CHAPTER III

RESEARCH METHOD

A. Research Object

This research was conducted in Lebak Regency, one of regencies in Banten Province. Banten Province consists of eight regions; Lebak Regency, Pandeglang Regency, Serang Regency, Tangerang Regency, Cilegon City, Serang City, Tangerang City, and Tangerang Selatan Regency. The selection of Lebak Regency as the object of research because its potency for promoting economic growth both from regional and national scale.

B. Data Types

The data used in this research is secondary data which is collected and derived from literature or reports relating to the problem under this study, the collection has been carried out by other parties and published by competent institutions in their field, namely GRDP data of Lebak Regency 2013-2017.

C. Data Sources

The data that is used in this research is data obtained from various sources derived from the Central Bureau of Statistics of Lebak Regency and Banten Province. In addition there are also several sources taken from the internet and literature study. The object of this research is Lebak Regency by using Gross Regional Domestic Product (GRDP) data based

on constant prices in 2010 starting from 2013-2017. The data used is limited to seventeen sectors of GRDP component in Lebak Regency by comparing with the GRDP of the Banten Province based on constant prices with the 2010 base year from 2013 to 2017.

D. Data Collection Technique

The technique used in this study is a documentation which is a technique used to obtain data or information regarding various matters relating to research through the way of reviewing written reports in the form of numerical reports or information. For this reason, in this study the author uses documentation techniques. This documentation method is used to find out the GRDP data of Lebak Regency with current year data on the basis of constant prices, a general description of the economic conditions of Lebak Regency sourced from Central Bureau of Statistics of Lebak Regency as well as data related to other superior commodities also sourced from the Central Bureau of Statistics of Lebak Regency. In addition, the data used in this study were also obtained through various data, information and other sources as references such as literature and the internet.

E. Operational Definition of Research Variables

1. Economic Potential

Contributions from each business sector to income in each regency and city. This contribution is usually calculated through the amount of GRDP generated.

2. **Gross Regional Domestic Product (GRDP)**

GRDP is an added value generated by all business units in a region, or the total value of the final goods and services produced by all economic units in an area during a certain period. GRDP illustrates the ability of an area to manage its natural resources. In this case, GRDP is also a macroeconomic indicator that provides an overview of economic conditions in an area such as the Regency. Meanwhile, the presentation of GRDP itself has 2 forms, namely GRDP at current prices and GRDP at constant prices. In this study, researcher used Gross Regional Domestic Product at Constant Prices in 2010.

3. **Economic Sectors**

There are seventeen sectors at each regencies, they are:

1. Agriculture, Forestry, and Fisheries
2. Mining and Quarrying
3. Processing Industry
4. Procurement of Electricity and Gas
5. Water Supply, Waste management, Waste and Recycling
6. Construction
7. Large and Retail trade; Car and Motorcycle Repair
8. Transportation and Warehousing
9. Provision of Accommodation and Meals
10. Information and Communication
11. Financial and Insurance Services
12. Real Estate
13. Company Services
14. Government Administration, Defence, and Social Security Administration

15. Education Services

16. Health Services and Social Activities

17. Other Services

4. **Base Sector**

Glasson conveyed a sector that has capability to export goods and services beyond the economic boundaries of the people concerned for the entry of their goods and services to the community from outside the economic boundaries of the community concerned. It says base sector when the value of LQ > 1 (Saerofi, 2005).

5. **Non-Base Sector**

Glasson conveyed a sector that makes goods and services needed by people who live and are within the economic boundaries of the communities. Non-base sectors cannot do exporting because they are only able to make goods that are used to meet their needs within the economic boundaries. It says non-base sector when the value of LQ < 1 (Saerofi, 2005).

6. **Development of Economic Potential**

It is a step or method that must be taken to raise potential sectors which will have an impact on the increase in economic growth which can be seen through how much the sector contributes to GRDP (Saerofi, 2005).

7. **Leading Sector**

   Leading sector means a sector that gives more contribution to the economy in a region or sector that has a greater role in the economy in an area (Larasati, 2017).

8. **Competitive Advantage**

   The sector can be said have a competitive advantage if the sector growth rate at the regency level is higher than in province level, showed by $(r_{ij}-r_{in}) > 0$.

