INTERNATIONAL TRADE, FDI, AND PROVINCIAL REAL GRDP IN VIETNAM: THE CASE OF THE CENTRAL KEY ECONOMIC REGION

THƯƠNG MẠI QUỐC TẾ, FDI VÀ QUY MÔ GRDP THỰC CẤP TỈNH Ở VIỆT NAM: TRƯỜNG HỢP VÙNG KINH TẾ TRỌNG ĐIỂM MIỀN TRUNG

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Abstract - This study examines the relationship between international trade, foreign direct investment (FDI), and the scale of real GRDP across five historical territorial units in Vietnam's Central Key Economic Region during the 2009–2025 period, using a balanced panel of 85 observations. Trade scale is measured by the logarithm of total real exports and imports, while FDI is measured by the FDI-to-GRDP ratio. The model controls for human capital, institutional quality, and population size. Fixed-effects estimates with Driscoll–Kraay standard errors indicate a positive association between trade scale and real GRDP, whereas the FDI coefficient is less stable across specifications. IV/GMM estimates, quantile regressions, and robustness checks show that the results are sensitive to year effects, highlighting the importance of common time shocks. The findings are therefore interpreted as conditional associations and underscore the role of human capital and institutional quality in absorbing the benefits of integration.

Key words - International trade; FDI; real GRDP; panel data; Central Key Economic Region.

Tóm tắt - Nghiên cứu xem xét mối liên hệ giữa thương mại quốc tế, đầu tư trực tiếp nước ngoài (FDI) và quy mô GRDP thực tại năm địa bàn lịch sử thuộc Vùng kinh tế trọng điểm miền Trung giai đoạn 2009–2025, với 85 quan sát bảng cân bằng. Quy mô thương mại được đo bằng logarit tổng xuất khẩu và nhập khẩu thực; FDI được đo bằng tỷ lệ FDI/GRDP. Mô hình kiểm soát vốn con người, chất lượng thể chế và quy mô dân số. Kết quả FE với sai số chuẩn Driscoll–Kraay cho thấy quy mô thương mại có mối liên hệ dương với GRDP thực, trong khi hệ số FDI kém ổn định giữa các đặc tả. Các ước lượng IV/GMM, hồi quy phân vị và kiểm định độ bền cho thấy kết quả nhạy với hiệu ứng năm, hàm ý vai trò của các cú sốc chung theo thời gian. Vì vậy, nghiên cứu diễn giải kết quả theo hướng quan hệ có điều kiện, đồng thời nhấn mạnh vai trò của vốn con người và chất lượng thể chế đối với khả năng hấp thụ lợi ích từ hội nhập.

Từ khóa - Thương mại quốc tế; FDI; GRDP thực; dữ liệu bảng; Vùng kinh tế trọng điểm miền Trung.

1. Introduction

International trade and FDI are two important channels through which economic integration may affect local production outcomes. Trade expansion facilitates access to markets and intermediate inputs, while FDI contributes capital, technology, and linkages with value chains. However, the extent to which these benefits are transformed into real GRDP is not uniform across localities; rather, it depends on human capital, institutional quality, firms' linkage capacity, and technological absorptive capacity.

The Central Key Economic Region, considered in terms of five historical territorial units comprising Thua Thien Hue/Hue City, Da Nang, Quang Nam, Quang Ngai, and Binh Dinh, has an economic structure relatively closely associated with seaports, logistics, manufacturing, and FDI inflows. At the same time, differences in trade scale, FDI attraction capacity, and governance quality across localities generate substantial heterogeneity in absorptive conditions. This provides a suitable empirical basis for examining the relationship between integration and the scale of economic activity at the provincial level within the same regional economic space.

Against this background, the study focuses on three aspects. First, it contributes region-level evidence, rather than adopting the predominantly national-level approach, thereby exploiting temporal variation within each locality. Second, trade and FDI are examined simultaneously with human capital, institutional quality, and market size in order to reflect local absorptive conditions. Finally, in addition to the baseline specification, the study employs alternative estimators to examine endogeneity, quantile-based heterogeneity, and the sensitivity of coefficients to time effects. Since the dependent variable is the logarithm of the level of real GRDP, the study consistently uses the concepts of "the scale of real GRDP" or "economic outcomes" and does not interpret LGRP as the annual growth rate.

