



Factors Driving Economic Growth in Bac Ninh Province During the Period 2021–2025: The Role of Industrialization, FDI, And External Labor

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ABSTRACT: This article analyzes the factors driving economic growth in Bac Ninh province during the 2021-2025 period. The research material is compiled from the Statistical Yearbook, enterprise surveys, labor and employment surveys, and specialized reports of the province. The article uses descriptive statistical methods, comparative analysis, structural analysis, growth analysis, and growth contribution decomposition. The analysis results show that Bac Ninh's economic growth is primarily driven by the industrial sector through the impact of attracting foreign direct investment (FDI), developing industrial parks, increasing the number of enterprises, and expanding the size of the workforce. The added value of the industrial sector contributed nearly 82.8% of the province's real GRDP growth during the 2021-2025 period. Migrant labor is a strategic input resource for the province's industrial growth. Based on the research findings, this article proposes solutions to improve the quality of FDI attraction, develop high-quality human resources, and improve social infrastructure to promote sustainable economic growth.

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INTRODUCTION

In accordance with Resolution No. 202/2025/QH15 dated June 12, 2025, Bac Ninh and Bac Giang provinces officially merged from July 1, 2025, under the new name of Bac Ninh province. To ensure consistency, this study restructured the statistical data series for the period 2021-2025 using the administrative boundaries of the newly established Bac Ninh province.

Economic growth (GRDP) is one of the top priorities of Vietnam's socio-economic development strategy in the context of globalization, international economic integration, and the ongoing Fourth Industrial Revolution. This is in line with the requirements of the 14th National Congress of the Communist Party of Vietnam, which stipulates that the 2026-2030 period must achieve double-digit growth. Localities with the potential and ability to attract investment and develop high-tech industries must effectively utilize their human resources to achieve growth rates exceeding the national average.

Over the past two decades, the Red River Delta region and several provinces in the Northern Midlands and Mountains bordering the delta have emerged as one of Vietnam's most dynamic industrial development centers. Among them, the (new) Bac Ninh is a prime example of the transformation from an agricultural-based province to a modern industrial economy based on attracting foreign investment and developing concentrated industrial zones.

The formation of the new Bac Ninh province, based on the merger of Bac Ninh and Bac Giang provinces, has created a new economic development space with a population of 3.6 million people, nearly 1.9 million workers, and industrial land area and production capacity among the largest in the country. By 2025, the province will have 35 industrial parks approved by competent authorities with a total planned area of over 10,495 hectares; of which 23 industrial parks are already in operation. These industrial parks have attracted 2,881 investment projects with a total registered capital of approximately US\$50.41 billion, forming a large-scale production ecosystem in the fields of electronics, semiconductors, information technology, and supporting industries.

As a result, the province's GRDP has increased rapidly, from VND 362,548 billion in 2021 to VND 522,619 billion in 2025 (at current prices). Industry and construction account for over 71% of the GRDP, with industry alone accounting for more than 67%.

Bac Ninh is currently one of the localities with the highest level of industrialization in the Red River Delta region and the whole country.

However, economic growth is the combined result of many different factors. Besides industry, factors such as attracting FDI, developing industrial parks, increasing the number of businesses, expanding the labor market, and especially the fact that the province's domestic workforce is insufficient to meet the demand for immigrant labor, are playing a crucial role in the province's economic growth. Accurately identifying these growth drivers is not only academically significant but also contributes to providing a scientific basis for economic development policy planning in the coming period.

Based on that requirement, this article makes three main contributions:

- (1) What factors play the most important role in the economic growth of Bac Ninh province in the period 2021–2025?
- (2) How do these factors affect GRDP growth?
- (3) What are some key policy implications that need to be implemented to maintain sustainable economic growth in the next phase?

THEORETICAL FRAMEWORK AND RESEARCH OVERVIEW

2.1. Theoretical basis

Modern economic growth theory posits that growth is the result of a combination of capital, labor, technology, and institutional quality. According to Solow's (1956) neoclassical growth model, economic growth is determined by the accumulation of physical capital, labor, and exogenous technological progress. Meanwhile, Romer's (1986) and Lucas's (1988) endogenous growth theory emphasizes the role of knowledge, innovation, and human capital in generating long-term growth.

