Economics Development Analysis Journal 8 (2) (2019)

Economics Development Analysis Journal

http://journal.unnes.ac.id/sju/index.php/edaj

Identification of Leading Sector and Cluster Analysis of Regencies in Kalimantan

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Article Info

Hisrtory of Article
Received January 2019
Accepted March 2019
Pusblished May 2019

Keywords:
Leading Sector, Location Quotient, Shift Share, Overlay, Typology Klassen, Cluster Analysis

Abstract

To achieve the purpose of regional economic development, there is a need for development policy that is based on the characteristics of the region. Kalimantan is the centre of development in Eastern Indonesia which has strategic position for cooperation region. This study aimed to identify the potential leading sectors to develop and determine the regencies grouping and the characteristics of each group based on welfare indicators. The secondary data were collected from socio-economic data of 56 regencies during 2010-2016. This study used descriptive quantitative method and several analysis theories namely Klassen's Typology, factor and cluster, Location Quotient, Shift Share, and Overlay analysis. The results of study showed that: (1) the economic structure of Kalimantan had shifted because a change of economic contribution from agriculture to industrial sector; (2) the mining and quarrying, water supply, waste management and recycling sector were the leading sectors in Kalimantan; (3) Kalimantan was classified into four clusters based on 13 economic social indicators: agricultural, urban, disadvantaged, and wealth cluster; (4) the priority of development in each cluster were economic, social, and educational issues..

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ISSN 2252-6560

INTRODUCTION

Development aims to improve the welfare of human's lives, increase the economic growth and the regional competitiveness in various sectors, and reduce the regional disparities. The key of a success of regional development is coordination and integration between sectors and regions. To carry out the regional development programs, it is necessary to identify the region based on regional characteristics and the level of community welfare, so policies and the development strategies can be implemented right on target and appropriate. According to Arsyad (2010: 374), regional economic development is a process in which local governments along with communities work together to manage resources and form the partnerships with the private sector so as to create new jobs and stimulate the development of regional economic activities. Arsyad also states that the main problem in regional development is the emphasis on development policies that are based on regional uniqueness, such as the potential of human resources, institutions, and physical resources of the region. The different socioeconomic conditions of each region will result different regional government implications. It affects the differences in the level of welfare between regions and has an unfavorable impact on a country.

However, the benchmarks of a development success of a region can be seen from the achievement of high economic growth. Economy is called growing or developing if its activities increase. The process of development and economic growth will not run optimally if it is not in line with the potential of the region. Thus, the region must know their potential in order to be able to utilize for the sustainability of the regional economy. Martono (2008 in (Riantika & Utama, 2016) 2016: 1186) confirms that regions that are more aware of the potential of their regions will have a higher chance to compete rather than regions that do not known their potential.

Kalimantan is a development center in Eastern Indonesia which has a strategic position for inter-regional cooperation and one of the country's largest foreign exchange earners. The contribution of Kalimantan's ADHB GRDP to the formation of the national GDP in 2017 reached 8.34% and tends to decrease. The economy of Kalimantan is dominated by East Kalimantan Province by controlling 52.31% of the total oil and gas GRDP and 50.39% of non-oil and gas GRDP in 2017. Not to mention in 1987, it was only East Kalimantan Province that produced 21 percent of Indonesia's export revenues (MacKinnon, et .al., 2000 in Kuncoro, 2013: 231) and became a region with consistent prosperity performance other than DKI Jakarta Province.

Table 1. The Comparison of Province Contribution to the Formation of Oil and Gas ADHB GRDP of Kalimantan. 2012 vs 2017

Province	GRDP 2012 (Rp. Million)	Island Share (%)	National Share (%)	GRDP 2017 (Rp Million)	Island Share (%)	National Share (%)
West Kalimantan	106,958,804	12.77	1.24	177,468,594	15.67	1.31
Central Kalimantan	73,425,380	8.76	0.85	126,176,070	11.14	0.93
South Kalimantan	106,725,430	12.74	1.24	159,181,203	14.05	1.17
East Kalimantan	550,735,760	65.73	6.39	592,502,520	52.31	4.36
North Kalimantan	0	0	0	77,406,461	6.83	0.57
KALIMANTAN	837,845,373		9.72	1,132,734,848		8.34

Sources: BPS, 2012 and 2017 (processed)

Kalimantan is the biggest natural resource in Indonesia. In general, the island's economic performance is quite good and increasing. Based on BPS data for 2010-2017, the GRDP of ADHB and ADHK in all provinces in Kalimantan (except East Kalimantan Province) tended to increase and the growth was positive. Since the role of natural resources is dominant, the economy in East Kalimantan Province is very sensitive to the fluctuation, especially in the mining and quarrying sector. As a sector that strongly dominates the regional economy, the fluctuation in the mining sector has a considerable impact on the regional economy. Indeed, it causes the rate of economic growth in Kalimantan to decline over the last four years. Furthermore, Kalimantan is inferred experiencing an economic transformation. It can be seen from the change of mining and the electricity procurement sector contribution to the GRDP of Kalimantan.

Table 2. The Comparison of the Distribution of Kalimantan's ADHB GRDP Percentage based on Business Field, 2010-2017 (in percent)

No.	Business Field	2010	2011	2012	2013	2014	2015	2016	2017
1.	Agriculture, Forestry, and Fishery	11.50	10.72	10.77	11.30	12.33	13.00	13.36	15.91
2.	Mining and Quarrying	37.18	42.94	42.87	40.44	35.92	30.93	28.92	21.45
3.	Processing Industry	21.21	17.89	16.53	16.19	17.11	17.67	17.75	15.76
4.	Gas and Electricity Procurement	0.04	0.04	0.03	0.03	0.04	0.06	0.07	0.09
5.	Water Supply, Waste, Waste and Recycling Management	0.11	0.10	0.10	0.09	0.10	0.11	0.12	0.16
6.	Construction	7.18	6.70	7.16	7.76	8.49	9.28	9.37	10.06
7.	Wholesale and Retail Trade; Car and Motorcycle Repair	6.90	6.66	6.68	7.00	7.49	8.23	8.64	10.55
8.	Transportation and Warehousing	3.30	3.11	3.24	3.67	4.04	4.54	4.81	5.53
9.	Procurement of Accommodation and Food and Beverage	1.08	1.03	1.09	1.16	1.24	1.40	1.48	1.78
10.	Information and Communication	1.64	1.51	1.57	1.63	1.73	1.88	1.99	2.46
11.	Financial Service and Insurance	1.81	1.72	1.93	2.11	2.20	2.35	2.44	2.83
12.	Real Estate	1.35	1.26	1.30	1.34	1.44	1.57	1.60	1.92
13.	Company Service	0.24	0.23	0.24	0.26	0.28	0.30	0.30	0.34
14.	Government Administration, Defense, Mandatory Social Security	3.02	2.80	3.03	3.35	3.63	4.17	4.29	5.32
15.	Education Service	1.96	1.93	2.05	2.22	2.40	2.70	2.90	3.54
16.	Health Service and Social Activity	0,81	0,77	0,80	0,83	0,91	1,05	1,14	1,39
17.	Other Service	0,66	0,60	0,60	0,60	0,66	0,75	0,82	0,92

