An Examination of Regional Competitiveness: Early Findings from Banten, Indonesia

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Abstract. Over time, the regional development planning paradigm continues to change procedural, substantive, actor and institutional aspects. The increasing globalization and decentralized governance systems will continue to determine how a country or region can compete and even be able to take advantage of the positive value of economic globalization. This certainly provides challenges and opportunities for the renewal of regional development concepts, in particular, the concept of regional competitiveness. This concept still lacks a scientific basis and its interpretation is still in debate. To date, the clear scientific basis is the concepts of corporate and national competitiveness. Whereas, the concept of competitiveness at the meso-level, namely the competitiveness of the region, becomes very important. Regional competitiveness prepares a region and to survive in response to the more open dynamics of economic globalization and the system of decentralization of authority in Indonesia. The objective of this research is to complement the concept of competitiveness which is still at the level of microeconomics (business theory) and macroeconomy (theory of growth) with the concept of competitiveness at the regional level that focuses on (i) finding determinant factors at the regional level in Indonesia; (ii) profiling regional competitiveness in several regions; and (iii) assessing the role of local government (institutional and actor) on determinants of regional competitiveness. This research is carried out by using a mixed-methods approach with a concurrent triangulation strategy model. The research follows the stages of literature study to identify the determinant factors of regional competitiveness relevant to the purpose of research, followed by descriptive analysis of the variables and selected by statistics through Analytical Network Process (ANP) to become the determinant factor of competitiveness. In accordance with the concept and definition of regional competitiveness, this research develops five main indicators determining regional competitiveness and its 30 variables. These indicators are regional economy; manpower and human resources; productive business environment; infrastructure; natural resources and environment; and banking and financial institutions. The data used are primary and secondary data by compiling from the Central Statistics Agency (BPS) and questionnaires to the Regional Development Planning Agency (BAPPEDAL) following by in-depth interviews with experts. This research uses the case study of Banten Province. The main reason is that Banten has varied areas, ranging from developed cities to lagging regions. It is expected to represent other areas in Indonesia. This research provides an alternative framework of competitiveness analysis methods at the regional level. The concept of regional competitiveness can be a catalyst and enabler to the development of regional specialization and networking among regions in the era of economic globalization.
1. Introduction

There are deep concerns about the performance of the regional economy when viewed from the tendency of international competitiveness in recent years. The development of a country’s competitiveness certainly cannot be separated from the development of its components, namely regional competitiveness. Therefore, the position of regional competitiveness rating is a reflection of the competitiveness position of the regions. Increased regional competitiveness is believed to be able to improve the competitiveness of the Region at the national level. One of the efforts to improve the competitiveness of regional economy is through increasing its economic competitiveness. The improvement of regional competitiveness is expected not only to improve the competitiveness of the regional economy in a global market but also to accelerate the growth of the real sector which has been considered not yet optimal.

The implementation of regional autonomy and fiscal decentralization since 2001 (Law 32/2004 and Law 33/2004), states that decentralization in the regions is focused at the regency/municipality level. Regions/municipalities are given the widest authority to regulate and carry out development in accordance with the potential and function of each region (except for some sectors that have been agreed to be the authority of the central government). Decentralization has given freedom to regions, especially regencies to develop local economies, thus accelerating regional development and improving the welfare of their communities.

The background mentioned above shows the importance of the ability of the region in synergizing its strengths and potentials in an effort to improve competitiveness. The ability of this region will depend on its ability to identify the factors that affect the competitiveness of each region, as well as its ability in implementing policies to improve its regional competitiveness relative to other regions.

Therefore, a new methodology and broader scope are needed to determine the competitiveness of a regency/municipality. The methodology adapted to the current policy concept will have policy implications far different from those of previous studies. This methodology will systematically identify the determinants of competitiveness and then describe the competitiveness of a region through the determinants of competitiveness above. The framework of this regional competitiveness methodology will provide an overview of the level of competitiveness of a region and what policy interventions are required by the government in enhancing regional competitiveness.

1.1. Goals

Considering the above-mentioned background, in more detail this study aims to:

a. Determine the main factors that affect the competitiveness of a region;

b. Determine the weight of the main factors that affect the competitiveness of the region;

c. Calculate scores and competitiveness between regencies/municipalities for each classification of the regions in Banten Province;

d. Classify the area using the clustering method.

1.2. Benefits

In accordance with the research objectives to be achieved, this research will contribute to:

a. Increasing the role of regional governments to increase economic growth through enhancing regional competitiveness;

b. Improving roles and policies to assist local governments in enhancing regional economic competitiveness;

c. Increasing the effectiveness of fiscal planning and fiscal policy.

2. The concept of regional competitiveness

Understanding of regional competitiveness originates from the concept of competitiveness that has evolved to enterprise and country level. The thinking of Michael Porter [5,6] colored the development and application of the concept of competitiveness at the enterprise level. Furthermore, this concept is developed at the country level as a Global Competitiveness, particularly through the institutions of the
World Economic Forum (Global Competitiveness Report) and the International Institute for Management Development (World Competitiveness Yearbook). The strategic impact of this Global Competitiveness Index measurement on the country’s strategic position in addressing its international competitiveness has made this measure a reference to the economic performance and investment climate of an economy. The trend of decentralization has reinforced the need for identification of competing determinants at the local level. This section discusses the development of previous and ongoing research libraries since the concept of state competitiveness is rolled out to the development of concepts and research on regional competitiveness. The discussion includes also the development of the concept of regional competitiveness used in research which is an adaptation of the concept of regional competitiveness that has developed so far.

The notion of regional competitiveness began to develop after [23] defined national competitiveness. He defined it as an outgrowth of a country’s ability to innovate in order to achieve or maintain a favorable position compared to other countries in a number of key sectors. This understanding is further developed by Thurow [8], who stated that the key sectors can be categorized as sectors that have a high technological composition with high demand and have a highly competitive base which is then called the “knowledge-based industries”. Specialization of these sectors is believed to be a trigger for the improvement of higher living standards for the community.

The notion of competitiveness at the sub-national level was then developed by Storper [7], who defined regional competitiveness as the economic capacity of an area to attract and retain firms with a stable or increasing market share in their operations, while ensuring the improvement or stability of living standards for the communities participating in such activities. Regional competitiveness will be assured only if sustainable development can be achieved at the level of the workforce that can enhance overall living standards.

One of the key factors in achieving such growth is the existence of potential firms indicated by the level of business density that can lead to the birth of entrepreneurs and the new innovations in developing sectors and markets in the area; even more important is to create new jobs [2]. The regional competitiveness of American cases is more influenced by the growth of companies in the region that are characterized by being innovative and able to take advantage of new technological discoveries to create new business opportunities in the market.

Regional competitiveness in European countries is often defined as the ability of an area to achieve economic growth by producing goods and/or services, in which the product is able to compete at both national and international levels, providing a high standard of living to its people as well as employment, and the results of such development can be enjoyed on an ongoing basis. As defined by the UK Department of Trade and Industry (UK-DTI), regional competitiveness is a region’s ability to generate high income and employment while remaining open to domestic and international competition. Moreover, the Center of Urban and Regional Studies (CURS) in 1998 defined regional competitiveness as the ability of a business or company in a region in generating high income and wealth that is more equitable for the population.

Bank Indonesia and the Faculty of Economics of UNPAD (2001) defined regional competitiveness by modifying the definition of UK-DTI. The regional competitiveness of the study is defined as the ability of the regional economy to achieve high and sustainable growth while remaining open to domestic and international competition. IMD (2001) analyzed competitiveness for 49 countries based on both quantitative and qualitative data, classified into eight groups. Quantitative data is given weight 1, while the survey data was given a weight 0.64. While WEF (1999) weighted the data in eight classifications: openness, 1/6; government, 1/6; finance, 1/6; infrastructure, 1/9; technology, 1/9; management, 1/18; employment, 1/6; and institutional, 1/18. The weighting is based on regression analysis by looking at the correlation between these factors and per capita economic growth.

