Graduate School of Development Studies

ECONOMIC GROWTH AND EMPLOYMENT
Analysis The Relationship between Economic Growth and Employment in Indonesia Period 1993-2003

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LILI WALI SUDRAJAT
(Indonesia)

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Members of the examining committee:

Dr Robert Sparrow (supervisor)
Drs Jan Van Heemst (2nd reader)

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Inquiries:

Postal address:	Institute of Social Studies
	P.O. Box 29776
	2502 LT The Hague
	The Netherlands
Location:	Kortenaerkade 12
	2518 AX The Hague
	The Netherlands
Telephone:	+31 70 426 0460
Fax:	+31 70 426 0799

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List of Acronyms

BPS   = Badan Pusat Statistik (Central Bureau Statistic)

GRDP   = Gross Regional Domestic Product

Susenas   = Sensus Sosial Ekonomi Nasional (National Social Economic census)

Sakernas   = Sensus angkatan Kerja National (National Labour Force census)

Abstract

This paper analyses the relationship between employment and regional economic growth on district level during the period 1993-2003 in Indonesia using panel data model as a analysis tool. The result shows a negative relationship especially on distribution effect model and quintile distribution effect model and it is contradict to some empirical analysis. Electricity, gas and water supply is an expansive growth sector but it gives small contribution to economic output about 1.58%. Share of rural population has a positive sign, and also number district split up. Only primary education attainment gives positive effect on employment. In quintile term split up by household income, only share of rural population and primary education give positive effect on employment for all quintile.

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Chapter 1
Introduction

Employment becomes a crucial element in a high population country like Indonesia. According to The United Nation Department of Economic and Social Affair-Population Division, Indonesia has 3.47% of the world population, and the population density is 117 people per square kilometre. Employment serves as a channel between economic growth and poverty alleviation while economic growth provides employment opportunities to enhance income of the poor in such a way that poverty is reduced via increasing employment which in turn is raising real wages.

Employment emerges as a significant variable in making growth pro poor, but it cannot be an effective route without another development strategy (Islam, 2004).

> 'Growth on average does benefit the poor as much as anyone else in society, and so standard growth-enhancing policy should be at the canter of any effective poverty reduction strategy' (Dollar and Kraay, 2002, pp.219).

According to Indonesian Central Board of Statistic, employment is defined as a person in the age of 15 year old and over (economically active) that works at least one hour during the survey week generally decreased during 1993-2003 which can be seen on the table 1.1. In this table, a decrease can be traced from 1994, where in this year growth of employment relative to labour force decreased -1.92%. In 1995, the growth of employment relative to labour force decreased -2.97%, but the decrease was due to the change in definition of unemployment. Apparently, there was an economic crisis in 1998 which affected the whole aspect especially economy. This crisis caused the decrease -2.69% on growth rate of employment relative to labour force. The decreasing on growth of employment relative to labour force continued until the end of the study time period with once slightly increased 0.30% in 2000.

Meanwhile, economic growth is defined as a positive change in the level of production of goods and services by a country over a certain period of time

showed slightly an increasing trend from 1994 to 1996. Due to economic crisis, the economic growth drastically decreased especially in 1998 where growth was -12.06%. The economic growth was low after the crisis. It can be seen on the economic growth that changes slightly from 2001 to 2003.

Table 1.1

Employment Growth and GRDP growth (%)
1993-2003

Description	Growth rate of employment	GRDP growth
1994	-1.92	7.58
1995	-2.97	8.03
1996	2.18	8.43
1997	-0.03	4.59
1998	-2.69	-12.06
1999	-0.95	-0.54
2000	0.30	9.83
2001	-2.15	3.97
2002	-1.04	3.98
2003	-0.48	4.33

Source : BPS, Sakernas 1993-2003 (data processed)

Furthermore, when we look on the graph 1.1 below, we can see that roughly trend of employment growth rate and economic growth are in line. When growth of output increases, growth of employment rate also increases and vice versa. This indicates the relationship between employment and economic growth.

