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Impact of Production Shifting from China on Vietnam's Competitive Position in the Global Supply Chain

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Abstract

The shift in global production from China has become a significant trend, driven by rising labor costs, geopolitical tensions, trade policies, and the need for supply chain diversification. This study examines the impact of this production relocation on Vietnam's competitive position in the global supply chain. While Vietnam has emerged as a key destination due to its cost advantages, strategic location, and government incentives, challenges remain in terms of infrastructure readiness, labor quality, and industrial capacity. Through an examination of the major forces behind this change, such as economic, geopolitical, technical, social, and environmental aspects, this study offers a thorough evaluation of Vietnam's advantages, disadvantages, opportunities, and dangers in the changing global production environment. The findings highlight Vietnam's potential to enhance its role in global supply chains, provided that targeted policy interventions and strategic investments are implemented to improve industrial capabilities, workforce development, and supply chain resilience.

Keywords

Factors Shifting Production from China, Competitive Position, Vietnam, Global Supply Chain

1. Introduction

For decades, China has played a central role in the global supply chain due to its manufacturing scale, low labor costs, and well-developed industrial system. However, economic, political, and trade shifts are gradually reshaping the global landscape. One of the most significant factors driving this transformation is the U.S.-

China trade war. The imposition of high tariffs on Chinese goods by the U.S. has forced many enterprises to adjust their supply chain strategies to mitigate risks and optimize costs. Beyond tariffs, escalating geopolitical tensions between the world's two largest economies have triggered a series of consequences, ranging from supply chain restructuring to the urgent need for production diversification.

Furthermore, the COVID-19 pandemic has exposed the vulnerabilities of highly concentrated supply chains, accelerating the trend of production relocation to other countries. Against this backdrop, Vietnam has emerged as a promising destination, thanks to its competitive labor costs, strategic geographic location, and open trade policies. However, to fully capitalize on these opportunities, Vietnam must overcome several challenges, including inadequate infrastructure, a limited skilled workforce, and increased scrutiny from the U.S. This paper not only analyzes the impact of the U.S.-China trade war on global supply chain shifts but also evaluates Vietnam's competitive position in this evolving landscape. Additionally, it offers strategic recommendations to help businesses and policymakers leverage these opportunities, enhance competitiveness, and promote sustainable development.

2. Literature Review and Theoretical Framework

In the context of global supply chains, production relocation is a core strategy aimed at minimizing costs, optimizing distribution, and strengthening competitive positioning (Chopra & Meindl, 2007; Slack et al., 2022). Firms typically shift operations to low-wage countries or emerging markets while striving to maintain supply-chain flexibility, respond quickly to market changes, and reduce risks associated with tariffs, local regulations, and environmental factors (Christopher, 2016). Relocation from developed to developing economies often occurs in labor-intensive sectors such as footwear, textiles, and electronics assembly, enabling companies to capitalize on lower wages and investment incentives (Kinkel, 2012; Aykut & Ratha, 2003; VCCI, 2024; Mai & Phuong, 2020). At the same time, FDI into Southeast Asia has increasingly targeted high-technology and electronics manufacturing, driving technology transfer and modern management practices. However, industries requiring advanced technology or skilled labor face relocation barriers if initial infrastructure costs outweigh expected gains, especially where legal transparency and intellectual-property protection are weak (Helpman, 1984; PwC Vietnam, 2023).

Meanwhile, South-to-South relocation has accelerated under the "China Plus One" strategy, which diversifies supply chains and reduces dependence on China amid rising labor costs and disruptions from trade tensions and pandemics (Tse et al., 2021). Host countries benefit not only from cheap labor but also from tariff incentives, infrastructure investment, and streamlined procedures, even though technology transfer frequently remains at basic or intermediate levels. Such flows concentrate in labor- or resource-intensive industries, placing pressure on local environments due to underdeveloped waste-management and resource-extrac-

tion infrastructures.

