
ANALYSIS OF LEADING SECTORS POTENTIAL FOR ECONOMIC DEVELOPMENT PLANNING IN BANDUNG CITY

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ABSTRAK

This study aims to identify and determine the leading sectors in Bandung City to illustrate leading economics activities that can be developed in order to boost economics potential in Bandung City. The analysis tools used include Shift-Share, Location Quotient (LQ) and Growth Ratio Model (GRM) analyses. The results of the study show that: (1) shift-share analysis showed that the economy of Bandung City during the period 2010-2017 increased by Rp. 70,697,045.9 million. The increase in economic performance in Bandung City can be seen from 16 (sixteen) sectors of economic activity that are positive; (2) based on the Location Quotient (LQ) analysis, the leading sectors in Bandung City consisting of 13 (thirteen) sectors, i.e. water supply procurement; garbage, waste and recycling management; construction sector; retail and wholesale trade; car and motorcycle repair; transportation and warehousing sector; accommodation and food provision; information and communication sector; financial and insurance services sector; real estate sector; corporate services sector; government administration, defense and social security; education services sector; health services sector and social activities and other service sectors; (3) the analysis of the Growth Ratio Model (GRM) showed that the dominant sectors of growth and large contributions consist of the construction sector, transportation and warehousing sector, accommodation and food provision sector, information and communication sector, corporate services sector, education services sector, health services sector and social activities and other service sectors; (4) weighting results based on Shift-Share, Location Quotient (LQ) analysis, and Growth Ratio Model (GRM) showed that 5 (five) sectors based on the highest potential weighting results are the information and communication sector, retail and wholesale trade sectors, car and motorcycle repair, transportation and warehousing sector, accommodation and food provision sector and other service sectors.

Keywords : Economic Potential, Shift-Share, Location Quotient (LQ), Growth Ratio Model (GRM)

JEL : O10; O38

INTRODUCTION

Traditionally, development means a continuous increase in a Gross Domestic Product (GDP) of a country. For a region, the meaning of traditional development is focused on GRDP of a province, district and city. Regional economic development is a process whereby local governments and all components of the society manage various existing resources and form a partnership pattern to create new jobs and stimulate the development of economic activities in the region. Measurements for the success of development can be seen from economic growth, economic structure and the smaller income inequality between residents, between regions and between sectors (Arsyad, 2004: 7).

In regional economic development, the development is generally focused on

economic development through economic growth efforts. Economic growth is related to an increase in the production of goods and services which, among others, is measured by a measurement called Gross Regional Domestic Product (GRDP). The main factor that determines regional economic growth is the demand for goods and services from outside the region so that local resources will be able to generate regional wealth because it can create employment opportunities in the region (Boediono, 1999: 1)

One of the important factors that determine the success of a regional development is the planning process, because economic development cannot be handled solely by the market mechanism. Planning can be defined as a continuous process that includes decisions on choices

of various alternative uses of resources to achieve certain goals in the future (Arsyad, 2004: 19).

Widodo (2006: 111) stated that development planning activities to develop the economic sector began by identifying the leading sectors or potential of the regional economy. Economic development planning requires a variety of statistical data as a basis for establishing policy strategies, so that development goals can be achieved appropriately. There are two main factors that need to be considered in identifying potential regional economic activities. First, it is important to identify a leading economic sector or one that has competitiveness in the past few years and the prospect of a future economic sector. Second is identifying the economic sector has the potential to be developed in the future even though at present it does not have a good level of competitiveness. By identifying the potential of regional economic activities, development policies can be developed based on the efforts to increase economic growth.

Some of the descriptions above show that a research on identifying sectors that are leading/superior, especially in Bandung City, is very important to be studied in more detail because by knowing the economic potential that exists in the city of Bandung, the development performance that has been done can be assessed and regional development planning in the future can be more directed and can be used as a basis in implementing priority scale policies to optimize the utilization of regional economic potential to accelerate economic growth.

THEORETICAL BASIS

Economic Growth Theory

In economic development policies in general, the policies are intended to improve the welfare of the community in the broadest sense. Economic development is said to increase if there is economic growth. A region is said to experience economic growth if there is an increase in the real Gross Regional Domestic Product (GRDP) in the region. If the rate of economic growth

is negative, it means that economic activities show a decline and vice versa, if the rate of economic growth is positive, it means that economic activities show an increase (Arsyad, 2004: 145).

Todaro (2000: 146) says that the process of economic growth has a close relationship with high structural and sectoral changes. In some changes, the main structural components include a gradual shift in agricultural activities towards the non-agricultural sector and from the industrial sector to the service sector.

According to Penox (1970) in Arsyad (2004: 147-148) the central theory of growth is a theory that becomes the basis and strategy of regional policy that is widely applied in various countries. Essentially, the cores of growth are:

- 1) In the development process a leading industry will emerge (*L'Industrie Matrice*) which is the main driving industry in the development of a region. The linkages between industries are very close; therefore the development of leading industries will influence the development of other industries which are closely related to these leading industries.
- 2) The concentration of industry in a region will accelerate economic growth, because industrial concentration will create a different consumption pattern among regions, hence the development of the industry in the region will affect the development of other regions.
- 3) The economy is a combination of relatively active industrial systems (leading industries) with passive industries, they are industries that only depend on leading industries or growth centers in relatively developed regions will affect less developed regions.

According to some classical economists, Adam Smith, David Ricardo, Thomas Robert Malthus and John Straurt Mill, as well as neo-classical economists, Robert Solow and Trevor Swan, they suggest that there are basically four factors that influence economic growth (1) population, (2) the amount of capital goods

stock, (3) land area and natural wealth, and (4) the level of technology used.

