

HO CHI MINH NATIONAL ACADEMY OF POLITICS

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**ECONOMIC LINKAGES IN THE
DEVELOPMENT OF THE NORTH CENTRAL
REGION OF VIET NAM**

**SUMMARY OF DOCTORAL DISSERTATION
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INTRODUCTION

1. Rationale of the dissertation

Economic linkages in regional development constitute an inevitable trend in the development process among localities and regions within the national economy. This is also a major policy of the Communist Party and the State of Vietnam since the early stages of the Doi Moi period, in which regional economic linkages have consistently been given priority, as demonstrated through the Platform for National Construction during the transitional period to Socialism (revised and supplemented in 2011) and the documents of the National Party Congresses throughout various periods. The document of the 13th National Party Congress emphasized and put forth the policy on regional economic linkages; most recently, the draft document of the 14th National Party Congress identified: “*Promote regional and intra-regional linkage, expand and reorganize development space in accordance with the new administrative system. Innovate thinking from management to governance, fostering regional development...*”. This policy continues to be institutionalized through the 2017 Planning Law and the National Master Plan for the period 2021-2030, with a vision to 2050, in which regional economic linkages are identified as an important tool for organizing development space and promoting sustainable growth.

In recent years, economic linkages in regional development have increasingly received attention from researchers, the business community, and government levels in Vietnam, associated with the requirement to innovate growth models, enhance the efficiency of resource allocation, and promote sustainable development across territorial space. However, in reality, regional economic linkages in Vietnam have not yet received attention and implementation commensurate with its inherent role, significance, and potential, especially in regions with many socio-economic difficulties.

The aforementioned limitations indicate that regional economic linkages in Vietnam currently remain one of the important “bottlenecks” hindering the full realization of the role of regional development within the overall national economy. This necessitates an urgent, systematic, and comprehensive study of the nature, operating mechanisms, and factors influencing regional economic linkages, thereby proposing feasible solutions to enhance linkage effectiveness, overcome fragmented development divided by administrative boundaries, and promote regional development towards sustainability.

The North Central Region is one of Vietnam's 06 socio-economic sub-regions, strategically positioned as a bridge between the North key economic region and the Central and South key economic regions. The region comprises 05 provinces: Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, and Quang Tri, with an area of approximately 46.2 thousand km² and a

population of over 10.8 million people (in 2024), accounting for nearly 10.8% of the national population but contributing only about 7.5-8% of the national GDP. The total GRDP of the entire region in 2024 (at current prices) reached approximately VND 762.2 trillion, an increase of approximately 9.1% compared to 2023 (of which, Thanh Hoa and Nghe An continued to be the two major growth poles, contributing over 70% of the region's total GRDP). However, despite the formation of several growth poles and dynamic development spaces, production and business activities in the North Central Region still primarily develop within the scope of individual localities, lacking strong cohesion in planning, infrastructure, markets, and value chains. Furthermore, the current coordination and governance mechanism for economic linkages in the North Central Region still lacks binding force and sufficient effectiveness to coordinate, mobilize, and allocate investment resources at the regional level. In the context of increasingly strong decentralization and devolution of power between the central government and local authorities, these limitations become even more apparent, increasing the risk of fragmented development along administrative boundaries.

In the current new development context, the North Central Region is facing a great opportunity to promote sustainable economic development through the formation of synchronized industrial production and goods distribution networks, based on comparative advantages and the orientation to make exports, services, and tourism key sectors. However, in reality, the breakthrough in economic linkages for regional development has been slow to implement and has revealed many limitations, reducing the ability to effectively exploit the region's potential and advantages. These limitations are reflected in unsustainable growth quality and low efficiency, while investment resources for socio-economic infrastructure development are still fragmented and do not fully meet the requirements for regional linkage development.

Therefore, for the reasons mentioned above, I chose the topic "Economic Linkages in the Development of the North Central Region of Vietnam" as my Doctoral Thesis in Development Economics at the Institute of Economics - Society and Environment, Ho Chi Minh National Academy of Politics, which is extremely necessary to contribute to solving the aforementioned issues and meeting current practical demands, and with the desire to propose recommendations and solutions to develop regional linkages and regional development in the North Central Region in particular, and nationwide in general, by 2030.

2. Research objectives and tasks

2.1. Research objective

Based on synthesizing, analyzing, and assessing the current state of economic linkages in the development of the North Central Region from

2010 to the present, the Thesis will propose orientations and solutions to promote the development of economic linkages in the North Central Region for the period up to 2030, with a vision to 2045.

2.2. Research tasks:

To achieve the stated research objectives, the Thesis focuses on performing the following main research tasks:

Firstly, the Thesis systematically organizes the scientific theoretical basis and international experience regarding economic linkages in regional development.

Secondly, the Thesis synthesizes, analyzes, and assesses the current state of economic linkages in the development of the North Central Region. It evaluates the level, forms, and effectiveness of regional economic linkages across three pillars: i) Institutional-policy linkages, ii) Infrastructure-logistics linkages, and (iii) Enterprise-value chain linkages; assesses the achieved results, limitations, and causes; and identifies factors influencing economic linkages in the development of the North Central Region over the past period.

Thirdly, the Thesis will propose perspectives, orientations, tasks, and solutions to promote economic linkages in the development of the North Central Region for the period up to 2030, with a vision to 2045.

3. Research subject

The subject of study for this Thesis is economic linkages in the development of the North Central Region.

4. Research scope

4.1. Spatial scope

The Thesis focuses on studying economic linkages within the scope of 05 provinces in the North Central Region, including: Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri (prior to the implementation of the policy to merge provinces, cities, and two-tier local governments in July 2025).

4.2. Time scope

The time scope for the assessment of the current situation in the Thesis is the period 2010-2024 (due to data limitations in the quantitative assessment of Moran's I index and enterprise linkage index, the Thesis limits the scope of quantitative assessment to the period 2010-2023). The temporal scope for the proposal and recommended solutions is up to 2030, with a vision to 2045.

