

Print ISSN: 2233-4165 / Online ISSN: 2233-5382  
 doi:http://dx.doi.org/10.13106/ijidb.2018.vol9.no8.17

## Analysis of Priority Countries and Products for Indonesian Export Diversification in Latin America

Febria Ramana\*, Lili Retnosari\*\*

Received: May 26, 2018. Revised: July 16, 2018. Accepted: August 15, 2018.

### Abstract

**Purpose** - Indonesian economy often receives negative impact from external factors, particularly through trade linkage. To mitigate that impact, the export market and product diversification should be established. Latin America is one of the potential regions to augment the Indonesian export market.

**Research design, data, and methodology** - This study attempts to classify the potential market and product for Indonesian export, particularly in Latin America, by using panel regression, trade complementarity, and export similarity index over the period 2000-2015. Regression was also used to examine whether the presence of the Indonesian Trade Promotion Center (ITPC) can support diversification.

**Results** - Based on regression results, those indexes established Chile, Uruguay, Suriname, and Ecuador as the priority countries with the products: animal and vegetable oils, fats and waxes; chemicals and related products; miscellaneous manufactured articles; commodities and transactions.

**Conclusions** - The results of the regression concludes that the trade complementarity index gave a significant positive effect to boost Indonesian export, whereas, the export similarity index gave a significant negative effect. The regression also conclude that ITPC gave a significant positive impact on Indonesian export. For instance, the government should prioritize those countries and products and also develop ITPC there to optimize Indonesian export.

**Keywords:** Export Diversification, ITPC, Panel Regression, Trade Complementarity Index, Export Similarity Index.

**JEL Classifications:** F10, F13, F14.

### 1. Introduction

Indonesian economy often receive negative impact from external factors, particularly through the trade linkage. Harahap, Bary, Nurliana, and Satyanugroho (2015) found that external shock transmitted through trade linkage cause greater impact on Indonesian economy than other linkages. The deterioration was recently exhibited while there was a

slowdown in the China economy at the end of 2015. Indonesian dependence on the import demand from China to support the national income led Indonesian economy to decline simultaneously. Declining of Indonesian economy clearly showed in economic growth and significantly in depreciation of rupiah. This phenomenon shows that the export which depends on only one or two countries will increase the risk to the economy to get the negative impact. Therefore, Indonesia needs to augment market access to many regions or to diversify the export market.

In order to establish stability in the economy, Indonesia also needs to diversify not only the export market but also the product. It considers the vulnerability if a country just depends on a few commodities. The dependence on few commodities will significantly decrease the export revenue

\* First Author and Corresponding Author, Statistics of Kaur Regency, Jl. Peltu M.Ilyas T. Panji Alam Pd. Kempas Bintuhan, Kaur, Bengkulu, Indonesia; Tel: +6281274643595, E-mail: febiarmn@bps.go.id

\*\* Co-Author, Statistics of Pulang Pisau Regency, Jl. Trans Kalimantan KM 98 Mantaren I, Pulang Pisau 74811, Central Kalimantan, Indonesia. E-mail: lili.retnosari@bps.go.id

when the demand or supply of those commodities decrease. For this reason, Indonesia should diversify both of export market and product.

The diversification export market and product are included in diversification trade dimension (Papageorgiou, Spatafora, & Wang, 2015). The diversification trade not only the solution of instability economy because of external factors but also to get higher economic growth. Papageorgiou and Spatafora (2012) found that higher GDP per capita and lower volatility are strongly positively associated with diversification. Accordingly, the diversification is also one of the keys to reaching an ambitious target of Indonesian growth by 5.1% in 2017 and 5.4–6.1% in 2018.

Latin America is one of the regions where the Indonesian government recently focus on develop Indonesian export market. Comparing with other regions such as Asia and Africa, Latin America has the lowest market share for Indonesian export. Over the period 2000-2015, the average of Indonesian market share in Latin America reaches only 0.43%. This value never reached 1% during that period. This fact shows that diversification in Latin America has not been optimized yet. In May this year, Indonesia tries to strengthen bilateral cooperation with Chile, through IC-CEPA as a gate for Indonesia to access Latin American market. For this reason, it urges to comprehend whether Indonesian export product complement or competitive with Latin America. This information is interesting to explore the priority countries for Indonesian export market diversification. Therefore, this study conducted the trade complementarity and export similarity index to examine both of the priority countries and products in that region.

The diversification in the priority countries of Latin America which established based on those indexes also should be supported with another strategy. Saputri and Ardiyanti (2016) found that The Indonesian Trade Promotion Center (ITPC) gave a positive impact on Indonesian export. They also explain that ITPC can mitigate the trade obstacles to explore the untapped market. If we consider the challenge to enter the market in Latin America, the study analyzing the impact of ITPC in Latin America is important to be conducted. Hence, this study also examines whether ITPC can support the diversification of export which can conclude if ITPC has a significant impact to increase Indonesian export in Latin America.

## 2. Literature Review

Many studies about export diversification had been conducted in some countries. Some researchers believe that diversification can lead to higher growth with stability. For example, Sultan and Haque (2014) conducted the study about export diversification in Saudi Arabia to reduce the dependence on oil export. For this purpose, this study implemented Ginni Hirschmann index to measure the export

concentration and unrestricted error correction model (UECM) to estimate the relationship between export of disaggregated products and their determinants. The results concluded that Saudi Arabia hard to diversify but they may promote the export of non-mineral products by taking a suitable policy to promote FDI inflow into these sectors.

