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Global Tobacco Tapestry: Unraveling the Interdependencies and Drivers of Unmanufactured Tobacco Imports

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ABSTRACT

Indonesia holds significant potential in both domestic and international tobacco markets, ranking as the world's fourth-largest producer after China, India, and Brazil. However, unmanufactured tobacco (HS 2401) exports lag imports, potentially impacting the economy negatively. This study analyzes the dependency, openness, and characteristics of Indonesia's tobacco imports over a 10-year period (2014-2023), alongside the factors influencing import volumes from 1992 to 2022. Secondary data was sourced from the Central Statistics Agency (BPS), UN Comtrade, FAO, and the Ministry of Agriculture. Analytical methods included the Import Dependency Ratio (IDR), Self-Sufficiency Ratio (SSR), Trade Specialization Index (TSI), Import Openness Degree (IOD), Geographic Concentration Degree (GCD), and multiple linear regression. The results reveal an average IDR of 26.96% and an SSR of 73.04%, indicating that 26.96% of tobacco demand is met through imports, while 73.04% is fulfilled domestically. The average TSI value of -0.55 signifies Indonesia as a net importer. The average import openness (IOD) was 0.06% of GDP during 2014-2023. International tobacco prices and domestic demand significantly influenced import volumes, whereas domestic production and prices showed no significant impact. The Indonesian cigarette industry exhibits high import dependence due to domestic production not yet meeting required quantity and quality standards. Recommendations include enhancing tobacco quantity and quality through Good Agricultural Practices (GAP) implementation, providing comprehensive support for developing industry-aligned tobacco, and ratifying the Framework Convention on Tobacco Control (FCTC) to reduce tobacco consumption and imports.

Keywords*: geographic concentration, import dependency, import openness, import volume, unmanufactured tobacco*

BACKGROUND

Nicotiana tabacum is a type of plant cultivated for its leaves, which are used in the production of medicines and cigarettes. Tobacco is grown in many countries, including China, Indonesia, Malawi, and Tanzania (Nguleni et al., 2024). The cultivation of tobacco leaves marks the starting point of the tobacco cycle. Tobacco farming employs millions of small-scale tobacco farmers worldwide, most of whom are independent farmers reliant on the tobacco industry (Martins-da-Silva et al., 2022). This commodity significantly contributes to Indonesia's national economy through job creation, state revenue from excise taxes, and as an important commodity for farmers (Hartanto, 2024). The primary traded tobacco products are tobacco leaves and cigarettes (Permana et.al., 2023).

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Between 2012 and 2018, Indonesia was the fifth-largest tobacco producer globally, following China, Brazil, India, and the United States. However, from 2019 to 2021, Indonesia surpassed the United States, moving from fifth to fourth place as the world's largest tobacco producer. In 2021, Indonesia's contribution to global tobacco production was approximately 3.06%, behind China (53.13%), India (9.54%), and Brazil (9.28%) (Food and Agriculture Organization, 2021). According to the Food and Agriculture Organization (2022) Indonesia ranks as the fourth-largest tobacco producer globally after China, India, and Brazil, with a total production of 225.58 thousand tons. However, data from the Directorate General of Plantations (2021) shows that the value of tobacco product imports in Indonesia far exceeds its exports. Similarly, UN Comtrade data (2024) indicates that over the past five years (2018-2022), Indonesia's tobacco import values have soared above its export values, as shown in Figure 1. The high volume of tobacco imports is largely attributed to unmanufactured tobacco under HS code 2401. Suprihanti et al. (2018) explain that Indonesia imports tobacco because domestic production cannot meet the needs of the cigarette industry. The influx of foreign investment in Indonesia's cigarette industry is also believed to contribute to the increase in tobacco imports. Additionally, widespread campaigns highlighting the dangers of cigarettes with high nicotine and tar content have shifted consumption patterns toward products with lower nicotine and tar levels. As a result, the demand for raw materials with low nicotine and tar content has increased. Imported tobacco is claimed to have lower nicotine and tar levels.