A study of regional competitiveness in China in 2006 developed the concept of regional competitiveness using two main components, i.e., the technological progress component of each region (calculated based on the Total Factor Productivity score) as well as the regional investment climate.
component (consisting of several assessment components such as market share; labor market flexibility; technological characteristics and regional expertise; government bureaucracy efficiency; enforcement and protection of business agreements and copyright; regional access to financial institutions; and quality of life of local communities).

2.1. The concept and definition of regional competitiveness in this research

The concept and definition of regional competitiveness developed in this study are based on two considerations, namely regional economic development in terms of regional economic aspects, and the development of concepts and definitions of regional competitiveness of previous studies. From the regional economics aspect, regional economic development cannot be separated from the development of national economy and economy of other regions. The interaction between regions (both goods, services, and labor) and policies at the national level will have an impact on the economy of a region.

The description of the economy of a region [4] can be illustrated as a drum (figure-1), where the regional economy is heavily dependent on the outflows and incomes and commodities of other regions or nationalities, the magnitude of potential products in the region, and the magnitude of potential leakage in the region (such as unemployment rate, and waste in resource use).

![Figure 1. Regional economy [4].](image)

Meanwhile, the development of regional economic progress is determined by four factors [1]. First, the job opportunities in the area (including the understanding of the quality of the workforce so as to provide a good location access for companies that will do business in the area). Secondly, the basis of regional development (in the sense that the development of good economic institutions that can lead to increased business desires for the business community). Third, the location asset is a regional competitive advantage based on environmental quality. Fourth, the knowledge resources, in the sense of knowledge as the basis of the economic drivers (knowledge-based development).

Based on the above understanding, the process of economic development in the region aims to:

- Establish a new "institution" that supports the regional economy;
- Develop alternative industries;
- Increase the capacity of workers to produce better products;
- Stimulate the occurrence of technology transfer; and
- Open investment opportunities for entrepreneurs.

Therefore, the main objective of regional economic development is to increase local initiatives to create employment opportunities for the community (both in the number and type of work) and to stimulate the increase of economic activity in order to increase community incomes.
On the other hand, based on several preceding definitions of regional competitiveness, it appears that regional competitiveness is produced by complex interactions between input, output, and outcome factors in their respective regions. Therefore, the interrelationship between these three aspects will largely determine the success of a region compared with other regions. Local competitiveness is also related to non-economic factors, such as political, social, and cultural parameters of society. The concept of competitiveness, which is the interaction of input, output and outcome components, for example, has been used by Huggins in calculating regional competitiveness index in England [3].

Figure 2 shows the Regional Competitiveness Pyramid, which can explain the differences in regional competitiveness in a region, referring to the definition of regional competitiveness developed in this study. Regional competitiveness is formed by the main factors (inputs) which are both regional endowment or caused by the interaction of community activities such as differences in the productive business environment; the structure and the condition of the regional economy; the difference in the quality and quantity of human resources in each region; infrastructure, natural resources and environment; and the condition of financial and banking institutions. The performance of the main factors of the regional competitiveness will make a difference in the performance of the economy (output) of each region, such as the difference in the level of employment created and the productivity of its workforce. These differences will ultimately result in differences in the sustainability of the quality of life and the welfare of the people of each region.

![Figure 2. The pyramid of regional competitiveness [14].](image)

Thus, based on the previous literature on the theory of regional development as well as the concept and definition of regional competitiveness, the meanings of regional competitiveness in this study are: the ability of regions to synergize between input, output and outcome that exist in the region on a continuous basis, with attention to technological changes and institutions in the area, in order to compete both nationally and internationally, so as to improve the living standards of the community.

3. Research Methodology
The definition and concept of regional competitiveness of this study are as described in the previous section where the realization will be represented in the competitiveness index consisting of the outputs of input, output, and outcome. Besides a descriptive method and literature study, the main method used in this research is econometrics and expert opinion polling especially by using Delphi method (omitted). This method is a more systematic and consistent implementation of focus groups.

3.1. Determination of competitiveness factors and variables

The factors that shape competitiveness at the regional economic level, particularly at the regency and municipal levels, may be specific to the region itself (internal factors) as well as external factors that are exogenous and cannot be used as policy variables for the regions concerned. Referring to the Huggins study [3], competitiveness indexes are grouped into three main components, namely input, output, and outcome. In Huggins, the input component is equivalent to internal factors [3]. In this study, the input component is further expanded to include the external competitiveness factors that will primarily affect the business environment.

The internal competitiveness factors refer to the concept of 'productivity', i.e., the amount or rate of change in value added per unit of input generated by an entity. This productivity is further elaborated into measurable variables that generally have a dimension of 'ratio'. The external factors can be 'industry-specific', region-specific, or 'country-specific'.

After establishing the determinants of competitiveness, the next step is to describe it in terms of the variables that represent each of these factors. The method used for this is semi ad-hoc in the sense that the variables used in this study are selected based on the benchmarking method which is then modified as needed for regional and regency levels through literature search and 'simple focus groups'.

3.2. Determination of Weight and Ranking of Competitiveness

Some of the important outputs expected in this study are the rank and balance of competitiveness for each region or group of regions. Before the ranking and balance of competitiveness can be made, scoring and weighting methods are required. The commonly used method for this is 'expert opinion polling', which is to use expert knowledge and opinions to generate a criterion or index of valuing and weighing factors or variables. Two popular methods are Analytic Hierarchy Process (AHP) and Delphi Method. AHP is a method of preparing a functional hierarchy that is done systematically. The main target of AHP is to find out the weight of relevance and importance.

In this study, the Delphi method of analysis is used in determining the weight and rank of competitiveness. This method is chosen because it is believed to be more appropriate to the context under study. Delphi is the name of a set of procedures for obtaining and filtering opinions from a group, usually an expert panel. This method is a way to achieve a consensus of a group of experts after obtaining opinions in defining problems based on the knowledge and intuition of experts. The collective appraisal of these experts, though derived from subjective opinions, remains better than an individual statement and produces a more objective outcome.

The Delphi method has four main characteristics: (1) structured questions, (2) iterations, (3) controlled feedback, and (4) the anonymity of the respondents. The structured questions are manifested through the use of a questionnaire. This questionnaire will keep the problem-solving in focus and allow the moderator to control the process to produce good results. Iteration is the process by which questionnaires are distributed and answered in several rounds so that respondents can rethink the answers they have given. Controlled feedback can be achieved by sharing the results of group responses to all respondents for consideration to rethink the answer. Anonymity is manifested by a freely answerable questionnaire expressing opinions without fear of 'pressure' from other panelists. Decision-making in a group can be influenced by several things, including the dominance of some panelists and a strong panelist personality. Sometimes these things will reduce the ability to generate unbiased decisions or predictions. With the 'anonymity' characteristics doubts about a biased decision can be avoided.
Delphi can be executed as often as three rounds to reach a level of convergence that will generate the weight for each variable or factor, which will then be used to rate the competitiveness between regions. However, before the rating can be made, the different measurement units that occur in the various variables require that the variables need to be adjusted first so that the rating is 'apple-to-apple'. For that, all variables will be converted first into a standard normal score (standard normal score).

3.3. Clustering
Comparing competitiveness between one regency/municipality and other regencies/municipalities sometimes does not provide a desirable picture, since the characteristics of the regency/municipality are in different dimensions or classes. For example, comparing a regency/municipality in Java with a regency/municipality in Papua is often considered unwise. Therefore, in addition to comparing total competitiveness, comparisons and competitiveness ratings will be based on groups, both ad-hoc (ex-ante) and ex-post. For ad-hoc, in addition to the total comparison, the grouping will also be performed based on input and output components. The grouping is done based on western and eastern regions in Indonesia. Ex-post, grouping is based on clusters formed by considering the cluster forming factor or variable by applying cluster analysis.

