industry imports as other countries (Kilavuz et al., 2013). (Greenaway et al., 1994) group into three categories, first country specific, Second, industry specific, Third, policy-based. In this case the hypothesis policy-based states that: first, IITs will be greater if the tariff and non-tariff barriers for industry are relatively low; second, IIT will be greater in countries involved in various forms of economic integration. This is because economic integration will affect the decline of trade barriers and usually economic integration occurs between adjacent countries.

Indonesia is one of the countries active in trade liberalization cooperation both on a bilateral and regional scale. Therefore, the condition of the Indonesian economy automatically is also strongly influenced by the development of economic conditions in

other countries. In the aspect of trade liberalization with other countries the condition of stability of exports and imports is a determinant of the description of a country's trade performance. Currently Indonesia's exports are dominated by the non-oil and gas sector, while the oil and gas sector is still the second export sector. Therefore we need a strategy to improve the non-oil and gas sector as a leading sector. This is done to cover up the shortfall in the oil and gas sector, which cannot be renewed resources. In addition, the non-oil and gas sector can be used as an indicator to increase economic growth, so that it will have an impact on the stability of the Indonesian economy. To encourage an increase in the non-oil and gas sector, the direction of foreign trade policy must be more to increase the competitiveness of non-oil and gas export products through market diversification and also increase the diversity and quality of products (Alhayat, 2012). Not only is it focused on increasing the oil and gas sector as an alternative to increasing Indonesia's exports, but also has to diversify export market objectives, especially in Indonesia's prospective markets. This was done as an effort to increase the volume and value of Indonesia's non-oil exports, given that most non-oil and gas exports in Indonesia were dominated by the main destination countries. Until 2013 the market share of Indonesian products in non-traditional export destinations (prospective markets) was still inferior to China, Malaysia and Thailand. To increase and optimize market access, market diversification and export products are needed (Ministry of Trade, 2014).

You can diversify the market required inspection in various alternative export destination countries to see the market in that country. A country that has greater interests and has a comparative advantage is advantageous. Research conducted by (Fligenspan et al., 2015) shows that in the

2000s, discussed markets in the labor-intensive sectors of countries in the Asian region, while discussing Brazilian markets as normal. While trade competition in labor-intensive sectors between the States of Asia and Central America creates a trade bias in Brazil against the main destination countries shifting the bias. In addition, research conducted by (Silgoner et al., 2013) which shows that competition between China and European countries is increasing and the most contested is the capital and transportation sector which has a comparative advantage in both countries. Both of these studies show how to direct the export market in a country to have an important role in increasing and developing the value of a country's exports.

In accordance with the strategic plan of the Ministry of Trade in 2014-2019 regarding increasing non-oil exports and increasing market diversification of potential export destination countries, there are five potential non-oil market share markets for the period 2010-2014, namely Taiwan, Hong Kong, Turkey, Saudi Arabia, and Russia (Ministry of Trade, 2014). In this case Turkey as an alternative focus on Indonesia's non-oil export destination countries. In September 2008, Indonesia and Turkey agreed to form a Comprehensive Trade and Economic Partnership (CTEP) in the form of a Preferential Trade Agreement (PTA). As a first step, the two countries will hold a Joint Study Group (JSG) which aims to find out the potential of the two countries (Ministry of Trade, 2010). In this case Turkey as one of the potential countries as an alternative export destination which is projected by the free trade area (Free Trade Area) of Indonesia - Turkey will increase trade between the two countries. In addition, Turkey is one of the 20 major economies in the world or a group of G20 countries (Group 20) including Indonesia. after the existence of a trade cooperation

agreement made by Indonesia and Turkey the following is the development of trade in the non-oil sector between Indonesia and Turkey in 2010-2015. For this reason, the researchers analyzed the extent of the linkages and patterns of trade between Indonesia and Turkey, through the Analysis of Intra-industrial Trade, and analyzed the dynamics of Indonesia's exports with Turkey which were designated as potential trade partners.

Based on the background described, the formulation of the problem and the purpose of this study is to analyze the intra-industrial trade integration of the non-oil and gas sector between Indonesia and Turkey, where any commodity has high dominance and falls into the category of what trade occurs between Indonesia and Turkey. In addition to knowing how the dynamics of exports that occur between Indonesia and Turkey by referring to the classification of the non-oil sector from the Ministry of Trade of the Republic of Indonesia, namely 50 commodities.

## METHOD

Data used are secondary data, namely data panels during the study period from 2001-2017 for the case of Indonesia and Turkey. The data is obtained from the United Nations Commodity Trade Statistics (UN COMTRADE) and from official sites such as Bank Indonesia (BI), the Ministry of Commerce of the Republic of Indonesia, the Central Statistics Agency and the World Bank. The classification of non-oil and gas sector commodities is taken from those classified by the Ministry of Commerce of the Republic of Indonesia, which are as many as 50 commodities. While data from each classification of non-oil sector commodities is taken from the United Nations Commodity Trade Statistics (UN COMTRADE) which refers to Harmonized Coding System the 1996 2-digit (HS).

The type of analysis used in this study is an eclectic analysis used to answer the two questions in the formulation of research problems, namely the first integration of Intra-Industrial trade in the non-oil and gas sector between Indonesia and Turkey, secondly on the dynamics of non-oil exports between Indonesia and Turkey, secondly concerning the dynamics of non-oil exports between Indonesia and Turkey. The use of eclectic analysis is expected to be able to describe the situation and conditions of trade in the non-oil and gas sector in Indonesia with Turkey by using a description based on the results of calculations made on Indonesia's raw non-oil export and import data so that it can be easier to understand. The description of the results of these calculations will be presented in the form of tables, graphs, and descriptive analysis. Analysis Intra-Industry Trade (IIT) Grubel Lloyd Index (GLI) is used to analyze the level of trade integration between Indonesia and Turkey. The degree of trade integration between the non-oil and gas sector in Indonesia and Turkey, and the approach are Constant Market Share Analysis (CMSA) used to measure the dynamics of exports of the non-oil and gas sectors in Indonesia and Turkey.