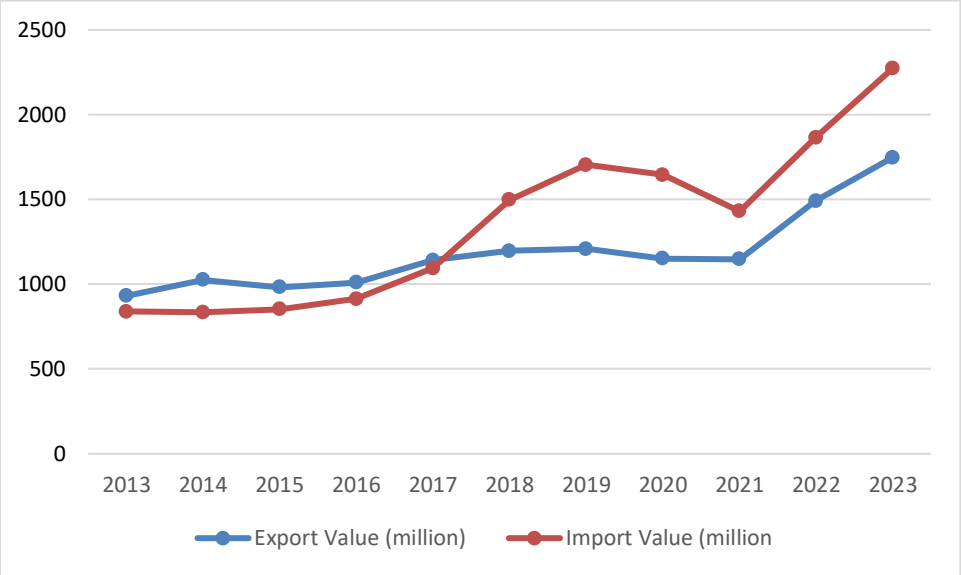

Figure 1. The Value of Indonesia's HS 24 Tobacco Exports and Imports (million) from 2013 to 2022
Source : *UN Comtrade*, 2024 (processed)

The Directorate General of Plantations (2021) reveals that Indonesia imports tobacco products because certain types of local tobacco needed by the domestic tobacco industry are not yet sufficient. The high import value compared to exports poses various challenges. Ahsan et al. (2020) state that there are three types of tobacco that still need to be imported to meet the needs of domestic cigarette factories, virginia, white burley, and oriental tobacco. Jalunggono et al. (2020) argue that the issue of imports significantly exceeding exports is a serious problem, as it can negatively impact the national economy and all related agribusiness sectors, particularly farmers. The high import value relative to

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exports can lead to a decline in foreign exchange reserves. Ahsan et al. (2020) describe that local farmers face increased competition and lower prices due to rising imports, which ultimately reduces their income. Prasetyo and Samudro (2023) state that a decline in foreign exchange reserves can also weaken the economy, causing the value of the rupiah to depreciate.

The increasing import of unmanufactured tobacco (HS 2401) year after year indicates a growing dependency on imports. Despite being one of the top five tobacco exporters globally, Indonesia's reliance on imports is evident. Ruccy et al. (2022) explain that import dependency is an indicator of a country's self-sufficiency in meeting its needs for a particular commodity.

Previous research on tobacco includes studies on Indonesia importing large quantities of tobacco to meet production demands (Verona et al., 2022). The significant impact of illicit tobacco trade on tobacco control efforts and market dynamics (Gomis et al., 2018; Ribeiro & Pinto, 2020; Uznay & Gümüş, 2020), tobacco industry adapting smuggling methods to evade detection (Breuil et al., 2022), bibliometric analysis of tobacco (Cohen et al., 2010), studies on Indonesia's tobacco imports (Ahsan et al., 2019), comparisons of tobacco imports and tobacco control in five countries (Ahsan et al., 2020), trends in Indonesia's tobacco import volumes from 2018 to 2020 (Suprihanti et al., 2018), factors influencing Indonesia's tobacco import volumes from 1993 to 2019 (Wangsa & Sutrisna, 2022) and from 2008 to 2018 (Apkar, 2022). These studies generally focus on tobacco as a whole, with limited recent research specifically on unmanufactured tobacco imports (HS 2401), even though HS 2401 tobacco shows higher import volumes compared to other tobacco HS codes. Therefore, this study aims to fill this research gap by using the latest data. The objective of this study is to analyze the dependency, openness, and characteristics of imports over a 10-year period from 2014 to 2023, as well as the factors influencing the import volume of unmanufactured tobacco (HS 2401) in Indonesia from 1992 to 2022.