2. Literature review

The analytical framework of this study is grounded in neoclassical and endogenous growth approaches, according to which output is determined by capital, labor, technology, and human capital [1], [2], [3]. When an economy opens up, trade may improve productivity through specialization, increased competition, access to intermediate inputs, and knowledge spillovers [4]–[5]. Nevertheless, empirical evidence on the relationship between trade and economic outcomes remains inconclusive, especially when endogeneity, institutional quality, and differences in absorptive capacity are not adequately addressed [6], [7].

A notable methodological issue concerns the measurement of trade. The indicator of exports plus imports relative to GDP or GRDP is commonly used as a proxy for openness; however, this ratio may be affected by the size of the economy, market location, and the GDP/GRDP denominator itself [8], [9]. Therefore, LTRD in this study is defined as "the scale of international trade," measured by the logarithm of total real exports and imports, rather than as "trade openness" in the ratio-based sense. Under the log–log specification, the coefficient of LTRD is interpreted as the elasticity of real GRDP with respect to trade scale. At the same time, this measurement reduces the mechanical correlation that may arise when GRDP appears both in the dependent variable and in the denominator of an explanatory variable. Evidence for Vietnam also shows that estimation results may vary depending on how exports, imports, and FDI are incorporated into a dynamic model [10].

Regarding the FDI channel, foreign investment inflows may support output through capital accumulation, technology transfer, job creation, and strengthened supply-chain linkages [11]–[12]. However, their actual effects depend substantially on host conditions, including the level of financial development, human capital, institutional quality, and linkages between FDI enterprises and the domestic sector. Provincial-level studies in Vietnam have also produced mixed results: exports and the presence of multinational enterprises may support regional economic outcomes [13]; the direct and spatial spillover effects of FDI may be limited [14]; while human capital enhances the capacity to absorb productivity spillovers from FDI [15]. Recent evidence further points to the heterogeneous effects of FDI on provincial income and convergence [16], as well as differences between the trade channel and the FDI channel [17]. Studies published in the The University of Danang - Journal of Science and Technology also show that the FDI–growth relationship in Vietnam is not necessarily uniform in terms of the direction of impact [18], while a recent study in Central Vietnam using FE-DKSE emphasizes the simultaneous role of institutional quality and local development conditions in growth [19].

Overall, the empirical literature has been shifting from average estimates at the national level toward provincial- or regional-level analyses, with greater attention to dynamics, spatial dependence, and heterogeneity of effects. However, evidence specific to the Central Key Economic Region remains relatively limited, particularly in a specification that simultaneously considers trade, FDI, and local absorptive conditions. This study addresses that gap using panel data for the five historical territorial units in the region and employs multiple specifications to assess the sensitivity of the results. This approach also allows for caution in interpreting the coefficients, especially in view of potential endogeneity and the influence of common time shocks.

3. Data and research methodology

This study uses a balanced panel dataset of five historical territorial units in the Central Key Economic Region during the 2009–2025 period. To ensure temporal consistency, the observational units are fixed according to the administrative boundaries existing up to June 30, 2025, including Thua Thien Hue/Hue City, former Da Nang, former Quang Nam, former Quang Ngai, and former Binh Dinh. Under Resolution No. 202/2025/QH15, the administrative units formed after the reorganization officially came into operation on July 1, 2025 [20]. Therefore, the newly formed provinces/cities after the mergers are not established as new panel units in the 2009–2025 series, thereby avoiding disruption to the panel structure.

For 2025, GRDP, trade, realized FDI, trained labor, and population are aggregated by historical territorial unit from statistical reports that provide disaggregated data for the pre-merger territories. Data for the first six months directly reflect the former units; the remaining data are drawn from reports by the statistical offices of the newly formed provinces that provide breakdowns by pre-reorganization territories. The 2025 PCI, however, was published by VCCI for 34 new administrative units [21], which reduces its comparability with the PCI series based on the former boundaries. This measurement limitation is noted when interpreting estimates that include 2025 and provides a basis for assessing the sensitivity of the results to the sample scope.

The control variables are selected based on the relevant theoretical foundations and empirical evidence. HUM represents human capital under the endogenous growth approach [1], [2]; PCI reflects institutional quality and the governance environment [22], [23], [24]; and LPOP is used as a proxy for domestic market size. The definitions, measurements, units, and data sources of the variables are presented in Table 1.