The strategic importance of production relocation extends beyond cost reduction and distribution efficiency. It enhances operational agility, market-responsiveness, and technology diffusion (Chopra & Meindl, 2016; Christopher, 2016). Leveraging tax incentives and infrastructure investments lowers operating expenses and boosts profitability. To sustain these gains, firms must enforce quality control, nurture international partnerships, and restructure their supply chains to navigate logistics challenges, political volatility, and diverse production requirements (Slack et al., 2022). Production relocation thus reshapes global resource allocation and market structures, spurring local economic development, attracting FDI, and diversifying industries—yet it demands rigorous management strategies to ensure long-term sustainability and stability (Chen & Chang, 2022).

In examining drivers of global relocation, Manning (2014) identifies three strategic responses—mitigate, tolerate, or relocate—based on firms' control over cost-push factors like wage inflation, political instability, or skilled-labor shortages. Smaller firms, facing resource constraints, tend to relocate more frequently, whereas larger firms invest in risk mitigation. Gao and Ren (2020) highlight over-reliance on China and advocate a "dynamic balancing" approach through supplier diversification, alternative markets (India, ASEAN, the U.S.), and domestic capacity building, which proved valuable when COVID-19 exposed centralized-sourcing vulnerabilities. Vargas-Hernández and Vargas-González (2024) demonstrate that trade barriers, rising labor costs, and economic nationalism compel firms to evaluate infrastructure, quality standards, regulatory environments, and macroeconomic stability holistically, rather than focusing solely on cost. Yang and Chan's (2023) study of global production networks in the mobile-phone sector shows that "China Plus One" strategies—already in use before the trade war and pandemic—help firms mitigate geopolitical risks and leverage emerging clusters like Vietnam's Red River Delta, while maintaining multi-tiered links with Chinese suppliers.

Regarding shifts away from China, Alfaro and Chor (2023) document a 4% drop in U.S. imports from China between 2017 and 2022, alongside nearly doubled Vietnamese imports, signaling a deliberate reallocation toward geographically proximate consumer markets to reduce trade-war exposure and rising Chinese production costs. Research on "Local sourcing, embeddedness, manufacturing relocation, and firm attitudes toward the U.S.-China trade war" (2023) confirms that although trade tensions push technology and component firms to explore Southeast Asia and Mexico, the depth of their linkages to Chinese suppliers often determines relocation intent. Solingen (2025) adds that U.S.-China geopolitical conflict forces GVC reconfiguration, with sector- and strategy-specific variations in pace and scope of relocation. Finally, Wang et al. (2020) show that in China's light-manufacturing industries, firms with stronger technological capabilities tend to upgrade in place, whereas labor-intensive, smaller firms relocate to lower-cost locations, reflecting the dual pressures of rising wages and automation potential.

3. Methodology

3.1. Framework for Analyzing Factors Affecting Vietnam's Competitive Position in the Global Supply Chain Production Relocation Trends

Production relocation refers to the shift of part or all manufacturing operations from one country to another to optimize costs and mitigate risks (Buckley & Casson, 1998). In recent years, many multinational corporations have adopted the "China Plus One" strategy, maintaining some production in China while expanding to alternative locations such as Vietnam to reduce dependency on a single market (Freeman, 2019).

Tariffs and trade barriers

The U.S. tariffs imposed on Chinese goods during the trade war have significantly increased import costs, prompting companies to seek alternative production hubs (Bown, 2019). Vietnam has benefited from this shift due to its open trade policies, competitive labor costs, and participation in multiple free trade agreements (FTAs) (World Bank, 2020).

Foreign direct investment (FDI) and industrial development

The production shift has driven an influx of foreign direct investment (FDI) into Vietnam, particularly in industries such as electronics, textiles, and automotive components (UNCTAD, 2021). However, sustaining this growth requires Vietnam to enhance infrastructure, improve workforce quality, and establish long-term FDI attraction policies (Nguyen & Tran, 2020).