RESEARCH METHODS

Secondary time-series data was data used from 2014 to 2023 for unmanufactured tobacco (HS 2401), obtained from relevant institutions such as the Central Bureau of Statistics (BPS), UN Comtrade, FAO, the Ministry of Agriculture, and others. Data analysis employs the Import Dependency Ratio (IDR), Self-Sufficiency Ratio (SSR) and Trade Specialization Index (TSI) to analyze the level of tobacco import dependency in Indonesia. Furthermore, the Geographic Concentration Degree (GCD) analysis tool is used to examine the characteristics of Indonesia's tobacco imports. Multiple linear regression analysis is utilized to identify the factors influencing the import of unmanufactured tobacco (HS 2401) in Indonesia, using data from 1992 to 2022.

Analysis of Import Dependency Level

Level of Indonesia's import dependency on unmanufactured tobacco (HS 2401) is analyzed using the Import Dependency Ratio (IDR) method. IDR is calculated based on import volume, production, and exports over time (Pujitiasih et al., 2014). IDR formula is as follows:

$$IDR = \frac{\text{Tobacco Imports} - \text{Tobacco Exports}}{Domestic\ tobacco\ demand} \times 100\% \quad \ldots (1)$$

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Analysis of Trade Specialization Index (Tsi)

TSI is an analytical tool used to determine whether a country is an importer or exporter. A negative TSI value indicates that the country is an importer, while a positive TSI value signifies that the country is an exporter. TSI has several levels (Pujitiasih et al., 2014). TSI formula is as follows:

$$\text{TSI} = \frac{X_{ia-M_{ia}}}{X_{ia+M_{ia}}} \text{ ... (2)}$$

Where:

Xia : Volume of Indonesia's exports of commodity i (tons)

Mia : Volume of Indonesia's imports of commodity i (tons)

Analysis of Self-Sufficiency Ratio (Ssr)

SSR reflects the level of production in relation to domestic demand (Sugiyono, 2017). SSR formula is as follows:

$$\text{SSR} = \frac{Production}{Production+Import-Eksport} x\ 100 \text{ ... (3)}$$

A higher SSR value indicates greater domestic production of a specific commodity to meet domestic consumption demand, thereby reducing the level of import dependency for that commodity.

Analysis of Import Openness Degree (Iod)

Import Openness Degree (IOD) method is used to determine the proportion of the value of unmanufactured tobacco (HS 2401) imports relative to Gross Domestic Product (GDP). This study analyzes IOD based on Indonesia's total tobacco imports. The IOD value can be calculated using the following formula (Brata & Yasa, 2015):

$$IOD = \frac{\text{Import Value (US\$)}}{\text{GDP (US\$)}} \text{ x } 100\% \text{ ... (4)}$$

Analysis of Geographic Concentration Degree (Gcd)

Geographic Concentration Degree (GCD) method is used to examine the concentration trends of unmanufactured tobacco (HS 2401) imports based on the countries of origin. This study analyzes GCD based on HS code 2401 from the largest importing countries. The GCD value is calculated using the following formula (Eko, 2017; Ruccy et al., 2022):

$$\text{GCD} = 100\sqrt{\sum_{i=1}^{n}\left(\frac{Mi}{Mt}\right)^2} \text{ ... (5)}$$

where: Mi: Import value by country of origin (US$); Mt: Total import value of Indonesia (US$); n: Number of countries of origin

Multiple Linear Regression Analysis

In the analysis of factors influencing Indonesia's tobacco imports, the dependent variable (Y) used is import volume, while the independent variables (X) include import tobacco prices, tobacco

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production, exchange rates, and tobacco consumption. The following is the multiple linear regression equation (Purnomo, 2016). The multiple linear regression model is as follows:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 \dots (6)$$

Where

Y_1 = Import volume (kg)
a = Constant value
X_1 = Tobacco production (kg)
X_2 = Import tobacco price (USD/kg)
X_3 = Exchange rate (Rp/USD)
X_4 = Tobacco demand (kg)
b_{1-5} = Regression coefficients

RESULT AND DISCUSSION

Import Dependency of Unmanufactured Tobacco (Hs 2401) in Indonesia

Unmanufactured tobacco (HS 2401) shows the highest import trend in Indonesia compared to other tobacco codes. Table 1 indicates that imports of HS 2401 tobacco exceed exports. Therefore, it is necessary to assess Indonesia's import dependency using calculations of IDR (Import Dependency Ratio), SSR (Self-Sufficiency Ratio), TSI (Trade Specialization Index), and IOD (Import Openness Degree), as shown in Table 2.