Source: BPS, 2010-2017 (processed)

During the 2010-2017, the contribution from the mining and quarrying sector tended to decline, while the contribution of the electricity and gas procurement sector tended to increase. The contribution of the mining and quarrying sector which was 37.18% in 2010 decreased by 42.3% into 21.45% in 2017. Meanwhile, the electricity and gas procurement sector which contributed 0.04% increased by 108.32% to 0.09%. It happened due to the declining production of the mining and quarrying sector.

Also, its growth was less fast compared to the growth of the electricity and gas procurement sector.One indicator of the development program success is the accuracy of identifying the regions and their potentials. Hence, this study aimed find out several things related to: (1) the occurrence of structural transformation in Kalimantan; (2) the leading and competitive sectors in Kalimantan; and (3) the regions grouping based on socioeconomic indicators. The results of this study were expected to give advantages for

businesses, so they can appropriately invest and get good results.

Todaro (2006: 22) argues that economic development is a multidimensional process, involves major changes both toward changes in economic structure, social structure, reducing poverty, inequality and unemployment. This development is not only measured by the increase in Gross National Product (GNP), but also the equitable distribution of community's income. In economic development, an increase in community income is followed by changes in social structure and their attitudes. Therefore, to achieve fair and equitable prosperity for the community, it is necessary to utilize the optimal and integrated potentials of the region through the development of the local economy and regional development. Suparmoko (2002: 99 in Setiyaningrum, et.al 2013: 682) explains that regional economic potential is the economic capability of a region that is possible and feasible to be developed and will continuously develop as a source of community livelihood. In fact, it will be able to encourage the regional economy as a whole to continuously develop. Suparmoko adds that to arrange a strategy for developing a region's local economic potential, it is necessary to identify leading sectors. Whereas, a sector deserves to be leading if it has a dominant contribution and role in achieving the development goals. Leading sectors play the main role in which the multiplier effect can dominate the economy of a region so as to achieve a certain expected level of growth. Meanwhile, to achieve regional local economic development, the region can encourage the development of productive economic zones by optimizing the factors of competitive regional development.

Regional development has a broader scope, namely examining inter-regional interrelationships. One of the regional development strategies is the cluster concept that has been developed in several countries. Clusters can be defined as the concentration of a business cooperation group or business units and institutions which compete, cooperate, also are interdependent each other, concentrated in one particular region, and in the field of certain superior aspects. According to Porter (1998 in Reveiu, 2011: 5) cluster is a group of companies that are geographically connected with related institutions in a particular field and connected because of togetherness and complementarity. Additionally, cluster-based regional development more focuses on the interrelationship and dependence between actors in a production network, services, and development innovation efforts. Setiyanto (2010) in the Ecoregional Book suggests the goals of cluster-based region development are: (1) to give benefits for welfare, employment and exports; (2) to get the opportunity to develop innovation and trade through a strong network; (3) to develop international markets and networks; (4) to develop supporting infrastructure; and (5) to develop new cultures.

Structural change theory explains about the transformation of economic structures from the agricultural sector (traditional) switches to a more modern structure and has a service sector and a more resilient manufacturing industry sector (Todaro in Kuncoro, 2003: 59). Structural transformation is also called as economic structure change. In addition, structural transformation is a series of changes in which each of these changes is related to one another in several compositions of foreign trade (exports and imports), aggregate demand, and aggregate supply (production and use of factors of production).

Several studies have been conducted in the fields of structural transformation, leading sectors and regional clustering. El-Hadj (2014) from the University of Auckland, New Zealand conducted an empirical study of the structural transformation of nine developed countries namely Australia, Canada, France, Germany, Italy, Japan, Sweden, United Kingdom, and the United States based on data availability. By using regression analysis, the study reveals (1) structural transformation in developing countries is different from developed countries; (2) there is a large heterogeneity in each region; and (3) many countries experience substantial structural transformation during periods of economic

stagnation. Meanwhile, in Indonesia there are several studies conducted in the field of structural transformation, such as by Prawira and Hamadi (2013) and Ramda and Utama (2017). Prawira and Hamadi conducted a research on Transforming Economic Structures in Siak Regency in 2013. By using Shift Share Esteban Marquilass and LQ analysis, they explain that primary sector growth tends to decline. It was caused by the secondary sector that dominated Siak Regency economy. Whereas, Ramda and Utama from Universitas Udaya Bali conducted a research in Manggarai Regency during the 2010-2015 period. The study used Klassen, LQ, MRP, Overlay, and Shift Share typology analysis. The results show that Manggarai Regency experiences a shift in economic structure caused by changes in the contribution of economic sector in the primary sector to the tertiary sector.

Besides, a study on leading sectors has been conducted by Faisal and Morrissey. Faisal, et. al. in 2015. Theyconducted a study in Bangladesh by using the Location Quotient and Shift Share methods. The results note that fisheries and construction sectors are the most developed industrial sectors in Bangladesh, while the real estate, rental and business sectors are classified as lagging sectors. In the same way, Morrissey (2014:1) conducted a study on the exploration of regional industrial specialization in Ireland by using the LQ approach and a limit value of 1.25 as an indicator of industry specialization and clustering. He found that the financial and insurance sectors as well as transportation and telecommunications likely tend to group in the Border Midlands West (BMW) region. Meanwhile in Indonesia, Riantika and Utama (2016) also conducted a study about the leading sectors in Gianyar Regency. By using the growth ratio model, Location Quotient (LQ), Dynamic Location Quotient (DLQ), and overlay analysis, they found that the main sectors which are feasible to develop in Gianyar Regency are the sectors of accommodation, food and beverage procurement, real estate, and health services.