3.4. Data and data sources
In accordance with the concept and definition of Regional Competitiveness developed in this study, there are five main indicators for the formation of regional competitiveness and its variables as presented in Table 1 below. These indicators are the Regional Economy; Employment and Human Resources; Productive Business Environment; Infrastructure, Natural Resources, and Environment; and Banking and Financial Institutions. Data sources rely solely on the availability of secondary data from the Central Statistics Agency (BPS) or other agencies.

| No | Variable | Descriptions | Data Sources |
|----|----------|--------------|--------------|
|    | INPUT    |              |              |
|    | I. Regional Economy | | |
|    | Sectoral Productivity | | |
| 1  | Primary Sectoral Productivity | The GRDP of the primary sector is divided by the number of workers in the primary sector of the past year. | BPS |
| 2  | Secondary Sectoral Productivity | The GRDP of the secondary sector is divided by the number of workers in the secondary sector in the past year. | BPS |
| 3  | Tertiary Sectoral Productivity | The GRDP of the tertiary sector is divided by the total number of workers in the tertiary sector in the past year. | BPS |
|    | Regional Finance | | |
| 4  | Local Fiscal Capacity | Local Fiscal Capacity = ((Local Revenue + Profit Sharing + General Allocation Fund + Other Legitimate Regional Income) - Office Officers)/Population. | Ministry of Finance |
| No. | Variable | Descriptions | Data Sources |
|-----|----------|--------------|--------------|
| 5   | Government size | Total Regional government expenditure divided by GRDP value. | BPS |
|     | Investment and Regional overpriced index | | |
| 6   | Local Total Export Potential | Total Export Potential Area divided by GRDP value. | BPS |
| 7   | Total Investment Per Capita | Total Investment divided by total population. | BPS |
| 8   | Regional Overpriced Index | Measuring the level of difficulty and expensiveness of conducting business activities in a regency/municipality. Proxy by using Construction Cost Index (IKK). | BPS |
| 9   | Firm Density | The number of companies in the manufacturing sector divided by the area. | BPS |
|     | **II. HUMAN RESOURCES AND EMPLOYMENT** | | |
|     | **Human Resources** | | |
| 10  | Total Population | Total Population in a regency/municipality. | BPS |
| 11  | Dependency Ratio | Comparison between the population 0-14 years old, plus the population 65 years and above compared with the population aged 15-64 years. | BPS |
| 12  | Mean years of schooling | The average number of years spent by people aged 15 years and over to go through all types of formal education ever undertaken. | BPS |
| 13  | Life Expectancy Index | Estimated life expectancy of the average population with the assumption that there is no change in patterns of mortality by age. | BPS |
|     | **Employment** | | |
| 14  | Mean years of labor schooling | The average number of years spent by the workforce for all types of formal education ever undertaken. | BPS |
| 15  | Size of the workforce | Population in the working age (15 years and over) either working or looking for a job/unemployment). | BPS |
| 16  | Growth rate of the labor force | Average population growth in the working age (15 years and over) both working and looking for a job/ | BPS |
III. PRODUCTIVE BUSINESS ENVIRONMENT

| No | Variable | Descriptions | Data Sources |
|----|----------|--------------|--------------|
| 17 | Public service expenditure per capita | The amount of public service expenditure divided by the total population. | BPS and Ministry of Finance |
| 18 | The number of problematic Regional Regulations | The number of Regional Regulations canceled by the Central Government. | Ministry of Finance |
| 19 | The number of base sectors in the regency/municipality | The number of sectors with a Location Quotient value greater than 1. | BPS |
| 20 | Percentage of population with university as the highest education | Percentage of population with university as the highest education of the total population. | BPS |
| 21 | Poverty Gap Index | The difference in the average income of the poor from the poverty line as a proportion of the poverty line. | BPS |
| 22 | Population Density | The ratio of the population size to the total area. | BPS |

IV. INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT

| No | Variable | Descriptions | Data Sources |
|----|----------|--------------|--------------|
| 23 | Value-added of the transportation sector per capita | The value added of the transport sector divided by the total population. | BPS |
| 24 | Road conditions according to road quality | Population perceptions of road conditions in the regency/municipality. | BPS |
| 25 | The number of telephone connections per capita | The number of households in the area that owns a telephone cable. | BPS |
| 26 | Electricity consumption of the industry and households per capita | The average electricity consumption of households and industries in a regency/municipality divided by the population. | BPS |
| No | Variable                                                   | Descriptions                                                                 | Data Sources |
|----|------------------------------------------------------------|-------------------------------------------------------------------------------|--------------|
| 27 | Electricity production per capita                          | The value added of the electricity subsector divided by the total population. | BPS          |
| 28 | Fuel consumption of the industry and households per capita | The average household fuel consumption plus industrial fuel consumption divided by the total population. | BPS          |
|    | **Natural Resources and Environment**                       |                                                                               |              |
| 29 | Ratio of productive land to total land area                | The area of productive land divided by the total land area.                    | BPS          |
| 30 | Water resources per capita                                  | Percentage of households with access to clean water compared to the total amount of households. | BPS          |
| 31 | Value-added of the mining and quarrying sector per capita   | The value added of the mining and quarrying sector divided by the total population. | BPS          |

V. BANKING AND FINANCIAL INSTITUTIONS

**Banking and Non-Banking Infrastructure (Cooperatives)**

| 32 | The number of bank offices                                  | The number of bank offices in a regency/municipality                          | BI           |
| 33 | Ratio of business volume value to the number of active cooperatives | The ratio of business volume value to the number of active cooperatives in the regency/municipality | Ministry of cooperatives and small and medium enterprises |

**Banking and Financial Sector Performance**

| 34 | Total Banking Credits                                      | Total value of bank credit channeled in a regency/municipality                | Bank Indonesia |
| 35 | Third Party Funds                                          | Funds collected by banks that come from the community.                        | Bank Indonesia |
| 36 | NPL (Non-Performing Loan)                                 | Measuring the level of bank risk in channeling funds in a regency/municipality | Bank Indonesia |
| 37 | Value-added Financial Sector per capita                    | The value added of the financial sector divided by the total population.      | BPS          |

**OUTPUT**

| 1  | Labor Productivity                                         | GRDP divided by the amount of labor.                                         | BPS          |
| 2  | GRDP per capita                                             | GRDP divided by the total population                                         | BPS          |
4. Analysis and discussion

4.1. The analytical framework and calculation stages of regional competitiveness in Banten Province

After collecting all the data required for this study, the next step was to identify the data that had a negative effect on the competitiveness of the region and change it in the formula. This is done so all data has a positive correlation with competitiveness. For example, without transformation, the more problematic regional regulations (Perda) the smaller the competitiveness of the regency/municipality, but after the transformation its correlation becomes positive. In other words, the 'statement' was changed to the fewer problematic regional Regulations, the higher the competitiveness of the regency/municipality.

The main results of this study are the competitiveness ratings among regions and the Regional Competitiveness Balance for each regency/municipality in Banten. There are two calculations necessary to rank and balance the competitiveness, i.e., variables that can show and indicate the level of competitiveness of regions and the scores that can transform the variables or indicators of competitiveness into a ranking of competitiveness of the region. Determining, screening, and selecting the competitiveness variables was done through literature tracking and discussions. Meanwhile, the weight is generated by applying the analysis network process (ANP) method through the dispersion of competitiveness questionnaires to the relevant service offices.

| No | Variable                                | Descriptions                                                | Data Sources |
|----|-----------------------------------------|-------------------------------------------------------------|--------------|
| 3  | Level of employment opportunities       | Measuring the quality of the labor market in a regency/municipality | BPS          |

![Diagram of the analytical framework of regional competitiveness](image)

**Figure 3.** The analytical framework of regional competitiveness.

In this study, the variables that form the competitiveness of the regency/municipality based on the theoretical framework can be classified into groups of input and output variables. The input variables can be defined as a "flow concept" and are a resource to rise to a higher rank in the competitiveness...
ranking. Meanwhile, the output variable can be interpreted as "stock concept" and reflects the position of competitiveness of a regency/municipality.

The scoring mechanism - commonly referred to as the scoring process - comprises several stages. The respective stages of scoring calculation can be explained as follows.