Vietnam's competitive capacity in the supply chain

Vietnam's position in the global supply chain is not solely determined by low labor costs but also by its production capabilities, supply chain flexibility, and compliance with international standards (Porter, 1990). In the context of the trade war, Vietnamese enterprises must enhance productivity, invest in technology, and streamline manufacturing processes to maintain their competitive edge (Gereffi & Fernandez-Stark, 2016).

Government Policies

Government trade and industrial policies play a crucial role in strengthening national competitiveness. Vietnam's involvement in accords such as the Comprehensive and Progressive Trans-Pacific Partnership (CPTPP) and the EU-Vietnam Free Trade Agreement (EVFTA) has aided export growth and FDI attraction (World Bank, 2020). However, additional policies are required to support domestic enterprises, upgrade workforce skills, and develop infrastructure to fully capitalize on opportunities arising from the U.S.-China trade war (Nguyen & Tran, 2020).

3.2. Research Methodology

The empirical research framework was developed based on relevant literature and the study's research objectives to examine the factors associated with Vietnam's competitive position in global supply chains amid the U.S.-China trade war and

the broader trend of production relocation from China. Data were collected between October 2024 and January 2025 through an online questionnaire distributed. Due to time and resource constraints, a purposive non-probability sampling method was employed. A total of 600 questionnaires were distributed, yielding 226 responses and a response rate of 37.67%. After data screening, 204 valid questionnaires were retained for analysis. Responses were excluded if they were incomplete, did not comply with the questionnaire's response requirements, or contained identical answers across all questionnaire items. Although the survey targeted small and medium-sized enterprises (SMEs) across all three regions of Vietnam, the sample was more concentrated in the northern region. This geographical imbalance, together with the non-probability sampling approach, should be considered when interpreting the findings and assessing their generalizability to the broader population of Vietnamese SMEs.

4. Research Findings

4.1. Reliability Testing Using Cronbach's Alpha

In order to ensure that unnecessary or statistically inconsequential variables are removed from the research model, the Cronbach's Alpha coefficient is employed to evaluate the internal consistency of measurement items. A Cronbach's Alpha score of 0.6 or above is regarded as satisfactory by Hair et al. (1998).

Cronbach's Alpha values between 0.7 and 0.8 imply an adequate scale for research purposes, whereas those between 0.8 and 1.0 indicate a very reliable scale, according to Hoang Trong & Chu Nguyen Mong Ngọc (2005). Researchers should exercise caution, nevertheless, if the Cronbach's Alpha is more than 0.95, as this might suggest conceptual overlap or duplication among the measuring items, which could result in factors being left out (Thọ & Trang, 2007). Cronbach's Alpha, which evaluates the internal consistency of observed variables within a scale, should not be used as the only criterion for maintaining or deleting variables. Items having a corrected item-total correlation less than 0.3 are deemed minor contributors and ought to be eliminated from the model, per Nunnally & Bernstein (1994).

Each construct must have a minimum of three observed variables in order to be tested for reliability. Since every construct in this study satisfies this requirement, the research team may use SPSS software (version 30.0) to perform a Cronbach's Alpha reliability analysis and confirm that the measurement scales used in the study model are adequate.

All observed variables exhibit a corrected item-total correlation over 0.3 and are inferior than the overall Cronbach's Alpha score in **Table 1**. The final findings demonstrate the reliability of the measurement scales for each factor group and the consistency of the data correlation with the established measurement scales.

4.2. Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) was conducted in IBM SPSS Statistics 30.0 to

Table 1. Cronbach's Alpha test results for each variable.

