

UNLEASHING THE POTENTIAL OF THE INDONESIAN TIMBER LEGALITY ASSURANCE SYSTEM FOR LEGALITY ASSURANCE, PERFORMANCE, AND GLOBAL COMPETITIVENESS

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UNLEASHING THE POTENTIAL OF THE INDONESIAN TIMBER LEGALITY ASSURANCE SYSTEM FOR LEGALITY ASSURANCE, PERFORMANCE, AND GLOBAL COMPETITIVENESS. Indonesia has responded to the timber certification obligation imposed by importing countries, particularly the European Union, by implementing the Indonesian Timber Legality Assurance System (*Sistem Verifikasi Legalitas Kayu-SVLK*). This study aimed to evaluate the impact of the SVLK policy on the state of the Indonesian forestry industry and the performance of Indonesian wood goods, mostly plywood, in the international market. Secondary data on Indonesian wood product exports, classified under HS Code 4412, were utilized in this investigation. The analysis revealed that comparative advantage (RCA) analysis was used to assess the competitiveness of Indonesian wood products, while panel data analysis was utilized to assess the impact of the SVLK policy on Indonesian wood export performance. The implementation of SVLK enhanced the value of Indonesian plywood exports; however, the increase was still relatively small compared to other major exporting countries. According to the estimation results, the use of SVLK had a positive impact on the Indonesian plywood trade in the international market. However, Indonesia's ability to increase its market share was still critical so that the Indonesian plywood industry could maximize the potential for expansion in demand for plywood.

Keywords: Exports, FLEGT-VPA, Plywood, Indonesian Timber Legality Assurance System

MENGGALI POTENSI KEBIJAKAN SISTEM VERIFIKASI LEGALITAS KAYU UNTUK JAMINAN LEGALITAS, KINERJA, DAN DAYA SAING GLOBAL. Indonesia telah merespon kewajiban sertifikasi kayu yang diberlakukan oleh negara-negara pengimpor, khususnya Uni Eropa, dengan menerapkan kebijakan Sistem Verifikasi Legalitas Kayu (SVLK). Tujuan dari penelitian ini adalah untuk mengevaluasi pengaruh kebijakan SVLK terhadap kondisi industri kebutuhan Indonesia dan kinerja produk kayu Indonesia, terutama kayu lapis, di pasar internasional. Data sekunder ekspor produk kayu Indonesia dengan HS Code 4412 digunakan dalam penelitian ini. Analisis yang digunakan adalah: Analisis revealed comparative advantage (RCA) digunakan untuk menilai daya saing produk kayu Indonesia, dan analisis data panel digunakan untuk menilai dampak kebijakan SVLK terhadap kinerja ekspor kayu Indonesia. Penerapan SVLK meningkatkan nilai ekspor kayu lapis Indonesia, namun peningkatan tersebut masih relatif kecil dibandingkan dengan negara-negara pengeksport utama lainnya. Berdasarkan hasil estimasi, penggunaan SVLK berdampak positif terhadap perdagangan kayu lapis Indonesia di pasar internasional. Namun demikian, kemampuan Indonesia untuk meningkatkan pangsa pasarnya masih sangat diperlukan agar industri kayu lapis Indonesia dapat memaksimalkan potensi ekspansi permintaan kayu lapis.

Kata kunci: Ekspor, FLEGT-VPA, Kayu Lapis, Sistem Verifikasi Legalitas Kayu

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I. INTRODUCTION

Indonesia is the world's leading producer of tropical timber (Prasada et al., 2022). Investment in the forestry sector has increased economic output, income, and employment, but limited domestic raw materials, such as logs, hamper export optimization and increase dependence on raw material imports (Sahara et al., 2022). Non-timber forest products (NTFPs) can offer business diversification opportunities in Indonesia to increase exports, primarily by optimizing exports through products such as resins, rattan, and honey (Hazari et al., 2023). Indonesia is ranked third in terms of tropical forest area, trailing only Brazil and the Democratic Republic of the Congo. Indonesia's tropical timber has the potential to benefit the economy. The tropical forests of Indonesia are estimated to cover 109 million hectares (Sari & Widyastutik, 2015). This area provides an opportunity for Indonesia to utilize its forest resources. In 2021, according to data from the International Tropical Timber Organization (ITTO), Indonesia could produce as much as 81,300 thousand m³ of timber (ITTO, 2024). Sumatra is the largest producer of logs in Indonesia, with a production contribution of 67.57% of Indonesia's total log production in 2023, followed by Kalimantan (17.73%) and Java (12.70%) (BPS, 2024). Industrial plantation forests (Hutan Tanaman Industri-HTI), which accounted for 88.45% of Indonesia's total timber production, contributed the majority of the country's timber production (KLHK, 2023). Most forestry products produced by Indonesia are exported as various wood derivatives to countries such as China, Russia, and United States of America (USA).