1) All data used in this study should be transformed to be "comparable".

The first step in calculating the competitiveness score to transform the data into the normal standard. The method used in this study is to use the normal standard (z-score) as the basis of normalization so that each variable will have an average value of 0 and a standard deviation of 1. The use of normalization methods by using the z-score method is also expected to facilitate readers in understanding the variables, provided that the value of a positive variable (+) means the value is above the average value of all variables that exist throughout Banten.

2) The competitiveness score for a regency/municipality is calculated by counting the weighted sum of all variables, which has been transformed into a standard z-score standard using the weight obtained from the ANP workshop. The weighted numbers of normal high standard indicate a higher level of competitiveness. Increasing the competitiveness among regencies/municipalities is done by comparing the weighted-sum score of this variable for all regencies/municipalities.

3) In addition to competitiveness ratings among regencies/municipalities throughout Banten, this study also discusses the competitiveness ratings for each indicator or sub-indicator of each regency/municipality. The calculation of scores at the indicator and sub-indicators level is, in principle, the same as the calculation of scores at the regency/municipality level. The only difference is that this calculation involves fewer variables. In other words, the score at the indicator level is a 'subset' score at the regency/municipality level and the score at the sub-indicator level is the 'subset' score at the indicator level.

In more detail, the calculation stage of regional competitiveness is as follows:

1) As mentioned in the previous section, this research uses the analytical network process (ANP) method. The data is calculated and processed by using Microsoft Excel and Super Decisions version 2.8.

2) The collect and compiling of secondary data consisting of 37 input variables and 3 output variables as shown in table 1 above.

3) Conducting survey interviews using questionnaires to determine the weight of competitiveness of each variable. The survey was conducted with experts from the representatives of the department who were competent to increase the competitiveness of the regions. There were 13 respondents from various agencies. The scores that were obtained were put together using Microsoft Excel and entered in the template that has been created on the dashed box, as in Figure 4 below. The same is done for other respondents, so we will have 13 sheets 1 through 13.
Figure 4. The results of questionnaires from several experts for the weighting of variables of regional competitiveness.

4) The next step is to get normalized and idealized values using super decision software. To accommodate the thirteen respondents and to have a super decision file recap for them, a template file was made with the file type 01.sdmod up to 13.sdmod, as can be seen in Figure 5 below.

Figure 5. Normalized and idealized value by using super decision software.

5) Step 5 is to create the framework of the analytical network process (ANP) using predetermined competitiveness variables. Then the file type "s.mod" is entered into the software super decision for all 13 files (respondents). The output of the data processing consists of normalized and idealized values for each variable of regional competitiveness.
Figure 6. The framework of Analytical Network Process (ANP).

Figure 7. Data processing to determine normalized and idealized data for weighting each variable of regional competitiveness.

6) The recap results can be seen on the joined sheet. The red box shows the average value of all respondents. This value is used as the weight that will be multiplied by the variable value of each region. The processed data is then used to rank the competitiveness of regions and to see the various variables that are advantages and disadvantages of the competitiveness of a region. Both analyses will be discussed in the next section.
4.2. Analyzing regional competitiveness based on input and output variables

This study classifies the variables forming the competitiveness of the regency/municipality based on the developed theoretical framework into groups of input and output variables. The input variables can be defined as "flow concept" and are a resource to rise to a higher competitiveness rank. Meanwhile, the output variable can be interpreted as "stock concept" and reflects the position of competitiveness of a regency/municipality.

Both variables are positively correlated. If it happens that a regency/municipality has a high input but low output, this can be interpreted as 'inefficiency'. On the other hand, if a regency/municipality has a low input position but high output, then other external factors have positively increased the competitiveness of the area. In extreme conditions, this can be interpreted as "over-capacity", which in the long term can reduce the competitiveness of the region.

4.2.1. Analyzing regional competitiveness based on input variables. In the context of the input factors (see Figure 9 below), each region has different competitive determinants that accumulatively determine the different levels of competitiveness in every regency/municipality in Banten.
Figure 9. Comparison of input competitiveness factor of regency/municipality in Banten.

Regional economy indicators. Regional economic indicators consisting of several sub-indicators such as sectoral productivities, local fiscal capacity, government size, total investment, and firm density...
contribute in determining the level of regional competitiveness. This indicator shows that the regencies of Lebak, Pandeglang, Serang and Serang Municipality have relatively low competitiveness compared to other regencies/municipalities. This happens for several reasons. First, regencies/municipalities with low competitiveness in the aspect of the regional economy only rely on primary sectoral productivity that lacks the value added of economic activity, while regencies/municipalities that rely on secondary and tertiary productivities have relatively high competitiveness. Furthermore, areas with high per capita investment and firm density such as Tangerang Regency, Tangerang Municipality, Cilegon Municipality and Tangsel Municipality contribute significantly to the regional economy, which, in turn, can improve the competitiveness of these areas. The investment per capita and firm density also affect local fiscal capacity and government size so these governments have a large budget to develop their regions, inversely with regions of low fiscal capacity and small government size.

**Table 2. Sectoral Productivity of the Regions in Banten.**

| REGIONS                  | PRIMARY PRODUCTIVITY (RP) | SECONDARY PRODUCTIVITY (Rp) | TERTIARY PRODUCTIVITY (Rp) |
|--------------------------|----------------------------|-----------------------------|----------------------------|
| PANDEGLANG REGENCY       | 34,603,219                 | 61,127,299                  | 34,096,593                 |
| LEBAK REGENCY            | 23,209,142                 | 57,747,371                  | 39,438,115                 |
| TANGERANG REGENCY        | 74,976,640                 | 78,347,223                  | 39,735,678                 |
| SERANG REGENCY           | 40,441,011                 | 171,065,531                 | 49,796,226                 |
| TANGERANG MUNICIPALITY   | 182,392,378                | 159,742,629                 | 74,669,295                 |
| CILEGON MUNICIPALITY     | 67,325,194                 | 1,142,768,012               | 138,391,943                |
| SERANG MUNICIPALITY      | 46,725,377                 | 77,124,432                  | 69,514,177                 |
| TANGSEL MUNICIPALITY     | 29,937,432                 | 197,369,109                 | 59,122,459                 |
| BANTEN PROVINCE          | 37,409,031                 | 146,084,065                 | 57,390,006                 |

**Human resource and employment indicators.** The human resource and employment indicators consist of several sub-indicators such as dependency ratio, life expectancy index, mean years of schooling, mean years of labor schooling, and growth rate of the labor force. As can be seen in Figure 9 above, this indicator shows that the regencies of Lebak, Pandeglang, Serang as well as Serang Municipality have relatively low competitiveness compared to the other regencies/municipalities. This is caused by a low quality of human resources and labor. Figure 10 explains the mean years of labor schooling in these areas is very low; in Lebak Regency only 5.86 years. Whereas one of the determinants of regional competitiveness is the availability of human resources and labor with a high ability and extensive knowledge, mastering IT, have creativity and innovations so that the resulting product has competitiveness. Furthermore, the growth rate of the labor force in regions with a low competitiveness is low; the labor force growth rate in Serang Regency and Pandeglang Regency is even negative (-2.20 and -4.31). Likewise, the low life expectancy index correlates with other human resource and employment data. Meanwhile, Tangerang Municipality, Tangerang Regency, Tangsel Municipality and Cilegon Municipality have high enough human resource quality and workforce to contribute to improving the competitiveness of its region.
Figure 10. Human resource and employment variables for determining regional competitiveness.

Productive business environment indicator. An important indicator for determining regional competitiveness is a productive business environment. This indicator is divided into two sub-indicators. First, the government's productive business environment indicators consist of Public Service Expenditure Per Capita and the number of problematic Regional Regulations. Second, the productive business environment indicator by the community consists of the number of base sectors in the regency/municipality, the percentage of the population with university as the highest education, the poverty gap index, and population density.

