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# Mitigating Economy Risk in The Digital Era Through Export Diversification

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## Abstract

**Purpose** - In the digital era, technology advancement enables goods and services to be produced more efficiently but also create economy risk in the global economy including Indonesia. Previous studies stated that the risk can be mitigated through export diversification. This study investigates strategy to expand the markets for existing products and explore the potential market.

**Research design, data, and methodology** - The criteria was followed using a review and considerations combination through the Focus Group Discussion (FGD) to determine the priority product in trading house of Indonesia. This study implemented market share to explore those products' markets and compare it to other ASEAN countries.

**Results** - The Indonesian potential products are T-shirts, singlets and other vests of textile materials, knitted or crocheted (excluding cotton); food preparations; medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes; soap in the form of flakes, granules, powder, paste or in aqueous solution; and cocoa powder, not containing added sugar or other sweetening matter. The market analysis also showed that Indonesia still had not optimally accessed yet the largest market in the world for each product.

**Conclusions** - The government should focus more on increasing the competitiveness of those products, particularly in those global marketplaces.

**Keywords:** Digital Era, Global Shock, Export Diversification, Market Share, ASEAN.

**JEL Classifications:** F10, F14, F62.

## 1. Introduction

In the digital era, technology development leads information to be faster to spread through newest communication technology. This advancement in technology, particularly information communication technology (ICT), has many impacts on Indonesian economy, even in the global economy.

ICT enables goods and services to be produced more efficiently (Higon, Gholami, & Shirazi, 2017). In order to enhance innovation, firms also have to own technology, capability and ICT use in their production process (Idota,

Bunno, Ueki, & Shinohara, 2015). There are some roles of ICT on production process: 1. To reduce the costs to increase productivity, 2. To offer a quick connectivity, 3. To replace other such as physical travel, 4. To add choice in the marketplace and 5. To provide access to goods and services which are unavailable, 6. To extend the scope of area of potential markets and to distribute all the kind of knowledge and information (Zuhdi, 2014).

However, ICT also can create economy risk in the global economy including Indonesia. ICT's ability to reduce the space and offer a faster connectivity enhances the flow around the world that link Indonesia to other countries or more often known as globalization. Globalization has grown due to advances in information and communication technology. Linking with this global marketplace can trigger domestic recessions. Therefore, to reduce this risk, ICT use should give more support to the domestic marketplace in term of a production process. Besides that, due to ICT use could extend to integrate with other countries, the diversification still has important roles (DeMaagd, 2009). Furthermore, external economic shocks in this digital era

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also believe to spread often. For example, economy crisis believed to occur every 10 years from 1998 to 2008, now can occur faster from 2008 to 2010. Not only at that period crisis, the slowdown of China economy in 2015 also has a spillover effect on the Indonesian economy. For that reason, Ramana and Nasrudin (2018) also suggested conducting more study about export diversification.

Hamed, Hadi, and Hossein (2014) conducted the study about export diversification in 23 developing countries including Indonesia. This study indicated export diversification has a significant and positive impact on economic growth. Thangamani (2017) also conducted a study that concluded export diversification can promote export performance in Sri Lanka. Furthermore, increasing the product diversifies of export also can help to stabilize the export revenues and to encourage earning from export. In short, the product diversification of export is one of the keys to avoid external shocks and to sustain economic growth (Gozgor & Can, 2016).

Pacheco and Pierola (2007) provided a useful narrower definition by discussing a geographic dimension with export diversification via the extensive margin is the export of new products to existing markets, old products to new markets, and new products to new markets. Brenton, Newfarmer, and Walkenhorst (2007) articulated a convincing case for low-income countries to focus on greater differentiation of existing products, rather than attempting to diversify directly into new export categories. In the policy framework of new structural economics' export diversification is best achieved by focusing on existing comparative advantage, where industries are competitive, leading to the capture of economic rents for reinvestment and subsequent upgrading of endowments structures (Lin, 2010). Geographical diversification also is more important than product diversification (Pacheco & Pierola, 2007). In Indonesia, Alhayat (2012) also preferred to suggest government to enhance existing product export to access more market because it still gives pivot impact on Indonesian export rather than create new products, but do not sustain. Furthermore, Indonesian president also concerns about how to boost export and enhance our competitiveness as a response to the global economy challenge in this digital era. That stated in his speech on 16 August 2018.

