ESTABLISHING A SET OF CRITERIA TO EVALUATE THE DEVELOPMENT OF GROWTH POLES AT PROVINCIAL LEVEL

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Abstract: *Using the extrapolation method, experience summary method and quantitative method, the author proposed 11 criteria to evaluate the development of provincial growth poles including: economic scale, economic growth rate, polarization index, economic density, dynamic industry or enterprise, trained labor, investment capital, competitiveness, budget balance, export turnover and per capita income.*

Keywords: *Evaluation criteria, growth pole, provincial level.*

1. Introduction

Growth poles at different scales in the world are increasingly applied and have actually become driving forces to promote economic growth [1]. In Vietnam, since the early years of the 21st century, at the national scale as well as the scale of regions and localities, there has been a determination to build growth poles [13], [14]. In the development plans of provinces for the period 2021-2030, with a vision to 2050 approved by the Prime Minister, there are 18 provinces[2] that have advocated the development of provincial growth poles, but so far there are no criteria to evaluate the development of the growth pole system at all levels. This makes it difficult to implement socio-economic development plans in general and to identify solutions to promote the development of the growth pole system at all levels in particular. Our study aims to select and establish a set of criteria to evaluate the development of provincial growth poles (PGPs) in Vietnam.

2. Method of constructing and requirements of the criteria set

2.1. Method of constructing a set of criteria to evaluate the development of the provincial growth pole (PGP)

To establish a set of criteria to evaluate the development of the PGP, we use the following methods:

Extrapolation method: This is a method that uses information from known data to infer the value of unknown data. Specifically in this case, from the nature and characteristics of the growth pole in general and the PGP in particular, we extrapolate the PGP criteria.

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[2] Including provinces: Ba Ria-Vung Tau, Bac Lieu, Bac Can, Binh Dinh, Ca Mau, Da, , Dak Lak, Dak Nong, Dien Bien, Hai Duong, Hoa Binh, Kon Tum, Lang Son, Lao Cai, Nam Dinh, Son La, Tuyen Quang, Vinh Long, Vinh Phuc

Experience summary method: Applying this method, we collect sets of growth pole criteria built by different authors for reference, select and choose suitable criteria to evaluate the development of the PGP

Quantitative method:We use this method to determine the values (thresholds) of the criteria. The value of each criterion is selected based on the following grounds: i) the nature of the PGP and ii) Resolution No. 26/2022/UBTVQH15 on Amending and supplementing a number of articles of Resolution No. 1210/2016/UBTVQH13 dated May 25, 2016 of the National Assembly Standing Committee on Urban Classification [11]; iii) The World Bank's Vietnam Urbanization Assessment Report published in 2011 [19]. The main reason is that most of the PGP in Vietnam are urban areas [15] and they serve as references to determine the value of each criterion.

2.2. Requirements of the set of criteria

Since the PGP is a part of the country, region and province, the criteria for evaluating the development of the PGP must reflect the characteristics and development goals of the country, region and province. Specifically, the set of criteria for evaluate the development of PGP must meet the following requirements:

Be consistent with the content and development trends of the whole country, region and province. That is, the set of criteria for evaluate the development of PGP must inherit the maximum criteria for evaluate the development of growth poles at the national and regional levels

Reflect the changing trends, models and methods of development in the new development conditions of the country and each territory.

Serve the management and operation of socio-economic development of provincial Party Committees and authorities.

Ensure the ability to apply in the management practice of all PGPs and allow comparison of development between PGPs (in the same province and between provinces) at the same time and at different times.

Be dynamic.

Regarding the number of criteria. The number of criteria for evaluate the development of PGP must be less than the number of criteria for evaluate the development of growth poles at the national and regional levels, because the province's territorial scale is not large, the industrialization process is less rich, the socio-economic activities are less diverse, and the ability to collect and store statistical data is still limited compared to the national and regional levels.

3. Research results and discussion

3.1. Basis for proposing a set of criteria for evaluating provincial growth pole

3.1.1. Growth pole and provincial growth pole

The originator of the theory of “Growth pole” was the French economist Francois Perroux in 1950, then continued to be developed by Myrdan, Friedman, Hisrhman, Richardson, Bejnamin, J. Parr, Higgins, Philip Mc.Cann, John Friedmann, Stuart Holland,

etc. [14]. According to this theory, a region cannot have even development at all points on the territory at the same time, but tends to grow/develop rapidly at some points, while other points tend to grow slowly or stagnate. The rapid growth/development at those poles will create direct impacts on the development of surrounding territories called growth poles.