Figure 1.1
Employment Growth and GRDP Growth
1993-2003
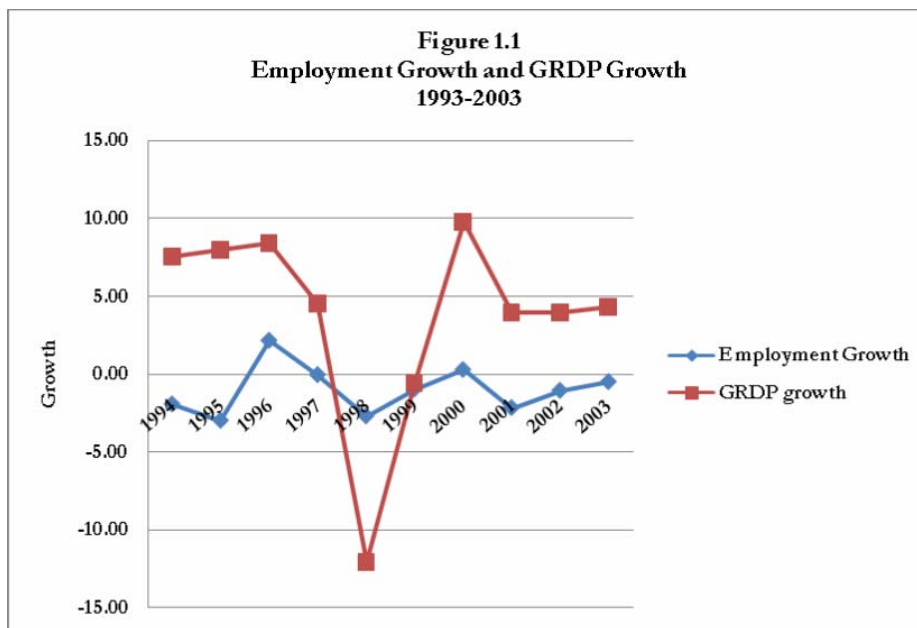
Some empirical studies show that there is a relationship between employment, and economic growth amongst other things Seyfried (2005); Boltho and Glynn(1995); Padaline and Vivarelly (1997); and Walterskirchen (1999), while for Indonesia cases Suryadarma (2007); and Islam and Nazara (2000).

Generally, most studies focused on national level in seeking the employment, and economic growth relationship instead of focused on district level. In this paper, the study is focusing on district level which is relevant in recent Indonesia context in which decentralization of authority makes local governments getting more power to manage their region base on the autonomy. The measurement becomes much less error than in national level because it relies on district data which really reflected the real economic condition.

The main objective of this study is to analyze the relationship between the economic growth and employment with the questions; does the economic growth contribute to the employment? where does the employment growth come from? and who are benefits from the economic growth?

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In this paper I found that the relationship between economic growth and employment is negative and significant both in total and sector as well. Manufacturing sector, electricity, gas and water supply and transportation and communication sectors give positive sign on employment. Rural population takes 0.14% of employment; people with higher education attainment take more chance employment opportunities by 0.18% more than people who are not completed primary education. Districts split up and change in population between ages 15-60 give negative effect to employment.

This paper was organized into six chapters. The first chapter is an introduction of the study. The second chapter is talking about literature review relating to employment, and the economic growth. The third chapter is the description of Indonesian employment and regional economic growth in term of nine sectors at four groups of islands: Sumatera, Java, Kalimantan, and Sulawesi. The fourth chapter is the data and the methodology analysis. The fifth chapter is the analysis of output result. And the sixth is the conclusion and the Policy implication.

Chapter 2
Literature Review

2.1 Economic Growth and Employment

The starting point of relationship between economic growth and employment is the aggregate production function developed originally by Robert Sollow (Blanchard, 2000). The model constitutes the relation between aggregate output and the inputs in production. This model assumes that aggregate output (Y) is produced using two inputs, capital (K) and labour (L). In other words, how much output produced for a given quantities of capital and labour.

$$Y=F(K,L)$$

Regarding to this paper objective, production function is simplified to be:

$$Y=F(L)$$

The production function can be viewed in two sides, supply and demand. On the Supply, output produced depends on how much labour used. On demand side, it says that how much labour needed for a given output. So, for demand side we rewrite the function becomes

$$L=F(Y)$$

This function becomes a basic for the model that I construct in chapter four.

The spirit of relationship between economic growth and employment is based the so-called Okun's law[1]. Okun's law stated that on supply side for every one percentage point of the actual unemployment rate exceeds the natural rate of unemployment; real gross domestic product is reduced by 2% to 3%.

Dollar and Kraay (2002) found that rise and fall of average incomes of the poorest fifth are the same as average income. They also found that raise average income with little effect on distribution of income affected by macroeconomic policies. This finding supports basic policy package of private property right, fiscal discipline, macroeconomic stability, trade openness.

On demand side, some empirical studies attempt to predict employment elasticity (relationship between employment and economic growth) for variety of nations. Seyfried (2005) found that using pooled regression, the elasticity of employment with respect to real GDP in US was estimated to be 0.47 while in state-specific regression ranging from 0.31 to 0.61. Effects of economic growth may take a few period of time on employment growth. It means that economic growth has an immediate impact and continues for a few quarters to employment.

