

## MEASURING THE EXPORT POTENTIAL OF TOBACCO INDUSTRY AND INDONESIAN TOBACCO PRODUCTS

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### Abstract

Smoking is one of activities that is deeply rooted in Indonesian culture so that the economic contribution from this activities is quite significant in the Indonesian economy. Along with the development of various policy discourses that counter the development of the tobacco industry and processed tobacco products, such as an increase in excise rates for tobacco (CHT) also there is shock of pandemic situation, the sustainability of local tobacco industry needs to be a concern and also has to be prompted the urgency to expand the market to another countries through export activities. This research aims to measure the impact of the potential utilization of tobacco and processed tobacco commodity export activities by considering production capacity, available policy frameworks, and challenges that faced by industrial actors. By using quantitative approach through the calculation of Input-Output Tables, as well in-depth literature studies on the export regulatory framework in Indonesia and in other countries also related studies on the opportunities and challenges of tobacco commodity exporters, this research succeeded in providing several findings. By considering the scale of production and eksport opportunities in trade balance deficit countries for tobacco commodities and their derivative products, the measured export potential is in the range of 17.5 billion – 34.9 billion USD, which 17.5 billion USD if Indonesia export to countries with trade deficit balance which has income per capita lower than Indonesia and 34.9 billion USD when Indonesia is able to export to 20 major countries with the largest trade deficit balance. Policies that need to be taken to achieve this potential include uniformity of commodity quality standards with international standards, encouraging production incentive policies through subsidy scheme and capital goods grants, and reducing export duties on several supporting components of tobacco production and its derivatives.

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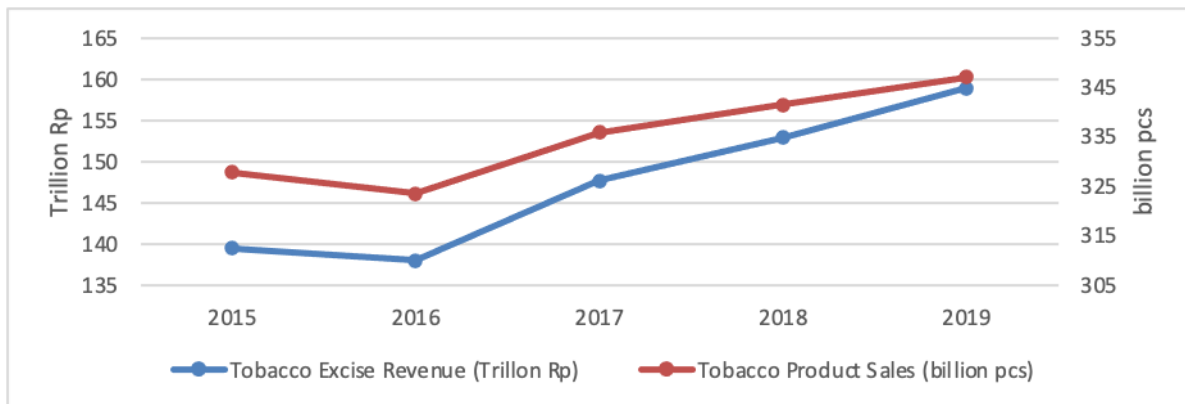
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## INTRODUCTION

Smoking is one of activities that is deeply rooted in Indonesian culture, with its initial existence being traced back to the 16th century (budiman and Onghokham, 1987; Rachmat, 2010). Intensity of smoking activities in daily lives of Indonesian people emphasizes that this activities activity is closely related to economic activities, starting from the cultivation process, production, to consumption patterns. This is due to the large demand for cigarettes in Indonesia and the efforts of local producers to meet this demand. Smoking activity has encouraged the birth of the tobacco industry sector which has had a significant impact on the achievements of the Indonesian economy, where this sector consists of tobacco processing and cigarette production processes. This sector is estimated to absorb

around 6 million people in 2018 and has a level of production that helps position Indonesia as the world's 5th largest tobacco producing country (Ministry of Industry, 2016). In recent years, cigarette production in Indonesia has reached more than 340 billion sticks (Lian and Dorotheo, 2018). This is supported by the increasing trend of production and sales of cigarettes and tobacco products in recent times, as shown in Graph 1.

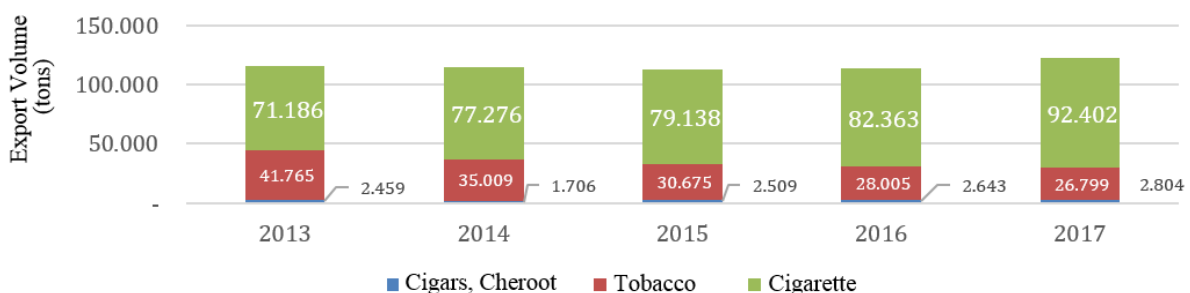
**Graphic 1 Tobacco Production Volume and Sales of Tobacco Product Trend, 2015-2019**



Source: BPS, Statista, Kata Data (2019)

In addition, this sector is also capable of exporting tobacco and tobacco derivative products as shown in Graph 2. This graph shows the volume of Indonesia's exports in tobacco and its derivatives in recent years. It is recorded that Indonesia exports an average of about 80,473 tons of cigarettes, 2,424 tons of cigars, and 32,451 tons of tobacco each year.

**Graphic 2 Tobacco and Tobacco Product Commodity Export Volume, 2013-2017**



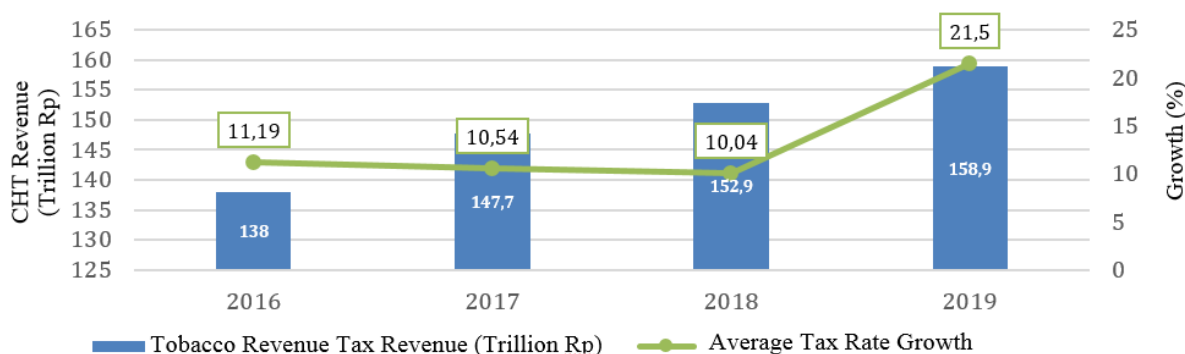
Source: FAO (2018)

The size of the export activity and the high absorption of labor shows the considerable relevance of this sector in the Indonesian economy. In fact, the contribution of this sector is not limited to these two things, but also in its contribution to increasing state revenue through Tobacco Product Excise (CHT). Through PMK No. 152 /PMK.010/2019, this policy enforces the determination of the applicable excise tariff based on the consideration of the growth rate of tobacco product production at each level, the types of tobacco derivative products, and the scale of the tobacco products industry (Kurnaini, 2016). In addition, the cigarette tax is an instrument to increase local revenue (PAD).

Although the intention of this policy was to control the consumption and distribution of cigarettes and to minimize the negative impact of cigarettes on society and the government, conditions in the field do not necessarily indicate this. Graph 3 shows a comparison of trends in tobacco excise revenue and trends in tobacco excise rates that have an increasing pattern every year. These observations indicate

that the presence of tobacco product excise rates every year is not yet fully optimal in reducing the consumption of tobacco products in Indonesia.

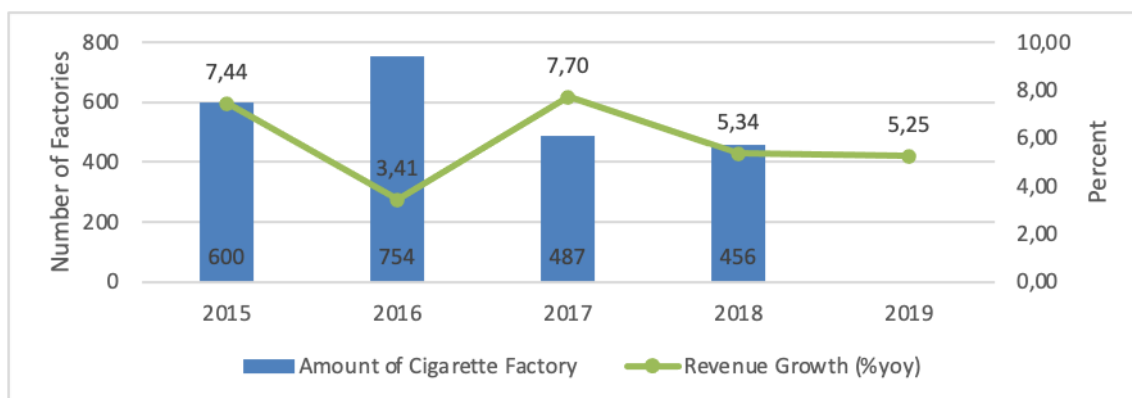
**Graphic 3 Trends in Tobacco Excise revenue and Excise Rates, 2016-2019**



Source: Ministry of Finance (2020)

In addition, there are other aspects that also need to be considered, namely the growth in industry revenue which tends to decline and is accompanied by the closure of many cigarette factories. One indication that supports this is the stagnation in tobacco production rates accompanied by difficulties faced by actors in this sector. Graph 4 shows the downward trend in the number of cigarette factories in Indonesia in line with the increase in excise rates. Furthermore, Deny (2020) found that there was a decrease in industrial income by 1-2 percent every time there was a 10 percent increase in CHT rates. In addition, a downward trend can also be found in the growth in revenue from the cigarette industry.<sup>1</sup> The high retail selling price (HJE) of cigarettes is alleged to be a factor in declining cigarette consumption (Lestari, 2018).

**Graphic 4 Comparison of the Amount of Cigarette Factories and Cigarette Industry Receipt Growth Trend, 2015-2019**

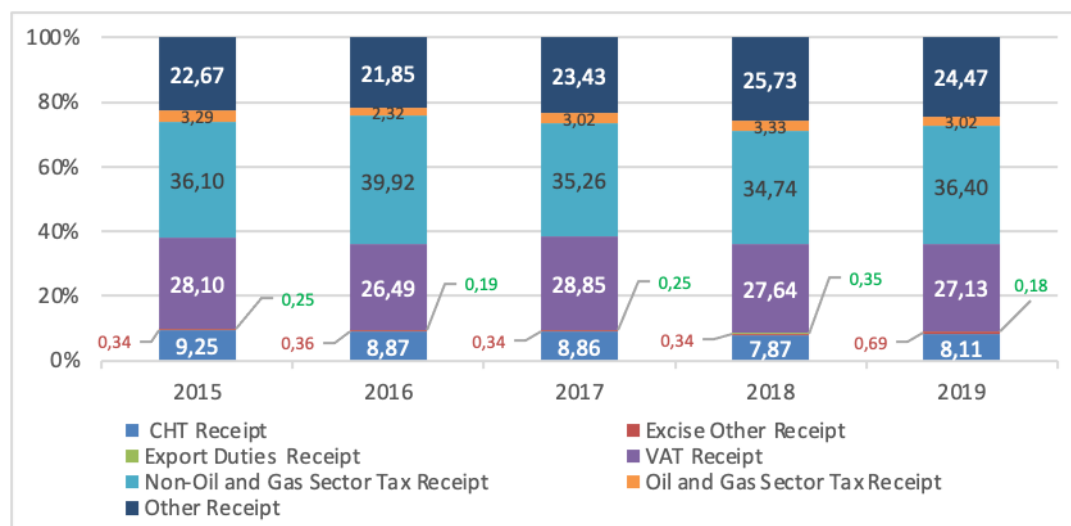


Source: Ministry of Finance, Ministry of Industry (2019)

In the end, the CHT policy that has not been optimal in regulating consumption has the potential to threaten the existence of the cigarette industry in the future. In fact, this industry has contributed an average of 8.59% annually in the 2015-2019 period to total non-tax state revenue in Indonesia (Graph 5). The downturn in the tobacco products industry can also result in reduced government revenue.