Waheed and Abbas (2015) also conducted the study about export diversification which focused on market diversification and investigated determinant factors of bilateral export flow using the panel generalized least square. The study concluded the real exchange rate, foreign currency reserve of partner countries, FTA and GCC dummy had a positive impact on the export flow of Bahrain. The study urged diversification and development of domestic industries to target potential export markets for economic growth and sustainable development.

Mubeen (2016) explored the determinants and degree of export diversification by taking time series data of 1980-2015. For this purpose, he used Gini Hirschman Index (GHI) to estimate the degree of export diversification. This study applies the Auto-Regressive Distributive Lag approach to observe long-run relationship in underlying variables. The findings indicated that geographic concentration of exports enhances product concentration in exports and reduces export diversification, while foreign direct investment, world income, and real effective exchange rate can play a significant role in enhancing export diversification. On the other hand trade openness benefits to export concentration.

Noureen and Mahmood (2014) tried to assess the role played by the country-specific factors in the determination of exports diversification process. The study used the fully modified ordinary least squares co-integration model for panel data-set of selected ASEAN and SAARC member countries for the time period of 1986 to 2012. The study found that the foreign direct investment, domestic investment, competitiveness, financial sector development and institutional strength are significantly and positively related to export diversification in both the regions. The study suggested the two selected regions diversify their exports especially in their area of specialization which is vital for their economic development. The study also encourages the regional countries to improve their international competitive strength while upgrading the environment to attract both domestic and foreign investment.

Haryotejo (2013) analyzed the export market diversification which focused on shrimp's competitiveness in the key export market. This study formulated the policy implication of export market development based on *Aggregate Specialization Index (ASI)*, *Hirschman Index (<math>\langle H \rangle</math>)*, and *Revealed Comparative Advantage (RCA)*. The findings concluded market shrimp exports have not diversified. This was indicated by the index of the ASI and Hirschman index. ASI showed the number close to 1 (one), which means the market was not well diversified. While based on the analysis of RCA, Indonesia shrimp commodity had a great

competitiveness in the U.S. and Japanese markets, as shown by the RCA values much larger than 1. While in the EU market, it had a value of average RCA index approaches the value 1, it shows that the competitiveness of the commodity shrimp Indonesia is relatively much weaker in the EU market.

Wang and Liu (2015) investigated the export similarity between China and European Union (EU) in the world market, the American market and Indian market by using the export similarity index from 2007 to 2013. The empirical analysis of these indexes indicated that China and EU have a higher level of export similarity index in developed countries market, which induces a fierce competition of export products. In the developing countries market, they have a downward trend, which weakens their trade competitiveness and strengthen trade complementary. Based on this tendency, effective measures should be taken to strengthen inter-regional trade cooperation between China and EU and reduce the bilateral trade friction. Meanwhile, our authority need continue to push further reform of the industrial structure and enhance the competitiveness of the export products.

Nasrudin, Sinaga, Firdaus, and Walujadi (2014) examined the trend of complementarity and similarity CAFTA countries and the correlation to exports trend. By using annual time series data 1995 - 2010, the analysis is based on the two main indicators; complementarity and export similarity index. The study concluded the increasing in Indonesian exports depends on the increased demand trading partner (complementary) and reduced their competitor (similarity). This is presumably due to the lack of diversification of product innovation and quality improvement compared to competitors in an effort to win the competition. In short, only sold if needed, and do not sell as many rivals. If it continues, then it will lose the suspected Indonesian market in the region. The demand for partner countries is dynamic, so the products are sold well at the moment, in the future can be no longer in demand. In addition, post-implementation of CAFTA, the trend of export similarity tends to increase, which means the competition will be intense.

Yu and Qi (2015) used RCA, TCI and GL indexes to analyze the complementarity and comparative advantages between China and others. Results showed that agricultural product trade between China and CEE countries has the characteristics like highly complementarity, great potential for products having comparative advantages and obvious intra-industry Trade tendency. China and CEE countries should further bring out their comparative advantages, and adjust product structure of exports, achieving mutual benefit and a win-win result of bilateral trade.

Abidin, Bakar, and Sahlan (2013) investigated the impact of economic factors on bilateral exports between Malaysia and the OIC member countries. Using the panel estimation for the gravity model, the data covers the period of 1997 to

2009. The gravity estimates imply the importance of size effects, level of openness of the economy, inflation rates, and the exchange rates as determinants of Malaysia's exports to OIC countries. The estimation of individual effects shows the significance of distance and institutions in enhancing Malaysia-OIC exports.

Kim (2013) analyzed South Korea's trade intensity with her major trading countries (i.e., China, the USA, and Japan, CUJ in short hereafter) in 35 industries of the manufacturing sector changed from 2005 to 2009. This study conducted a trade intensity index, trade complementarity index, and special country bias index between South Korea and CUJ. The results showed South Korea's trade intensity with China decrease due to the decrease in South Korea's special country bias and trade complementarity with China. The opposite patterns of change were found in the case of South Korea's trade intensity (and trade complementarity, and special country bias) with the USA. Meanwhile, South Korea's trade intensity with Japan turned out to increase due to the increase in South Korea's special country bias and trade complementarity with Japan.