Economic Base Theory

In improving the regional economy, economic base theory is one of the theories developed. This economic base theory states that the main determinant of economic growth in a region is directly related to the demand for goods and services from outside the region. The production process in the sector or industry in the region that uses local production resources, including labor and raw materials where the output is exported will produce economic growth, increase per capita income and create employment opportunities in the region (Tambunan, 2003: 182).

The economic basis approach is actually based on the opinion that what needs to be developed in a region is the ability to produce and sell these products efficiently and effectively. North (1964) in Arsyad (2004: 154) stated that the export sector (base sector) plays an important role in regional development. It is because the base sector can provide an important contribution in regional development, in which exports directly increase the income of production factors and regional income.

Bendavid-Val (1991: 77) suggested that the economic base theory is regional growth which is highly dependent on demand from outside the region for regional products. It can be explained that the growth or decline of the regional economy is determined by its ability to export outside the region. In exporting the activities may include both in the form of goods and services including labor. Activities that carry out such exports in industrial form are also called base sectors.

Regional Economic Potential

Regional economic potential is the economic capacity that exists in the region that may and is feasible to be developed so that it will continue to develop into the livelihoods of the local society, and even help the regional economy as a whole to develop itself and become sustainable (Soeparmoko, 2002: 28).

The potential economic sector has an important position in relation to the regional economic development. A sector can be

categorized as a potential / leading sector if the sector in a particular region is able to compete with the same sector produced by other regions in the national or domestic market (Wijaya, 1996: 2).

Yusuf (1999: 221) stated that in identifying leading / potential regional economic activities, it is recommended to use more than one analytical tool that could combine aspects of contribution and growth in the regional economic sector.

RESEARCH METHODS

Data

The data used in this study are secondary data for 8 years starting from 2010 to 2017. Data sources were obtained from several sources of official government institutions, including the West Java Province Central Bureau of Statistics (BPS) and Bandung City Central Bureau of Statistics (BPS).

The data collection method used in this study was carried out by means of the library research approach; it is a series of activities relating to the method of collecting library data, reading, recording and processing research materials (Zed, 2004: 3). Therefore, the researcher collects data and then examines books or other reading sources that are relevant to this research.

Analysis Tools

1. Shift-Share Analysis

According to Creamer (1943) in Soepono (1993: 44) about Shift Share analysis technique, it divides growth as a change (D) of variables in a region such as, income or output over a certain period of time that influences provincial growth (N), industrial mix (M), and competitive advantage (C). To analyze the sector i in region j it is formulated mathematically as follows:

$$D_{ij} = N_{ij} + M_{ij} + C_{ij}$$

where:

D_{ij} = change of GRDP sector variable i in region j

$N_{ij} = E_{ij} \cdot r_n$ (provincial sector growth i in region j)

$M_{ij} = E_{ij} \cdot (r_{in} - r_n)$ (sector industrial mix i in region j)

$C_{ij} = E_{ij} \cdot (r_{ij} - r_{in})$ (sector competitive advantage i in j region)

Equation r_{ij} represents the growth rate in the sector i region j, r_{in} represents the growth rate in sector i in the reference region, r_n is the economic growth of the reference region, which then can be stated as follows:

$$r_{ij} = (E_{ij}^* - E_{ij}) / E_{ij}$$

$$r_{in} = (E_{in}^* - E_{in}) / E_{in}$$

$$r_n = (E_n^* - E_n) / E_n$$

where:

E_{ij} = value added to sector i in studied region j

E_{in} = value added to sector i in the reference region

E_n = economic growth in the reference region

All variables measured on a base year and superscript (*) indicate economic growth in the final year analyzed. For a region, national or provincial growth, industrial mix and competitive advantage can be determined for a sector or added up for all sectors as a whole. The *Shift Share* equation for a particular sector (sector i) in a particular region (region j) is:

$$D_{ij} = E_{ij} (r_n) + E_{ij} (r_{in} - r_n) + E_{ij} (r_{ij} - r_{in})$$

2. Location Quotient (LQ) Analysis

According to Tarigan (2007: 82) analysis of Location Quotient (LQ) is a simple indicator that shows the "strength" of the large and small sectors in a region compared to the same sector in a wider region. The higher the LQ value of a sector means the higher the competitive advantage of the region concerned in developing the sector. The calculation of LQ aims to describe the comparative advantage of a region with other regions. The formula used in determining the base sector or leading sector is:

$$LQ = \frac{E_{ij}/E_j}{E_{in}/E_n}$$

where:

LQ = *Location Quotient* of Bandung City

E_{ij} = GRDP sector of Bandung City

E_j = GRDP total of Bandung City

E_{in} = GRDP sector of West Java Province

Moreover, Bendavid-Val (1991) in Kuncoro (2004: 183) provided a measurement of the specialization rate with the following criteria:

- $LQ > 1$ means that the level of specialization of a certain sector at the City level is greater than the same sector at the Provincial level.
- $LQ = 1$ means that the level of specialization of a certain sector at the City level is the same with the same sector at the Provincial level.
- $LQ < 1$ means that the level of specialization of a certain sector at the City level is smaller than the same sector at the Provincial level.

3. Growth Ratio Model

Yusuf (1999: 221-223) advocated the use of more than one analytical tool in identifying the leading economic activities of a region. For this reason, the Growth Ratio Model (GRM) was used in this study to analyze the leading economic sectors. This model is a further modification of Shift-Share analysis.

