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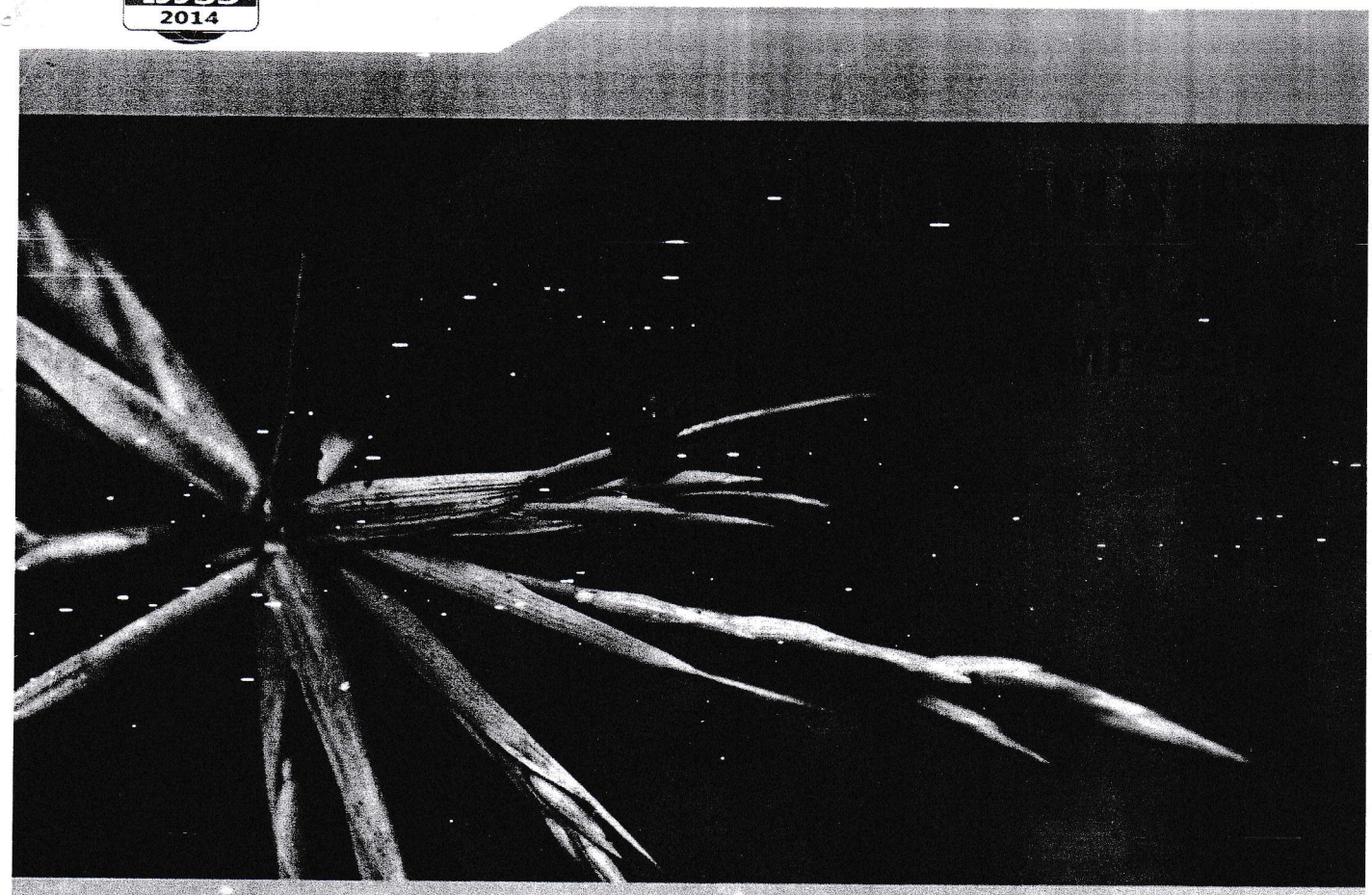

