

## **CHAPTER III**

### **RESEARCH METHOD**

#### **A. Research Object**

This research was conducted in North Lombok regency, which is one of 10 regencies/cities located in West Nusa Tenggara Province. Selection of North Lombok Regency as the object of research because researcher sees North Lombok Regency as one of the areas that have the potential to promote economic growth both from the regional and national scale.

#### **B. Data Types**

The data used in this research is secondary data. Secondary data are supporting data obtained from books, journals, etc. that related to the research being conducted, or through other sources published by the competent institution in the form of GRDP data of North Lombok Regency and West Nusa Tenggara 2012-2016.

#### **C. Data Source**

The data source of this study was obtained from the Central Bureau of Statistics and from some previous research related to this research. In addition, there are several sources taken from the internet and literature study. The data taken is GRDP based on the constant price of 2010 from 2012-2016, where the object of research is North Lombok Regency. The data used is limited to seventeen economic sectors in North Lombok

Regency by comparing GRDP at the level of West Nusa Tenggara Province based on constant 2010 prices from 2012-2016.

#### **D. Data Collection Technique**

Data collection techniques in research are by collecting the required data with documentation techniques. Data collection techniques documentation is one way to obtain data or information on all matters relating to research. The documentation technique itself is done by reviewing the written data in the form of numbers and information. In this research, documentation technique is used to collect data of GRDP of North Lombok Regency with the latest data based on constant price, general picture, and general condition of the economy of North Lombok Regency from BPS documentation of North Lombok Regency and BPS of West Nusa Tenggara Province. Apart from written report data, this research also explores various data and references from internet and library sources.

#### **E. Operational Definition of Research Variables**

##### **1. Gross Regional Domestic Product (GRDP)**

Gross Regional Domestic Product is an indicator to know the economic condition of a region, which can be seen on the basis of constant prices or based on current prices. Gross Regional Domestic Product is defined as the added amount generated by all business units that exist within a region within a period of one year. The Gross Regional Domestic Product used in the research is based on constant 2010 prices.

## 2. Economic Potential

The amount of contribution given from each sector of the business field to the regional income of each Regency/City. Economic contribution is usually calculated by the amount of GRDP generated.

## 3. Base and Non-Base Sector

The Base Sector is a sector capable of exporting goods and services beyond the economic boundaries of its people when compared to the same sector but to a wider scope. It says the base sector if the value of  $LQ > 1$ , while the non-base sector is a sector that is only able to meet the needs of the region itself and this sector can not export goods outside the region. It says non base sector if  $LQ$  value  $< 1$ .

## 4. Competitive Advantage

A sector can be said to have a competitive advantage if the sector growth rate at the district level is higher than the sector rate at the provincial level  $(r_{ij} - r_{in}) > 0$ .

## 5. Specialization

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

## **F. Data Analysis Method**

### **1. Growth Ratio Model Analysis (MRP)**

This analytical tool is an analytical tool 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 analysis model is derived from the initial equations of the main components in the Shift and Share analysis of Different Shift and Proportionality Shift. Mathematically Differential Shift and Proportional Shift can be written as follows:

*Differential-Shift*

$$D_{ij} = \left[ \frac{\Delta E_{ij}}{E_{ij}(t)} - \frac{EIR}{EIR(t)} \right] E_{ij}(t) \dots \dots \dots (1)$$

*Proportional Shift*

$$P_{ij} = \left[ \frac{\Delta EIR}{EIR(t)} - \frac{\Delta ER}{ER(t)} \right] E_{ij}(t) \dots \dots \dots (2)$$

From the above equation can be obtained formulas of the following calculation:

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

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

In which :

$\Delta e_{ij}$  : Change of income of activity i in the study area at time period

$\Delta EIR$  : Change of activity income i in the reference area

$\Delta ER$  : Change of GRDP in the reference area

$E_{ij}$  : Income activity i in the study area

$EIR$  : Income activity i in the reference area

$ER$  : GRDP in the reference area

$t + n$  : years between two periods

The MRP analysis approach is divided into two ratios, namely: (1) growth ratio of the reference region (RPR) and (2) the growth ratio of the study area (RPs).

a. Reference Growth Rate Reference Area (RPr)

Growth Ratio of Reference Areas (RPr) is the ratio between the growth rate of activity income *i* in the reference area with the total growth rate of GRDP reference activity.

$$RPr = \frac{\Delta E_{iR}/E_{iR}(t)}{\Delta ER/ER(t)} \dots \dots \dots (5)$$

In which :

$\Delta iR$  : Change of revenue of activity *i* in the reference area

$E_{iR}$  : Revenue activity *i* beginning of research period in the reference area

$\Delta ER$  : Change of GRDP in the reference area

$ER(t)$  : GRDP at the start of reference research area

If the value of  $Rpr > 1$  is positive (+), it means that the growth of a particular sector in the reference region is greater than the total GDP growth of the reference region.