Padalino and Vivarelli (1997) found that the employment intensities of economic growth from 1960 to 1994 for the cross countries are vary US to be approximately 0.5; Japan 0.06; Canada 0.56; Germany 0.38; France 0.25; Italy 0.13; and UK 0.36. They concluded that the linkage between growth and employment in the whole economy did not decline in the post-Fordist period for the short-run.

Boltho and Glyn (1995) found that the elasticity of employment with respect to economic growth in a set of OECD countries 0.5 to 0.63. Employment intensity was 0.5 in 1973-1979 period, 0.63 in 1982-1993 periods while it was 0.49 in 1075-1982 periods. The variation of elasticity shows that interaction between employment and economic growth are affected by macroeconomic policy and also economic situation of a country. The raise up and down of employment could be explained here for instance, firms will reduce employment in downswings and will increase employment at an earlier stage of upswing.

(Walterskirchen, 1999) analyzed the relationship between growth and employment found that in EU cross-country analysis the employment elasticity is 0.65 and in time series analysis is 0.8 on the same period and highly significant. An increase in economic growth should be higher than productivity gain to increase employment rate.

Islam and Nazara (2000) found that for Indonesia to absorb new workers (approximately 2 million per year) is required national growth varies between 4.68 and 3.47 percent. The highest elasticity at the sectoral level is agriculture

1.22 followed by trade 1.11, services 1.09 and industry sectors 0.77. Diminishing of employment on economy as a whole is due to reallocation of labour services to off-farm activities.

Suryadarma et.al (2007) found that in Indonesia agriculture sector in province level has the highest coefficient in urban and total employment growth while growth in urban industries reduce the number of people working in rural area. Total employment increases 0.7% due to an increase 10% growth of service sector in urban area, while 10% growth of agriculture in rural area increases total employment by 5%.

Young age, highly educated, inexperienced and still live with parents are most of the unemployed characteristics. Service sector is most suitable (employment-generating sector) for unemployed because it absorbs most educated workers as in fact 90% of them are working in service sector while the low educated still dominated employment on agriculture in rural area.

In term of urban-rural linkage, growth in urban industry reduces rural employment because they move from rural area to get job in urban industry. Though agriculture is the highest employment-generating sector in rural area, it has not a significant impact on urban employment.

2.2 Economic Growth, Employment, and Poverty

Employment is often pointed out as a link channel between economic growth and poverty. Through employment economic growth transmitted onto poverty. Job creation produced by economic growth enhances opportunities employment which in turn increases income of poor people. Higher level of earnings would enable workers to spend more on education, thus raising the capacity and productivity their children, and creating necessary conditions for achieving higher level of economic growth in the future, Islam (2004)

Indonesia in the 1970s and the 1980s experienced high output growth associated with high rates of employment resulting high in high rates of poverty reduction. During 1970s though output growth in manufacturing was relative high, employment elasticity in this sector remained low. The growth

employment in that period came from construction and services. High growth in agriculture and non-farm activities in rural area helped in reducing poverty, (Islam, 2004).

The main focus at that time was on agricultural sector supported by other sectors. For instance, the Indonesian government created a project "program padat karya" which was done by people in the surrounding area where the project located. By this model, people income raised because they work, and eventually poverty decreased.

Contrasting to the 1970s and 1980s experiences of high output growth accompanied with poverty reduction, Indonesia's 1990s growth was not produce high rate of poverty reduction. An overall employment decreased to 2.5 percent during 1985-1990 form 4.1 percent during 1980-1985. Growth of employment in manufacturing declined to be 4.5 percent during 1990-1993 from 7.2 percent during 1985-1990 (Agrawal, 1996)

The other examples come from Uganda, Thailand, Vietnam, and Bolivia which generally have roughly similar experiences.

Uganda's experience was similar with Indonesia in term of high economic growth accompanied by reducing in poverty. In 1991-1992 period, average rates of economic growth was a slightly fewer than 7% per year with income per capita increased at an annual average rate of about 3 percent. This increase accompanied by decrease in poverty line from 55.7 to 35.1 percent between 1992-1993 and 1999-2000 period occurred both in urban and rural areas. Shifting from food crop to cash crop mainly caused reduction in poverty incidence. Booming in the coffee prices benefited the producers.

Uganda in the 1990s growth was dominated by agriculture especially cash crop for instance coffee, tobacco, tea and cotton. More than half of Uganda's GDP and almost three fourth labour forces were accounted by agriculture (Islam, 2004).