University Club (UC), Universitas Gadjah Mada,
Yogyakarta, Indonesia

29-30 October 2014

UNIVERSITAS GADJAH MADA

CHIBA UNIVERSITY

UNIVERSITAS INDONESIA

Editors:
Muh Aris Marfai
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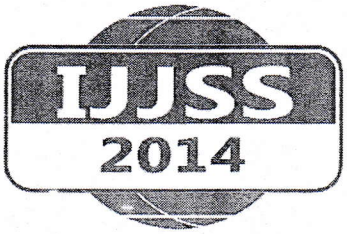

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FOREWORDS

The 6th Indonesia Japan Joint Scientific Symposium (IJJSS) held at Universitas Gadjah Mada, Yogyakarta, Indonesia from 29th October to 30th October 2014 is the premier event in the collaboration between Universitas Indonesia and Chiba University. This symposium is the sixth in the series held earlier at Chiba University and Universitas Indonesia. This symposium provided a venue to share and discuss various issues and development in the multi-field of scientific and technology.

The symposium accepted eighty three papers from students and researchers in Indonesia, Japan, and many other countries. The papers are derived from twenty four different themes as follows:

- Antenna and Microwave
- Architecture
- Agriculture
- Biomedical
- Coastal and Watershed Management
- Computer and Information Technology
- Disaster Management
- Electronic Circuit
- Energy and Power System
- Environmental Chemistry
- Environmental Science
- Humanities
- Image and Signal Processing
- Industrial Design and Management
- Mathematics
- Mechanical Engineering
- Medicine
- Micro satellite and UAV
- Nursing
- Pharmacy
- Remote Sensing and Geo-Information Science
- Social Sciences and Sustainabilities
- Socioeconomic Relations
- Vision and Biological Functions

Through these documented proceedings, may all findings enforce progress, stimulate growth and advance the state of knowledge between students from Indonesia and Japan, as well as those from other countries around the world. It is also hoped that these proceedings will be useful source of reference to scientific students, researchers, and professionals in other scientific-related fields.

Thank you.

General Chairman of
The 6th Indonesia Japan Joint Scientific Symposum (IJJSS)

Prof. Dr.*rer.nat.* Muh Aris Marfai, M.Sc.

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Theme: Socioeconomic Relations

The Investment Profile in Mamuju District West Sulawesi

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Abstract

This study aims to analyze the economic potential of Mamuju district in West Sulawesi that will encourage investment. This study uses shift-share analysis, location quotient (LQ) and the method of measuring the elasticity of employment. This study uses the quantitative data obtained from published reports of the Central Statistical Agency (BPS), Department of agriculture and trade services in Mamuju District. The results of the study show the economic potential of the Mamuju district is conceived to be largely characterized by the services sector. The Shift-Share Analysis shows the competitiveness of the services sector rather than agriculture sector, the result of the shift share analysis for the agriculture sector is negative. The classification of economic sectors to the base and the non-base sectors by LQ values shows that the sector base consists of the agriculture, the mining and quarrying, the building and construction, the finance, the leasing and business services, and the services sector. Based on the elasticity of employment to GDP, the building and construction sector, the service sector, the agricultural sector, the financial sector, the renting and business services sector are elastic, while the other sectors are inelastic.

Keywords

autonomy, shift-share analysis, location quotient (LQ), the elasticity of employment

1. Introduction

Regional development is an integral part of national development, so development activities are carried out by the central government to enhance national development, which will also bring a positive impact and an increase of local revenue.

A drastic change as a result of the implementation of the legislation is the transition from a centralized system to a decentralized system, in which local authorities are required to explore and develop the economic potential independently. The economic potential in a region does not enhance the development of the area if there is no attempt to develop and exploit the economic potential of the area optimally.

As an effort to utilize and develop the economic potential, what the government should do in Mamuju District as the first step is to make the analysis of investment opportunities, outlined in the form of Investment Profile of Mamuju District. It is expected that this investment profile provides for economic actors and investors a detailed information about the real potential of the Mamuju District. This study focuses on the problems which is formulated as follows:

- Identify the leading commodities in the Mamuju District
- Identify a prospect of growth for each of the leading commodities in the Mamuju District.
- Identify the business field for leading commodities per district,
- Identify the promoters and obstacles for the development of investment in the Mamuju District.