9. **Specialization**

   A sector is specialized if the real region variable is greater than expected region variable, $(E_{ij}-E_{ij}') > 0$.

F. **Data Analysis Method**

1. **Growth Ratio Model (MRP)[1] Analysis**

   Yusuf states that this analytical method is used in describing a potential economic activity or sector based on the growth criteria of the economic structure of the region, both external and internal (Yusuf, 1999).

   This MRP method is derived from Different Shift and Proportionality Shift which is the initial main component in the Shift and Share analysis. Mathematically, Differential Shift and Proportional Shift can be written as follows:

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[1] MRP is the abbreviation of *Model Rasio Pertumbuhan* (Indonesian term)

Different Shift

$$Dij = \left[\frac{\Delta Eij}{Eij(t)} - \frac{EIR}{EIR(t)}\right] Eij(t)\dots\dots\dots\dots\dots\dots\dots\dots(1)$$

Proportional Shift

$$Pij = \left[\frac{\Delta EIR}{EIR(t)} - \frac{\Delta ER}{ER(t)}\right] Eij(t)\dots\dots\dots\dots\dots\dots\dots(2)$$

From the equation above, we can obtain the formula from the following calculation:

$$\Delta EIR = EIR(t + n) - EIR(t)\dots\dots\dots\dots\dots\dots(3)$$

$$\Delta ER = ER(t + n) - ER(t)\dots\dots\dots\dots\dots\dots\dots(4)$$

In which:

ΔEij : The change of income of activity i in study area at t time period

ΔEIR : The change of income of activity i in the reference area

ΔER : The change of PDRB in the reference area

Eij : Income activity i in the study area

EIR : Income activity i in the reference area

ER : GDRP in the reference area

$t + n$: Years between two periods

The MRP analysis approach is divided into two ratios: growth ratio of the reference area (RP_R) and the growth ratio of the study area (RP_S).

1. Growth Ratio of the Reference Area (RP_R)

   Growth Ratio of the Reference Area (RP_R) is the ratio between the growth rates of income activity i in the reference area with the total growth rate of GDRP of reference activity.

$$RP_R = \left[\frac{\Delta EiR/EiR(t)}{\Delta ER/ER(t)} \right] \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(5)$$

In which:

ΔEiR : The change of revenue of activity i in the reference area

$EiR(t)$: Revenue activity i in the beginning of research period in the reference area

ΔER : The change of GRDP in the reference area

$ER(t)$: GDRP at the beginning of the research in the reference area

When the value of $RP_R > 1$ or a positive (+), it shows that the particular sector's growth in the reference area is higher than the growth of GDRP in the total of reference area.

When the value of RP_R < 1 or a negative (-), it shows that the growth of a particular sector in the reference area is lower than the growth of GDRP in the total of reference area.

2. Growth Ratio of the Study Area (RP_S)

    Growth Ratio of the Study (RP_R) is the ratio between the growth rates of activity i in the study area with the growth rate activity i in the reference area.

    $$RPs = \left[\frac{\Delta Eij/Eij(t)}{\Delta EiR/EiR(t)}\right]\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(6)$$

    In which:

    ΔEij : The change of revenue of activity i in the study area

    $Eij(t)$: Revenue activity i in the beginning of research period in the study area

    ΔEiR : The change of revenue of activity i in the reference area

    $EiR(t)$: Revenue activity i in the beginning of research period in the reference area

When the value of RP_s > 1 or a positive (+), it shows that the growth of the study area sector is greater than the growth of reference area sector.

When the value of $RP_s < 1$ or a negative (-), it shows that the growth of the study area sector is lower than the growth of reference area sector.

The result of the MRP analysis is classified as follows:

Classification 1, when the value of RP_R is positive (+) and the value of RP_s is also positive (+). This condition shows that there is a prominent growth in province and regency level. We can say this activity is the dominant growth.

Classification 2, when the value of RP_R is positive (+) and the value of RP_S is negative (-). This condition shows that there is a prominent growth in province level while the growth is still not prominent yet in regency area.

Classification 3, when the value of RP_R is negative (-) and the value of RP_S is positive (+). This condition shows that the growth is still not prominent in regency level and there is a prominent growth in province level.

