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IN THE NEW ERA: ADAPTATION AND DEVELOPMENT**

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THE IMPACT OF IMPROVING PROVINCIAL COMPETITIVENESS ON ECONOMIC DEVELOPMENT IN VIETNAM'S CENTRAL COASTAL PROVINCES

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ABSTRACT

This study empirically examines the impact of provincial competitiveness, measured by the Provincial Competitiveness Index (PCI), on the economic development of Central Coastal provinces of Vietnam from 2015 to 2024. Employing a fixed-effects model with panel data, we find that a one-point improvement in the PCI score is associated with a statistically significant 2.4% increase in gross regional domestic product per capita, after controlling for investment, labor, population, trained labor ratio, and urbanization rate. The results underscore the critical role of institutional reforms and good governance in fostering sustainable economic growth at the sub-national level. We recommend that provincial authorities treat PCI improvement not as an administrative metric but as a core economic development strategy.

Keywords: *Provincial Competitiveness Index, institutional reforms, governance quality, Fixed Effects, Vietnam's Central Coast*

JEL codes: *C23, O43, R11*

1. INTRODUCTION

Vietnam's sustained economic growth over the past decades is often attributed to its series of Doi Moi (Renovation) reforms, which transitioned the economy from a centralized planning model to a more market-oriented one. A key component of this transition has been the decentralization of economic management, granting provinces significant autonomy in creating their own business environments. The pursuit of economic growth is a central goal for all regional governments in Vietnam. While factors like investment, labor, and infrastructure are universally acknowledged, the role of intangible factors like governance quality and institutional efficiency is increasingly seen as a critical differentiator. The PCI serves as a crucial metric for this intangible capital, evaluating the business environment and economic governance of Vietnamese provinces. To measure and rank the quality of this sub-national economic governance, the Vietnam Chamber of Commerce and Industry (VCCI), in collaboration with the United States Agency for International Development, developed the PCI in 2005. The PCI is a comprehensive annual survey that assesses the ease of doing business, economic governance, and administrative reform efforts by provincial governments. It is built on 10 sub-indices: (1) Entry Costs, (2) Land Access, (3) Transparency, (4) Time Costs, (5) Informal Charges, (6) Policy Bias,

(7) Proactivity, (8) Business Support Services, (9) Labor Training, and (10) Legal Institutions.

The Central Coastal region of Vietnam, encompassing 14 provinces, possesses significant strategic assets - a long coastline, deep-sea ports, and vast potential in tourism, industry, and renewable energy - that provide a strong foundation for enhancing its regional competitiveness. Despite this potential, economic performance and competitive standing remain uneven across these provinces. A key factor influencing this disparity is likely the quality of provincial governance, comprehensively measured by the PCI. Therefore, analyzing how the PCI, as a direct gauge of a province's business environment and competitive capacity, drives economic outcomes is crucial for targeted policy intervention. This study aims to address this need by empirically investigating the impact of improvements in the PCI on the economic development of the Central Coastal provinces over the period 2015-2024. Utilizing a multivariate panel data regression model, the research isolates the specific effect of governance-led competitiveness by controlling for other traditional growth factors, thereby quantifying the importance of the PCI as a core driver of sustainable economic growth in the region.

2. LITERATURE REVIEW

Extensive literature establishes a strong link between institutions, governance, and economic performance (North, 1990; Acemoglu & Robinson, 2012). North (1990) argues that institutions (the formal and informal "rules of the game") are the fundamental determinants of the transaction costs and risks associated with economic activity. High-quality institutions secure property rights, reduce transaction costs, and minimize uncertainty, thereby encouraging investment, innovation, efficient resource allocation and ultimately, growth. Furthermore, Endogenous growth theory (Romer, 1990) complements this view by suggesting that technological progress and productivity gains - the main drivers of long-run growth - are endogenous to the economic system. A high-quality governance environment (high PCI) promotes positive externalities and knowledge spillovers, which are central to endogenous growth, by creating a favorable environment for learning and innovation.