Economic development is generally defined as a process that leads to the increase of real income per capita in the long run accompanied by improvement of the institutional system (Arsyad, 1999). Therefore, the government has to repair institutional systems in all fields (e.g. economic, political, legal, social, and cultural). Kamaluddin (1989) indicates that the definition of economic development has

experienced a major change in the field of science and development policies. Jhingan (2000) sees the main objectives of economic development is to build capital equipments. Adisasmita (1989) argues that regional economic growth is the increase in the volume of economic variables in a spatial sub-system of a nation. Regional economic development is a process of forming a partnership between local governments and the private sector by which local governments and communities manage existing resources to create new jobs and stimulate the development of economic growth (Arsyad, 1999).

This article deals with two key characteristics of an economy that are most important to determine its investment profile. One is the shifting of economic structure, the other is the economic base.

Basically theories about the shifting economic structure explain the phenomenon of structural changes in developing countries from predominantly rural economic activities to the urban-oriented economic activities in the form of industry and services. In general, a shift in the economic structure is characterized by the transition and shift of economic activity from the primary production sector (agriculture) to the secondary sector (manufacturing, construction) and services sector. Kuznets suggests that a shift in the economic structure of the development process is not only due to the change in the percentage of the population who work in the various sectors and sub-sectors in economic development, but also due to changes in contributions that various economic sectors make to the national product in the process (Sukirno, 1985). For the measurement of structural change, the shift share analysis is used. Shift Share Analysis was first introduced by Dunn (Brown, 1969). It is a relatively simple technique to analyze changes in the structure of the local economy in conjunction with a larger reference economy.

Identifying the base sectors of an economy has been crucial to many studies on a regional economic growth. Method of location quotient, determines the base sectors and non-base sectors by comparing the changes of economic growth between the province and district in a particular sector. If a sector has a LQ greater than one, then the the sector are included in the base sector category, and when LQ is less than one, then the sector concerned does not include the base sector.

2. Method

This study was conducted in the Mamuju district of West Sulawesi by focusing on several areas of the district as the locations of the data collection for the sample. This study used both primary data and secondary data.

2.1 Shift-Share Method

Shift-share analysis is a tool for decomposing the growth in a regional economic variable into various components. The analysis compares regional and national changes in the variables across various economic sectors. In a simple shift-share analysis, the regional changes are decomposed to national, sectoral, and regional factors. In this study the variables used are,

Yij : GDRP of sector i in the region j (district),
ΔYij: GDRP growth of sector i in the region j (district),
Rij : growth rate of sector i in region j (district),
Rin : growth rate of sector i in region n (province),
Rn : growth rate of GDRP in region n (province).

General form of the equation of shift-share analysis and components are

$$\Delta Yij = \left(\frac{Rij-Rin}{Rij}\right)\Delta Yij + \left(\frac{Rin-Rn}{Rij}\right)\Delta Yij + \left(\frac{Rn}{Rij}\right)\Delta Yij,$$

which is derived from the following obvious equation,

$$R_{i,j} = \left(R_{i,j} - R_{i,n}\right) + \left(R_{i,n} - R_n\right) + R_n.$$

Cij= $\left(\frac{Rij-Rin}{Rij}\right) \Delta Yij$ = Net regional effect of the region j in the sector i.

This is a differential shift, which indicates the competitiveness of a particular sector in Mamuju over that in the province. If the value of the differential shift is positive, the sector in Mamuju is more competitive than the same sector in the provincial economy.

Mij= $\left(\frac{Rin-Rn}{Rij}\right) \Delta Yij$ = Net industrial effect of the sector i in the region j.

This is a proportional shift, which shows a level of performance of a sector compared to the whole sectors in the province.

Nij= $\left(\frac{Rn}{Rij}\right) \Delta Yij$ = Provincial growth effect.