As can be seen in Figure 9, the productive business environment of Pandeglang, Lebak, and Serang is very low. There are several things that cause a low productivity business environment. First, the Public Service Expenditure Per Capita in these three areas is low. This means that spending on public services is still low compared with the population or the needs of the community. As shown in Figure 6, the Public Service Expenditure Per Capita in Pandeglang Regency and Serang Regency only amounts to 600 thousand rupiah. Secondly, Serang Municipality, Lebak Regency, and Pandeglang Regency have a relatively large poverty gap index of about 1.5 times greater than the other regencies/municipalities (see figure 6). Third, the percentage of the population with university as the highest education in these areas is still low. This leads to a lack of research and development in the region as well as low human resources that ultimately hinder regional competitiveness. On the other hand, Tangerang Regency, Tangerang Municipality, Cilegon Municipality and Tangsel Municipality have relatively productive business environment indicators that are conducive to building their regional competitiveness (see Figure 11).
Figure 11. Productive Business Environment variable for determining regional competitiveness.

Infrastructure, natural resources and environment indicator. The factors of availability of infrastructure, natural resources, and environment also determine the level of competitiveness of a region. Some of the infrastructure, natural resources, and environment that can form the competitiveness of the region include the value added of the transportation sector per capita; road conditions according to road quality; electricity production per capita; fuel consumption of industry and household per capita; the ratio of productive land to total land area; and value-added mining and quarrying sector per capita. Based on figure 9 above, cumulatively there are only three regions with relatively good input indicators, namely Cilegon Municipality, Tangerang Municipality and Serang Municipality. This means that the availability of adequate infrastructure, natural resources, and environment can create regional competitiveness. As illustrated in figure 12 below, Cilegon Municipality and Pandeglang Regency have good and adequate road conditions that support regional development. Thus, the focus of development is no longer on road infrastructure provision but can be focused on other sectors. Meanwhile, Lebak Regency and Tangerang Regency have about 30 percent good road conditions. Therefore, it is necessary to focus on the development and improvement of road infrastructure because the road is a growth engine that has high leverage in supporting economic activities.
Figure 12. Road conditions according to road quality.

Banking and financial institution indicator. Other important regional competitiveness factors are the performance of banks and other financial institutions. The variables that can represent the competitiveness of the region include the number of bank offices; the ratio of business volume value to the number of active cooperatives; Third Party Funds; NPL (Non-Performing Loans); and value added of the financial sector per capita. Figure 9 illustrates that only three regions have good banking performance, namely Tangerang Municipality, Tangerang Regency and Cilegon Municipality. In fact, these three areas have large industrial estates. Based on banking indicators, Tangerang Regency and Tangerang Municipality have a very large number of banks, with 294 and 426 banks respectively. The three regions also have a value added per capita of the financial sector that is relatively high compared to other regions; Cilegon Municipality about 3.39 million rupiah, Tangerang Municipality about 1.17 million rupiah and Tangerang Regency about 1.04 million rupiah. Furthermore, these three areas are also supported by an abundance of third-party funds; the Municipality of Tangerang about 51.99 trillion rupiah, the Municipality of Tangerang about 34.54 trillion rupiah, and the Municipality of Tangsel 22.81 trillion rupiah. These variables contribute to regional competitiveness to be followed also by areas with low competitiveness.
4.2.2. Analyzing Regional Competitiveness based on Output Variables

After analyzing the regional competitiveness based on the input variables, this study then examines the output of the variables as a result of input activity variables. Output variables embody high or low competitiveness of a region. The variables used to measure regional competitiveness are labor productivity, GRDP per capita, and the level of employment opportunities.

Figure 9 shows that Tangerang Municipality and some areas in the northern region of Banten have relatively high output factor. The GRDP per capita Cilegon is the highest in Banten, about 146 million rupiah, followed by Tangerang Municipality with 44 million rupiah, while the lowest is Lebak with 13 million rupiah. Furthermore, Cilegon also has the highest labor productivity in Banten, amounting to 366 million rupiah, while the smallest is Lebak Regency with 33 million rupiah. Furthermore, the highest level of employment is found in Tangerang Municipality with 93.87 percent, while the lowest is Serang Regency at 85.2%. The regions ranked based on the highest output variables to the lowest are; Tangerang Municipality, Tangerang Regency, Tangerang Regency, Cilegon Municipality, Serang Municipality, Serang Regency Pandeglang Regency, and Lebak Regency. Therefore, Tangerang Municipality is a competitive region among other regions, while Lebak Regency has the region’s lowest regional competitiveness.

The northern region of Banten greatly benefited because it has a very strategic location. The northern part of Banten is part of the economic corridor of Sumatra-Java along with some areas of the megapolitan Jabodetabek area such as Tangerang, and Tangerang Municipality. Many large-scale economic activities exist in the northern region ranging from commercial areas to large-scale industrial areas. Meanwhile, the southern part of Banten, e.g., Pandeglang Regency and Lebak Regency is left behind, which causes a very high gap. However, this study did not emphasize the importance of regional ratings. The emphasis of the study is how a region is able to identify the advantages and disadvantages of the determinants of each region’s competitiveness. Therefore, the next section examines the advantages and disadvantages of the regions against the regional competitiveness variables.
Figure 14. Comparison of regency/municipality output variables in Banten Province.
4.3. Regional competitiveness balance sheet

Making the Regional Competitiveness Balance requires a criterion in the form of numbers to filter the variables that are advantages for a region and the variables that are disadvantages. The basis for calculating the Competitiveness Balance is a normalized variable (semi-normalized) in a regency/municipality. Then the variables will be grouped into two major groups, indicating the advantage of the area if the number of variables is greater than the average - indicated by a positive z-score value. Meanwhile, the other variables will indicate a disadvantage for a regency/municipality if the rank number of those variables is smaller than the normal standard value (z-score); the variables that have a negative sign are deducted 0.5 times the standard deviation.

| PANDEGLANG REGENCY |
|---------------------|
| Overall Ranking 8 |
| Indicator-based Ranking |
| INPUT 8 |
| I. REGIONAL ECONOMY 8 |
| II. EMPLOYMENT AND HUMAN RESOURCES 6 |
| III. PRODUCTIVE BUSINESS ENVIRONMENT 8 |
| IV. INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT 4 |
| V. BANKING AND FINANCIAL INSTITUTIONS 8 |
| OUTPUT 7 |
| I. LABOUR PRODUCTIVITY 7 |
| II. GRDP PER KAPITA 7 |
| III. LEVEL OF EMPLOYMENT OPPORTUNITIES 5 |

| NERACA DAYA SAING DAERAH |
|---------------------------|
| ADVANTAGE | DISADVANTAGE |
| INPUT Variable | Peringkat | Z-Score | INPUT Variable | Peringkat | Z-Score |
| Government size | 2 | 1,37 | Primary Sectoral Productivity | 6 | -0,54 |
| Local Fiscal Capacity | 1 | 1,46 | Secondary Sectoral Productivity | 7 | -0,50 |
| The number of problematic regional regulations | 3 | 0,47 | Tertiary Sectoral Productivity | 8 | -0,86 |
| Poverty Gap Index | 1 | 1,52 | Local Fiscal Capacity | 8 | -0,65 |
| Road conditions according to road quality | 2 | 1,30 | Local Total Export Potential | 8 | -1,57 |
| Ratio productive land to total land area | 5 | 0,11 | Total investment per capita | 8 | -0,55 |
| Value Added Mining and Quarrying Sector per capita | 1 | 1,91 | Regional overpriced index | 7 | -0,86 |
| | | | Firm Density | 8 | -0,56 |
| | | | Total Population | 6 | -0,33 |
| | | | Mean years of Schooling | 7 | -0,94 |
| | | | Life expectancy Index | 8 | -1,21 |
| | | | Mean years of Labor Schooling | 7 | -0,90 |
| | | | The Number of workforce | 6 | -0,42 |
| | | | Growth rate of labor force | 8 | -1,81 |
| | | | Public Service Expenditure Per Capita | 8 | -0,92 |
| | | | the number of base sectors | 4 | 0,00 |
| | | | Percentage of population with the highest education of the university | 6 | -0,60 |
| | | | Population Density | 7 | -0,76 |
| | | | Added Value of Transportation Sector per capita | 7 | -0,52 |
| | | | The number of Telephone Connections per capita | 8 | -0,79 |
| | | | Electricity consumption of industry and household per capita | 7 | -0,64 |
| | | | Electricity production per capita | 4 | -0,38 |
| | | | Fuel consumption of industry and household per capita | 7 | -0,63 |
| | | | Water resources per capita | 7 | -1,31 |
| | | | The number of Bank Offices | 5 | -0,50 |
| | | | Ratio of business volume value to the number of active cooperatives | 6 | -0,50 |
| | | | Total Banking Credits | 7 | -0,71 |
| | | | Third Party Funds | 7 | -0,79 |
| | | | NPL (Non Performing Loan) | 4 | -0,47 |
| | | | Value added Financial Sector per capita | 7 | -0,65 |
| OUTPUT | | | Labour Productivity | 7 | -0,60 |
| | | | GRDP per kapa | 7 | -0,63 |
| | | | Level of Employment Opportunities | 5 | -0,07 |
## LEBAK REGENCY