4.3. Content scope

Regarding the content scope, the Thesis focuses on analyzing and assessing economic linkages in the North Central Region based on three main pillars: i) Institutional-policy linkages; ii) Infrastructure-logistics linkages; iii) Enterprise-value chain linkages.

5. Research Methodology

To achieve the research objectives, the Thesis employs a combination of qualitative and quantitative research methods. The purposes of qualitative research are to: (i) verify theories and refine the analytical framework of the

thesis; (ii) establish a foundation for developing theoretical bases and practical lessons; (iii) assess the current state of regional economic linkages, explain factors influencing economic linkages in regional development; and (iv) identify content for issues related to causes and solutions. Concurrently, quantitative research aims to provide sufficient highly representative data to measure the degree of linkages, identify factors hindering linkages in economic sectors; calculate the impacts of economic linkages on regional development, and provide evidence for factors affecting economic linkages. The Thesis utilizes the following research methods:

5.1. Data Collection Method

The Thesis conducts surveys and collects data to obtain information not readily available in secondary documents or in statistical data from previous surveys, thereby strengthening the research problem and proposing practical solutions and policy recommendations.

5.2. Analysis-Synthesis Method

The analysis-synthesis method is used to appraise and resolve contentious issues that lack consensus. Analysis-synthesis helps identify gaps in previous studies, areas that require further research or proof; concurrently, it helps string together data to draw observations, evaluations, and conclusions on the research problems.

5.3. Statistical - Descriptive Method

The descriptive statistical method is used to process secondary data to generalize the economic development situation of the North Central Region, assess the impact of economic linkages on development in the North Central Region, and analyze factors affecting economic linkages in the development of the North Central Region.

5.4. Quantitative Analysis Method

5.4.1. Spatial Autocorrelation Analysis Method

To measure the level of intra-regional economic linkages in the North Central Region, the thesis uses the spatial autocorrelation analysis method through Moran's I index – a quantitative tool commonly used in spatial economic studies to determine the degree of convergence or dispersion of territorial units regarding a specific economic variable.

5.4.2. Enterprise Linkage Assessment Method

To assess enterprise linkages in the North Central Region, the Thesis employs the research method by Wu and Hong (2022), which provides a particularly useful empirical analysis framework used to evaluate the extent of spillover and cohesion among enterprises through the industry linkage structure.

6. Contribution of dissertation

6.1. Theoretical contribution

Firstly, the Thesis scientifically systematizes and refines the theoretical foundation of economic linkages in regional development. Additionally, the

Thesis systematizes international practical experience regarding regional economic linkages and regional coordination mechanisms, thereby drawing scientific arguments that can be applied to research and policy formulation for regional development in Vietnam in the coming period.

Secondly, the Thesis contributes to building an analytical framework for economic linkage in regional development. This analytical framework helps supplement theoretical tools for more systematic and practical research, evaluation, and policy proposals for regional economic linkage.

6.2. Practical contributions

Firstly, the Thesis provides systematic empirical evidence on the current state of economic linkages in the development of the North Central Region, thereby clarifying the extent and operational characteristics of regional linkage within the specific context of the research area.

Secondly, based on the synthesis and analysis of the current situation, the Thesis generalizes the conditions, issues, and relationships that need to be considered in the process of organizing and implementing economic linkages in the North Central Region.

Thirdly, the Thesis clarifies and analyzes the structural causes of limitations in economic linkages in the North Central Region, stemming from the characteristics of development resources, barriers in mindset and perception towards regional economic linkages, as well as the completeness of the regional economic linkages institution.

7. Structure of the dissertation

Aside from the Introduction, Conclusion, References, and Appendix, the Thesis is structured into 04 chapters and 17 sections..

Chapter 1 LITERATURE REVIEW

1.1. THEORETICAL STUDY ON REGIONAL DEVELOPMENT AND ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

The theoretical study of regional development and economic linkages in regional development is a highly diverse topic, formed at the intersection of development economics, spatial economics, economic geography, and territorial planning; therefore, the analysis and interpretation of regional development issues need to be approached from various theoretical perspectives.

1.1.1. Lý thuyết về “cực tăng trưởng”

Within the body of research with various approaches by numerous authors such as Perroux, Myrdal (1957), Hirschman (1958), Jacques Boudeville (1960), John Friedmann (1966), etc., studies on the theory of growth poles marked a significant turning point in the thinking about economic development space, as economic growth does not occur uniformly

across pure geographical space but is selective, concentrating in certain centers within the economic space, where production relations, exchange, and economic power exert stronger influence than geographical location; creating spillover effects through input-output linkages, thereby promoting the development of related industries and forming an integrated network of enterprises. Regional development and regional economic linkages constitute a dynamic process, in which more developed regions can both foster and hinder the development of less developed regions if appropriate regulatory mechanisms are lacking.

1.1.2. Theory of Competitive Advantage and Regional Competitiveness

The theories of Alfred Marshall (1890), Marshall (1920), Michael Porter (1990), (Capello, 2007), Meyer-Stamer (2008), Kitson et al. (2004), etc., all focus on clarifying that regional competitiveness does not primarily stem from the mere accumulation of resources, but from the way these resources are organized, allocated, and utilized to enhance productivity and foster innovation. The key factor in forming concentrated industry clusters, which also means enhancing regional competitive advantage, is the level of social connectivity, the existence of social networks, social capital, and institutional structures. Concurrently, it emphasizes a region's ability to create competitive products and services in the market, while maintaining high and sustainable levels of income and employment. According to this approach, regional competitiveness is not only linked to economic growth but also manifested in job quality, living standards, and resilience to external competitive pressures.

1.1.3. Theory of Industry Linkages and Cluster Development

According to Michael Porter's theory of industry linkages (1998, 2000), an industry cluster is a modern form of economic spatial organization that allows businesses to exploit the benefits of geographical concentration without being constrained by the rigidity of vertical integration or the high administrative costs of formal alliances. Mercado (2002) extended the cluster theory in a territorial direction, suggesting that concentration in medium-sized clusters can form intermediate growth poles, attract labor, and create more balanced spillover effects among regions. Fujita and Mori (2005) further added that the impetus for industry linkages is generated from two main types of connections: economic linkages (e-linkages) through the production and exchange of goods and services; and knowledge linkages (k-linkages) through innovation, learning, and knowledge dissemination, which play a crucial role in enhancing regional competitiveness.