The export value of Indonesian wood products will reach US\$ 4,9 billion in 2021, with a market share of 3% in the international market (Trade Map, 2023). This market niche has positioned Indonesia among the top 10 exporting countries for wood products in the international market. The most popular wood product Indonesia exports to the international market is plywood (Malau et al., 2022). Export

contribution reached 43.44% of Indonesia's total processed wood exports in 2023 (Trade Map, 2024). Indonesia also exports several other types of processed wood, but in relatively small quantities compared to plywood, such as chips and particles, pulp, sawn timber, and wood charcoal (Trade Map, 2024). In 2023, Indonesia's plywood exports reached US\$ 1,7 millions of all Indonesian exported wood goods internationally. Plywood exports from Indonesia are increasing worldwide (Trade Map, 2024). This demonstrates the enormous potential for Indonesian plywood exports. Demand for plywood in the international market is rising along with Indonesia's plywood exports. This circumstance illustrates the international plywood market's potential for growth.

While conducting international trade in wood products, Indonesia always needs help with various problems. One of them is the issue of illegal logging. This issue has forced Indonesia to ratify importing countries' policies to ensure that Indonesian wood products are produced legally and sustainably. Sustainable forest management is important in supporting high-quality wood production, strengthening Indonesia's position in the global export market (Dwiyanti et al., 2024). This condition is also driven by an increased understanding of environmental issues and the sustainable use of natural resources among consumers. From an environmental standpoint, the current state of the world is quite concerning. Many plant and animal species have vanished from the face of the globe, while others are on the verge of extinction (Klikovac-Katanić & Kosanović, 2012). Therefore, consumers want the products to have exceptional standards, such as eco-labelling on wood commodities (Ekananda, 2017).

One of the eco-labelling policies currently being implemented is the Forest Law Enforcement, Governance and Trade (FLEGT) policy. The FLEGT policy began to develop after the implementation of the Bali Declaration in 2001, a significant international

agreement that aimed to address the issue of illegal logging and its impact on global forests. It is hoped that applying this policy would directly protect exporting and importing countries of forest products from crimes and damage that occur in forest areas (Kunkunrat & Hariyadi, 2018). One of the regions that focuses on the implementation of this policy is the European Union. The European Union is very serious about carrying out the results of this declaration by developing various regulations. The European Union, as an importing country for Indonesian wood products, wants to ensure that the wood products used by the European Union are produced from legal forests and sustainable production. In 2003, the European Union launched the FLEGT Action Plan, which oversees two major policies, namely timber policy in the European Union and a timber industry governance agreement called the Forest Law Enforcement, Governance and Trade-Voluntary Partnership Agreement (FLEGT-VPA).

The implementation of this FLEGT-VPA is in the form of a voluntary partnership agreed upon by each country in enforcing laws, governance, and trade standardization instruments (Kunkunrat & Hariyadi, 2018). The primary purpose of this strategy is to improve forestry sector industry governance and provide certainty for timber and wood products imported into the European Union based on partner countries' policies. In addition, FLEGT-VPA has several other objectives, namely regulating the production of sustainable forestry products, improving the economy of communities around the forest (Erbaugh, 2019), fighting illegal logging (Maryudi, 2017) and increasing timber trade (Giurca et al., 2013). In 2009, Indonesia began the process of ratifying the FLEGT-VPA policy with the Indonesian SVLK policy as Indonesia's effort to improve forest governance, reduce illegal logging practices, build a brand image of legal and sustainable Indonesian timber products, and increase the competitiveness of wood industry products in Indonesia (Ekananda, 2017). Unlike

FLEGT, SVLK is a mandatory policy for every industry. SVLK implementation in Indonesia involves the Ministry of Environment and Forestry (MoEF) on the upstream side, responsible for overseeing the legality of wood production, and the Ministry of Trade on the downstream side, responsible for regulating the trade of wood products (Suryandari et al., 2017).

The SVLK policy is expected to be a counterbalance in the international trade process. Importing countries' certification obligations, particularly those imposed by the European Union, can have positive and negative consequences. Implementing this policy has positively impacted Indonesian plywood products' competitiveness and market access internationally. However, the implementation of this policy can be classified as one of the non-tariff barriers (Ekananda, 2017; Khaliqi et al., 2018). This study aims to investigate the impacts of the SVLK policy, implemented as a result of the ratification of the FLEGT-VPA policy, on the Indonesian forestry sector and the international market performance of Indonesian wood products, particularly plywood.