Classification 4, when the value of RP_R is negative (-) and the value of RP_S is also negative (-). This condition shows that both in province and regency level, the growth is still low or we can say that on that level their growth are still not prominent.

2. Shift-Share Analysis

Shift-Share Analysis is a technique that is used to analyse the changes in economic structure in the certain area with the economy in national scale. The purpose of the Shift-Share Analysis is to specify the economic work productivity in an area by comparing it to the economy in a larger scale, regionally and nationally (Arsyad, 1999). Sjafrizal states the shift share method is an analytical technique used in regional economies which has the aim of knowing the main factors that influence and determine the economic growth of a region (Sjafrizal, 2016). This shift share analysis provides data on economic productivity in three fields that are interconnected between one another including (Arsyad, 1999):

a. Economic growth in a region can be measured by analysing changes in aggregate work partly compared to the changes in the same sector in the economy that are used as a basis or guideline (benchmark).

b. A proportional shift measures change relatively, both increasing and decreasing terms in regions compared to the larger economy that is used as a benchmark.

c. Differential shifts help in determining how far the competitiveness of the regional industry with the economy that is used as a benchmark.

Equations and components in the shift share analysis are as follows:

$D_{ij} = N_{ij} + M_{ij} + C_{ij}$……………………………………….(7)

In this research, the variables used are:

$D_{ij} = E*_{ij} - E_{ij}$…………………………………………..(8)

$N_{ij} = E_{ij} . r_n$……………………………………...…(9)

$M_{ij} = E_{ij} (r_{in} - r_n)$………………….……………...(10)

$C_{ij} = E_{ij} (r_{ij} - r_n)$……………………….………………(11)

In this case the value of r_{ij}, r_{in}, and r_n are relative and they represent the regency growth rate and province growth rate which are defined as follows:

$r_{ij} = \frac{(E*_{ij} - E_{ij})}{E_{ij}}$ ………………………………….......(12)

$r_{in} = \frac{(E*_{in} - E_{in})}{E_{in}}$ ………………………………………(13)

$r_n = \frac{(E*_n - E_n)}{E_n}$ ……………………………………...(14)

In which:

E_{ij} : Income of sector i in j area (regency)

E_{in} : Income of sector i in n area (province)

E_n : Revenue of n area (region)

$E*_{ij}$: Revenue of final year

R_{ij} : The growth year of sector i in j area (regency)

R_{in} : The growth year of sector i in n area (province)

Rn : Income growth rate of n area (province)

With the result that Shift Share equation for sector i in j area according to (Soepono, 1993) as follow:

$$Dij = Eij.rn + Eij\ (rin-rn) + Eij\ (rij-rin)\ldots\ldots\ldots\ldots\ldots\ldots..(15)$$

In which:

Dij : The change of variable output of sector i in j area

Nij : National economic growth

Mij : The mix of sector i industry in j area

Cij : The competitive advantage of sector i in j area

Eij : The income of sector i in j area

3. Location Quotient (LQ) Analysis

It is a technique used to expand the Shift Share Analysis or to measure the industrial activity in an area by comparing its role in a regional economy with the role of similar activities or industries in the regional or national economy (Arsyad, 1999). This technique can help in determining the economic export capacity in an area and also the degree of self-sufficiency of a sector. The basis of the LQ (Location Quotient) theory is the existence of a basic economic theory that has the premise that the existence of a base industry will produce goods and services for the market in the area or markets that are outside the

area, with exports to other regions will have a positive impact on the region's income.

Formula for calculating LQ (Location Quotient) is

$$LQ = \frac{vi/vt}{ViVt} \frac{vi/Vi}{vt/Vt}$$…………………………………………..(16)

In which:

LQ   : Location Quotient Coefficient

vi   : The income of industry in an area

vt   : The total income of an area

Vi   : The income of similar industry in a regional or national level

Vt   : National or regional income

From the formula above there are 3 categories of Location Quotient (LQ) calculation results in the regional economy, namely:

If the LQ value is > 1, then the sector in the study area is more specialized than the reference area. Thus, the sector in the regional economy in the study area has a comparative advantage and can be categorized as a base sector.

If the LQ value is < 1, then the sector in the study area is less specialized than the reference area. The sector belongs to the category of non-base sectors.