### 3. Model Specification

This paper applies trade complementarity and export similarity index to identify the priority countries and products in Latin America. Trade complementarity index measures the degree to which the export pattern of one country matches the import pattern of another. A high degree of trade complementarity can be interpreted to suggest that there are more favorable prospects for a successful trade arrangement. It is defined as 1 minus the sum of the absolute value of the difference between the import category shares of the region and the export shares of the country divided in half. This index is formulated as follows (Plummer, Cheong, & Hamanaka, 2010):

$$TCI_{cgr} = 1 - \left\{ \frac{\sum_g abs \left[ \left( \frac{M_{rg}}{M_r} \right) - \left( \frac{X_{cg}}{X_c} \right) \right]}{2} \right\} \quad (1)$$

where:

$M_{rg}$  : imports of good g by region r

$M_r$  : total imports of region r

$X_{cg}$  : exports of good g by country c

$X_c$  : total exports by country c

In the context of this study,  $c$  is Indonesia, and  $r$  is the country in Latin America. The index takes a value between 0 and 1, where 0 indicates no overlap (no match at all) and 1 indicates a perfect match in the import-export pattern.

Meanwhile, export similarity index captures the degree of similarity between the export profiles of one country and other countries in a region. It is defined as the sum over

export categories of the smaller export share, comparing the export share of the country with that of other countries in the region. This index is formulated as follows (Plummer, Cheong, & Hamanaka, 2010):

$$ESI_{cgr} = \sum_c \min \left[ \left( \frac{X_{rg}}{X_r} \right), \left( \frac{X_{cg}}{X_c} \right) \right] \quad (2)$$

where:

- $X_{rg}$  : exports of good g by region r
- $X_r$  : total exports of region r
- $X_{cg}$  : exports of good g by country c
- $X_c$  : total exports by country c

In the context of this study, c is Indonesia, and r is the country in Latin America. The index ranges between 0 and 1, where 0 indicates no overlap in the export profiles (the country is not a competitor with other countries in the region) and 1 representing perfect overlap.

High similarity can be interpreted to suggest that there will be limited potential for gains from interindustry trade with a regional trading arrangement. The more similar the export profiles are, the more likely that countries are competitors in global markets. This index does not consider gains from intra-industry trade (Plummer, Cheong, & Hamanaka, 2010).

Nowadays, the benefits of intra-industry trade have been explained by various business researchers. Intra-industry trade arises if a country simultaneously imports and exports similar types of goods or services. The similarity is identified here by the goods or services being classified in the same sector. Hapsari and Mangunsong (2006) found that the similarity of the export structure is one of the important factors influencing the growth of intra-industry trade. The more similar the export structure of two countries, the more they will trade. For example, although Indonesia and Malaysia have high export similarity index in the sector of petroleum and telecommunication products, this similar export product gave a positive impact on their trade with a strong intra-industry trade.

It means that the high export similarity index not only may give a negative impact on export, but also a positive impact. High export similarity may also represent that there is intra-industry trade between Indonesia and Latin America that can increase Indonesian export. Hence, first, using panel regression we will examine whether the export similarity index gives a negative impact on Indonesian export to Latin America or, on the contrary, give a positive impact.

Based on the regression result, on the second attempt, we will analyze the priority countries and products using the combination of trade complementarity and export similarity index which be displayed in a scatter plot X-Y. From this plot, the position of each country and each product can be grouped into four quadrants according to the value of their trade complementarity and export similarity index. Therefore, we can define the priority countries and products which has

potential gains for Indonesian export. Both of the indexes are calculated using the two-digit level SITC Revision 4.

We estimate a panel regression model of the following form:

$$\begin{aligned} \ln(X_i)_t = & \alpha_i + \beta_1(COM_i)_t + \beta_2(SIM_i)_t + \beta_3 \ln(PGDP_i)_t \\ & + \beta_4 \ln(EXC_i)_t + \beta_5(ITPC_i)_t + \beta_6(TO_i)_t + \varepsilon \end{aligned} \quad (3)$$

where  $(X_i)_t$  is the Indonesian exports to country i on period t,  $(COM_i)_t$  is trade complementarity index between Indonesia and country i on period t,  $(SIM_i)_t$  is export similarity index between Indonesia and country i on period t,  $(PGDP_i)_t$  is per capita GPD of country i on period t,  $(EXC_i)_t$  is exchange rate between Indonesia and country i on period t, ITPC is a dummy variable whether there is ITPC in country i or vice versa, and  $(TO_i)_t$  is trade openness of country i.

According to Greene (2012), panel data involves different models that can be estimated. These are pooled, fixed effects and random effects. The step of estimation is begins with using the Chow test to check whether pooled model or fixed effect as the fit model. If this test shows that fixed effects as the best model compare to the pooled model, then it is followed with Hausman test to check the appropriate model based on fixed and random effects model. But if the pooled is better than the fixed effects model, the BP-LM test is needed to check whether the pooled or random effects model more preferable.

Since the conclusion of those test stating that pooled or fixed effects as the best model, then the next procedure is checking the variance-covariance structure of residuals. Lagrange Multiplier (LM) test is used to check whether the structure of the residual variance-covariance matrix is heteroscedastic or homoscedastic. If the structure of the residual variance-covariance matrix is heteroscedastic, the  $\lambda_{LM}$  test is needed to check whether there is a cross-sectional correlation.