Table 1. Production, Exports, and Imports of Indonesian Tobacco (2014-2023)

Elements	Year									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Production (Ton)	198,301	193,790	126,728	181,142	195,482	269,803	261,017	245,338	221,925	238800
Export (Ton)	35009,40	30675,47	28005,21	29134,04	32269,00059	33265,72885	31131,96466	27411,4709	41188,32828	27805,00
Import (Ton)	95731,97	75353,05	81501,88	119544,90	95239,09878	98576,03852	92519,51813	113403,0237	125037,9939	129140,80

Source: Directorate General of Estate Crops (2024) and UN Comtrade (2024)

Table 2 shows that the IDR for unmanufactured tobacco (HS 2401) during the 2014-2023 period ranges from 18.74% to 33.29%, with an average of 26.96%. This means that Indonesia relies on imports for approximately 26.96% of its total domestic demand for unmanufactured tobacco, indicating dependency on other countries to meet its needs. The highest import dependency occurred in 2017, while the lowest was in 2015. This high dependency is due to the inability of domestic production to meet the quantity and quality requirements of the cigarette industry.

Rachmat dan Nuryanti (2016) state that the demand for HS 2401 tobacco, or unmanufactured tobacco, in Indonesia has been increasing annually, with most of it allocated to the tobacco agroindustry as raw material. UPT. PSLMB Jember (2017) reveals that the high demand for imported

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tobacco is also influenced by market preferences, as local tobacco is considered insufficient to meet technical specifications.

Table 2 Result of IDR, SSR, TSI, IOD HS 2401

Elements	Year									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
IDR (%)	23.44	18.74	29.68	33.29	31.32	22.35	23.27	26.73	31.01	29.79
SSR (%)	76.56	81.26	70.32	66.71	68.68	77.65	76.73	73.27	68.99	70.21
TSI	-0.46	-0.42	-0.49	-0.61	-0.58	-0.54	-0.56	-0.62	-0.55	-0.65
IOD (%)	0.069	0.048	0.053	0.065	0.070	0.055	0.054	0.055	0.055	0.054

Source: UN Comtrade and International Trade Center/ITC (processed), 2024

Consistent with the relatively high IDR, the SSR values are comparatively low. SSR reflects Indonesia's ability to meet domestic demand for unmanufactured tobacco (HS 2401). Table 2 shows that domestic production of unmanufactured tobacco (HS 2401) can only fulfill 66.71% to 81.26% of domestic demand, with an average of 73.04% from 2014 to 2023. The year 2015 marked the highest domestic fulfillment rate in the past decade, while 2017 saw the lowest at 66.71%. Production, exports, and imports of unmanufactured tobacco in Indonesia have been relatively fluctuating, as shown in Table 1. Average domestic production was 213,333 tons, average exports were 31,590 tons, and average imports were 110,172 tons. While both exports and imports of unmanufactured tobacco show an upward trend, the increase in imports has been faster than exports. This is due to insufficient local tobacco production to meet the needs of the cigarette industry. Tobacco farmland in Indonesia has been declining annually, as reported by the Direktorat Jenderal Perkebunan (2019). The decline in tobacco production is attributed to fluctuating and significantly decreasing tobacco farmland, particularly in 2016, when a 25% reduction occurred due to a decrease in smallholder plantations from 2015 to 2016, which significantly impacted the fluctuation of tobacco farmland in Indonesia. Wardhono et al. (2019) note that a significant decline in production has occurred since 2014 due to climatic anomalies in several production centers, such as Jember, East Java, caused by the eruption of Mount Raung. This has affected production volume, quality, and prices, particularly for Besuki tobacco.

The Directorate General of Plantations (2021) explains that Indonesia imports tobacco products because certain types of local tobacco needed by the domestic tobacco industry are not yet sufficient. Ahsan et al. (2019) state that to meet the needs of domestic cigarette factories, three types of tobacco are still imported: Virginia, White Burley, and Oriental. Tirtisastro and Rozana (2018) note that many cigarette factories use imported Virginia tobacco as a flavor carrier and filler for white and kretek cigarettes. Although domestic tobacco has long been tested and developed as a flavor carrier and filler, it has yet to match the quality of imported tobacco. Diana et al. (2022) highlight that domestic production of Virginia tobacco, which is highly demanded by the industry, remains insufficient. Indonesia must import approximately 110,000 tons of Virginia tobacco annually to meet industrial needs.