<sup>1</sup> Choosing cigarette as an observed commodity can be justified, considering his product contributed arund 90 percent to receipt excise aand also has production and consumption level that almost reach 90 percent from all of processed tobacco product in Indonesia.

**Graphic 5 Tobacco Product Excise Contribution on Country Revenue, 2015-2019 (percent)**



Source: BPS, Indonesian Ministry of Trade (2018)

An alternative that can be done to support the sustainability of the tobacco products industry while still controlling public consumption is to carry out export activities. Currently, Indonesia is one of the main suppliers of tobacco products and tobacco products in the world. The total export value of these tobacco commodities reached US \$ 1.13 billion and of course contributed to Indonesia's GDP, with the largest export value being dominated by exports of cigarettes (US \$ 836 million), tobacco (US \$ 133 million), other tobacco products (US \$ 103 million) and cigars (US \$ 69 million) (FAO, 2018).

Considering the findings above, generally there are indications that the international market provides a good alternative as a destination market for trade in the tobacco industry and tobacco products in Indonesia, considering the increasing pressure that exists within the country. But of course, in penetrating the international market, local players will undoubtedly face challenges and opportunities that may not have been studied further.

Currently, there are not many studies that measure the opportunities and challenges of local producers in exporting tobacco and tobacco products in Indonesia with reference to the latest data. Several existing studies show that some of the problems faced by the Tobacco Products Industry are the supply of tobacco that is of low quality and in limited quantities (Haryono, 2007) so that it tends to be weak in the face of intense competition with other exporting countries such as China, Turkey, Brazil, Zimbabwe, USA, and Greece (Rais, 2007). By increasing the quality of production and maintaining or increasing the current level of production, Mulyandari's (2019) study found that there is a positive relationship between the amount of production and the level of exports. This further emphasizes that it is important for cigarette manufacturers to increase their production, a condition that may be difficult to deal with if the downward trend in the number of cigarette factories continues to decline. Rasyid et al. (2018) found that local tobacco supply in the last 20 years has been partly supported by tobacco imports. These findings indicate that local industrial products have not been able to fully support local industries and are ready to compete in the international market.

Considering this thing, this study will measure the impact of exploiting the potential of exports to determine the amount of benefits that can be obtained if the government and industry jointly encourage a shift in the output market of the cigarette industry from local to international. An understanding of these calculations, as well as an understanding related to the experience of the role of government in other countries, the characteristics of the cigarette industry in Indonesia and its role in building the regional economy, as well as the historical policies of the Indonesian government are expected to answer the challenges and opportunities for the sustainability of the cigarette industry in

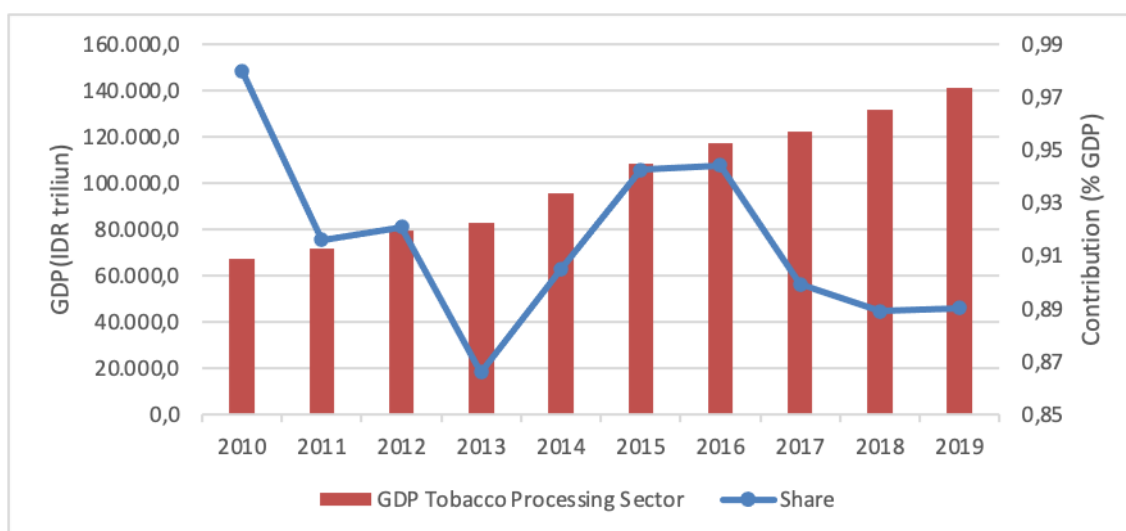
Indonesia. This study is enriched with a brief analysis of how the tobacco industry sector has responded to the shock described by the pandemic.

**I. LITERATURE REVIEW**

**Macroeconomy nad Fiscal Contribution**

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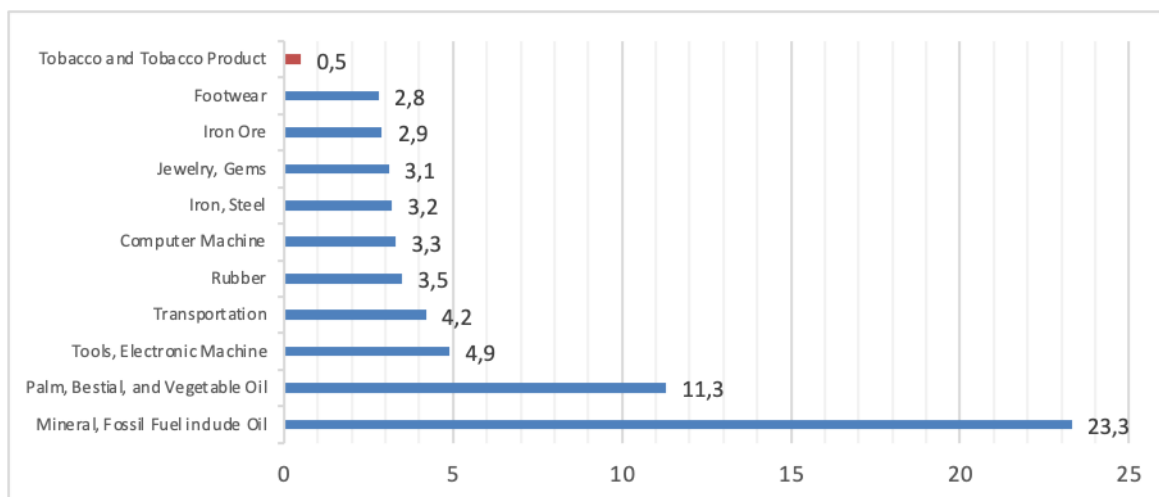
**Graphic 6 GDP Manufactur Processing Trends and Its Contribution to GDP**



Source: BPS (2018)

Apart from referring to the sectoral contribution to GDP, the sectoral contribution also needs to be seen from the contribution to the trade balance. According to BPS (2019), the contribution of exports to the economy reached 18.4 percent. In terms of types of exports, in general Indonesia still dominantly exports extractive commodities in raw form, followed by exports of manufactured goods. If you look at the export component by type of commodity, Graph 7 below shows the 10 commodities with the largest export contribution in Indonesia compared to exports of tobacco and tobacco products. It can be seen that the export of tobacco and tobacco products was only 0.5 percent of all exports in 2018. This figure is much lower than the export of footwear which was ranked 10th, where the export of these goods contributed 2.8 percent of total exports. A tobacco derivative product that has a significant contribution to exports is cigarettes, which rank 36 out of the top 50 commodities with the largest export value in 2018.

**Graphic 7 The Contribution of Export Product per Commodity in Total Exports, 2018 (percent)**

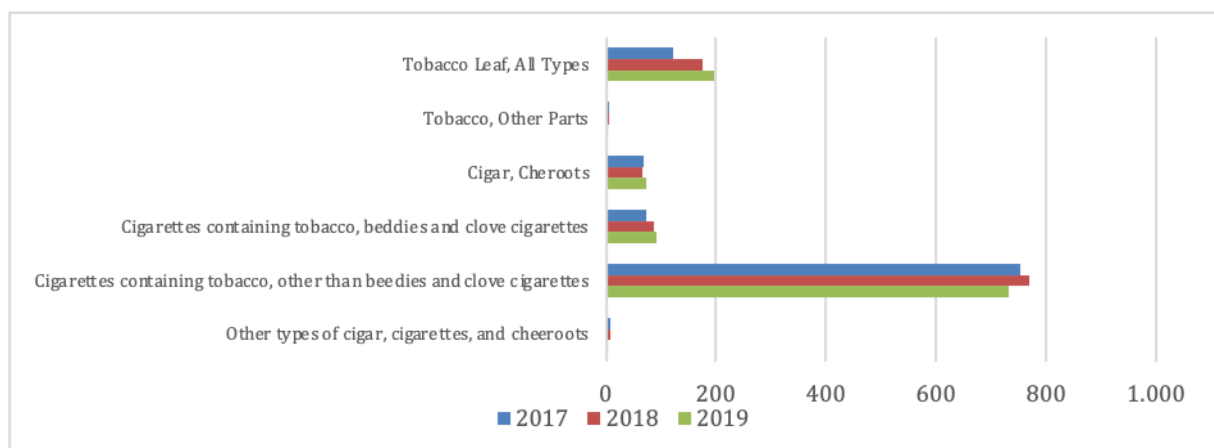


Source: BPS, Indonesian Ministry of Trade, 2018

The role of the tobacco sector and its derivatives in export performance has various contributions depending on the type of product. In the Indonesian context, exports are dominated by tobacco products with content other than cloves and beedi seeds (See Graph 8). This is interesting, considering that Indonesia imports a lot of tobacco leaves from other countries as input for cigarette production. This indicates that the cigarette industry in general contributes to cigarette exports by relying on import activities as well. Exports of non-clove tobacco cigarettes and beedi seeds have experienced a downward trend in the last three years. This is also followed by other types of cigarettes. On the other hand, there was a slight increase in exports for cigar, cigars, and clove cigarettes and / or beedi seed cigarettes.

Indonesia also routinely exports tobacco leaves. Although the import of tobacco leaves is carried out to meet the need for industrial raw materials, Indonesia consistently exports high quality tobacco leaves to neighboring countries. Exported tobacco leaves are dominated by Virginia (HS Code: 24012010) to dozens of countries, especially Singapore, Malaysia, the US, and Brazil. The export trend of tobacco leaf has increased significantly in the last three years. This indicates that the plantation industry players are starting to take a role in international trade.

**Graphic 8 Tobacco and Tobacco Product Export, 2017-2019 (USD mn)**



Source: BPS, Indonesian Ministry of Trade , 2018

Apart from export, Indonesia is currently also a net importer of tobacco products and tobacco products. Based on the publication of the Ministry of Agriculture (2019) the government still imports

around 618,664 tons of tobacco and only 22.6 percent of tobacco comes from local producers. The occurrence of export activities when domestic production is fulfilled predominantly through imports indicates that the tobacco products exported by Indonesia have certain markets with higher value. This is accompanied by the fact that Indonesia is one of the countries with the largest tobacco exports by trade value, amounting to USD 132,388,000 in 2017, when the volume of tobacco exported was only 29,134 tons. The trade value of Indonesian tobacco is ranked 19th in the world, when the volume exported is not among the largest exporters. In addition, the same thing can be found in the tobacco products industry. In 2017, the total export volume of tobacco products was 13,050 tons, or the equivalent of USD 102,532,000 (FAO, 2018). Especially for cigarettes, exports carried out by Indonesia have a higher volume and money value, where there are exports of 84,030 tons of cigarettes, or the equivalent of USD 827,980,000. Most of Indonesia's cigarette exports go to countries in Southeast Asia (around 85%), BPS (2018)

In reflecting of the findings above, exports of tobacco production and tobacco products have the potential to be increased further. However, this achievement needs to be supported by a qualified production capacity.

