

The Impact of US Protectionism on Indonesian Agricultural Exports: Challenges for Sustainable Business and Trade Innovation

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Abstract. *United States of America announced sweeping Reciprocal Tariffs in April 2025, targeting Indonesia with a 32% rate, the expected narrative was straightforward: agricultural exports would suffer. This study challenges that narrative. Drawing on twenty years of monthly export data and a robust time-series regression framework with Newey-West HAC correction designed to isolate genuine policy effects from concurrent macroeconomic noise, we find that neither the 2025 Reciprocal Tariff nor the 2018 Trade War suppressed Indonesia's agricultural exports. The positive short-run export response following the 2025 tariff is better explained through a trade diversion lens, as U.S. protectionism reshuffles global trade flows, Indonesia's agricultural commodities gain competitive ground in markets previously dominated by other exporters. What ultimately drives export performance, however, are structural forces: a weaker Rupiah, rising global palm oil prices, and higher rubber prices consistently outweigh any tariff headline. For policymakers, this reframes the strategic priority. Indonesia's agricultural export resilience is not won at the negotiating table, it is built through commodity competitiveness and exchange-rate positioning. The first empirical assessment of the 2025 Reciprocal Tariff's effect on Indonesian agricultural exports, this study contributes an early-assessment framework applicable to other developing economies navigating sudden tariff escalation.*

Keywords: Reciprocal Tariff; Agricultural Exports; Newey-West HAC; Trade Diversion; Exchange Rate

INTRODUCTION

Global trade protectionism has re-emerged as a defining feature of international economic policy in the mid-2020s. On April 2, 2025, the United States announced a sweeping Reciprocal Tariff policy targeting all trading partners, imposing a 32% tariff on Indonesian goods subsequently negotiated to 19% during a 90-day suspension period effective April 9, 2025. This measure follows the earlier Section 301 Trade War of 2018–2019, during which the U.S. imposed unilateral tariffs on goods predominantly from China, generating broad ripple effects across global supply chains.

Indonesia's agricultural sector dominated by palm oil and natural rubber, which together exceed 40% of total agricultural exports is the focal concern of this study. While extant literature documents the macroeconomic effects of U.S.–China trade tensions (Purwono et al., 2021; McKibbin et al., 2025), empirical evidence specifically quantifying the impact on Indonesian agricultural exports remains scarce, particularly for the 2025 policy episode. This paper addresses that gap through a time-series regression framework applied to 20 years of monthly data.

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The central research questions are: (1) Did the 2018 U.S. Trade War significantly affect Indonesia's agricultural exports? (2) Does the 2025 Reciprocal Tariff show a discernible short-run effect? (3) What role do structural drivers exchange rate, palm oil price, and rubber price play relative to tariff policy shocks?

LITERATURE REVIEW

Trade Policy and Export Performance

The foundational theory linking trade policy to exports draws on comparative advantage (Ricardo, 1817) and the Heckscher-Ohlin framework, which predict that resource-abundant countries gain from free trade. Tariff impositions by importing nations reduce demand for the targeted country's exports through higher effective prices, though third-country diversion effects can partially offset bilateral losses (Anderson & van Wincoop, 2003).

Purwono et al. (2021) find that the 2018 U.S.–China Trade War generated trade diversion benefiting some ASEAN exporters, though effects were heterogeneous across commodities. Shallomitta et al. (2024) document that Indonesia's natural rubber exports are sensitive to exchange rate movements but less responsive to tariff shocks in major markets. McKibbin et al. (2025) project that the 2025 U.S. tariff escalation could reduce global GDP by 0.3–0.8%, with developing-country agricultural exporters disproportionately exposed.

Commodity Price and Exchange Rate Effects

Sugiharti et al. (2020) find that commodity prices and exchange rates are primary determinants of Indonesian agricultural trade flows, dominating policy variables in gravity model estimations. Kabiru et al. (2024) confirm that exchange rate volatility amplified during COVID-19 significantly affected Indonesia's food product trade, with depreciation of the Rupiah generally boosting export competitiveness. Cashin & McDermott (2002) document the long-run downward trend in real commodity prices, underscoring the structural vulnerability of commodity-dependent exporters.