A study on cluster analysis was conducted by Raheem, et., Al (2019) in Bangladesh. They performed a study of regions grouping based on maternal and child health indicators. They reveal 2 clusters in 29 regions are classified in cluster 1, and 35 regions are in cluster 2. Most of the northern and northeastern regions of Bangladesh are classified as poor performers, while most of the central and southwest regions of Bangladesh are performing well. Meanwhile, Reveiu and Dardala (2011) from Romania identified regional clusters in Romania by using a combination of quantitative methods, namely LQ, Shift Share and Ellison and Glaeser's Agglomeration Index. It was found that mining activities are dominant in 8 regions namely Bacau, Mures, Hunedoara, Gorj, Valcea, Dambovita, Prahova and Teleorman..

RESEARCH METHODS

This study was carried out in Kalimantan with the observation period of 2010-2016. The variables and data of this study included 13 regencies / cities socioeconomic indicators and 2010 ADHB and ADHK GRDP data through Business Field. The data analysis method used was descriptive quantitative analysis, with the Location Quotient (LQ) analysis tool, Klassen Typology, Shift Share, Growth Ratio Model (MRP), Overlay, factor analysis and cluster analysis.

Location Quotient Method, the aim of this method is to determine the potential sector of a region towards the same sector in a wider region (province or nation). In addition, LQ analysis also aims to identify the composition and shift of the basic sectors of a region. The LQ method consists of 2 types, namely: Static Location Question (SLQ) and Dynamic Location Question (DLQ). The SLQ formula (Kuncoro, 2010: 177) is:

$$SLQ = \left(\frac{q_i/q_r}{Q_i/Qn}\right)$$

Notes:

SLQ = SLQ coefficient;

q_i = output value (GRDP) of sector i in the region;

q_r = total GRDP of all sectors in the region;

Qi = output value (GRDP) of national

sector i;

Qn = total GDP in all sectors nationally.

According to Wiwekananda (2016) in Riantika (2016: 1190), if the value of: (a) SLQ> 1, the sector is categorized as leading sector or base sector. It means that the production of the sector is sufficient to meet the needs of the region and even can be exported to other regions; (b) SLQ <1, the sector is not a leading sector which means that the production of the sector is insufficient for the region so it needs an assistance from other regions; and (c) SLQ = 1, the sector can only meet the needs of its own region and cannot export or import to other regions.

For more, DLQ is a modification of SLQ by accommodating the rate of growth of economic sector output from time to time. Kuncoro (2010: 178) notes the formula of DLQ is as follows:

$$DLQij = \frac{(1+gij)/(1+gj)}{(1+Gi)/(1+Gj)} = \frac{IPPSij}{IPPSi}$$

Notes:

DLQ_{ij} = the index of i potential sector in the region;

g_{ij} = growth rate of sector i in the region;

g_j = the average of sector growth rate in the region;

G_i = the nationa i sector growth rate;

G = the average of national sector growth rate;

$IPPS_{ij}$ =the index of potential development of i sector in the region;

$IPPS_j$ = the index of potential development of i sector at the national level.

Klassen's Typology, this analysis is based on the grouping of a sector by looking at the growth and contribution of a particular sector to the total GRDP of a region. Klassen's Typology Analysis groups a sector into 4 categories, namely: (1) primary sector, the high-growth sector and large contribution. It means the sector is very dominant in the regional economy; (2) the potential sector that has a slow growth but a large contribution. It indicates that the sector decreases; (3) the developing sector, the growth is high but the contribution is low. It indicates that the sector has increased and can be driven; and (4) disadvantaged sector, the growth is slow as well as its contribution. It indicates that the sector is less potential.

Shift Share Analysis, this analysis aims to determine the performance or work productivity of the regional economy by comparing it to the larger regions. In addition, this analysis uses three basic information that are interconnected, including: (1) province or national economic growth effect: shows the effect of province or national economic growth on the regional economy; (2) proportional shift: shows the relative change (up/down) of the performance of a sector in a particular region to the same sector at its upper level; and (3) differential shift: determines the competitiveness of local industries towards the referred economy. If the differential shift of an industry is positive, then the competitiveness of the industry is higher than the same industry to the referred economy. This shift is also called as the effect of competitive advantage. Further, the Shift Share Analysis uses the following formula: (a) the real impact of regional economic growth: Dij = Nij + Mij + Cij; (b) the effect of province economic growth: Nij = Eijxrn; (c) proportional shift or the influence of the mix industry: Mij = Eijx (rin-rn); and (4) the effect of competitive advantage: Cij = Eijx (rij-rin).

Notes:

Eij =the output of i sector in j regional;

Ein =the output of i sector in n province or national

rij =the growth rate of i sector in j region;

rin =the growth rate of i sector in n province or national;

rn =the economic growth rate of n province or national.

To determine the strength or weakness of a regional economic sector, this study used the Enders category (Suyana, 2010), namely (1) Proportional Shift component and regional share are positive which indicate that the sector is very strong; (2) the positive Proportional Shift component exceeds the negative regional share which means that the sector is strong; (3) the positive regional share component exceeds the negative Proportional Shift which indicate that the sector is rather strong; (4) the negative

Proportional Shift component exceeds the positive share of the region, means that the sector is rather weak; (5) the component of the negative region share exceeds the positive Proportional Shift, called as the weak sector; and (6) the Proportional Shift component and regional share are both negative, means that the sector is very weak.

Table 3. Sector Classification Based on Contribution and Growth

The average of sectoral contribution towards GRDP The average of sectoral growth rate	YSector ≥ YGRDP	YSektor< YGRDP
rSector≥rGRDP	Primary Sector	Developing Sector
rSector<rGRDP	Potential Sector	Disadvantaged Sector

Notes:
Y_{Sector} = the i sector output
Y_{GRDP} = the GRDP average of Kotim regency
r_{Sector} = the i sector growth rate
r_{GRDP} = GRDP growth rate

Growth Ratio Analysis Model (MRP), Basically, this analysis tool is the same as LQ, but the difference lies on the calculation criteria in which LQ uses the distribution criteria while MRP uses the growth criteria. The Growth Ratio Model compares the growth of an activity in the reference region and the study region. MRP analysis will show that the economic sectors of the study region have higher or lower growth compared to the same sector in the reference region (province or national).

In this analysis there were two growth ratios, as follows the ratio of Reference Region Growth (RP_R) was the ratio between the growth rate of the i activity in the reference region and the total activity growth rate (GRDP) of the reference region. According to Buhana and Masyuri (2006), the mathematical formulation of RPR is as follows:

$$RP_R = \frac{\frac{\Delta YiR}{YiR(t)}}{\frac{\Delta YR}{YR(t)}}$$

The ratio of Study Region Growth (RP_S) was a comparison between the growth rate of activity in the study region and the reference region. The formulation was:

$$RPs = \frac{\Delta Yij/Yij(t)}{\Delta YiR/YiR(t)}$$

Notes:
ΔYi_R = the change of GRDP in i sector in the reference region (national);
Yi_R (t) = GRDP of i sector in the reference region at the beginning of the study;
ΔY_R = the change of GRDP in the reference region;
Y_R (t) = GRDP in the reference region at the beginning of the study;
ΔY_{ij} = the change of GRDP in i sector in the study region (Kalimantan);
Y_{ij} (t) = the GRDP of i sector in the study region at the beginning of the study.