To formulate the analysis of the Growth Ratio Model are as follows:

- 1) The growth ratio of the reference region is the ratio between the growth rate of sector i and the total growth rate of activity (GRDP) in the reference region, with the formula being :

$$RPr = \frac{\Delta E_{ir}/E_{ir(t)}}{\Delta E_r/E_r(t)}$$

where:

RPr = Growth Ratio of West Java Province

ΔE_{ir} = Changes in West Java Province GRDP in sector i in the year of analysis

$E_{ir(t)}$ = West Java Province GRDP in sector i in the initial year of the study period

ΔE_r = Changes in West Java Province GRDP in sector i in the year of analysis

$E_{r(t)}$ = West Java Province GRDP in the initial year of the study period

- 2) The growth ratio of the study region is the ratio between the growth rate of the

sector *i* in Bandung City with the growth rate of the same sector in the reference region, with the formula being:

$$RPs = \frac{\Delta E_{ij}/E_{ij(t)}}{\Delta E_{ir}/E_{ir(t)}}$$

where:

- RPr = Growth Ratio of Bandung City
 ΔE_{ij} = Changes in Bandung City GRDP in sector *i* in the year of analysis
 $E_{ij(t)}$ = Bandung City GRDP in sector *i* in the initial year of the study period
 ΔE_{ir} = Changes in West Java Province GRDP in sector *i* in the year of analysis
 $E_{ir(t)}$ = West Java Province GRDP in the initial year of the study period

According to Yusuf (1999: 223-225) the combination of the results of RPr and RPs can describe leading economic activities with four classifications:

- The value of RPr (+) and RPs (+) means the activity is good in both the reference region and in the study region and has prominent growth.
 - The value of RPr (+) and RPs (–) means that the activity in the reference region has prominent growth but in the study region the growth has not been prominent.
 - The value of RPr (–) and RPs (+) means that the activity in the reference region does not have prominent growth but in the study region the growth is prominent.
 - Fourth classification is when RPr (–) and RPs (–), it means the activity in both the reference region and in the study region does not have prominent growth.
4. Determination of the Assessment Weight of the Leading Sector

To see and identify the leading sectors in Bandung City, various types of analysis tools have been used. Because of using more than one analytical tool, the results of each analysis (Shift-Share, LQ

and MRP) are given a weighting rating by ranking the values set for each sector.

The determination of ratings for each economic sector in Bandung City is done by giving a number that corresponds to the number of economic sectors as many as 17 (seventeen) sectors. Subsequently, the value of 1 (one) up to 17 (seventeen) is given in accordance with the value of each sector and if there are sectors that have the same value then the same rank is given.

STUDY RESULTS AND DISCUSSION

Based on the objectives of the study, the data obtained in this study were analyzed by the following analysis tools:

Shift-Share Analysis

In providing an overview of the developing sectors in increasing the economic potential of Bandung City compared to the economic development of West Java Province, Shift-Share analysis tools are used. The results of Shift Share analysis can be seen in the table below:

Table 1. Calculation Results of *Shift Share* in Bandung City 2010-2017

transportation and warehousing sector, accommodation and food provision sector, information and communication sector, corporate services sector, education services sector, health services sector and social activities and other service sectors; (4) weighting results based on Shift-Share, Location Quotient (LQ) analysis, and Growth Ratio Model (GRM) showed that 5 (five) sectors based on the highest potential weighting results are the information and communication sector, retail and wholesale trade sectors

No	Sector	$N_{ij} = E_{ij} * r_n$	$M_{ij} = E_{ij} * (r_{in} - r_n)$	$C_{ij} = E_{ij} * (r_{ij} - r_{in})$	$D_{ij} = N_{ij} + M_{ij} + C_{ij}$
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1.	Agriculture, forestry and fisheries	78,232.5	(58,546.4)	6,652.6	26,338.7
2.	Mining and excavation	-	-	-	-
3.	Processing industry	12,492,650.8	(1,215,782.8)	(2,486,149.8)	8,790,718.2
4.	Electricity and gas procurement	57,416.7	(55,102.0)	43,721.2	46,036.0
5.	Water procurement, garbage, waste and recycling management	96,157.9	11,463.4	(29,054.4)	78,566.9
6.	Construction	3,940,859.5	2,279,347.6	828,544.0	7,048,751.1
7.	Retail and wholesale trade car and motorcycle repair	14,339,560.3	225,024.9	5,043,809.9	19,608,395.1
8.	Transportation and warehousing	3,218,339.5	1,604,213.3	1,820,366.5	6,642,919.3
9.	Accommodation and food provision	2,223,794.5	679,176.7	1,190,785.9	4,093,757.0
10.	Information and communication	3,854,990.4	8,765,615.0	612,740.1	13,233,345.4
11.	Financial and insurance services	2,658,445.9	(2,658,445.9)	3,469,232.7	3,469,232.7
12.	Real estate	692,209.8	220,655.3	(163,465.9)	749,399.2
13.	Corporate services	335,953.5	220,762.1	79,273.8	635,989.4
14.	Government administration, defense and social security	1,867,851.8	(1,510,132.6)	(104,344.9)	253,374.3
15.	Education services	1,456,903.1	1,905,725.2	(1,232,794.3)	2,129,834.1
16.	Health services and social activities	417,400.7	431,112.6	(8,004.3)	840,509.0
17.	Other services	1,422,846.1	1,263,002.1	364,031.3	3,049,879.5
Total		49,153,613.2	12,108,088.3	9,435,344.3	70,697,045.9

Source: Data Processing

From the table above, it can be seen that the economy of Bandung City in 2010-2017 period increased by Rp. 70,697,045.9 million. The increase in economic performance in Bandung City can be seen from 16 (sixteen) sectors of economic activity that are positive. The increase in economic growth in Bandung City is caused by the effect of the economic growth of West Java Province, industrial mix and competitive advantage, for more details can be detailed as follows:

1. Effect of Economic Growth in West Java Province (Nij)

The effect of economic growth in West Java Province (Nij) on economic growth in Bandung City contributed positively by Rp.49,153,613.2 million. When viewed from the sectorial economic growth of Bandung City compared to the relative growth rate of the same economic sector at the provincial level, it shows that on average the economic sectors that are at the city

level are relatively higher than the sectors at the provincial level.