Empirical evidence from various studies consistently demonstrates the positive impact of competitiveness on economic growth. Cazacu (2015) employed a Panel Vector Autoregression model to examine the relationship between economic growth and the competitiveness of 28 European countries from 2006 to 2013. The results indicated that a shock to competitiveness has a positive impact on economic growth. Dadgar *et al.* (2018) used a panel data multiple regression model to assess the impact of competitiveness on the economic growth of two country groups: high-income and upper-middle-income nations, during the period 2006-2016. The findings revealed that, alongside competitiveness, labor force and physical capital also had significant positive effects on economic growth in both country groups; however, the impact of competitiveness and human capital was higher in the group of upper-middle-income countries. Similarly, Neagu (2018), also using a panel data

multiple regression method, demonstrated the positive impact of competitiveness on the economic growth of European Union member states from 2008 to 2017. From another perspective, an empirical study by Olczyk & Kordalska (2015) using Granger causality analysis on 114 countries confirmed a one-way causal relationship from economic growth to competitiveness; the reverse direction was only true for some major economies like China, India, the United States, and Russia.

Empirical studies on Vietnam's PCI have consistently shown its positive correlation with economic performance. Malesky (2008) was among the first to show that provinces with higher PCI scores attract more foreign direct investment (FDI). Later studies confirmed that PCI improvements lead to higher private sector development, firm performance, and provincial GDP growth, and even poverty reduction (Meyer & Nguyen, 2021; VCCI, various years). Tien & Son (2023) researched and evaluated the relationship of PCI and FDI on the economic growth of 63 provinces and cities in Vietnam for the period 2006 - 2020 using the System generalized method of moments regression. The results showed that at the 1% significance level, PCI and FDI positively impact economic growth in Vietnamese provinces and cities. From another angle, Hartley & Aldag (2022) used PCI to examine the relationship between economic growth and two indicators of governance effectiveness: efficiency in working with draft laws and creativity in solving business problems across 63 Vietnamese provinces from 2007 to 2017. The research findings discovered a significant association between economic growth and both governance effectiveness indicators, but efforts to improve governance effectiveness and creativity in less industrialized provinces may not achieve the desired economic impact, pointing to deeper structural limitations. Similarly, a study by Vuong (2014) used data from 2006–2011 to analyze the relationship between PCI ranking and business development in several Vietnamese provinces. The study's results did not demonstrate a relationship between PCI ranking and business development indicators, leading the author to advise caution in viewing PCI as a driver for local economic development.

At the regional level, Ngoc & Duy (2023) used the Generalized least squares method to examine the relationship between the PCI index and economic development measured by per capita income in Vietnam's Red River Delta from 2010 to 2021. The results indicated that PCI positively impacts economic growth and contributes to increasing people's income levels. At the enterprise level, a study exploring the relationship between PCI and the economic performance of Vietnamese enterprises from 2006 to 2010 by Phan (2013) found that four sub-indexes had a significant positive impact on the economic performance of the business sector: (1) improved private sector support services, (2) more proactive provincial leadership in solving problems for businesses, (3) easier land access and more secure land ownership, and (4) reduced informal charges.

In summary, while existing studies employing diverse methodologies largely confirm the positive impact of competitiveness on economic growth, they have primarily focused on national-level analyses or specific regions like the Red River Delta. Given its distinct geographical and socioeconomic profile, the Central

Coastal region remains underexplored. This study addresses this gap by (1) applying a rigorous panel data analysis with robust model specification tests to ensure estimation accuracy, and (2) focusing exclusively on the 14 provinces of Vietnam's Central Coastal, utilizing the most recent data spanning from 2015 to 2024.

3. METHODOLOGY AND DATA

3.1. Model Specification

Grounded in the theoretical framework of New institutional economics (North, 1990), this paper maintains that improvements in the PCI - representing enhanced governance quality and a more enabling business environment - contribute to lowering transaction costs, diminishing investor risk, and fostering a more competitive economic structure. These institutional improvements are expected to stimulate both domestic and foreign direct investment, enhance productivity, and ultimately increase GRDP per capita. To empirically validate this proposition and assess the magnitude of PCI's impact on economic development, we formulate the following log-linear regression model:

$$\ln(\text{GRDPpc})_{it} = \beta_0 + \beta_1 \text{PCI}_{it} + \beta_2 \ln(\text{INV})_{it} + \beta_3 \ln(\text{POP})_{it} + \beta_4 \ln(\text{LAB})_{it} + \beta_5 \text{TRAIN}_{it} + \beta_6 \text{URB}_{it} + u_i + \varepsilon_{it}$$