Intra-Industry Trade is trade in the same industrial sector, where the value of exports and imports of an industry between the two countries has a balanced value. Analysis is Intra Industry Trade used to measure the level of integration in a particular area. High integration shows the proximity of trade between countries in the region (two way trade). The indicator formulation used to analyze the Intra Industry Trade adopts the Grubel-Lloyd Index by the formula: (Oktaviani et al., 2008).

$$IIT_{ijk} = 1 - \frac{X_{ijk} - M_{ijk}}{M_{ijk} + X_{ijk}} \times 100 \quad (1)$$

Where:

$X_{ijk}$  = Value of commodity exports  $i$  from country  $j$  to country  $k$

$M_{ijk}$  = Value of imports of commodity  $i$  from country  $j$  to country  $k$ .

Conversely, if the trade of a country only involves one party (export or import only), the index is worth 0 (one way trade), in other words, trade occurs more to inter-industrial trade (Birkeland, 2012). The export data and import of 2 digits HS 1996 sectoral used are sourced from the UN COMTRADE. The technical explanation regarding the Intra Industry Trade as an indicator of trade integration is represented in Table 1.

Approach Constant Market Share (CMS) can be used to measure the trade dynamics of an industry of a country. The use of this approach is based on the understanding that the rate of growth of a country's exports can be smaller, equal, or higher than the rate of growth in world average exports. So in CMS analysis, the slow or high rate of growth of a country's exports compared to the standard growth rate (World average) is broken down into three factors, namely import growth, commodity composition, and competitiveness (Stern, 2009). This can be explained as follows:

Effect of Import Growth:

$$mX_{ijk} \quad (2)$$

Where:

$m$  = Percentage increase in general imports in country  $k$

$X_{ijk1}$  = Export of commodities  $i$  from country  $j$  to country  $k$  in year  $(t-1)$

Effect of Commodity Composition:

$$\{ X_{ijk2} - X_{ijk1} - m_i X_{ijk1} \} \quad (3)$$

Where:

$m$  = Percentage increase in general imports to country  $k$

$m_i$  = Percentage of increase in commodity imports  $i$  in country  $k$

$X_{ijk1}$  = Export of commodities  $i$  to country  $j$  to country  $k$  in year  $(t-1)$

Competitiveness Effect:

$$\{X_{ijk2} - X_{ijk1} - m_i X_{ijk1}\} \quad (4)$$

Where:

$m_i$  = Percentage increase in commodity imports  $i$  in country  $k$

$X_{ijk1}$  = Export of commodities  $i$  from country  $j$  to country  $k$  in year to  $(t-1)$

$X_{ijk2}$  = Export of commodity  $i$  from country  $j$  to country  $k$  year to  $(t)$

From the three equations above, the following formula can be taken:

$$X_{ijk2} - X_{ijk1} = m X_{ijk1} + \{(m_i - m) X_{ijk1}\} + \{X_{ijk2} - X_{ijk1} - m_i X_{ijk1}\} \quad (5)$$

Where:

$X_{ijk1}$  = Export of commodity  $i$  country  $j$  to country  $k$  year to  $(t-1)$

$X_{ijk2}$  = Export of commodity  $i$  from country  $j$  to country  $k$  year  $(t)$

$m$  = Percentage increase in public import in country  $k$

$m_i$  = Percentage increase in imports of commodity in country  $k$

## RESULTS AND DISCUSSION

The results of eclectic analysis to answer the first and second problem formulations are, first, how much the degree of intra-industrial trade integration in the non-oil and gas sector between Indonesia and Turkey in the period 2001-2016 using the index namely Grubel Lloyd Index (GLI), and the formulation of the second

problem how the dynamics of non-oil exports between Indonesia and Turkey in the period 2001-2016 was measured using the approach Constant Market Share (CMS) in which there was a slow or high rate of growth of a country's exports compared to the standard growth rate (World Average) which was broken down into three factors, namely the effect of import growth, the effect of commodity composition, and the effect of competitiveness.

In the calculation of GLI between Indonesia and Turkey during the period 2001-2016 it was divided into two periods, namely the period before and after the Comprehensive Trade and Economic Partnership (CTEP) between Indonesia in September 2008. First calculation of GLI for the period 2001-2008, second calculation of GLI in 2009 -2016.

Based on the calculation GLI non-oil sector of trade activities between Indonesia and Turkey during the period 2001-2008 there were only five category classification result of the size of the Intra-industry trade (IIT), ie no trade integration (No.integration) presented in Table 3.4, weak integration trading (Weak Integration) presented in Table 2, trade in moderate integration (Mild Integration) presented in Table 3, trade with strong integration (Moderately Strong Integration) presented in Table 4 and no trade flow (No Trade flow).

Based on Table 3 there are 3 non-oil and gas commodities included in the category of trade with strong integration (Moderately Strong Integration) during the period 2001-2008. The first commodity with HS 84 (Machinery / aircraft mechanics) with an average GLI value of 62.51. Both commodities with HS 63 (Patchwork) with an average GLI value of 53.31. All three commodities with HS 87 (Vehicles and parts thereof) with an average GLI value of 51.96.

Based on Table 4, there are 9 non-oil and gas commodities included in the category of trade with moderate integration (Mild Integration) during the period 2001-2008. Viewed from the average GLI value, there are 5 highest commodities that are categorized as Medium Integration (Mild Integration), which is the first order of commodities with HS 72 (Iron and steel), with an average GLI value of 39.68. secondly there are commodities with HS 73 (Iron and steel objects) which have a GLI average value of 32.79. The third is HS 90 (Optical devices) commodity with a GLI average of 31.79. The fourth is a commodity with HS 61 (Knitted goods) with an average GLI value of 31.32. The fifth is a commodity with HS 08 (Fruits) with a GLI average of 30.41.

Based on Table 2, there are 33 non-oil and gas commodities included in the trade category with weak integration (Weak Integration) during the period 2001-2008. Viewed from the GLI average there are 5 highest commodities that fall into the category of Weak Integration, which is the first order of commodities with HS 52 (Cotton) with an average value of 24.39. Both commodities with HS 85 (Machinery / electrical equipment) with a GLI average value of 23.8. The third is HS 76 (Aluminum) with an average GLI value of 22.31. The four are HS 24 (Tobacco) commodities with an average GLI value of 18.75. The five commodities HS 12 (Oily grains) with an average GLI value of 18.30.