If the value of $RP_R > 1$, the RP_R is positive (+). It means that the growth of the i sector in the reference region is higher than the total growth in the reference region.

If the RPR value < 1, the RPR is negative (-). It means that the growth of the i sector in the reference region is lower than the total growth in the reference region.

If the value of RPs > 1, the RPs is positive. It means that the growth of the i sector in the study region is higher than the growth of the same sector in the reference region.

If the value of RPs < 1, the RPs is negative. It means that the growth of the i sector in the study region is lower than the growth of the same sector in the reference region.

Overlay Analysis, overlay analysis is a combination of MRP and LQ analysis tool

approaches. It aims to find out the description of potential economic activities based on contribution criteria (LQ analysis) and regional growth ratio criteria (MRP analysis). In addition, this analysis can also be used to determine the role of the regional economic sector in the formation of GRDP in provincial level.

The identification of leading sectors is showed through an overlay between Reference Region Growth Ratio (RPr), Study Region Growth Ratio (RPs), and Location Quotient (LQ). The coefficients of the three components are equalized. If it is positive (+), then the component is worth more than one, whereas if it is negative (-) then the component value is less than one. If the three components are positive in sector i, then the sector is a leading and competitive sector, In other words, the sector has competitive and comparative potential that is superior with the same activity in the reference region (national). Conversely, if the three components are negative in sector i, the sector is not a superior and competitive sector compared to the same activity in the reference region.

However, if the overlay results show a negative value on the RP^R although the RPs and SLQ are positive, it means that the sector activity in the study region is leading to the same activity in the reference region, both in terms of growth and contribution and has a comparative advantage. In other words that the sector is a specialist sector in the study region.

Factor Analysis, Factor analysis method aims to summarize the information content of a large number of variables into a number of smaller factors based on the similarity showed by high correlation values so as to form a throng factors. The approach that is often used in factor analysis is Principal Component Analysis (PCA). It transforms a number of variables into new composite variables or main components that are not completely correlated each other.

In this study, the factor analysis aimed to simplify thirteen variables into several socioeconomic dimensions was the Main Component Analysis. It brings the data closer into a grouping of a new variable based on the close relationship between the variable forming factors. There are four steps to obtain a number of components, namely: (1) identifying correlations by using a partial correlation that was previously measured by the amount of Bartlett's Test of Sphericity or Measure Sampling Adequacy (MSA) and the Kaiser Meyer Olkin (KMO) method. If the KMO value is > 0.5, then the data used are sufficient to be factored. Meanwhile, the correlation between variables can be seen from the Anti-Image Matrices table with MSA values: 0-1; (2) factor extraction is to reduce data or variables in order to produce factors that can explain correlations between indicators; (3) factor rotation aims to get a simpler arrangement of factors so that they can be interpreted; and (4) calculating factor scores.

Cluster Analysis, this analysis is used to identify the similar objects or individuals by grouping *n* objects based on *p* variants that have similar characteristics. The aim is to group similar objects in the same cluster based on the similarity of characteristics between related objects which are mutually exclusive into smaller numbers (Yulianto, 2014: 58). These objects will be classified into one or more clusters (groups) so that they have similar characteristics.

Before conducting clustering, firstly the researcher had to determine the distance of similarity between individuals by using the Euclidean distance measurement between 2 observation units X and Y with the dimensions of *p*, as follows:

$$d(X, Y) = \sqrt{[(X - Y)'I(X - Y)]}$$

Notes:

d (X, Y) = euclidean distance;
X = unit 1 observation matrix with the order n x p;
Y = unit 2 observation matrix with the order n x p;
I = identity matrix;
n = number of observations (56 districts / cities);
p = number of dimensions.

Additionally, the clustering method in cluster analysis consists of 2 methods, namely the hierarchical and the non-hierarchical method (Rachmatin, 2014: 134). The hierarchical method is used if the number of groups formed is

unknown, while the non-hierarchical method is used if the number of groups formed has been determined. Meanwhile this study combined the hierarchical and non-hierarchical method.

RESULTS AND DISCUSSION

Based on LQ analysis and Klassen's typology (table 4 and 5), it was known that mining and quarrying sector, and water supply, waste management, waste and recycling sector were the basic and prominent sectors of Kalimantan economy.

Table 4. The Classification of Kalimantan Economy Sectors based on the Values of SLQ, DLQ, and MRP in 2010-2016

Sectors	RP_R	RPs	SLQ	DLQ	Overlay Notations
Agriculture, Forestry, and Fishery sector	0.96	2.01	0.88	1.71	-+-
Mining and Quarrying sector	0.28	-1.08	3.75	21.64	--+
Processing Industry	0.87	1.20	0.83	1.17	-+-
Electricity and Gas Procurement	1.14	7.43	0.04	4.02	++-
Water Supply, Waste Management, Waster and Recycling	0.72	2.11	1.37	2.08	-++
Construction	1.25	2.60	0.83	1.64	++-
Wholesale and Retail Trade: Repair of Motor Vehicles and Motorcycles	0.95	2.55	0.55	2.20	-+-
Transportation and Warehousing	1.75	3.17	0.91	1.37	++-
Provision of Accommodation, and meal and drinks	1.00	3.03	0.41	2.71	++-
Information and Communication	0,98	2,43	0,48	1,97	-+-
Financial and Insurance Services	1.37	2.39	0.55	1.48	++-
Real Estate	0.98	2.39	0.50	1.84	-+-
Company Services	1.33	2.14	0.17	1.37	++-
Government Administration, Defense and Mandatory Social Security	1.03	3.31	0.90	2.46	++-
Education Services	1.26	3.18	0.72	2.01	++-
Health and Social Activity Services	1.18	3.52	0.88	2.19	++-
Other services	1.30	3.18	0.44	1.68	++-

Source: BPS, 2010-2016 (processed)