### **The Capacity of Commodity Production at Main Industrial Center of Tobacco and Tobacco Products In Indonesia**

By looking at the strategic role of the cigarette industry in advancing the economy and seeing that the export performance of tobacco and tobacco products in Indonesia is still not optimal, it is necessary to have a further understanding of the production capacity of the main centers of tobacco processing in Indonesia..

The tobacco processing industry sector in Indonesia is divided into several types based on the final product, namely tobacco and cigarettes. The tobacco processing industry mostly offers drying and chopping / chopping services, while the cigarette manufacturing industry mostly produces clove cigarettes, rolled cigarettes, and filter cigarettes which are processed using machines (Ministry of Industry, 2016). The tobacco processing industry totaled 620 industries and the cigarette industry amounted to 423 industries including small and medium industries as well as large industries registered in 2016. The cigarette industry is concentrated in East Java (68%) and Central Java (26%).

**Table 1 The Amount of Tobacco Processing based on the Industry Measurement, 2010-2017**

<i>Year</i>	<i>Industry Categories<sup>2</sup></i>		
	<i>Large and Medium Industry</i>	<i>Small Industry</i>	<i>Micro Industry</i>
2010	981	30.365	22.804
2011	989	452	54.258

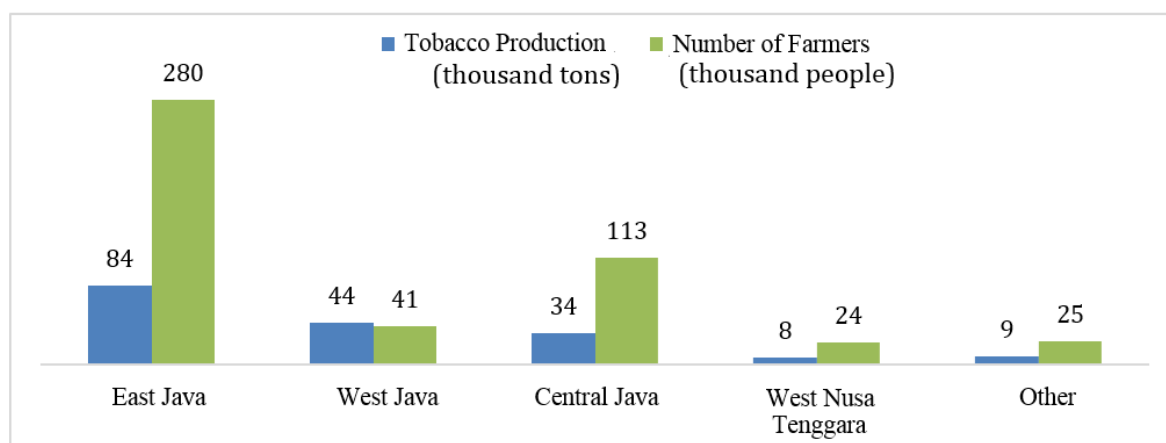
<sup>2</sup> Definition of classificatio industry based on UU RI No. 20 Tahun 2008 about Micro, Small and Medium Industry: (i) Medium Industry is an industry tht have a net worth (asset) on the range of Rp. 500.000.000,- to Rp 10.000.000.000,- or annual sales proceed on the range of Rp 2.500.000.000,-. to Rp 50.000.000.000,-. So, Large Industry is an Industry that have a net worth more than Rp 10.000.000.000,- or the annual sales proceed more than Rp 50.000.000.000,-; (ii) Small Industry is an industry that have a net worth on the range Rp 50.000.000.000,- to Rp 500.000.000,- or the annual sales proceed on the range Rp 300.000.000,- to Rp 2.500.000.000,-; (iii) Micro Industry is an Industry that have Rp 50.000.000.000,- or the most annual sales proceed Rp 300.000.000,-.

Year	Industry Categories <sup>2</sup>		
	Large and Medium Industry	Small Industry	Micro Industry
2012	945	856	32.535
2013	866	14.823	48.887
2014	863	21.590	43.152
2015	940	19.750	43.371
2016	777	-	-
2017	707	104.933	80.561

Source : BPS, cited by Database CEIC (2019). Notes: the amount data of Small and Micro Industries on 2016 did not found considering Industrial Manufacturing Statistics did not record kinds of industry on the related year.

In 2018, the majority of tobacco cultivation in Indonesia was carried out by the people through smallholder plantations (99.95%), followed by a small proportion of State Large Plantations (0.04%) (Ministry of Agriculture, 2019). The tobacco and tobacco products sector's business activities are concentrated on the island of Java. This is because there are more than 70% of tobacco farmers in Java (EY, 2018). In addition, the Ministry of Agriculture's publication (2019) shows that the area of tobacco plantations is dominated by the Provinces of East Java (49.7%), Central Java (22.3%), and NTB (14.7%). This area is positively proportional to tobacco production, as in Graph 9. High capacity areas or centers of tobacco production include East Java (84,015 tons), Central Java (34,283 tons) and West Nusa Tenggara (43,778 tons). East Java has a planted area of 100 thousand ha or 50% of the total area of tobacco plants in Indonesia (Ministry of Agriculture, 2018). There are also large-scale tobacco derivative industries in East Java, including Gudang Garam in Kediri, Bentoel in Malang, and Sampoerna in Surabaya.

**Graphic 9 Distributon of Production Center and Indonesian Tobacco, 2018**



Source: Ministry of Agriculture (2018)



The number of workers involved in the tobacco industry is divided into categories of farmers and workers in the processing industry. The total number of tobacco commodity farmers is 485 thousand people or 1.2% of the total workforce in the agriculture, plantation, forestry and fisheries sectors. The characteristics of agriculture in Indonesia are Agricultural Business Households, namely families with the main livelihood in managing agricultural businesses, so that work as a farmer is very important for some Indonesian people (BPS, 2018).

Indonesia's tobacco production centers are in the provinces of East Java, Central Java and West Nusa Tenggara. The selection of this area emphasizes the dominance of the contribution of cigarette production to total national production and the dominance of the industrial impact on labor absorption. Table 2 summarizes general information which includes center profiles in the form of plantation area, tobacco production volume, Tobacco Excise Sharing Fund (DBH CHT), number of tobacco farmers, number of large, medium and small tobacco processing industries and the number of workers involved.

**Table 2. Production Center Profile / Tobacco Industry, 2018**

Region	Area (Ha)	Production (Ton)	DBH CHT (Billion Rp)	Amount of Farmers (KK)*	Amount of Industry	Amount of Workers
<b>Jawa Timur</b>	<b>100.600</b>	<b>84.500</b>	<b>1.512</b>	<b>280.104</b>	<b>82.117</b>	<b>783.771</b>
Kab. Jember	13.392	26.103	55	18.738	-	-
Kab. Pamekasan	27.508	18.984	45	48.788	-	-
Kab. Probolinggo	10.042	12.450	50	52.061	-	-
Kab. Malang	1.880	654	25	933	-	-
Kab. Jombang	5.292	5.909	31	956	-	-
Kab. Sumenep	13.136	7707	33	574	-	-
Kota Surabaya	-	-	21	-	10	6835
<b>Jawa Tengah</b>	<b>42.362</b>	<b>34.283</b>	<b>676</b>	<b>113.354</b>	<b>26.311</b>	<b>274.922</b>
Kab. Temanggung	16.093	9.983	30	54.368	-	-
Kab. Rembang	3727	6829	18	4.437	-	-
Kab. Boyolali	3809	4718	17	12.534	600	8795
Kab. Magelang	5350	3920	15	10.515	6	192
<b>Nusa Tenggara Barat</b>	<b>32.854</b>	<b>43.778</b>	<b>248</b>	<b>40.361</b>	<b>-</b>	<b>-</b>
Kab. Lombok Timur	21.020	28.240	53	19.429	-	-
Kab. Lombok Tengah	9360	15.630	41	17.486	-	--
<b>Total</b>	<b>175.816</b>	<b>162.561</b>	<b>2.436</b>	<b>433.819</b>	<b>108.428</b>	<b>1.063.693</b>

Source: BPS. Notes: Data in the year of 2017, head of the family, as unit number of family farmers involved

In general, the tobacco and tobacco products industries contribute to the aspects of sources of state revenue (excise), the creation of foreign exchange, the creation of output value, added value and job opportunities, their impact on other economic sectors (multiplier effect), and linkages with the

upstream sector (backward linkages) and the downstream sector (forward linkages) to the national economy (Hadi and Friyatno, 2008). The Indonesian tobacco industry is concentrated in the East Java area. Besides the existence of large and well-known industries, there are also cigarette industries that are not recorded and are illegal, but are still considered to be contributing to the Indonesian economy (Rachmat and Aldillah, 2010).

### **Regulatory Framework Supports Exports Performance and Industry Sustainability**

With production capacity owned and its role in Indonesian economic development, the contribution of the tobacco sector and tobacco products economically not only reflected through GRDP proportion and exports performance, but also in the form of government revenue. Cigarette production and tobacco products are subject to tariff of Tobacco Products Excise (CHT), although tobacco and processed tobacco products are not subject to export duties, if refers to the Regulation of The Minister of Finance (PMK) 13/PMK.010/2017 about Stipulation of Exported Goods Subject To Export Duty and Rates of Export Duty. This industry also donates the government revenue through another kinds of tax.

Considering its role in the government revenue, of course there is urgency to protect and support the industry sustainability through the set of regulatory frameworks. However, currently there is no strategic roadmap policy framework which responds to this support. This far, the form of strategic policies issued by the government with related associations is Roadmap of Tobacco Products Industry and Excise Policy in 2007-2020 which is intended to measure the potential, challenges, and draft policy which is needed to support the sustainability of this sector. The design of this Roadmap, was originally intended to be deepened and extended through the Regulation of the Ministry of Industry Law Number 63 of 2015 about Roadmap of Tobacco Products Industry (IHT) 2015-2020, however it was revoked in 2016 because it was against the health law. Thus, the particular regulation that currently become the reference for the sector actors is Roadmap of 2007-2020 and there is a plan to encourage the design of a new roadmap to secure investment (Merdeka.com, 2019). Although the existing roadmap documents review the industrial condition since before 2007, some problems and draft policies still relevant to be discussed.

Roadmap 2007-2020 has the main vision, which is IHT could become an industry which oriented to the aspects of public health, labor absorption, and labor income in 2020. To achieve this, the Industry Roadmap emphasize the importance of excise policy, harmonization of short and long term goals, gradual change in policy, and prioritizing health objectives in the activity of this sector. Moreover, several draft policies were designed in the roadmap are expected to be followed up by the government in the form of more legal instrument. Beside the explanation of vision, the roadmap also tried to explain some key issues which need to become the attention of stakeholders.

One of the issues that is explained in the roadmap is the incompetence of local producers in producing tobacco according to industrial needs. This is reflected by high tobacco imports which happened in Indonesia. Beside of that, another issue of raw materials which become a concern is the weakness of the public tobacco's partnership and the non-conformity of SNI standards with tobacco trade indicators. In another side, the problems which is found are low-level productivity of tobacco products and also product diversification capabilities with minimum health risk. Tobacco and processed tobacco product that become exports commodity could give a high value in international trade, but unfortunately the limitation which local producers have plus a several issues which have been discussed in roadmap such as limited access to foreign markets and there is a Framework Convention on Tobacco Control.

In terms policies that have been rolled out, there are several regulation instruments start from provisions of cigarette components, limited cigarette advertisement and promotion media – from place and time for advertise, smoking restrictions in public places, increasing advertisement tax and modification tobacco's wrap product. All that limitations are aimed only for reducing the consumption and increasing health prevalence. Other than that, the government consistently

implementing the Exercise Rates for Tobacco Products (CHT) policies and the retail price (*harga jual eceran/HJE*) with the similar goal, which is healthy. The level of CHT and HJE increased in every year and CHT had not been upgraded in 2019 by taking into account the performance of the related sector. From the policy framework, unfortunately it has not been found the regulation framework which encourage resolution issue at tobacco's issue and tends to be dominant on consumer health protection.

Until the end of 2020, apart from the unavailability the regulation framework that can solve the issue problems in the tobacco's sector, several recommendations in the Roadmap 2007-2020 not fully executed. From the excise rates, there is an urge to harmonize the new excise rates run partially. By any plans to simplify for imposing excise rates have not been implemented after being previously appointed in 2019. Beside of that, the problem of industrial structure which has not been repaired become an obstacle to the productivity of this sector. There is no incentive for the person to exports tobacco product is the recommendation that is followed up.