Islam (2004) stated that between 1992 and 1997, the overall elasticity of employment with respect to output was about 1.1. Agriculture sector and service sector are responsible for high overall elasticity. Job creation by

agriculture sector is reflected in an elasticity of 2.5 and service sector in 0.94. Uganda's labour-based road works generates more income to households. Through this program, households would have increased incomes which would enable to afford the basic requirements for their livelihoods. This program provides stimulus to the local economy also lead to increased economic growth. The percentage of housed hold heads below poverty line in total decreased from 55 in 1992-1993 to 49 in 1996-1997 and total GDP per capita in the same period increased from 281.156 million to 323.323 million.

Next example is Thailand. This country also experienced with high economic growth. Over two decades from 1977 to 1996 economic growth increased on average 7.6 percent per annum accompanied with an increase per capita income from US$700 to US$2,960 and unemployment rate on average 3.7 percent. Unemployed poor proportion decreased from 21 percent in 1994 to 8 percent in 1996. Economic crisis hit Thailand in 1997. Construction was most sectors suffered with job losses 23.6 percent while the other sectors were less suffered.

Another example of a country experienced with high economic growth transmitted into job creation with rapid rate of poverty alleviation is Vietnam. During the 1990s, Vietnam achieved high economic growth with declining in poverty especially through agriculture. In the period between 1991 and 1997, growth rate of GDP was 8.5 per annum with per capita rose by 1.8 times. Industry sectors drive the economy of Vietnam from during the 1990s.

Improvement of farm productivity increased income of households through intensification and diversification of low-value output to higher value. Additional employment was generated by the shift to higher value crops especially it helped to improve non farm employment.

Though it has impressive high economic growth and poverty alleviation, Vietnam's poverty reduction declined in recent years. In 1998-2000, poverty alleviation was only 2 percent and 1.5 percent during 2000-2002 annually due to concentrate of investment distribution in urban area instead rural area.

Since 1985 Bolivia has achieved economic stability. During most of the 1990's, Bolivian economic growth was not contributed to poverty reduction, because during the years of relatively rapid economic growth the sectors which were highest economic growth rate, financial services, transport and telecommunication, electricity, gas and water are those with the lowest employment-output ratios. Agriculture sector employs the largest share of the labour force, but it is characterized by low productivity and low income. As a result, the poor are unable to increase their income and thereby escape poverty. At the micro level, it is found that educational and employment related variables are the most important determinants of a household being poor.

Contrast with some South East Asian countries, Bangladesh though has higher growth during 1996-2000, the rate of poverty reduction reduced compare to 1991-1996. In short, economic growth in Bangladesh may have become less pro poor in the second half of the last decade.

> 'The sectoral composition of employment in the country is not changing in a direction that could support a high rate of poverty reduction…..employment elasticity for the manufacturing sector as a whole declined during the 1990s compared to the 1980s …. open unemployment increased during 1996-2002 …. higher output growth in agriculture during 1996-2001 has not been translated into higher rate of poverty reduction in rural areas,…, the rate of real wage increase has been slower in agriculture compared to other sectors,…, agricultural workers have not benefited to the extent they could have from growth in agriculture that has taken place during the second half of the 1990s' (Islam, 2004, pp.18).

Ethiopia during 1990s experienced with moderate economic growth and not producing poverty reduction significantly. Though manufacturing output sector increased 5 percent per annum during 1992-1999, employment increased 1.8 percent in the same period. It shows that manufacturing sector does not come out with poverty reduction. In addition, though the output in agriculture sector increased, employment declined during the second half of the 1990s.

2.3 Pro-Poor Growth

Dissatisfaction of the structural adjustment program of the 1980s and 1990s particularly in Sub-Saharan Africa, Part of Asia, and Latin America has renewed the emphasis of poverty reduction on pro-poor growth. Though the wide spread use of pro-poor growth, the meaning of pro-poor growth is still less consensus.

> '...ADB's Fighting Poverty in Asia and The Pacific: The Poverty Reduction Strategy indicates that growth is pro-poor when it is labour absorbing and accompanied by policies and programs that mitigate inequalities and facilitate income and employment generation for the poor, particularly women and other traditionally excluded groups' (Kakwani and Pernia, 2000)

Regarding to the growth pro-poor, poor people should gain benefit from economy and actively participate in the economic process.

> '…there are three potential sources of pro-poor growth: (a) a high growth rate of average incomes; (b) a high sensitivity of poverty to growth in average income; and (c) a poverty-reducing pattern of growth in relative income. [..] The differences in growth in average incomes are the dominant factor explaining changes in poverty [..] the search for pro-poor growth should begin by focusing on determinant of growth in average incomes. (Kraay, 2006)

Kraay (2006) found that high growth rate of average income and a poverty-reducing pattern of growth in relative income are relevant especially the former in explaining changes in poverty for cross country analysis. He suggested that growth rate of average incomes is a starting point for exploring pro-poor growth.