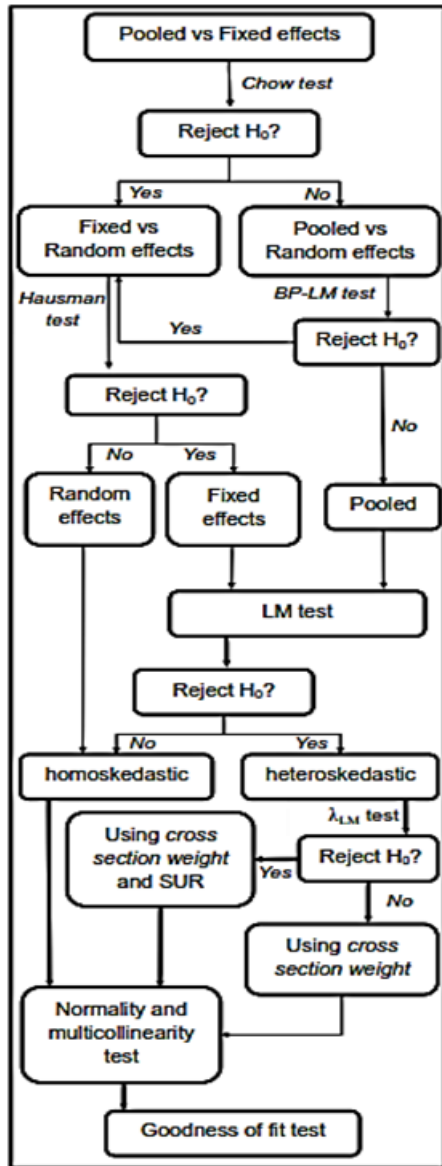
The statistic of LM test is asymptotically distributed under the null as a Chi-Square with N-1 degrees of freedom (df), whereas  $\lambda_{LM}$  test is under the null as a Chi-Square with  $N(N-1)/2$  df. Those tests are formulated as follows (Greene, 2012):

$$LM = \frac{T}{2} \sum_{i=1}^N \left[ \frac{\hat{\sigma}_i^2}{\hat{\sigma}^2} - 1 \right]^2 \sim \chi_{(N-1)}^2 \quad (4)$$

$$\lambda_{LM} = T \sum_{i=2}^N \sum_{j=1}^{i-1} r_{ij}^2 \sim \chi_{(N(N-1)/2)}^2 \quad (5)$$

where T is total of periods, N is total of observations,  $\hat{\sigma}_i^2$  is the residual variance of equation i in homoscedastic condition,  $\hat{\sigma}^2$  is residual variance of system equation in homoscedastic condition,  $r_{ij}^2$  is the residual correlation coefficient.

Briefly, panel regression testing can be illustrated by the figure below:



<Figure 1> The Step of Panel Regression

All the data used in the model comprises 12 countries in Latin America including Argentina, Bolivia, Brazil, Chile, Ecuador, Guyana, Columbia, Paraguay, Peru, Suriname, Uruguay, and Venezuela over the period 2000-2015. Data on total exports, total imports, and exchange rates are obtained from UNCTADStat. Data on per capita GDP and trade openness are obtained from the World Bank.

## 4. Results and Discussion

### 4.1. Finding the Best Estimation Method

Based on Chow and Hausman test results, this study applies the Fixed Effect Model (FEM) to estimate the model. These test results are exhibited in <Table 1> below:

<Table 1> Chow and Hausman Test Results

No.	Test	Chi-square	Df	P-value
1	Chow	430.34	11	0.000
2	Hausman	39.87	6	0.000

The null hypothesis of the Chow test is that the preferred model is the pooled model, and the alternative hypothesis is that the preferred model is FEM. Based on <Table 1>, the p-value of the Chow statistic is smaller than the alpha 5%, therefore the null hypothesis is rejected. This means FEM is more appropriate than Pooled model. Meanwhile, the p-value of the Hausman statistic is also smaller than the alpha 5%. Hausman test applies to decide the preferred model between FEM and REM. The null hypothesis of this test is that the preferred model is REM, and the alternative hypothesis is that the preferred model is FEM. The results conclude that FEM is also more appropriate than REM. Therefore, FEM is the best model to be applied in this study.

This study also examines the best estimation method for FEM with Lagrange Multiplier (LM) and Lambda LM ( $\lambda_{LM}$ ) test. These test results are presented in <Table 2> below:

<Table 2> LM and Lambda LM Test Results

No.	Test	Chi-square	df	Chi-square table
1	LM	85.56	11	19.68
2	Lambda LM	158.29	66	85.96

Based on <Table 2>, LM statistic is larger than the chi-square table, therefore the null hypothesis is rejected. This means that the residual structure of the variance-covariance matrix is heteroskedastic. Because of this result, this study continues to examine the existence of a cross-sectional correlation in this model. Based on <Table 2>, lambda LM statistic is greater than the Chi-square table. This result shows that there is also a cross-sectional correlation in this model. Hence, the appropriate estimation method for the model is FEM with cross section Seemingly Unrelated Regression (SUR) weighted. This estimation method was applied to reduce the bias effect because of the existence of a cross-sectional correlation and heteroskedasticity (Baltagi, 2011).

### 4.2. The Impact of Each Variable

<Table 3> below presents the results of the estimation variables in the Indonesian export to Latin America model. From six variables, five out of six have a significant impact

on Indonesian export to Latin America at the level of 5%. Meanwhile, the ITPC variable is significant at the level of 10%.

**<Table 3>** The Impact of Each Variable and the Coefficient Estimation

No.	Variable	Coefficient	T-statistic	P-value
1	C	4.553769	16.85291	0.0000
2	COM?	0.881838	2.378753	0.0185
3	SIM?	-0.953122	-2.394702	0.0177
4	LNPGDP?	2.749336	23.55632	0.0000
5	LNEXC?	0.232942	6.808773	0.0000
6	ITPC?	0.068652	1.690413	0.0927
7	TO?	0.008301	11.62326	0.0000

In this model, the coefficient of country's *i* GDP per capita has a positive sign (2.75). The result is consistent with theoretical expectation and in line with finding from Abidin, Bakar, and Sahlan (2013). This coefficient means that all else being equal, 1% addition of GDP per capita in one of Indonesian trading partner will increase Indonesian export value to the country by 2.75%.