This is an effect of provincial economic growth which shows the effects of economic growth of West Sulawesi on a sector in Mamuju

2.2 Location Quotient Method (LQ)

The Location Quotient (LQ) is one of the analytical techniques used in the development plan to analyze potential sectors within a regional base, It measures the ratio of the concentration of a sector in a regional economy to that in a broader regional or national economy. According Arsyad (1993), formula to calculate the LQ is

$$LQ=\frac{yi/yt}{Yi/Yt},$$

where

LQ : Location Quotient,
yi : GDRP of sector i in the district,
yt : total GDRP in the district,
Yi = GDRP of sector i in the province,
Yt = total GDRP in the province.

LQ > 1 indicates a base sector in the district, for the production capability of the sector in a district is larger than that at the provincial level. LQ < 1 indicates a non-base sector in the district, for the production capability of the sector in a district is smaller than that at the provincial level.

2.3 Measurement Method of Employment Elasticity

This method is used to measure the ratio of the percentage change in the number of job opportunities to the percentage change in Gross Domestic Regional Product (GDRP). Formula to calculate the employment elasticity is

$$Ekk = \frac{\Delta KK/KK}{\Delta GDRP/GDRP},$$

where

EKK : elasticity of employment,
KK : employment,
ΔKK : changes in employment,
GDRP : Gross Domestic Regional Product,
ΔGDRP : changes in GDRP.

3. Result

3.1 Shift-Share Analysis

Based on calculations in Table 2, the sectoral GDRP growth rates (Ri) of Mamuju are higher than the aggregate GDRP growth rate of West Sulawesi in trade,hotel and services, transportation and communication, finance, real estate and business services and services sector. This shows that there are 4 sectors in the Mamuju that have a strong

competitive edge to compete with other regions of West Sulawesi. On the other hand, comparison of the sectoral growth rates of West Sulawesi (Ri) with the aggregate growth rate (Rn), shows that agriculture sector and trade, hotel and restaurant do not have a competitive edge in the overall provincial economy.

Table 1. GDRP and GDRP ratio by Industrial in Mamuju District in 2007 and 2011 (Millions of Rupiah)

No	Sectors	PDRB Mamuju District		Changes	Component Changes			Cij+Mij
		2007	2011		Nij	Mij	Cij	
1	Agriculture	574,444.55	721,999.38	147,554.83	268,969.80	(88,680.16)	(32,734.82)	(121,414.97)
2	Mining & Quarrying	15,028.38	29,065.51	14,037.13	7,036.68	10,910.38	(3,909.93)	7,000.45
3	Manufacturing	36,718.12	51,585.71	14,867.59	17,192.37	9,370.72	(11,695.51)	(2,324.78)
4	Electricity, Gas and Water	3,637.32	7,558.95	3,921.63	1,703.09	3,397.82	(1,179.28)	2,218.54
5	Building / Construction	53,492.40	91,079.82	37,587.42	25,046.53	28,693.84	(16,152.95)	12,540.89
6	Trade, Hotels & Restaurants	95,001.70	135,680.07	40,678.37	44,482.25	(5,375.05)	1,571.16	(3,803.88)
7	Transport & Communications	30,023.74	53,692.11	23,668.37	14,057.89	7,603.64	2,006.84	9,610.48
8	Finance, Real Estate and Business Services	53,444.16	116,610.37	63,166.21	25,023.94	16,543.79	21,598.48	38,142.27
9	Services	185,690.02	326,763.36	141,073.34	86,944.87	21,268.52	32,859.95	54,128.47
	Total	1,047,480.39	1,534,035.28	486,554.89	490,457.43	3,733.51	(7,636.05)	(3,902.54)

Source: BPS of Mamuju district and Prov. West Sulawesi, and results of analysis

Table 2. The Components of Changes in GDRP by Industries in Mamuju District, in 2007 and 2011 (Millions of Rupiah)