### Overall Ranking 6

### Indicator-based Ranking

**INPUT**

| Variabel                                              | Peringkat | Z-Score |
|-------------------------------------------------------|-----------|---------|
| Government size                                       | 1         | 1,72    |
| Local Fiscal Capacity                                 | 2         | 1,02    |
| The number of problematic regional regulations        | 1         | 0,96    |
| The number of base sectors                            | 3         | 0,40    |
| Poverty Gap Index                                      | 2         | 1,23    |
| Ratio productive land to total land area              | 6         | 0,07    |
| Value Added Mining and Quarrying Sector per capita    | 2         | 1,28    |

**OUTPUT**

| Variabel                                              | Peringkat | Z-Score |
|-------------------------------------------------------|-----------|---------|
| Primary Sectoral Productivity                          | 8         | -0,76   |
| Secondary Sectoral Productivity                        | 8         | -0,50   |
| Tertiary Sectoral Productivity                         | 7         | -0,70   |
| Local Fiscal Capacity                                  | 3         | -0,04   |
| Local Total Export Potential                           | 7         | -1,13   |
| Total investment per capita                            | 3         | -0,20   |
| Regional overpriced index                              | 5         | -0,68   |
| Firm Density                                           | 7         | -0,56   |
| Total Population                                       | 5         | -0,25   |
| Mean years of Schooling                               | 8         | -1,32   |
| Life expectancy Index                                  | 5         | -0,36   |
| Mean years of Labor Schooling                         | 8         | -1,28   |
| The Number of workforce                                | 5         | -0,25   |
| Growth rate of labor force                             | 6         | -0,21   |
| Public Service Expenditure Per Capita                  | 5         | -0,39   |
| Percentage of population with the highest education of the university | 7  | -0,92   |
| Population Density                                     | 8         | -0,78   |
| Added Value of Transportation Sector per capita         | 6         | -0,52   |
| Road conditions according to road quality              | 8         | -0,84   |
| The number of Telephone Connections per capita         | 4         | -0,01   |
| Electricity consumption of industry and household per capita | 6  | -0,61   |
| Electricity production per capita                       | 8         | -0,42   |
| Fuel consumption of industry and household per capita  | 8         | -0,64   |
| Water resources per capita                             | 8         | -1,75   |
| The number of Bank Offices                             | 6         | -0,52   |
| Ratio of business volume value to the number of active cooperatives | 5  | -0,44   |
| Total Banking Credits                                  | 5         | -0,48   |
| Third Party Funds                                      | 8         | -0,83   |
| NPL (Non Performing Loan)                             | 8         | -0,70   |
| Value added Financial Sector per capita                 | 8         | -0,76   |

**NERACA DAYA SAIING DAERAH**

**ADVANTAGE**

| Variabel                                              | Peringkat | Z-Score |
|-------------------------------------------------------|-----------|---------|
| Government size                                       | 1         | 1,72    |
| Local Fiscal Capacity                                 | 2         | 1,02    |
| The number of problematic regional regulations        | 1         | 0,96    |
| The number of base sectors                            | 3         | 0,40    |
| Poverty Gap Index                                      | 2         | 1,23    |
| Ratio productive land to total land area              | 6         | 0,07    |
| Value Added Mining and Quarrying Sector per capita    | 2         | 1,28    |

**DISADVANTAGE**

| Variabel                                              | Peringkat | Z-Score |
|-------------------------------------------------------|-----------|---------|
| Primary Sectoral Productivity                          | 8         | -0,76   |
| Secondary Sectoral Productivity                        | 8         | -0,50   |
| Tertiary Sectoral Productivity                         | 7         | -0,70   |
| Local Fiscal Capacity                                  | 3         | -0,04   |
| Local Total Export Potential                           | 7         | -1,13   |
| Total investment per capita                            | 3         | -0,20   |
| Regional overpriced index                              | 5         | -0,68   |
| Firm Density                                           | 7         | -0,56   |
| Total Population                                       | 5         | -0,25   |
| Mean years of Schooling                               | 8         | -1,32   |
| Life expectancy Index                                  | 5         | -0,36   |
| Mean years of Labor Schooling                         | 8         | -1,28   |
| The Number of workforce                                | 5         | -0,25   |
| Growth rate of labor force                             | 6         | -0,21   |
| Public Service Expenditure Per Capita                  | 5         | -0,39   |
| Percentage of population with the highest education of the university | 7  | -0,92   |
| Population Density                                     | 8         | -0,78   |
| Added Value of Transportation Sector per capita         | 6         | -0,52   |
| Road conditions according to road quality              | 8         | -0,84   |
| The number of Telephone Connections per capita         | 4         | -0,01   |
| Electricity consumption of industry and household per capita | 6  | -0,61   |
| Electricity production per capita                       | 8         | -0,42   |
| Fuel consumption of industry and household per capita  | 8         | -0,64   |
| Water resources per capita                             | 8         | -1,75   |
| The number of Bank Offices                             | 6         | -0,52   |
| Ratio of business volume value to the number of active cooperatives | 5  | -0,44   |
| Total Banking Credits                                  | 5         | -0,48   |
| Third Party Funds                                      | 8         | -0,83   |
| NPL (Non Performing Loan)                             | 8         | -0,70   |
| Value added Financial Sector per capita                 | 8         | -0,76   |

**OUTPUT**

| Variabel                                              | Peringkat | Z-Score |
|-------------------------------------------------------|-----------|---------|
| Labour Productivity                                    | 8         | -0,63   |
| GRDP per kapita                                        | 8         | -0,54   |
| Level of Employment Opportunities                     | 6         | -0,27   |
### TANGERANG REGENCY

#### Overall Ranking
1

#### Indicator-based Ranking

**INPUT**
1. REGIONAL ECONOMY 2
2. EMPLOYMENT AND HUMAN RESOURCES 1
3. PRODUCTIVE BUSINESS ENVIRONMENT 6
4. INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT 7
5. BANKING AND FINANCIAL INSTITUTIONS 1