Based on BPS 2017, top 10 Indonesian export products tend to decrease as a response to global shocks in 2008, 2010, and 2015 which is happened in another country. Due to their large contribution in export revenue, Indonesian export also decrease as a whole. Therefore, this study tries to investigate strategy how to expand the markets of export products particularly existing product which is stable in global shocks period to the potential markets.

## 2. Methodology

Two-step analyses are conducted in this study. The first step is identifying the potential export products. In order to

mitigate the economic risk or the negative impact of the global shock as it did during 2008, 2010, and 2015, this study begins with identify the stable export products whose export growth value remains positive despite a crisis period. Because of the limited data, we just using three crisis periods which happened in 2008 (Subprime mortgage in US), 2010 (Europe crisis), and 2015 (The slowdown of China economy). Those crisis period are used because although the crisis was happened in another country, Indonesian economy also affected, including the export performance indirectly. After that, top five of those stable export products which have the highest export value over the period 2001-2017 will be selected again by considering the following three criteria:

1. The trend of Indonesia's export growth. It is indicated by the average growth of Indonesian exports during 2001-2017.
2. Growth of export share. The instrument used in this criterion is the average growth of Indonesian export share towards Indonesia's exports during 2001-2017.
3. World import growth trend which is indicated by the average growth of world import during 2001-2017.

The criteria above basically follow the criteria that established by Faradila and Hasni (2017) using a combination of review and considerations through Focus Group Discussion (FGD) with relevant stakeholders to determine the priority product in trading house Indonesia.

The second step using market share calculation and comparison with ASEAN countries, the potential export market for each previously selected export products will be defined. First, this study determines the 3 of the largest market in the world for each product where Indonesia had not optimally accessed. We used comparison to top 10 Indonesian export destination with top 10 world's importer to determine those markets. Then, this study used market share and the ASEAN comparison to explore more about those markets.

This paper uses the six-digit level of Harmonized System (HS) code for all the products to see more details of Indonesia's export products. All of the data was compiled from BPS and the United Nations Commodity Trade Statistics (UN-COMTRADE), accessed through Trademap.

## 3. Results and Discussion

### 3.1. Finding Indonesia's Potential Export Products

As previously mentioned, the export value of Indonesia's leading export products, both oil and non-oil and gas exports, tends to decrease when global shocks occurred. These products include natural gas, petroleum oils, palm oil, coal, CPO, footwear, etc. The decline of export performance during the crisis period certainly needs to be a concern,

especially in the digital era where the possibility of a crisis is occurring faster. In addition, the contribution of exports to GDP is also quite large, which is about 21% (BPS, 2017). Therefore, export diversification for products that are stable during the crisis period is very important.

After calculating the export growth of all HS6 products in the period of global shock, namely growth in 2009, 2011 and 2015, we find that almost all export products with high total exports value, namely over US\$ 7 billion during the period 2001-2017, had negative export growth during the crisis period. Meanwhile, the stable export products are the products whose small export share compared to Indonesia's total exports. These products include 423 of 6158 HS6 products such as copper, food preparations, part of airplanes, cocoa powder, toilet/ facial tissue, T-shirt, etc. It indicates that Indonesia needs to increase the export of these products without reducing exports of other products, as part of export diversification. Due to filter the commodities which have sustainable growth in future, the criteria as mentioned in methodology give information below:

### 3.1.1. Export Value Growth

This criterion is indicated by the average growth of Indonesian exports during 2001-2017. The export growth trend is an indicator to observe Indonesia's ability to supply the products for the international market. Soap in the form of flakes, granules, powder, paste or in aqueous solution product has the highest export value growth during 2001-2017. This condition indicates that the product is experiencing the highest seventeen-year average increase.