Based on Table 5, there are 4 non-oil and gas commodities included in the trade category with no integration (No integration) and one commodity that is categorized as no trade flow (No Trade Flow) during the period 2001-2008. For commodities with HS 03 (Fish and shrimp), HS 26 (seeds, crust and metal ash), HS 75 nickel, and HS 23 (Pulp / leftovers from food industry) and HS 31 (Fertilizer). is a commodity that is categorized as no integration (GL) with an average value of GLI

of 0 while commodities HS 75 (Nickel) are commodities that fall into the category of no trade flow (No Trade Flow).

Based on GLI calculations the trade activities of the non-oil and gas sector between Indonesia and Turkey during the 2009-2017 period show that the results are slightly different from previous period. The results show that in 2009-2017 periods there are four classification categories of Intra-Industry Trade (IIT), namely weak integration trade (Weak Integration), moderate integration trade (Mild Integration), strong integration trade (Moderately Strong Integration) and trade with a very strong category of integration (Strong Integration). Based on Table 6, there is only one commodity included in the trade category, Strong Integration namely HS 84 (Machinery / aircraft) commodities with a GLI average of 83.90.

Based on Table 7 it can be seen that non-commodity trading -oil and gas which is classified in the category of integrated trading strong (Moderately strong Integration) in the period 2009 to 2017 there were 9 commodities. the commodity that has the highest average index value in trade with strong integration, namely the iron and steel commodity with no. HS. 72 and an average index value of 74.22 and electrical machinery/equipment commodities with No. HS. 85 and average Index value 73.31. Then the commodity that has the lowest average value is Cotton with No. HS. 52 and the average index value is 50.67.

In Table 8 it can be seen that there are 15 non-oil and gas commodities that are classified as trading with moderate integration (Mild Integration) in the 2009-2017 period. In the category of trade with moderate integration, the commodity that has the largest average index value is the Fruit commodity with no. HS. 8 and an average index value of 47.88 which was then followed by the Optical Devices commodity No. HS. 90

and an average value of 43.38. Meanwhile, the commodity that has the lowest average index value is the Samak and Dipping commodity with No. HS. 32 and the index value is 25.37.

Table 9 shows that the trade commodities between Indonesia and Turkey in the 2009-2017 period were classified in the trade category with weak integration levels there are 25 Commodities Non-oil and gas sector trade. In the results of this calculation it can also be seen that most of the trade commodities between Indonesia and Turkey belong to trade with a weak degree of integration. The commodity that has the smallest average index value is Tin with No. HS. 80 and nilia averaged 0.02. The next commodity is Processed Meat and Fish with No. HS. 16 and the average index value is 0.03. Meanwhile, the commodity that has the highest average index value is the Oily Grain commodity with No. HS. 12 and an average index value of 24.53 and the commodity for Inorganic Chemicals with No. HS. 28 and the average index value is 24.17.

Results of CMS calculations during the period of 2001 to 2016 are grouped in a period per year, namely the first period, 2001-2002, the second period, 2002-2003, third period, 2003-2004, fourth period, 2004-2005, fifth period, 2005-2006, sixth period, 2006-2007 seventh period 2007-2008, eighth period, 2008-2009, period ninth, 2009-2010, tenth period, 2010-2011, eleventh period, 2011-2012, twelfth period, 2012-2013, thirteenth period, 2013-2014, fourteenth period, 2014-2015, and the fifteenth period, 2015-2016. The results of these calculations can be seen in Figure 3.1.

Based on Figure 1, it can be explained in the first period of the dynamics of exports of the Indonesian non-oil and gas sector with Turkey, the total value of export changes (CMS) experienced a positive change of USD 61,202 Million. The increase was predominantly driven by the commodity

composition effect (EKK) of USD 139,863 billion, followed by the effect of import growth (EPI) of USD 41,117 million, while the effect of competitiveness (EDS) actually gave a dominant negative value of USD 139,848 billion. In the second period it decreased by 62% compared to the first period, but the change in exports experienced a positive change of USD 23,543 million. The change in positive exports in the second period was driven by the effect of import growth (EPI) of USD 82,345 million, while the effect of competitiveness (EDS) and commodity composition effects (EKK) actually had a negative value of USD 31,915 million and USD 26,887 million. The third third period of total changes in the export value of Indonesia's non-oil and gas sector to Turkey is equally positive, where in the third period Indonesia's total export change (CMS) value to Turkey was USD 40,667 million, this indicates an increase in export changes compared to the value of export changes in the second period was USD 23,543 million.

The increase in total export changes in the third period was caused by the boost in the effect of import growth (EPI) of USD 104,597 million, while the effect of commodity composition (EKK) and competitiveness (EDS) gave a negative value of USD 43,035 million and USD 20,889 million. The fourth period of the total change in the export value of Indonesia's non-oil and gas sector to Turkey is equally positive, where in the fourth period Indonesia's total export change (CMS) value to Turkey was USD 225,441 million, this indicates an increase in export changes compared to the value of export changes in the period the second amounted to USD 40,667 million or an increase in the percentage of 454%. The increase in total export changes in the third period was caused by a significant positive boost from competitiveness (EDS) of USD 191,244 million, followed by an increase in the

effect of import growth (EPI) of USD 58,736 million, while the commodity composition effect (EKK) actually provided value negative amounting to USD 24,538 million. The fifth period There was a decrease in the total change in exports compared to the fourth period, by 16%, although in the fifth period the total change in exports experienced a positive change of USD 189,857 million. Changes in positive exports in the fifth period were dominated by the impulse import growth effect (EPI) of USD 102,182 million, followed by competitiveness (EDS) and commodity composition effects (EKK) of USD 86,661 million and USD 1,013 million. The sixth period of total changes in the export value of Indonesia's non-oil and gas sector to Turkey is equally positive, where in the sixth period Indonesia's total export change (CMS) value to Turkey was USD 307,987 million, this indicates an increase in export changes compared to the value of export changes in the period fifth, amounting to USD 189,857 million or an increase of 62%. The increase in total export changes in the sixth period was caused by a positive boost from the effect of competitiveness (EDS) of USD 171,898 million, followed by an increase in the effect of import growth of USD 155,769 million, while the commodity composition effect (EKK) actually gave a negative value of USD 19,680 million.