For developing economies, foreign direct investment (FDI) is often seen as a crucial channel for supplementing investment capital, acquiring modern technology and management skills, and expanding export markets. Numerous empirical studies have shown that FDI has a positive impact on economic growth through increased labor productivity and the creation of technology spillover effects. Furthermore, Perroux's (1955) growth pole theory suggests that economic growth does not occur uniformly across space but is usually concentrated in growth poles, where industries with strong spillover effects to other regions converge. In the case of Bac Ninh, industrial zones and the electronics, computer, and optical product industries can be considered growth poles of the local economy.

Furthermore, studies on labor migration show that immigrant labor plays a crucial role in meeting the manpower needs of industrial centers, especially migration among young people. The movement of labor from low-productivity areas to high-productivity areas contributes to improved resource allocation and promotes economic growth.

2.2. Overview of the study

Globally, the relationship between industrialization and economic growth has been widely studied. Numerous studies indicate that the manufacturing industry is a key driver of economic restructuring and increased labor productivity.

In Vietnam, numerous studies have analyzed the impact of FDI on economic growth at both the national and local levels. These studies generally show that FDI plays a positive role in industrial growth, exports, job creation, and improving the living standards of workers.

Several recent studies have focused on industrial centers such as Bac Ninh, Hai Phong, Thai Nguyen, and Phu Tho. The results show that industrial zones and multinational corporations play a central role in the development of local industries.

However, most of these studies tend to consider individual factors such as FDI, industry, or labor in isolation, without clarifying the mechanism of growth transmission from investment to GRDP growth through intermediate links such as industrial parks, businesses, and labor.

This research gap forms the basis for this paper to construct a comprehensive analytical model to explain the economic growth mechanisms of Bac Ninh province in the current period.

2.3. Research Model and Research Hypotheses

Based on the theoretical and practical development of Bac Ninh province, the study proposes the following analytical model:

FDI → Industrial Park → Enterprises → Labor → Industrial Value Added → GRDP

The model shows that Bac Ninh province's economic growth is formed through a chain of linkages between investment, production, and the labor market.

The research hypotheses developed include:

- H1:** Attracting FDI promotes the development of industrial zones.
- H2:** Developing industrial zones increases the number of operating businesses.
- H3:** An increase in the number of businesses increases the demand for labor.
- H4:** Labor is a crucial input factor driving industrial value-added growth.
- H5:** Industrial value added is the main driver of GRDP growth.

DATA AND RESEARCH METHODS

3.1. Data Sources

The study utilizes secondary data from official sources, including: the Bac Ninh Provincial Statistical Yearbook 2021–2025; the Bac Ninh Provincial Statistics Office's GRDP report; the 2025 report of the Bac Ninh Provincial Industrial Parks Management Board; enterprise surveys; labor and employment surveys; youth migration surveys; and specialized reports on the province's socio-economic development. The data are compiled and standardized according to the administrative units of the (new) Bac Ninh province.

3.2. Research Methodology

The study uses a combination of methods: Descriptive and comparative statistics; Growth rate analysis; Economic structure analysis; Trend analysis; Growth contribution decomposition; and Time-series comparisons.

To assess the role of economic sectors in GRDP growth, the study uses a growth decomposition method based on changes in value added (at 2010 constant prices).

The contribution of the industrial sector to GRDP growth is determined by the following formula:

$$\text{Contribution}_i = \Delta \text{VA}_i / \Delta \text{GRDP} \times 100$$

In there:

- (Contribution_i): The proportion of sector (i)'s contribution to GRDP growth (%);
- (ΔVA_i): The increase in added value of area (i) at constant prices;
- (ΔGRDP): Gross Regional Domestic Product (GRDP) growth rate at constant prices.

The analysis results provide a basis for assessing the role of industry, investment, businesses, and labor in the economic growth of Bac Ninh province.

RESEARCH RESULTS

4.1. GRDP growth and economic restructuring of Bac Ninh province

The period 2021–2025 witnessed strong economic growth in Bac Ninh province. At current prices, GRDP increased from VND 362,548 billion in 2021 to VND 522,619 billion in 2025, an increase of VND 160,070 billion in 4 years, corresponding to a growth rate of 44.2% (see Table 1).

Table 1. GRDP at current prices by economic sector, 2021–2025

Year	Total GRDP	Agriculture	Industry - Construction		Service
			Total	including industry	
2021	362,548	29,279	254,842	235,861	78,428
2022	407,534	29,824	289,022	269,683	88,689
2023	422,835	30,231	296,327	276,575	96,277
2024	460,744	31,499	324,294	304,713	104,951
2025	522,619	34,059	371,755	351,622	116,804

Source: Bac Ninh Province Statistical Yearbook 2025.