For the exchange rate variable, the estimation shows a positive relationship with Indonesian export to Latin America. The positive sign indicates that a depreciation on rupiah against the country's currency will encourage Indonesian export to the country. The coefficient of this variable is 0.23, which means all else being equal, 1% addition to this variable causes the Indonesian export increase by 0.23%. This result is also consistent with theoretical expectation regarding the relative price between the two countries. Rupiah depreciation against one of the countries in Latin America lead price of Indonesian export product relative to be cheaper than the country. For this reason, the demand import from Indonesia become increase.

Next variable is trade openness. This variable shows the country's openness degree to do export-import activities with another country. The coefficient of this variable also has a positive sign which is 0.008. This coefficient means that all else being equal, 1 point addition in this variable will increase Indonesia export to Latin America by 0.8%. The higher of an openness of the country means weaker barriers to enter the market, therefore, Indonesia export will tend to increase.

In this paper, we also examine the contribution of ITPC in Indonesian export to Latin America. The finding shows that the ITPC variable has a positive sign in the model. This means ITPC has a positive impact to increase Indonesian export to Latin America. The coefficient indicates that all else being equal, the existence of ITPC in a country in Latin America will increase Indonesian export to the country by 6%. This positive contribution means ITPC can support Indonesian challenge to diversify export market in Latin America.

The next important variables in this study are trade complementarity and export similarity index. These sign

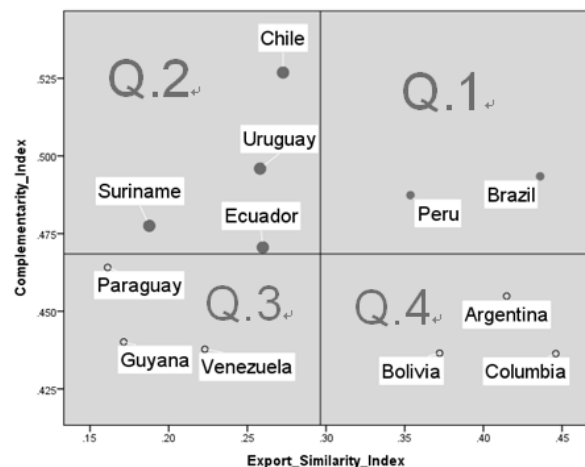
results will decide the concept of priority countries and products for Indonesian export diversification in Latin America. Both of variables are essential to create the concept because these indexes are able to capture the nontraditional market, unlike the other variable that tends to lead to the traditional market. Therefore, these indexes are appropriate to analyze the diversification dimensions.

The estimation exhibits that trade complementarity index has a positive impact on Indonesian export to Latin America and, on contrary, export similarity index has a negative impact. These findings are in line with the conclusion of Plummer et al. (2010) that the more similar the export profiles are, the more likely that countries are competitors in global markets. From this result, the Indonesian priority trading country in Latin America is the country where Indonesian export has high complementarity with their import and has low similarity with their export.

### 4.3. The Finding of the Indonesian Export Priority Countries and Products

As mentioned before, after knowing the impact of export similarity index to Indonesian export in Latin America, the priority countries and products will be defined using the combination of trade complementarity and export similarity index which be displayed in a scatter plot X-Y. On the Y-axis is trade complementarity index, while on the X-axis is export similarity index. From this plot, the position of each country and each product can be grouped into four quadrants according to the value of their trade complementarity and export similarity index.

#### 4.3.1. Finding the Priority Countries



**<Figure 2>** Trade Complementarity and Export Similarity Index between Indonesia and Each Country

Quadrant I (high TCI, high ESI), depicts a country that has strong potential with high competition. Quadrant II (high TCI, low ESI), indicates that the country has strong potential

with low competition. It is the most appropriate country to diversify export market. Quadrant III (low TCI, low ESI), indicating the country has the potential benefit of low competition. The export products do not comply with their import. Quadrant IV (low TCI, high ESI), indicating the country has a low potential for strong competition in global markets. Besides that, the export products also do not comply with their demands.

From <Figure 2>, we can see that Chile, Uruguay, Suriname, and Ecuador were the countries that have high TCI and low ESI with Indonesia (Quadrant 2). Based on the regression result, high TCI and low ESI can boost the Indonesian export. Their import demand in accordance with Indonesian export and their export products has low similarity with Indonesian export products. The TCI value between Indonesia and those countries from the average of the 2000-2015 are about 0.53 for Chile, 0.50 for Uruguay, 0.48 for Suriname, and 0.47 for Ecuador. Meanwhile, the ESI value is about 0.27 for Chile, 0.26 for Uruguay, 0.19 for Suriname, and 0.26 for Ecuador. This condition indicates that Indonesia has a great opportunity and more promising prospects to increase export and trade arrangement with those countries compare to others. With low export similarity products which means there is low competition pressure in global markets, Indonesia also more easy to increase export in those countries. Therefore, we can conclude that Indonesia should prioritize to increase the export to those countries.

Geographically, Indonesia and Latin America are separated by a huge geographical gap. However, Krugman (1991) emphasizes that the distance already does not play such a role through technologies in transport and communication and thus the creation of preferential trade agreement will bring its participants more profits than costs. Additionally, Chile, Uruguay, Suriname, and Ecuador provides opportunities for Indonesia with more promising prospects in trade arrangement. Those countries also have a strategic location that can serve as the entrance of Indonesian exports to the Latin American market as a whole.