**OUTPUT**
1. LABOUR PRODUCTIVITY 6
2. GRDP PER KAPITA 6
3. LEVEL OF EMPLOYMENT OPPORTUNITIES 3

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### NERACA DAYA SAIING DAERAH

| Variable | Peringkat | Z-Score | Variable | Peringkat | Z-Score |
|----------|-----------|---------|----------|-----------|---------|
| ADVANTAGE |          |         | DISADVANTAGE |          |         |
| INPUT | Variable | Peringkat | Z-Score | INPUT | Variable | Peringkat | Z-Score |
| Primary Sectoral Productivity | 2 | 0,24 | Secondary Sectoral Productivity | 5 | -0,45 | |
| Total Investment per kapita | 2 | 1,08 | Tertiary Sectoral Productivity | 6 | -0,69 | |
| Regional overpriced index | 2 | 1,07 | Local Fiscal Capacity | 7 | -0,61 | |
| Total Population | 1 | 2,05 | Government size | 5 | -0,35 | |
| Life expectancy index | 3 | 0,57 | Total investment per kapita | 4 | -0,34 | |
| The Number of workforce | 1 | 3,01 | Firm Density | 4 | -0,49 | |
| Growth rate of labor force | 1 | 1,22 | Dependency Ratio | 5 | -0,33 | |
| The number of problematic regional regulations | 1 | 0,96 | Mean years of Schooling | 5 | -0,12 | |
| The number of Telephone Connections per capita | 3 | 0,57 | Mean years of Labor Schooling | 4 | -0,04 | |
| Ratio productive land to total land area | 4 | 0,31 | Public Service Expenditure Per Capita | 6 | -0,45 | |
| Water resources per capita | 3 | 0,68 | The number of basic schools | 5 | -0,49 | |
| The number of Bank Offices | 2 | 1,10 | Percentage of population with the highest education of the university | 5 | -0,34 | |
| Total Banking Credits | 1 | 2,17 | Poverty Gap Index | 5 | -0,15 | |
| Third Party Funds | 2 | 0,97 | Population Density | 3 | -0,17 | |
| Value added Financial Sector per capita | 3 | 0,04 | Added Value of Transportation Sector per capita | 8 | -0,54 | |
| OUTPUT | | | Road conditions according to road quality | | 4 | -0,34 |
| Level of Employment Opportunities | 3 | 0,40 | Electricity consumption of industry and household per capita | 4 | -0,14 | |
| | | | Electricity production per capita | 2 | -0,13 | |
| | | | Fuel consumption of industry and household per capita | 6 | -0,41 | |
| | | | Value Added Mining and Quarrying Sector per capita | 5 | -0,55 | |
| | | | Ratio of business volume value to the number of active cooperatives | 4 | -0,29 | |
| | | | Total Banking Credits | 5 | -0,57 | |
| | OUTPUT | | Labour Productivity | 6 | -0,42 | |
| | | | GRDP per kapita | 6 | -0,41 | |
### Overall Ranking

**4**

### Indicator-based Ranking

**INPUT**

1. **REGIONAL ECONOMY**
2. **EMPLOYMENT AND HUMAN RESOURCES**
3. **PRODUCTIVE BUSINESS ENVIRONMENT**
4. **INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT**
5. **BANKING AND FINANCIAL INSTITUTIONS**

**OUTPUT**

1. **LABOUR PRODUCTIVITY**
2. **GRDP PER KAPITA**
3. **LEVEL OF EMPLOYMENT OPPORTUNITIES**

### NERACA DAYA SAIING DAERAH

#### ADVANTAGE

| Variable | Peringkat | Z-Score |
|----------|-----------|---------|
| Total investment per kapita | 2 | 0.11 |
| Dependency Ratio | 3 | 0.51 |
| Ratio productive land to total land area | 3 | 0.49 |
| Ratio of business volume value to the number of active cooperatives | 3 | 0.58 |
| Total Banking Credits | 3 | 0.07 |

#### DISADVANTAGE

| Variable | Peringkat | Z-Score |
|----------|-----------|---------|
| Primary Sectoral Productivity | 5 | -0.43 |
| Secondary Sectoral Productivity | 3 | -0.20 |
| Tertiary Sectoral Productivity | 5 | -0.39 |
| Local Fiscal Capacity | 5 | -0.58 |
| Government size | 6 | -0.38 |
| Local Total Export Potential | 5 | -0.12 |
| Regional overpriced index | 4 | -0.07 |
| Firm Density | 5 | -0.55 |
| Total Population | 4 | -0.02 |
| Mean years of Schooling | 6 | -0.79 |
| Life expectancy index | 7 | -1. |
| Mean years of Labor Schooling | 6 | -0.74 |
| The Number of workforce | 4 | -0.11 |
| Growth rate of labor force | 7 | -1.08 |
| Public Service Expenditure Per Capita | 7 | -0.67 |
| The number of problematic regional regulations | 6 | -0.03 |
| The number of base sectors | 6 | -0.80 |
| Percentage of population with the highest education of the university | 8 | -0.94 |
| Poverty Gap Index | 6 | -0.37 |
| Population Density | 6 | -0.68 |
| Added Value of Transportation Sector per capita | 4 | -0.49 |
| Road conditions according to road quality | 5 | -0.46 |
| The number of Telephone Connections per capita | 7 | -0.76 |
| Electricity consumption of industry and household per capita | 8 | -0.65 |
| Electricity production per capita | 3 | -0.34 |
| Fuel consumption of industry and household per capita | 3 | -0.24 |
| Water resources per capita | 6 | -0.21 |
| Value Added Mining and Quarrying Sector per capita | 4 | -0.51 |
| The number of Bank Offices | 3 | -0.39 |
| Third Party Funds | 6 | -0.68 |
| Saving/Kredit | 7 | -0.69 |
| Value added Financial Sector per capita | 5 | -0.27 |

#### OUTPUT

| Variable | Peringkat | Z-Score |
|----------|-----------|---------|
| Labour Productivity | 3 | -0.16 |
| GRDP per kapita | 3 | -0.24 |
| Level of Employment Opportunities | 8 | -1.82 |
**TANGERANG MUNICIPALITY**

**Overall Ranking**

| Indicator-based Ranking | | |
|-------------------------|---|---|
| INPUT                   | 2 | |
| REGIONAL ECONOMY        | 1 | |
| EMPLOYMENT AND HUMAN RESOURCES | 2 | |
| PRODUCTIVE BUSINESS ENVIRONMENT | 3 | |
| INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT | 3 | |
| BANKING AND FINANCIAL INSTITUTIONS | 2 | |
| OUTPUT                  | 1 | |
| LABOUR PRODUCTIVITY     | 2 | |
| GDP PER KAPITA          | 2 | |
| LEVEL OF EMPLOYMENT OPPORTUNITIES | 2 | |

**NERACA DAYA SAING DAERAH**

| ADVANTAGE | | |
|-----------|---|---|
| Variable  | Peringkat | Z-Score |
| Primary Sectoral Productivity | 1 | 2,32 |
| Secondary Sectoral Productivity | 2 | 0,34 |
| Tertiary Sectoral Productivity | 1 | 1,43 |
| Regional overpriced index | 3 | 1,00 |
| Firm Density | 1 | 2,05 |
| Total Population | 2 | 0,60 |
| Mean years of Schooling | 2 | 0,89 |
| Life expectancy Index | 2 | 1,19 |
| Mean years of Labor Schooling | 2 | 1,08 |
| The Number of workforce | 2 | 0,77 |
| Growth rate of labor force | 2 | 0,61 |
| The number of problematic regional regulations | 5 | 0,22 |
| Percentage of population with the highest education of the university | 2 | 0,89 |
| Population Density | 1 | 1,85 |
| Added Value of Transportation Sector per capita | 2 | 0,31 |
| The number of Telephone Connections per capita | 1 | 1,48 |
| Fuel consumption of industry and household per capita | 2 | 0,08 |
| Ratio productive land to total land area | 7 | 0,05 |
| Water resources per capita | 1 | 0,70 |
| The number of Bank Offices | 1 | 2,02 |
| Ratio of business volume value to the number of active cooperatives | 2 | 0,60 |
| Third Party Funds | 1 | 1,92 |
| Saving/Loan | 2 | 1,03 |
| Value added Financial Sector per capita | 2 | 0,17 |
| OUTPUT | | |
| GDP per kapa | 2 | 0,08 |
| Level of Employment Opportunities | 2 | 0,78 |

| DISADVANTAGE | | |
|--------------|---|---|
| Variable  | Peringkat | Z-Score |
| Secondary Sectoral Productivity | 4 | -0,23 |
| Local Fiscal Capacity | 4 | -0,06 |
| Government size | 7 | -0,82 |
| Total investment per kapita | 5 | -0,45 |
| Dependency Ratio | 8 | -1,31 |
| Public Service Expenditure Per Capita | 3 | -0,02 |
| The number of base sectors | 6 | -0,80 |
| Poverty Gap Index | 4 | -0,04 |
| Road conditions according to road quality | 7 | -0,83 |
| Electricity consumption of industry and household per capita | 5 | -0,20 |
| Electricity production per capita | 5 | -0,38 |
| Value Added Mining and Quarrying Sector per capita | 7 | -0,57 |
| Saving/Loan | 4 | -0,34 |
| Labour Productivity | 2 | -0,02 |
## CILEGON MUNICIPALITY