### **Regulatory Framework Supports Export Performance and Industry Sustainability in Other Country**

In various tobacco producing countries and tobacco products, there are several design policy incentives which can be a reference in designing a similar policy in Indonesia. In China, most of tobacco and processed tobacco product (especially cigarette) are sold domestically and only less than 1 percent of tobacco and processed tobacco product which is exported (Tao, 2005). Management of the tobacco industry in China is carried out by CNTC (China National Tobacco Corporations) in form of business activities start from purchase the tobacco from community plantations to processing and trading in the form of tobacco and processed tobacco products. Several policies put forward by CNTC to increase exports among them are (i) restructuring of the tobacco industry sector and product premiumization, (ii) expansion of cigarette exports, (iii) technological capacity enhancement and technical knowledge, and (iv) establish foreign cooperatives (Fang et al, 2016).

First action is based on the changing of socioeconomic landscape which also happening in China. As a country that has a fast growth, a lot of Chinese people experienced an increase in income class become the middle class. This has prompted CNTC to adapt its product through brand consolidation and classification types of tobacco producing factories. However, the burden to bear is diminishing the number of factories to leave half of the original total factories in 10 years. The second action implementing by adopting three strategic steps, which are the establishment of a distribution network when entering a new market, license the product by the local manufacturers, and establishing the facility of domestic production (Ju, 2011). Cooperation between local and international brands is carried out as a form of the technology transfer policy implementation and technical knowledge. Chinese government encourages the regulations to measure cooperation between local and international brand through the granting of manufacturing license, development of tobacco's leaf varieties, and also sharing the ownership by offering the openness to the Chinese market which is quite large. Lats, overseas operations are carried out by collaborating the cigarette brand marketing with multinational company which has already opened up the market in the target country. This activities developed into a collaboration in the construction of production center in the target countries so that what started as an activity to increase exports, slowly changed become an increase in foreign exchange through direct investment in the target country..

Besides from China, another countries also have implemented several policies related with the urge to penetrate the international market. In India, tobacco's sector contributes a quite large exports. India exports a lot of tobacco and does not export tobacco product (such as cigarette). This is because the tobacco product subject to a high enough excise (Mishra et al, 2012). Other than that, India also has the law of Tobacco which facilitates the subsidy and simpler bureaucratic shot exports (John, 2001; Antigutkha, 2001). India is also taking a bilateral route to increase exports by signing Phytosanitary Protocol Cooperation between India and China in terms to encourage tobacco exports in 2019 (Suneja, 2019). In Zimbabwe, one of the largest tobacco producing country in the world, policy that

encourage export incentive is given in form of tax retribution and a special exports incentive budget is enforced (Albert et al, 2012).

Generally, there have been various specific strategies such as export promotion through bilateral agreement, exports subsidy, and intervention in the phase of tobacco domestic production that effect in the pattern of tobacco trade in the world which has been running in several years ( Grise, 1990), although this time the government generally focus on the interventions in production and provide export subsidies (Musona, 2016). Galinato et al. (2017) in his study explains that a country will imports more tobacco when the origin of tobacco (exports country) has stricter export regulation also have the highest wealth compared to the imports country. The study also emphasized that different marketing strategies and advertising regulation in trading partner countries could affect the strictness of a export and import tobacco policies.

### **Tobacco Industry Resilience and Tobacco Products in Responding Global Dynamic**

In building export-oriented industries, tobacco industry and tobacco products need to respond global demand, moreover along with this Covid-19 condition. This part will discuss how tobacco industry and tobacco products respond to the phenomenon of pandemic. Corona Virus Disease (Covid-19) pandemic is an epidemic disease which started from China in the end of 2019 and spreads to the whole world in the beginning of 2020. This virus affecting human's health thus limits the mobility and activities also resulting in the deterioration of the existing economy. The impact is affecting individual performance, business, or government. The magnitude of Covid-19 impact is different based on the policy and countermeasures taken by each country.

As the commodity which is the most related with the health sector, cigarette and tobacco products relatively increasing the risk of health impact for human who is infected by Covid-19 and increasing the patient's risk of death. Beside of that, cigarette, which are a tertiary commodity, are often not prioritized in terms of household consumption when there is a household income shock which have been brought by pandemic situation. Both of that two factors in the end are contributing in decreasing the level of consumption and balance of trade from tobacco and tobacco product itself.

According to Tobacco Board (PTI, 2020), global consumption and tobacco exports can decrease up to 20% in 2020 which caused by lockdown during this pandemic, as well as in India, Europe, and America. Other than that, pandemic could cause the retardation of tobacco product supply even decrease the demands of product, so there is a possibility to reduce the tobacco production volume through restrictions on tobacco cultivation at the farmer level. This has been reflected by seeing a several phenomenon in various country such as India, United States, South Africa, and japan where these three countries, the decision to temporarily close cigarette factories has lost thousands of job opportunities and lost the industrial income (Tembo, 2020; JTI, 2020). Different from the previous findings, British American Tobacco (BAT) precisely put forward that nothing will change in the public consumption pattern, considering that several cigarette retail shops are still open, to serve the process of buying and selling, especially in Italy and France (Hefler and Gartner, 2020). BAT also with Phillip Morris International (PMI) through 40% shareholdings Medicago which developing vaccine using tobacco plant along with other tobacco industries make donations through the Corporate Social Responsibility (CSR) company activity, it can be by giving medical toolkit such as personal protective equipment, hand sanitizer, ventilator, or money directly (University of Bath, 2020).

In Indonesia itself, one of the biggest player in tobacco industry, HM Sampoerna, decided to stop the production activity in the factory which located in East Jawa, it is caused by two employees who died due to Covid-19 and detected 65 employees who were infected by the disease. The same thing been followed by PT Gudang Garam Tbk by stopping the production process since 1<sup>st</sup> of May, 2020 (Ningsih, 2020). The decision could affect the availability of tobacco product in market that cause the occurrence of supply shock.

Moreover, the trend of product demand also expected will changed during Covid-19 pandemic or after this pandemic comes to an end, because many people who lost their income and job that causing demand shock. As stated by McKinsey that quoted by Hafidh in Jurnal.Id (2020, consumers will experience behavior changes by focusing on the product value rather than product price, as well as the possibility of consumers to hold their money to buy goods that are not important such as complementary products (cigarette includes in it). Research by Nielsen (2020) said that consumers behavior shift with the trend towards supplement products and health, also staple food. Despite of that, consumers also purchased a lot of food products, or panic buying, with long shelf life characteristics in order to survive while the isolation at home. That incident can caused an imbalance of supply and demand in market that leads to price increases of inflation (Syafina, 2020)

In terms of transaction patterns, current consumer trends is to make buying and selling transactions by online through marketplace to minimize a direct contact with seller. However, it is generally to fill staple food only, meanwhile tobacco product and other tobacco products not always can be accessed by people through internet. According to Hikami (2019), tobacco products sale, e-cigarette and other tobacco products by online is not prohibited by government. But, one of the marketplace in Indonesia, Tokopedia, issued a stop-sales policy of tobacco product, e-cigarette and other tobacco product on the Android based application. That policy is based on the law from Google Play Store platform that prohibits application in facilitating tobacco products and alcohol sale.

As the product consumption that not classified as basic necessities, seems like tobacco product accepting a negative effect from the public consumption behavior changes. The existence of Covid-19 resulting the changes in the balance of trade through supply and demands pattern especially on the shift of export-import tobacco product pattern.

## II. RESEARCH METHODOLOGY

The analysis of Input Output is based on the Input Output (I-O) table which describes the linkages between sectors in an economy. In Indonesia, I-O Table is issued every five years by Statistics Indonesia (*Badan Pusat Statistika/BPS*). Result of the analysis from the table is comparative static, that is, the result which shows the balance comparison (*equilibrium*) between before and after there is a policy interventions or intervention. I-O Table Approach could calculate the impact of total sector linkages that can be differ into two parts which are impact of direct sector linkage and impact of indirect sector linkage. Direct linkage can be divide becoming two, which are direct backward linkage and direct forward linkage. Indirect linkage is the sum of the second round, third round, and so on.

Input Output analysis has the advantage of linkages between economic sectors, both from the input use, or output allocation. From the input side, I-O could know how much intermediate input in each sectors and direct input to produce output in certain sectors. From the output side, we could know how many output allocation of certain sectors that distributed to fill the intermediate demand for other sector, also final demand. The interrelationship between the use of input and the allocation of output allow us to calculate the impact of a policy on the whole sectors in economic. The increase of output, direct input income, and the amount of labor can be calculate from the multiplier effect information.

Input Output Table is very suitable to use in this research. Where the activities of the economic sectors, basically could not stand alone but interrelated or have an association with other economic sectors. The sectorial linkages can occur between production activities at the regional level, as well as across region (national), even across country (international). The progress of a sector will not be separated from the support which given by another sectors, so it is actually a linkages between these sectors can be used as an ideal model that supposed to happen in the economy.

In this research, will be seen the quantities multiplier of the economy output), input multiplier, the added value multiplier that occurs, ongoing income multiplier, and a change of number of workers

that will be used. The following is an explanation of the I-O Table based on the LPEM FEB UI (2019) study.

**1) Output Multiplier (Leontief Multiplier)**

$$X = (I - A)^{-1} F \dots\dots\dots (1)$$

Where:

- X = total output matrix of size n x 1
- I = identity matrix size n x n
- F = final demand matrix size n x 1
- A = input / technical coefficient matrix size n x n

This (1) equation is the main point model of I-O, meanwhile  $(I - A)^{-1}$  is the Inverse Leontief Matrix that can be function as a multiplier (output multiplier). Final Demand Increase (F) of a sector not only has direct effect on the total output increase (X) in this sector itself, but also to another sectors. Quantity of impact from total output increase because of the final demand increase depends on the size of multiplier.  $(I-A)^{-1}$ .

**2) Input Multiplier (Gosian Multiplier)**

$$\begin{aligned} V &= X - A^T X \\ V &= (I - A^T) X \dots\dots\dots (2) \\ X &= (I - A^T)^{-1} V \end{aligned}$$

- V = Primary Input (value-added);
- $A^T$  = transpose from the usage coefficient matrix (A).

Shown in equation (2) that X output determine by V. Need to know that V composed of two main components, which are: (1) imported material value, and (2) primary input value which is the intake of each sector. Here, V acts as a policy intervention or stimulus from the economy supplied from the supply side. This method known as *Ghosian Approach*. So that  $(I - A^T)^{-1}$  mention as *Ghosian Inverse* matrix. Considering the used of stimulus consists of 2 categories which are (1) Final Demand, and (2) import plus gross value-added, then the impact of total output from business activities is the sum of the ouput impact sourced from Final Demand (*Leontief multiplier*) and “import + Gross value-added” (*Ghosian multiplier*).

**3) Income Impact (Changes in Income)**

If there is a linear relationship between output and income changes, then Final Demand changes cause output to change and at the end the income will change also. Size of the impact on the sector income and other sectors depend on the multiplier that linking Final Demand with income impact. The number of income impact cause by Final Demand changes formulated as:

$$M = \hat{V}(1 - A^d)^{-1} \dots\dots\dots (3)$$

Where:

- M = Income Impact Matrix Size n x n,
- $(1-A^d)^{-1}$  = Total Output Multiplier Matrix,
- $\hat{V}$  = Income Coefficient Matrix Size n x n, where the diagonal is obtained from the formula.

$$v_{jj} = \frac{V_j}{X_j},$$

where  $V_j$  = The number of J sector income and  $X_j$  = the number of J sector output.

Matrix  $\hat{V}$  is a diagonal matrix. Therefore, the income impact is the multiplication of income coefficient diagonal matrix with output multiplier. The impact of Final Demand changes on the income changes become

$$\Delta M = \hat{V}(I - A^d)^{-1} \Delta F \dots\dots\dots (4)$$

The equation (4) states the amount of change in income due to changes in final demand.