The results of IDR and SSR analyses align with the Trade Specialization Index (TSI) findings, which range from -0.42 to -0.65 during the 2014-2023 period, with an average of -0.55. This indicates

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that unmanufactured tobacco has low competitiveness, and Indonesia can be classified as an importer. This contrasts with Indonesia's status as a major global tobacco producer. As a country with significant potential, Indonesia should be able to develop tobacco commodities that meet domestic demand and become an exporter. Verona et al. (2022) state that despite substantial tobacco cultivation, domestic production in Indonesia has not been able to meet the high demand from the tobacco industry. Indonesia produces around 180,000 tons of tobacco annually, while demand reaches approximately 362,000 tons, resulting in a significant shortfall that necessitates imports. Diana et al, (2022) and Verona et al., (2022) emphasize that domestic production of Virginia tobacco, which is highly demanded by the industry, remains insufficient. Indonesia must import around 110,000 tons of Virginia tobacco annually.

Tobacco remains a significant economic asset for Indonesia, contributing to government revenue and employment. However, economic dependency on tobacco complicates efforts to reduce imports and increase domestic production (Astuti et al., 2020; Indriastuti et al., 2022). Rising cigarette consumption, particularly kretek cigarettes, drives demand for tobacco raw materials. High domestic market consumption, coupled with slow farmer responses to price changes, further necessitates imports to meet immediate demand (Nasir et al., 2023).

This situation may be due to the relatively high production costs of local tobacco for the cigarette industry in Indonesia compared to other countries, making imports more economical. Additionally, government policies have not been effective in reducing dependency on unmanufactured tobacco imports. Ahsan et al. (2020) and Astuti et al.(2020) explain that Indonesia has not ratified the Framework Convention on Tobacco Control (FCTC), impacting the implementation of effective tobacco control policies. The lack of stringent policies contributes to high demand for tobacco products, further exacerbating import needs.

The import openness degree for unmanufactured tobacco in Indonesia remains relatively low, as shown in Table 2. During the 2014-2023 period, Indonesia's import openness degree (IOD) ranged from 0.048 to 0.070, with an average of 0.06. This indicates that financing for unmanufactured tobacco imports accounts for 0.06% of Indonesia's GDP during this period. While import openness is relatively low, import dependency (IDR) remains high, suggesting that import financing is still manageable, and unmanufactured tobacco import policies can continue.

Indonesia's stagnant progress in tobacco control can be addressed through the implementation of a comprehensive national framework, such as the WHO Framework Convention on Tobacco Control (FCTC) (Ahsan et al., 2022). The multi-stage delay in adopting tobacco policies is primarily due to complex political structures, bureaucracy, and high corruption levels, which have hindered effective tobacco control measures (Ahsan et al., 2024). Existing tobacco-related policies in Indonesia are spread across several government ministries, but formal inter-ministerial collaboration remains lacking, leading to fragmented policy approaches (Kramer et al., 2023).

Characteristics of Unmanufactured Tobacco Imports in Indonesia

Based on the GCD analysis in Table 3, it is evident that HS 2401 tobacco is relatively distributed by country of origin (standard GCD value of 78.86), with averages of 40.43 and 30.8 during the 2014-2023 period. The geographic concentration degree (GCD) for HS 2401 tobacco imports during 2014-2023 ranges from 31.28 to 46.20. The GCD value for Indonesia's HS 2401 tobacco imports fluctuated during this period, with the highest GCD in 2015 and the lowest in 2018. The largest importers to Indonesia include China, Brazil, and India, with import values of

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197,517,000,104,188,000, and $37,603,700, respectively (ITC, 2024). The ability of China, Brazil, and India to produce unmanufactured tobacco that meets the needs of Indonesia's cigarette industry has led to Indonesia's import dependency on these countries.

Table 3. GCD Calculation Results for Unmanufactured Tobacco (2014-2023)

Elements	Year									
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
GCD	44.39	46.20	44.96	43.22	31.28	39.04	38.15	38.79	41.76	36.50

Source: Interntational Trade Center /ITC (processed), 2024

China shows significant export potential to Thailand, Indonesia, and Vietnam, with substantial expansion opportunities in Indonesia (Du et al., 2024). China is the world's largest tobacco producer, contributing 40.35% of global production, supported by its extensive tobacco farmland, which accounts for 33.93% of the world's total tobacco farmland (Food and Agriculture Organization of the United Nations, 2022).