In line with Kraay, (Ravallion and Chen, 2003) argued that the mean growth rate of the poor is a better measure of pro-poor growth by using quintiles of the distribution of income. By using growth incident curve, the distribution of growth can be traced over the relevant time period. They used China as a sample case and found that the rate of pro poor growth was around 4%.

Chapter 3
Regional Economic Growth and Employment

In this chapter I would like to explore the performance of Indonesian Economy in term of Gross Regional Domestic Product (GRDP) which divided into four main islands, Sumatera, Java, Kalimantan, and Sulawesi. Sumatera consists of 63 districts, Java 132 districts included Bali, NTB, and NTT, Kalimantan 29 districts, and Sulawesi 37 districts. To be clearer, the Indonesian economic growth is divided into two parts before and after crisis because these two parts are different in their performance.

Besides exploring GRDP performance, I would like also to explore Indonesian employment performance in term of share of population that works at least one hour a week. To make clearer insight about employment, it is also helpful to explore about educational attainment as a background of Indonesian employment.

3.1 Economic Growth

Overall, Indonesian GRDP growth performance during 1993-2003 study periods on average was 3.81%. This low growth was due to economic crisis in 1998 where in that year GRDP growth plunged into -12.06%, but if we exclude this year, GRDP growth became 5.73%.

Economic crisis caused Indonesian economy collapse. Before crisis, economic growth was 7.16% and after crisis was 4.32%. After crisis, Indonesia was also faced with global economic slowdown in 2001 where in that year economic growth was 3.97% whereas it increased 9.83% in 2000. As a result the effect of economic incident was still continuing till the end of study period where the economic growth on average 4.10%. There is a common feature on Indonesian economic growth which needs at least two years for making economic growth recovery as it is showed in graph 3.1. Economic Indonesia was being recovered in 2000 after crisis in 1998 and so in 2001 when the global economic slowdown occurred. Though only in small change, Indonesia was

doing economic recovery starting from 2002 which in graph showed an increase trend.

Figure. 3.1
Indonesian GRDP growth at '93 constant price
1993-2003

Source : BPS, 1993-2003 (data processed)

On Sector growth, proportion of electricity, gas and water supply sector dominated GRDP growth by 24% from total and second domination was transportation and communication sector by 15% while agriculture sector was the same proportion with service sector by 7%. This means that on average the main focus of economic activity in Indonesia is industry sector and supported by service sector.

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Figure 3.2
Average Indonesian GRDP growth at '93 constant price by sector
1993-2003
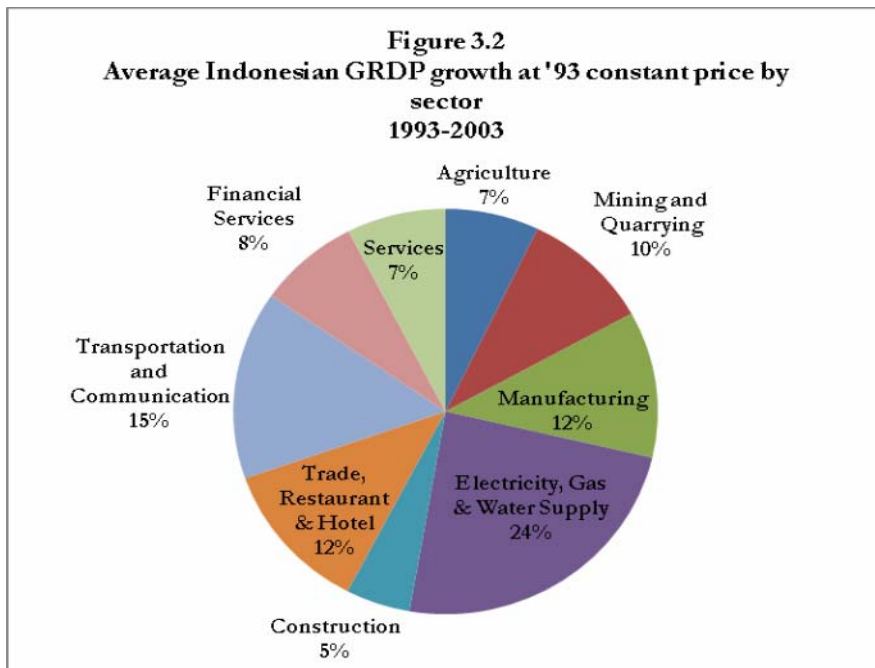
Source : BPS 1993-2003 (data processed)

Going to the four main islands, before crisis Kalimantan was the highest GRDP growth with on average 7.48% contribution to the national economy while java in the second place with 7.22%, Sulawesi and Sumatera in third and fourth place.