**4) The Impact of Employment Opportunities**

The employment impact number is used to see the addition of new job opportunities due to the increase of final demand in certain output sectors. The employment impact, by using Leontief approach is formulated as follow:

$$E = \hat{L}(I - A)^{-1} \dots\dots\dots (5)$$

Where:

$E$  = The projection matrix of employment opportunity

$\hat{L}$  = Koefficient Workers Matrix that is contains the workers ratio on total input in each sector. This matrix is diagonal matrix with the components obtained by:

$$l_{jj} = \frac{TK_j}{X_j} \dots\dots\dots (6)$$

Which are:

$TK_j$  = The amount of workers in sector J

$X_j$  = total input of sector j

Therefore, changes in employment opportunities caused by the Final Demand changes formulated as follow:

$$\Delta E = \hat{L}(I - A)^{-1} \Delta F \dots\dots\dots (7)$$

The equation (7) states the projection formula of final demand quantities or the output to the employment opportunity quantity. Because of that, it can be said as workers or job opportunity impact formula. Meanwhile, some analyzes favor projecting additional labor on a business sector to the additional labor on the whole business sectors. In other words, the relationship between the amount of workers as a policy intervention to the amount of workers as an impact mention as workers or job opportunity multiplier.

**5) Linkage Analysis**

Every sector in economy surely needs and needed by another sectors. Because a sector needs an input source to another sectors, then the sector has a *backward-linkage* or *up-stream*. And because an output of sector needed by another sectors, then the sector has *forward-linkage* or *down-stream*. The level of *up-stream* or *down-stream* linkage from economic sectors are different, some have a low, medium or high degree of linkage. These linkage degree are very important for the planners in making decisions about which economy sector has a high up-stream to down-stream linkage, so the development must be prioritized.

Need to be explained that the linkage of a sector to another sectors can be categorized into direct linkage and indirect linkage. The explanation of these two categorized of linkages will be discussed in this part.

a) *Direct Linkage*

i) *Direct Backward-Linkage*

Dependency of a sector to another sectors which serves an intermediate input for the process to produce output of a sector known as direct backward-linkage. The quantity of a sector dependency on another sectors can be seen from the input coefficient or technical coefficient. As an example, the quantity of direct linkage sector 10 on sector 1, can be seen from technical coefficient  $a_{1,10}$ , which is the technical coefficient matrix element (A) on the 1<sup>st</sup> line 10<sup>th</sup> column. The quantity of direct backward-linkage as a total of a sector can be obtained by the formula of:

$$KBL_j = \sum_{i=1}^n a_{ij} \dots\dots\dots (8)$$

Where:

$KBL_j$  = direct backward-linkage of sector j

$a_{ij}$  = technical coefficient of sector j from output of sector i

ii) *Direct Forward-Linkage*

Direct forward-linkage can be illustrate by how big a sector can serves the output for the implementation of the production process for another sectors. The quantity of this linkage can be seen from input coefficient or technical coefficient. As for example, the quantity of direct linkage of sector 10 to sector 1, can be seen from technical coefficient  $a_{10,1}$ , which is the technical coefficient matrix element (A) on the 10<sup>th</sup> line 1<sup>st</sup> column. The quantity of direct forward-linkage as a total of a sector can be obtained by the formula of:

$$KDL_i = \sum_{j=1}^n a_{ij} \dots\dots\dots (9)$$

Where:

$KDL_i$  = direct forward-linkage of sector i

$a_{ij}$  = technical coefficient of sector j from the output of sector i

b) *Total Linkages (Direct Linkage + Indirect Linkage)*

Through I-O Table, it can be analyzed the total linkages between sectors. Total linkages means the amount of direct and indirect linkage numbers. Definition of direct linkage has been delivered on the explanation before. Then, indirect linkage measures the linkage of a sector to another production sectors that more up-stream, where another production sectors output indirectly inputted by the analyzed sector, but they have got affected. This mechanism can be possibly happen because there is a chain effect on the sectors which give input (supply) to an analyzed sector. The measurement of up-stream linkage also names as backward-linkage or dispersion power. When the output of the analyzed sector is increasing, there will impact on the increase of sectors output that more up-stream, including the indirect linkage.

Thereafter, indirect forward-linkage is measuring the linkage of a sector on the more down-stream production sectors, where the increase of output in analyzed sector encourage the increase of up-stream output sectors, including the sector that indirectly using analyzed output sector. This is because there is a chain effect in other industry which use output from the first industry as an input, it names as down-stream linkage or sensitivity (forward linkage). The formula to obtain the numbers of total backward linkage is:



$$IKB_j = \frac{\sum_{i=1}^n \alpha_{ij}}{\sum_{i=1}^n \sum_{j=1}^n \alpha_{ij}} \dots\dots\dots (10)$$

Where:

$IKB_j$  = backward-linkage or up-stream index of sector j sektor j

$\alpha_{ij}$  = i line j column elements from output multiplier matrix  $(I - A^d)^{-1}$  .

The formula to obtain the number of total forward linkage is:

$$IKD_i = \frac{\sum_{j=1}^n \alpha_{ij}}{\sum_{i=1}^n \sum_{j=1}^n \alpha_{ij}} \dots\dots\dots (11)$$

Where:

$IKD_i$  = forward-linkage or down-stream index of sector i

$\alpha_{ij}$  = the elements of i line column j from output multiplier matrix  $(I - A^d)^{-1}$  .

This study hopefully could measure the impact of this trade potential if it use by domestic actors with the support from Indonesian government. In supporting the goals, this study will use the approach of Input Output Table (IO). IO Table sever the illustration about reciprocity and inter-sectorial linkages in Indonesia economy as a whole. The form of IO Table can describes the output value creation, value-added, additional job opportunities, the impact to another economic sectors, and the linkages with up-stream and down-stream sectors.

This study will gives three kinds of interventions based on the three commodities that being observed. These interventions is divided into two kinds, where the first intervention took pure value on the total commodity trade deficit which is owned by a several countries in the world. Whereas on the second intervention, there is a modification of trade deficit value where more developed countries, which is clarified as a higher per capita income than Indonesia, receipt a weigh of 0,5 as a form of penalty on for various tighter regulations in developed countries, such as higher excise, standard product limitation, and etc.

### III. DISCUSSION

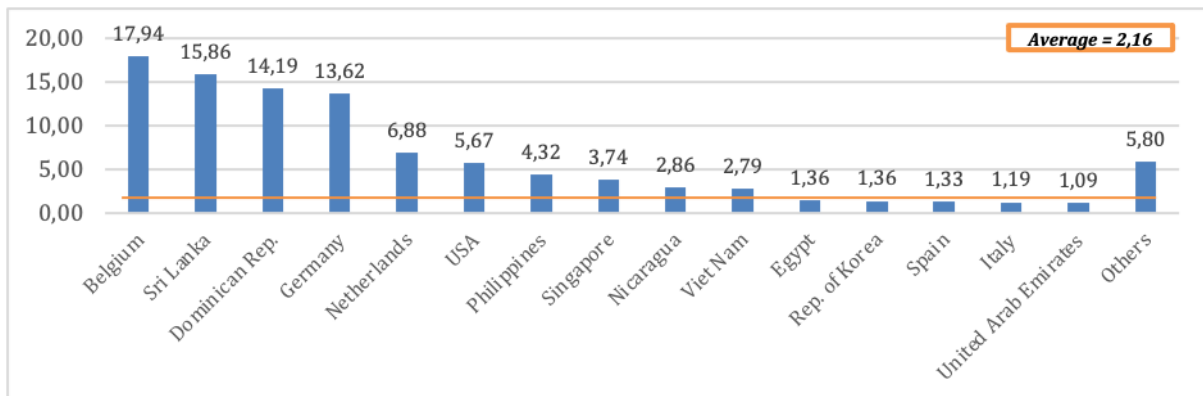
This part will focus in examine the impact in optimize export on the tobacco sector commodity, processed tobacco product, and cigarette in Indonesia, also analyzing the role of private actors as well as challenges that faced by in the exports.

#### **Export Impact to Tobacco Sector, Processed Tobacco Product, and Cigarette in Indonesia**

Tobacco and its product have been exported by domestic industry to more than 30 countries over the past decade. The destination for tobacco export and its product export have various amounts, destinations, and different trade values. Graphic 10 shows the tobacco leaves exports contribution based on destination country. Indonesia more-less is exporting Tobacco worth about USD 3.5 billion to each export destination country. On 2018, Indonesia has exported Tobacco worth about USD 169 billion. In that price, the biggest contribution of tobacco leaves to Sri Lanka, Dominican Republic, Belgium, Germany and Netherland as five biggest main destination tobacco exports. From these main

export destination countries, it can be known there are several countries are known as the main export of tobacco product, such as Netherland, Belgium, and Germany.

**Grafik 10 Contribution Tobacco Exports Value per Main Destination, 2018 (percent)**

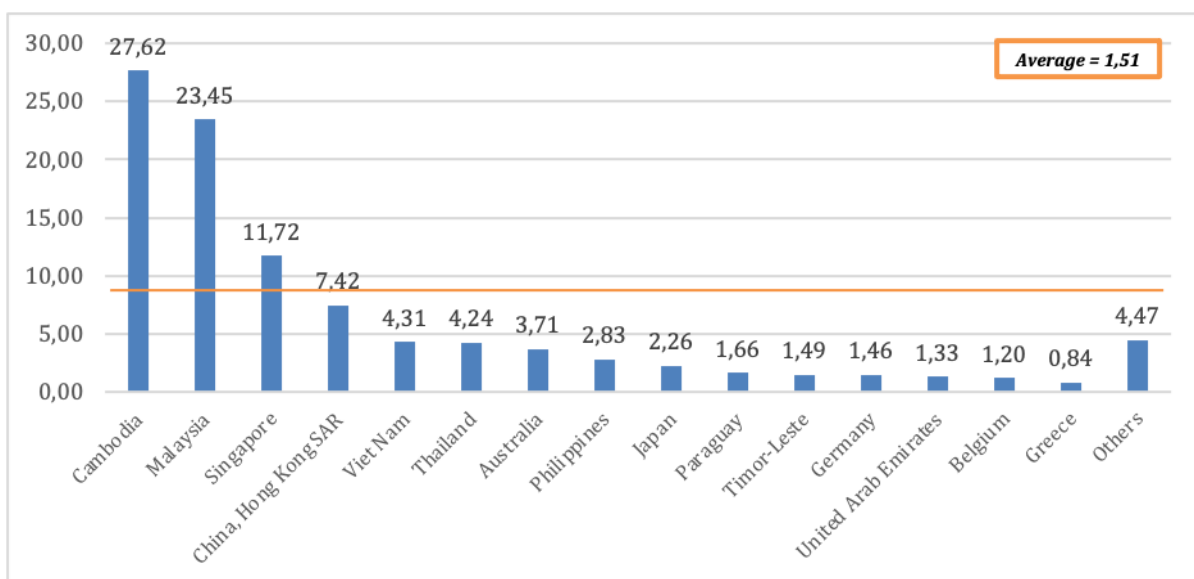


Source: UN Comtrade, 2018

Beside, Graphic 11 and 12 illustrate the value of tobacco product exports contribution, which are cigarette and processed tobacco product. Dominations of Indonesian cigarette product export destination is anchored in neighboring countries, such as Cambodia, Malaysia, Singapore, Vietnam, and Hong Kong. Even 10 main destination exports countries are geographically located within the same region, which is Asia Pacific. This indicates that Indonesian cigarette product dominantly could enter markets in Asia Pacific countries.

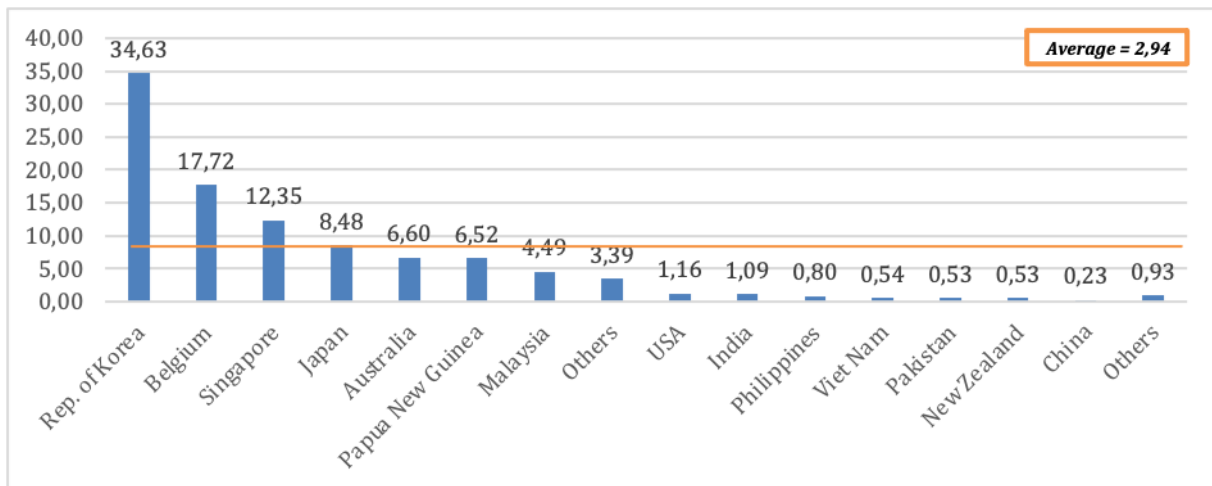
Although it has a trade value that is not equal to the value of cigarette exports, processed tobacco product exports seen as an alternative to cigarette which incidentally is more likely to face health-related regulatory restriction. On Graphic 12 below, processed tobacco product generally much is exported to developed country such as South Korea, Belgium, Australia, Singapore, and Japan.