1.1.4. Theory of Value Chains - Enterprises

In his 1985 work "Competitive Advantage," Michael Porter first introduced the concept of the "value chain" at the enterprise level as a central analytical tool to explain the origin of competitive advantage. Expanding on

this approach, Kaplinsky and Morris (2001) argued that in practice, value chains have a much more complex structure, encompassing not only production-consumption stages but also input supply and support service activities. Thus, whether in a simple or expanded form, value chains reflect close linkages among enterprises across various industries and sectors. Therefore, strengthening value chain linkages helps enhance the competitiveness and production-business efficiency of enterprises in the current context of increasingly deep division of labor and globally dispersed production networks.

1.1.5. New Economic Geography Theory

From the late 20th century and early 21st century, theoretical thinking in regional development research shifted from a “growth pole” approach to an “integrated regional development” and “place-based development” approach. New economic geography theory has made significant progress in regional development research by combining spatial analysis with micro-factors such as increasing returns to scale, transport costs, and firm behavior. Krugman and Venables (1990) are considered scholars who laid important foundations for the New Economic Geography (NEG) theory by emphasizing the role of increasing returns to scale, internal and external economies of scale, along with transaction costs and trade costs in explaining the spatial distribution of economic activities.

1.2. RESEARCH ON THE CONTENT AND FORMS OF ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

1.2.1. On the Concept and Scope of Economic Linkages in Regional Development

A synthesis of research by Perroux (1950), Hirschman (1958), Boudeville (1966), Porter (1990), North (1990), and others indicate that regional economic linkages is a multidimensional concept, reflecting the depth of economic integration within a unified territorial space, encompassing production, market, infrastructure, and institutional linkages. International studies emphasize that regional linkage is not merely administrative cooperation among localities but a substantive connection of key economic flows such as goods, services, capital, labor, and knowledge, serving as a core operating mechanism for regional development. Domestic studies have applied and adapted this approach to suit Vietnam's institutional context, viewing regional economic linkages as a process of reorganizing development space according to economic logic to overcome administrative fragmentation, with three main content pillars: institutional-policy linkages, infrastructure-logistics linkages, and enterprise-value chain linkages. The integration of these approaches provides a theoretical foundation for the Dissertation to build an analytical framework for economic linkages in the development of the North Central Region, ensuring both the inheritance of

modern theory and suitability to Vietnam's practical conditions. Concurrently, these approaches form the basic conceptual framework of regional economic linkages in Vietnam and are an important foundation for the dissertation to develop an analytical framework for economic linkages in the development of the North Central Region.

1.2.2. Content of Economic Linkages in Regional Development

1.2.2.1. On the Main Pillars of Economic Linkages in Regional Development

International studies on regional development show that the content of regional economic linkages is a multidimensional concept, reflecting the interaction among various socio-economic factors within a territorial space. Building upon the spatial economic theories of Perroux (1955), Boudeville (1966), Friedmann (1966), Krugman (1991), and Porter (1990), scholars and international organizations have developed a system of content for analyzing regional economic linkages through various approaches. Although classification methods may vary depending on research objectives, most works focus on core pillars that reflect the conditions, advantages, and mechanisms enabling localities to cooperate and spread economic benefits in regional development.

A synthesis of studies shows that the content of regional economic linkages is typically structured around three main pillars. The first pillar is institutional-policy linkages, which include inter-regional coordination mechanisms, governance, common legal frameworks, and the distribution of power among different levels of government. The second pillar is infrastructure-logistics linkages, reflecting the degree of physical connectivity among localities, especially transportation systems, logistics, seaports, border gates, and digital infrastructure. The third pillar is enterprise-value chain linkages, representing the interaction among production-business entities, industry clusters, leading enterprises, and input-output relationships throughout the region. These three pillars do not exist in isolation but are interdependent: regional institutions guide and coordinate cooperation; infrastructure-logistics create the physical conditions for economic flows; and enterprise-value chain linkages transform these conditions into regional competitiveness. Therefore, from the perspective of analytical content, these three pillars form a fundamental and comprehensive basis for evaluating economic linkages in regional development, suitable for the research context of the North Central Region in the dissertation.

1.2.2.2. Institutional - Policy Linkages

A synthesis of studies reveals that institutional - policy linkages are a crucial pillar for facilitating inter-regional coordination in planning, public investment, infrastructure, trade, and logistics; as they determine decision-

making mechanisms, coordination levels, governance methods, and resource integration capacity. These are important reference factors for analyzing and proposing solutions to strengthen institutional - policy linkages in various countries.

1.2.2.3. Infrastructure – Logistics Linkages

Studies show that infrastructure - logistics linkages are essential conditions for regional economic linkages. Infrastructure - logistics linkages help reduce transaction costs, increase market access, and promote efficient resource allocation; they optimize the flow of goods and enable businesses in the region to participate deeply in value chains. Therefore, infrastructure - logistics linkages are identified as one of the three fundamental pillars of economic linkages analysis in regional development. These approaches indicate that infrastructure serves both as a necessary condition for regional linkages and as a factor promoting production - trade relations among provinces.

1.2.2.4. Enterprise - Value Chain Linkages

A synthesis of studies shows that enterprise - value chain linkages are viewed along key dimensions: input - output production relations, inter-provincial cluster development, technology diffusion, leading roles, market linkages, and digital transformation within enterprise networks. These dimensions all emphasize the role of enterprises as direct actors creating regional economic linkages. Enterprise - value chain linkages comprise three main contents: i) Input - output linkages among enterprises; ii) Linkages within industry clusters and production networks; iii) Value chain linkages from local to global scope. This is an important pillar in regional economic linkages analysis because enterprises are the actors that generate the flow of goods and added value.

