

Infrastructure and Regional Development in Indonesia

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Foreword

Regional development is a planning and development approach to pursue holistic spatial development that not only boosts social economic growth, but also reduces regional disparity. The approach integrates various available resources such as natural resources, human resources, infrastructure, funding, business actors, institutions and the environment to support wide-ranging development. The key to the success of regional development is that it not only depends on one sector but on the inter-play between and among multiple sectors.

Regional development focuses on projects and issues pertinent to the region. Therefore, coordination is crucial for many reasons. One is the fact that regional development requires strong synergy between and among various sectors. Good coordination is a must to facilitate the development process so it matches the characteristics of a specific region.

The acceleration and expansion of Indonesian economic growth is pursued through the development of existing and new centers of economic growth. It coincides with efforts to strengthen connectivity between the centers of economic growth and economic activity locations, through various infrastructure. Spatially, the aggregate of all economic growth and its hinterlands connected through infrastructure creates economic corridors in Indonesia.

Not many reference books discuss the patterns of regional development, especially in developing countries. The absence of good reference material on this topic has motivated the author to write this book.

There should be a bridge to explain and describe both the practical context and the theory of regional development. With the publication of this book, the author hopes that economic actors and related

stakeholders can gain a better understanding of the planning process in regional development, especially in emerging economies. The book also aims to spark further research, testing various hypotheses related to the subject.

This book was first published in Indonesian as a textbook. To accommodate English-speaking readers and reach a wider audience, this English version has been produced with significant modifications.



CHAPTER 1:

REVISITING REGIONAL DEVELOPMENT THEORIES

1.1 INTRODUCTION

Regional development and sectoral development have diverging characteristics, the approaches of which will impact upon regions differently. Sectoral development emphasizes certain sectors, mostly without considering other sectors, and focuses only on one particular issue or problem. Moreover, since sectoral development is implemented on a bigger scale, it often overlaps with other development projects. Sectoral development can potentially spark conflict because sectors may argue among themselves about which of them takes priority. When sectors are unwilling to change their attitudes, they may pursue counterproductive policies that lack coordination.

In contrast to sectoral development, regional development is a way of developing the region holistically. It aims not only to spur social-economic growth, but also tries to reduce disparities between regions. Regional development pays much attention to the project or the issues within the region. Coordination among stakeholders becomes very important since regional development requires strong synergy and does

not solve problems using a sectoral mind-set. Good coordination looks to produce a development pattern that caters to the needs of each region.

Each region has different geographical, social, economic and cultural conditions. Holistic regional development with a balanced spatial dimension will result in development policies that are suitable with such conditions and result in the resource endowment of a region (Susantono, 2009). The spatial dimension is an important aspect in regional development. Due to its geographical limitations, a spatial dimension may also create conflict between groups. However, for the same reason, it also offers added value and becomes efficient in resource allocation if managed appropriately. Therefore, it is often argued that intervention in spatial management is necessary to obtain optimum results and added value. Intervention is needed not only because of spatial limitations, but also because space has different characteristics from one region to another.

Indonesia's Spatial Law explains that space constitutes land, sea and air including the space that exists on earth as one united area where human beings and other life forms conduct their activities and make a living. A spatial layout is a structure that constitutes a spatial pattern, whether it is organized or not. Through spatial restructuring, it is expected that a limited spatial dimension can be utilized to the optimum. Spatial planning is a part of regional development that synchronizes and harmonizes space. With this method, available space will optimally support human activities based on expected development goals.

Regional development cannot be separated from the flow and movement of people and goods. The uneven distribution of natural and economic resources affects the dynamics of planning and development. Regions with abundant natural resources attract many people who seize opportunities to improve their livelihoods. As a result, development projects usually take place in regions that are home to an abundance of resources. With various companies doing business in manufacturing and services, these places attract people from other regions. On the other hand, when businesses leave a region, the development of that region tends to stagnate or decline because economic activities have been reduced.