Indonesia and Chile have been connected through some associations, including the Asia-Pacific Economic Cooperation (APEC) and an international forum on ocean and climate change. Currently, the two countries are in the process of negotiating CEPA after being delayed for more than two years. This cooperation is expected to increase trade and investment between the two countries. With high complementarity that gives more favorable prospect, Indonesia can prioritize to strengthen the economic and trade relations with Chile through IC-CEPA. Meanwhile, Indonesia, Uruguay, Suriname, and Ecuador have been connected through the World Trade Organization (WTO) and Forum of East Asia-Latin America Cooperation (FEALAC) where Chile is also a member.

The total value of Indonesian exports to Chile over the period 2000-2015 reaches only 8.97% of its total export to

Latin America. Meanwhile, Indonesian exports to Uruguay, Suriname, and Ecuador are less than 5% of its total export to Latin America. When compared to its exports to other countries particularly Brazil, Indonesian exports to those countries is still very low. Brazil was recorded as the country's major destination of Indonesian exports in Latin America. However, although Indonesian exports to those countries still smaller than Brazil, and has decreased in 2015, Indonesian exports to those countries have an increasing trend (<Figure 3>).

Indonesian exports to Chile in 2000 amounted to US\$ 84.73 million and rose to US\$ 147.35 million in 2015. Although The export value has an increasing trend with an average growth rate of 5.37% per year.



Source: UNCTADStat.

<Figure 3> Indonesian Exports Value to the Priority Countries for the Period 2000-2015 (in Million USD).

The value of Indonesian exports to Uruguay, Suriname, and Ecuador also has an increasing trend with an average growth rate of 13.04%; 8.87%; and 14.08% per year. With this performance, there is still a big room for Indonesia to accelerate trade to those priority countries.

From <Figure 2>, it can also be presumed that Brazil and Peru (Quadrant 1) are the potential countries because their import products do comply with Indonesian export products. Despite many similar export products with those countries as competitors (high ESI), but still much import demand. Indonesian export to Brazil over the period 2000-2015 reaches 57.79% of its total export to Latin America and reaches 5.39% for Peru. Indonesian export to those countries also has an increasing trend with an average growth rate of 14.95% per year for Brazil, and 17.61% per year for Peru.

High complementarity between Indonesia and Brazil and Peru shows that those countries also give favorable prospects for Indonesia to strengthen bilateral trade relations. But, Indonesia should do more effort to increase the product competitiveness to keep and accelerate export to those countries. Indonesia should increase the innovation and quality of export products to win the competition in global markets.

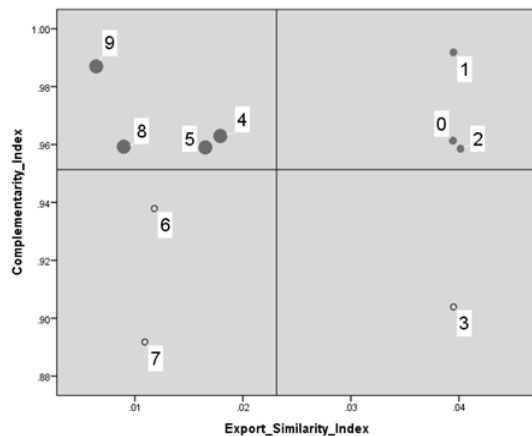
To boost export performance, there are numerous policies to be implemented by the government. From the regression

result, ITPC has a positive impact to increase Indonesian export to Latin America. It means that ITPC in cooperation could generate greater exports performance in the host country. Promoting a country as a reliable trading partner which have high-quality export products as well as its trustworthy exporters is indeed beneficial.

Under the Ministry of Trade, Indonesia has 19 ITPCs around the world. In Latin America, ITPC has been in Brazil and Chile. To supporting Indonesian exports performance, Indonesia should increase the number of ITPCs, particularly in Uruguay, Suriname, and Ecuador as priority countries. Their role in assisting business people in the new market, providing information on market opportunities and conducting export promotion abroad is expected to encourage larger trade volume.

4.3.2. Finding the Priority Products

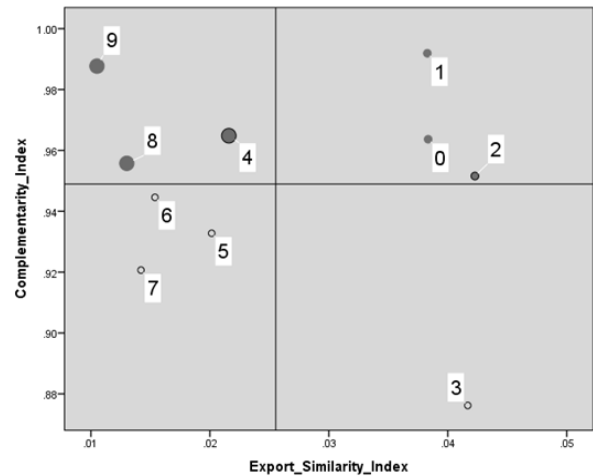
Using the same kind of scatter plot, from the figures below, each product from each priority country can be grouped into four quadrants according to the value of CI and ESI owned. The product group categories which we analyze based on UNCTAD are Food and live animals (SITC0), Beverages and tobacco (SITC1), Crude materials, inedible, except fuels (SITC2), Mineral fuels, lubricants and related materials (SITC3), Animal and vegetable oils, fats and waxes (SITC4), Chemicals and related products, n.e.s. (SITC5), Manufactured goods (SITC6), Machinery and transport equipment (SITC7), Miscellaneous manufactured articles (SITC8), Commodities and transactions, n.e.s. (SITC9).