Brazil is one of the most advanced countries in tobacco control policies. Brazil has implemented several tobacco control measures aimed at reducing domestic demand, which may lead producers to export more of their products. Tobacco control measures Brazil has implemented include incorporating tobacco control policies into the universal public health service system, developing a specific legal and regulatory framework, coordinating policies at the national level and involving various sectors, implementing the FCTC and decentralizing policies, ratifying the protocol to eliminate illicit tobacco trade, allocating financial resources to actors involved with policies promoted by tobacco processing companies, periodically adjusting the main cigarette tax and retail prices, promoting smoke-free environments, campaigns on the harm caused by tobacco use, restricting advertising and publicity of tobacco products, including health warnings on cigarette packaging, and diversifying crops grown in traditional tobacco-producing areas (Portes et al., 2018). Unmanufactured tobacco in Brazil is obtained by summing domestic production with net imports. Brazil plays a decisive role in Paraguay's production chain, being a relevant (and often top) supplier of inputs such as unmanufactured tobacco, acetate fiber for cigarette filters, and certain cigarette papers (Ribeiro & Pinto, 2020).

India has an impressive and progressive profile in the global tobacco industry, with tobacco being an important commercial crop grown in the country. India is the second-largest producer and exporter of tobacco globally, exporting to around 100 countries (Martins-da-Silva et al., 2022). According to Wasnik et.al., (2020), the high competitiveness of Indian tobacco exports internationally indicates that Indian tobacco exports are highly competitive and have significant potential in global markets.

Factors Influencing Unmanufactured Tobacco Imports in Indonesia

The factors influencing the volume of unmanufactured tobacco (HS 2401) imports in Indonesia in this study include tobacco production (X1), international tobacco prices (X2), exchange rates (X3), and domestic tobacco demand (X4). The first step in multiple linear regression analysis is to conduct classical assumption tests, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests. The next step is hypothesis testing, which includes the coefficient of determination (R^2), F-test, and t-test (Purnomo, 2016).

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Classical Assumption Tests:

1. Normality Test
   The normality test is used to determine whether the data is normally distributed. If the regression model has a normal distribution, it can be considered a good model. Based on the Normal P-P Plot output in this study, the data points are scattered around and follow the diagonal line, indicating that the variables are normally distributed, and the normality assumption is met..
2. Multicollinearity Test
   The multicollinearity test is used to examine the linear relationship between independent variables in the multiple linear regression model. A VIF value of less than 10 and a tolerance value greater than 0.10 indicate no multicollinearity. In this study, the tolerance values for all independent variables are greater than 0.10, and the VIF values are less than 10, indicating no multicollinearity in the regression model.
3. Heteroscedasticity Test
   The heteroscedasticity test is used to determine whether there is inequality in the variance of errors from one observation to another. The scatterplot output in this study shows that the data points are scattered above and below 0 on the Y-axis without a clear pattern, indicating no heteroscedasticity in the regression model.
4. Autocorrelation Test
   The autocorrelation test is used to detect correlations between error terms. Based on the analysis results ($1.1426 < 1.514 < 1.73$), the regression model is inconclusive. Therefore, a run test was conducted. If the Asymp. Sig. (2-tailed) value is greater than 0.05, there is no autocorrelation. In this study, the Asymp. Sig. (2-tailed) value is 0.193, which is greater than 0.05, indicating no autocorrelation in the regression model.

Hypothesis Testing

1. Coefficient of Determination (R^2)
   The analysis shows an Adjusted R^2 value of 0.773, or 77.3%. This means that 77.3% of the variation in Indonesia's unmanufactured tobacco (HS 2401) import volume can be explained by the variables of tobacco production, international tobacco prices, exchange rates, and domestic tobacco demand. The remaining 22.7% is explained by other variables outside the model.
2. F-test
   The ANOVA table output shows an F-test significance value of 0.000, which is less than 0.05. This indicates that the observed factors influencing unmanufactured tobacco (HS 2401) imports have a significant simultaneous effect on Indonesia's import volume.
3. T-test. The t-test results are shown in Table 4.