1.3. STUDIES ON FACTORS AFFECTING ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

Domestic and international studies consistently agree that economic linkages in regional development are a complex socio-spatial phenomenon, simultaneously influenced by multiple groups of interacting factors. Regional economic linkages do not form spontaneously but depend on a combination of institutional conditions, infrastructure, economic structure, spatial dynamics, human resources, and socio-technological factors. Based on a synthesis and systematization of typical research works, six main groups of factors influencing economic linkages in regional development can be generalized, including: (i) natural conditions and resources; (ii) the socio-economic development level of localities; (iii) infrastructure and logistics systems; (iv) human resources and labor quality; (v) institutional - policy frameworks and regional coordination mechanisms; and (vi) enterprises and value chains.

1.4. STUDIES ON ECONOMIC LINKAGES IN THE NORTH CENTRAL REGION'S DEVELOPMENT

Studies indicate that despite a clear recognition of the need to strengthen linkages in the North Central Region, there is still a lack of comprehensive approaches based on linkage pillars. Most works have only focused on individual aspects such as infrastructure, border gates, or tourism, lacking interdisciplinary studies and integrated analytical frameworks. Furthermore, models for measuring the level of regional linkages are still limited, especially lacking quantitative analyses on the impact of linkages on regional economic growth and efficiency. This gap highlights the urgent need to develop a more systematic approach. This forms the scientific and practical basis for the dissertation to further supplement and deepen the research content.

1.5. ASSESSMENT OF THE RESEARCH GAP FOR THE DISSERTATION

An overview of international and domestic research works shows that economic linkages in regional development represent a research field with a rich theoretical and practical foundation, evolving from classical approaches to modern theories on industrial clusters, value chains, regional coordination, and infrastructure connectivity. International studies have established a multi-layered theoretical framework, encompassing institutional linkages, spatial-geographical linkages, sectoral linkages, infrastructure linkages, and enterprise linkages within value chains, while also applying numerous modern quantitative tools such as inter-industry balance models (I-O), spatial indices, spatial regression, and economic network analysis. However, in the context of Vietnam in general and the North Central region in particular, the application of these approaches and research tools remains limited, not yet systematically integrated, and has not fully met the requirements for analysis and regional development policy planning in the new development phase.

Firstly, most studies on regional economic linkages still tend to be descriptive of current practices, focusing on the current state of cooperation among localities or analyzing individual sectors such as transport infrastructure, border trade, tourism, or agricultural production.

Secondly, to date, no scientific research in Vietnam has comprehensively approached the three pillars of regional economic linkages, including: i) Institutional - policy linkages; ii) Infrastructure - logistics linkages; and iii) Enterprise - value chain linkages.

Thirdly, quantitative methods for measuring regional linkages in Vietnam are still fragmented and lack systematic integration.

Fourthly, for the North Central region, existing studies primarily adopt a single-sector approach, such as border trade linkages with Laos, inter-provincial tourism linkages, or linkages in agricultural production. No study has comprehensively analyzed the role of enterprises within the regional

value chain structure, nor evaluated the North Central logistics system from the perspective of an inter-provincial economic corridor.

From the above analysis, it can be affirmed that the Dissertation has a clear research gap to contribute academically and practically. Based on inheriting international theoretical frameworks and synthesizing domestic studies, the Dissertation will approach economic linkages in the North Central region using an integrated analytical framework comprising three pillars: institutional - policy linkages, infrastructure - logistics linkages, and enterprise - value chain linkages. Concurrently, the Dissertation combines qualitative methods with appropriate quantitative methods such as spatial correlation index analysis and inter-regional I-O models (where data permits) to measure the degree of linkages and assess their impact on regional economic development. This approach not only helps fill the existing research gap but also aims to provide reliable empirical evidence, effectively serving regional development policy planning for the North Central in the new phase.

CHAPTER 2

THEORETICAL BASIS AND PRACTICAL EXPERIENCE ON ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

2.1. BASIC CONCEPTS AND IMPLICATIONS

2.1.1. Concepts of Region and Economic Region

A region can be approached from various perspectives such as geographical, economic, administrative, socio-cultural, and functional. Each approach reflects an aspect of the socio-economic space and they are not mutually exclusive but rather complementary in fully identifying the nature of a region, thereby providing a theoretical basis for analyzing regional economic linkages in modern development studies.

An economic region is defined as a specific territorial space where localities share similar or complementary characteristics regarding natural, socio-economic, infrastructure, and institutional conditions, jointly participating in a production-consumption linkage system to exploit comparative advantages, promote territorial division of labor, and create common development momentum based on intra-regional and inter-regional interaction.

2.1.2. Classification of Regions in Economic Development

The classification of regions in economic development research stems from the need for a systematic approach to the characteristics, functions, and roles of different territorial spaces, thereby providing a basis for scientific analysis and regional development policy formulation. Although approaches and classification criteria vary among schools of thought and countries, in

modern regional development theory, regions are typically divided into several basic groups, including geo-natural regions, economic regions, functional regions, administrative-planning regions, and dynamic regional models such as economic corridors or development clusters, and national growth poles. This classification not only helps clarify the multi-dimensional nature of regional space but also provides a foundation for formulating development policies appropriate to the specific characteristics and roles of each type of region within national and inter-regional development systems.

Overall, the various regional classification methods reflect different yet complementary approaches in regional development research and policy formulation. The diversity of regionalization methods indicates that a region is not a static entity, but a dynamic socio-economic structure formed and transformed through the interaction of natural, economic, social, environmental, and institutional factors. Therefore, selecting an appropriate regional typology requires an approach aligned with the research objectives and specific development requirements of each nation and territory at each stage.

2.1.3. Concept of Regional Development

This dissertation asserts that regional development is a process of organizing and coordinating development at an intermediate spatial level, where economic, institutional, and social linkages play a decisive role in the efficiency, inclusiveness, and sustainability of development. This approach provides an important theoretical foundation for studying regional economic linkages, as well as for evaluating the role of coordinating institutions and regional development policies in the current context of deep economic integration and growth model transformation.

2.1.4. Concept and Intrinsic Meaning of Economic Linkages in Regional Development

The dissertation posits that economic linkages in regional development are a multi-dimensional process of cooperation, coordination, and connection among stakeholders within the same territorial space, aimed at optimally exploiting potential and advantages, promoting development spillover, enhancing regional competitiveness, and ensuring sustainable regional development through three main pillars: institutional-policy linkages; infrastructure-logistics linkages; and enterprise-value chain linkages.