<Figure 4> Trade Complementarity and Export Similarity Index between Indonesia and Chile

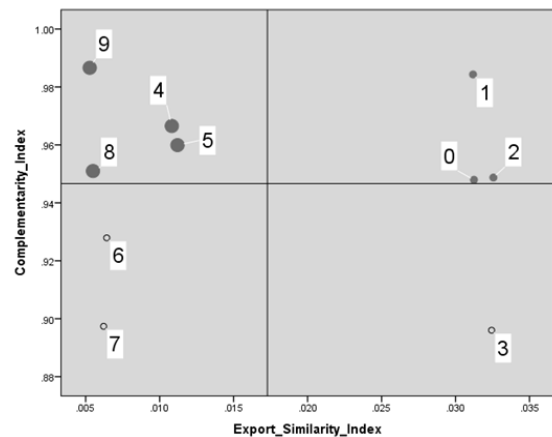
Indonesian export products that have a high match with the demand of imports Chile, and have low similarity with the export products, are the products covered in SITC4, SITC5, SITC8, and SITC9 (<Figure 4>). Those export products more priority and more prospective for Indonesian export compare to others. Indonesian export to Chile for products covered in SITC4, SITC5, SITC8, and SITC9

fluctuate over the period 2000-2015. The export value of miscellaneous manufactured articles (SITC8) products increased sharply over this period. Indonesian exports for this products in 2000 amounted to US\$ 7.27 thousand and rose to US\$ 1489.83 thousand in 2015. While the export value of animal and vegetable oils, fats and waxes (SITC4), chemicals and related products, n.e.s. (SITC5), and commodities and transactions, n.e.s. (SITC9) still low.



<Figure 5> Trade Complementarity and Export Similarity Index between Indonesia and Uruguay

From <Figure 5>, we can see that the products included in SITC4, SITC8, and SITC9 are the most potential products for Indonesian export in Uruguay. Besides has low competition, those export products do comply with their demands. Indonesian export of those products has an increasing trend over the period 2000-2015, particularly the export value of animal and vegetable oils, fats and waxes (SITC4) which has increased about US\$ 4956.40 thousand from 2000.



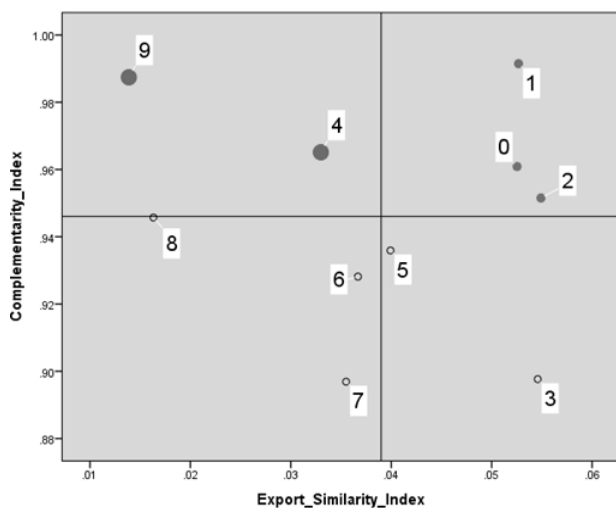
<Figure 6> Trade complementarity and Export Similarity Index between Indonesia and Suriname

The priority products for Indonesian exports to Suriname consists of products covered in SITC4, SITC5, SITC8, and SITC9 (<Figure 6>). Where compared to its exports to other



priority countries, Indonesian exports to Suriname is still low, so is those products. With this great potency where those products do comply with import demand, Indonesia has a big opportunity to increase the export of those products. Indonesian export value to Suriname for products covered in SITC4, SITC5, SITC8, and SITC9 are less than US\$ 500 thousand in 2015.

<Figure 7> shows that the priority products for Indonesian export to Ecuador are animal and vegetable oils, fats and waxes (SITC4), and commodities and transactions, n.e.s. (SITC9). Indonesian exports value in Ecuador for those products still very low, where less than US\$ 150 thousand in 2015.



<Figure 7> Trade Complementarity and Export Similarity Index between Indonesia and Ecuador

From all the products that have a great prospect for Indonesian diversification export in priority countries in Latin America almost the same. The priority products consist of Animal and vegetable oils, fats and waxes (SITC4), Chemicals and related products, n.e.s. (SITC5), Miscellaneous manufactured articles (SITC8), Commodities and transactions, n.e.s. (SITC9). Meanwhile, products covered in SITC0, SITC1, and SITC2 (in Quadrant1) are also the potential products that need to increase the competitiveness to keep export to the priority countries. It is important to increase the quality of those export products to win the competition in global markets because those products have high similarity with their products.

## 5. Conclusions

The present study reveals that the priority countries for Indonesian export diversification in Latin America are Chile, Uruguay, Suriname, and Ecuador. Indonesian export in accordance with their import demand and has low similarity with their export products. Then, the priority products for

Indonesian exports to Chile and Suriname are animal and vegetable oils, fats and waxes (SITC4), chemicals and related products, n.e.s. (SITC5), miscellaneous manufactured articles (SITC8), commodities and transactions, n.e.s. (SITC9). The priority products for Indonesian exports to Uruguay are animal and vegetable oils, fats and waxes (SITC4), miscellaneous manufactured articles (SITC8), commodities and transactions, n.e.s. (SITC9). While The priority products for Indonesian exports to Ecuador are animal and vegetable oils, fats and waxes (SITC4), and commodities and transactions, n.e.s. (SITC9). Because of the great potency of those countries and products, Indonesia should prioritize to boost export to those countries with the priority products.