Government policy for regional development is crucial to bridging inter-sectoral development. Through integrated regional development, gaps in the community can potentially be reduced. Nonetheless, regional development integrates various available potential resources to support a wide range of development, including natural and human resources, infrastructure, development funds, entrepreneurship, institutions and the environment.

1.2. REGIONAL DEVELOPMENT

1.2.1 Regional Resource Endowment

The regional resource endowment argues that the economic development of a region depends on the natural resources that the region has, and also on the demand for certain commodities produced from resources in that particular region. At least in the short term, a region's resource endowment is defined as a natural materials inventory, utilized to produce goods and services required. However, natural resources stay as such unless they are used in some form of production.

Income levels and distribution, trade patterns and the structure of production are variables affecting the level of demand for regional resources. These variables can change and alter the relative advantage of a region in supplying input required by the regional and national economy. Resource endowment theory assumes that as time passes, a region can accommodate changing demands by shifting allocated resources to produce different goods and services.

However, resource endowment theory has some weaknesses since the use of raw materials for the final production of goods will decline. Within the economy, in the long term, changes will appear from the direct use of resources into semi-finished goods, leading to service provision. This weakens the relationship between the resources of a region and its economic development.

1.2.2 Export Base Theory

It was Douglass C. North in 1955 who first mentioned export base theory, also known as economic base theory. According to North, the long-term development of a region depends on its export industries. The critical force in regional growth is the external demand for goods and services that are produced and exported by the region. The demand affects the use of capital, labor and technology from that particular region in producing its export commodities. The demand for export commodities will strengthen the regional economy in terms of forward linkages (the service sector) and backward linkages (production activities).

A region has an export sector because it has cost advantages in producing goods or services, as well as accessibility advantages. The regional economy will then create supporting activities that strengthen regional competitiveness in the export sector. This theory emphasizes the importance of “openness” for a region that encourages capital flow and also the technologies needed for regional development sustainability.

Export base theory has a simple, intuitive and relatively strong theoretical base. The theory is based on the concept that the local economy provides external economic forces for a region, which will later stimulate further changes. Changes in regional income depend upon changes in export demand. Exports will go up if there is an increase in demand or if the region becomes more competitive. On the other hand, exports will go down if demand decreases or if the region loses its competitive value. Changes in the export sector are caused by changes in tastes, preferences and technology.

There are several arguments against this theory. The main objection is that this theory is only applicable to small regions or simple economies, and to the short term analysis of regional economic development. In a more complex and bigger economy, there are other variables other than exports that may play an important role in the long-term analysis. Another objection is the limitation of this theory in explaining how a region can keep growing despite declining exports, while other non-export sectors grow enough to offset the decline.

1.2.3 Neoclassical Theory

Borts (1960), Siebert (1969), and Richardson (1973) developed the neoclassical regional growth theory. Even though many of their assumptions are derived from neoclassical economic ideas, the introduction of space implies that there are costs associated with reallocations of production factors along with the movement of goods and the transmission of information.

According to this theory, regional economic growth is strongly related to three factors: employment, capital stock and technological progress. The growth and level of these factors will determine the level of regional income and also the growth of the regional economy. This theory tries to explain the income (output) disparity between regions that depend on the availability of labor, capital, and technology, since this theory places emphasis on the movements of these factors (especially capital and labor) between regions. Labor and capital move more freely within a country rather than between countries, therefore their influence is substantial in the growth of a regional economy.

The neoclassical model also assumes that the price factor has the perfect flexibility, therefore inter-regional movements of labor and capital will negate the difference in prices between regions and in the end, there will be a convergence of regional per capita income.

A counter argument to this theory says it does not pay enough attention to the importance of demand factors. A region that has rapid demand growth for its output will become an attractive region for investment, resulting in capital and labor inflow from other regions.

1.2.4 Theory of Regional Growth

In neoclassical growth theory, technological progress is an exogenous factor, hence it does not correlate with the investment level of capital goods. Subsequently, new theories about regional economic growth emerged with the effort to introduce technological progress as something that bore no relation to investment. Technological changes, according to

these theories, is endogenous. Such changes occur because there are incentives in the economy.