**Graphic 11 Cigarette, Cigar, RYO Cigarette Export Value Contribution per Main Destination, 2018 (%)**



Source: UN Comtrade, 2018

**Graphic 12 Processed Tobacco Product Export Value Contribution per Main Destination, 2018 (%)**

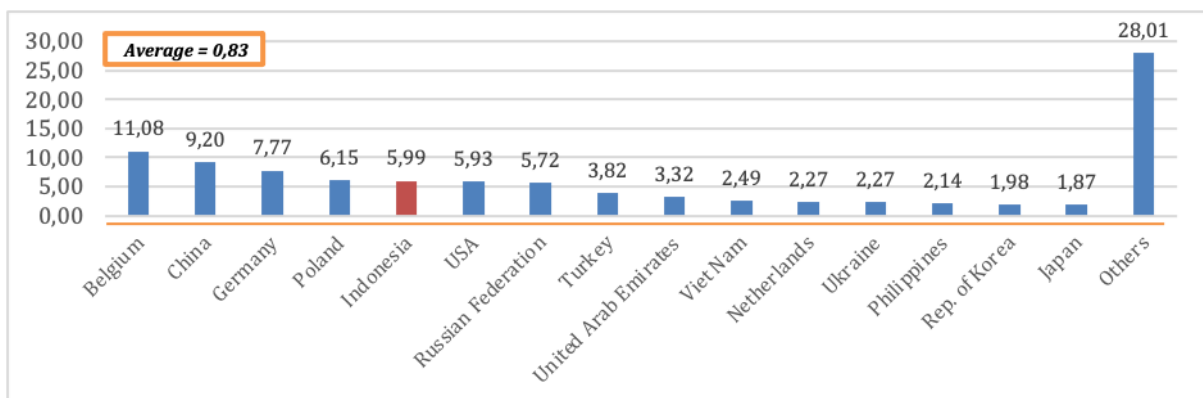


Source: UN Comtrade, 2018

Illustration about the condition of tobacco product and its product export that has been achieved by Indonesia has shown related mapping with domestic product destination markets in International market. Surely, what has been imported by the destination country from Indonesia signify that there is a demand on domestic product commodity.

In the context of tobacco leaves context, imports by the destination country can be define into two things, which are the demand of tobacco leaves for direct consumption or made into input material for processed tobacco product needed such as cigar, RYO cigarettes, cigarette, and other processed tobacco. Factories established in tobacco leaves importing countries have needs to fill the input that needed for production process. This import itself is done by various motif, such as unavailability of commodity from where the factory stands to mismatch in terms of cost, quality, to clash of regulations. Graphic 13 shows the value of tobacco leaves in the main importer country.

**Graphic 13. Tobacco Leaves Import Value Contribution per Main Importer Country, 2018 (%)**



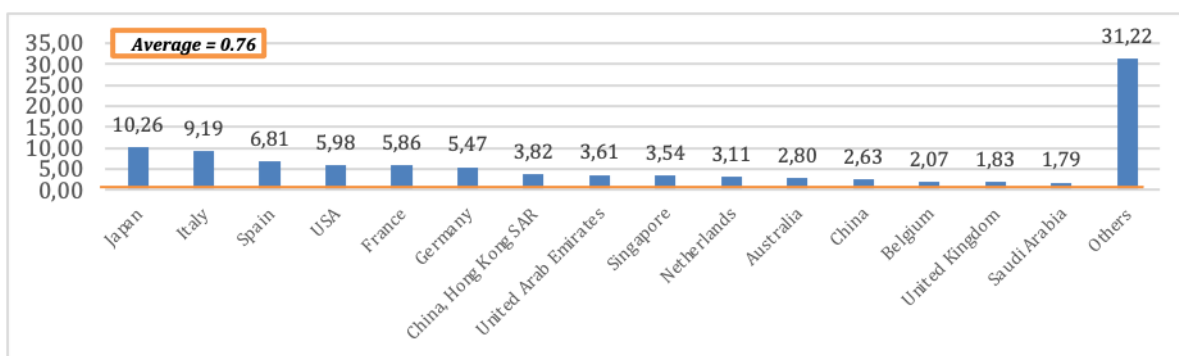
Source: UN Comtrade, 2018

From the graphic above, it can be known that Indonesia is five biggest tobacco leaves importer countries in the world. Indonesia itself is surely depends on the tobacco leaves import for industrial needs. This is because of the quality of leaves that been planted in local does not meet the needs of local industry, both in terms of quality or quantity. As for the exported tobacco leaves to another

country is the commodity which have higher value if it sell to international market rather than local. Except of Indonesia, there is China, which also the biggest cigarette consumer, so that is needing more tobacco leaves input I processing domestic processed cigarette. Belgium, Germany, and Poland is three cigarette exporter countries that big enough in the world and they do not have quite nature capacity to plant tobacco so they need to import tobacco leaves in the process of cigarette and other tobacco product production.

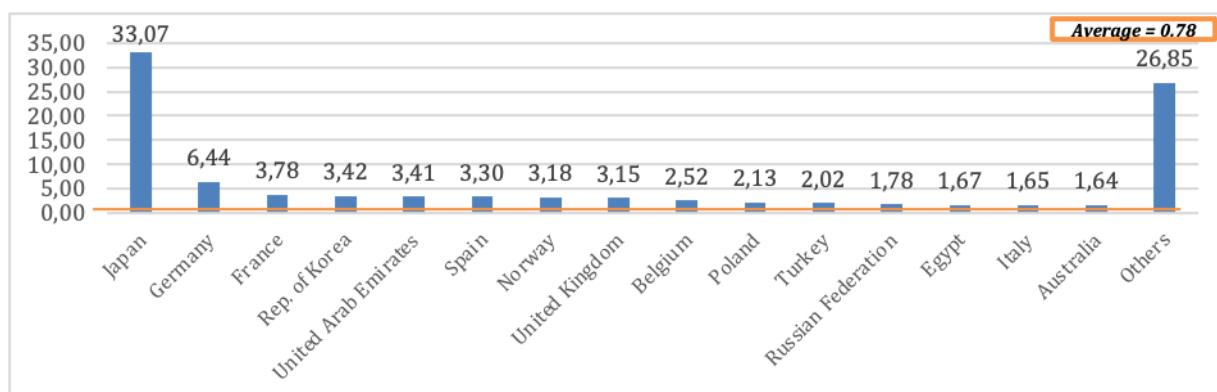
Beside tobacco leaves import, Graphic 14 and 15 illustrate the cigarette and process tobacco product import values that have been done by various countries in the world. From that both commodities, there are several interesting findings. First, Japan is on the first position as the biggest importer of cigarette and processed tobacco product in the world with the contribution from total import value which is relatively high than other countries. Beside of that, majority of tobacco product and its other product importer countries are the country with developed economies. Several factors can support this condition, among them is competitive disadvantage because of the high cost of doing business, binding regulations, and etc.

**Graphic 1 Cigarette, RYO Cigarette, and Cigar Imports Value Contribution per Main Importer Country, 2018 (%)**



Source: UN Comtrade, 2018

**Graphic 15 Processed Tobacco Product Imports Value Contribution per Main Importer Country, 2018 (%)**

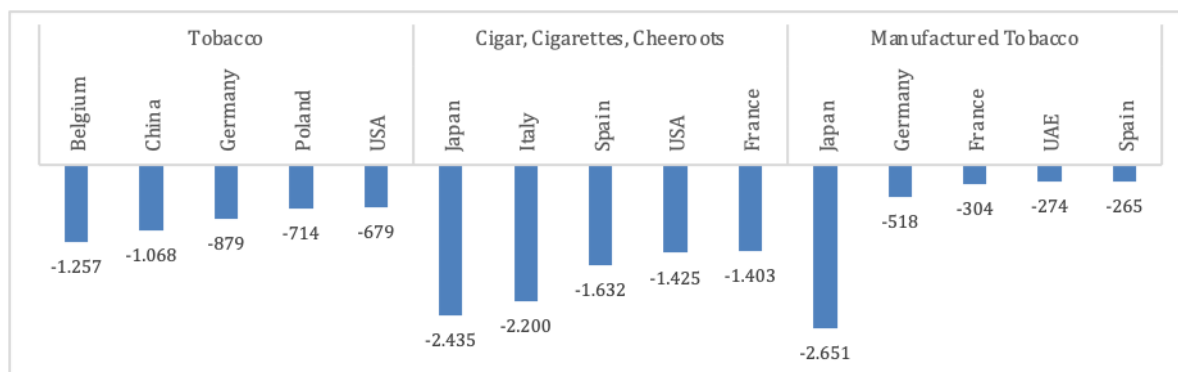


Source: UN Comtrade, 2018

The existence of export and import actions can be translated into a trade balance for tobacco and its product sector. Dependence on imports is quite large in a country can be seen as a potential for

expansion of domestic product that can be achieved by the domestic actors. If we see the Graphic 16, it can be known that for each commodity, there are several countries which have a quite large import dependency.

**Graphic 16. Tobacco and Its Product Trade Balance on the Main Country, 2018 (million USD)**



Source: UN Comtrade, 2018

These commodities trade balance then can be used as a potential for domestic actors to export their commodities to destination countries which have a big deficit, such as describe in Graphic 16.

### Sector Linkages

Analysis of Sector Linkages is a series of analyses from Input-Output approach which describes the observed sector influence on another sectors. Linkages analysis is reflecting the economic condition where each sector will have an output that is needed by another industry and final demand. The linkages between sectors can be occur directly or indirectly. Linkages divide into direct and indirect linkage, where direct linkage describes the linkage between two sectors who made the transaction, meanwhile indirect linkage describes the linkage that could not be describe by transaction between two related sectors.

By using the framework, in these Table 4 and 5 below summaries of the result of Linkages Analyses calculation for Tobacco Sector, Cigarette Industry, and Processed Tobacco Industry as follows.

**Table 1. Summary of Direct Linkages Analyss Tobacco Sector, Cigarette Industry, and Processed Tobacco Industry**

Sector	DFL	Rank	DBL	Rank
Tobacco Plantation	0.050368	156	0.374731	103
Cigarette Industry	0.029755	160	0.31866	121
Processed Tobacco Industry	0.226312	89	0.599601	32

Source: Researchers. Notes: Direct Forward Linkage (DFL) and Direct Backward Linkage (DBL). Total Sector: 185

**Table 2. Summary of Linkages Analysis Total of Tobacco Sector, Cigarette Industry, and processed Tobacco Industry**

Sector	TFL	Rank	TBL	Rank
Tobacco Plantation	1.057	157	0.374731	103
Cigarette Industry	1.033	166	0.317677	121
Processed Tobacco Industry	1.263	96	0.599601	28

Source: Researchers. Notes: Total Forward Linkage (TFL) and Total Backward Linkage (TBL). Total Sector: 185

Revers to the result that has been described Table 4 and 5, there are several findings that can be discussed. Commonly, tobacco and its product sector does not have strong direct linkage. Both in terms of value (under 1) and in terms of level, these sectors showed that there are no dependency both with up-stream or down-stream sector.