	Notation	Cronbach's Alpha coefficient factors	Total correlation coefficient	Number of eliminated variables
Competitiveness of Vietnamese enterprises	COMPETI	0.871	0.669 - 0.747	0/5
China's production costs	COST	0.893	0.625 - 0.780	0/6
China-United States trade war	TRADE	0.880	0.599 - 0.724	0/7
Market recovery after the COVID-19 pandemic	COVID	0.863	0.607 - 0.690	0/6
China plus one policy	CPO	0.858	0.570 - 0.717	0/6
China's development strategy	DEV	0.794	0.520 - 0.603	0/5

examine the grouping of the observed items. The data were suitable for factor analysis (KMO = 0.910; Bartlett's test of sphericity: χ^2 (595) = 4010.094, $p < 0.001$). Seven factors were retained; all seven had initial eigenvalues greater than 1, and together they accounted for 65.140% of the total item variance. The reported factor loadings ranged from 0.522 to 0.806. The original TRADE construct separated into two groups: TRADE2 - TRADE5 (SCTR: supply-chain and trade risks) and TRADE1, TRADE6, and TRADE7 (TECH: technology control). This split is consistent with the content and observed loading pattern of the items: the first group concerns supplier diversification, price competitiveness, investment, and trade barriers, whereas the second concerns supply-chain certainty, access to advanced technology, and technology/R&D responses. For EFA to be valid, the following three conditions must be met:

- Kaiser-Meyer-Olkin (KMO) measure must be ≥0.5 (0.5 ≤ KMO ≤ 1), indicating that the dataset is suitable for factor analysis.
- Bartlett's test of sphericity must be statistically significant (Sig < 0.05), confirming that observed variables exhibit linear correlations with their representative factors.
- The total variance explained should be greater than 50%, ensuring that the extracted factors adequately represent the observed variables (Anderson & Gerbing, 1988).

With the KMO test result of 0.910 (>0.5) and a p-value from Bartlett's test < 0.05, all necessary conditions for conducting Exploratory Factor Analysis (EFA) are met, and the results can be considered valid. The total variance explained is 65.14% (>50%), confirming that the factor analysis is appropriate (Table 2).

Table 2. KMO and Bartlett test.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.910
Bartlett's Test of Sphericity	Approx. Chi-Square	4010.094
	Df	595
	Sig.	<0.001
Total Variance Explained		65.140%

Based on the rotated component matrix, the TRADE factor is split into two new factor groups:

- First new factor group: TRADE2, TRADE5, TRADE3, TRADE4
- Second new factor group: TRADE6, TRADE7, TRADE1

The study team reformulated the factors as follows in accordance with theoretical underpinnings and the substance of the observed variables associated with the US-China Trade War (TRADE) factor:

- First new factor: Supply Chain & Trade Risks (SCTR)
- Second new factor: Technology Control (TECH)

Table 3. Extracted observed variables.

Representative factor	Notation	Observed variable	Eigenvalue
China's production costs	COST	COST1, COST2, COST3, COST4, COST5, COST6	4.009
Market recovery after the COVID-19 pandemic	COVID	COVID1, COVID2, COVID3, COVID4, COVID5, COVID6	3.857
China Plus One policy	CPO	CPO1, CPO2, CPO3, CPO4, CPO5, CPO6	3.838
Supply chain & trade risks	SCTR	TRADE2, TRADE3, TRADE5, TRADE4	3.091
Competitiveness of Vietnamese enterprises	COMPETE	COMPETE1, COMPETE2, COMPETE3, COMPETE4, COMPETE5	2.957
China's development strategy	DEV	DEV1, DEV2, DEV3, DEV4, DEV5	2.923
Technology control	TECH	TRADE1, TRADE6, TRADE7	2.123

The eigenvalues reported for COST (4.009) and COVID (3.857) are rotation sums of squared loadings, not estimates of their explanatory power for the dependent variable in Table 3. They correspond to 11.456% and 11.021% of total item variance, respectively, after rotation. Together, these two factors account for 22.477% of the total item variance. Their relationships with enterprise competitiveness are assessed separately through the Pearson correlation and regression analyses.