Table 1. *Variable definitions, measurement, and data sources*

Variable	Measurement/unit	Source
LGRP (dependent)	ln(real GRDP, constant 2010 prices); log, VND billion	NSO/GSO and provincial statistics offices [25]
LTRD (main)	ln(exports + imports, constant 2010 prices); log, VND billion	Provincial statistics offices [25]
FSHR (main)	FDI/GRDP × 100; %	Provincial statistics offices [25]
HUM (control)	Trained workers/total employment × 100; %	Provincial statistics offices [25]
PCI (control)	Provincial Competitiveness Index; points	VCCI [21]
LPOP (control)	ln(population); log, persons	NSO/GSO and provincial statistics offices [25]

Note: Data sources are compiled by locality and year. FSHR is constructed using a consistent FDI concept throughout the series to ensure measurement comparability.

From the set of research variables, the empirical equation is specified as follows:

$$LGRP_it = \alpha + \beta_1 LTRD_it + \beta_2 FSHR_it + \beta_3 HUM_it + \beta_4 PCI_it + \beta_5 LPOP_it + \mu_i + \varepsilon_it.$$

In this equation, i and t denote locality and year, respectively; μ_i captures unobserved, time-invariant locality-specific characteristics; and ε_it is the random error term. Since LGRP and LTRD are expressed in

logarithmic form, β_1 is an elasticity coefficient: when the total value of real exports and imports increases by 1%, real GRDP changes by approximately β_1%, holding other factors constant. FSHR is measured in percentage points; therefore, β_2 reflects the change in the logarithm of real GRDP when the FDI-to-GRDP ratio increases by one percentage point.

LTRD measures the total scale of exports and imports (X+M), rather than net exports (X−M) in the expenditure identity; therefore, this variable does not create direct accounting overlap with GRDP. However, reverse causality may still exist when a larger GRDP scale simultaneously promotes trade or the ability to attract FDI. Accordingly, FE-DK estimates are regarded primarily as evidence of conditional associations. The IV/GMM specification is used as an additional check for potential endogeneity, rather than being treated as complete causal identification evidence.

The empirical procedure begins with descriptive statistics, a correlation matrix, and diagnostic tests for panel data. The fixed-effects specification is estimated with Driscoll–Kraay standard errors to exploit within-locality variation and to provide more robust statistical inference in the presence of serial correlation and possible forms of temporal dependence. The Hausman test does not reject the consistency of the random-effects model; however, FE is still used as the baseline specification because the identification objective relies mainly on within-locality variation and on the possibility that time-invariant characteristics are correlated with the explanatory variables. To assess sensitivity, the study additionally reports RE-GLS with an AR(1) structure, FE with year effects, IV/GMM, and quantile regressions. The quantile coefficients are interpreted at the conditional quantiles of LGRP, rather than as results obtained from fixedly dividing localities into growth groups.

4. Research results

4.1. Descriptive statistics and preliminary analysis

Table 2. *Descriptive statistics*

Variable	Observations	Mean	Std. dev.	Minimum	Maximum
LGRP	85	10.653	0.377	9.742	11.361
LTRD	85	9.423	0.529	8.361	10.348
FSHR	85	2.585	1.854	0.044	7.582
HUM	85	25.483	11.050	9.100	51.200
PCI	85	64.320	4.416	51.300	70.870
LPOP	85	7.154	0.147	6.817	7.377

Source: Calculations from the study data; statistics are reported to three decimal places.

The descriptive statistics in Table 2 show that the research sample consists of 85 observations. The mean values of LGRP and LTRD are 10.653 and 9.423, respectively, while FSHR averages 2.585%. HUM ranges from 9.100% to 51.200%, reflecting substantial differences in the share of trained workers across localities and over time. PCI has an average value of 64.320 points, while LPOP exhibits relatively lower variation. These differences provide the variation required for panel-data estimation, but they do not yet allow inference regarding the direction of impact among the variables.