These sectors were the driving force in fostering the economic growth in Kalimantan. Not only fulfilling the demands of regencies/ cities in Kalimantan, the sectors were also able to fulfill demands from outside the area. In addition, mining and quarrying sectors dominated Kalimantan economy during the period of 2010-2016 with the average contribution of 37.03 percent. Conversely, the sectors of water supply, waste management, waste and recycling had the lowest contribution with the average of 0.10 percent. Even though mining and quarrying sector is still the major contributor to Kalimantan economy, but its

contribution and growth is continuously declining. In details, the roles of oil, gas, and geothermal in providing jobs continue to decline, especially in coal and metal ore commodities. This was caused by the decrease in productivity factors, namely the unavailability of regeneration of oil drilling wells, and the absence of new oil wells exploitation as well as the low demand for coal on the global market. Moreover, the existence of this downward trend requires intensive development on other sectors in order to offset the decline in oil and gas sector performance, so Kalimantan economy sustainability can be guaranteed.According to the results of overlay analysis (table 4), it was known that there was no sector having positive notation for the three components (RP_R, RP_S, and SLQ). In other words, there was no economy sectors having potential and comparative competitiveness at national level. Even though Kalimantan sectors lacked of competitiveness, its activities in the sector of water supply, waste management, waste and recycling had more prominent impact than the national level. Equally, the sector of water supply, waste management, waste and recycling was the specialist sector in Kalimantan.

Table 5. The Clarification of Kalimantan Economy Sectors based on Klassen's Typology

The Average Sectoral Contribution on GDRB The Average of Sectoral Growth Rate	kij>kin	kij<kin
rij>rin	PRIMARY SECTORS	DEVELOPING SECTORS
	Mining and Quarrying	Agriculture, Forestry, and Fisheries
	Water Supply, Waste Management, Waste and Recycling	Processing Industries; Electricity and Gas Procurement; Construction; Wholesale and Retail Trade; Provision of Accommodation, and meal and drinks; Information and Communication; Financial and Insurance Services; Real Estate; Government Administration; Education Services; and Health Services
rij<rin	POTENTIAL SECTORS	LAGGING SECTORS
	-	Transportation and Warehousing
		Company Services and Other Services

Based on the results of Klassen's typology analysis (table 5), the researchers found that there were twelve factors categorized in developing sector or sectors which have potentials to get supports and feasible to be developed as potential sectors.

These results also showed that there was no sector experiencing a decline. It showed that the performance of Kalimantan economy gains fairly good development.

Table 6. The Results of Kalimantan Shift Share, 2010-2016

Sectors	National Share (Rp)	Propotional Shift (Rp)	Competitive Advantage (Rp)	Competitive Position Differential Shift(Rp)	Positions
Agriculture, Forestry, and Fisheries sector	1.127.883.036,09	-142.352.088,86	154.598.014,72	1.140.128.961,95	3
Mining and Quarrying sector	3.446.229.457,52	-2.069.668.200,52	229.869.156,94	1.606.430.413,94	4
Processing Industry	1.660.657.134,54	-310.513.288,32	-548.674.347,95	801.469.498,27	6
Electricity and Gas Procurement	4.265.091,71	376.439,17	2.523.701,09	7.165.231,98	1
Water Supply, Waste Management, Waste and Recycling	9.870.522,76	-3.378.888,89	1.506.340,27	7.997.974,15	4
Construction	765.601.449,19	108.740.482,89	52.012.388,07	926.354.320,15	1
Wholesale and Retail Trade: Repair of Motor Vehicles and Motorcycles	703.101.338,57	-71.925.017,96	165.911.372,37	797.087.692,97	3
Transportation and Warehousing	367.377.143,73	211.337.824,49	-65.020.417,46	513.694.550,76	2
Provision of Accommodation, and meal and drinks	116.126.028,84	-7.333.850,34	40.356.713,35	149.148.891,85	3
Information and Communication	162.647.280,87	-19.630.492,27	32.508.586,86	175.525.375,46	3
Financial and Insurance Services	199.452.154,86	47.060.828,20	5.340.130,38	251.853.113,45	1
Real Estate	134.189.454,91	-14.345.292,76	20.208.101,01	140.052.263,16	3
Company Services	25.419.029,87	5.276.760,29	-1.201.725,22	29.494.064,94	2
Government Administration, Defense and Mandatory Social Security	333.916.247,87	-10.349.718,65	128.856.628,55	452.423.157,77	3
Education Services	222.144.697,20	35.892.059,98	55.790.336,79	313.827.093,97	1
Health and Social Activity Services	86.278.267,12	8.097.865,61	20.422.335,36	114.798.468,08	1
Other services	63.746.109,84	11.193.442,37	-2.889.269,91	72.050.282,30	2
	9.428.904.445,49	-2.221.521.135,56	292.118.045,23	7.499.501.355,16	

The Shift Share analysis showed that during the period of 2010-2016, the performance of Kalimantan economy gained improvement of IDR 7,499,501,355.16,-. This improvement was dominantly influenced by national role amounted to IDR 9,428,904,445.49,- and the competitive excellence of regional economy sectors of IDR 292,118,045.23,-. Meanwhile, the role of industries tended to slow down, and only contributed IDR 2,221,521,135.56,-.

To find out how strong or weak a sector in Kalimantan is, the researchers used Enders' categorization. This

categorization resulted five sectors included in the very strong sectors and owned good competitiveness, namely: (1) construction sector; (2) education services sector; (3) financial and insurance sector; (4) health and social activities sector; and (5) electricity and gas procurement sector. Oppositely, the sector of mining and quarrying, and the sector of water supply, waste management, waste and recycling which were considered as the leading sectors in Kalimantan were apparently categorized as weak sectors. The weakness of these two sectors was caused by industry mix which resulted negative value for these sectors. It meant that the growth of mining and quarrying sector, and water supply sector in Kalimantan tended to be slower than the growth of the same sector in national scale.

Table 7. The Average of the Results of Shift Share Analysis on Agriculture, Industry and Service Sectors in the Period of 2010-2016

No.	Sectors	*Differential Shift* Average
1.	Industries (mining and quarrying, processing industry, electricity and gas procurement, water supply, waste management, waste and recycling, and construction)	3,048,474,931.54
2.	Services (Wholesale and Retail Trade, Transportation and Warehousing, Accommodation, and Meals and Drinks provision, Information and Communication, , Real Estate, Company Services, Government Administration, Education Services, Health and Social Activities Services, and Other Services	2,726,934,006.47
3.	Agriculture, Forestry, and Fisheries	1,055,283,899.73

To reveal the structural transformation in Kalimantan, we can see Table 7. Based on table 7, the majority of Kalimantan regencies/ cities still depended on agriculture sector as the main business field. However, industrial sector apparently held the biggest development compared to services sector and agriculture sector, namely IDR 3,048,474,931.54. The difference in the development of these three sectors showed that Kalimantan economy experienced a shift in economic structure from agriculture to industrial sector.