A model presented by Romer (1989), derived from the previous studies of Arrow, Schultz, Becker and Uzawa, showed that human resource development, seen through an increase in health, nutrition, education and training, would later increase productivity, which would ultimately lead to the growth of output.

It also implies that investment in human resources will increase long-term growth. Empirical evidence shows positive relations between human resources and economic growth, both in developed or developing countries. The technological development model considers technology as an endogenous factor rather than exogenous.

Other endogenous technological changes show that investment in research and development positively influence the direction of science/knowledge. The increase in science/knowledge will drive innovation and the speed of technological development, which will ultimately increase the economy as a whole. This model implies that investment in research and development, whether it is from the public or private sector, has a very important role in maintaining sustainable economic growth.

This theory also mentions the importance of openness between regions that will contribute to the total increase in productivity, which later on will result in regional growth. Openness will create an advantage over economies of scale, the transfer of technology and other positive externalities that occur due to inter-regional trade. The existence of inter-regional trade will affect growth through its effect on the increase of total productivity.

1.3 STRUCTURAL CHANGES AND SPATIAL PLANNING

The theory of spatial planning and regional structural changes comes from the notion that regional economic growth has a strong relation to changes in the economic structure (for example: changes in sectoral production, income distribution and the process of spatial development). This theory was developed from an empirical analysis

of economic history, which indicated that the economy had a uniform pattern, passing through a series of levels of spatial and sectoral change.

1.3.1 Stage Theories: Classical Perspectives

Sir James Steuart pioneered analysis of structural changes associated with the process of regional growth in the year 1767. Steuart argued that when a level of development began from one economic sector, which in his case was the agricultural sector, its activities would later on dominate and determine the spatial distribution of the population.

The agriculture sector thus determines the spatial distribution of the population. Increased productivity in agricultural field enables the free movement of labor and also enables the growth of supporting activities and population growth. On the second level of this economic development, the economy becomes more diversified and commercial and service activities supporting the agriculture sector begin to appear. New forms of economic activities (trades and services) support new forms of spatial agglomeration of non-agricultural activities, which later come to be known as cities or towns. On the next level, industrial sectors begin to appear and the need for residential space also begins to emerge in the cities. Steuart's model explains the relations between economic growth, sectoral changes and spatial development. The determining factor from the linkages comes from increased productivity and changes in humans' wants and needs.

Adam Smith (1776) in his seminal book, *The Wealth of Nations*, focused on the structural changes based on the importance of the role of production and trade in determining population distribution and long-term changes in the spatial economy. Similar to Steuart's model, Smith's development stages are more or less the same. However, Smith differentiated between intra-regional trade and inter-regional trade.

In his view, intra-regional trade had more influence on economic growth than inter-regional trade. In Smith's model, his first stage is similar to Steuart's, where the dominant activities of a community are in agriculture and the extraction of raw materials. In the next stage, a surplus in agriculture results in the division of labor, production specialization

and an increase in trade, which drives economic advancement. In Smith's model, interregional trade is inserted only in the third stage. Here, commerce becomes a catalyst for the establishment of cities that function as hubs for spatial economic concentration, which play a larger role as points of inter-regional transfer for the products of rural areas, as well as being a service provider to rural areas.

Other classical contributions grouped under stage theories mostly came from Germany. For example, Friedrich List (1844) said all regions would go through five stages of economic growth: savagery; pastoral life; agriculture; agriculture and manufacture; and agriculture, manufacture, and trade. Hildebrand (1864) focused his study on the order of exchange: barter, the money economy and the credit economy. Karl Marx (1867) viewed economic change based on changes within economic institutions: feudalism, capitalism, and socialism. Bucker (1893) saw economic change from the perspective of economic transactions: the household economy (independent production and consumption), the urban economy and national economy. Whereas analysis from Gras (1922) focused on the spatial process of economic growth that depended on nomads, the rural economy, the urban economy, the national economy and the world economy.