As a sector located in the initial supply chain, Tobacco Plantation has a direct up-stream and down-stream linkage low value. This indicates that this sector in Indonesian economic does not have a strong multiplier value and also not giving any contribution to the down-stream sector, which is the processing sector, both in the cigarette industry and processed tobacco. This is reinforced by the findings that processing tobacco product sector relatively more imports raw materials to foreign countries rather than using the domestic output. Aside from that, the low upstream direct linkage value is indicating that the result output by the tobacco plantation sector does not give any welfare contribution for the actors in that sector optimally which maybe is caused by few conditions such as production expensive cost, or production scale which is not optimal.

Apart from that, processing tobacco products sector which is described by cigarette and processed tobacco industry sector is also not showing a strong linkage upstream and downstream value. This indicates the low of dependency of these two sectors with domestic tobacco producer and also the low of output use which produced by these industries as an input in other sector<sup>3</sup>. Another case with direct linkage, the whole industry by total linkages value has a strong dominant upstream linkage as shown by Table 5. This indicates that tobacco, processed tobacco, and cigarette sectors gives a strong contribution on the economic through indirect transaction. However, with considering the low level, this achievement needs to be analyze moreover, because in fact these three sectors still have a relative low effect compare to another sectors and still have some potential to be increased. One of the justifications that can support this result is that tobacco and tobacco product sectors is the tarsier consumption output – so it would not become the main need for people to consuming in the big amount and resulting on the relative low effect. On another side, direct upstream linkage that has been analyze from these three sectors tend to be low. This indicates that those sectors have a dependency on the economic input and output Indonesia that tend to be low and relatively do the input from foreign country.

### **Multiplier Impact of tobacco Sector and Its Product Sector**

One of the analysis framework in the approach of Input and Output Method is a measurement of multiplier impact. This study will focus on discussing the coefficient of multiplier impact on the tobacco sector, cigarette industry, and processed tobacco product industry. There is also a multiplier impact which will be discuss and reviewed in terms of Multiplier output (OM), Value Added Multiplier (VM), and Labor Multiplier (LM). Table 6 below summarize the coefficient of multiplier impact (OM, VM, and LM) from three sectors which been observed.

<sup>3</sup> This findings can be justified because of the low use of the local tobacco product, these two sectors produced the output which can be consumed by public directly so it has a low down-stream linkage because it becomes an input for another sectors.

**Table 3. Summary of the Coefficient of Multiplier Impact (OM, VM, dan LM)**

Sector	OM	VM	LM
Tobacco Plantation	1.06	0.71	0.33
Cigarette Industry	1.03	0.57	0.03
Processed Tobacco Industry	1.26	0.30	0.09

Source: Researchers

The coefficient which figure in Table before then it is been analyzed by multiplied with intervention matrix (shock). Also this intervention referring to the potential of exports which been observed from trade balance of tobacco and tobacco product commodity in the whole world and Indonesia’s position as tobacco and processed tobacco products exporter. This study refers to the explanation before, where tobacco export will be easier to achieve if the export destination is to a country with low per capita income. Therefore, there are two intervention scenarios, which are: (i) general scenario where Indonesia do the exports to top 20 countries with deficits of tobacco and processed tobacco commodity trade balance, and (ii) special scenario where Indonesia exports to top 20 countries with deficits of tobacco and processed tobacco commodity trade balance with an exception for countries that relatively more developed than Indonesia, classification of countries that are more advanced or not seen from the indicator of the country’s per capita income in 2018.

Of course, with these capacity of tobacco and processed tobacco product sector this time, Indonesia has not been able to meet the entire import pass for this commodity. So that the value of trade balance which become the export potential will be readjusted with domestic production capacity. By considering those scenarios and conditions, the intervention value (shock) which describing tobacco and tobacco product exports potential is summarize in Table 7 below.

**Table 4. Summary of Shock Scenario 1 and 2**

Scenario	Description	Export Potential Value (million USD)		
		Tobacco Plantation	Cigarette and Processed Tobacco Industry	Total
1	Export potential is measured by fully encourage tobacco production and its product for export needs. .	275.04	34.712,76	34.987,80
2	Export potential is measured by fully encourage the tobacco production and its product for export needs. However, adjustments made by considering limitation reach of export destination markets.	120.63	18.224,20	17.556,88
<i>Addition Information</i>				
<b>Total Receipts (million USD)</b>		275.04	34.712,76	34.987,8
<b>Export Potential Value Adjustment Ratio (%)</b>		43.86	52.50	50.18

Source: researchers

## Notes:

- The revenue rate is the total production in the sector that multiplied by the selling price. In this research, total revenue is described by the following data:
  - Tobacco plantation:  $1,5^4 \times 183.360.000^5$  kg
  - Cigarette industry and processed tobacco:  $USD 0.1^6 \times 347.127.600.000$  piece
- The calculation of the processed tobacco sector is categorized the same as the cigarette industry because of the limited data and the estimated number is insignificant.
- In the IO calculation, 90% of the shock value of the cigarette and processed tobacco industry will be directed to the cigarette sector (75) and the rest to the processed tobacco sector (76). This is because the cigarette commodity contributes 90% of the total tobacco products.
- The Export Value Adjustment Ratio is taken from the division between the value of the global commodity trade deficit in the highest importing country with per capita income below Indonesia with the value of the global commodity trade deficit in the 20 highest importing countries

Based on Table 7 above, it is known that in the first scenario, both the tobacco plantation and the tobacco product industrial sector have the same shock value as the current industrial revenue value. This illustrates the condition if the tobacco industry and its derivative products completely shift the market from domestic to international with similar capacities or the two industries increase their production capacity 100% to encourage the same amount of production that can be exported.<sup>4</sup> In the second scenario, the shock value is the product of the ratio of the adjustment to the value of potential exports to reflect conditions in the form of non-optimal export barriers because the intended export destinations are more limited. This accommodates the findings of Galinato et al. (2017) who show that it is difficult to export tobacco to more developed countries

This shock value illustrates the measured export potential and will later be used as a measure of the impact of achieved economic aspects when this export potential is achieved. The economic aspects observed in this study are the increase in output, added value, and labor creation. The discussion of the economic impact will be discussed in the next section.

#### *Output Value Creates*

The economic impact that occurs when the potential for exports can be achieved can be seen from changes in the value of output and final demand in an economy. By referring to the scenario above, it can be seen that if the export potential is achieved, in general the Indonesian economy will experience an increase in output by 5.76 - 11.06 percent.

In fact, these additional changes have been accompanied by an increase in output in the observed sector. The tobacco plantation and cigarette industry sectors will experience an increase in output in each sector by 2-4 times to support exports. In addition, the processed tobacco industry will experience an increase in output by 3.7 - 7 times. Of course, this change in output indicates the potential for an increase in the number of producers who are able to facilitate this change in output.

In terms of the value of the rupiah, the economic impact that would be obtained from the achievement of the export potential on average ranges from Rp. 2.1 trillion - Rp. 4.2 trillion. The tobacco

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<sup>4</sup> *Constant Return to Scale assumption* apply for sure the production capacity increase would not add the production cost exponentially. I.



plantation sector experienced an increase in output of Rp. 9 trillion - Rp. 18 trillion. As for the cigarette sector, which in fact is the leading export sector, experienced an increase in output worth IDR235 trillion - IDR448 trillion and the processed tobacco sector experienced an increase of IDR55.8 trillion - IDR106.4 trillion.

However, encouragement shock on export not much influence to change request the end of the economy. On average, increase in demand the end of increased ranged from 0.0016 - 0.0031 per cent. From observations sectoral either sector tobacco, smoking, and tobacco processed each mencatatakan peningaktan request the end of ranged from 0.0002-0.038 percent, to adjust the type of scenarios and type the sector.

Apart from the observed sectors, the impact of an increase in exports with the value of a number of potential exports can have an effect on increasing output in other sectors. The clove plantation sector experienced an increase in output of around 1.2-2.4 times, followed by the Broadcasting, Programming, Film and Sound Recording Services sector (an increase of 8.41 - 16.03 percent) and the Fertilizer sector (an increase of 9.07 - 15.89 percent). In addition, the increase in final demand arising from the impact of this potential export was also felt by the Gold Ore sector (an increase in final demand by 0.15-0.3 percent), the Silver Ore sector (an increase in final demand by 0.06-0.13 percent) and the Other Metal Mining Goods sector ( an increase in final demand by 0.018-0.036 percent). When viewed from the value of the rupiah, the clove plantation sector experienced an increase of Rp. 11.4 trillion - Rp. 21.8 trillion. Meanwhile, the trade sector for vehicles other than motorbikes and cars experienced an increase in output of Rp. 11.04 trillion - Rp. 21.06 trillion.

These findings indicate that the resulting economic impact can affect the increase in output indicators for sectors with strong links. For example, the increase in the fertilizer and cloves sector cannot be separated from the fact that the tobacco sector requires fertilizer and the cigarette industry sector in Indonesia also uses cloves as an input. However, it cannot be denied that there has also been a quite strong change in final demand by sectors that are closely related, namely the metal mining sector (gold, silver and other metals). The justification that can be taken is that this sector supports the continuity of operations by providing input which is the output / final demand of these sectors. For example, the need for cigarette-rolling machines requires mineral resources..

Table 8 below summarize changes output and final demand on tobacco, cigarette and processed tobacco sector and average sector.

**Table 8. Summary of Export Potential Achievement on The Changes of Output and Final Demand**

Sector	Output Changes		Final Demand Changes		Economy Impact	
	%		%		(Rp Million)	
	Scenario 1	Scnario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Tobacco Plantation	418.58	212.02	0.0382	0.0193	18,034,006.19	9,134,557.51
Cigarette Industry	409.90	215.20	0.0003	0.0002	448,738,645.70	235,587,780.62
Processed Tobacco Industry	710.53	373.03	0.0312	0.0164	106,450,970.08	55,886,758.34
<b>Average</b>	<b>11.06</b>	<b>5.76</b>	<b>0.0031</b>	<b>0.0016</b>	<b>4,195,241.82</b>	<b>2,199,638.53</b>

Source: Researchers

*Value-Added Creation*

The economic impact can also be reflected by changes in added value. Value added indicators are often used as an alternative in tracing economic conditions because of the variable characteristics that avoid double calculations. For example, if an economy consists only of tobacco plantations and cigarette companies, the value of the output produced from these two sectors is the product of the multiplication of the price of each commodity and the number of goods produced in each sector. However, value added avoids double counting by focusing only on measuring the difference in the value of output minus the value of intermediate consumption - or the value contained in a good to be consumed which contains the production costs of the previous production process and also the profit margin, if any. In the context of the cigarette industry, of course, output will measure the price of cigarettes which already contain the value of commodities from the upstream sector which play an input role. The value added approach prevents this from happening by reducing the output value in the cigarette sector with the intermediate consumption value represented by the output value in the upstream sector (input).

Related to the scenario above, Table 9 summarizes the impact of achieving exports potential on changes in added value. When viewed from a percentage, changes in added value have an impact of similar magnitude to changes in output. This is because the resulting economic impact is the same. However, the focus of this analysis is in the impact of the achievement of potential exports on changes in nominal value added. On average, Indonesia economy has an increase in added value around Rp. 1.1 trillion – Rp. 2.2 trillion. The tobacco sector has an increase in added value of Rp 6.4 trillion – Rp. 12.8 trillion. The cigarette industry sector had an increase of Rp. 135.1 trillion – Rp. 257.3 trillion. Meanwhile, the processed tobacco industry deposits increase in added value by Rp. 16.8 trillion – Rp. 32,1 trillion..

**Table 9 Summary of Export Potential Achievement Impact on Value-Added Changes**

Sector	Value-Added Changes			
	%		(Rp Million)	
	<i>Scenario 1</i>	<i>Scenario 2</i>	<i>Scenario 1</i>	<i>Scenario 2</i>
Tobacco Plantation	418.57	212.01	12,810,788	6,488,901
Cigarette Industry	409.89	215.19	257,366,598	135,117,459
Processed Tobacco Industry	710.53	373.02	32,107,126	16,856,241
Average	11.05	5.75	2,248,272	1,178,504

Source: Researchers

There are several sectors that have experienced a significant increase in added value. The clove plantation sectors has increase in added value from Rp. 16.8 trilion – Rp. 32.1 trilion. Aside from that, the vehicle trade sectors other that cars and motorcycles also had an increase of Rp. 10.1 trilion – Rp. 19.3 trilion. Other than that, the financial services and banking sectors also had an increase of Rp. 6.5 trilion – Rp. 12.8 trilion..