No	Sectors	Mamuju District		West Sulawesi		Ratio Mamuju	Ratio WS	Ratio Agregat
		2007	2011	2007	2011			
1	Agriculture	574,444.55	721,999.38	1,842,233.98	2,420,419.84	1.26	1.31	1.47
2	Mining & Quarrying	15,028.38	29,065.51	22,380.32	49,107.15	1.93	2.19	1.47
3	Manufacturing	36,718.12	51,585.71	279,038.80	480,904.65	1.40	1.72	1.47
4	Electricity, Gas and Water	3,637.32	7,558.95	12,940.82	31,088.79	2.08	2.40	1.47
5	Building / Construction	53,492.40	91,079.82	121,662.11	243,888.19	1.70	2.00	1.47
6	Trade, Hotels & Restaurants	95,001.70	135,680.07	468,808.39	661,792.16	1.43	1.41	1.47
7	Transport & Communications	30,023.74	53,692.11	106,467.58	183,281.82	1.79	1.72	1.47
8	Finance, Real Estate and Business Services	53,444.16	116,610.37	191,443.86	340,344.81	2.18	1.78	1.47
9	Services	185,690.02	326,763.36	522,840.26	827,532.55	1.76	1.58	1.47
	Total	1,047,480.39	1,534,035.28	3,567,816.12	5,238,359.06	0	0	0

Source: BPS in Mamuju District and West Sulawesi Province, and results of analysis

Table 1 shows that the greatest change in GDRP is 147,554 million rupiah in the agricultural sector, while the net shifts and the mix of a differential growth and a proportional growth in the agricultural sector are negative. It was caused by the decline in the quality and productivity in some agricultural commodities as a result of natural or weather conditions that affected on agricultural production and made resale values so low resulting in weak competitiveness. However, both the real output and the growth of this sector are always meaningful contributions to the GDP formation of Mamuju.

Building and construction sector also shows a rapid growth but its competitiveness is still weak, This happened because the development in this sector picked up its speed province-wide, and grew faster than that in the Mamuju. However, the change in GDRP shows that the sector will provide a significant contribution to the GDRP formation if development in the sector continues. Trade, hotels and restaurants in the Mamuju are negative because in the Mamuju there was not a strong demand for hotels and restaurants. The progress in the trading sector has been slow even through it is picking up a speed recently. Transport and communications sector in the Mamuju shows a rapid growth (indicated in Table 2) and is strongly competitive. This is due to the fast development of transport and communications, such as a wide range of transportation from and to every corner of the sub-districts and villages, as well as an increase in the number of telephone networks. Finance, real estate and business services sector in the Mamuju shows a rapid growth and is very strongly competitive. This is brought by the expansion of the activities in this sector, such as private savings and a high public interest to take the credit. The increase in the sector's contribution to GDRP growth has been quite high. The result for the shift share analysis shows that services sector has a large GDRP increase from 185,690.02 to 326,763.36 and has positive values for both Cij and Mij because Mamuju become the capital of West Sulawesi.

Mining and quarrying sector in Mamuju has a rapid growth and has competitive. This happens because it has evolved from mining and quarrying which is the type C such as clay, sand, stone, mountain stone, gravel, and crushed stone, but is still limited with mineral materials and other minerals. The manufacturing sector in Mamuju has a rather slow growth compared with aggregate provincial growth and its competitiveness is weak.

3.2 Location Quetiont Analisys

Table 3. The Value of Location Quetiont GDP by Industrial in Mamuju District

No	Sectors	2007	2009	2011
1	Agriculture	1,062	1,048	1,019
2	Mining & Quarrying	2,287	1,701	2,021
3	Manufacturing	0,448	0,392	0,366
4	Electricity, Gas and Water	0,957	0,919	0,830
5	Building / Construction	1,498	1,242	1,275
6	Trade, Hotels & Restaurants	0,690	0,695	0,700
7	Transport & Communications	0,961	1,013	1,000
8	Finance, Real Estate and Business Services	0,951	0,971	1,170
9	Services	1,210	1,320	1,348

Source: Results of Analysis
Description:
LQ values> 1 = Base
LQ values <1 = Non-Base

The results are shown in Table 3. It is seen that the sector base of the economy in the Mamuju consists of agriculture, mining and quarrying, building and construction, the finance, real estate and business services, the services sector and transport and communications sector. Others are relatively undeveloped compared with these sectors. The agricultural sector in the period of 2007 has the value of 1.062, in 2009 it is decreased to 1,048, and in 2011 to 1,019 again. These values indicate that the share of this sector has been decreased each year relative to that in the province but is still remains in the basis of the sectors in Mamuju. The reason of the decrease is that the

contribution of the agricultural sector to the GDRP is influenced by a natural condition in a broad sense suitable for agriculture, especially rice and plantation crops, fisheries and forestry. Despite of that, the agricultural sector in Mamuju has been capable of serving people in the district itself and other areas.