II. MATERIAL AND METHOD

A. Types and Sources of Data Study

This analysis relied on secondary data from 2002 to 2021. Data were acquired from various sources, as detailed in Table 1. This study will concentrate on plywood, Indonesia's most significant export commodity in the international market (52%), with HS Code 4412. In Indonesian, wood species used for plywood production include surian (*Toona sinensis*), jabon (*Anthocephalus cadamba*), gmelina (*Gmelina arborea*), manglid (*Manglietia glauca*), rubber wood (*Hevea brasiliensis*), and sengon (*Paraserianthes falcataria*) (Sutrisno et al., 2020). The data used is Indonesian export statistics, with the five leading export destination nations for Indonesian plywood in the international market accounting for 80% of the market,

namely Japan, USA, South Korea, Malaysia, and Saudi Arabia. The competitiveness of Indonesian plywood was assessed by comparing its export performance to that of the five major exporting countries for plywood in the worldwide market, namely Canada, China, Germany, and Russia.

B. Method of Data Analysis

Analysis of Revealed Comparative Advantage (RCA)

RCA was employed as an analytical method in this study to examine the competitiveness of Indonesian plywood in the international market. RCA demonstrated the comparative advantage of forestry sector products. Most importantly, RCA demonstrated the competitive advantage of plywood goods by comparing the export value of Indonesian plywood to 5 (five) other plywood exporting countries. Balassa (1977) explains who was responsible for developing RCA. The relative commodity competitiveness index, or RCA, measures a nation's overall standing in the global market for specific goods. The ratio of an exporting nation's market niche to total global exports is called the relative competitive advantage (RCA). Calculating RCA requires utilizing the following formula, which may be seen below (Jamil, 2019; Lindung & Jamil, 2018; Supriana et al., 2022):

$$RCA_{ij} = \frac{x_{ij}/x_i}{X_{wj}/X_w} \dots\dots\dots(1)$$

In the current scenario, x_{ij} is the export value of j product in i nation or region; x_i is the entire export volume of all products in i country or area; X_{wj} is the global output of j product; and X_w is the global export value of all products. The RCA index can be interpreted as follows: if the RCA value is greater than 2.5, then the competitiveness of Indonesian plywood is very strong; if the RCA value is between 1.25 and 2.5, then the competitiveness of Indonesian plywood is strong; if the RCA value is between 0.8 and 1.25, then the competitiveness of Indonesian plywood is moderate; and if the RCA value is 0.8, then the competitiveness of Indonesian plywood is non-existent (Wang, 2015).

Analysis of Panel Data

The method of causal analysis known as panel data regression uses both cross-sectional and time series data. A more precise estimation can be obtained using panel data regression analysis (Gujarati, 2011). A panel data regression analysis was utilized from 2002-2021 to investigate the impact of the SVLK policy on the trade of Indonesian plywood on the international market. This market comprised five major export destination nations: Japan, USA, South Korea, Malaysia, and Saudi Arabia. The following is an example of the data panel model that was created:

$$\ln EX_{ijt} = \beta_0 + \beta_1 \ln GDP_{it} + \beta_2 \ln POP_{it} + \beta_3 \ln ER_{ijt} + \beta_4 \ln COT_{it} + \beta_5 D_{SVLK} + \epsilon \dots\dots(2)$$

Table 1. Sources of Research Data

No.	Data	Types of Data	Sources of Data
1.	Indonesian Plywood Export Value	Ratio	UN Comtrade
2.	Importer Country GDP	Ratio	World Bank
3.	Population	Ratio	World Bank
4.	Exchange Rate	Ratio	FX Sauder
5.	Trading Fee	Ratio	UNESCAP
6.	Competitiveness (RCA)	Interval	Processed by authors
7.	SVLK Policy	Nominal	Indonesian Ministry of Environment and Forestry

Where:

EX_{ijt} : Indonesian exports to main importing countries (in millions of US dollars) in natural log (ln)

$GDPI_j$: Importing countries' GDP (millions of US\$) in natural log (ln)

POP_j : Importing countries' population (people) in natural log (ln)

ER_{ijt} : The real exchange rate of the exporting countries against the importing country's currency (Rp/LCU) in natural log (ln).

COT_{ij} : Cost on Trade is a cost that must be incurred by importing countries to carry out trading activities between countries (US\$) in natural log (ln)

D_SVLK : Dummy SVLK policy implementation (0: Not yet implemented; 1: Already implemented)

β_0 : Constants/ intercepts

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$: Estimated Parameters

ε : Error term

exports presented a chance for the country to expand its market niche in the international market. The obligation to fulfil the SVLK standard for timber products began with the Minister of Forestry's Regulation on standards and guidelines for assessing forest management performance and timber legality verification in 2009.

These provisions require compliance with the standards, criteria, and indicators of sustainable production forestry and timber legality for Timber Utilisation and Industrial permit holders. The regulation applies to large-scale timber harvesting and industrial permit holders, and small-scale or community forestry operations (Astana et al., 2014). As seen after the SVLK policy was implemented in Indonesia (in 2009), the export value of Indonesian plywood continued to experience a relatively significant increase compared to before the implementation of the SVLK policy in Indonesia. This indicates that implementing the SVLK policy can catalyse trade in Indonesian plywood on the international market (Neupane et al., 2019).