The decline in agriculture sector made an increase in industrial sector. This is in line with Todaro's statement (2008:68) that economic growth or development in a particular area would cause a shift in economic structure. This shift will slowly cause a shift from agriculture sector to non-agriculture sector reflected by the increase in the role of non-agriculture sector and the decrease in agriculture sector roles. The economic structure shift in several region in Indonesia, such as Siak (West Indonesia), Kalimantan (Central Indonesia), and Manggarai Regency (East Indonesia) showed that there was a simultaneous shift in economic structure in Indonesia. Each structural shift occurred in every region showed differences in each sector.

Factor Analysis, Kalimantan has significant roles for Indonesia economy, and is one of areas which contribute the main foreign exchange earner. The geographical condition of regencies/ cities in this island is almost the same, but each region has difference economic structure. The similarity of socioeconomic condition of these regions can be seen from the indicators of socioeconomic. In relation to this, the current study employed thirteen indicators of

socioeconomic. Those data were analyzed using factor analysis.

Prior to conducting factor analysis, the researchers examined the samples through Kaiser-Meyer-Olkin (KMO) test, and Bartlett's test. The values of KMO and Bartlett;s test for determining the correlation between variables must to be > 0.5.

Table 8. The Results of KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0,733
Bartlett's Test of Sphericity	Approx. Chi-Square	404.750
	Df	66
	Sig.	0,000

Source: SPSS Calculation, KMO and Bartlett's test gained values of 0.733, and 404.750 respectively. These meant that the samples used in this study were reliable and sufficient to be factored, and could be used for further analysis. Meanwhile, the value of anti-image correlation matrix results must have the MSA value more than 0.5, except the variable of worker percentage in secondary sectors, namely 0.469. As a result, this variable must be excluded. The next step was to determine the number of factors and group the independent variables into the factors formed by looking at the amount of eigenvalue. The results of the analysis of the main components showed that there were two factors formed with eigenvalue values respectively 5.132 and 2.202. These two factors were able to explain 61.120 percent of the variance of all original variables and the remaining 38.880 percent consisted of ten shared factors.

Table 9. Rotation Component Matrix

Variables	Components	
	Education and Population	Economy, Health, Social, and Workforce
Literacy Rate	0.710	
Per Capita Expenditures	0.675	
School Life Expectancy	0.756	
Population Density	0.742	
Economic growth	0.059	
GRDP		0.910
Poverty		0.217
Unemployment Rate		0.658
Life Expectancy		0.664
Dependency Ratio		-0.044
The Percentage of Workforce in Primary Sectors		-0.321
The Percentage of Workforce in Tertiary Sectors		0. 482

Source: SPSS Calculation

Based on table 9, the researchers obtained two main components, namely education and population, and the component of economy, health, and social, and workforce. The first component had five variables, namely literacy rate, per capita expenditure, school life

expectancy, population density, and economic growth. Meanwhile, the second component consisted of seven variables of per capita GRDP, poverty, unemployment rate, life expectancy, dependency ration, primary sectors workforce percentage, and tertiary sectors workforce percentage. The link of both factors with each of variable members were: the first factor showed the relationship between high variable members, while the second factors indicated a relationship with high variables except for dependency rate, and primary sector workforce percentage.

Cluster Analysis, Factor analysis on twelve indicators of Kalimantan socioeconomic condition resulted two components and factor score values. Through factor score values, the researchers did the classification of regencies/ cities based on socioeconomic condition using cluster analysis. In this study the cluster analysis were done using the combination of two methods, namely hierarchical method, and non-hierarchical method. Through these methods (K-Means Cluster), the researchers obtained four clusters. This is the same was what was done in the classification of Bangladesh region by Raheem et.al (2019).The first cluster, the components of economy, health, social and workforce gained the lowest factor score of -0.83078. It mean that the condition of economy and workforce in this regencies/ cities was below the average of other regencies in Kalimantan.This cluster is called agriculture because the region is surrounded by agrarian field. The second cluster with the highest factor score was the component of education and population, namely 1.97798. This cluster got a quite high tertiary sector workforce percentage, population density, and unemployment. The regencies/ cities belonged to this cluster are generally located in urban area, and the provincial capitals with various complex social issues. In other words, this cluster is called as urban cluster.

The third cluster which obtained the lowest factor score were the components of education and economy, namely -0.69716 and -0.38105. It meant that the regions in this cluster were disadvantaged. In other words, this cluster is called as disadvantaged cluster. The last cluster was the cluster which had the highest factor score of economy component, which was 1.56755. The regions in this cluster are wealth in natural resources and are the center of industry, so this cluster is called a wealth cluster.

Table 10. Kalimantan Cluster Centers

Components	*Cluster* 1 (Agriculture)	2 (Urban)	3 (Disadvantaged)	4 (Wealth)
Education and Population	0.23186	1.97798	-0.69716	-0.46587
Economy, Health, Social and Workforce	-0.83078	0.26286	-0.38105	1.56755

Source: SPSS Calculation

Agricultural Cluster is a cluster whose surroundings are agrarian. It has low population density, and most of its population work in agriculture sector. The education implementation in this cluster was quite good. It was proven by the value of factor score of 0.23186. However, its economy condition was considered low, namely -0.83078 in factor score value or below the average of other regencies/cities. More than 80 percent population in this cluster depend their lives on agriculture sector, and achieve quite good educational achievements. The per capita GRDP in this cluster was considered low, but its economic growth was the highest among other clusters.

In addition, there were 16 regencies belonged to this cluster, and those were dominated by Central Kalimantan Province, and South Kalimantan Province.

Table 11. The Lists of Regencies or Cities in Agricultural Cluster

No.	Provinces	Regencies/Cities	No.	Provinces	Regencies/ Cities
1.	West Kalimantan	Singkawang City	9.	Central Kalimantan	West Kotawaringin
2.	South Kalimantan	Tanah Laut	10.		East Kotawaringin
3.		Banjar	11.		Kapuas
4.		Barito Kuala	12.		South Barito
5.		Tapin	13.		Sukamara
6.		South Hulu Sungai	14.		Lamandau
7.		Central Hulu Sungai	15.		Katingan
8.		North Hulu Sungai	16.		Pulang Pisau

Source: SPSS Processing

Urban Cluster, Urban cluster is a cluster whose population and education components gained the highest factor score among other clusters, namely 1.97798. Any regencies/ cities belonged to this cluster usually had complex issues in economy, social, and environment. It can be seen from the high level of population density, per capita expenditure, number of tertiary sector workforce, life dependency rate, and unemployment rate. However, the implementation of education in this cluster was very good. It was proven by the high rate of school life expectancy, and literacy. Further, the community group in this cluster took an average of education up to grade 1 of high school / equivalent, meaning that the 9-year program promoted by the government has been achieved. From the economy side, GRDP per capita in this cluster was above the district / city average but the economic growth was still below the district / city average.