*Labor Creation*

In this research, the last aspect that can be viewed from the impact of achieving export potential is labor creation. Acievement of exports certainly needs to be done in line with increased production to meet demand in the domestic and international markets. With the existance of the potential for export to be achieved, the impact that will not be felt in terms of creating new jobs vacancy is not only isolated in sectors that export commodities but also to other sectors

With the reference to the scenario above, table 10 summarizes the impact of achieving export potential o changes in number of worker. On average, the increase in the number of workers in each sector reached around 98 thousand – 189 thousand new jobs. Meanwhile the number of workers in the tobacco plantation sector increased by a range of 3 milion – 5.9 milion people. This means that more tobacco farmers and their supporting profession will work in this sector. In addition, the increase in number of workers was also found in the cigarette sector (7-13.7 milion new jobs vacancy) and the tobacco processing sector (5.2 -9.9 milion new sectors). Therea are two sectors that experience an increase in the number of workers above average, that is the clove plantation sector (1.8 milion – 3.4 milio new jobs vacancy) then the rental services sector and business support services (107 thousand – 205 thousand new jobs vacancy).

**Table 10. Summary of Export Potential Achievement Impact on Labor Creation**

Sector	Changes Amount of Workers	
	Scenario 1	Scenario 2
Tobacco Plantation	5.985.818	3.031.927
Cigarette Industry	13.737.997	7.212.448
Processed Tobacco Industry	9.906.683	5.201.008
<i>Average</i>	<i>189.484</i>	<i>98.865</i>

Source: Researchers

*The Contribution of Tobacco and Tobacco Products Actors in Export Activiity*

Based on data from the Ministry of Agriculture (2018), most types of tobacco exported by Indonesia are Virginia tobacco. Most of the Virginia tobacco commodities are cultivated through People's Plantation in West Nusa Tenggara (NTB) Province (Ministry of Agriculture, 2018). The proportion of tobacco plantations in Indonesia is dominated by People's Plantation (PR) of 201,000 Ha (Ministry of Agriculture, 2018) and PT Perkebunan Negara X (PTPN) covering an area of 1078 Ha (PTPN X, 2018). Meanwhile, PTPN X produces many other types of commodities for domestic tobacco supply, such as Shaded Tobacco (TBN), Voorstenlanden Bawah Shade (VBN), Connecticut tobacco (FIK), Sumatran tobacco (FIN), Na-Oogst tobacco (NO) and Vorstenlanden Na-Oogst (NO) with various quality levels. Most of the products exported by PTPN X are in the form of cigars, to several European and Latin American countries. The distribution channels of Virginia Tobacco in West Nusa Tenggara generally include farmers, collectors, wholesalers and industry. Parties that carry out export activities are exporters or companies directly, by exporting cigarette products directly or in the form of leaves (Nur and Salim, 2014).

Based on the findings of Nur and Salim (2014) above, the tobacco processing industry has contributed to the development of tobacco in Indonesia. The existence of this company is a partner for small farmers, and as a link in the supply chain of tobacco and cigarettes to the community (Ahsan et al., 2019). However, its role in supporting exports has not been further reviewed. The cigarette industry is the main party in exporting tobacco and its processed products from Indonesia to other countries. In addition, cigarette companies also maintain a balance between the availability and demand for domestic tobacco and cigarettes.

The share of the cigarette industry in Indonesia is largely controlled by large companies such as Gudang Garam Tbk (GGRM), HM Sampoerna Tbk (HMSP), PT Djarum, and Bentoel Internasional Investama Tbk (RMBA). The tobacco processing company controlled the market in 2018, with the proportion of HM Sampoerna Tbk 33%, Gudang Garam Tbk 23%, PT Djarum 20% and Bentoel Internasional Investama Tbk 7%. These four companies control more than 80% of the tobacco and cigarette market share in Indonesia, and show that the cigarette market in Indonesia is dominated by

large industries (Parsidi, 2019). Gudang Garam Tbk (GGRM) Company exports with machine-made kretek cigarettes, hand-kretek cigarettes, paperboard and others with a total value of IDR 1.7 trillion in 2019, equivalent to 1.1% of the company's total revenue, and IDR 2.6 Trillion in 2018 is equivalent to 2.7% of the company's total revenue. The export sales of cigarette products in 2018 amounted to 3.1 billion sticks or equivalent to 3.6% of the company's total sales volume. Gudang Garam Tbk's market share still focuses on the local market, which is reflected in the dominance of total company revenue, which is more than 97% of the company's revenue, when viewed based on revenues in 2018 and 2019 (PT Gudang Garam, 2020). HM Sampoerna (HMSP) obtained net sales from exports of IDR 0.4 trillion or equal to 0.38% of total revenue in 2018 and IDR 0.6 trillion at or equivalent to 0.67% of total revenue in 2017 (PT HM Sampoerna Tbk, 2019). Meanwhile, the export value of the company Bentoel Internasional Investama Tbk (RMBA) in 2016, 2017 and 2018 were IDR 0.4 trillion, IDR 1.1 trillion, and IDR 1.6 trillion respectively (Bentoel Group, 2019). This data shows that the company is still focused on meeting the needs of domestic tobacco and cigarettes and emphasizing product sales in the local market as the main market destination.

### *Tobacco Exports Increase Challenges in Indonesia*

Currently, Indonesia is still facing challenges in encouraging tobacco and its derivative products to enter the international market. The high demand for tobacco in the domestic market still requires supplies of tobacco from both local and international producers. However, despite this need, Indonesia is still exporting tobacco to other countries. This shows that Indonesian tobacco still has its own destination market based on the type of tobacco produced. The two statements indicate that the absorption of tobacco by the domestic and international markets has different criteria.

According to Wardhono et al. (2017). Tobacco commodities entering the international market have their own standards that must be met. There are internal and external factors to be fulfilled by tobacco and tobacco products in the international market, such as tobacco quality. One of the parameters used to test the quality of tobacco is the amount of pesticide residue on tobacco leaves and Non-Tobacco Related Material (NTRM). In the context of plantations in Indonesia, local farmers have not been able to meet all quality standards for NTRM tobacco because of the use of high doses of pesticides in tobacco cultivation. Tobacco derivative products also have a quality that must be met - especially chemically, which is based on the requirements of international organizations and destination countries. Therefore, the tobacco processing industry also requires adequate production and product testing facilities as a support effort to meet export quality standards. Broadly speaking, tobacco products in Indonesia still need quality equalization, especially in several production centers and tobacco processing industries to produce export-oriented tobacco products.

Apart from the quantity point of view, industry in Indonesia needs to ensure the consistency of a stable supply quantity to maintain prices and ensure supply availability. In Indonesia, tobacco production tends to stagnate every year when consumption has increased. If this condition is left for too long, it will have the potential to result in scarcity and volatility in commodity prices. In addition, currently there is a downward trend in cigarette factories and there is also confusion regarding the follow-up to the roadmap for the industry and its derivatives. In the future, an inadequate business ecosystem will make it difficult for this industry to grow, at a time when the industry has great potential if market shifts are carried out.

One issue that is an important aspect in increasing export competitiveness is the competitive price of commodities. Virginia tobacco, as one of the leading tobacco exported by Indonesia, tends to have a higher price than other exporting countries such as China (Nur and Salim, 2014). If examined further, the high final price of a commodity is influenced by several main components, such as high variable costs (labor, raw materials, transportation), as well as sunk costs (costs to start investing in the form of licensing and business establishment). In response to this, efforts are needed to reduce these costs.

In terms of variable costs, of course, the reduction of labor salaries will be highly opposed by the community. In terms of raw materials, the dominance of imports of raw materials in Indonesia is

quite high, so there is an inability to control prices. However, by increasing productivity and intensifying local tobacco production, this can minimize the transportation costs associated with imported raw materials. In achieving this, of course, local commodities need to reach economies of scale sufficient to be able to reduce costs optimally. In the context of tobacco plantations, this is difficult to achieve because tobacco farmers tend to operate in narrow areas and are also not equipped with adequate technology to reduce production costs. In addition, the low attachment of industrial zones and packaging (cargo) zones is an issue that contributes to high transportation costs. When viewed from the IO results, it is known that the sea and land transportation sector does not have much impact from the achievement of the export level. This indicates the low linkage between production centers and transportation available to carry out these export activities. This reflects high logistics costs, and an inadequate industrial ecosystem which results in high costs.

## **V. CONCLUSION AND RECOMMENDATION**

The tobacco industry and its derivatives in Indonesia have played a role in the Indonesian economy for decades. However, it cannot be denied that the contribution of this industry to the economy is accompanied by health impacts which are feared to endanger the community in the long term. Thus, there are various regulations made to regulate the pattern of public consumption of tobacco and its derivative products. One of the regulatory frameworks most felt by the public is the application of excise tariffs on tobacco products to tobacco derivative products. In trend terms, excise tax has increased almost every year in order to reduce cigarette consumption. However, in fact, even though the excise is borne by consumers, consumption still shows an upward trend. On the other hand, the growth in cigarette industry revenue as an affected sector has also stagnated in the last two years and the number of cigarette factories has decreased every year. This indicates that there is pressure on the tobacco industry and its derivative products to survive for some time to come

Considering this, there is an urgency for industry players to shift the market from domestic to international through export activities. Although Indonesia predominantly meets the raw material needs of this sector through imports, it cannot be denied that there are several types of high quality tobacco commodities that have entered the international market, such as Virginia Tobacco. If we look at the export trend in the last few years, it can be seen that the export volume of tobacco and its derivatives tends to fluctuate. However, in terms of export value, Indonesia is one of the main exporting countries of tobacco and tobacco products in the world. In some cases, such as the tobacco commodity, Indonesian exports are of quite high value, although in terms of relatively small amounts. This indicates that Indonesia is able to export these commodities with good quality so that they can be sold in the international market at quite expensive prices.

Indonesia, when compared to tobacco producing countries, has several characteristics that are similar both in terms of the composition of industry players and the size of the industry in each type of sector observed. In some cases, the difference that is quite visible is the involvement of the government in encouraging this industrial ecosystem, both in the formation of special SOEs to providing support through policies that support the production process and support the ease of exporting. The Indonesian government has currently launched a roadmap for the development of the tobacco industry by implementing strategic planning related to the direction of industrial development until 2020. In line with the roadmap, the Government of Indonesia has also established production centers spread across East Java, Central Java and NTB. By looking at the conditions and economic contributions in each of these production centers, it can be seen that the production centers have contributed more than Rp. 115 billion in the form of excise sharing funds for development in their respective regions and absorbed at least one million workers from the estimated six million workers across sectors.

In general, the opportunities and challenges for the trade of tobacco and its derivatives in Indonesia can be concluded as having good potential. Currently, the export contribution of tobacco and its derivative products is still relatively low at 0.5 percent of total exports. The composition of these exports is dominated by cigarette products and followed by tobacco leaves. The exporters of this

commodity are dominated by state-owned plantations scattered in production centers as well as the role of large private actors in Indonesia, although the review of their involvement cannot be further understood.

By applying the Input Output Table analysis approach, this study measures the economic impact that could result from achieving Indonesia's export potential. By considering the scale of production and export opportunities in trade deficit countries for tobacco commodities and their derivative products, the measured export potential is in the range of USD 17.5 billion - USD 34.9 billion. The potential for exports is 17.5 billion USD if Indonesia exports to a country with a trade deficit balance that has a per capita income below Indonesia. Meanwhile, USD 34.9 billion was achieved when Indonesia was able to export to 20 major countries with the largest trade deficit balance.

In fulfilling this potential, there are three types of barriers to sector actors in realizing it, namely uniformity of quality, sustainability of quantity, and price competitiveness in the international market. In solving these problems, several policy actions need to be taken by the government in collaboration with industry players, including:

- Uniformity of quality through adjustment of quality standards with NTRM Standards. The achievement of this can be done through outreach in various industrial supply chains
- Encouraging production incentive policies, by providing subsidies for production raw materials and / or organizing training centers so that good industrial operational practices can be applied.
- Production incentive policies can also be provided in the form of providing capital goods needed to facilitate the production process, so that actors can carry out activities more productively
- In order to increase price competitiveness in the international market, policy encouragement can be provided through the provision of export incentives through eliminating export duties on several related commodities, eliminating import duties for commodity raw materials, cutting business taxes, and carrying out industrial zoning to create agglomerated business activities. in a zone.

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