**Table 1:** Top 5 Products Based on Export Value Growth

No	HS Code	Product
1	340120	Soap in the form of flakes, granules, powder, paste or in aqueous solution
2	210690	Food preparations, n.e.s.
3	030749	Cuttle fish "Sepia officinalis, Rossia macrosoma, Sepiola spp." and squid "Ommastrephes spp., ...
4	300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, ...
5	880330	Parts of airplanes or helicopters, n.e.s. (excluding those for gliders)

Source: Trademap, processed

### 3.1.2. Export Share Growth

Export share growth trend indicates the size of Indonesia's export capability. The instrument used in this criterion is the average growth of Indonesian export share towards Indonesia's exports. Soap in the form of flakes, granules, powder, paste or in aqueous solution product also has the highest export share growth during 2001-2017 than other products.

**Table 2:** Top 5 Products Based on Export Share Growth

No	HS Code	Product
1	340120	Soap in the form of flakes, granules, powder, paste or in aqueous solution
2	210690	Food preparations, n.e.s.
3	030749	Cuttle fish "Sepia officinalis, Rossia macrosoma, Sepiola spp." and squid "Ommastrephes spp., ...
4	300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, ...
5	180500	Cocoa powder, not containing added sugar or other sweetening matter

Source: Trademap, processed

### 3.1.3. World Import Growth

This criterion is indicated by the average growth of world import during 2001-2017. This criterion shows the trend of import demand in the world market. Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes products have the highest world import growth trend compared to other potential products. This condition shows the product has a higher trend of world demand than other products.

**Table 3:** Top 5 Products Based on World Import Growth

No	HS Code	Product
1	300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes, ...
2	880330	Parts of aeroplanes or helicopters, n.e.s. (excluding those for gliders)
3	210690	Food preparations, n.e.s.
4	610990	T-shirts, singlets and other vests of textile materials, knitted or crocheted (excluding cotton)
5	620443	Women's or girls' dresses of synthetic fibres (excluding knitted or crocheted and petticoats)

Source: Trademap, processed

Based on the results above, there are eight export products which have all those criteria. From those eight products, we choose the top 5 of the export products that have the highest export value during the period 2001-2017. This study concluded those products as the potential product which has stability at global shock period and sustainable growth. Those products are listed in the table below:

**Table 4:** Top 5 Potential Products Based on Those Criteria

No	HS Code	Product
1	610990	T-shirts, singlets and other vests of textile materials, knitted or crocheted (excluding cotton)
2	210690	Food preparations n.e.s.
3	300490	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes
4	340120	Soap in the form of flakes, granules, powder, paste or in aqueous solution
5	180500	Cocoa powder, not containing added sugar or other sweetening matter

Source: Trademap, processed

### 3.2. Analysis of Indonesia’s Potential Export Markets

The analysis will focus on five Indonesia’s potential export product which has been defined on the first step.

#### 3.2.1. T-shirts, singlets and other vests of textile materials, knitted or crocheted (excluding cotton) (HS610990)

Based on trade map data, the top ten markets were determined by import value rank for this product are United States, Germany, Japan, United Kingdom, France, Spain, Netherlands, United Arab Emirates, Italy, and Belgium. Meanwhile, top ten Indonesian destination market for this product are Japan, United States, China, Germany, Korea, United Arab Emirates, Belgium, Netherlands, Malaysia, and Australia. The information is listed in Table 5.

Table 5 below shows that Indonesia had not optimized the export to 4 markets where high demands have in the world. Three are United Kingdom, France, Spain, and Italy.