Table 12. The Lists of Regencies or Cities in Urban Cluster

No.	Provinces	Regencies/ Cities	No.	Provinces	Regencies/ Cities
1.	West Kalimantan	Pontianak City	5.	South Kalimantan	Banjarbaru City
2.	Central Kalimantan	East Barito	6.	East Kalimantan	Balikpapan City
3.		Palangka Raya City	7.		Samarinda City
4.	South Kalimantan	Banjarmasin City	8.	North Kalimantan	Tarakan City

Source: SPSS Processing

There were 7 cities and 1 regency categorized in this cluster in which five of them were the province capitals. Economically, any regions in this cluster had a chance to develop and be the city center after the province capital, such as the one in East Barito Regency. Even though, East Barito Regency is the only one regency which is not classified as a big city, this region belonged to Local Activity Center (PKL), namely an urban area whose function is to serve any activities at

regencies/ cities level. Disadvantaged Cluster Disadvantaged cluster is a cluster whose the factor score of education and economy components was the lowest among others, namely -0.69716 and -0.38105, respectively. The condition of economy and education in this cluster was behind the other three clusters. Generally, regions belonged to this cluster gained high level of poverty, dependency ration, and primary sector workforce number. Meanwhile, the category of aspects in this cluster, such as economy and health, GRDP per capita, economic growth, and life expectancy was low. Additionally, the educational attainment, covering school life expectancy, and literacy rate was also low.

The definition of disadvantaged areas according to Government Regulation No. 78 of 2014 is regency whose regions and communities are less developed compared to other regions on a national scale. Disadvantaged areas are areas that are less visited by economic activities, do not have the potential for natural resources, limited infrastructure and means of transportation, clean water, irrigation, health, education, and other services that cause people in disadvantaged areas to experience difficulties in carrying out economic and social activities.

Determination of the status of disadvantaged areas both in the Western Indonesia Region (KBI) and Eastern Indonesia Region (KTI) is based on the Regulation of the Minister of Villages, Development of Disadvantaged Areas and Transmigration Number 3 of 2016 concerning Technical Guidelines for Determining the Indicators of the Disadvantaged Areas Nationally. This was carried out through a relative approach to the six main criteria and 27 disadvantaged area indicators

Apparently, the designation results made by The Ministry of Villages, Development of Disadvantaged Regions, and Transmigration (Kemendes PDTT) was different from the classification made using cluster analysis. Of 27 main indicators determined by Kemendes PDTT, there were only found indicators having the same results as cluster analysis, namely per capita expenditure, life expectancy, school life expectancy, and literacy rate. Based on Kemendes PDTT data, there are 122 regencies over Indonesia categorized as disadvantaged region. The distribution of disadvantaged region in KTI was more varied than KBI, namely 103 regencies spread over 16 provinces. Whereas, in Kalimantan, there are 12 regencies categorized as disadvantaged region. In details, the disadvantaged regions based on Kemendes PDTT (2014), are: (1) West Kalimantan Province: Sambas, Regency, Bengkayang, Landak, Ketapang, Sintang, Kapuas Hulu, Melawi, and North Kayong; (2) Central Kalimantan Province: Seruyan Regency; (3) South Kalimantan Regency: North Hulu Sungai Regency; (4) East Kalimantan Province: Mahakam Hulu Regency; and (5) North Kalimantan ProvinceL Nunukan Regency.

The results of cluster analysis showed that there were 20 regencies categorized as disadvantaged regions, and the majority came from West Kalimantan Province. These results were adjusted to Kemendes PDTT data year 2014, and resulted three regencies which are not supposed to be included in disadvantaged cluster, namely North Hulu Sungai (South Kalimantan Province), Mahakam Hulu Regency (East Kalimantan Province), and Nunukan Regency (North Kalimantan Province).

This decision was made based on the fact that the economy condition of those regions are now better. Wealth Cluster is a cluster which gained the highest factor score on economy components, namely 1.56755. Regencies/ cities included in this cluster had low population density, and a low number of primary sector workforce. The implementation of education in this sector was very good. It was proven by the high level of school life expectancy and literacy rate. The economy condition of regencies/ cities in this cluster was good. It was indicated by the high per capita GRDP. This cluster consisted of 11 regencies and 1 city, and all of them were located in East Kalimantan Province, and North Kalimantan.

Table 13. Regencies/ Cities in Disadvantaged Cluster

No.	Provinces	Regencies/ Cities	No.	Provinces	Regencies/ Cities
1.	West Kalimantan	Sambas	11.	West Kalimantan	North Kayong
2.		Bengkayang	12.		Kubu Raya
3.		Landak	13.	Central Kalimantan	North Barito
4.		Pontianak	14.		Seruyan
5.		Sanggau	15.		Gunung Mas
6.		Ketapang	16.		Murung Raya
7.		Sintang	17.	South Kalimantan	Kotabaru
8.		Kapuas Hulu	18.		Tabalong
9.		Sekadau	19.		Tanah Bumbu
10.		Melawi	20.		Balangan

Source: SPSS Processing

The existence of these province was undeniable since both provinces are the wealthest in Indonesia. Even though the per capita GDRP of the regions in this cluster was very high, their economic growth was low. There were five regencies having minus economic growth, namely Paser Regency, West Kutai, Kutai Kartanegara, East Kutai, and Berau. This growth happened because regencies only depend on non-renewable natural resources such as coal mining. Another cause was the decline in processing industries, including palm oil industry.

Table 14. The Lists of Regencies/ Cities in Wealth Cluster

No.	Provinces	Regencies/ Cities	No.	Provinces	Regencies/ Cities
1	East Kalimantan	Paser	7	East Kalimantan	Mahakam Hulu
2		West Kutai	8		City Bontang
3		Kutai Kartanegara	9	North Kalimantan	Malinau
4		East Kutai	10		Bulungan
5		Berau	11		Tana Tidung
6		North Penajam Paser	12		Nunukan

Source: SPSS Processing

Development Priorities in each cluster, from the socio-economic structure perspective, the regions in each cluster had fundamental differences. It triggers the Regional Government to be more sensitive and attentive in investigating leading potentials of each region, and identifying regional economy development issues to achieve better economic growth targets.