Trade Diversion

Classical trade theory anticipates that unilateral tariff imposition by a major economy does not simply reduce global trade, it redirects it. Trade creation occurs when tariffs open competitive space for alternative suppliers, while trade diversion relocates existing trade flows toward countries outside the tariff regime (Anderson & van Wincoop, 2003). In the context of U.S. protectionism, this mechanism is empirically documented: Purwono et al. (2021) find that the 2018 U.S.–China Trade War generated meaningful trade diversion effects across ASEAN, with commodity exporters like Indonesia positioned to capture market share previously held by Chinese suppliers in third-country markets. This dynamic helps explain why bilateral tariff shocks do not always translate into aggregate export losses for non-primary targets and why Indonesia's agricultural exports may respond differently than the conventional narrative predicts. Existing studies, however, have largely examined trade diversion in the context of manufactured goods and China-centric flows, leaving the agricultural export channel and the specific case of the 2025 Reciprocal Tariff empirically uncharted. This study directly fills that gap, offering the first evidence-based assessment of whether trade diversion and structural macroeconomic forces, rather than direct tariff suppression, better explain Indonesia's agricultural export trajectory under escalating U.S. protectionism.

METHODS

The study uses 252 monthly observations from January 2005 to December 2025. The dependent variable (Y) is the total value of Indonesia's agricultural exports (row 'A. Hasil Pertanian' in SEKI Bank Indonesia), in thousands of USD, log-transformed as $\ln(Y)$. Independent variables and their sources are summarized in Table 1.

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Table 1. Variable Definitions and Data Sources

Variable	Definition	Source
$\ln(Y)$	Log of total agricultural exports, thousands USD	SEKI Bank Indonesia
D_WAR	Dummy = 1: Jul 2018–Dec 2019 (Trade War)	Federal Register; USTR
D_RECTAR	Dummy = 1: Apr–Dec 2025 (Reciprocal Tariff)	IEEPA Order Apr 2025
$\ln(KURS)$	Log of Rupiah/USD rate (BI Middle Rate + JISDOR)	Bank Indonesia
$\ln(PPOIL)$	Log of global CPO spot price, USD/metric ton	IMF PCPS: G001.PPOIL.USD.M
$\ln(PRUBB)$	Log of natural rubber price, US cents/lb	IMF PCPS: G001.PRUBB.USD.M
D_COVID	Dummy = 1: Mar 2020–Jun 2021	WHO Declaration Mar 2020
$D_RECLASS$	Dummy = 1: Jan 2017–Dec 2025 (BI data reclassification)	SEKI BI methodology note

Model Specification

The baseline OLS model with Newey-West HAC standard errors (bandwidth = 5) is:

$$\ln(Y_t) = \alpha + \beta_1 \cdot D_WAR_t + \beta_2 \cdot D_RECTAR_t + \beta_3 \cdot \ln(KURSt) + \beta_4 \cdot \ln(PPOIL_t) + \beta_5 \cdot \ln(PRUBB_t) + \beta_6 \cdot D_COVID_t + \beta_7 \cdot D_RECLASS_t + \varepsilon_t$$

Where $\ln(Y_t)$ is log of agricultural exports in month t ; α is the constant; β_1 – β_7 are regression coefficients; D_WAR_t and D_RECTAR_t are tariff episode dummies; $\ln(KURSt)$, $\ln(PPOIL_t)$, and $\ln(PRUBB_t)$ are log-transformed exchange rate, palm oil price, and rubber price respectively; D_COVID_t and $D_RECLASS_t$ are control dummies for pandemic disruption and BI data reclassification; ε_t is the error term; and t runs from January 2005 to December 2025 ($t = 1$ to 252).

HAC correction addresses serial correlation in monthly data without altering coefficient estimates. All continuous variables are log-transformed for elasticity interpretation. Unit root tests (ADF) confirm stationarity at first differences; ¹OLS with HAC remains the appropriate estimator given the study's focus on policy-effect identification rather than cointegration dynamics.

¹ ADF unit root tests (MacKinnon critical values: -3.46 at 1%, -2.88 at 5%) confirm that $\ln(Y)$ is stationary at level $I(0)$, while $\ln(KURS)$, $\ln(PPOIL)$, and $\ln(PRUBB)$ are non-stationary at level but stationary at first difference $I(1)$. The mixed integration order is accommodated by Newey-West HAC correction, which produces asymptotically valid inference without requiring homogeneous integration across variables.

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RESULTS AND DISCUSSION

The model is jointly significant and explains 68% of monthly variation in Indonesia's agricultural exports over two decades, a meaningful fit for high-frequency trade data subject to commodity cycles, exchange rate swings, and multiple global shocks. Table 2 presents the full estimation results.