2.2. CONTENT AND FORMS OF ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

2.2.1. Main Pillars of Economic Linkages in Regional Development

From the analysis of the intrinsic meaning of regional economic linkages, the dissertation argues that economic linkages in regional development are formed and operate on three core important pillars: i)

Institutional-policy linkages; ii) Infrastructure-logistics linkages; and (iii) Enterprise-value chain linkages.

2.2.1.1. Institutional and policy linkages: include: (i) the system of policies and legal regulations on coordinated regional development; (ii) regional linkage coordination organizations; (iii) coordination and monitoring mechanisms; and (iv) mechanisms for benefit allocation and risk sharing among localities.

2.2.1.2. Infrastructure and logistics linkages: include the following main contents: inter-regional multimodal transport connectivity; development of economic corridors and belts; and development of logistics systems and digital infrastructure.

2.2.1.3. Enterprise and value chain linkages: consist of the following three main contents: vertical linkages within the value chain; horizontal linkages among enterprises in the same industry; and multi-stakeholder linkages within the innovation ecosystem.

2.2.2. Role of economic linkages for regional development

This thesis argues that economic linkages play a crucial role in regional development by enhancing competitiveness, developing key industries, promoting the spillover effects of growth poles, and reorganizing economic space towards efficiency and sustainability. When operating across all three pillars - institutions, infrastructure, and enterprises - regional economic linkages will create synergy, becoming an endogenous driving force for regional development and enhancing national competitiveness.

2.3. FACTORS AFFECTING ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

Theoretical and empirical studies indicate that the extent and effectiveness of regional economic linkages depend not only on the following factors: natural conditions and resources; socio-economic development level; human resources and labor quality; level of science and technology and digital transformation; context of integration and extra-regional linkages; infrastructure and logistics systems; institutional - policy framework and regional coordination mechanisms; and enterprises and the level of value chain development. Therefore, economic linkages in regional development are the result of multi-dimensional interactions among natural, socio-economic, and institutional factors. Among these, infrastructure - logistics, regional coordination institutions, and enterprise - value chain linkages play a dominant role, determining whether regional linkages become substantive or remain merely formal commitments.

2.4. INTERNATIONAL EXPERIENCE ON ECONOMIC LINKAGES IN REGIONAL DEVELOPMENT

2.4.1. Experience of the ThaiLand

2.4.2. Experience of China

2.4.3. Experience of South Korea

2.4.4. Lessons learned for economic linkages in the development of the North Central region

Firstly, regional economic linkages must be guided by a sufficiently strong institutional framework at the national or regional level, rather than solely relying on voluntary coordination among localities.

Secondly, international experiences all indicate that regional linkages only truly function when there is a synchronized and inter-regional infrastructure connectivity foundation, especially transport and logistics.

Thirdly, regional economic linkages cannot solely rely on infrastructure and institutions, but must be realized through enterprise linkages and the organization of value chains within the regional space.

Fourthly, successful models all emphasize the role of investment in human resources and innovation in upgrading regional linkages.

Fifthly, international experience shows that regional linkages are a long-term process, requiring policy consistency and persistent implementation, rather than a collection of short-term projects.

The experiences of Thailand, China, and South Korea offer five key lessons for the North Central region: the need for a sufficiently strong regional coordination institutional framework; prioritizing the development of inter-regional connectivity infrastructure; reorganizing regional production space and value chains; linking regional integration with human resource development and innovation; and ensuring long-term, consistent policy implementation. These lessons provide an important theoretical and practical basis for developing orientations and solutions to promote economic linkages in the North Central region in the subsequent chapters of this Dissertation.

2.5. ANALYTICAL FRAMEWORK OF THE DISSERTATION

Based on an overview of existing domestic and international studies and an analysis of the theoretical basis of economic linkages in regional development, the Author of the Dissertation has proposed the analytical and research framework for the Dissertation.

CHAPTER 3

CURRENT STATUS OF ECONOMIC LINKAGES IN THE DEVELOPMENT OF THE NORTH CENTRAL REGION

3.1. OVERVIEW OF THE NORTH CENTRAL REGION

3.1.1. Geographical location, natural characteristics

3.1.2. Socio-economic characteristics

3.1.2.1. Scale and structure of the North Central regional economy

3.1.2.2. Cultural, social, and environmental situation of the North Central region

3.2. CURRENT STATUS OF ECONOMIC LINKAGES IN THE DEVELOPMENT OF THE NORTH CENTRAL REGION

3.2.1. Overview of economic linkages in the development of the North Central region

3.2.1.1. General assessment

The general assessment indicates that economic linkages in the North Central region is in its initial stage of formation, with an increasing need for enhanced intra-regional cooperation due to market fragmentation, development disparities, and a lack of effective regional coordination mechanisms. Growth poles have the potential to create spillover effects but have not yet formed horizontal and vertical linkage networks with other provinces in the region.

3.2.1.2. Assessment of the level of intra-regional economic linkages in the North Central region

3.2.1.2.1. Introduction to the assessment method

To measure the level of intra-regional economic linkages in the North Central region, the Dissertation employs the spatial correlation analysis method using Moran's I index, a commonly used computational tool in spatial economic studies to determine the degree of convergence or dispersion of a region with respect to a certain economic variable.

3.2.1.2.2. Description of the characteristics of the data used for calculation

From the perspective of regional economic linkages, the potential for intra-regional connectivity is significant, but the effectiveness of infrastructure utilization remains limited and challenging. This partly explains why growth poles like Thanh Hoa, Nghe An, or Ha Tinh, despite their important roles, still have limited spillover effects on Quang Binh and Quang Tri. Furthermore, this distance disparity also indicates that the regional transport infrastructure still lacks direct connection routes, urban bypasses, and horizontal transport axes to optimize inter-provincial and inter-regional transport flows.