If the value of LQ = 1, then the sector in the study area and also in the reference area has an enhancement.

4. **Overlay Analysis**

Overlay analysis is a useful method for determining potential economic sectors based on growth and contribution criteria by combining the results of the Growth Ratio Method (MRP) and Location Quotient (LQ). This Overlay Analysis has 4 assessments, namely:

1. When the growth is positive (+) and the contribution also positive (+), which means that an activity is very dominant both in terms of growth and contributions.
2. When the growth is positive (+) and the contribution is negative (-), which means that the activity is has a dominant growth but in terms of contribution is small. It is recommended for this activity to increase their contribution to become a dominant activity.
3. When the growth is negative (-) and the contribution is positive (+), which means that an activity whose the growth

is small but in terms of its contribution includes large. From this it can be seen that activities are experiencing a decline.

4. When the growth is negative (-) and the contribution is also negative (-), which means that an activity is not potential both in terms of growth and in terms of contribution.

5. Klassen Typology Analysis

Klassen Typology Analysis is used to find out an overview of the growth pattern and structure of each economic sector. An overview of the pattern and structure of regional growth can be used to estimate the prospects for regional economic growth in the future. In addition, it can also be used as a consideration in determining regional development policies. According to the regional typology, the area is divided into four classifications, namely:

Rapid growth sector

It is regions that have a higher economic growth rate and per capita income than the regional average.

Retarted growth

It is regions that have higher per capita income, but their economic growth rates are lower than average.

Growing sector

It is areas that has higher growth rate, but the rate of per capita is lower than the average.

Relatively backward sector

It is an area that has a low level of economic growth and per capita income from the reference area.

Table 3.1

GDRP Classification Sector according to Klassen Typology

r \ y	$\frac{X1}{X} \geq 1$	$\frac{X1}{X} \leq 1$
$\frac{\Delta X1}{\Delta X} \geq 1$	Rapid growth sector	Growing sector
$\frac{\Delta X1}{\Delta X} \leq 1$	Retarted sector	Relatively backward sector

Source: (Soepono, 1993)

In which:

ri   : Growth rate of sector i in study area

r   : Growth rate of sector i in reference area

yi   : The contribution of sector i to the GRDP in study area

y   : The contribution of sector i to the GRDP in reference area

6. **SWOT Analysis**

SWOT analysis is used to identify systematic nature and can also be used to harmonize several factors from the internal and external environmental factors and can be used as a catalyst in a strategic planning process. The SWOT analysis is carried out by focusing on two things, among others, opportunities and threats and for identifying

internal strengths and weaknesses. Perce and Robinson state that this analysis underlies the assumption that an effective strategy can maximize strengths and opportunities and can minimize weaknesses and threats (Ghufron, 2008).

Some elements of SWOT are S (strength), which means referring to compelling competencies and other competencies. W (weakness) is an obstacle that limits some choices in developing strategies, namely O (opportunity), namely to provide favourable conditions or a barrier-limiting opportunity and T (threat), which is related to conditions that can hinder or various obstacles to achieving objectives. This matrix can produce four cells that might be alternative strategies, namely S-O strategy, W-O strategy, W-T strategy and S-T strategy.

There are eight stages in forming a SWOT matrix, namely:

a. Make a list of key internal strengths in the region

b. Make a list of key internal weaknesses in the region

c. Make a list of regional external opportunities

d. Make a list of regional external threats

e. Adjust the various internal forces as opportunities and record the results in the S-O strategy cell

f. Adjust various kinds of internal weaknesses with opportunities and record the results in the cell strategy W-O

g. Adjust various kinds of internal strength with external threats and record the results in the S.T strategy cell

h. Adjust various kinds of internal weaknesses with external threats

and record the results in the W strategy.

Table 3.2

SWOT Matrix

Internal **External**	**Strength (S)** List of Internal Strengths	**Weakness (W)** List of Internal Weaknesses
Opportunities (O) List of external opportunities	**S-O strategy** Use strength to take advantage of opportunities	**W-O strategy** Overcoming weakness by taking advantage of opportunities
Threats (T) List of External Threats	**S-T Strategy** Use strength to avoid threats	**W-T Strategy** Minimize weaknesses and avoid threats

Source: (Ghufron, 2008)