Figure 3.3
Indonesian GRDP growth before crisis at '93 constant price by 4 main islands
1994-1997

Source : BPS, 1993-2003 (data processed)

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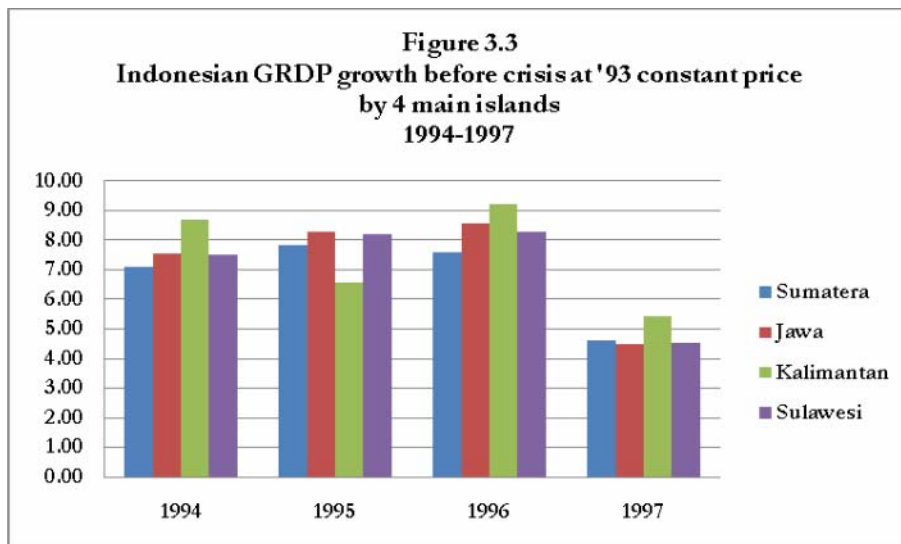
Post crisis particularly 2001 onward, Sulawesi had taken over the leading island in economic growth by 5.18% on average while Kalimantan in the fourth place or the lowest one. Java and Sulawesi are the islands that quickly response for the economic recovery process. This has shown in 2000 where Java economic growth was 11.68% and 10.60% in Sulawesi. Due to global economic slowdown, economic growth in four main islands was also in slow motion. This can be seen in economic growth for each island where Java growth form 11.68% in 2000 decreased to 3.95% while Sulawesi from 10.6% also decreased to 4.95 %. The decrease in four main islands economic growth was continued in 2002 and only Sumatera showed an increase. In 2003, all islands showed a recovery except Kalimantan that showed decreasing point from 3.95% to 3.13% on economic growth, Sumatera increased to 4.66% or 0.39% higher than 2002; Java increased for 0.49; and Sulawesi increased for 0.87%.

**Figure 3.4
Indonesian GRDP growth after Crisis at '93 constant price
by 4 main islands
2001-2003**
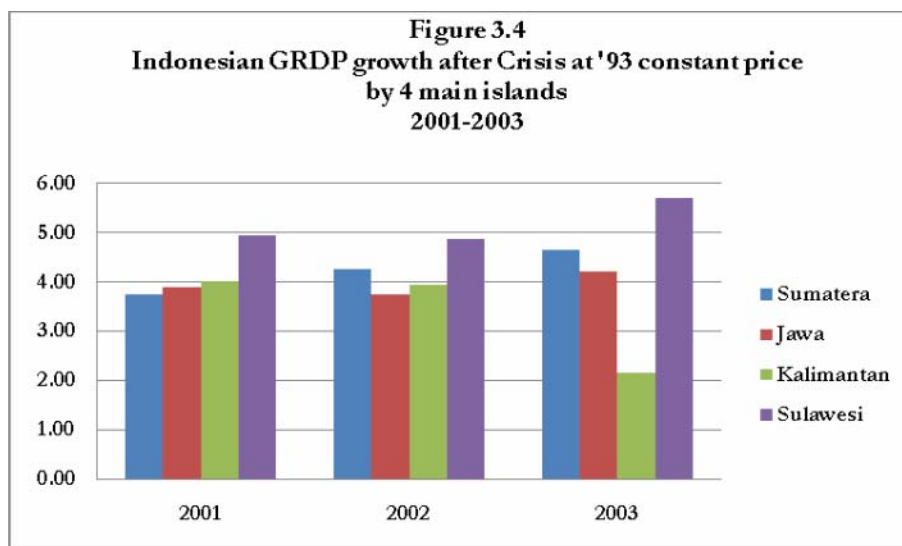
Source : BPS, 1993-2003 (data processed)

3.1.1 Regional Economic Growth

In this part, we are going to look at the performance of each island in term of sector economic growth. All nine sectors will be exploring to get the clear picture that we have already gotten from the national perfective.

a. Sumatera

Sumatera puts the economy concern mainly on electricity, gas, and water supply as seen on graph 3.5 this sector grew beyond Sumatera GDRP. This sector started to be a leading sector on the economic growth from 1995 where trade, restaurant, and hotel was a leading sector before. It seems that this sector become more interesting for investment. We can see from graph 3.5 a year before crisis this sector grew in absolute term for 26.73%. This significant increase particularly came from electricity sub sector in West Sumatera. Though this sector together with the other sectors decreased in economic crisis, the economic growth of this sector was still positive about 6.90%. in 2003 this sector decreased and it was lower than Sumatera GRDP growth.