3.2.1.2.3. Calculation results of Moran's I index

The Moran's I index approaching the value of (-1) during the 2021-2023 period indicates that the North Central region has almost no natural economic convergence remaining; conversely, the growth of one province is likely to develop in the opposite direction to another. This demonstrates that intra-regional economic linkages are very weak, the regional structure is fragmented, and development policies remain highly localized. In this context, the need to strengthen regional coordination, develop synchronous infrastructure, and build inter-provincial value chains becomes urgent to limit divergence and bring the region back to a state of more sustainable development in the future.

3.2.1.2.4. Analysis of Moran's I Index Results for the North Central Region

The analysis results of the Moran's I index for the North Central Region during the 2010-2023 period reveal a consistent picture of declining spatial convergence and increasing polarization of intra-regional economic development in the North Central Region. The Moran's I index provides quantitative evidence of the weak intra-regional economic linkages and the increasingly evident trend of polarization within the North Central Region. Notably, this trend has been consistent and prolonged for over a decade, indicating that previously implemented solutions have not been robust enough to improve the regional linkage structure. This is a significant indicator that the development process of the provinces has not only failed to converge but also tends to diverge, with each province operating on its own trajectory. This divergence is not merely a quantitative phenomenon but also reflects structural characteristics in the development of the North Central Region.

3.2.2. Institutional - Policy Linkages

3.2.2.1. Regarding Policies, Mechanisms, and Economic Linkages Policies for the Development of the North Central Region

Recently, the Government and central ministries and agencies have issued numerous important mechanisms and policies to promote economic linkages for the development of the North Central Region; specifically focusing on the allocation of public investment resources, socio-economic infrastructure development, and the establishment of specific mechanisms for certain localities. This system of documents forms the initial institutional and policy foundation for regional economic linkages, although the level of implementation and effectiveness still varies among provinces in the North Central Region.

3.2.2.2. Regarding Regional, Local, and Sectoral Planning for the North Central Region

3.2.2.3. Regarding Voluntary Linkage Policies of Localities in the North Central Region

3.2.2.3.1. Sustainable Tourism Development Linkages among Provinces in the North Central Region

3.2.2.3.2. Linkages within the Southern Thanh Hoa - Northern Nghe An Economic Zone

3.2.2.3.3. Linkages within the Southern Nghe An - Northern Ha Tinh Economic Zone

3.2.2.3.4. Linkages within the Southern Ha Tinh - Northern Quang Binh Economic Zone

3.2.2.3.5. Linkages of Quang Tri Province with Other Localities

3.2.3. Infrastructure – Logistics Linkages

Infrastructure and logistics linkages are a crucial pillar in forming a unified development space for the North Central Region, because the transportation system, warehousing, and logistics services directly determine the flow of goods, services, and labor among localities.

3.2.3.1. Regarding Transportation Infrastructure Linkages

3.2.3.1.1. Road System Connectivity

3.2.3.1.2. Seaport and Inland Waterway System Connectivity

3.2.3.1.3. Airport Infrastructure Connectivity

3.2.3.1.4. Railway Infrastructure Connectivity

3.2.3.2. Regarding Logistics Connectivity for Economic Zones and Industrial Parks

3.2.3.3. Regarding Connectivity of Economic Corridors within the North Central Region

3.2.2.3.1. Cau Treo - Vung Ang Economic Corridor

3.2.2.3.2. Lao Bao - Dong Ha - Da Nang Economic Corridor linked to the East-West Economic Corridor of the Greater Mekong Subregion (GMS)

3.2.4. Enterprise - Value Chain Linkages

3.2.4.1. Current Status of Enterprise Development in the North Central Region

The North Central Region has over 45,000 active enterprises, accounting for approximately 5.5% of the total active enterprises nationwide. Although the number of enterprises is still modest and there are not many strong enterprises compared to the national average, this region's natural resources are quite diverse, abundant, and prominent in terms of seas, islands, deep-water bays, hills, mountains, lakes, waterfalls, cultural-historical heritage, border gates, etc., allowing for integrated economic development with many key sectors such as tourism services, healthcare, education, manufacturing industry, organic agriculture, etc.

3.2.4.2. Assessment of Enterprise Linkages in the North Central Region

3.2.4.2.1. Model Introduction

To assess enterprise linkages in the North Central Region, this thesis employs the research methodology of Wu and Hong (2022), which provides an analytical framework used to evaluate the degree of spillover and cohesion among enterprises through the structure of industry linkages.

3.2.4.2.2. Data Description

To calculate the degree of enterprise linkages in the North Central Region, the thesis utilizes the national enterprise survey dataset from 2011-2023 provided by the General Statistics Office, where the total sample of surveyed enterprises nationwide is 2,539,764, and the North Central Region accounts for 149,529 enterprises. Before analysis, the data was cleaned and

standardized to ensure the consistency and reliability of the calculation results.

3.2.4.2.3. Calculation Results

i) Industry Structure Coefficient in the North Central Region (A_m)

Overall, the industry structure coefficient (A_m) in the North Central Region during the 2011-2023 period remained low and showed only limited improvement over time, reflecting a low level of industry presence and an unstable industrial structural foundation within the region. Analysis by industry group indicates that the production structure of the North Central Region still primarily relies on traditional processing industries, which are labor- and resource-intensive, while capital-intensive, high-tech, and modern manufacturing industries have low industry structure coefficients and have only seen localized increases in recent years, especially after 2020. This suggests that the region has not yet developed a clear comparative advantage in high value-added and high-tech industries.

ii) Backlink (Bspill)

Thus, the calculation results for the Bspill index by industry group show that backward linkages in the North Central Region are generally weak, fragmented, and unstable over time. Except for some fluctuations due to inherent industry structure, most industries in the region have not yet established a sufficiently strong and sustainable role in creating input demand to drive the development of supplying industries within the region. Particularly, in the processing and manufacturing industrial sector, backward linkages primarily rely on a few traditional industries, while foundational industries and modern manufacturing industries – which have the potential to create stable input demand for the entire value chain – are still absent. This result is consistent with the region's industry structure coefficient (A_m) and its limited horizontal linkages.

iii) Forward linkage (Fspill)

Thus, the analysis results for the Fspill index indicate that forward linkages in the North Central Region are still weak, unstable, and show clear differentiation among industry groups. Except for some localized fluctuations, particularly in 2023, most industries in the region have not yet established a sufficiently strong role in supplying intermediate outputs to create a production spillover effect within the region. This reflects the reality that deep linkages within the value chain are still limited and have not developed synchronously and sustainably.