1.3.2 Several Developments of Stage Theories

W.W. Rostow in 1960 analysed the stage theory of economic development. This theory addressed issues related to economic growth and structural change. According to Rostow's assessment, there were five stages of economic growth: the traditional community stage, the preconditions stage, the take-off process stage, the maturity stage and the high-mass consumption stage. In the first stage (the traditional community), there is a static equilibrium where agriculture becomes the dominant activity. In the precondition stage, there are slow changes, particularly in attitudes and organization.

The traditional rigidity slowly dissolves, which creates the possibility for occupational, geographical and social mobility. In the next step a region begins to experience the take-off stage, as it will already

be successful in dealing with resistance to lead the economy. The signs for an economy in the take-off process are as follows: (1) Productive investment increases from <5 percent to >10 percent of total national income; (2) the high rate of growth of one or more manufacturing sectors; (3) an emerging political framework, as well as new social and institutional means to support the economic growth of the region.

In the take-off stage, Rostow emphasizes the importance of using a huge amount of capital, whether from the domestic or foreign market. In the maturity stage, the level of investment is between 10-20 percent of national revenue, and the efficiency of dominant sectors gets better since technological advancement has spread to all sectors of the economy. Economic growth defeats population growth and leads to an increase in income per-capita. When this level is achieved, all sectors in a region have optimally used their capacity in technology and entrepreneurship to maintain economic growth.

In the final stage, high mass consumption, dominant sectors shift to consumer products and services. Real income per-capita continues to increase and the consumption pattern shifts to non-basic products. Rostow notes that job structure changes in a way that sees the proportion of productive labor increase against the total population. Similarly, the proportion of labor in urban areas increases against the total labor force. Historians and economists have questioned Rostow's model, which drew attention as he emphasized the role of investment in each stage of economic development. Similar to neo-classical and Keynesian models, Rostow saw the mobilization of domestic and foreign saving in collecting enough investment as an important step to increasing economic growth, as at the same time it spurred growth from one stage of the economy to a higher stage.

Another important stage theorist is Alexander Gerschenkron (1962) who offered two significant approaches that were starkly different from Rostow's model. According to Gerschenkron, the precondition stage is unimportant and insufficient. Several pre-conditions probably are needed, but they can be substituted for one another, while in the neoclassical model of growth, there is only one factor that can be substituted. Hence, according to Gerschenkron, when a condition that

facilitates growth does not exist, other conditions can be substituted. Another significant difference is the growth process. According to Gerschenkron, growth does not go through the same stages in all regions/areas. Rapid growth can occur at various levels and with different patterns. It all depends on the level of development in the region.

Gerschenkron's contribution to the study of economic growth centered on the hypothesis of the positive role of relative backwardness in inducing a systematic substitution for supposed prerequisites for industrial growth. In this sense, Gerschenkron assumed that state intervention could compensate for the lack of capital availability and technology capacity in regions.

1.3.3 Locational Factors

The development of spatial economic transformation theory can be found in a study by von Thunen, in 1826. Von Thunen offers a concept where there are concentric rings symbolizing a spatial pattern of economic activities. At the center of the circle is the city. Agricultural activities exist on several circles outside the city. Von Thunen concludes that transportation costs will determine the type of agricultural activities carried out around the city.

Alfred Weber (1957) had a different focus than von Thunen. According to Weber, there are three different types of location orientation that determine whether a location can be optimally suitable for industrial activity: (1) minimal transportation costs, (2) labor orientation and (3) economic activity agglomeration. Weber also expresses that there are three layers of a spatial system that represent distribution activities in a region. The first layer is the agricultural layer, which is distributed following von Thunen's model. This layer supports the second layer (the industrial layer). The next layer represents the distributive and consumptive activities that support the first and second layers. As the economy develops, the locational factors of transportation, labor and activity agglomeration will also continue to evolve. These matters will later influence development and change in sectoral activities, which