Table 3. *Correlation matrix*

Variable	LGRP	LTRD	FSHR	HUM	PCI	LPOP
LGRP	1.000					
LTRD	0.805*	1.000				
FSHR	0.215*	0.093	1.000			
HUM	0.663*	0.809*	-0.258*	1.000		
PCI	0.628*	0.767*	-0.030	0.782*	1.000	
LPOP	0.229*	0.044	0.761*	-0.303*	-0.158	1.000

*Note: * indicates statistical significance at the 5% level; coefficients are rounded to three decimal places.*

The correlation matrix in Table 3 shows that LGRP is positively correlated with LTRD, HUM, and PCI. The correlations between LTRD and HUM, as well as between HUM and PCI, are relatively high; therefore, the variance inflation factor (VIF) is examined before estimating the model. The correlation coefficients only reflect pairwise linear associations and are not used as evidence of causal relationships.

4.2. Model selection and diagnostic tests

Table 4. *Model-selection and diagnostic test results*

Diagnostic test	Null hypothesis (H0)	Test statistic	P-value	Conclusion
Wald: groupwise heteroskedasticity	No groupwise heteroskedasticity	$\chi^2(5)$ = 5.620	0.345	Do not reject H0
Wooldridge: serial correlation	No first-order serial correlation	F(1,4) = 24.048	0.008	Serial correlation detected
Multicollinearity	VIF does not exceed a critical threshold	Mean VIF = 3.180	—	Not severe
Hausman	REM is consistent	$\chi^2(5)$ = 1.150	0.950	Do not reject REM
Individual effects	No individual effects	F(4,75) = 95.650	0.000	Individual effects detected
Pesaran cross-sectional dependence	No cross-sectional dependence	CD = 0.615	0.538	No cross-sectional dependence detected
Additional specification	RE-GLS with AR(1) disturbances	Wald $\chi^2(6)$ = 64.320	0.000	Model is statistically significant

The diagnostic results in Table 4 show that the Wooldridge test rejects the null hypothesis of no first-order serial correlation. In contrast, the corresponding tests do not provide clear statistical evidence of groupwise heteroskedasticity or cross-sectional dependence in the sample. The mean VIF is 3.180, indicating that multicollinearity is not at a level likely to cause serious bias in inference. The Hausman test does not reject the hypothesis that the random-effects model is consistent, while the test for individual effects shows that pooled OLS is not an appropriate specification.

Although the Hausman test permits the use of REM, this study does not regard that test as the sole criterion for selecting the specification. FE-DK is retained as the baseline model because the analysis focuses on temporal variation within each locality and seeks to limit bias arising

from unobserved time-invariant characteristics that may be correlated with trade, FDI, or institutional quality. To avoid reliance on a single model choice, the results of RE-GLS AR(1) and FE with year effects are presented in parallel in the robustness-check section.

4.3. Main estimation results with Driscoll–Kraay Standard Errors (DK-FE)

Table 5. *Fixed-effects regression results with Driscoll–Kraay Standard Errors*

Variable	Coefficient	Standard error	t	P>|t|	95% confidence interval
LTRD	0.070	0.030	2.370	0.031	[0.007; 0.133]
FSHR	0.013	0.007	1.900	0.076	[-0.001; 0.027]
HUM	0.023	0.003	7.530	0.000	[0.016; 0.029]
PCI	0.017	0.006	3.130	0.006	[0.006; 0.029]
LPOP	0.789	0.162	4.880	0.000	[0.446; 1.132]
_cons	2.685	1.184	2.270	0.038	[0.174; 5.195]

Model information: Number of observations = 85; number of groups = 5; F(5,16) = 210,130; Prob > F = 0,000; Within R^2 = 0,910.

Note: The dependent variable is LGRP, representing the logarithm of real GRDP at constant 2010 prices; the results reflect associations with the level of GRDP, not the annual growth rate.

The results in Table 5 show that the coefficient of LTRD is 0.070 and statistically significant at the 5% level. Under the log–log specification, this coefficient implies that a 1% increase in the total value of real exports and imports is associated with an approximately 0.070% higher level of real GRDP, holding other factors constant. FSHR has a coefficient of 0.013 and is significant only at the 10% level, indicating that the evidence for FDI is weaker and needs to be compared across alternative specifications. HUM, PCI, and LPOP all have positive and statistically significant coefficients, consistent with the argument regarding the roles of human capital, governance quality, and market size. Since the possibility of bidirectional relationships has not been fully ruled out, the coefficients in Table 5 are interpreted as conditional associations, rather than as identified causal effects.