IV. RESULT AND DISCUSSION

A. Result

Indonesian plywood exports to the foreign market grew in value (Figure 1). Indonesia's plywood exports increased in pace with the global demand for plywood. Indonesian plywood exports had a 3% market share in 2021, with a total export value of US\$ 4,9 billion. As a result of this good trend, Indonesia's plywood

Furthermore, the influence of the implementation of the SVLK policy on the plywood trade in Indonesia was examined further by comparing the competitiveness of Indonesian plywood to that of the five central plywood exporting countries in Indonesia (Figure 2). According to the RCA findings, Indonesia's competitiveness declined from 2002

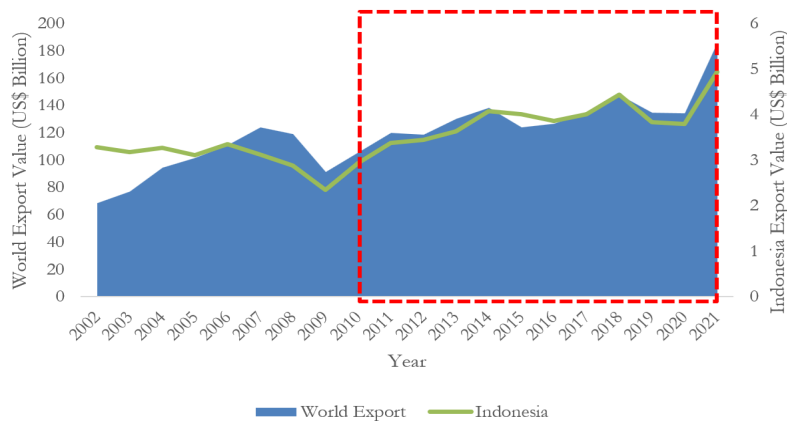


Figure 1. Indonesian Plywood Export in the International Market (Trade Map, 2023)

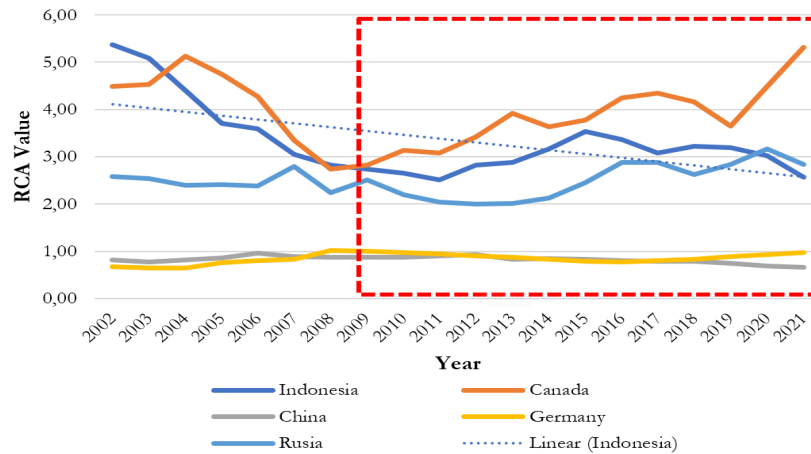


Figure 2. Competitiveness of Indonesian Plywood with Other Main Exporting Countries (Trade Map, 2023)

to 2011. This decrease in competitiveness is due to the increasing attention of global consumers and producers to green products, which encourages the development of environmentally friendly manufacturing. Consumer attention to green products is growing in various countries with programs such as EU-Ecolabel in European Union countries, Environmental Choice in New Zealand, EPA Energy Star in the USA, and EcoMark Africa in Africa (Razif & Persada, 2016). While Indonesia's SVLK policy only began in 2009 due to the slow pace of stakeholders in Indonesia in formulating the timber legality definition, the SVLK policy in Indonesia still needs to be implemented (Prasada et al., 2022). As a result, Indonesian products are considered environmentally unfriendly, and their competitiveness has decreased. On the other hand, Indonesia's exports have also decreased due to the reduction in Indonesia's timber production in the early 2000s (Sari & Widayastutik, 2015).

Establishing Indonesia's SVLK policy in 2009 was expected to boost the competitiveness of Indonesian plywood in the international market. This was not optimally realized since the implementation of the SVLK policy; Indonesian plywood's competitiveness increased until 2015. The competitiveness of Indonesian plywood thus tended to be poor from 2016 to 2021. This scenario suggests that the SVLK strategy has not considerably increased the competitiveness

of Indonesian plywood in the international market. Other exporting countries, such as Canada, experienced a favorable trend in competitiveness. A positive trend in a country's competitiveness suggests that the exporting country was able to develop new markets and capitalize on rising demand in international markets.