**Table 5:** Comparison The Top 10 World’s Importer and Indonesian Export Market of HS610990

No	World’s Importer	Indonesian Export Market
1	United States	Japan
2	Germany	United States
3	Japan	China
4	United Kingdom	Germany
5	France	Korea
6	Spain	United Arab Emirates
7	Netherlands	Belgium
8	United Arab Emirates	Netherlands
9	Italy	Malaysia
10	Belgium	Australia

Source: Trademap

Based on comparison Indonesia and ASEAN countries, there are 2 countries in ASEAN that have a higher market share in The United Kingdom market. Those are Cambodia and Vietnam. While in France and Spain, Cambodia, Vietnam, and Thailand have a higher market share than Indonesia (Appendix 1-3). It indicates that Indonesia still can increase this export product to boost Indonesian export revenue.

#### 3.2.2. Food Preparation n.e.s. (HS210690)

Food preparation includes a wide range of products made from raw materials produced. For examples are chocolate preparations, pasta, biscuits, marmalades and jams, ice-cream etc. Based on trade map data, the top ten markets were determined by import value rank for this product are United States, China, United Kingdom, Germany, Netherlands, Canada, Korea, France, Japan, and Australia.

Meanwhile, the top ten Indonesian destination market for this product are Singapore, Malaysia, Philippines, Thailand, Germany, Papua New Guinea, Vietnam, Australia, Myanmar, and Taipei. The information is listed in Table 6.

**Table 6:** Comparison The Top 10 World’s Importer and Indonesian Export Market of HS210690

No	World’s Importer	Indonesian Export Market
1	United States	Singapore
2	China	Malaysia
3	United Kingdom	Philippines
4	Germany	Thailand
5	Netherlands	Germany
6	Canada	Papua N.G.
7	Korea	Vietnam
8	France	Australia
9	Japan	Myanmar
10	Australia	Taipei

Source: Trademap

Because of the product is about food, It is reasonable that the Indonesian export market is concentrated in neighbor countries, such as ASEAN countries. Besides due to the distance factor, the difference of food taste between countries also can be a factor Indonesian had not accessed most of the largest global marketplace for this product.

Yet, it also shows that Indonesia still has an opportunity to diversify the export product, particularly to nearer countries like China, Korea, and Japan. The opportunity to the United States and the United Kingdom also still open. Although Indonesian share less than 1% in those countries, but Thailand where have similar characteristics to Indonesia can access United States market around 7 percent during 2001-2017 and around 1.2 percent in United Kingdom during the same period (Appendix 4-6).

#### 3.2.3. Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes (HS300490)

Based on trade map data, the top ten markets were determined by import value rank for this product are United States, Germany, Belgium, United Kingdom, Switzerland, Italy, Japan, China, France, and the Netherlands. Meanwhile, the top ten Indonesian destination market for this product are Singapore, Philippines, Thailand, Korea, Malaysia, Australia, Vietnam, Myanmar, Nigeria, and Cambodia.

This shows that Indonesia had not optimally accessed yet the largest market in the world. Indonesian market share to 3 largest importer countries in the world for this product also still less than 1%. This show Indonesia still has much potency to expand the market and increase the export revenue. The information is listed in the table below.

**Table 7:** Comparison The Top 10 World's Importer and Indonesian Export Market of HS300490

No	World's Importer	Indonesian Export Market
1	United States	Singapore
2	Germany	Philippines
3	Belgium	Thailand
4	United Kingdom	Korea
5	Switzerland	Malaysia
6	Italy	Australia
7	Japan	Vietnam
8	China	Myanmar
9	France	Nigeria
10	Netherlands	Cambodia

Source: Trademap

As the comparison with ASEAN countries, Singapore is a leading country that can be accessed the 3 largest global marketplaces for this product more than Indonesia. Singapore even can access 3% USA market for this product (Appendix 7-9).