2. Effect of Industrial Mix (Mij)

The effect of the industrial mix (Mij) made a positive contribution of Rp.12,108,088.3 million. Judging from the output produced by the industrial mix, most sectors of the economy have positive and negative impacts. Positive impacts occur in the water procurement, garbage, waste and recycling management sector, construction sector, wholesale and retail trade sector, car and motorcycle repair, transportation and warehousing sector, accommodation and food provision sector, information and communication sector, real estate sector, corporate services sector, education services sector, health services and social activities sector and other services sector. This positive value has a faster growth rate than the overall economic sector growth. Negative impacts occur in the agriculture,

forestry and fisheries sector, the manufacturing industry sector, the electricity and gas procurement sector, the financial and insurance services sector and the government administration, defense and social security sector. This negative value has a slower growth rate than the overall economic sector growth.

3. Effect of Competitive Advantage (Cij)
Competitive advantage (Cij) in each economic sector has increased with a positive total value of Rp. 9,435,344.3 million. The economic sector that shows a good level of competitiveness is the agriculture, forestry and fisheries sector, the electricity and gas procurement sector, the construction sector, the retail and wholesale trade sector, car and motorcycle repair, the transportation and warehousing

sector, the accommodation and food provision, the information and communication sector, the financial and insurance services sector, the corporate services sector and other services sector. While the sectors experiencing a competitive decline were the manufacturing sector, the water procurement sector, garbage, waste and recycling management, the real estate sector, government administration, defense and social security sector, the education services sector and the health services and social activities sector.

Location Quotient (LQ) Analysis

In determining whether the sector is superior/leading (potential) or not Location Quotient (LQ) analysis method was used. The results of Location Quotient (LQ) analysis can be seen in the table below:

Table 2. Calculation Results of *Location Quotient* (LQ) in Bandung City, 2010-2017

Sector	LQ Bandung City								Average	Explanation
	2010	2011	2012	2013	2014	2015	2016	2017		
1.	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02	Non-Base Sector
2.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Non-Base Sector
3.	0.57	0.56	0.54	0.52	0.51	0.49	0.48	0.47	0.52	Non-Base Sector
4.	0.20	0.21	0.20	0.19	0.19	0.20	0.21	0.24	0.21	Non-Base Sector
5.	2.52	2.56	2.52	2.48	2.41	2.30	2.19	2.00	2.37	Base Sector
6.	1.15	1.13	1.12	1.11	1.09	1.08	1.08	1.07	1.10	Base Sector
7.	1.89	1.86	1.76	1.79	1.82	1.84	1.85	1.85	1.83	Base Sector
8.	1.59	1.55	1.63	1.68	1.65	1.65	1.63	1.61	1.63	Base Sector
9.	1.89	1.86	1.86	1.92	1.97	1.92	1.92	1.92	1.91	Base Sector
10.	3.42	3.26	3.28	3.36	3.20	3.13	3.10	3.08	3.23	Base Sector
11.	2.42	2.40	2.32	2.19	2.20	2.12	2.02	2.04	2.22	Base Sector
12.	1.30	1.23	1.20	1.20	1.19	1.14	1.10	1.06	1.18	Base Sector
13.	1.93	1.84	1.85	1.87	1.88	1.84	1.81	1.79	1.85	Base Sector
14.	1.46	1.48	1.43	1.43	1.41	1.31	1.26	1.25	1.38	Base Sector
15.	1.50	1.38	1.27	1.25	1.15	1.09	1.07	1.06	1.22	Base Sector
16.	1.45	1.43	1.42	1.45	1.35	1.29	1.27	1.26	1.36	Base Sector
17.	1.74	1.64	1.65	1.69	1.69	1.64	1.62	1.62	1.66	Base Sector

Source: Data Processing

Growth Ratio Model (GRM) Analysis

The Growth Ratio Model (GRM) is a modification of the Shift-Share model in which the GRM model produces growth in the form of a coefficient number. The results of the analysis of the growth ratio model can be seen in the table below:

Table 3. Calculation results of Growth Ratio Model West Java Province and Bandung City, 2010-2017

No	Sector	Growth Ratio Model (GRM)			
		RPr		RPs	
		R	N	R	N
1.	Agriculture, forestry and fisheries	0.25	-	0.23	-
2.	Mining and excavation	(0.24)	-	-	-
3.	Processing industry	0.90	-	0.48	-
4.	Electricity and gas procurement	0.04	-	0.56	-
5.	Water procurement, garbage, waste and recycling management	1.12	+	0.57	-
6.	Construction	1.58	+	1.24	+
7.	Retail and wholesale trade car and motorcycle repair	1.02	+	0.95	-
8.	Transportation and warehousing	1.50	+	1.44	+
9.	Accommodation and food provision	1.31	+	1.28	+
10.	Information and communication	3.27	+	2.39	+
11.	Financial and insurance services	1.43	+	0.91	-
12.	Real estate	1.32	+	0.75	-
13.	Corporate services	1.66	+	1.32	+
14.	Government administration, defense and social security	0.19	-	0.09	-
15.	Education services	2.31	+	1.02	+
16.	Health services and social activities	2.03	+	1.40	+
17.	Other services	1.89	+	1.49	+