Table 1: Variable Description and Expected Signs

	Symbol	Measurement	Expected Sign
Dependent Variable			
Economic performance	$\ln(\text{GRDPpc})$	Log of GRDP per capita (VND million)	
Independent Variable			
Provincial competitiveness	PCI	PCI Score (0-100 points)	+
Control Variables			
Total investment	$\ln(\text{INV})$	Log of Total social investment (VND billion)	+
Population	$\ln(\text{POP})$	Log of Population (thousand people)	+ / -
Labor force	$\ln(\text{LAB})$	Log of Labor force (thousand people)	+ / -
Trained labor rate	TRAIN	% of Trained laborers	+
Urbanization rate	URB	% of Urban population	+

This study employs a Fixed effects model (FEM) to account for all time-invariant province-specific characteristics (e.g., cultural factors, geographical features, and initial conditions) that might otherwise bias the estimation results. The selection between FEM and Random effects model was formally determined using the Hausman specification test. To address potential econometric issues, we conducted diagnostic tests for heteroskedasticity (using the Modified Wald test) and autocorrelation (using the Wooldridge test), subsequently applying cluster-robust standard errors to ensure the statistical reliability of our findings (Wooldridge, 2010). The detailed variable descriptions and their anticipated effects are summarized in Table 1.

3.2. Data Source

A balanced panel dataset was constructed for the 14 provinces of Vietnam's Central Coast over the period 2015–2024, resulting in 140 observations. The PCI scores were retrieved from the official annual reports of the VCCI. Data for the remaining variables - namely, GRDP per capita, total investment, population, labor force, trained labor ratio, and urbanization rate - were compiled from the Provincial Statistical Yearbooks and the annual Statistical Yearbooks published by the General Statistics Office of Vietnam.

4. RESULTS AND DISCUSSION

4.1. Descriptive Statistics

Table 2 shows considerable diversity in socio-economic characteristics among the 14 provinces of the Central Coast:

The GRDP per capita (GRDPpc) shows a wide range, from 22.5 million VND to 102.0 million VND, with a standard deviation of 18.62. This indicates a substantial development gap within the region, with some provinces (e.g., Da Nang, Khanh Hoa) being significantly more prosperous than others (e.g., Thanh Hoa, Quang Ngai).

The PCI average of 63.45 is close to the national average but the range (56.15 - 71.13) and standard deviation (3.82) point to considerable disparities in the quality of the business environment across these provinces.

The Total investment (INV) is highly volatile (Std. Dev. = 21,678), reflecting the uneven distribution of both public and private investment projects, often concentrated in key economic zones and urban centers.

The average Trained labor rate (TRAIN) is 22.01%, which is moderate, but the low minimum value (12.6%) indicates that some provinces suffer from a critical shortage of skilled human resources, a potential major constraint on growth.

The Urbanization rate (URB) also varies greatly, from under 20% to over 80%, highlighting the different economic structures across the region, from agriculture-dependent to more service and industry-oriented provinces.

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
GRDPpc (mil VND)	140	49.21	18.62	22.5	102.0
PCI (points)	140	63.45	3.82	56.15	71.13
INV (bil VND)	140	37745	21678	5517	90565
POP (1000s)	140	1530	1024	575.4	3739.5
LAB (1000s)	140	912.5	581.2	325.8	2295
TRAIN (%)	140	22.01	7.12	12.6	49.7
URB (%)	140	37.62	15.24	19.35	89.06

4.2. Regression Results

The result of Hausman test ($\text{Chi}^2 = 15.27$, $p\text{-value} = 0.018$), leading to a rejection of the null hypothesis and confirming that the FEM is more appropriate for our data. Diagnostic tests further confirmed the presence of heteroskedasticity and autocorrelation, justifying the application of robust standard errors. Additionally, the mean Variance inflation factor (VIF) was below the threshold of 5, indicating no severe multicollinearity. As shown in Table 3, the FEM regression results in Table 3 provide strong and robust evidence supporting the positive impact of governance quality on economic performance.

The positive and highly significant coefficient for PCI (0.024, $p < 0.01$) robustly confirms our main hypothesis. It validates the theoretical propositions of New Institutional Economics in the specific context of Central Vietnam. This means that a one-point improvement in a province's PCI score is associated with a 2.4% increase in its GRDP per capita, all else being equal. This is a substantial effect. For example, improving from 60 to 65 points (a 5-point gain) could be associated with a 12% increase in per capita output. For policymakers, this suggests that institutional reform is not merely an administrative exercise but a direct and powerful economic growth strategy. Improving transparency, reducing informal charges, and streamlining business regulations can yield a high return in terms of economic output. This finding powerfully validates the focus of central and local governments on improving PCI as a core economic development strategy.