3.2.4.2.4. Comprehensive Assessment of Enterprise Linkages in the North Central Region

Overall, the synthesis of three groups of linkage indicators (horizontal linkages, backward linkages, forward linkages) reveals that the industrial

linkage structure of the North Central region is still weak, fragmented, and has not yet formed production clusters with strong spillover potential within the region. The industrial structure coefficient remains low and relatively stable across most industry groups, reflecting a low level of industry concentration and the absence of industries or enterprises acting as leading nuclei. This indicates that the business ecosystem of the North Central region has not yet reached the necessary scale and density to form internal growth poles.

3.3. FACTORS AFFECTING ECONOMIC LINKAGES IN THE DEVELOPMENT OF THE NORTH CENTRAL REGION

Economic linkages in regional development constitute a complex economic-institutional process, formed and operated under the combined impact of multiple groups of closely interacting factors. For the North Central region, the extent and quality of economic linkages are not only influenced by natural conditions and geographical location but are also strongly governed by the socio-economic development level of localities, infrastructure and logistics systems, human resource quality, the institutional and policy framework, and the role of enterprises in organizing value chains.

3.3.1. Impact of Natural Conditions and Resources

3.3.2. Impact of the Socio-Economic Development Level of Localities

3.3.3. Impact of Human Resources and Labor Quality

3.3.4. Impact of the Level of Science, Technology, and Digital Transformation

3.3.5. Impact of the Context of Integration and Extra-Regional Linkages

3.3.6. Impact of Institutional and Policy Factors and Regional Coordination Mechanisms, Infrastructure and Logistics Systems, Enterprises, and the Level of Value Chain Development

3.4. ACHIEVEMENTS AND LIMITATIONS OF ECONOMIC LINKAGES IN THE DEVELOPMENT OF THE NORTH CENTRAL REGION

3.4.1. Achievements

Firstly, regarding institutional and regional coordination mechanisms, regional economic linkages have gradually been placed within an institutional framework and general development orientation. The issuance of Resolution No. 26-NQ/TW dated November 3, 2022, by the 13th Politburo on the development of the North Central and Central regions has created an important legal framework for the establishment of the North Central Regional Coordination Council (in 2023) – a significant step forward in regional development governance.

Secondly, inter-regional infrastructure and logistics systems have been improved, creating a physical foundation for economic linkages. The North Central region has formed a relatively synchronous multi-modal connection system, which serves as a physical basis for regional economic linkages.

Thirdly, economic activities and the network of enterprises – value chains tend to expand, forming initial economic linkages in the North Central region. In terms of enterprise linkages and value chains, industrial parks and coastal economic zones are increasingly attracting enterprises to invest in value chains.

3.4.2. Limitations and Their Causes

Firstly, institutional linkages and regional coordination mechanisms are still weak, lacking binding force and enforcement effectiveness. Although a Regional Coordination Council has been established, its operating mechanism is primarily administrative coordination, and it does not yet have the authority to allocate resources or make decisions to coordinate public-private investment at the regional level.

Secondly, the infrastructure and logistics systems have a low level of connectivity and lack synchronicity, with slow development of multimodal transport. Although transport infrastructure has improved, the infrastructure structure of the North Central region still lacks integration, and its operational efficiency remains low.

Thirdly, enterprise linkages and internal value chains in the North Central region remain weak, loose, and lack depth. The enterprise structure in the North Central region consists mainly of small and medium-sized enterprises (SMEs), with limited technological, managerial, and innovation capabilities.

The above limitations stem from institutional, policy, economic, and human factors, and can be summarized into four main groups: (1) Institutional and policy factors; (2) Economic and resource factors; (3) Enterprise capacity and market factors; (4) Natural and social conditions factors.

CHAPTER 4 ORIENTATIONS AND SOLUTIONS TO PROMOTE ECONOMIC LINKAGES

4.1. NEW INTERNATIONAL AND DOMESTIC CONTEXT

4.1.1. New International Context

Firstly, the global economy has entered a volatile period characterized by uncertainty, fragmentation, and increasing strategic competition among nations.

Secondly, the increasingly deep international economic integration process through new-generation free trade agreements such as CPTPP, EVFTA, and RCEP is driving the need for intra-regional linkages to enhance supply chain competitiveness.

Thirdly, the current international context is also profoundly impacted by the wave of the 4.0 Industrial Revolution, where digital technologies such

as artificial intelligence, big data, the Internet of Things, cloud computing platforms, and cross-border e-commerce are fundamentally transforming production methods, business models, and the structure of global supply chains.

Fourthly, the emergence of green development models, circular economy, energy transition, and global emission reduction commitments has put pressure on economic regions to reorganize industrial space, reallocate resources, and build green supply chains.

4.1.2. Domestic Context

Firstly, from July 2025, the development context for economic linkages in the North Central region will be simultaneously impacted by two structural processes: namely, the reorganization of administrative units following local mergers, and the adjustment of national, regional, and sectoral planning systems in the country's new era of development.

Secondly, the rapid urbanization process in major centers such as Hanoi, Ho Chi Minh City, Da Nang, and Hai Phong has altered the structure of development space, leading to shifts in the labor force, infrastructure demands, and the formation of new urban-industrial chains.

Thirdly, the State has promulgated a system of national, regional, and provincial master plans for the period 2021-2030, with a vision to 2050, under the new Planning Law.

Fourthly, the digital economy and digital transformation are rapidly progressing, profoundly impacting all sectors and fields, and becoming a crucial driver of economic growth.

Fifthly, the divergence in development levels among provinces in the North Central region is becoming increasingly evident.

Sixthly, domestic transport infrastructure has seen strong development recently, especially with the completion and operation of many sections of the North-South Expressway (Eastern route), significantly reducing travel time between provinces and increasing connectivity with key economic regions.