Figure 3.5
Electricity, gas, and water supply average GRDP growth
1994-2003
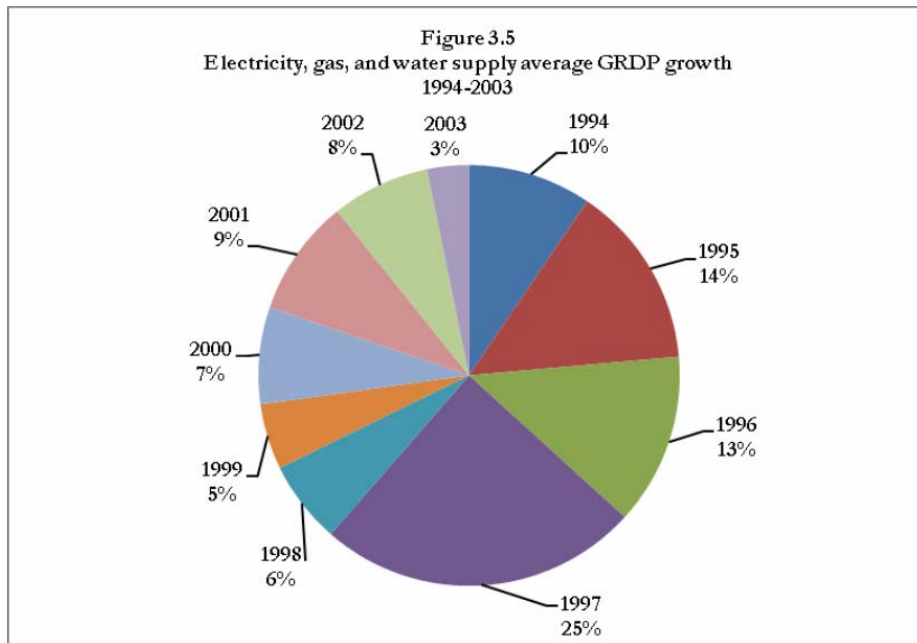
Source : BPS 1993-2003 (data processed)

Electricity, gas, and water supply sector has a small on economic proportion during study period. It proportion is 1.26% on average, but this sector is the highest growth sector with 10.85% on average. The economic proportion of this sector tends to increase over time. Post crisis, this sector proportion became 1.17% on average and it is higher than that before crisis.

On the economic growth sight, this sector as mentioned above is the highest growth sector, though in crisis this sector still showed the highest and positive growth but this sector is not stable when there is an economic contraction, for instance, in the crisis, the growth of this sector decreased to be 6.90%. It growth decreased 25.83% from the previous year. On the global economic slowdown, this sector still showed a high growth with 9.75% in 2001 but fortunately decreased at after. This sector shows stable sector to the contraction. The recovery process of this sector is quite fast.

Figure 3.6
Agriculture, Construction and GRDP growth in Sumatera
1994-2003
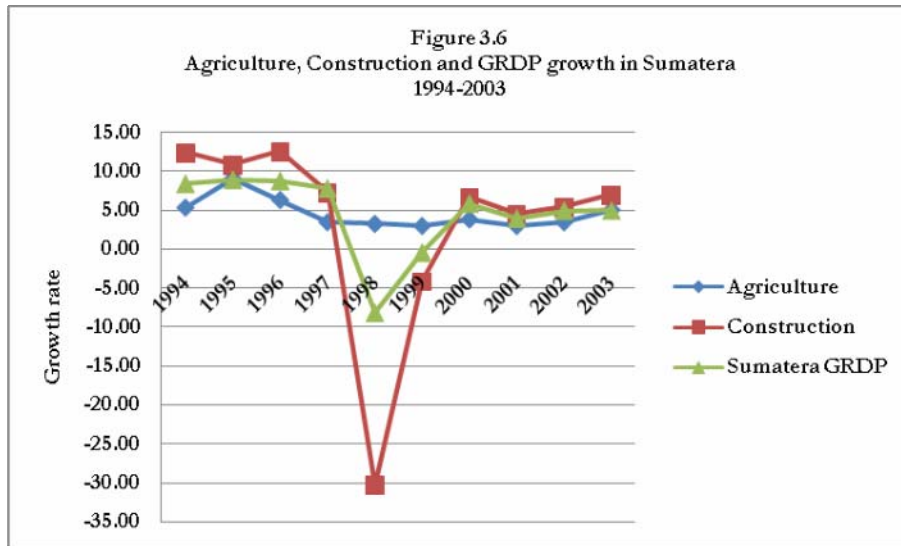
Source : BPS 1993-2003 (data processed)