The points with rapid and strong growth/development are those with advantages compared to the whole region, often gathering a number of industries/enterprises that are capable of creating growth for the economy, having close interactions with each other through production, technology, business, finance, trade relationships, etc. around one or several leading or spearhead industries/enterprises. Such points have different names and scales: growth/development points, growth/development poles, growth centers, development cores, core areas, leading territories, key regions, etc. [3], [14].

The Leading Propulsive Industry is an industry that, thanks to its advantages in modern technology, high innovation speed, products with income elasticity of demand and a large market scope in many regions or the whole country, will develop very quickly and pull related industries to grow, creating a spillover effect on other parts of the economy. For example, the production of automobiles, aircraft, electronic components, steel, petrochemicals, etc. [10].

A dynamic propulsive firm has the following characteristics: i) Relatively large in scale, ii) High innovation capacity, iii) Belonging to a relatively fast-growing sector, iv) The quality and intensity of its relationships with other sectors of the economy are quite close, enough to cause important impacts transmitted from the dynamic enterprise to them [10], [14].

In terms of territory, the development of a spearhead industry/enterprise will make the territory - where it is located, develop and prosper thanks to increased employment, income, increased purchasing power; new industries/enterprises, socio-economic service activities and new development activities are increasingly attracted to the territory. Territorial concentration reaching a certain level will cause a spillover effect. Creating new development opportunities at many other points. As a result, the development of a pole as a key territory will act as a "locomotive" to attract the development of the entire region, creating conditions for the regional economy to develop faster and stronger [10], [14].

A growth pole is a combination of leading dynamic industries/enterprises that have close relationships, are concentrated in a certain territory and are capable of creating new and strong growth dynamics for the economy of the pole and other territories [14]. From this concept, the concept of PGP can be stated as follows: Provincal growth pole is a combination of leading dynamic industries/enterprises that have close relationships, are concentrated in a certain territory and are capable of creating new and strong growth dynamics for the economy of the pole and the entire province.

Researchers distinguish between potential growth poles, natural poles and planned poles. Potential poles are often: Economic zones, industrial parks, industry clusters, urban areas, agro-industrial complex enterprises, innovation research centers, advanced socio-economic development territories, outstanding tourist centers/areas, points, urban areas... which will later develop and become growth poles [3], [9], [13]. Natural poles are poles

that are naturally formed with very little intervention from the state. Planned poles are poles that the state establishes with the aim of creating momentum for the development of backward regions [9]. Growth poles have impacts at different scales and form pole levels: global poles, national poles, regional poles belonging to the country, provincial poles... In the first decades, growth pole strategies mainly focused on the industrial sector and on the national scale. Nowadays, the growth pole strategy is applied in many different fields (industry, urban, tourism, trade, agriculture, rural areas) and at different scales (from global scale to national, regional, provincial, district, etc.) [13].

3.1.2. Overview of some sets of criteria for evaluating growth poles

We have collected 10 works (published from 2011 to 2024) with criteria for evaluating growth poles, namely "Growth poles and multi-poles" (2011) by Jonathon Adams-Kane, Jamus Jerome Lim [2]; "Multi-poles: The new global economy" (2011) by the World Bank [18]; "Research project to support the construction of growth poles in the North - Central - South of Vietnam" (2013) by JICA [4]; "Growth poles in EU countries within the framework of Europe 2020" (2014) by Ramona Camelia Berea, Ioana Bucerzan Precup a, Cătălin Ionuţ Silvestru [2]; "Application of the method of determining growth poles of regional industrial economy in the public administration system" (2017) by Nadiia Pysar [7]; "Approaches to assess the effectiveness of growth poles in regional economic space" (2021) by Natalya Novikova and Alexander Leontiev [8]; "Determining growth poles in Thanh Hoa" (2022) by Le Huu Khue and Nguyen Thi Lan [6]; Determining growth poles in Vietnam" (2022) by Le Van Truong [12]; Determining regional growth poles: the case of Vietnam (2024) by Le Minh Son [12]; "Characteristics of growth pole development in Vietnam" (2024) by Le Van Truong and Nguyen Quang Vinh [13]. Table 1summarizes the criteria and assumptions from the aforementioned works.