The increase in GRDP size is accompanied by a more pronounced shift in the economic structure towards industrialization (see Figure 1).

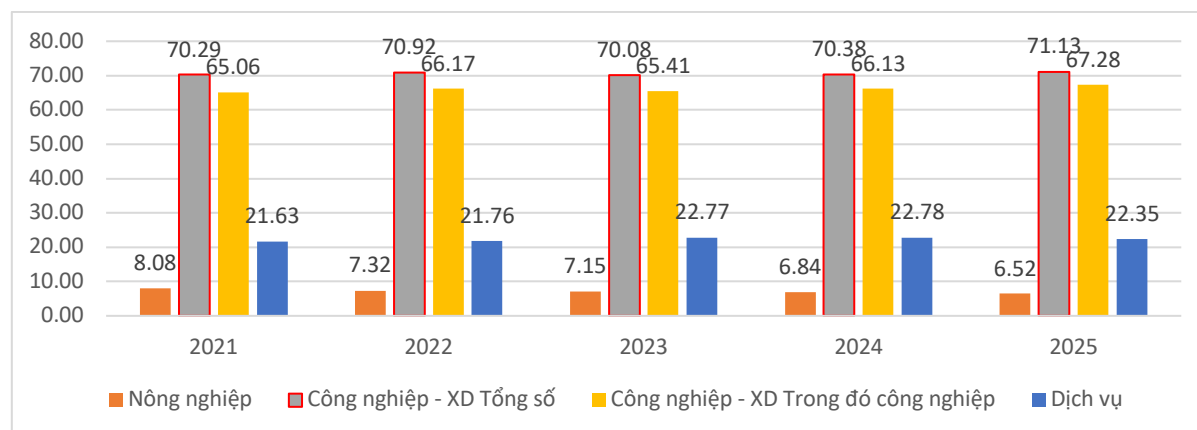


Figure 1. GRDP structure by economic sector (%)

Figure 1 shows that the industrial and construction sector consistently accounts for over 70% of GRDP, with industry alone representing approximately two-thirds of the economy. Conversely, the agricultural sector's share decreased from 8.08% to 6.52%. This reflects Bac Ninh's successful transformation from an agricultural economy to a growth model based on industry, especially processing, manufacturing, and high-tech industries.

4.2. The role of industry in economic growth

Based on 2010 constant prices, the GRDP of Bac Ninh province is projected to increase from VND 221,810 billion in 2021 to VND 314,842 billion in 2025, representing a 41.9% increase. During the same period, the added value of the industrial sector increased from VND 146,723 billion to VND 223,771 billion, a 52.5% increase, significantly higher than the growth rate of the entire economy (see Table 2).

Table 2. GRDP, industrial value added and growth rate for the period 2021–2025 (2010 constant prices)

Year	Total GRDP (billion VND)	Industry Construction (billion VND)	- Of (billion VND)	which GRDP (Gross Regional Domestic Product) Development Index (%)	VA Index
2021	221,810	159,578	146,723	108.01	111.12
2022	246,357	178,850	166,556	111.07	113.52
2023	258,618	187,642	175,113	104.98	105.14
2024	285,514	211,468	199,203	110.40	113.76
2025	314,842	235,798	223,771	110.27	112.33

Source: Calculations from the Bac Ninh Provincial Statistical Yearbook.

The data in Table 2 shows that the industrial growth rate was consistently higher than the GRDP growth rate throughout the study period. The industrial value-added growth index ranged from 5.14% to 13.76%, while GRDP growth only reached from 4.98% to 11.07%. This reflects the leading role of the industrial sector in local economic growth.

To assess the extent of industry's contribution to economic growth, the study decomposes the real GRDP growth rate by economic sector (see Table 31).

Table 3. Contribution of economic sectors to GRDP growth period 2021–2025

Area	Increase (billion VND)	Contribution percentage (%)
Agriculture, forestry and fisheries	850	0.9
Industrial	77,048	82.8
Service	13,926	15.0
Product taxes minus product subsidies	2,035	2.2
Total	93,032	100.0

Source: Author's calculations from 2010 constant-price GRDP data.