The reduction in Indonesia's competitiveness was caused by an increase in the price of Indonesian plywood on the international market (Widyastutik & Arianti, 2014). As a result, in the worldwide market, importing countries sought alternative exporting countries for plywood. The rise in the selling price of Indonesian plywood resulted from a policy requiring SVLK for all Indonesian wood products exported. The export price of SVLK-certified processed wood products is 7 % higher than that of similar non-certified products (Aziz & Adrisson, 2020). This assertion is backed by UN Comtrade (2023), as seen in Figure 3.

Impact of SVLK Policy on Indonesian Plywood Trade

The impact of the SVLK policy was assessed using panel data collected from 2002 to 2021. This data included cross-sectional information from Indonesia's five primary export destinations: Japan, USA, South Korea, Malaysia, and Saudi Arabia. During the analysis, various models were evaluated to determine

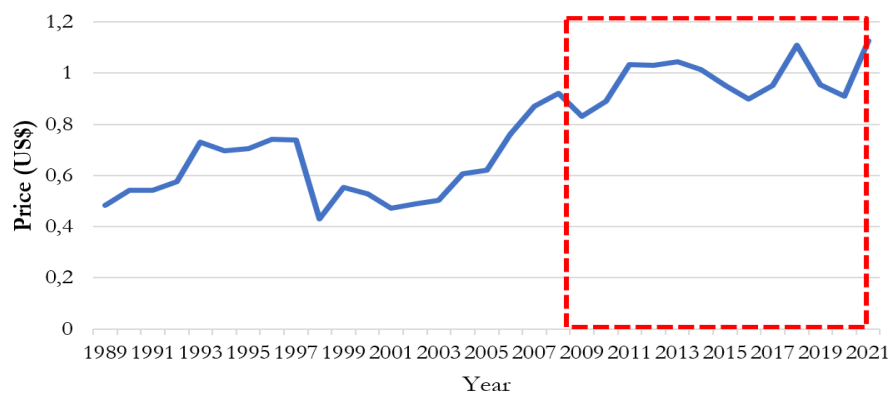


Figure 3. International Market Price of Indonesian Plywood (UN Comtrade, 2023)

Table 2, Estimation Results of the Random Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Ln IMGDP	0.857707	0.064218	13.35627	0.0000*
Ln POP	-0.264880	0.072045	-3.676621	0.0004*
Ln EXRATE	-0.271947	0.041797	-6.506377	0.0000*
Ln COT	1.279000	0.189995	6.731770	0.0000*
DUMMY_SVLK	0.321317	0.132346	2.427852	0.0171*
C	-5.559096	1.920132	-2.895163	0.0047
R-squared	0.806112	Mean dependent var		18.62463
Prob(F-statistic)	0.000000			

Note: Sig. 0.05

the best fit. Specifically, the fixed effects model (FEM), common effects model (CEM), and random effects model (REM) were considered.

The analysis included six variables:

- the value of Indonesian plywood exports to each importing country (EX)
- the GDP of the importing country (IMGDP)
- the population of the importing country (POP)
- the exchange rate (EXRATE)
- the cost of trade (COT)
- a dummy variable for the SVLK policy (DUMMY_SVLK)

To compare the CEM and FEM, the Chow test was employed, resulting in a p-value of 0.000, indicating that the FEM model was superior to the CEM. Additionally, the Hausman test was conducted to compare the FEM with the REM, yielding a p-value of 0.1039. This suggests that the REM was the most appropriate model for

the data. Thus, the Random Effects Model estimation was adopted for the analysis in this study.

B. Discussion

Table 2 presents the estimated impact of the SVLK policy on Indonesian plywood commerce. All of the variables investigated in this study can show the effect of the SVLK policy on Indonesian plywood exports to overseas markets. The GDP variable for importing countries describes the economic position of the importing countries. According to estimations, the GDP of the importing countries would have a beneficial impact on Indonesian plywood exports in the international market. According to the parameter coefficient, a 1% increase in the importing country's GDP increases Indonesia's exports by 0.857%. This is because an increase in a country's GDP promotes demand in importing countries (Ardiyanti & Saputri, 2018; Lubis, 2010).

Both the population and the exchange rate harm Indonesian plywood exports on the international market. The population does not significantly affect the demand for plywood exports, despite the decline in furniture production and home construction using plywood, even as the population in importing countries, such as the United States, continues to increase. The demand for plywood in the United States also starts to decrease with an increase in the demand for lumber, veneer, and flooring (Luppold & Bumgardner, 2016). Furthermore, if the value of the Indonesian rupiah increases, the price of Indonesian products will be greater than that of plywood from other exporting countries (Ginting, 2013; Malau et al., 2024; Purba & Magdalena, 2017).

The estimation results, on the other hand, demonstrate that an increase in trade costs will raise the trade value of Indonesian wood products in the international market. According to the estimation criteria, a 1% rise in trading expenses raises the transaction value by 1.29%. This is because Indonesia, one of the world's top timber exporters, has a comparative advantage over other exporting countries. Consumers favor Indonesian wood goods over those from other exporting countries because of the distinctive qualities of Indonesian wood, which comes from tropical forests and is of high quality. Indonesia has been a major source country for plywood products since the 1990s, with the majority of its production originating from the tropics, thereby distinguishing it from products from other countries, such as Taiwan, whose product materials are derived from temperate species (Luppold & Bumgardner, 2016).