4.4. Endogeneity analysis and Instrumental-Variable estimation results (IV)

Table 6. *IV/GMM regression results for testing trade endogeneity*

Variable	Coefficient	Robust standard error	z	P>|z|	95% confidence interval
LTRD	0.110	0.045	2.460	0.014	[0.023; 0.198]
FSHR	0.015	0.008	1.990	0.046	[0.000; 0.030]
HUM	0.019	0.003	5.810	0.000	[0.013; 0.026]
PCI	0.019	0.005	3.890	0.000	[0.009; 0.029]
LPOP	0.740	0.207	3.570	0.000	[0.334; 1.145]

The estimation information and instrument-related tests are as follows:

- Number of observations = 80; F(5,70) = 114.020; Prob > F = 0.000; Centered R^2 = 0.905; Root MSE = 0.086.

- Kleibergen–Paap rk LM = 23.335; p-value = 0.000.

- Cragg–Donald Wald F = 161.187; Kleibergen–Paap rk Wald F = 145.021.

- The model is exactly identified; therefore, the Hansen J statistic does not provide a meaningful test of overidentifying restrictions.

- Endogeneity test: $\chi^2(1) = 2.966$; p-value = 0.085.

- Instrumented variable: LTRD; excluded instrument: L.LTRD.

In the IV/GMM specification, LTRD and FSHR continue to have positive coefficients. The Kleibergen–Paap rk LM test rejects the hypothesis that the model is underidentified, while the Cragg–Donald Wald F and Kleibergen–Paap rk Wald F statistics are high, indicating that the instrument is strongly correlated with the endogenous variable according to commonly used criteria. However, the instrument is constructed from the lag of LTRD itself; therefore, instrument strength does not imply that the exclusion restriction is guaranteed. The endogeneity test yields a p-value of 0.085, providing evidence of endogeneity at the 10% significance level but not at the 5% level. On this basis, the IV/GMM results are used to assess the sensitivity of the coefficient to potential endogeneity and are not interpreted as absolute causal evidence.

4.5. Quantile regression results

Table 7. *Quantile regression results*

Variable	Q25	Q50	Q75
LTRD	0.054	0.070*	0.085
	(0.058)	(0.040)	(0.052)
FSHR	0.012	0.013	0.014
	(0.012)	(0.008)	(0.011)
HUM	0.021***	0.023***	0.024***
	(0.004)	(0.003)	(0.004)
PCI	0.019***	0.017***	0.016***
	(0.006)	(0.004)	(0.005)
LPOP	1.029***	0.784***	0.562**
	(0.289)	(0.202)	(0.255)
Observations	85	85	85

*Note: Standard errors in parentheses. * p < 0.10; ** p < 0.05; *** p < 0.01. Coefficients are rounded to three decimal places.*

Table 7 reports the regression coefficients at Q25, Q50, and Q75 of the conditional distribution of LGRP. LTRD has a positive sign across all three quantiles, but it is statistically significant only at Q50. This result suggests that the association between trade scale and real GRDP is more clearly observed around the median of the conditional distribution, while the evidence at the other two quantiles is not statistically strong enough. The quantiles do not correspond to three fixed groups of localities; the position of a locality in the conditional distribution may change over time and according to the set of explanatory variables.

The coefficient of FSHR is positive at all three quantiles but statistically insignificant, further indicating that the evidence for FDI is not stable. By contrast, HUM, PCI, and LPOP maintain positive coefficients across most quantiles. Compared with conditional mean estimation, the quantile results show that the intensity and statistical significance of the associations between the explanatory variables and LGRP vary along the distribution, particularly for trade and FDI.

4.6. Robustness checks

The sensitivity-check results in Table 8 show that the coefficient of LTRD is positive in RE-GLS AR(1) and in the FE-DK specifications with different lag choices. However, when year effects are included in the model, the coefficient of LTRD becomes negative and statistically significant. This change indicates that the conclusion regarding trade is sensitive to the control for common time shocks; therefore, it is not appropriate to describe the results as fully robust across specifications. The coefficient of FSHR also changes in terms of statistical significance. Overall, the baseline evidence supports a positive association between trade scale and real GRDP, but the magnitude and even the sign of the coefficient depend on how time effects are treated.