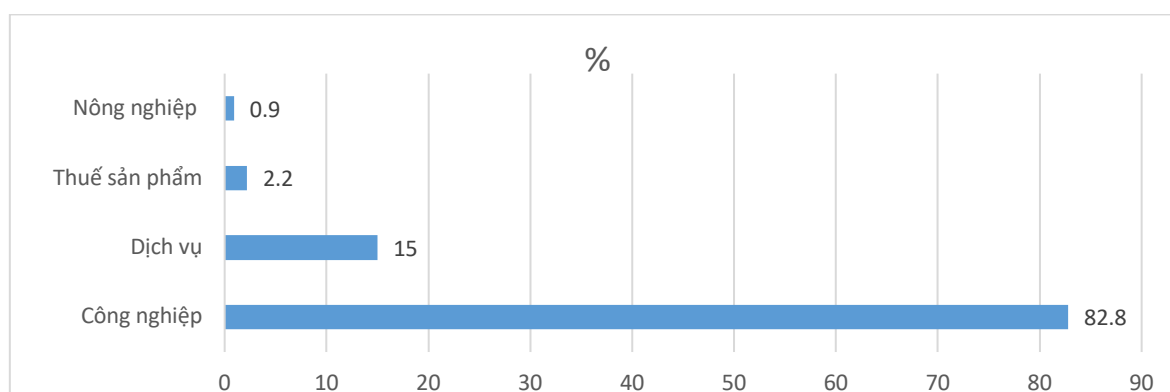


Figure 2. Contribution of regions to GRDP growth during the period 2021–2025

Source: Author's calculations from 2010 constant-price GRDP data.

The growth breakdown results show that the industrial sector contributed VND 77,048 billion to the total increase of VND 93,032 billion in real GRDP during the 2021-2025 period, equivalent to 82.8%. Meanwhile, the service sector contributed only 15.0% and the agricultural sector contributed less than 1%.

This result confirms that industry, especially processing and manufacturing, is the main driving force of Bac Ninh province's economic growth. In other words, for every 1 unit of GRDP growth generated during the study period, approximately 0.83 units came from the industrial sector. This is important empirical evidence showing that industrialization continues to be the foundation of Bac Ninh's economic growth.

4.2.1. Value Added (VA) Analysis of the Industry

Value added is an indicator that accurately reflects the actual contribution of the industrial sector to the economy (see Table 4).

Table 4. Industrial value added at current prices.

Year	Industrial VA (billion VND)
2021	235,861
2022	269,683
2023	276,575
2024	304,713
2025	351,622

Source: Bac Ninh Province Statistical Yearbook 2025.

During the research phase, industrial VA increased by:

$VA = 351,622 - 235,861 = 115,761$ billion VND. Corresponding increase: 49.1%

This growth rate is higher than the overall economic growth rate of the province. This is evidence that industry is not only expanding its production scale but also creating increasingly more added value for the locality.

4.3. Attracting foreign direct investment and developing industrial parks.

By 2025, Bac Ninh will have 35 approved industrial parks with a total area of approximately 10,495.86 hectares. Of these: 23 industrial parks are operational; 12 industrial parks are under investment development (see Table 5).

Table 5. Industrial park development by 2025

Target	Value
Number of approved industrial parks	35
Industrial park is currently in operation.	23
Planned area (ha)	10,495.86
Investment projects in industrial parks	2,881
Total registered capital (billion USD)	50.41

Source: 2025 Summary Report of the Bac Ninh Provincial Industrial Park Management Board.

The industrial park system has become a concentrated production space and the nucleus of the industrialization process in Bac Ninh province. Many multinational corporations such as Samsung, Foxconn, Luxshare Precision, Goertek, and Amkor Technology are concentrated here. These businesses mainly operate in the fields of electronics, electronic components, semiconductors, information technology, batteries, and supporting industries. The presence of these global corporations has contributed to increased labor productivity, export value, and the competitiveness of Bac Ninh province's economy.

4.4. Development of the business sector

The number of active businesses increased rapidly during the study period (see Table 6).

Table 6. Operating Businesses

Year	Total number of businesses	Divided by economic sector			
		Agriculture	Industry - Construction		
			Total	In which: Manufacturing modifications	Service
2020	16,007	130	7,044	4,638	8,833
2021	17,359	137	7,623	4,973	9,599
2022	18,534	121	8,068	5,306	10,345
2023	20,868	135	8,886	5,903	11,847
2024	24,151	135	10,018	6,688	13,998

Source: Bac Ninh Province Statistical Yearbook 2025.

Overall, for the period 2020–2024: the number of businesses increased by $24,151 - 16,007 = 8,144$ businesses, corresponding to a 50.9% increase. Of this, the agricultural sector increased by only 3.8%; the industrial and construction sector increased by 42.22%, with the manufacturing sector alone increasing by 44.2%; and the service sector increased by a remarkable 58.47%.