Source: Data Processing

To combine the results from RPr and RPs then leading sectors can be classified to illustrate the leading economic activities in Bandung City according to four classifications below:

1. Classification 1, in which the value of RPr (+) and RPs (+) means the activity is good in both the reference region and in the study region and has prominent growth. By looking at table 3, the leading sectors are the construction sector, the transportation and warehousing sector, the accommodation and food provision sector, the information and communication sector, the corporate services sector, the education services sector, the health services and social activities sector and other service sectors.
2. Classification 2, in which the value of RPr (+) and RPs (-) means that the activity in the reference region has prominent growth but in the study region the growth has not been prominent. By looking at table 3, the sectors are water procurement, garbage, waste, and recycling management sector, wholesale and retail sector, car and motorcycle repair sector, financial and insurance services sector, and real estate sector.
3. Classification 3, in which the value of RPr (-) and RPs (+) means that the activity in the reference region does not have prominent growth but in the study region the growth is prominent. By looking at table 3, there is no sector in this classification.
4. Classification 4, in which the values of RPr (-) and RPs (-), it means the

activity in both the reference region and in the study region does not have prominent growth. By looking at table 3, the sectors are agriculture, forestry, and fisheries sector, mining and excavation sector, processing industry sector, electricity and gas procurement sector, and government administration, defense and social security sector.

Weighting Leading Sectors Rating

The analysis results that have been obtained using Shift-Share, Location Quotient (LQ), and Growth Ratio Model (GRM) analysis tools are then weighted to obtain an overview of potential economic sectors, as shown in table 4 below:

Table 4. Weighting Results Based on the *Shift-Share*, *Location Quotient* (LQ), and *Growth Ratio Model* (GRM) analysis in Bandung City, 2010 – 2017

N o	Sector	<i>Shift-Share</i> (Dij)	Value	LQ	Value	MRP (RPs)	Value	Total Value	Rank
1.	Agriculture, forestry and fisheries	26,338.7	2	0.02	2	0.23	3	7	12
2.	Mining and excavation	-	1	0.00	1	0.00	1	3	13
3.	Processing industry	8,790,718. 2	15	0.52	4	0.49	4	23	8
4.	Electricity and gas procurement	46,036.0	3	0.21	3	0.56	5	11	11
5.	Water procurement, garbage, waste and recycling management	78,566.9	4	2.37	16	0.57	6	26	7
6.	Construction	7,048,751. 1	14	1.10	5	1.24	11	30	6
7.	Retail and wholesale trade car and motorcycle repair	19,608,395 .1	17	1.83	12	0.95	9	38	2
8.	Transportation and warehousing	6,642,919. 3	13	1.63	10	1.44	15	38	2
9.	Accommodation and food provision	4,093,757. 0	12	1.91	14	1.28	12	38	2
10.	Information and communication	13,233,345 .4	16	3.23	17	2.39	17	50	1
11.	Financial and insurance services	3,469,232. 7	11	2.22	15	0.91	8	34	4
12.	Real estate	749,399.2	7	1.18	6	0.75	7	20	9
13.	Corporate services	635,989.4	6	1.85	13	1.32	13	32	5
14.	Government administration, defense and social security	253,374.3	5	1.38	9	0.09	2	16	10
15.	Education services	2,129,834. 1	9	1.22	7	1.02	10	26	7
16.	Health services and social activities	840,509.0	8	1.36	8	1.40	14	30	6

1 7.	Other services	3,049,879. 5	10	1.66	11	1.49	16	37	3
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Source: Data Processing

From the table above the ranks of each sector's weighting results based on the Shift-Share, Location Quotient (LQ), and Growth Ratio Model (GRM) analysis where 5 sectors according to the highest rank of the weighting results, the most potential are information and communication sector, wholesale and retail sector, car and motorcycle repair sector, transportation and warehousing sector, accommodation and food provision sector, and other services sector.

CONCLUSION

1. The Shift-Share analysis results show that the structure of the economy from the 2010-2017 observations in Bandung City compared to West Java Province increased by Rp. 70,697,045.9 million, this was due to several factors, i.e. the effect of West Java Province's economic growth of Rp 49,153,613.2 million, the effect of the industrial mix amounted to Rp 12,108,088.3 million and the effect of competitive advantage was Rp 9,435,344.3 million.
2. Based on the LQ analysis of leading sectors in Bandung City during 2010-2017 period of the 17 (seventeen) economic sectors in the Gross Regional Domestic Product (GRDP) of Bandung City, there are 13 (thirteen) sectors that have an LQ > 1 or leading (potential) sectors, i.e. water procurement, garbage, waste and recycling management, construction sector, wholesale and retail trade sector, car and motorcycle repair, transportation and warehousing sector, accommodation and food provision sector, information and communication sector, financial and insurance services sector, real estate sector, corporate services sector, government administration, defense and social security, education services sector, health services and social activities sector and other service sectors.
3. The calculation of the Growth Ratio Model (GRM) analysis shows that based on the combination of RPr and RPs the dominant sectors of growth include the construction sector, transportation and warehousing sector, accommodation and food provision sector, information and communication sector, corporate services sector, education services sector, health services and social activities sector and other services sectors.
4. Weighting results based on Shift-Share, Location Quotient (LQ), and Growth Ratio Model (GRM) analysis obtained 5 sectors based on the highest potential weighting results, i.e. the information and communication sector, wholesale and retail trade sector, car and motorcycle repair, transportation and warehousing sector, accommodation and food provision sector and other services sectors.