Table 8. *Robustness checks using alternative specifications*

Variable	GLS AR(1)	DK-FE + year effects	DK-FE lag(0)	DK-FE lag(1)	DK-FE lag(2)
LTRD	0.169***	-0.155***	0.070**	0.070**	0.070*
	(0.045)	(0.027)	(0.030)	(0.033)	(0.036)
FSHR	0.001	0.025***	0.013*	0.013*	0.013*
	(0.007)	(0.005)	(0.007)	(0.007)	(0.007)
HUM	0.012***	0.015***	0.023***	0.023***	0.023***
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
PCI	0.007**	-0.005	0.018***	0.018**	0.018**
	(0.003)	(0.007)	(0.006)	(0.007)	(0.007)
LPOP	1.130***	-0.426***	0.789***	0.789***	0.789***
	(0.336)	(0.142)	(0.162)	(0.173)	(0.157)
Observations	85	85	85	85	85

*Note: Standard errors are in parentheses. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. The alternative specifications are used to assess the sensitivity of the coefficients to the error structure, time effects, and the lag choice for Driscoll–Kraay standard errors.*

5. Discussion of results

The baseline estimates show that the scale of international trade is positively associated with real GRDP in the five localities under study. This result is consistent with theoretical mechanisms related to market expansion, access to intermediate inputs, and knowledge spillovers [4]–[5], and is also in line with regional-level evidence in Vietnam on the role of exports and the presence of multinational enterprises [13]. However, the coefficient of LTRD changes sign when year effects are added. This implies that part of the relationship observed in the baseline specification may reflect common macroeconomic shocks that simultaneously affect trade and GRDP, rather than solely reflecting locality-specific variation.

For FDI, the estimated coefficient is generally positive, but its statistical significance is not stable across models. This result is consistent with studies emphasizing the heterogeneity of FDI effects at the provincial level and the role of absorptive conditions [14]–[16]. In economic terms, FDI inflows are more likely to generate higher value added when accompanied by an appropriate workforce, good governance quality, linkages with domestic enterprises, and technological absorptive capacity. Therefore, the evidence from this study is not sufficient to support an approach that attracts FDI purely on the basis of scale; a more appropriate policy focus is the quality of projects and their capacity to generate spillovers.

HUM and PCI have positive coefficients in the baseline specification and remain relatively stable across several additional estimates, thereby reinforcing the argument that the benefits of integration depend on local absorptive foundations. The empirical contribution of this article does not lie in confirming a single causal relationship, but rather in showing that the relationship among trade, FDI, and real GRDP varies according to model specification and the way time shocks are controlled for. From a policy perspective, the results suggest that trade, FDI, human capital, and governance quality should be viewed as complementary factors rather than separate policy instruments.

6. Research limitations

This study has several limitations. First, the number of cross-sectional units includes only five localities; therefore, the generalizability of the results to Vietnam as a whole is limited. In addition, the administrative reorganization in 2025 reduces the comparability of PCI between the old and new boundaries, which may create measurement error at the end of the observation period. LTRD reflects trade scale rather than the trade openness ratio; hence, the results depend on the choice of trade measure. Finally, using the lag of LTRD as an instrument helps address some concerns about endogeneity, but it is not sufficient to fully ensure the exclusion restriction. These limitations explain why the article maintains a cautious interpretation in terms of conditional associations and treats the alternative estimates as sensitivity checks rather than decisive causal evidence.

7. Conclusion and policy implications

The research results show that the scale of international trade is positively associated with real GRDP in the baseline specification, while the evidence for the FDI-to-GRDP ratio is less stable across models. At the same time, the change in the trade coefficient when year effects are controlled for indicates that common time shocks play a significant role. Therefore, the policy implications are drawn from the overall body of empirical evidence rather than from a single coefficient.

First, improving logistics, seaport capacity, infrastructure connectivity, and market diversification remains important for harnessing the benefits of trade. However, an increase in trade turnover should not be mechanically equated with an increase in output. Trade policy should simultaneously raise the domestic value-added ratio, strengthen supply-chain resilience, and reduce vulnerability to external shocks.

For FDI, policy priorities should shift from the scale of registered capital toward project quality, technological content, the degree of linkage with domestic enterprises, and contributions to productivity. Incentive mechanisms should be tied to monitorable implementation criteria, such as technology transfer, supplier development, labor training, and post-licensing operational performance.