Agricultural cluster was a cluster with the highest population number who worked in primary sector. Compared to other sectors, agriculture sector still dominated regional economy in this cluster. For more, the education condition in this cluster was fairly good as well, but its poverty level was quite high. The development priorities for this cluster should concentrate on economy activities. It was because a region whose economy activities are high tend to have high level of development and economic growth as well. One of activities that can be done is by increasing investment both Foreign Capital Investment (PMA), and Domestic Capital Investment (PMDN) as well as improving other productive economy activities, such as manufacturing, the provision of loan for farmers in form of Small Business Loan (KUK),

Permanent Business Capital Loan (KMKP), PNPM Mandiri Program, and regional socioeconomic infrastructure development.

Urban cluster is a cluster with better economy and education condition compared to agricultural and disadvantaged clusters. Regions in this cluster were mostly province capitals and large cities whose social issues were complex; for example, population density, and high unemployment rate.

To overcome these issues, possible prioritized policy by government is to be more active in handling any social issues that arise. Meanwhile, for the unemployment issues, and lack of jobs opportunity, the government can do several activities, such as conducting training and education programs to shape skills and develop potentials, providing free education for the underprivileged, sharing quick information via social media regarding job recruitments. Additionally, the issue of population density can be overcome though several activities, covering increasing agricultural development in less-populated areas through local transmigration programs, equalizing employment, promoting family planning programs, increasing rural development through the allocation of village funds.

Disadvantaged cluster is a cluster that is disadvantaged in terms of economy and education. The fundamental issue of this cluster was the low public infrastructures. Community group who lived in disadvantaged area experienced difficulty in obtaining fundamental services, such as education, health, clean water, transportation infrastructure, electricity and telecommunication. This affected the low quality of human resources and weak regional economy. In details, more than 45 percent areas in Kalimantan are disadvantaged areas. This condition is truly concerning, and does not contrast with the condition of Kalimantan that is full of natural resources, but these wealth do not contribute to people welfare. To deal with this, there is a need for policies regarding the improvement of economy development, education, and infrastructures. Further, efforts which can be implemented in the field of economy are the realization of equal development, and giving special attention to disadvantaged, critical, and isolated inland areas. Another effort in economy field can be done by developing local economy through community, and regional independence, utilization of regional potentials, economy integration between disadvantaged areas and developed areas, and the provision of treatments for special areas.

On the other hand, possible policies to be implemented in the field of education is improving the quality of education, and strengthening the expansion and equitable learning opportunities. In the field of infrastructure, the government can make efforts to develop educational and health infrastructure facilities to improve the quality of human resources, such as the construction of boarding schools, equitable distribution of educators and health workforce, construction of health facilities, and assistance of medical devices.

Wealth cluster is a cluster with very good economic condition, but lack of education quality. The condition of education in this cluster was better than those in agriculture and disadvantaged clusters. However, the development in the field of education in this area needed to be prioritized given its economic condition which was better than those in urban areas. Of 12 regencies/ cities, there were 7 regencies which had abundant oil and gas resources, and more than 200 million rupiah per capita revenue. These regencies were Paser regency, West Kutai, Kutai Kartanegara, East Kutai, Berau, Tana Tidung, and Bontang City.

One of strategies of regional development is cluster concept. According to Setiyanto (2010) in Ekoregional book, one of the objectives of cluster-based regional development is to provide advantages for welfare and employment opportunities. As an expanded regency which was formed on July 17, 2007, Tana Tidung Regency (North Kalimantan Province) did an amazing economic performance. In 2016, this regency succeeded to gained the highest per capita revenue in throughout North Kalimantan, namely

179,804,166.48 and 6.58 percent. Geo-economically, this regency is in the middle between Tarakan City, Bulungan Regency, Malinau Regency and Nunukan Regency which are the strategic paths of the economy. The achievements and performance of Tana Tidung Regency over the past three years indicated that this district is an example of a capable and independent expanded district which has been free from the Bulungan Regency.

Figure 1 showed the spatial distribution of cluster mapping. It was known that the majority of West Kalimantan, South Kalimantan, and Central Kalimantan areas dominated disadvantaged cluster by having economy and education conditions below the average of other regencies/ cities. Meanwhile, other areas categorized in agricultural cluster were dominated by Central Kalimantan Province, and South Kalimantan Province with quite low economy condition. Also, the condition of population and labor in this cluster was not very good because most of the population relied their lives on primary sectors.

The majority areas included in the urban cluster were the provincial capitals and municipalities. Meanwhile, the wealth cluster was dominated by the whole parts of the eastern and northern Kalimantan, except Balikpapan, Samarinda, and Tarakan. These regions are rich in natural resources, and have very high regional income. However, many poor people made this cluster negative since they keep exploiting the natural resources. Even though the value of coal exports continues to increase, the government monopolizes the results of coal exports so that the results are not felt by the people. It is interesting to study further about the causes of uneven economic welfare in this cluster.

CONCLUSION

According to the findings, the researchers draw some conclusions. First, Kalimantan economy still depends on its natural resources with the support of agricultural, forestry, and fisheries, mining and quarrying, and processing industry sectors. The natural resources of those three sectors are very high and can be said to dominate the formation of Kalimantan economic structure.

Second, the results of LQ analysis show that mining and water supply sectors are included in primary sector, and leading sector. Third, based on the analyses of LQ, Klassen's typology, Shift Share, and Overlay, the researcher it is known that there are two most potential sectors possible to develop and have potentials for competitive and comparative competitiveness, namely processing industry and construction sectors.

Fourth, based on cluster analysis, the regencies/ cities in Kalimantan is grouped into 4 (four), namely agricultural cluster, urban cluster, disadvantaged cluster, and wealth cluster. The agricultural cluster is a cluster that is typically agricultural in which the communities depend their lives in agricultural sector. Meanwhile, the areas included in the urban cluster are mostly from urban areas, and provincial capitals, and have complex social issues. Next, disadvantaged cluster consists of areas which have the condition of economy and education below the average of other regencies/ cities in Kalimantan. Most people in this cluster work in primary sector. The next cluster is wealth cluster. This cluster covers areas with highest economy component, and better education implementation compared to agricultural and disadvantaged clusters.

Fifth, the development priorities for each cluster can be done in many ways. For agricultural cluster, the main development priority is on handling economic issues by improving the concentration on economic activities. Meanwhile, the development priority for urban cluster is on handling social issues, such as population density, and unemployment rate. For disadvantaged cluster, the priority is aimed at handling economic and education issues, while the wealth cluster development priority is on the issues of education.

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