Table 1. Summary of the authors' growth pole assessment criteria

No	Indexx	**J.Kane, J.Lim** and **WB (2011)**	**JICA (2013)**	**Berea, Precup and Silvestru (2014)**	**Nadiia Pysar (2017)**	**Natalya Novikova, Alexander Leontiev (2021)**	**Khuê and Lan (2022)**	**Trưởng (2022)** and **(2024)**
1	Economic size		+		+	+		+
2	Economic growth		+			+		+
3	Polarization index	+					+	+
4	Economic density						+	+
5	Herfindahl-Hirschman index	+					+	+
6	Economic structure		+		+	+		
7	Export or trade value	+	+				+	+
8	Investment capital	+				+	+	+
9	Labor mobility	+						

10	Technology diffusion	+				+		
11	Educated workers		+	+		+		+
12	Employed workers			+		+		
13	Innovation index	+				+	+	+
14	Industrial production index		+			+		
15	Budget contribution				+			+
16	Per capita income					+	+	+
17	Driving sector/enterprise		+		+			+
18	R&D expenditure			+		+		
19	Primary energy consumption			+				
20	Poverty rate			+		+		

General comments on the above criteria sets:

Common points

The criteria and indicators are always associated with the nature of the growth pole and are supplemented with new criteria and indicators (digital economy, international economic integration and sustainable development).

The above criteria sets are more or less associated with the specific characteristics of the territory.

Most of the criteria and indicators are quantitative indicators, there are no qualitative criteria

The criteria set of each province and city basically applies the criteria of the country, large regions and rarely applies the criteria set to assess the development of small-scale growth poles (poles under the province or also known as provincial-level poles).

All criteria sets do not mention the economic density criterion (USD/km^2)

The criteria set has not mentioned the globalization trend and the 4.0 revolution.

The criteria sets a long-term time limit that is mainly associated with each medium-term socio-economic development plan and then adjusted to suit the following plans.

However, the above criteria sets also have differences, the main reason for the differences is the purpose of assessing the growth pole. Jonathon Adams-Kane, Jamus Jerome Lim and the World Bank (2011) aimed to assess polarization [5]. The criteria set of JICA (2013) aimed to assess for investment in industrial development [5]. Ramona Camelia Berea, Ioana Bucerzan Precup a, Cătălin Ionuţ Silvestru (2014) aimed to assess to determine the level of development of growth poles from EU countries within the framework of Europe 2020 [2]. Nadiia Pysar (2017) aimed to identify the growth poles of the regional industrial economy in the public administration system [7]**.** Natalya Novikova and Alexander Leontiev (2021), aimed to assess the effectiveness of growth poles in the economic space of the region [8]. Le Huu Khue, Nguyen Thi Lan [6] and Le Van Truong [14] (2022) aimed to identify growth poles and Le Van Truong and Nguyen Quang Vinh [15] in 2024 aimed to assess the development of growth poles.

3.2. Proposing a set of criteria to evaluate the development of provincial growth pole

From the above analysis, we propose a set of criteria to assess the development of growth poles with the content, calculation method and the value to be achieved for each criterion used to assess the development of PGP as shown in Table 2.

***Table 2**. Set of criteria to evaluate the development of provincial growth pole*

No	Criteria	Role and meaning of criteria	Method of calculating criteria	The value to be achieved for each criterion
1	Economic scale	This index is used to measure the economic scale of the growth pole	The proportion of GRDP of the provincial pole in the total GRDP of the province.	GRDP of PGP ≥20% of the total GRDP of the province.
2	GRDP Growth	This index reflects the economic growth rate of the growth pole	See [16]	The economic growth rate of the pole in the province must be ≥1.5 times the GRDP growth rate of the whole province.
3	Polarization index	The polarization index reflects the spread (transmission) of the influence of the pole to the surrounding territories at different intensities.	P is calculated by the product of the proportion of GRDP of each pole in the GRDP of the whole province multiplied by the GRDP growth rate of the pole in the same period.	P of the pole belonging to the province ≥20% of the total values of P of the same-level administrative units
4	Economic density	Economic density (D) reflects the level of concentration, scale, economic performance efficiency and economic attractiveness of geographical regions, growth poles	D of provincial pole ≥5.0 times the GRDP density of the whole province	D of provincial pole ≥5.0 times the GRDP density of the whole province