Tabel 4. Output Coefficients t-test

Independent Variable	Coefficient	Std. Error	T-value	Sig.
Constant	-61046958.22	17185561.44	-3.552	0.002
Production (X_1)	0.140	0.099	1.409	0.171
International Price (X_2)	11844001.62	3748960.44	3.159	0.004*
Excange rate (X_3)	-548.795	1354.124	-0.405	0.689
Domestic demand (X_4)	0.298	0.080	3.724	0.001*

*Note: * significant at the 95% confidence level
Source: Secondary data processed, 2024

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Based on Table 4, the regression equation for the factors influencing Indonesia's HS 2401 tobacco import volume:

$$\mathbf{Y = -61046958,22 + 0,140X_1 + 11844001,62X_2 - 548,795X_3 + 0,298X_4}$$

The analysis shows that international tobacco prices (X_2) and domestic demand (X_4) significantly affect unmanufactured tobacco import volume, as their significance values are below 0.05. A $1 increase in international tobacco prices will increase Indonesia's HS 2401 tobacco import volume by 11,844,001.62 kg, assuming other factors remain constant. This is due to the high domestic demand for unmanufactured tobacco, which keeps import volumes high. This finding aligns with Apkar (2022), who states that international prices significantly affect Indonesia's tobacco import levels. Similarly, Alotaibi and Alsanea (2022); Guindon et al. (2018) note that international tobacco prices significantly impact unmanufactured tobacco import volumes. Despite rising international prices, import volumes do not decrease because demand for unmanufactured tobacco continues to grow due to increasing smoking rates in Indonesia. The domestic cigarette industry still relies on imported unmanufactured tobacco because local tobacco cannot meet the required quality and quantity standards. Soerojo et.al.(2020) report that Indonesia ranks third globally in tobacco consumption, following China and India. Nasir et al. (2023) and Ahsan et al.(2020) highlight that kretek cigarette consumption is significant, with an average of 5.6 cigarettes per capita per day.

Domestic tobacco demand (X_4) also significantly affects import volumes. A 1 kg increase in domestic demand leads to a 0.298 kg increase in HS 2401 tobacco import volume, assuming other factors remain constant. Djakiyah et al. (2024) state that demand is directly proportional to consumption; as consumption increases, so does demand. Wangsa dan Sutrisna (2022) find that consumption has a positive and significant effect on Indonesia's tobacco import volumes. When domestic tobacco demand rises, Indonesia must import to meet the additional demand. Nasir et al. (2023) note that the domestic cigarette industry in Indonesia has experienced substantial growth, driven by increasing kretek cigarette consumption, which has heightened the demand for tobacco raw materials.

In contrast, tobacco production (X_1) and exchange rates (X_3) do not significantly affect unmanufactured tobacco import volumes. High import dependency due to insufficient domestic production means that production levels do not significantly impact import volumes. Tobacco cultivation is heavily influenced by local market prices and rainfall, which determine production levels. Kumar (2019) supports this, stating that factors like market prices and rainfall affect cultivation more than exchange rates. Sukmawati (2019) and Sugiharti (2019) argue that the need to meet domestic demand likely overshadows cost variations caused by exchange rate fluctuations. These conditions explain why production and exchange rates do not significantly affect unmanufactured tobacco import volumes. These findings differ from Carolin et al.(2024) who find that exchange rates significantly and positively affect import demand, and Budiraharjo et al. (2021), who show that production significantly and positively affects imports.

CONCLUSION AND SUGGESTION

Indonesia remains dependent on imports and is classified as an importer of unmanufactured tobacco (HS 2401). The low import openness degree indicates that import financing is still manageable, allowing unmanufactured tobacco import policies to continue. Indonesia's tobacco imports are geographically distributed from various countries, including China, India, and Brazil.

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Import volumes are significantly influenced by international tobacco prices and domestic demand. The Indonesian cigarette industry heavily relies on imports because domestic production cannot meet industrial demand in terms of quantity and quality. Therefore, recommendations include increasing the quantity and quality of unmanufactured tobacco through the implementation of Good Agricultural Practices (GAP) and comprehensive support for developing tobacco that meets the needs of the domestic cigarette industry. This includes land suitability, varieties, cultivation technology, pest and disease control, harvesting, processing technology, and marketing. These measures are expected to ensure the sustainability of tobacco cultivation to meet industrial raw material needs. Additionally, ratifying the Framework Convention on Tobacco Control (FCTC) should be considered to reduce tobacco consumption and imports.

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