The seventh period in total changes in the export value of Indonesia's non-oil and gas sector to Turkey experienced a negative export value change, which in the seventh period the value of Indonesia's total export change (CMS) decline to Turkey was USD 168,026 million. The decline in export changes in the seventh period was dominated by a decrease in the effect of competitiveness (EDS) of USD 465,264 million, while the effect of import growth (EPI) and commodity composition effects (EKK) actually had a positive effect of USD 191,549 million and USD 105,668 million . The eighth period of total changes in the

export value of Indonesia's non-oil and gas sector to Turkey was the same as the seventh period, experiencing a negative change in export values. Where in the eighth period the value of the decline in Indonesia's total export change (CMS) to Turkey amounted to USD 195,891 million. The decline in the change in export value was greater than the seventh period of USD 168,026 million, or there was an increase in the percentage decrease of 17%. The cause of the decline in the total change in export value in the eighth period was due to a decrease in the effect of import growth (EPI) of USD 257,816 million, while the effect of commodity composition (EKK) and the effect of competitiveness (EDS) had a positive effect of USD 43,722 million and USD 18,204 million. The ninth period of the total change in the export value of Indonesia's non-oil and gas sector to Turkey experienced positive changes. In the ninth period the value of Indonesia's total export change (CMS) to Turkey amounted to USD 627,261 million and was the highest total change in export value for 9 periods. The increase in the total change in export value in the ninth period was driven by increased competitiveness (EDS) of USD 316,777 million, followed by the effect of import growth (EPI) and commodity composition effects (EKK) of USD 208,068 million and USD 102,415 million.

The tenth period saw a decline in the total export change compared to the ninth period, at 356%, although in the tenth period the total export change experienced a positive change of USD 137,457 million. Positive changes in exports in the tenth period were dominated by the impulse import growth effect (EPI) of USD 382,812 million, while the effect of competitiveness (EDS) and commodity composition effects (EKK) actually had a negative effect of USD 178,505 million and USD 66,849 million. The eleventh period experienced a negative change with the total value of Indonesia's export

change (CMS) to Turkey falling by USD 83,093 million. The decline was driven by the negative value of the commodity composition effect (EKK) of USD 52,843 million, followed by the effect of import growth (EPI) and competitiveness (EDS) of USD 25,2367 million and USD 4,883 million. The twelfth period of the total change in the export value of Indonesia's non-oil and gas sector to Turkey experienced positive changes. Where in the twelfth period the value of Indonesia's total export change (CMS) to Turkey amounted to USD 17,023 million. When compared to the eleventh period there was an increase of 313%.

The increase in total export changes in the twelfth period was driven by an increase in the commodity composition (EKK) of USD 110 million, followed by the effect of import growth (EPI) of USD 85,557 million, while the effect of competitiveness (EDS) gave a negative value of USD 117,023 million. The thirteenth period of changes in the export value of Indonesia's non-oil and gas sector to Turkey experienced a negative change in export value. Where in the thirteenth period the value of the decline in the total export change (CMS) of Indonesia to Turkey amounted to USD 88,538 million or a decrease of 150% compared to the twelfth period.

The cause of the decline in the total change in export value in the thirteenth period was dominated by a decrease in the effect of competitiveness (EDS) of USD 183,305 million, followed by the effect of import growth (EPI) of USD 57,127 million, while the commodity composition effect (EKK) actually provided positive value of USD 151,894 million. The fourteenth period of the total change in the export value of Indonesia's non-oil and gas sector to Turkey continues to experience a negative change in export values. Where in the fourteenth period the value of the decline in Indonesia's total export changes (CMS) to Turkey was USD 291,574 million. The decline

in the change in export value was greater when compared to the thirteenth period of USD 88,538 million. The cause of the decline in the total change in export value in the fourteenth period was driven by a decrease in the effect of import growth (EPI) of USD 206,108 million, followed by a decrease in the effect of competitiveness (EDS) of USD 138,739 million, while the commodity composition effect (EKK) actually provided value positive amounting to USD 53,452 million. The fifteenth period of total changes in the export value of Indonesia's non-oil and gas sector to Turkey continues to experience a negative change in export value. Where in the fifteenth period the value of the decline in Indonesia's total export change (CMS) to Turkey was USD 124,808 million. The decline in the change in export value has increased compared to the fourteenth period of USD 291,574 million. The cause of the decline in the total change in export value in the fifteenth period was driven by a decline in the effect of competitiveness (EDS) of USD 124,251 million, followed by a decrease in the effect of import growth of USD 48,074 million, while the commodity composition effect (EKK) actually provided value positive amounting to USD 47,518 million

Inversely with changes in the value of exports of non-oil sector Indonesia to Turki in the period of the fifteenth, sixteenth in the period the total value of export changes (CMS) experienced a positive change and increase. This increase was also driven by positive changes in the effect of competitiveness (EDS) which increased by \$ 23,326,870.01 and import growth effects (EPI) which also increased by \$ 178,340,536.5. Both changes were able to drive growth in total export changes (CMSA) up to \$ 146,700,605 although the effect of commodity composition (EKK) decreased by \$ 54,966,801.63.

Based on the results of the calculation of the average Grubel Lloyd Index for the first period of 2001-2008 and the second period of 2009-2017 which illustrates the trade intensity of the non-Migas sector between Indonesia and Turkey, the GLI average value in the study year of the first 50 non-oil and gas commodities, in the 2001-2008 period there were 3 commodities categorized as Strong Integration, 9 commodities categorized as Mild Integration, 33 commodities in the category of trade with weak integration (Weak Integration), 4 commodities that enter in the trade category has no integration (No integration) and 1 commodity in the trade category does not trade (No trade flow). When viewed in detail, from the number of 50 non-oil sector commodities multiplied by the number of years of research for 8 years in the period 2001-2008, it will produce 400 research units. GLI analysis results from 400 research units have 26 commodity units or 6.5% which are categorized as very strong integration (Strong Integration), 19 commodity units or 4.75% in the category of trade with strong integration (Moderately Strong Integration), 29 commodity units or 7.25% are categorized as trade with moderate integration (Mild Integration), 205 commodity units or 51.25% enter commodities that are categorized as trade with Weak Integration, 71 commodity units or 17.75% in the trade category there is no integration (No integration) and 50 commodities or by 12.5% in the category of no trade (No Trade Flow).

Second, there are 1 commodity in the 2009-2017 period that is categorized as Strong Integration, 9 commodities which are categorized as trade Moderately Strong Integration, 15 commodities categorized as trade with moderate integration (Mild Integration), 25 commodities are categorized as trading with Weak Integration. When viewed in detail, based on the results of the analysis using CMSA it can be seen that 2% of

all trade commodities between Indonesia and Turkey belong to very strong integration, then 18% of trade commodities are classified as very strong. Then in the trade commodities that are classified in the medium category, there are 30% of the total trade commodities in Indonesia and Turkey. Finally, trade commodities classified as low integration constitute 50% of the total trade commodities. It also means that most of the commodity trade between Indonesia and Turkey belong to the low integration.