The estimation results also revealed that the SVLK policy positively impacted international trade in Indonesian plywood. The estimation results show that the implementation of SVLK will increase exports of Indonesian wood products by 0.321% compared to the absence of SVLK. This suggests that a certification policy would allow the country to increase consumer trust in its products. SVLK legalizes

forest products and encourages business actors to conduct reforestation using reforestation funds collected from SVLK fees paid by plywood industry players in Indonesia.

The adoption of SVLK has become a gateway for timber products in Indonesia to access the European Union market. Without the SVLK, wood products entering the European Union market must undergo due diligence regarding their origin (Maryudi, 2017). In general, voluntary certification schemes have implemented the EUTR-required provenance test procedures, including information collection, risk assessment, and hazard prevention (Saunders, 2014; Trishkin et al., 2015).

Following the 2001 Bali Declaration to eliminate illegal logging and indiscriminate processing of forest products, FLEGT-VPA has become a significant EU initiative (Jose, 2021). Even though the terms of an FLEGT-VPA are voluntary but legally binding in perpetuity, Indonesia and the European Union still have a few non-synergistic areas of coordination where market participants are not sufficiently informed (Lung, 2018). Nonetheless, Indonesia and the European Union maintained the reciprocity of their cooperation, as evidenced by the implementation of the Indonesian SVLK, which aims to ensure the administration and legality of imports of forest products, as well as best practices (Jose, 2021).

Certification for forest management is intended to enhance forest management through market-based incentives (Mayers et al., 2002). It is based on evaluating foreign management's social, environmental, and economic elements (Parajuli et al., 2017). It has also been demonstrated that SVLK implementation can increase community participation, transparency, and accountability within the forest management system (Kandel, 2007). Since SVLK was implemented in 2009, Indonesian government regulations governing the legality of wood products have been updated several times. The latest policy is contained in the Regulation of the Minister of Environment

and Forestry Number P.30/MenLHK/Setjen/PHPL.3/3/2016 concerning Performance Assessment of Sustainable Production Forest Management and Timber Legality Verification in License Holders, Management Rights, or Forest Rights. In 2020, the SVLK policy was declared invalid by the stipulation of Minister of Trade Regulation Number 15 of 2020 concerning Export Requirements for Forestry Industry Products. Finally, the SVLK policy returned to force after Minister of Trade Regulation Number 45 of 2020 revoked the regulation and restored Indonesia's timber export policy by Permendag No. 84 of 2016 concerning Export Requirements for Forestry Industry Products (Ma'ruf, 2021). The Ministry of Environment and Forestry issued decree no. 1179/MENLHK/PHPL/HPL.3/11/2021 on Determination of SVLK Marks and Decree No. 9895/MenLHK-PHL/BPPHH/HPL.3/12/2022 on Standards and Guidelines for Implementing the Verification and Sustainability System.

V. CONCLUSION

The implementation of the SVLK policy, as part of Indonesia's FLEGT-VPA ratification process, has notably affected the country's primary plywood export within the international market. This policy has contributed to enhancing the value of Indonesian plywood exports, reflecting improved performance in this sector. However, it is important to note that the growth rate of Indonesia's plywood exports has not kept pace with that of other major exporting countries. Consequently, the revealed comparative advantage (RCA) value, which indicates the competitiveness of Indonesian plywood, remained negative following the introduction of this policy, primarily due to rising selling prices in the global market.

Estimates suggest that the SVLK policy has the potential to positively impact the international trade of Indonesian plywood. However, it remains imperative for the Indonesian plywood industry to focus on

increasing its market share to leverage its growth potential in plywood demand fully.