RECOMMENDATION

From the results of the research obtained, some suggestions can be considered by Bandung City government:

1. In order for regional development in Bandung to be more successful, Bandung City Government needs to determine development priorities based on its economic potential through the development of leading or potential sectors.
2. In order to avoid gaps and inequality between sectors, Bandung City Government must utilize the leading and potential sectors to increase public welfare. Efforts that can be made include:
 - a. Building and improving infrastructure in supporting development such as roads, bridges, transportation and communication.
 - b. Creating conducive investment climate through regional policies that stimulate the emergence of new investments such as convenient licensing and mapping of spatial and regional areas that support investment.
3. Bandung City has a variety of potential sectors that are expected to increase employment to impact positively on the economy. One of which is reducing poverty and unemployment. In

an effort to overcome poverty and unemployment, in addition to using a sectorial approach, one of the steps that must be taken is to increase labor intensive economic activities.

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Appendix 1

West Java Province GRDP Based on 2010 Constant Prices According to Business Fields (In million rupiah)

Sector and Sub Sector	West Java Province GRDP							
	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, forestry and fisheries	89,088,260.2	88,386,512.4	88,409,460.0	92,390,134.9	92,653,584.2	92,802,799.0	98,181,660.7	99,874,967.6
Mining and excavation	30,126,931.7	29,105,485.8	27,213,582.3	26,872,467.2	27,291,421.4	27,403,820.2	27,138,684.6	26,589,926.9
Processing industry	403,571,246.6	426,184,947.5	445,675,276.6	477,714,072.3	502,433,623.1	524,466,677.0	549,471,383.8	578,858,482.4
Electricity and gas procurement	5,334,624.2	5,126,004.9	5,571,250.1	6,025,232.0	6,373,286.0	5,939,653.4	6,139,545.3	5,438,106.4
Water procurement, garbage, waste and recycling management	702,596.1	741,338.8	794,326.7	845,969.6	896,263.8	948,977.8	1,009,018.5	1,080,964.6
Construction	63,087,799.1	71,723,223.3	81,197,699.6	87,818,637.1	92,603,491.6	98,555,254.7	103,507,069.5	111,001,029.2
Retail and wholesale trade car and motorcycle repair	139,681,171.2	151,107,155.3	168,938,936.0	177,747,518.2	183,634,922.8	190,440,113.2	198,887,074.0	207,945,894.7
Transportation and warehousing	37,337,711.1	41,660,006.8	45,721,399.3	47,965,848.6	51,579,514.1	56,171,096.0	61,135,337.7	64,258,575.9
Accommodation and food provision	21,672,463.1	23,196,039.4	24,806,717.8	25,985,297.7	27,545,028.8	29,776,546.2	32,549,519.6	35,285,421.7
Information and communication	20,785,122.3	25,378,259.3	28,094,004.5	30,651,836.8	36,005,412.4	41,878,751.6	47,856,799.5	53,527,156.1
Financial and insurance services	20,242,188.2	21,567,179.5	23,437,318.8	26,347,771.9	27,497,251.4	29,521,633.8	33,030,521.5	34,179,944.7
Real estate	9,855,884.0	10,992,679.3	11,916,840.6	12,561,546.4	13,121,319.4	13,837,689.5	14,738,072.1	16,109,923.5

Corporate services	3,218,249.9	3,676,296.2	3,957,451.8	4,265,893.3	4,561,081.0	4,932,613.4	5,334,980.4	5,784,330.0
Government administration, defense and social security	23,605,341.2	22,939,998.9	23,901,327.9	23,568,018.4	23,676,877.0	24,987,382.2	25,731,416.6	25,780,577.0
Education services	17,961,874.2	20,596,756.1	23,608,192.7	25,715,274.3	29,424,905.7	32,418,865.5	34,885,810.9	37,909,721.1
Health services and social activities	5,327,118.0	5,790,041.1	6,303,721.1	6,720,170.3	7,780,534.3	8,880,758.3	9,723,043.0	10,537,792.9
Other services	15,087,179.4	17,450,136.6	18,862,233.8	20,347,857.0	22,137,540.0	24,120,774.0	26,226,539.6	28,790,561.6
Total	906,685,760.5	965,622,061.2	1,028,409,739.6	1,093,543,546.0	1,149,216,057.1	1,207,083,405.7	1,275,546,477.2	1,342,953,376.2

Appendix 2

Bandung City GRDP Based on 2010 Constant Prices According to Business Fields (In million rupiah)

