

Trade Interdependence in Flux: Network-Based Evidence of ASEAN's

Post-Pandemic Regional Reorientation

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Abstract

This study investigates how the COVID-19 pandemic reshaped trade interdependence among six major ASEAN economies—Singapore, Vietnam, Indonesia, Malaysia, Thailand, and the Philippines—by comparing their post-pandemic recovery (2020–2022) with the effects of China's 2015 currency devaluation. Employing a network-based approach, we develop a novel *Outer/Inner trade orientation ratio* that measures each country's bilateral interdependence with key Asia-Pacific partners (China, the United States, Japan, South Korea, India) relative to intra-ASEAN partners. Unlike traditional measures that focus on aggregate trade volumes or centrality, our method captures reciprocity and dependence at the link level, allowing for a high-resolution assessment of trade orientation shifts.

The analysis reveals heterogeneous responses. Singapore and Vietnam exhibited pronounced outward reorientation, with Vietnam emerging as the most globally dependent economy. The Philippines remained inward-focused, while Indonesia, Malaysia, and Thailand displayed more balanced or transitional patterns. Comparing the two shocks demonstrates that COVID-19 generated sharper and more asymmetric restructuring than the 2015 devaluation: ASEAN–China interdependence surged to historic highs, while ties with Japan, South Korea, India, and the U.S. weakened. This divergence underscores both ASEAN's deepening reliance on China and the bloc's structural heterogeneity in crisis response.

Robustness checks, including alternative interdependence metrics and clustering analysis, confirm the validity of these patterns. The findings highlight that global shocks do not yield uniform regional outcomes but reinforce country-specific trajectories shaped by structural positions in global value chains.

From a policy perspective, the study suggests that ASEAN cannot rely on a one-size-fits-all integration strategy. Outward-oriented economies such as Vietnam and Singapore require diversification beyond China and deeper participation in multilateral frameworks, while inward-leaning states like the Philippines may benefit from strengthening intra-ASEAN supply chains and harmonizing standards. At the regional level, the *Outer/Inner ratio* offers a diagnostic tool for monitoring vulnerabilities, informing differentiated trade strategies, and enhancing resilience in the face of recurring global disruptions.

This research contributes to the literature on trade networks and regional resilience by advancing link-level measures of reciprocity and dependence. It demonstrates that COVID-19 did not erase structural differences within ASEAN but rather intensified, reshaping the bloc's trade architecture. Future research should extend this framework to sector-specific flows, particularly intermediate goods, and broaden coverage to all ASEAN members. Such extensions will clarify the backbone of production networks and the resilience of supply chains under systemic stress. Ultimately, this study shows that ASEAN's post-pandemic recovery reflects not convergence but structural divergence, with profound implications for regional policy and global economic stability.