REFERENCES

- Ardiyanti, S. T., & Saputri, A. S. (2018). Dampak Non Tariff Measures (NTMs) terhadap ekspor udang Indonesia. *Buletin Ilmiah Litbang Perdagangan*, 12(1), 1–20.
- Astana, S., Obidzinski, K., Riva, W. F., Hardiyanto, G., Komarudin, H., & Sukanda. (2014). Implikasi biaya dan manfaat pelaksanaan SVLK terhadap sektor perikanan skala kecil. *Jurnal Penelitian Sosial dan Ekonomi Kebutanan*, 11(3).
- Aziz, A. R., & Adrisson, V. (2020). Pengaruh implementasi sertifikasi SVLK, karakteristik produk dan tujuan ekspor terhadap harga premium ekspor kayu olahan Indonesia. *Cendekia Niaga Journal of Trade Development and Studies*, 1.
- Balassa, B. (1977). 'Revealed' comparative advantage revisited: An analysis of relative export shares of the industrial countries, 1953–1971. *The Manchester School*, 45(4), 327–344.
- BPS. (2024). *Statistik Produksi Kebutanan Tahun 2023*.
- Dwiyanti, F. G., Rosdayanti, H., Yulita, K. S., Rachmat, H. H., Ayyasy, Y., Muharam, K. F., Rahman, M. M., Adzkiya, U., & Siregar, I. Z. (2024). Growth and wood traits evaluation of 15-year-old tengkawang (*shorea* spp.) tree stands in Gunung Walat University Forest, West Java, Indonesia. *Indonesian Journal of Forestry Research*, 11(2), 243–258. doi://10.59465/ijfr.2024.11.2.243-258.
- Ekananda, M. (2017). Dampak implementasi regulasi tentang Sistem Verifikasi Legalitas Kayu (SVLK) terhadap ekspor produk industri kehutanan Indonesia. *Jurnal Penelitian Kebutanan Faloak*, 3(2), 101–116. doi://10.20886/jpkf.2019.3.2.101-116.
- Erbaugh, J. T. (2019). Responsibilization and social forestry in Indonesia. *Forest Policy and Economics*, 109, 102019.
- Ginting, A. M. (2013). Pengaruh nilai tukar terhadap ekspor Indonesia. *Buletin Ilmiah Litbang Perdagangan*, 7(1), 1–18.
- Giurca, A., Jonsson, R., Rinaldi, F., & Priyadi, H. (2013). Ambiguity in timber trade regarding efforts to combat illegal logging: potential impacts on trade between South-East Asia and Europe. *Forests*, 4(4), 730–750.

- Gujarati, D. N. (2011). *Econometrics by example* (Vol. 1). Palgrave Macmillan New York.
- Hazari, S., Kalita, M., & Lahiri, B. (2023). The value of non-timber forest products (NTFPS) in promoting india's rural livelihoods. *Indonesian Journal of Forestry Research*, 10(2), 221–237. doi://10.59465/ijfr.2023.10.2.221-237.
- ITTO. (2024). Annual Report 2023.
- Jamil, A. S. (2019). Daya saing perdagangan kopi Indonesia di pasar global. *Agriekonomika*, 8(1), 26. doi://10.21107/agriekonomika.v8i1.4924.
- Jose, H. S. (2021). Analisis dampak FLEGT VPA terhadap ekspor hutan Indonesia ditengah EU green deal abstrak. *Cendekia Niaga*, 5(1), 100–118.
- Kandel, P. N. (2007). Effects of forest certification towards sustainable community forestry in Nepal. *Banko Janakari*, 17(1), 11–16. doi://10.3126/banko.v17i1.654.
- Khaliqi, M., Rifin, A., & Adhi, A. K. (2018). Trade effect of Sanitary and Phytosanitary (SPS) and Technical Barriers to Trade (TBT) on Indonesia's shirmp export. *Indonesian Journal of Agricultural Research*, 01(02), 134–141.
- KLHK. (2023). Laporan Kinerja Kementerian Lingkungan Hidup dan Kehutanan.
- Klikovac-Katanić, V., & Kosanović, N. (2012). Implementation of eco-marketing during the export of food products from Vojvodina. *Agriculture & Forestry*, 58(2), 97–109.
- Kunkunrat, K., & Hariyadi, R. P. (2018). Kerja sama FLEGT-VPA (Forest Law Enforcement Government and Trade-Voluntary Partnership Agreement) Indonesia-Uni Eropa dalam peningkatan ekspor produk hasil hutan Indonesia ke Uni Eropa. *TRANSBORDERS: International Relations Journal*, 1(1), 50–60. doi://10.23969/transborders.v1i1.743.
- Lindung, L., & Jamil, A. S. (2018). Posisi daya saing dan tingkat konsentrasi pasar ekspor karet alam Indonesia di pasar global. *Jurnal AGRISEP: Kajian Masalah Sosial Ekonomi Pertanian dan Agribisnis*, 17(2), 119–128. doi://10.31186/jagrisep.17.2.119-128.
- Lubis, A. D. (2010). Analisis faktor yang mempengaruhi kinerja ekspor Indonesia. *Buletin Ilmiah Litbang Perdagangan*, 4(1), 1–13.
- Lung, F. D. L. (2018). Pengaruh implementasi kesepakatan Forest Law Enforcement, Governance and Trade Voluntary Partnership Agreements (FLEGT VPA) terhadap kebijakan penggunaan Sistem Verifikasi dan Legalitas Kayu (SVLK) pada ekspor kayu dan produk kayu Indonesia ke Uni Eropa. *Verity: Jurnal Ilmiah Hubungan Internasional (International Relations Journal)*, 10(19), 49–62.
- Luppold, W., & Bumgardner, M. (2016). US hardwood lumber consumption and international trade from 1991 to 2014. *Wood and Fiber Science*, 48(3), 162–170.
- Malau, L. R. E., Anjani, R., Ulya, N. A., & Martin, E. (2022). Competitiveness and determinants of Indonesian plywood export. *Jurnal Sylva Lestari*, 10(2), 278–293. doi://10.23960/jsl.v10i2.580.
- Malau, L. R. E., Khaliqi, M., Rambe, K. R., & Wibowo, R. P. (2024). Measuring determinants and potential exports of Indonesian agricultural commodities to ASEAN. *Southeast Asian Journal of Economics*, 12(3), 151-180.
- Maryudi, A. (2017). Sertifikasi (akan) terlahir kembali: Sisi lain ekspor produk kayu tanpa V-Legal. *Jurnal Ilmu Kehutanan*, 11(1), 29–42.
- Mayers, J., Bass, S., & Macqueen, D. (2002). The pyramid. *A Diagnostic and Planning Tool for Good Forest Governance. Draft Paper Prepared for World Bank-WWF Forest Alliance*. London: International Institute for Environment and Development.
- Neupane, P. R., Wiati, C. B., Angi, E. M., Köhl, M., Butarbutar, T., & Gauli, A. (2019). How REDD+ and FLEGT-VPA processes are contributing towards SFM in Indonesia—the specialists' viewpoint. *International Forestry Review*, 21(4), 460–485.
- Parajuli, D. P., Kandel, P. N., & Linforth, V. (2017). Forest certification for promoting sustainable forestry in Nepal. *Banko Janakari*, 13(2), 3–7.
- Prasada, I. Y., Nugroho, A. D., & Lakner, Z. (2022). Impact of the FLEGT license on Indonesian plywood competitiveness in the European Union. *Forest Policy and Economics*, 144(August), 102848. doi://10.1016/j.forpol.2022.102848.
- Purba, J. H. V., & Magdalena, A. (2017). Pengaruh nilai tukar terhadap ekspor dan dampaknya terhadap pertumbuhan ekonomi Indonesia. *DeReMa Jurnal Manajemen*, 12(2), 285–295.
- Razif, M., & Persada, S. F. (2016). Environmental impact assessment (EIA) framework for ekolabel certification initiative in Indonesia: Case study of a rattan-plywood based furniture industry. *International Journal of ChemTech Research*, 9(4), 634–643.
- Sahara, S., Sane Pratinda, W. N. A., & Djaenudin,