### Overall Ranking

**3**

### Indicator-based Ranking

**INPUT**  
1. **REGIONAL ECONOMY**  
2. **EMPLOYMENT AND HUMAN RESOURCES**  
3. **PRODUCTIVE BUSINESS ENVIRONMENT**  
4. **INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT**  
5. **BANKING AND FINANCIAL INSTITUTIONS**

**OUTPUT**  
1. **LABOUR PRODUCTIVITY**  
2. **GRDP PER KAPITA**  
3. **LEVEL OF EMPLOYMENT OPPORTUNITIES**

### NERACA DAYA SAIN DAERAH

| ADVANTAGE | PERINGKAT | Z-SCORE | DISADVANTAGE | PERINGKAT | Z-SCORE |
|-----------|----------|---------|--------------|----------|---------|
| INPUT     |          |         | INPUT        |          |         |
| Primary Sectoral Productivity | 3 | 0.09 | Government size | 8 | -1.06 |
| Secondary Sectoral Productivity | 1 | 2.41 | Regional overpriced index | 6 | -0.78 |
| Tertiary Sectoral Productivity | 1 | 2.23 | Firm Density | 3 | -0.40 |
| Local Fiscal Capacity | 1 | 2.33 | Total Population | 8 | -1.18 |
| Local Total Export Potential | 3 | 0.43 | Dependency Ratio | 6 | -0.43 |
| Total Investment per Kapita | 1 | 3.42 | Life expectancy index | 6 | -0.40 |
| Mean years of schooling | 3 | 0.62 | The number of workforce | 8 | -1.14 |
| Mean years of Labor schooling | 3 | 0.52 | The number of problematic regional regulations | 7 | -1.53 |
| Growth rate of Labor force | 5 | 0.14 | The number of basic sectors | 8 | -1.20 |
| Public Service Expenditure Per Kapita | 1 | 2.24 | Poverty Gap Index | 7 | -0.93 |
| Percentage of population with the highest education of the university | 3 | 0.05 | Population Density | 5 | -0.37 |
| Road conditions according to road quality | 1 | 1.68 | Added Value of Transportation Sector per Kapita | 3 | -0.10 |
| Electricity consumption of industry and household per kapita | 1 | 2.39 | The number of Telephone Connections per Kapita | 6 | -0.68 |
| Fuel consumption of industry and household per kapita | 1 | 2.46 | Ratio productive land to total land area | 8 | -2.38 |
| Water resources per kapita | 4 | 0.63 | Value Added Mining and Quarrying Sector per Kapita | 3 | -0.44 |
| Saving/Kredit | 2 | 0.69 | The number of Bank Offices | 6 | -0.52 |
| Value Added Financial Sector per Kapita | 1 | 2.33 | Ratio of business volume value to the number of active cooperatives | 7 | -0.96 |
| OUTPUT |          |         | OUTPUT        |          |         |
| Labour Productivity | 1 | 2.42 | Third Party Funds | 4 | -0.31 |
| GRDP per Kapita | 1 | 2.41 | Saving/Kredit | 6 | -0.64 |
| Level of Employment Opportunities | 7 | -0.75 | Level of Employment Opportunities | 7 | -0.75 |
### SERANG MUNICIPALITY

#### Overall Ranking

|  |  |
|---|---|
|  | 7 |

#### Indicator-based Ranking

**INPUT**

| Indicator | Peringkat |
|---|---|
| I. REGIONAL ECONOMY | 6 |
| II. EMPLOYMENT AND HUMAN RESOURCES | 7 |
| III. PRODUCTIVE BUSINESS ENVIRONMENT | 4 |
| IV. INFRASTRUCTURE, NATURAL RESOURCES AND ENVIRONMENT | 1 |
| V. BANKING AND FINANCIAL INSTITUTIONS | 7 |

**OUTPUT**

| Indicator | Peringkat |
|---|---|
| I. LABOUR PRODUCTIVITY | 5 |
| II. GRDP PER KAPITA | 7 |
| III. LEVEL OF EMPLOYMENT OPPORTUNITIES | 4 |

#### NERACA DAYA SAING DAERAH

| ADVANTAGE | DISADVANTAGE |
|---|---|
| **VARIABLE** | **PERINGKAT** | **Z-SCORE** | **VARIABLE** | **PERINGKAT** | **Z-SCORE** |
| Tertiary Sectoral Productivity | 3 | 0.19 | Primary Sectoral Productivity | 4 | -0.30 |
| Dependency Ratio | 4 | 0.30 | Secondary Sectoral Productivity | 6 | -0.45 |
| Mean years of Schooling | 4 | 0.07 | Local Fiscal Capacity | 6 | -0.61 |
| Growth rate of labor force | 3 | 0.59 | Government size | 3 | -0.21 |
| The number of base sectors | 1 | 1.60 | Potensi ekspor total daerah | 6 | -0.90 |
| Added Value of Transportation Sector per capita | 1 | 2.36 | Total investment per kapita | 7 | -0.50 |
| Road conditions according to road quality | 3 | 0.30 | Regional oversped index | 8 | -1.07 |
| Ratio productive land to total land area | 1 | 0.83 | Firm Density | 6 | -0.55 |
| Water resources per capita | 5 | 0.55 | Total Population | 7 | -0.93 |
| Saving/Kredit | 3 | 0.02 | Life expectancy index | 4 | -0.04 |
| OUTPUT | | | Mean years of Labor Schooling | 5 | -0.24 |
| Level of Employment Opportunities | 4 | 0.21 | | | |

**ADVANTASE**

| | |
|---|---|
| | |

**DISADVANTASE**

| | |
|---|---|
| | |
4.4. Conclusions

1. In the era of a massive and unlimited global economy, together with the adoption of decentralization systems especially in Indonesia, the concept of regional competitiveness is essential to complement the clearly defined concepts of competitiveness at the enterprise and national level. There needs to be a concept of regional competitiveness that is not only from a microeconomic and macroeconomic perspective but also a territorial perspective. Five main indicators and 30 sub-indicators determine the level of competitiveness of a region. These indicators are (i) regional economy, (ii) manpower and human resources, (iii) productive business environment, (iv) infrastructure, natural resources, and environment, and (v) banking and financial institutions. The combination of input and output factors represents the competitiveness of a region seen based on GRDP per capita, labor productivity, and the level of employment opportunities.

2. This study did not emphasize the importance of regional ratings. Instead, the most important point of the study is how a region can identify the advantages and disadvantages of the determinants of each region's competitiveness.

3. Regions with low competitiveness generally have an economic base sourced from natural resource wealth.

4. Regencies/municipalities will have high regional competitiveness if this is supported by human resource wealth and industrial-based or service-based economic activities. Those regions are located in the northern part of Banten;
5. Regencies/municipalities with the lowest regional competitiveness position, generally rely on the primary sector (especially agriculture). Those regions are located in southern part of Banten.

4.5. Recommendations
Local governments need to implement some policies to create a highly competitive region:

a. Increase economic growth through optimizing local revenue, increasing local fiscal capacity, and increasing local investment.

b. Improve the quality of human resources and employment through improving the health status of the population and labor; and improving the quality of education as well as competence, technology, and skills.

c. Create a productive business environment that can attract businesses through the simplification and harmonization of various regulations, the implementation of one-stop integrated services to accelerate and facilitate the process of licensing and non-licensing, and ease the process of land acquisition, creating a controlled security.

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