Based on this classification, it can be seen that the non-oil and gas sector trade that occurred between Indonesia and Turkey in the first period of 2001-2008 and the second period of 2009-2017 was more common in the category of Weak Integration, which was 51.25% in the first period 2001-2008 and 50% in the second period of 2009-2017. In the Intra-industry trade category, Krugman (1992) criteria are used, where the GLI value index is said to be high if the value is  $\geq 40\%$ , meaning that the trade occurs is Intra-industry (Intra Industry Trade), and if the GLI index is  $< 40\%$ , then the trade that occurs is a type of inter-industrial trade or more to trade one-way (Yuliati, 2012).

Therefore, in the IIT size classification included in the category of non integration, weak integration, and mild integration, it is included in the inter-industrial trade because the GLI index is  $< 40\%$ , while those in the category of moderate integration and strong integration fall into the type of intra-industrial trade because GLI index  $\geq 40\%$ . This illustrates that the type of trade in the non-oil sector between Indonesia and Turkey in the first period of 2001-2008 and the second period of 2009-2017 was categorized as inter-industrial trade, or weak trade integration and trade that occurred tended to be one-way. Therefore, from the non-oil and gas sector trade that occurred between Indonesia and Turkey in the first period of 2001-2008 it reached 88.75% of

the total commodity units with a GLI value of <40%, and only 11.25% of the total commodity units with GLI values  $\geq 40\%$ . Whereas in the second period of 2009-2017 it reached 80% of the total commodity units with a GLI value of <40%, and only 20% of the total commodity units with a GLI value of  $\geq 40\%$ . In accordance with the results of a study of the pattern of trade links between Indonesia and Turkey and Pakistan by the Ministry of Trade, where trade links between Indonesia and Turkey to 10 2-digit HS commodities in 1996-2009 where the GLI calculation between Indonesia and Turkey on the 10 commodities trade integration tends to be weak (Ministry of Trade, 2018)

In addition (Alhayat, 2012) which examines the analysis of the structure and trade potential of Indonesia and Turkey, one of which analyzes the pattern of trade links between Indonesia and Turkey using the Intra-Industry Trade approach to 14 commodities. The results of the analysis show that in general the trade or trade integration between Indonesia and Turkey tends to be weak, only in a small number of commodities which have high trade links. This fact is also not in accordance with the concept of intra-industrial trade theory proposed by Heckscher-Ohlin which is based on relatively similar endowment factors. On the other hand, trade activities between Indonesia and Turkey are more due to a form of diversification of export destinations so that cooperation is formed between the two countries where Indonesia and Turkey are countries in the category of developing countries (World Bank, 2017)

Based on the researchers' focus at the outset, this study will examine the two empirical hypotheses conducted by (Greenaway et al., 1994), namely the hypothesis policy-based. In the hypothesis it policy-based states that: first, IITs will be greater if the tariff and non-tariff barriers for industry are

relatively low; secondly, IIT will be greater in countries involved in various forms of economic integration and cooperation. This is because economic integration will affect the decline of trade barriers and usually economic integration occurs between adjacent countries (Greenaway et al., 1994). In this case Indonesia and Turkey in September 2008 agreed to establish a Comprehensive Trade and Economic Partnership (CTEP) in the form of a Preferential Trade Agreement (PTA). As a first step, the two countries will hold a Joint Study Group (JSG) which aims to determine the potential of the two countries (Ministry of Trade, 2010), besides Indonesia and Turkey, which are members of the G20. From this hypothesis, and from the calculation of GLI values between Indonesia and Turkey there is a discrepancy between hypotheses policy-based and research results. This is due to the low level of trade integration in the non-oil and gas sector between Indonesia and Turkey, even though the two countries have agreed to cooperate in establishing a Comprehensive Trade and Economic Partnership (CTEP) in the form of a Preferential Trade Agreement (PTA).

As for the export dynamics of the non-oil and gas sector that occurred between Indonesia and the first period the suitability of products exported by Indonesia in the Turkish market was very high, meaning that the concentration of Indonesian product exports in Turkey was in line with market demand in Turkey. positive amounting to USD 139,868 million. In addition, the growth performance or the level of export concentration of the Indonesian non-oil and gas sector is better compared to the growth of world exports to Turkey, as indicated by the positive value of the growth of Indonesian imports to Turkey, at USD 41,117 million. However, this condition has not been supported by the competitiveness of Indonesia's exports to

Turkey to the maximum for competitor countries that both export products to Turkey, this is indicated by the value of competitiveness which is negative at USD 139,848 million. In the second period Indonesia was only able to maintain the level of superior performance of growth or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, as indicated by the positive value of the growth of Indonesian imports to Turkey, amounting to USD 82,345 and even a percentage increase of 100% when compared to the first period. However, this condition has not been supported by the maximum improvement in the competitiveness of Indonesian exports to Turkey against competitor countries that both export products to Turkey, this is indicated by the value of competitiveness which is still negative at USD 31,915 million despite an increase in export value from first period of 438%. In addition, in the second period the level of accuracy and appropriateness of the concentration of Indonesian product export commodities in Turkey was still not in line with market demand in Turkey, as indicated by the value of commodity composition of USD 26,887 million or experiencing a decline in export value of 5202% compared to the first one period.

Furthermore, in the third period the export conditions of the non-oil and gas sector were the same as the second period, in which Indonesia was only able to maintain the level of growth performance excellence or the level of export concentration of Indonesia's non-oil sector when compared to the growth of world exports to Turkey. It has a positive value, amounting to USD 104,597 and experiences a percentage increase in changes in export value of 27% when compared to the second period. Whereas this condition has not been supported by the improvement in the level of accuracy and suitability of the concentration

of Indonesian product export commodities in Turkey which is not yet in line with market demand in Turkey, which shows a negative value of commodity composition of USD 43,035 million despite experiencing a 60% increase in export value compared to the second period. Furthermore, Indonesia also still has not been able to improve the competitiveness of its exports to Turkey compared to competitor countries which both export products to Turkey, this is indicated by the value of competitiveness which is still negative at USD 20,894 million despite experiencing a percentage increase in export value from the period the second is 35%.