Sector and Sub Sector	Bandung City GRDP							
	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, forestry and fisheries	162,589.0	168,590.0	173,418.4	180,669.4	180,982.20	184,106.2	176,341.0	188,927.7
Mining and excavation	-	-	-	-	-	-	-	-
Processing industry	25,963,212.0	27,108,168.0	28,225,278.2	29,371,304.2	30,755,949.2	31,968,181.2	33,249,092.6	34,753,930.2
Electricity and gas procurement	119,328.0	122,806.0	131,659.9	138,004.8	145,553.9	150,726.8	160,823.1	165,364.0
Water procurement, garbage, waste and recycling management	199,843.0	216,841.0	232,965.7	247,170.7	260,825.4	269,975.2	279,883.2	278,409.9
Construction	8,190,205.0	9,247,288.0	10,576,562.5	11,480,053.1	12,260,690.8	13,224,753.4	14,141,570.3	15,238,956.1
Retail and wholesale trade car and motorcycle repair	29,801,605.0	32,057,539.0	34,543,405.9	37,550,557.0	40,412,177.4	43,307,804.3	46,451,124.9	49,410,000.1
Transportation and warehousing	6,688,607.0	7,367,332.0	8,686,234.5	9,502,247.9	10,315,596.6	11,498,477.2	12,618,047.7	13,331,526.3
Accommodation and food provision	4,621,665.0	4,934,183.0	5,355,101.4	5,900,296.9	6,552,047.7	7,091,232.1	7,900,173.6	8,715,422.0
Information and communication	8,011,745.0	9,457,693.0	10,711,882.5	12,155,505.1	13,947,533.2	16,244,007.6	18,744,381.7	21,245,090.4
Financial and insurance services	5,524,992.0	5,907,837.0	6,332,909.8	6,801,283.9	7,320,270.8	7,772,481.7	8,429,764.7	8,994,224.7
Real estate	1,438,605.0	1,545,305.0	1,662,291.7	1,777,794.5	1,880,435.4	1,956,856.3	2,041,429.6	2,188,004.2
Corporate services	698,205.0	770,185.0	850,783.6	940,255.7	1,039,534.1	1,122,114.3	1,217,219.6	1,334,194.4
Government administration, defense and social security	3,881,917.0	3,874,359.0	3,986,088.3	3,985,218.5	4,022,538.1	4,063,849.1	4,103,285.7	4,135,291.3
Education services	3,027,851.0	3,251,279.0	3,494,789.3	3,777,642.2	4,074,173.0	4,389,017.3	4,734,862.0	5,157,685.1
Health services and social activities	867,475.0	943,944.0	1,038,192.7	1,149,454.6	1,274,376.8	1,422,891.2	1,564,364.8	1,707,984.0
Other services	2,957,071.0	3,261,089.0	3,630,685.2	4,048,003.2	4,518,256.8	4,913,905.0	5,385,467.5	6,006,950.5
Total	102,154,915.0	110,234,438.0	119,632,249.6	129,005,461.7	138,960,941.4	149,580,378.9	161,197,832.0	172,851,960.9

Appendix 3

Calculation Results of Shift Share Analysis Bandung City, 2010-2017

Sector and Sub Sector	Bandung City GRDP		West Java Province GRDP		Dij	rn	rin	rij	Nij	Mij	
	2010 (Eij)	2017 (E*ij)	2010 (Ein)	2017 (E*in)	=E*ij-Eij	=(E*n-En)/En	=(E*in-Ein)/Ein	=(E*ij-Eij)/Eij	=Eij*rn	=Eij*(rin-rn)	=Eij*(rin-rn)
Agriculture, forestry and fisheries	162,589.0	188,927.7	89,088,260.2	99,874,967.6	26,338.7	0.48	0.12	0.16	78,232.5	(58,546.4)	
Mining and excavation	-	-	30,126,931.7	26,589,926.9	-	0.48	-0.12	-	-	-	
Processing industry	25,963,212.0	34,753,930.2	403,571,246.6	578,858,482.4	8,790,718.2	0.48	0.43	0.34	12,492,650.8	(1,215,782.8)	(2,492,650.8)
Electricity and gas procurement	119,328.0	165,364.0	5,334,624.2	5,438,106.4	46,036.0	0.48	0.02	0.39	57,416.7	(55,102.0)	
Water procurement, garbage, waste and recycling management	199,843.0	278,409.9	702,596.1	1,080,964.6	78,566.9	0.48	0.54	0.39	96,157.9	11,463.4	(11,463.4)
Construction	8,190,205.0	15,238,956.1	63,087,799.1	111,001,029.2	7,048,751.1	0.48	0.76	0.86	3,940,859.5	2,279,347.6	8,220,207.1
Retail and wholesale trade car and motorcycle repair	29,801,605.0	49,410,000.1	139,681,171.2	207,945,894.7	19,608,395.1	0.48	0.49	0.66	14,339,560.3	225,024.9	5,078,439.8
Transportation and warehousing	6,688,607.0	13,331,526.3	37,337,711.1	64,258,575.9	6,642,919.3	0.48	0.72	0.99	3,218,339.5	1,604,213.3	1,604,213.3
Accommodation and food provision	4,621,665.0	8,715,422.0	21,672,463.1	35,285,421.7	4,093,757.0	0.48	0.63	0.89	2,223,794.5	679,176.7	1,544,617.8
Information and communication	8,011,745.0	21,245,090.4	20,785,122.3	53,527,156.1	13,233,345.4	0.48	1.58	1.65	3,854,990.4	8,765,615.0	6,910,624.6
Financial and insurance services	5,524,992.0	8,994,224.7	20,242,188.2	34,179,944.7	3,469,232.7	0.48	0.00	0.63	2,658,445.9	(2,658,445.9)	3,469,232.7
Real estate	1,438,605.0	2,188,004.2	9,855,884.0	16,109,923.5	749,399.2	0.48	0.63	0.52	692,209.8	220,655.3	(1,438,605.0)