The EFA results support retaining seven factors for subsequent analyses, based on the eigenvalue-greater-than-one criterion and the cumulative variance explained. This result establishes the factor structure of the measured items; it does not by itself demonstrate effects on the dependent variable.

Based on the above data, all identified factors meet the necessary conditions to proceed with further statistical testing.

4.3. Pearson's Correlation Analysis

A statistical technique for determining the linear relationship between two variables is Pearson's correlation. It uses a correlation coefficient (r), which goes from −1 to +1, to quantify the direction and intensity of the link. If Sig. < 0.05, a correlation is deemed statistically significant. The stronger the association, the closer r is to ±1, and the weaker the link, the closer r is to 0. There is a perfect positive

linear connection between the two variables if r = 1.

Based on the Cronbach's Alpha and EFA results, the research team applies Pearson's correlation analysis to assess the relationships among the six independent variables in the research model.

Table 4. Correlation coefficient.

		COMPETE	COST	COVID	CPO	DEV	SCTR	TECH
COMPETE	Pearson Correlation	1	0.623**	0.479**	0.559**	0.463**	0.628**	0.566**
	Sig. (2-tailed)	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	N	204	204	204	204	204	204	204
COST	Pearson Correlation	0.623**	1	0.387**	0.585**	0.462**	0.537**	0.424**
	Sig. (2-tailed)	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001
	N	204	204	204	204	204	204	204
COVID	Pearson Correlation	0.479**	0.387**	1	0.359**	0.408**	0.390**	0.435**
	Sig. (2-tailed)	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001
	N	204	204	204	204	204	204	204
CPO	Pearson Correlation	0.559**	0.585**	0.359**	1	0.358**	0.468**	0.420**
	Sig. (2-tailed)	<0.001	<0.001	<0.001	-	<0.001	<0.001	<0.001
	N	204	204	204	204	204	204	204
DEV	Pearson Correlation	0.463**	0.462**	0.408**	0.358**	1	0.369**	0.284**
	Sig. (2-tailed)	<0.001	<0.001	<0.001	<0.001	-	<0.001	<0.001
	N	204	204	204	204	204	204	204
SCTR	Pearson Correlation	0.628**	0.537**	0.390**	0.468**	0.369**	1	0.651**
	Sig. (2-tailed)	<0.001	<0.001	<0.001	<0.001	<0.001	-	<0.001
	N	204	204	204	204	204	204	204
TECH	Pearson Correlation	0.566**	0.424**	0.435**	0.420**	0.284**	0.651**	1
	Sig. (2-tailed)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-
	N	204	204	204	204	204	204	204

Note: ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

The results indicate that all independent variables (COST, COVID, CPO, DEV, SCTR, TECH) have p-values < 0.05 when correlated with COMPETE, confirming statistically significant linear relationships. Notably, SCTR exhibits the strongest correlation with COMPETE (r = 0.628), whereas DEV shows the weakest (r = 0.463). The positive correlation coefficients indicate that the variables are directly related (Table 4).

4.4. Regression Analysis

In the regression model, the dependent variable is the competitiveness of Viet-

namese enterprises, and the independent variables are derived from the observed variables via Pearson's correlation analysis. The regression model is specified as follows:

$$TD = \beta_0 + \beta_1 \cdot COST + \beta_2 \cdot COVID + \beta_3 \cdot CPO + \beta_4 \cdot SCTR + \beta_5 \cdot DEV + \beta_6 \cdot TECH$$

Hypotheses

H0: The primary factors do not exhibit a significant relationship with the competitiveness of Vietnamese enterprises.

H1: Production costs are significantly correlated with the competitiveness of Vietnamese enterprises.

H2: The COVID-19 pandemic is significantly correlated with the competitiveness of Vietnamese enterprises.

H3: The China Plus One policy is significantly correlated with the competitiveness of Vietnamese enterprises.