If  $RPr < 1$  is negative (-), it means that the growth of a particular sector in the reference region is less than the total GDP of the reference region.

b. Growth Ratio of Study Areas (RPs)

Growth Ratio of Study Areas (RPs) is the ratio between the growth rate of activity *i* in the study area and the growth rate of activity *i* in the reference region.

$$RPs = \frac{\Delta E_{ij}/E_{ij}(t)}{\Delta E_{iR}/E_{iR}(t)} \dots \dots \dots (6)$$

In which :

$\Delta E_{ij}$  : Change of income of activity i in the study area

$E_{ij}(t)$  : Revenue of activity i beginning of research period in the study area

$\Delta E_{iR}$  : Change of revenue of activity i in the reference area

$E_{iR}(t)$  : Revenue activity i beginning of research period in reference area

If the value of  $RPs > 1$  is positive (+), it means that the sector growth at the level of the study is greater than the sector growth in the reference region.

If the value of  $RPs < 1$  is negative (-), it means that the growth rate in the sector of the study area is lower than the growth in the sector of the reference region.

The results of the Growth Ratio Model (MRP) analysis are classified as follows:

**Classification 1**, ie  $RPr (+)$  and  $RPs (+)$  can be said that these activities at the provincial level have prominent growth, as well as the district level including prominent growth. This activity is furthermore called the dominant growth.

**Classification 2**, ie  $RPr (+)$  and  $RPs (-)$  can be said that the activity at the provincial level has a prominent growth while at the district level is still not prominent.

**Classification 3**, ie RPr (-) and RPs (+) can be said that the activity at the provincial level has growth that is not prominent while at the district level its growth is prominent.

**Classification 4**, that is, the value of RPr (-) and RPs (-) can be said that such activities at the provincial and district levels have low growth in terms of not being prominent.

## 2. Shift-Share Analysis

Shift-share analysis is a useful technique or tool in analyzing changes in the economic structure of a region or region compared to the national economy within a certain time. The purpose of this analysis is to determine the performance or productivity of the regional economy compared to the regional economy at a larger (regional or national) level.

According to Arsyad (1999) shift-share analysis provides data about the economic performance in three fields that are interconnected with each other namely:

- a. Regional economic growth is measured by analyzing changes in aggregate sectoral work as compared to changes in the same sector in the reference economy.
- b. A proportional shift measures compared to the larger economy being referred to.
- c. Differential shifts help us in determining how far the local (local) competitiveness with the reference economy is.

This shift-share analysis technique compares the national economic growth rate as well as its sectors and observes deviations from various comparisons performed. If the deviation is positive, it means that a sector within the area has a competitive advantage. The effect of national growth is also called proportional shift or a mix of composition or and the influence of competitive advantage called differential shift or regional share (Soepono, 1993).

The relationship between the components in the shift-share analysis can be put forward as follows:

$$D_{ij} = N_{ij} + M_{ij} + C_{ij} \dots \dots \dots (7)$$

In this research the variables used are:

$$D_{ij} = E^*_{ij} - E_{ij} \dots \dots \dots (8)$$

$$N_{ij} = E_{ij} \cdot r_n \dots \dots \dots (9)$$

$$M_{ij} = E_{ij} (r_{in} - r_n) \dots \dots \dots (10)$$

$$C_{ij} = E_{ij} (r_{ij} - r_n) \dots \dots \dots (11)$$

In a sense,  $r_{ij}$ ,  $r_{in}$ , and  $r_n$  relative represent district growth rate and province growth rate which are defined as follows:

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

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

$$r_n = \frac{(E^*_{n} - E_n)}{E_n} \dots \dots \dots (14)$$



In which :

$E_{ij}$  : Income sector i in region j (regency)

$E_{in}$  : Income sector i in region n (province)

$E_n$  : Area Revenue n

$E * ij$  : Final year income

$R_{ij}$  : The growth rate of sector i in region j (district)

$R_{in}$  : The growth rate of sector i in region n (province)

$R_n$  : Income growth rate in region n (province)