Corporate services	698,205.0	1,334,194.4	3,218,249.9	5,784,330.0	635,989.4	0.48	0.80	0.91	335,953.5	220,762.1	
Government administration, defense and social security	3,881,917.0	4,135,291.3	23,605,341.2	25,780,577.0	253,374.3	0.48	0.09	0.07	1,867,851.8	(1,510,132.6)	(1,510,132.6)
Education services	3,027,851.0	5,157,685.1	17,961,874.2	37,909,721.1	2,129,834.1	0.48	1.11	0.70	1,456,903.1	1,905,725.2	(1,905,725.2)
Health services and social activities	867,475.0	1,707,984.0	5,327,118.0	10,537,792.9	840,509.0	0.48	0.98	0.97	417,400.7	431,112.6	
Other services	2,957,071.0	6,006,950.5	15,087,179.4	28,790,561.6	3,049,879.5	0.48	0.91	1.03	1,422,846.1	1,263,002.1	
Total	102,154,915.0	172,851,960.9	906,685,760.5	1,342,953,376.2	70,697,045.9				49,153,613.2	12,108,088.3	9,108,088.3

Appendix 4

Calculation Results of *Location Quotient (LQ)* Analysis Bandung City, 2010-2017

Sector and Sub Sector	Bandung City GRDP								Average
	2010	2011	2012	2013	2014	2015	2016	2017	
Agriculture, forestry and fisheries	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.02
Mining and excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Processing industry	0.57	0.56	0.54	0.52	0.51	0.49	0.48	0.47	0.52
Electricity and gas procurement	0.20	0.21	0.20	0.19	0.19	0.20	0.21	0.24	0.21
Water procurement, garbage, waste and recycling management	2.52	2.56	2.52	2.48	2.41	2.30	2.19	2.00	2.37
Construction	1.15	1.13	1.12	1.11	1.09	1.08	1.08	1.07	1.10
Retail and wholesale trade car and motorcycle repair	1.89	1.86	1.76	1.79	1.82	1.84	1.85	1.85	1.83
Transportation and warehousing	1.59	1.55	1.63	1.68	1.65	1.65	1.63	1.61	1.63
Accommodation and food provision	1.89	1.86	1.86	1.92	1.97	1.92	1.92	1.92	1.91
Information and communication	3.42	3.26	3.28	3.36	3.20	3.13	3.10	3.08	3.23
Financial and insurance services	2.42	2.40	2.32	2.19	2.20	2.12	2.02	2.04	2.22
Real estate	1.30	1.23	1.20	1.20	1.19	1.14	1.10	1.06	1.18
Corporate services	1.93	1.84	1.85	1.87	1.88	1.84	1.81	1.79	1.85
Government administration, defense and social security	1.46	1.48	1.43	1.43	1.41	1.31	1.26	1.25	1.38
Education services	1.50	1.38	1.27	1.25	1.15	1.09	1.07	1.06	1.22
Health services and social activities	1.45	1.43	1.42	1.45	1.35	1.29	1.27	1.26	1.36
Other services	1.74	1.64	1.65	1.69	1.69	1.64	1.62	1.62	1.66

Appendix 5

Calculation Results of Growth Ratio Model (GRM) Analysis Bandung City, 2010 – 2017

Sector and Sub Sector	Growth Ratio Model			
	RPR		RPS	
	R	N	R	N
Agriculture, forestry and fisheries	0.25	-	0.23	-
Mining and excavation	(0.24)	-	-	-
Processing industry	0.90	-	0.49	-
Electricity and gas procurement	0.04	-	0.56	-
Water procurement, garbage, waste and recycling management	1.12	+	0.57	-
Construction	1.58	+	1.24	+
Retail and wholesale trade car and motorcycle repair	1.02	+	0.95	-
Transportation and warehousing	1.50	+	1.44	+
Accommodation and food provision	1.31	+	1.28	+
Information and communication	3.27	+	2.39	+
Financial and insurance services	1.43	+	0.91	-
Real estate	1.32	+	0.75	-
Corporate services	1.66	+	1.32	+
Government administration, defense and social security	0.19	-	0.09	-
Education services	2.31	+	1.02	+
Health services and social activities	2.03	+	1.40	+
Other services	1.89	+	1.49	+

Appendix 6

Weighting Results Based on *Shift-Share*, *Location Quotient (LQ)* and *Growth Ratio Model (GRM)* Analysis Bandung City, 2010 – 2017

Sector and Sub Sector	Shift Share (Dij)	Value	LQ	Value	MRP (RPs)	Value	Total Value	Rank
Agriculture, forestry and fisheries	26,338.7	2	0.02	2	0.23	3	7	12
Mining and excavation	-	1	0.00	1	0.00	1	3	13
Processing industry	8,790,718.2	15	0.52	4	0.49	4	23	8
Electricity and gas procurement	46,036.0	3	0.21	3	0.56	5	11	11
Water procurement, garbage, waste and recycling management	78,566.9	4	2.37	16	0.57	6	26	7
Construction	7,048,751.1	14	1.10	5	1.24	11	30	6
Retail and wholesale trade car and motorcycle repair	19,608,395.1	17	1.83	12	0.95	9	38	2
Transportation and warehousing	6,642,919.3	13	1.63	10	1.44	15	38	2
Accommodation and food provision	4,093,757.0	12	1.91	14	1.28	12	38	2
Information and communication	13,233,345.4	16	3.23	17	2.39	17	50	1
Financial and insurance services	3,469,232.7	11	2.22	15	0.91	8	34	4
Real estate	749,399.2	7	1.18	6	0.75	7	20	9
Corporate services	635,989.4	6	1.85	13	1.32	13	32	5
Government administration, defense and social security	253,374.3	5	1.38	9	0.09	2	16	10
Education services	2,129,834.1	9	1.22	7	1.02	10	26	7
Health services and social activities	840,509.0	8	1.36	8	1.40	14	30	6
Other services	3,049,879.5	10	1.66	11	1.49	16	37	3