Seventhly, The North Central Region is facing many internal challenges that directly affect its ability to form sufficiently strong intra-regional supply chains to deeply participate in regional and international production networks.

4.2. PERSPECTIVES AND ORIENTATIONS FOR PROMOTING ECONOMIC LINKAGES IN THE DEVELOPMENT OF THE NORTH CENTRAL REGION

4.2.1. Perspectives for Promoting Economic Linkages in the Development of the North Central Region by 2030

4.2.2. Orientations for Promoting Economic Linkages in the Development of the North Central Region

4.2.2.1. Orientation on Improving the Quality of Institutions and Policies

4.2.2.2. Orientation on Leveraging the Competitive and Comparative Advantages of Localities and the Entire Region to Strengthen Economic Linkages in Regional Development

4.2.2.3. Orientation on Further Increasing Close Linkages Among Economic Sectors and Development-Supporting Fields

4.3. SOLUTIONS FOR PROMOTING ECONOMIC LINKAGES IN THE DEVELOPMENT OF THE NORTH CENTRAL REGION

4.3.1. Group of Solutions on Innovating Mindset and Awareness Regarding Economic Linkages in Regional Development

One of the fundamental solutions for promoting economic linkages in the development of the North Central Region is to establish a high level of consensus in awareness across all levels and sectors, from the Central government to local authorities, as well as within the business community and among the people, regarding the role, position, and importance of regional development and regional development linkages. This consensus in awareness is a prerequisite to ensure synchronicity in policy formulation, issuance, and the organization of implementing development goals for the North Central Region in line with the spirit of the Party's resolutions and the State's policies and laws.

4.3.2. Group of Solutions on Improving the Quality, Perfecting Institutions - Policies, and Coordination Mechanisms for Economic Linkages in the North Central Region

For economic linkages in the North Central Region to truly serve as a growth driver by 2030, the prerequisite is to perfect the regional coordination institutional framework. This is a fundamental group of solutions, as the effectiveness of linkages concerning infrastructure, logistics, value chains, labor markets, and digital transformation all directly depend on the level of coordination, consistency, and governance capacity of the North Central Region in the coming period.

4.3.3. Group of Solutions on Developing and Perfecting Inter-regional Infrastructure and Logistics in the North Central Region

Transport infrastructure and logistics play a backbone role in regional economic linkages, determining the ability to circulate goods, access markets, attract investment, and form inter-provincial value chains. For the North Central Region, although many expressways, national highways, and seaports have been invested in, the lack of synchronicity among transport modes, the weakness of the horizontal connectivity network, and the absence of regional-scale logistics centers still represent major bottlenecks hindering economic linkages. Therefore, developing inter-regional infrastructure and logistics is a decisive core group of solutions, creating a fundamental basis

for promoting regional economic linkages. This group of solutions for developing inter-regional infrastructure and logistics is not only aimed at overcoming existing bottlenecks but also at building an integrated, smart, and synchronous infrastructure system, consistent with the economic development requirements of the North Central Region until 2030 and beyond.

4.3.4. Group of solutions for enterprise development and inter-regional value chains in the North Central Region

Developing enterprises and forming inter-regional value chains are crucial conditions for economic linkages in the North Central region to become substantive and capable of spreading. Currently, enterprises in the region are predominantly small-scale, possess low technological capabilities, and have limited interconnectedness, which prevents the clear formation of intra-regional value chains. Therefore, this group of solutions needs to focus on enhancing enterprise capacity, promoting the formation of industry clusters, and supporting enterprises to participate more deeply in domestic and international supply chains.

4.3.5. Other groups of solutions

4.3.5.1. Developing human resources and labor quality in the region

4.3.5.2. Enhancing scientific and technological levels and promoting digital transformation, innovation, and green development

4.3.5.3. Strengthening international cooperation and extra-regional linkages

4.3.5.4. Breakthrough solutions to leverage marine economic advantages in conjunction with economic linkages in the North Central

4.3.5.5. Breakthrough solutions to strengthen economic linkages in the North Central region for climate change adaptation and disaster prevention

CONCLUSION

The thesis “Economic Linkages in the Development of the North Central Region of Vietnam” was conducted in the context of Vietnam accelerating the implementation of Resolutions on regional development, deploying the Planning Law 2017, and continuing to restructure the economy based on renewing the growth model, digital transformation, and green development. The North Central region – an area holding a strategic position connecting the North with the South, and the East Sea with the Mekong sub-region – is facing an urgent requirement to strengthen intra-regional and inter-regional linkages to overcome inherent limitations, capitalize on opportunities from global supply chain shifts, and contribute to the nation's goal of balanced and sustainable development. Based on theoretical research,

practical analysis, and a systematic assessment of influencing factors, the thesis has clarified the role of economic linkages in regional development, identified key bottlenecks in the North Central region's linkages, and proposed a system of solutions to promote economic linkages by 2030.

Firstly, the thesis has systematized and deepened the theoretical foundation of regional economic linkages, including concepts, linkage models, operational mechanisms, factors determining the level of linkages, and the role of linkages in regional development.

Secondly, based on recent practical analysis, the thesis has systematically outlined the current state of economic linkages in the North Central region, including both achievements and existing shortcomings, limitations, and their causes.

Thirdly, the thesis has systematically analyzed the international and domestic contextual factors strongly impacting the trend of economic linkages in the North Central region.

Fourthly, the thesis has proposed a comprehensive system of solutions aimed at promoting economic linkages in the North Central region by 2030.

Fifthly, the thesis contributes several new points in terms of academia and practice. Theoretically, the thesis contributes to refining the analytical framework for regional economic linkages in a transitional economy, by integrating interdisciplinary research methods, applying spatial models, and adopting a value chain approach. Practically, the thesis provides a comprehensive and updated picture of economic linkages in the North Central region, identifying core bottlenecks and proposing highly feasible solutions consistent with national strategic orientations. The research findings of the thesis can be used as reference material for state management agencies, policy consulting organizations, research institutes, and local authorities within the region when formulating strategies for regional linkage development.

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