By economic sector, non-state enterprises consistently account for over 90% of the total number of operating enterprises, followed by FDI with 9.8%, and the remaining being the state sector (see Table 7).

Table 7. Business structure in 2024

Type	Percentage (%)
State	0.1
Outside the State	90.1
FDI	9.8

Source: Bac Ninh Province Statistical Yearbook 2025.

This result reflects the growing role of the private sector in local economic growth.

4.5. Labor and the industrial labor market

The strong industrial development has led to a huge demand for labor. The large number of migrant workers from other provinces shows that Bac Ninh's competitive advantage comes not only from its investment environment but also from its ability to attract and absorb inter-regional human resources (see Table 8).

Table 8. Labor force in industrial parks in 2025

Target	Unit	Value
Total workforce	People	568,000
Divide:		
1. Foreign workers	People	21,000
2. Domestic workers	People	547,000
<i>This includes:</i> Migrant workers from other provinces.	People	363,520

Source: 2025 Summary Report of the Bac Ninh Provincial Industrial Park Management Board.

Looking at Table 8 above, it can be seen that Bac Ninh has absorbed a diverse range of labor resources, especially migrant workers from other provinces, who account for 64% (363,520 people), and foreign workers, who account for 3.7% (21,000 people). This figure shows that migrant workers have become the main source of labor supply for industrial zones.

Furthermore, the youth survey results show that the net migration rate is very high, reflecting the particular attractiveness of the Bac Ninh labor market to young workers from other provinces (see Table 9).

Table 9. Some indicators of youth migration in 2025

Target	Value (%)
Immigration rate	92.5
Emigration rate	20
Net migration rate	72.5

Source: Report on Youth Migration Situation, General Statistics Office, 2025.

Research findings indicate that Bac Ninh province's economic growth is driven by the robust development of its industrial sector, influenced by FDI attraction, expansion of industrial parks, an increase in the number of businesses, and a large influx of migrant workers. Industrial value added contributes approximately 82.8% to the real GRDP growth, affirming the central role of industry in the local economic growth model.

DISCUSSION

5.1. Mechanisms for transmitting economic growth in Bac Ninh province

The research results show that the economic growth of Bac Ninh province in the period 2021–2025 is not the result of individual factors but is formed through a chain of linkages between investment, production, and the labor market. This mechanism is described in the following sequence: **FDI → industrial park development → increase in the number of enterprises → expansion of the workforce → increase in industrial added value → GRDP growth.**

Unlike the traditional approach that views FDI as a direct factor impacting economic growth, research results show that the impact of FDI is primarily achieved through the formation of industrial ecosystems, promoting production expansion and job creation. This process increases the added value of the processing and manufacturing industries, thereby becoming an important driving force for the province's GRDP growth.

The transmission model described above also reflects the characteristics of highly industrialized localities, where industrial zones act as the central link between investment capital flows, businesses, and the labor market. This helps explain why industry continues to account for over two-thirds of the province's GRDP and contributes approximately 82.8% of its actual GRDP growth during the study period.

5.2. The role of industrialization and FDI in economic growth

The research findings are consistent with numerous domestic and international studies, affirming that the processing and manufacturing industry is the main driver of economic growth in developing economies. Studies by Paul Romer, Robert Lucas Jr., and Dani Rodrik all suggest that capital accumulation, technological innovation, and economic restructuring are decisive factors in long-term growth rates. In the context of Bac Ninh, FDI plays a leading role in driving the industrialization process, while also facilitating technology adoption, expanding production capacity, and connecting with global value chains.

The development practice in Bac Ninh shows that multinational corporations in the electronics, semiconductor, and high-tech sectors have created a significant spillover effect on Bac Ninh's industrial development. Along with the rapid increase in the number of enterprises and industrial parks, FDI inflows have contributed to enhancing production capacity, boosting exports, and improving labor productivity. This explains why the industrial sector has consistently maintained a higher growth rate than the overall GRDP growth rate throughout the study period.

5.3. Migrant labor – a strategic factor in the growth model

A key finding of the study is the role of migrant labor in Bac Ninh's economic growth. In many previous studies, labor migration was often seen as a result of industrial development and urbanization. However, this research shows that in Bac Ninh, migrant labor is not just a consequence but has become a strategic input resource for the growth model.