So researcher get Shift Share equation for sector i in region j (Soepono, 1993) as follows:

$$D_{ij} = E_{ij}.r_n + E_{ij} (r_{in}-r_n) + E_{ij} (r_{ij}-r_{in}) \dots \dots \dots (15)$$

In which :

$D_{ij}$  : Change of variable output sector i in region j

$N_{ij}$  : National economic growth

$M_{ij}$  : Industry sector mix i in j

$C_{ij}$  : The competitive advantage of sector i in j

$E_{ij}$  : The opinion of sector i in region j

From the above formula, it can be seen there are 2 indicators of the calculation of Shift-Share in the economy of a region, namely:

If the value of the proportional shift component of sector  $> 0$ , means that the sector is experiencing rapid growth and gives a positive impact on the regional economy, and vice versa.

If the differential shift component of a sector  $<0$ , it means that the comparative advantage of the sector increases in the higher economy, and vice versa.

### 3. Location Quotient Analysis (LQ)

LQ analysis is a comparison of the role of a sector/industry in an area to the magnitude of the role of sector/industry is nationally (Tarigan, 2005). LQ analysis is used to show the economic basis of a region by comparing its role in the regional economy with the role of similar activities or industries in the regional or national economy. The formula for calculating LQ (Arsyad,1999) is:

$$LQ = \frac{v_i/v_t}{v_i/V_t} \cdot \frac{v_i/V_i}{v_t/V_t} \dots\dots\dots(16)$$

In which :

LQ : Location Quotient Coefficient

$v_i$  : The adoption of a regional industry

$v_t$  : The total revenue of the area

$V_i$  : Revenue from similar industry regional/nationally

$V_t$  : Regional/national income

Based on the above formula LQ calculation results are divided into 3 categories, namely:

If the value of  $LQ > 1$  then the role of the sector in that area is superior to the role of the sector nationally. Thus the sector has a comparative advantage in the region and can be categorized as sector basis.

If the value of  $LQ < 1$  then the role of the sector in the area is smaller than the role of the sector nationally. Thus the sector can be categorized in the non-base sector.

If  $LQ = 1$  then the role of the sector in that area can be said to have an increase.

The advantages of this LQ is a simple analysis tool that can show the economic structure of a region and potential import substitution industry or products that can be developed for export and shows potential industries to analyze further. While the weakness is a roughly descriptive indicator, is a tentative conclusion and does not pay attention to economic structure in each region. It reminds that the production and productivity of labor force in each region are different, also the difference of resources.

#### **4. Overlay Analysis**

Overlay Analysis is a useful method for determining potential economic sectors based on growth criteria and contribution criteria by combining results from the Growth Method (MRP) and Location Quotient (LQ). Analysis Overlay has four assessment, namely:

- a. Growth (+) and contribution (+), which means that an activity is very dominant both in terms of growth and in terms of contribution.

- b. Growth (+) and contribution (-), which means that an activity whose growth is dominant but in terms of contribution is small. Here is recommended for activities to further increase its contribution to become a dominant activity.
- c. Growth (-) and contribution (+), which means that an activity that growth is small but in terms of its contribution is large. From this, it can be seen that activity is decreasing.
- d. Growth (-) and contribution (-), which means that an activity is not potential both in terms of growth and in terms of contribution.

## **5. Klassen Typology Analysis**

The Klassen Typology analysis is an analytical method used to look at the picture of growth patterns and structures in each sector of the economy. The results of this Klassen Typology analysis can be used to estimate the prospect of regional economic growth rate in the future. And can also be used as a reference/consideration by the government in determining the policy.

According to regional typology, regions can be divided into 4 classifications, namely:

- a. Fast-forward and fast-growing regions

Regions where economic growth rates and per capita income are higher than the regional average.

- b. The region is advanced but depressed

Regions with higher per capita income levels, but their economic growth rates are lower than average.

c. The region is growing fast

Regions with higher growth rates, but per capita income is lower than average.

d. Relatively lagged regions

Regions where economic growth rates and per capita income are low.

**Table 3.1**  
Classification of GDP Sector by Klassen Typology

R \ Y	Y	
	$y_i > y$	$y_i < y$
$r_i > r$	Fast-forward and fast-growing regions	The region is growing fast
$r_i < r$	The region is advanced but depressed	Relatively lagged regions

Source: (Basuki & Gayatri, 2009)

In which :

$r_i$  : sector growth rate i

$r$  : GDP growth rate

$y_i$  : Contribution of sector i to GRDP

$y$  : Contribution of sector average to GRDP