Table 2. OLS Newey-West HAC Regression Results (Dependent Variable: $\ln(Y)$, N = 252)

Variable	Coefficient (β)	Std. Error (HAC)	t-Statistic	p-Value
<i>Constant (α)</i>	-4,7694	1,0898	-4,3764	0,0000
<i>D_WAR</i>	-0,0096	0,0460	-0,2097	0,8341
<i>D_RECTAR</i>	+0,1836	0,0579	+3,1716	0,0017
<i>ln(KURS)</i>	+1,5133	0,1112	+13,5974	0,0000
<i>ln(PPOIL)</i>	+0,3424	0,0512	+6,6882	0,0000
<i>ln(PRUBB)</i>	+0,3063	0,0580	+5,2779	0,0000
<i>D_COVID</i>	-0,0778	0,0442	-1,7582	0,0800
<i>D_RECLASS</i>	-0,5111	0,0406	-12,5748	0,0000
Adj. R ² = 0.6818 F-stat = 77.815 (p < 0.001) Newey-West HAC, Bandwidth = 5 ***p<0.01				

The 2018 Trade War: A Storm That Passed Indonesia By

The Trade War coefficient is effectively zero and the explanation lies in targeting. U.S. Section 301 actions were surgical strikes aimed at Chinese industrial goods: steel, semiconductors, machinery. Indonesia's agricultural basket like palm oil, rubber, coffee, cocoa was never on the list. If anything, the Trade War likely worked in Indonesia's favor: as Chinese suppliers faced retaliatory pressure, buyers in third markets quietly shifted toward Indonesian alternatives. The absence of a negative coefficient is not a null finding, it is evidence that Indonesia was structurally insulated from a conflict it had no part in starting.

The 2025 Reciprocal Tariff: When the Numbers Defy the Headlines

Indonesia was directly named, hit with a 32% rate negotiated to 19% and yet exports rose. Two mechanisms explain this. First, trade diversion: the 2025 regime targets dozens of economies simultaneously, reshuffling global agricultural supply chains on a massive scale. Indonesian palm oil and rubber become relatively more attractive to buyers watching their traditional suppliers Vietnam, Thailand, Brazil absorb their own tariff burdens. Second, the observation window matters. Nine months of post-tariff data captures the market's immediate reaction, not its equilibrium. Whether this reflects durable diversion gains or transient adjustment will only become clear with 18 to 24 months of additional data. What can be said with confidence: the doom scenario did not materialize.

To substantiate the trade diversion argument empirically, this study draws on bilateral export data from ITC TradeMap comparing Indonesia's agricultural exports to China, India, the EU, and the United States across Q2–Q3 2024 versus Q2–Q3 2025. All four destinations recorded significant growth: China +22.9%, India +23.1%, EU +20.2%, and the United States +18.9% (ITC TradeMap, 2025). The stronger growth in Asian markets is consistent with buyers substituting toward Indonesian commodities as regional competitors absorbed heavier tariff burdens, while continued U.S. growth reflects residual demand inelasticity compounded by pre-enforcement front-loading.

The Real Story: Structure Always Wins

The structural variables are the story beneath the story. The Rupiah's elasticity is striking, every meaningful depreciation translates directly into higher export values in USD terms. Indonesian commodities are priced

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globally in dollars, so a weaker Rupiah makes every ton of palm oil cheaper for foreign buyers without the exporter losing margin. It is a silent, automatic competitiveness mechanism no tariff negotiation can replicate. Palm oil and rubber prices carry equally substantial elasticities, meaning Indonesia's export fortunes rise and fall with commodity cycles in ways that dwarf any policy shock. This is both a strength and a vulnerability, Indonesia benefits when cycles are favorable, but remains exposed when they turn. As long as exports are dominated by raw commodities, agricultural trade performance will be held hostage to markets Indonesia does not control.

CONCLUSIONS

This study set out to test a widely held assumption that U.S. tariff escalation inevitably suppresses the exports of targeted developing economies. The evidence from two decades of Indonesia's monthly agricultural export data tells a more nuanced story. Neither the 2018 Trade War nor the 2025 Reciprocal Tariff produced the expected export contraction. Instead, the 2025 tariff episode generated a positive short-run export response, consistent with trade diversion dynamics: as U.S. protectionism disrupts established trade flows, Indonesia's palm oil and rubber gain competitive ground in markets where previously dominant suppliers, particularly China and other tariff-hit economies lose footing. The 2018 Trade War left no footprint precisely because Indonesia was never the primary target; its agricultural basket simply fell outside the Section 301 scope. Across both episodes, the structural driver like Rupiah depreciation, global palm oil prices, and natural rubber prices proved to be the overwhelming determinants of export performance, dwarfing any policy shock in magnitude and consistency.

Two policy priorities follow. First, downstream value-added investment in CPO and rubber processing, combined with export destination diversification, reduces single-country tariff exposure. Second, Bank Indonesia should manage the Rupiah with awareness of its outsized export elasticity depreciation boosts agricultural competitiveness but risks imported inflation and debt pressures that can erode those gains.

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