H4: The trade war, by increasing supply chain risks, affecting price competitiveness, and influencing the inflow of investment capital, is significantly correlated with the competitiveness of Vietnamese enterprises.

H5: The developmental orientation of China is significantly correlated with the competitiveness of Vietnamese enterprises.

H6: The technological control measures imposed on China are significantly correlated with the competitiveness of Vietnamese enterprises.

Model Validation

Table 5. Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.765[a]	0.585	0.573	0.53755	1.996

The model fit is assessed using the Adjusted R^2 value. The results in Table 5 indicate that the model, with six independent variables, has the highest Adjusted R^2 value of 0.585, equivalent to 57.3%. This means that 57.3% of the variance in the dependent variable is explained by these six independent variables, while the remaining variation is influenced by factors outside the model.

The Durbin-Watson (DW) statistic is used to test for first-order autocorrelation in the residuals. According to Gujarati and Porter (2009), if the DW value falls between 1.5 and 2.5, there is no significant autocorrelation. As shown in Table 5, the Durbin-Watson statistic = 1.996, which meets the required threshold.

F-Test

The F-test evaluates the overall fit of the linear regression model, determining whether the dependent variable has a linear relationship with all independent variables.

The null hypothesis (H_0) is stated as: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$.

The results in Table 6 indicate that the Sig. < 0.001[b] is extremely small, allowing for the rejection of the null hypothesis (H_0). The obtained regression model is highly robust, therefore, the combination of independent variables effectively ex-

plains the variations in the dependent variable.

Table 6. ANOVA table of the regression model.

ANOVA[a]						
Model		Sum of Square	Df	Mean Square	F	Sig.
1	Regression	80,353	6	13,392	46,347	<.001[b]
	Residual	56,924	197	0,289		
	Total	137,277	203			

[a]Dependent Variable: COMPETI; [b]Predictors: COST, COVID, CPO, DEV, SCTR, TECH.

Table 7. Regression coefficient analysis results.

Coefficients[a]						
Model	Unstandardized Coefficients		Standardized Beta	T	Sig.	Collinearity Statistics Tolerance
	B	Std. Error				
(Constant)	0.378	0.231		1.634	0.104	
COST	0.209	0.056	0.273	3.739	<0.001	0.524
COVID	0.112	0.050	0.122	2.237	0.026	0.703
CPO	0.154	0.057	0.159	2.699	0.008	0.604
DEV	0.115	0.054	0.115	2.123	0.035	0.713
SCTR	0.199	0.057	0.230	2.476	<0.001	0.480
TECH	0.150	0.058	0.163	2.576	0.001	0.528

Based on Table 7, the Sig. values of the variables COST (China's Production Costs), SCTR (Supply Chain & Trade Risk), TECH (Technology Control), COVID (COVID-19 Pandemic), CPO (China Plus One Policy), and DEV (Development Orientation) are all less than 0.05. Table 7 indicates that they are statistically significant in explaining the dependent variable: "Competitiveness of Vietnamese Enterprises."

Among them, SCTR and COST have the strongest impact, with Beta coefficients of 0.230 and 0.237, respectively, both with a significance level of Sig. < 0.001. The independent variables TECH and CPO have a moderate influence, with Beta coefficients of 0.159 and 0.163, respectively.

The independent variables COVID and DEV have a weaker impact, with Beta coefficients of 0.122 and 0.115, respectively, but remain statistically significant (Sig. < 0.05). Additionally, the VIF values of all variables are below 2.1, confirming that there is no multicollinearity issue among the independent variables.

The regression model is rewritten as follows:

$$COMPETI = 0.378 + 0.209 * COST + 0.112 * COVID + 0.154 * CPO + 0.115 * DEV + 0.199 * SCTR + 0.150 * TECH$$

Through the standardized regression coefficients, the research team identified the importance of each factor in influencing the competitiveness of Vietnamese enterprises. The findings indicate that all six independent variables—Production Costs, Supply Chain & Trade Risk, Technology Control, COVID-19 Pandemic, China Plus One Policy, and China's Development Orientation—have a positive impact on the competitiveness of Vietnamese enterprises.