Brazil and Peru import products have a high complementarity with Indonesian export. But, because many similar export products with those countries as competitors in the global market, Indonesia should improve the product innovation and competitiveness to accelerate export. Thus, based on the regression result, the presence of ITPC as trade promotion agencies abroad gave a significant positive impact on Indonesian export. Therefore, the government should increase the number of ITPCs or another commercial diplomacy (CDC) instruments to generates greater exports performance in host country particularly in Chile, Uruguay, Suriname, and Ecuador as the priority countries.

Indonesia also has big opportunity to increase the bilateral trade relations with Latin America. High complementarity that gives more favorable prospects for a successful trade arrangement, should be used to further intensify not only bilateral trade relations but also bilateral economic cooperations as a whole.

## References

- Abidin, B., & Sahlan, R. (2013). The Determinants of Exports between Malaysia and The OIC Member Countries: A Gravity Model Approach. *Procedia Economics and Finance*, 5, 12–19.
- Baltagi, H. (2011). *Econometrics* (5th ed.). New York: Springer.
- Greene, W. H. (2012). *Econometrics Analysis* (7th ed.). Upper Saddle River, NJ: Prentice Hall.
- Gujarati, D., & Porter, D. C. (2008). *Basic Econometrics* (5th ed.). New York: McGraw-Hill.
- Hapsari, I. M., & Mangunsong, C. (2006). Determinants of AFTA Members' Trade Flows and Potential for Trade Diversion. *Asia-Pacific Research and Training Network on Trade Working Paper Series*, No.21. Retrieved May 22, 2018 from <https://www.unescap.org/resources/determinants-aftra-members%E2%80%99-trade-flows-and-potential-trade-diversion-awp-no-21>
- Harahap, A. B., Bary, P., Nurliana, L., & Satyanugroho, R. (2015). *Dampak Spillover Shock Eksternal Pada*

- Perekonomian Indonesia: Pendekatan Global VAR*. Working Paper Bank Indonesia WP/2/2015. Retrieved May 22, 2018 from <https://es.scribd.com/doc/317018896/Dampak-Spillover-Shock-Eksternal-Pada-Perekonomian-Indonesia>
- Haryotejo, B. (2013). Analisa Diversifikasi Pasar Ekspor Komoditi Uang Indonesia. *J. Sosek KP*, 8(1), 85-91.
- Kim, S. J. (2013). Trade Complementarity Between South Korea And Her Major Trading Countries: Its Changes over the Period of 2005-2009. *World Review of Business Research*, 3(2), 64-83.
- Konkakov, A., & Kubayeva, G. (2016). *Progress in Diversification of the Economy in Kazakhstan*. Working Paper Maastricht School of Management No.2016/8. Retrieved May 22, 2018 from [https://www.eadi.org/publications/publication\\_56539/](https://www.eadi.org/publications/publication_56539/)
- Krugman, P. (1991). The move to free trade zones. In Symposium on Policy Implications of Trade and Currency zones, Sponsored by the Federal Reserve Bank of Kansas City.
- Mubeen, N. (2016). Toward Measurement and Determinant of Export Diversification: An Empirical Analysis of Pakistan. *Pakistan Journal of Commerce and Social Sciences*, 10(3), 588-605.
- Nasrudin, Sinaga, B. M., Firdaus, M., & Walujadi, M. (2014). China-ASEAN Free Trade: Complementary or Competition. *IOSR Journal of Economics and Finance (IOSR-JEF)*, 3(4), 23-31.
- Noureen, S., & Mahmood, Z. (2014). Explaining Trends and Factors Affecting Export Diversification in ASEAN and SAARC regions: An Empirical Analysis. *Nust Journal Of Social Sciences And Humanities*, 2(1), 1-28.
- FIS. (2017). *Chile and Indonesia pledge to complete FTA negotiations*. Retrieved May 22, 2017 from <http://www.fis.com/fis/worldnews/worldnews.asp?monthyear=5-2017&day=16&id=91653&l=e&country=0&special=0&ndb=1&df=0>
- Plummer, M. G., Cheong, D., & Hamanaka, S. (2010). *Methodology for Impact Assessment of Free Trade Agreements*. Manila: Asian Development Bank.
- Papageorgiou, C., Spatafora, N., & Wang, K. (2015). *Diversification, Growth, and Volatility in Asia*. Policy Research Working Paper 7380, World Bank.
- Saputri, A. S., Perdagangan, K., & Ardiyanti, S.T.(2016). Dampak Keberadaan Perwakilan Perdagangan Luar Negeri Terhadap Kinerja Non Migas Indonesia. *Buletin Ilmiah Litbang Perdagangan*, 10(2), 203-224.
- Sultan, Z. S., & Haque, I. (2014). Potential Export Divesification in Saudi Arabia. *Journal of American Science*, 10(3), 16-24.
- Wang, P. Z., & Liu, X. J. (2015). Comparative Analysis of Export Similarity Index between China dan EU. *International Conference on Management Science and Management Innovation (MSMI 2015)*. Retrieved May 22, 2018 from <http://jurnal.kemendag.go.id/index.php/bilp/article/view/281>
- Waheed, A., & Abbas, S. (2015). Potential Export Markets for Bahrain: A Panel Data Analysis. *International Journal of Trade, Economics, and Finance*, 6(3), 165-169.
- Yu, C., & Qi, C. (2015). Research on the Complementarity and Comparative Advantages of Agricultural Product Trade between China and CEE Countries. *Journal of Service Science and Management*, 8, 201-208.