- D. (2022). The impacts of investment in the forestry sector on the Indonesian economy. *Indonesian Journal of Forestry Research*, 9(2), 251–263. doi://10.20886/ijfr.2022.9.2.251-263.
- Sari, K. R., & Widyastutik, W. (2015). Faktor yang mempengaruhi dan estimasi tarif ekuivalen NTBs Ekspor Kayu Lapis Indonesia. *Buletin Ilmiah Litbang Perdagangan*, 9(1), 95–108. <https://doi.org/10.30908/bilp.v9i1.18>.
- Saunders, J. (2014). Certified products and EUTR compliance in the furniture sector. *Chatham House-EER*, 2014.
- Supriana, T., Pane, T. C., & Khaliqi, M. (2022). Export of Indonesian cinnamon in international market: competitive and performance. *Journal of Central European Agriculture*, 23(3), 704–713. doi://10.5513/JCEA01/23.3.3601.
- Suryandari, E. Y., Djaenudin, D., Astana, S., & Alviya, I. (2017). Impacts of timber legality verification system implementation on the sustainability of timber industry and private forest. *Jurnal Penelitian Sosial dan Ekonomi Kebutanan*, 14(1), 19–37. doi://10.20886/jpse.2017.14.1.19-37.
- Sutrisno, Widyorini, R., Syamsudin, T. S., Alamsyah, E. M., & Purwasasmita, B. S. (2020). Bonding strength of plywood bonded using phenol formaldehyde mixed with wood bark powder nanofiller. *Journal of the Indian Academy of Wood Science*, 17, 21–33.
- Trade Map. (2023). *Trade statistics for international business development*. <https://www.trademap.org/Index.aspx>
- Trade Map. (2024). *Trade statistics for international business development*. <https://www.trademap.org/Index.aspx>
- Trishkin, M., Lopatin, E., & Karjalainen, T. (2015). Exploratory assessment of a company's due diligence system against the EU timber regulation: A case study from Northwestern Russia. *Forests*, 6(4), 1380–1396.
- UN Comtrade. (2023). *UN Comtrade Database*. <https://comtradeplus.un.org/>
- Wang, L. (2015). An analysis of trade structure, comparative advantage and complementarity of agricultural products between China and the Main East Asian Countries. *Asian Agricultural Research*, 7(5), 14–24.
- Widyastutik, W., & Arianti, R. K. (2014). Analisis strategi kebijakan mutu dan standar produk kayu lapis dalam rangka meningkatkan daya saing ekspor. *Jurnal Agribisnis Indonesia*, 2(1), 75–92.