Finally, human capital and institutional quality should be regarded as complementary conditions for trade and FDI. Coordinating skills training, enhancing transparency, reducing compliance costs, and strengthening regional linkages can improve the capacity to transform trade and investment flows into local value added. After the administrative reorganization, priority should also be given to developing a data system capable of conversion between old and new boundaries in order to ensure the continuity of long-term policy evaluation.

REFERENCES

[1] R. E. Lucas, "On the mechanics of economic development," *Journal of Monetary Economics*, vol. 22, no. 1, pp. 3–42, 1988, doi: 10.1016/0304-3932(88)90168-7.

[2] N. G. Mankiw, D. Romer, and D. N. Weil, "A contribution to the empirics of economic growth," *The Quarterly Journal of Economics*, vol. 107, no. 2, pp. 407–437, 1992, doi: 10.2307/2118477.

[3] R. M. Solow, "A contribution to the theory of economic growth," *The Quarterly Journal of Economics*, vol. 70, no. 1, pp. 65–94, 1956, doi: 10.2307/1884513.

[4] S. Edwards, "Openness, productivity and growth: What do we really know?," *The Economic Journal*, vol. 108, no. 447, pp. 383–398, 1998, doi: 10.1111/1468-0297.00293.

[5] G. M. Grossman and E. Helpman, "Trade, knowledge spillovers, and growth," *European Economic Review*, vol. 35, no. 2–3, pp. 517–526, 1991, doi: 10.1016/0014-2921(91)90153-A.

[6] F. Rodríguez and D. Rodrik, "Trade policy and economic growth: A skeptic's guide to the cross-national evidence," *NBER Macroeconomics Annual*, vol. 15, pp. 261–338, 2001, doi: 10.1086/654419.

[7] R. Wacziarg and K. H. Welch, "Trade liberalization and growth: New evidence," *The World Bank Economic Review*, vol. 22, no. 2, pp. 187–231, 2008, doi: 10.1093/wber/lhn007.

[8] J. Squalli and K. Wilson, "A new measure of trade openness," *The World Economy*, vol. 34, no. 10, pp. 1745–1770, 2011, doi: 10.1111/j.1467-9701.2011.01404.x.

[9] M. Bleaney and M. Tian, "The trade–GDP ratio as a measure of openness," *The World Economy*, vol. 46, no. 5, pp. 1319–1332, 2023, doi: 10.1111/twec.13355.

[10] A.-T. Nguyen, S. Anwar, W. R. J. Alexander, and S.-H. Lu, "Openness to trade, foreign direct investment, and economic growth in Vietnam," *Applied Economics*, vol. 54, no. 29, pp. 3373–3391, 2022, doi: 10.1080/00036846.2021.2009112.

[11] L. Alfaro, A. Chanda, S. Kalemli-Ozcan, and S. Sayek, "FDI and economic growth: The role of local financial markets," *Journal of International Economics*, vol. 64, no. 1, pp. 89–112, 2004, doi: 10.1016/S0022-1996(03)00081-3.

[12] L. R. De Mello, "Foreign direct investment-led growth: Evidence from time series and panel data," *Oxford Economic Papers*, vol. 51, no. 1, pp. 133–151, 1999, doi: 10.1093/oep/51.1.133.

[13] C.-H. Yang, E. D. Ramstetter, J.-R. Tsaur, and M. N. Phan, "Openness, ownership, and regional economic growth in Vietnam," *Emerging Markets Finance and Trade*, vol. 51, suppl. 1, pp. S224–S233, 2015, doi: 10.1080/1540496X.2014.998886.

[14] H. H. Hiep, B. N. Quang, and H. C. Minh, "The impact of FDI and regional factors on economic growth in Vietnamese provinces: A spatial econometric analysis," *Post-Communist Economies*, vol. 35, no. 5, pp. 454–474, 2023, doi: 10.1080/14631377.2023.2196869.

[15] L. T. D. Huynh, H. T. Hoang, and H. N. Tran, "Does FDI enhance provincial productivity? A panel data analysis in Vietnam," *Journal of the Asia Pacific Economy*, vol. 28, no. 3, pp. 1174–1195, 2023, doi: 10.1080/13547860.2021.1967023.