### 3.2.4. Soap in the form of flakes, granules, powder, paste or in aqueous solution (HS340120)

Based on trade map data, the top ten markets for this product are France, United Kingdom, United States, United Arab Emirates, China, Germany, Philippines, India, Turkey, and Ethiopia. Meanwhile, top ten Indonesian destination market for this product are China, India, Philippines, Thailand, United Arab Emirates, Nigeria, Djibouti, Malaysia, Turkey, and Korea. Based on Table 8 below, Indonesia had not optimally accessed 3 largest importer in the world. Although those countries are the largest importer in the world, Indonesia had not accessed that as large destination market. Those countries are France, the United Kingdom, and the United States's market. For this product, the Indonesian market still concentrated in ASIA countries. The information is listed in the table below.

**Table 8:** Comparison The Top 10 World's Importer and Indonesian Export Market of HS340120

No	World's Importer	Indonesian Export Market
1	France	China
2	United Kingdom	India
3	United States	Philippines
4	United Arab Emirates	Thailand
5	China	United Arab Emirates
6	Germany	Nigeria
7	Philippines	Djibouti
8	India	Malaysia
9	Turkey	Turkey
10	Ethiopia	Korea

Source: Trademap

As the comparison with ASEAN countries, Malaysia is a leading country that can be accessed those 3 largest global marketplaces for this product more than Indonesia. Malaysia even can access 9.6% France's market, 1.7% UK's market, and 6.03% the United States's market for this product (Appendix 10-12).

### 3.2.5. Cocoa Powder, not Containing Added Sugar or Other Sweetening Matter (HS180500)

Based on trade map data, the top ten for this product are United States, Netherlands, Germany, Russia, Italy, France, China, Belgium, Japan, and Canada. Meanwhile, top ten Indonesian destination market for this product are Malaysia, Philippines, India, China, Australia, Mexico, Pakistan, Brazil, United States, and Turkey. The information is listed in the table below.

**Table 9:** Comparison The Top 10 World's Importer and Indonesian Export Market of HS180500

No	World's Importer	Indonesian Export Market
1	United States	Malaysia
2	Netherlands	Philippines
3	Germany	India
4	Russia	China
5	Italy	Australia
6	France	Mexico
7	China	Pakistan
8	Belgium	Brazil
9	Japan	United States
10	Canada	Turkey

Source: Trademap

Based on Table 8 above, Indonesia had not optimally accessed some large importer in the world, such as the Netherlands, Germany, and Russia market. As the comparison with ASEAN countries, Indonesia is a leading country that can access the Netherlands and Germany's market, but in Russia, Indonesia is lower than Malaysia. (Appendix 13-15).

## 4. Conclusions

The present study reveals that the potential export products for Indonesia's export diversification to mitigate the economic risk are T-shirts, singlets and other vests of textile materials, knitted or crocheted (excluding cotton) (HS610990); Food preparations n.e.s. (HS210690); Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic purposes (HS300490); Soap in the form of flakes, granules, powder, paste or in aqueous solution (H S340120); and Cocoa powder, not containing added sugar or other sweetening matter (HS180500). Those products have positive growth on crisis period and have all

the predetermined criteria such as high export value growth, high export share growth, and high world import growth.

Compared to ASEAN countries, Indonesian market share in 3 importer countries for product HS610990 still lower than Vietnam, Cambodia, and Thailand. Meanwhile, for product HS340120, Indonesia had not accessed the 3 largest importer countries as the export destination market. Whereas Malaysia is a leading country that can be accessed those 3 largest global marketplaces for this product. Indonesian market share to 3 largest importer countries in the world for product HS300490 and HS210690 also still less than 1%. While for product HS180500, although had not optimally accessed some large importer in the world, Indonesia is a leading country that can access 2 largest importer market compared to ASEAN countries.

Based on that results, we can conclude that Indonesia still had not optimally accessed yet the largest importer market in the world for each potential product. Therefore, in order to mitigate the economic risk in the digital era, the government can concern about increasing the competitiveness of those stable potential products, particularly in those global marketplaces.

Subsequent research can be carried out by identifying the factors that influence the export of these products, especially to potential markets which are had not optimally accessed yet, thus adding references to government policies in export diversification to mitigate the negative impact in the global economy.

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