Table 3: Fixed Effects Regression Results (Dependent Variable: $\ln(\text{GRDPpc})$)

Variable	Coefficient	Robust Std. Err.	t-value	p-value
PCI	0.024***	0.006	4.00	0.000
$\ln(\text{INV})$	0.135***	0.034	3.97	0.000
$\ln(\text{POP})$	-0.538	0.355	-1.52	0.132
$\ln(\text{LAB})$	-0.298**	0.125	-2.38	0.019
TRAIN	0.008**	0.003	2.67	0.009
URB	0.007***	0.002	3.50	0.001
Constant	2.145**	0.855	2.51	0.013
Observations	140			
R-squared	0.883			
Number of id	14			

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The large, positive coefficient for investment (0.135, $p < 0.01$) underscores that capital injection remains the most powerful short-to-medium-term driver of growth in the region. This aligns with classic growth models. The coefficient implies an elasticity; a 1% increase in total social investment is associated with a 13.5% increase in GRDP per capita. This highlights the continued importance of mobilizing resources for infrastructure development, industrial park construction, and supporting private investment.

The result for TRAIN is positive and significant, while $\ln(\text{LAB})$ is negative and significant. This suggests a critical insight: the sheer size of the labor force may be less important than its quality. Policies aimed at vocational training and skill development have a clear positive return on economic output. The negative sign on labor force size could indicate the presence of underemployment or inefficiencies in labor allocation. The coefficient for population is negative but not statistically significant, suggesting that population size alone does not predict higher per capita income.

The positive significance of the urbanization rate confirms the benefits of economic agglomeration. Urban centers concentrate economic activity, leading to knowledge spillovers, a deeper pool of labor and customers, and better infrastructure. This creates a positive feedback loop: a better business environment (PCI) attracts firms to urban areas, which boosts economic output, which in turn provides more resources for further improving institutions and infrastructure.

In summary, the story for the Central Coastal region is one of dual engines of growth: hard investment (capital) and soft institutions (governance and human capital). The most successful provinces in the region are likely those that have managed to combine high levels of investment with continuous improvements in their PCI score and a steady upgrade in the skills of their workforce. The results suggest that provinces focusing solely on attracting investment without parallel improvements in governance and training may not achieve sustainable, high-quality growth outcomes.

5. CONCLUSION AND POLICY IMPLICATIONS

5.1. Conclusion

This study provides strong empirical evidence that improving the PCI is a key strategy to promote economic development in the Central Coastal provinces of Vietnam. After controlling for other important factors such as investment, human capital, and urbanization, the analysis confirms that better economic governance and a more favorable business environment, as measured by higher PCI scores, lead to statistically significant increases in GRDP per capita. The study emphasizes that sustainable development in the region is driven by a dual mechanism: large capital investments must be combined with continuous improvements in the quality of institutions and human capital. These findings strongly support the theoretical framework of New Institutional Economics and Endogenous Growth Theory, demonstrating that institutions and knowledge are not only facilitators but also fundamental factors of production in modern economies.

5.2. Policy Implications

Based on the findings, we propose the following targeted recommendations for provincial governments in the region:

- Strategic institutional reform: Provincial authorities should move beyond generic efforts and conduct deep-dive analyses into their weakest PCI sub-indices and design targeted, measurable action plans to address them. This is not an administrative task but a core economic development strategy.

- Integrated investment policy: Investment promotion policies must be integrated with governance reforms. Provinces should market themselves not just on incentives but on their high PCI score, positioning a transparent and efficient business environment as their key competitive advantage to attract high-quality investment.

- Human capital development as a priority: The findings mandate a strategic pivot towards human capital. Provincial budgets should significantly prioritize funding for vocational training programs aligned with local economic needs and cooperate with businesses to ensure training outcomes meet market demands.

- Leverage urbanization for growth: Urban planning should be optimized to maximize agglomeration economies. This includes developing integrated infrastructure, creating specialized economic zones within urban corridors, and improving connectivity between urban centers and rural areas to create larger, more efficient economic networks.

- Regional coordination and learning: The provinces should establish a formal regional policy dialogue platform to share best practices in PCI improvement. Top-performing provinces can guide and promote others, benefiting the entire region's attractiveness to investors.

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