5. Discussion

Based on the survey results, "China Cost of Production" (COST) was identified as the factor with the strongest impact on the competitiveness of Vietnamese enterprises with a Beta coefficient of 0.209 and a high Pearson correlation coefficient (r = 0.623). This confirms that increasing production costs in China have become the main driving force for shifting production to Vietnam, thereby helping businesses reduce costs and optimize profits. Along with that, since 2020, the wave of production shifting from China to Vietnam has increased sharply due to pressure from rising labor costs, increasingly stringent environmental regulations, as well as the US-China trade conflict. According to the World Bank report (2023), China's continuous increase in minimum wages and tightening of emission standards have caused many multinational enterprises to restructure their supply chains, prioritizing economies with cost advantages and political stability such as Vietnam. In this context, although Porter's (1990) research emphasized the role of technology and innovation in enhancing competitiveness, in Vietnam, cost factors still play a key role when businesses mainly participate in processing and assembly stages—segments that are sensitive to price fluctuations.

The US-China trade war is also analyzed through two independent factors: "Supply Chain & Trade Risk" (SCTR) and "Technology Control" (TECH). Specifically, SCTR has a Beta coefficient of 0.199, although lower than the initial Pearson correlation coefficient (r = 0.628), it still clearly reflects the impact of trade conflicts on logistics disruptions, thereby promoting the restructuring of global supply chains. This situation is demonstrated by the fact that countries impose tariffs on each other, while the US's restriction on high-tech exports to China also affects businesses' access to technology. Meanwhile, "Technology Control" with a Beta coefficient of 0.150 and an initial correlation of r = 0.566 shows that US sanctions have created a wave of shifting high-tech production to other countries, including Vietnam. In fact, Apple has begun to move some of its iPad and MacBook production to Vietnam, while Samsung and Intel have also expanded their operations there. However, most of these new manufacturing activities are limited to assembly and cannot yet participate deeply in higher value-added stages such as design, research and component manufacturing.

In addition, the "China Plus 1" (CPO) strategy is also noted to have a positive impact on the competitiveness of Vietnamese enterprises with a Beta coefficient of 0.154. This strategy stems from the need to reduce dependence on China after geopolitical shocks and supply chain disruptions, prompting multinational cor-

porations to diversify production locations to Southeast Asian countries. Vietnam, thanks to its advantages of young labor, competitive costs and favorable geographical location, has become an attractive "alternative destination". However, the effectiveness of this strategy is only promoted when closely combined with fundamental conditions such as low production costs and policy stability, typically the case of Apple when expanding production in countries such as India and Vietnam. In addition, "China's Development Orientation" (DEV) has a weak impact on the competitiveness of Vietnamese enterprises with a Beta coefficient of 0.115, reflecting the process of China's economic restructuring towards high-tech and service industries. This shift creates an indirect opportunity for Vietnam to attract labor-intensive manufacturing industries as China gradually withdraws from these industries. However, the weak impact of DEV also shows that this opportunity is not decisive, requiring Vietnam to improve labor quality, develop supporting industries and enhance technological capacity to maintain long-term competitive advantages.

Finally, "COVID-19 pandemic" is analyzed as a factor with a short-term promoting impact on the competitiveness of Vietnamese enterprises. Although COVID-19 has disrupted supply chains and reduced global demand, it has mainly exposed the risks of a concentrated production model in one country, thereby promoting a wave of shifting part of production activities to Vietnam to ensure supply chain continuity. However, the impact of COVID-19 is not as sustainable as other structural factors such as production costs and technological capabilities, as businesses still face challenges in supply chains and global competition in the context of economic uncertainty. In particular, the correlation between supply chain risks and the "China Plus 1" strategy ($r = 0.468$; $p < 0.01$), the significant relationship between production costs (COST) and China's development orientation (DEV) ($r = 0.462$; $p < 0.01$), and the relationship between the COVID-19 pandemic and the US-China trade war ($r = 0.468$; $p < 0.01$) are all explained, demonstrating the complexity and reciprocal influence of factors in the context of global production shift.