On the contrary, the location quetiont values of the manufacturing sector are smaller than 1 from 2007 to 2011. This indicates that the manufacturing sector in Mamuju is not categorized as a base sector, so that it can be said that the manufacturing sector is able to serve only the needs of the Mamuju district. This is caused by the lack of industries in this district. Other sectors not in the sector basis are electric, gas and water supply, trade, hotels and restaurants and the transport and communications sector.

Based on the classification analysis of the economic sectors to the base and non-base in Mamuju, the steps that can be taken by economic actors and policy makers to enhance the development in this district includes ensuring the stability of the agricultural sector by increasing use of facilities and infrastructure in the each sub-sector of agriculture, improving the quality of crops produced and food processing and using various seeds for plantation

3.3 Measurement Method of Employment Elasticity

Table 4. The Value Measurements of Employment Elasticity Against GDRP in Mamuju by Industrial 2007-2011.

No	Sectors	Changes in Employment	(%)	Changes GDRP	(%)	Elasticities	Information
						Employment Opportunities	
1	Agriculture	5.009	48	147.554,83	25.69	1.87	Elastic
2	Mining & Quarrying	1.025	55	14,037.13	93.40	0,59	Inelastic
3	Manufacturing	1.6	21	14,867.59	40.49	0.52	Inelastic
4	Electricity, Gas and Water	291	31	3,921.63	107.82	0.29	Inelastic
5	Building / Construction	2.308	215	37,587.42	70.27	3.06	Elastic
6	Trade, Hotels & Restaurants	5.513	29	40,678.37	42.82	0.68	Inelastic
7	Transport & Communications	2.645	54	23,668.37	78.83	0.69	Inelastic
8	Finance, Real Estate and Business Services	2.05	120	63,166.21	118.19	1.02	Elastic
9	Services	3.487	190	141,073.34	75.97	2.50	Elastic

Source: BPS in Mamuju District and West Sulawesi Province, and the result of analysis.

From the results in the table above, it can be seen that, for most of the economic sectors in Mamuju, the employment elasticity has a value smaller than 1 so that these sectors are called inelastic, namely, a percentage change in GDRP makes a minor percentage change in the amount of work absorption. There are only four economic sectors that have the employment elasticities greater than 1. The building and construction sector has a value of elasticity 3.06, the services sector 2.50, the agricultural sector 1.87, and the finance, leasing and services sector 1.02. For other sectors, mining and quarrying sector has the elasticity value 0.59, the manufacturing sector 0.52, electricity, gas and water supply 0.29, the trade, hotels and restaurants 0.68, and the transport and communications sector 0.69.

The work absorption of the agriculture sector is relatively high because local government policy on agriculture through programs independently and solid technology, the government expanded agricultural areas in production up to 9,000 hectares, so it absorb a lot of labor.

Table 3 shows that the mining and quarrying sector is a base sector, but the elasticity of employment opportunity is inelastic. The Mamuju district has abundant natural resources in mining & quarrying such as gold, coal, iron ore, oil and gas. However, investment in this sector is still lacking.

4. Conclusion

The results of shift share analysis shows that there has been a change in the economic structure in Mamuju from the primary sector to the tertiary sector.

LQ method indicates that the sector base of the economy Mamuju which has value of LQ > 1 are agriculture, mining & quarrying, building & construction, transport and communications, finance, real estate and business services and services sector.

Employment elasticity indicates that the building and construction sector is the most strategic sector compared with other sectors to absorb labor. It is an indication of the shift in the economic structure from the primary sector to the secondary sector.

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