In the fourth period of export dynamics that occurred between Indonesia and Turkey in 2004-2005 the export growth performance of Indonesia's non-oil and gas sector in terms of competitiveness with competitor countries exporting the same commodity in the Turkish market was able to be improved so that in the fourth period there was a significant increase of 1015 % when compared to the third period. Not only that, for 4 periods Indonesia was also able to maintain the level of dominance in the growth performance advantage or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, as indicated by the positive value of USD 58,736 despite experiencing a decline in the percentage change in export value by 44% when compared to the third period. However, in the fourth period Indonesia still has not been able to improve the level of accuracy and suitability of the concentration of Indonesian product export commodities in Turkey which has not matched market demand in Turkey, which is indicated by the negative effect of commodity composition of USD 24,538 million despite experiencing a percentage increase in value changes exports by 43% compared to the third period.

The fifth period of 2005-2006 shows that in terms of growth performance excellence or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, it can be maintained for 5 periods, this is indicated by the positive value of growth of Indonesian-Turkish imports USD 102,182 and experienced a percentage increase in the change in export value by 74% compared to the fourth period. In addition, Indonesia is also able to maintain the superior performance of Indonesia's non-oil export sector growth in aspects of competitiveness with competitor countries that export the same commodity in the Turkish market even though there is a decrease in the percentage change in export value compared to the fourth period of 55%. Particularly on the aspect of the level of accuracy and appropriateness of the concentration of Indonesian product export commodities in Turkey in the fifth period able to be improved according to market demand in Turkey, which was shown by the positive value of commodity composition effects of USD 1,013 million and experiencing a percentage increase in the value of 104% if compared to the fourth period, where the effects of the composition of Indonesian commodities on the Turkish market during the four periods consistently experienced a negative change in export values.

In the sixth period of export dynamics that occurred between Indonesia and Turkey in 2006-2007 Indonesia was able to maintain the performance of export growth in the non-oil and gas sector in terms of competitiveness with competitor countries exporting the same commodity in the Turkish market as indicated by a positive USD 171,898 million and experienced a percentage increase of 98% compared to the fifth period. Besides that for 6 periods Indonesia was able to maintain the level of dominance of growth performance

excellence or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, this was indicated by the positive value of the growth of Indonesian imports to Turkey, amounting to USD 155,769 and experiencing the percentage increase in the change in export value is 52% when compared to the fifth period. Whereas the sixth period in the aspect of the level of accuracy and appropriateness of the concentration of Indonesian product export commodities in Turkey is still not in line with market demand in Turkey, which is indicated by the negative value of commodity composition effects of USD 19,680 million and a significant decrease in the export value of 2042% when compared to the fifth period.

Furthermore, in the seventh period Indonesia's export growth performance in the non-oil and gas sector in the aspect of competitiveness is still inferior to the competitor countries that export the same commodity in the Turkish market, indicated by negative export change value of USD 465,264 million and experiencing a 317% decline in export value compared to the sixth period. While for 7 periods Indonesia was able to maintain the level of dominance in the growth performance superiority or export concentration level of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, as indicated by the positive value of the growth of Indonesian imports to Turkey, amounting to USD 191,549 and experiencing a percentage increase in the change in export value by 23% compared to the fifth period. Furthermore, in the seventh period Indonesia was able to improve aspects of the level of accuracy and suitability of the concentration of Indonesian product export commodities in Turkey in accordance with market demand in Turkey, which was shown by the positive value of commodity

composition effects of USD 105,688 million and experienced a 637% decline in export value compared to the sixth period.

In the eighth period of 2008-2009 For the first time in 8 periods the level of export concentration of the Indonesian non-oil and gas sector lost compared to the growth of world exports to Turkey, as indicated by the negative value of the growth of Indonesian imports to Turkey, amounting to USD 257,819 and experiencing the percentage decrease in the change in export value was 235% compared to the seventh period. Whereas in the eighth period Indonesia was still able to maintain the level of accuracy and suitability of the concentration of Indonesian export product commodities in Turkey in accordance with market demand in Turkey, which was shown by the positive value of commodity composition effects of USD 43,722 million despite experiencing a 59% decline in export value changes when compared to the seventh period. Furthermore, in the eighth period Indonesia was able to improve the performance of export growth in the non-oil and gas sector in terms of competitiveness, so that Indonesia's exports were superior compared to competitor countries that exported the same commodities in the Turkish market as indicated by a positive export value of USD 18,204 million and experiencing the percentage increase in the change in export value by 104% compared to the seventh period.

Furthermore, in the ninth period, 2009-2010 Indonesia was able to maintain the superior performance of export growth in the non-oil and gas sector in terms of competitiveness with competitor countries that export the same commodities in the Turkish market, even a significant percentage increase in export value compared to the eighth period of 1640 %. Furthermore, Indonesia is able to improve the growth performance excellence or the level of export

concentration of the non-oil and gas sector compared to the growth of world exports to Turkey, as indicated by the positive value of the growth of Indonesian imports to Turkey, amounting to USD 208,068 and experiencing an increase in 181 % when compared to the eighth period. Besides that, the level of accuracy and appropriateness of the concentration of Indonesian product export commodities in Turkey in the ninth period was able to be maintained in accordance with market demand in Turkey, which was shown by the positive value of commodity composition of USD 102,415 million and experienced a 104% increase in export value compared to with the eighth period.

In the tenth period of 2010-2011 Indonesia was only able to maintain the level of growth performance excellence or the level of export concentration of the Indonesian non-oil sector when compared with the growth of world exports to Turkey, as indicated by the positive value of the growth of Indonesian imports to Turkey, amounting to USD 382,812 million and experienced a percentage increase in the change in export value by 84% compared to the ninth period. Whereas Indonesia cannot maintain the level of accuracy and appropriateness of the concentration of Indonesian product export commodities on market demand in Turkey, which is indicated by the negative value of commodity composition effects of USD 66,849 million and experiencing a decline in export value of 165% compared to the ninth period. Indonesia is also still unable to maintain the competitive advantage of its exports to Turkey compared to competitor countries which both export products to Turkey, this is indicated by the value of competitiveness which is worth USD 178,505 million and experiences a percentage increase in the value of exports from the ninth period at 156%.