5	Motor Industry or Motor Enterprise	The motor industry is an industry that has: i) a very advanced level of technology and management expertise, (ii) a high income elasticity of demand for its products, (iii) a marked local multiplier effect, and (vi) close linkages with other industries. A driving enterprise must: i) Be relatively large in size, ii) Have a high capacity for innovation, iii) Belong to a relatively rapidly developing sector, iv) The quality and intensity of its relationships with other sectors of the economy are sufficiently close, sufficient to cause important impacts to be transmitted from the driving enterprise to them. The proportion of the industry's production value in the total production value of all sectors at the pole	The proportion of the production value of the industry in the total production value of all industries in the pole The proportion of the production value of the enterprise in the total production value of all enterprises in the pole	The proportion of the engine industry's production value ≥20% of the total production value of all sectors at the growth pole The proportion of the driving enterprise's production value ≥20% of the total production value of all enterprises at the growth pole
6	Trained labor	Technical labor, trained labor not only plays a direct role in producing goods and services, but also is a factor that helps businesses and industries in the pole innovate. This is a factor that strongly affects attracting resources from surrounding areas to the pole and creating economic growth of the pole	See [16]	Proportion of trained labor in PGP in the total labor force Proportion of trained labor in PGP >50% of the total labor force

7	Investment capital	Capital flows, especially FDI, are also an important channel for capital and technology diffusion, especially in less developed countries. Capital and knowledge can spread from subsidiaries to other companies in the host country through labor rotation). Multinational companies can also provide subsidiaries with technology embodied in intermediate goods and services.	Proportion of foreign investment (PFDII-Proportion of foreign development investment index) of the pole in the total foreign investment of the province. See [16]	Proportion of PFDII investment capital of the provincial pole ≥15% of the total FDI capital of the province
8	District and Equivalent Level Competitiveness Index	District and Equivalent Level Competitiveness Index (DDCI) measures the quality of economic management and administration of district and equivalent level government agencies, which are government levels that have direct relations with economic establishments in the area such as business households, enterprises, cooperatives and investors	https://ddcihatinh.vn/hoi-dap.html	The provincial competitiveness index of the provincial level must be in the top 5 districts, towns and cities of the whole province
9	Budget revenue and expenditure balance	A well-functioning pole will contribute a lot to itself and the provincial and national economy. This is a tool to mobilize financial resources to ensure economic development, security and national defense; provide capital for the economy; is a tool that the State uses to regulate market prices and fight inflation, ensure	The State budget revenue ratio index (PSBRI) reflects the scale and operational efficiency of growth poles. This index is calculated by the budget contribution ratio of the provincial pole in the total budget of the province.	The budget revenue-expenditure balance of the PGP must have a surplus

		reinvestment for the pole and the economy and ensure social policies for the people.		
10	Export turnover	Export proportion index (PEXI). This index assesses the integration level of the pole and is measured by the export proportion of the provincial pole in the whole province.	Total export turnover of the provincial pole in the total export turnover of the whole province	The export turnover proportion of the provincial pole ≥20% of the total export value of the whole province
11	Per capita income	Per capita income is an important indicator reflecting the income level and income structure of the population in the PGP. This is also an indicator to assess the living standards and the rich-poor ratio, thereby providing a basis for policies to improve people's living standards.	See [16]	The per capita income of the provincial level is >1.75 times the average per capita income of the whole province

3.3. Recommendations

For 18 provinces in Vietnam that have planned to build PGP poles in the period of 2021-2030, it is necessary to apply these criteria to evaluate the development of growth poles for the period of 2021-2025 to assess their achieved development level compared to the requirements of the plan, thereby supplementing and perfecting solutions to promote the development of PGP in the next period.

For provinces that do not have a plan to build provincial growth poles, this set of criteria can be used to identify and evaluate the development of potential PGP, so that they can propose to add PGP to their province's 2021-2030 planning.

Regarding science: Further research should develop a set of criteria to evaluate the development of national and regional economic growth poles in Vietnam.

4. Conclusion

Developing growth poles is an inevitable trend of every country, locality and territory. Although the criteria for determining growth poles at the national, territorial and provincial levels are very diverse depending on the characteristics of the pole in the specific context of

each territory, there are also many fairly consistent indicators. The set of criteria for evaluate the development of provincial growth poles includes 2 criteria, including criteria on the nature of the growth pole, 3 criteria on the most basic resources for developing the growth pole and 4 criteria reflecting the effectiveness of growth pole development. This set of criteria will allow for an objective, scientific and fairly comprehensive assessment of the current development situation of provincial growth poles in Vietnam.

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