By 2025, 3.7% of the workforce will be foreign nationals, and 64% of the workforce in industrial zones will be from other provinces. This scale reflects the significant dependence of the industrial sector on inter-regional labor migration. Given the aging population and the declining local workforce, migrant labor becomes a decisive factor in maintaining and expanding the production capacity of businesses, especially in the electronics, precision engineering, and high-tech industries.

This result contributes to providing empirical evidence for studies on economic development in Bac Ninh, indicating that the quality and size of the labor market not only affect the competitiveness of businesses but also directly impact the province's economic growth rate.

5.4. Implications for the growth model of Bac Ninh province

Research findings indicate that Bac Ninh province's current growth model is primarily based on three pillars: industrialization, FDI, and migrant labor. This model has generated high GRDP growth rates during the 2021-2025 period, simultaneously positioning Bac Ninh as one of the country's important industrial and export centers. Bac Ninh's growth model also reflects a shift from cost advantages to advantages based on production organization capacity and the quality of its human resources. In the context of increasingly fierce competition among localities to attract investment, the ability to maintain attractiveness to FDI enterprises will increasingly depend on the quality of infrastructure, human resources, and the institutional environment, rather than simply on investment incentives.

However, this model also poses some long-term challenges. The high level of reliance on FDI enterprises and migrant labor can increase risks if global supply chains fluctuate or competition for investment among localities intensifies. Therefore, to maintain sustainable growth, Bac Ninh needs to gradually shift from a growth model based on expanding production scale to one based on innovation, improving labor productivity, and developing a domestic business ecosystem capable of deeper participation in global value chains.

5.5. Contributions of the research

The study makes three main contributions to the field of local economic growth research.

Firstly, the study quantifies the role of the industrial sector in the GRDP growth of Bac Ninh province, showing that industrial value added (especially in processing and manufacturing industries) contributes approximately 82.8% of the real GRDP growth during the 2021–2025 period.

Secondly, the study proposes an analytical framework for the growth transmission mechanism of Bac Ninh, an industrial province, through the chain of impacts: **FDI → industrial parks → enterprises → migrant labor → industrial value added → GRDP**, contributing to supplementing the approach to growth analysis at the local level.

Thirdly, the study provides empirical evidence for the role of migrant labor as a strategic input resource for industrial growth. This differs from many previous studies that primarily viewed labor migration as a result of industrial development and urbanization, thus opening up a new avenue of research on the relationship between labor migration and economic growth in the context of industrialization.

CONCLUSION AND POLICY IMPLICATIONS

6.1. Conclusion

The study analyzed the factors driving economic growth in Bac Ninh province during the 2021–2025 period based on data from GRDP, industry, enterprises, industrial parks, FDI, and labor.

The research results show that:

- (1) Industry is the main driving force of the economic growth of Bac Ninh province.
- (2) The added value of the industrial sector contributes approximately 82.8% of the real GRDP increase in the period 2021–2025.
- (3) FDI and industrial park systems are the foundation of the industrialization process.
- (4) Businesses and migrant workers are important intermediaries in the growth mechanism.
- (5) Bac Ninh's economic growth is formed through a chain of impacts from FDI to industrial parks, enterprises, labor and industrial added value.

The above results confirm that Bac Ninh's current growth model is one based on processing and manufacturing industries and deep integration into global value chains.

6.2. Policy Implications

Based on the research findings, this article proposes several key policy implications as follows:

Firstly, improve the quality of FDI attraction: Prioritize high-tech projects, semiconductors, R&D centers, artificial intelligence, and green industries to enhance added value and technology spillover effects.

Secondly, developing domestic enterprises: Encouraging domestic enterprises to participate more deeply in the supply chains of multinational corporations, especially in the supporting industries sector, is also a key task of the province to realize Resolution 68-NQ/TW dated May 4, 2025, of the Politburo on the development of the private economy.

Thirdly, developing high-quality human resources: Strengthening linkages between businesses, universities, and vocational education institutions to train human resources that meet the requirements of high-tech industries, prioritizing the training of semiconductor, electronics, automation, and artificial intelligence engineers to serve the developing high-tech industries in the province.

Fourth, develop policies to support migrant workers: Invest in social housing, schools, medical facilities, and public services for migrant workers from other provinces, creating conditions for them to quickly integrate with the local population, so that migrant workers consider Bac Ninh their second home. Only then can the province ensure a sustainable labor supply.

Fifthly, promoting innovation: Encouraging research, technological development, and digital transformation to enhance labor productivity and the competitiveness of the economy.

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