Furthermore, the export dynamics in the eleventh period of 2011-2012 show that Indonesia is unable to maintain the level of growth performance excellence or the level of export concentration of the non-oil and gas sector compared to the growth of world exports to Turkey, as indicated by the negative value of the growth of Indonesian imports to Turkey. amounting to USD 25,367 and experiencing a decline in the percentage of changes in export value by 107% compared to the tenth period. In addition, Indonesia also in the eleventh period was unable to improve the level of accuracy and suitability of the concentration of Indonesian product export commodities on market demand in Turkey, which was shown by the negative value of commodity composition of USD 52,843 million despite experiencing a 21% increase in export value compared to tenth period. Indonesia is still unable to improve the competitive advantage of its exports to Turkey compared to the competitor countries that both export products to Turkey, this is indicated by the value of competitiveness which is still negative at USD 4,883 million despite experiencing a percentage increase in export value from the period tenth by 97%.

The twelfth period, in 2012-2013 Indonesia was able to improve the level of accuracy and suitability of the concentration of Indonesian product export commodities on market demand in Turkey, which was shown by the positive value of commodity composition effects of USD 110,959 million and experiencing a percentage increase in export value of 310% compared to with the eleventh period. In addition, in the twelfth period Indonesia was able to improve the level of excellence in growth performance or the level of export concentration of Indonesia's non-oil sector when compared to the growth of world exports to Turkey, as indicated by the positive value of the growth of Indonesian imports to

Turkey, amounting to USD 85,557 and experiencing the percentage increase in the change in export value was 437% compared to the eleventh period. Whereas in terms of competitiveness, Indonesia is still unable to improve the competitive advantage of its exports to Turkey compared to competitor countries which both export products to Turkey, this is indicated by the value of competitiveness which is negative at USD 19,494 million and experiences a percentage decline export value from the eleventh period of 299%.

The thirteenth period of 2013-2014 Indonesia was able to maintain the level of accuracy and suitability of the concentration of Indonesian product export commodities on market demand in Turkey, which was shown by the positive value of commodity composition effects of USD 151,849 million and experienced a 37% increase in export value compared to twelfth period. Whereas in terms of competitiveness, Indonesia still has not been able to improve the competitive advantage of its exports to Turkey compared to competitor countries which both export products to Turkey, this is indicated by the value of competitiveness which is negative at USD 183,305 million and experiences a percentage decline significant export value from the twelfth period is 840%. In addition, in the thirteenth period Indonesia was unable to maintain the level of growth performance excellence or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, as indicated by the negative value of the growth of Indonesian-Turkish imports of USD 57,127 and experienced a decline in the percentage of export value by 167%.

In the fourteenth period of 2014-2015 the dynamics of changes in exports were the same as in the thirteenth period, in which Indonesia was able to maintain the level of accuracy and

suitability of the concentration of Indonesian export commodity commodities on market demand in Turkey, which showed a positive effect of commodity composition of USD 53,452 million despite experiencing a decrease of 65% when compared to the thirteenth period. Whereas in terms of competitiveness, Indonesia still has not been able to improve the competitive advantage of its exports to Turkey compared to competitor countries which both export products to Turkey, this is indicated by the value of competitiveness which has a negative value of USD 138,918 million despite increasing percentage the export value of the thirteenth period is 24%. In addition, in the fourteenth period Indonesia was unable to improve the level of excellence in growth performance or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, as indicated by the negative value of the growth of Indonesian-Turkish imports of USD 206,108 and experienced a decrease in the percentage of export value by 261% compared to the thirteenth period.

Export dynamics in the fifteenth period of 2015-2016 In general, it is the same as the thirteenth and fourteenth periods, where Indonesia was able to maintain the level of accuracy and appropriateness of the concentration of Indonesian product export commodities in the past four periods, indicated by a positive value the effect of commodity composition amounted to USD 47,518 million despite experiencing a decrease of 11% when compared to the fourteenth period. Whereas in terms of competitiveness, Indonesia has not been able to improve its export competitiveness to Turkey compared to competitor countries which export products to Turkey in the last 6 periods, this is indicated by the value of competitiveness which is negative at USD 124,251 million despite experiencing a percentage increase in the value of exports from the fourteenth period by

11%. In addition, during the last 3 periods Indonesia was unable to improve the level of superior performance of growth or the level of export concentration of the Indonesian non-oil sector when compared to the growth of world exports to Turkey, as indicated by the negative value of the growth of Indonesian imports to Turkey, amounting to USD 48,074 although experiencing a percentage increase in the change in export value by 77% compared to the fourteenth period.

Contrast to the period of the fifteenth, in the period from the sixteenth Indonesia will no longer be able to maintain the level of accuracy and appropriateness of the concentration of commodity exports of Indonesian products in the market demand in Turkey, indicated by the negative value of the commodity composition effect of USD 54,966,801.63 million. Although the level of accuracy and suitability of the concentration of export commodities has decreased, Indonesia is able to improve the competitiveness of its exports to Turkey which is shown by the positive effect of the competitiveness effect of USD 23,326,870.1 Million. This was also supported by the positive effect of the growth performance of Indonesian trade in Turkey for USD 178,340,536.5 million.

## CONCLUSION

Trade integration between Indonesia and Turkey from the calculation using Grubel Lloyd Index during the 2001-2017 research year was based on 50 non-oil and gas commodities with 2-digit HS in 1996. It was found that in the first period of 2001-2008 more trade integration between Indonesia and Turkey occurred. in the category of weak integration (Weak Integration) that is equal to 66%, while 34% is in the trade categories: Strong Integration, Moderately Integration, Mild Integration, No Integration, and No Trade

Flow. Just like the first period, in the second period of 2008-2017, the degree of trade integration between Indonesia and Turkey was more numerous in the category of weak integration (Weak Integration), which amounted to 50%, while 50% entered the trade categories. Strong Integration, Moderately Integration, and Mild Integration. This illustrates that trade in the non-oil and gas sector between Indonesia and Turkey is in the category of inter-industrial trade, or weak trade integration and trade that occurs tends to be one-way. Because the non-oil and gas sector trade that occurred between Indonesia and Turkey in the first period reached 88.75% of the total commodity units with GLI value <40%, and only 11.25% of the total commodity units with GLI value of  $\geq 40\%$ . Whereas in the second period it reached 80% of the total commodity units with a GLI value of <40%, and only 20% of the total commodity units with a GLI value of  $\geq 40\%$ .