6. Limitation

The findings should be interpreted as statistical associations observed in the survey sample rather than as evidence of causal effects. The regression results indicate that Chinese production costs, post-pandemic business adjustment, supply chain and trade risks, and technology control were positively associated with reported enterprise competitiveness in the overall analysis, subject to the relevant statistical significance levels. These relationships reflect respondents' assessments and the patterns observed in the collected data; they do not establish that production relocation from China directly caused improvements in enterprise competitiveness.

Several limitations should be acknowledged. First, the use of purposive non-probability sampling may have introduced respondent-selection bias, as participating enterprises may differ systematically from enterprises that did not respond. Second, the geographical concentration of the sample in Northern Vietnam may

limit the extent to which the findings can be generalized to SMEs in Central and Southern Vietnam. Third, the use of a single questionnaire to measure multiple constructs may give rise to common-method bias, potentially inflating observed associations. Fourth, omitted enterprise- and industry-level characteristics, such as firm size, ownership structure, manufacturing subsector, technological capability, export orientation, and participation in global value chains, may also be related to the reported outcomes.

Furthermore, enterprise-level questionnaire responses cannot, on their own, establish changes in Vietnam's national competitive position in global supply chains. The study provides evidence on how surveyed enterprises perceive and experience factors associated with production relocation from China, rather than a direct measurement of national competitiveness or a causal estimate of the effects of relocation. Future research could address these limitations through broader sampling across regions and industries, multiple data sources, longitudinal observations, and objective indicators of enterprise and national competitiveness.

7. Conclusion

This study has systematized and expanded the theoretical basis of global production shift, focusing on the process of production shift from China to Vietnam. The study not only focuses on macroeconomic factors but also delves into factors that directly impact domestic enterprises, specifically production costs in China, supply chain and trade risks, technology control, the COVID-19 pandemic, the "China Plus 1" strategy and China's development orientation. The synthesis and analysis of these factors help build a comprehensive theoretical framework, reflecting the complexity and topicality of the production shift trend in the context of modern industry 4.0. In terms of theory, the study has developed and inherited related economic and supply chain theories, while expanding the perspective by focusing on the impact of these factors on Vietnam. This helps to add a comprehensive perspective, not only stopping at analyzing the causes of production shift but also assessing the adaptability of domestic enterprises when receiving investment capital flows in production shifting from China. The outstanding new point of the research model is the integration of policy and technology factors, thereby more fully reflecting the automation trend and the impact of technology control orders in the global context. The analysis's incorporation of the COVID-19 pandemic and geopolitical threats has also updated the theoretical picture and brought it closer to reality, which has influenced how businesses in the global supply chain are developing their strategies. In terms of practice, the study has provided a useful practical analytical framework for enterprises and economic management agencies. The actual data and regression models used have helped to clearly identify the factors that have a strong influence on the competitiveness of Vietnamese enterprises. The research results show that although production costs and supply chain & trade risks are the main factors, China's technology control policies and development orientation have a significant impact on the trend of production re-

location. Vietnamese enterprises need to identify their competitive advantages as well as the challenges that need to be overcome, such as applying advanced technology, improving the quality of human resources and improving the logistics system. To develop the competitiveness of Vietnamese enterprises, the government and policy makers need to promote infrastructure improvement, investment attraction policies and support enterprises to improve production capacity as well as develop supporting industries. At the same time, strengthening the connection between FDI enterprises and domestic enterprises will contribute to making Vietnam not only a destination for assembly activities but also gradually becoming a high value-added manufacturing center, thereby promoting the sustainable development of the economy.

Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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