[16] P. T. Nguyen, "Foreign direct investment and provincial income convergence in Vietnam: Evidence of heterogeneous growth effects," *Economies*, vol. 14, no. 5, Art. no. 158, 2026, doi: 10.3390/economies14050158.

[17] N. T. T. Hien, N. H. Viet, L. M. Huan, P. T. Tu, and P. T. Trang, "From borders to provinces: How trade and FDI shape local growth in a developing economy," *The International Trade Journal*, early access, 2026, doi: 10.1080/08853908.2026.2675541.

[18] N. T. T. Hien, N. T. P. Thao, and V. T. Thuong, "Economic growth and foreign direct investment attraction - A study in Vietnam," *The University of Danang - Journal of Science and Technology*, vol. 2, no. 111.2, pp. 15–20, 2017. (in Vietnamese).

[19] N. D. Khoi, "Industrialization, urbanization, tourism and institutional quality in economic growth: An FE-DKSE analysis in Central Vietnam," *The University of Danang - Journal of Science and Technology*, vol. 24, no. 2, pp. 28–35, 2026, doi: 10.31130/ud-jst.2026.24(2).477.

[20] National Assembly of Vietnam, "*The reorganization of provincial-level administrative units,*" Resolution No. 202/2025/QH15, Jun. 12, 2025. (in Vietnamese).

[21] Vietnam Chamber of Commerce and Industry (VCCI), Provincial Competitiveness Index 2025 Report. Hanoi, Vietnam, 2026. [Online]. Available: https://pcivietnam.vn/an-pham/bao-cao-pci-2025-ct236. [Accessed: Aug. 2, 2026].

[22] D. Acemoglu, S. Johnson, and J. A. Robinson, "The colonial origins of comparative development: An empirical investigation," *American Economic Review*, vol. 91, no. 5, pp. 1369–1401, 2001, doi: 10.1257/aer.91.5.1369.

[23] D. C. North, *Institutions, Institutional Change and Economic Performance*. Cambridge, UK: Cambridge University Press, 1990.

[24] D. Rodrik, A. Subramanian, and F. Trebbi, "Institutions rule: The primacy of institutions over geography and integration in economic development," *Journal of Economic Growth*, vol. 9, no. 2, pp. 131–165, 2004, doi: 10.1023/B:JOEG.0000031425.72248.85.

[25] National Statistics Office of Vietnam and relevant provincial statistics offices, Statistical Yearbooks and Annual Socio-Economic Reports, *www.nso.gov.vn,* 2009–2025. [Online]. Available: https://www.nso.gov.vn/en/statistic-book/. [Accessed: Aug. 2, 2026].

[26] E. Borensztein, J. De Gregorio, and J. W. Lee, "How does foreign direct investment affect economic growth?," *Journal of International Economics*, vol. 45, no. 1, pp. 115–135, 1998, doi: 10.1016/S0022-1996(97)00033-0.

[27] M. Carkovic and R. Levine, "Does foreign direct investment accelerate economic growth?," in Does Foreign Direct Investment Promote Development?, T. H. Moran, E. M. Graham, and M. Blomström, Eds. Washington, DC, USA: Institute for International Economics, 2005, pp. 195–220.

[28] J. A. Frankel and D. H. Romer, "Does trade cause growth?," *American Economic Review*, vol. 89, no. 3, pp. 379–399, 1999, doi: 10.1257/aer.89.3.379.

[29] R. Koenker and G. Bassett, "Regression quantiles," *Econometrica*, vol. 46, no. 1, pp. 33–50, 1978, doi: 10.2307/1913643.

[30] D. H. Nguyen and T. N. S. Pham, "The impact of trade openness and human capital on economic growth in Vietnam," *Journal of Economic Research*, no. 532, pp. 38–49, 2022. (in Vietnamese).

[31] T. T. Nguyen and D. T. Nguyen, "The effects of FDI and trade openness on Vietnam's economic growth: Evidence from the ARDL model," *Journal of International Economics and Management*, no. 164, 2024, doi: 10.38203/jiem.vi.032023.1053. (in Vietnamese).

[32] V. C. Nguyen, "Trade openness, financial development and economic growth: Evidence from Southeast and East Asia," *Journal of International Economics and Management*, no. 145, 2022. (in Vietnamese).