The export dynamics of the non-oil and gas sector that occurred between Indonesia and Turkey from calculations Constant Market Share during the 2001-2017 research year based on 50 non-oil and gas sector commodities were fluctuating each period. Where during the 16 periods as many as nine periods experienced a positive change in the total value of exports, namely the first, two, three, four, five, eight, ninth, eleventh, and sixteen periods. Whereas during the six periods there was a change in the total value of negative exports, namely the sixth, seventh, thirteenth and fourteenth periods.

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**APPENDICES**

**Table 1.** Classification size Intra Industry Trade

<i>Intra Industry Trade</i> (IIT)	Classification
*	There are no trade flows
0:00	No integration (trade one way)
>0.00-24.99	Integration weak
25.00-49.99	Integration was
50.00-74.99	Integration strong
75.00-99.99	Integration is very strong

Source: Austria, 2004

**Table 2.** Trade categories with weak integration (Weak Integration).

No	Hs	Commodity	Average
1	52	Cotton	24,395
2	85	Electric machinery / equipment	23,895
3	76	Aluminum	22,385
4	24	Tobacco	18,753
5	12	Oily grains	18,307
6	27	Mineral fuels	17,86
7	38	Chemical products	16,931
8	69	Ceramic products	16,219
9	33	Essential Oils, Cosmetics etc.	13,655
10	32	Trees ingredients & dye	13,437
11	47	Pulp / pulp	11,932
12	89	Ships	9,3522
13	16	Processed meat and fish	7,7601
14	21	Various processed foods	6,4187
15	80	Tin	6.00E-05
16	9	Coffee, tea, spices	5,9041
17	19	Preparations of flour	5,6904
18	74	Copper	5,8504
19	54	Artificial filaments	5,2399
20	39	Plastics and articles of plastic	4,6558
21	71	Perhiasan / jewel	4.5209
22	64	Footwear	4.397
23	55	Fiber artificial Stafel	4.2396

24	28	inorganic chemicals	4.1071
25	18	Cocoa / chocolate	3.5697
26	30	Products pharmaceutical industry	3.5507
28	94	Furniture, home lighting	1,531
29	92	Musical instruments	1,4062
30	48	Paper / cardboard	1,1272
31	40	Rubber and articles of rubber	0,8904
32	44	Wood, articles of wood	0,6787
33	15	Glue ak & animal / vegetable oil	0.1188

Source: Secondary data, processed, 2020

**Table 3.** Trade categories with integration of medium integration (Mild Integration).

No.	Hs	Commodity	Average
1	72	Iron and Steel	39.68
2	73	The objects of iron and steel	32.79
3	90	The optical devices	31.32
4	61	crocheted goods	31.21
5	8	Fruits	30.41
6	34	Soaps and cleaning preparations	29,15
7	29	Organic chemicals	28,61
8	62	Non-knitted apparel	28,23
9	70	Glass & glass articles	25,31

Source: Ssecondary data, processed, 2020

**Table 4.** Trade categories with strong integration (Moderately Strong Integration)

No	Hs	Commodity	Average
1	84	Machinery / aircraft mechanics	62.51
2	63	Patchwork,	53.31
3	87	Vehicles and parts	51.96

Source: Secondary data, processed, 2020

**Table 5.** There is no integration category (No Integration) and no trading flow (No Trade Flow).

No	Hs	Commodity	Average
1	3	Fish and shrimp	0
2	26	Ore, crust, and metal ash	0
3	75	Nickel	*
4	23	Waste / food industry residue	0
5	31	Fertilizer	0

Source: Secondary data, processed, 2020

**Table 6.** Categories of trade with very strong integration (Strong Integration).

Hs	Commodity	Average
84	Machinery / aircraft mechanics	83,90

Source: secondary data, processed, 2017

**Table 7.** Trading categories with moderate integration (Moderately Strong Integration).

No	Hs	Commodity	Average
1	85	Electrical Machines / Equipment	73.31
2	87	Vehicles And Parts	59.17
3	62	Non-Knitted Garments	68.95
4	61	Knitted Goods	65.79
5	73	Iron and Steel Items	68.05
6	72	Iron and Steel	74.22
7	52	Cotton	50.67
8	21	Various Processed Foods	54.21
9	19	Processed From Flour	54.33

Source: Secondary data, processed, 2020

**Table 8.** Trade categories with moderate integration (Mild Integration).

No	HS	Commodity	Average
1	27	Mineral Fuels	34.92
2	29	Organic Chemicals	42.60
3	74	Copper	39.48
4	94	Furniture, Home Lighting	28.49
5	24	Tobacco	37.69
6	23	Waste / Time of Food Industry	35,13
7	90	Optical Devices	43,38
8	76	Aluminum	42,68
9	33	Essential Oils, Fragrance-Cosmetics	28.09
10	8	Fruits	47.88
11	30	Pharmaceutical Industry Products	27.43
12	95	Toys	38.40
13	70	Glass & Glass Goods	35.38
14	63	Patchwork	40.26
15	32	Sari Material Samples & Dye	25.37

Source: Secondary data, processed, 2020

**Table 9.** Trade Categories with Weak Integration.

No	HS	Commodity	Average
1	15	Animal / Vegetable Fats & Oils	2.28
2	40	Rubber And Curry Goods	2.28
3	71	Jewelry / Gems	7.05
4	38	Various Chemical Products	9.66
5	64	Footwear	12.42
6	44	Wood, Wood Goods	1.12
7	48	Paper / Cardboard	3.03
8	3	Fish and Shrimp	8.89
9	39	Plastic and Plastic Goods	21.41
10	55	Artificial Stafel Fiber	2.77
11	26	Ore, Crust, , And Metal Ash	21,11
12	9	Coffee, Tea, Spices	9,21
13	80	Tin	0.02
14	47	Wood Pulp / Pulp	7,83

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15	54	Artificial Filament	4,30
16	18	Cocoa / Chocolate	4,80
17	16	Processed Meat and Fish	0.03
18	75	Nickel	22.22
19	34	Soap and Cleaning Preparation	7.93
20	89	Ships	22.22
21	92	Musical Instruments	2.80
22	31	Fertilizers	22.05
23	28	Inorganic Chemicals	24, 17
24	12	Oily Grains	24,53
25	69	Ceramic Products	16.52

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Source: Secondary data, processed, 2020