Trade, hotel, and restaurant before 1995 was a leading sector grew in a moderate. The fluctuation of this sector followed the average growth of Sumatera GRDP. Though it is in moderate, the trend of this sector declined over time. It can be seen that in 2003 the growth of this sector declined to 4.45% which is lower 0.68% than 2002.

Figure 3.7
Electricity, gas, and water supply; trade, hotel, and restaurant; average GRDP growth
1994-2003
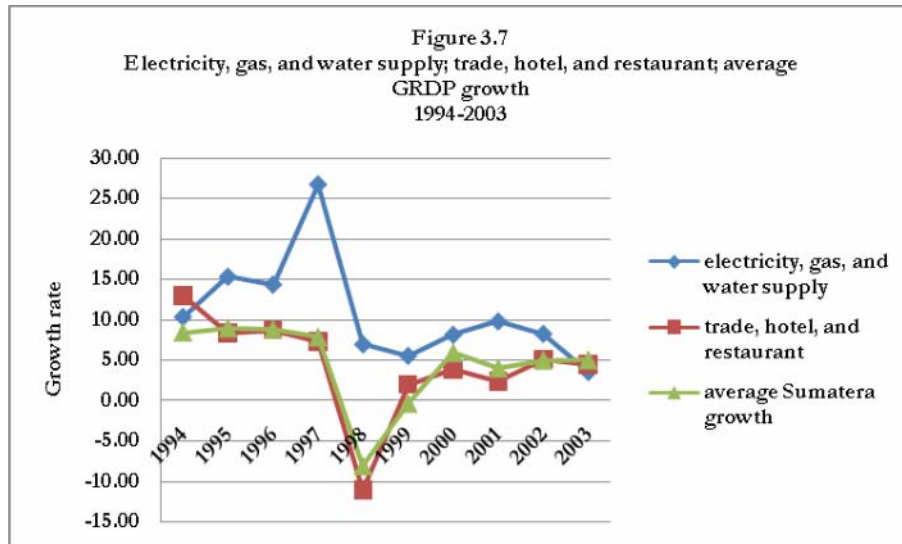
Source : BPS 1993-2003 (data processed)

Construction sector was severely affected by crisis in 1998 where in that time growth of this sector decreased -30.35% and it is the highest point amongst sectors in Sumatera whereas before crisis this sector showed an impressive growth during 1993-1996. The indication of crisis had been felt a year before by construction sector which in 1997 it decreased by 5.28%.

Agriculture indicated as a labour intensive grew on average slightly beyond GRDP. Trend of this sector was fluctuating during the study period. In 1995 this sector increased 3.76% and then decreased 6.37% in 1996. The decreasing trend in agriculture continued until 1999. In the end of the study period, agriculture sector increase 5.09%.

In sum, sectors that are favourable for employment enhancing policy are electricity, gas, and water supply, trade hotel, and restaurant, and agriculture. Electricity, gas, and water supply has the characteristics such as high in economic proportion, high on growth, stable, and fast in recovery. Trade, hotel, and restaurant has the characteristic amongst other things high in economic proportion, average on growth, quite stable on contraction, but it shows a decreasing over time. Agriculture has the characteristics for example the highest economic proportion, and quite stable. These kinds of

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characteristics can at least maintain the employment absorption and in the next can absorb more employment.

b. Java

Overall, focus of economic activity in Java mainly at electricity, gas, and water supply sector. This type of economy had dominated during study period with growth 7.33% on average. This sector become a leading sector starting form 1996 with growth 12.84% where in 1994 manufacturing was a leading sector with growth 11.91%.

Significant economic growth had been showed by this sector both prior and post crisis. Prior the crisis, this sector grew 11.21% higher than manufacturing sector which also has significant average growth at 10.75%. Post crisis growth of this sector showed 6.05% on average while manufacturing sector only grew 2.77% on average. There is a change in sector growth post crisis where mining and quarrying sector had taken over position of economic growth with 9.79%. The high growth was especially in East Java and NTB by 23.96% and 83.18% respectively.

Figure 3.8
Java Average GRDP growth
1994-2003

Source : BPS 1993-2003 (data processed)

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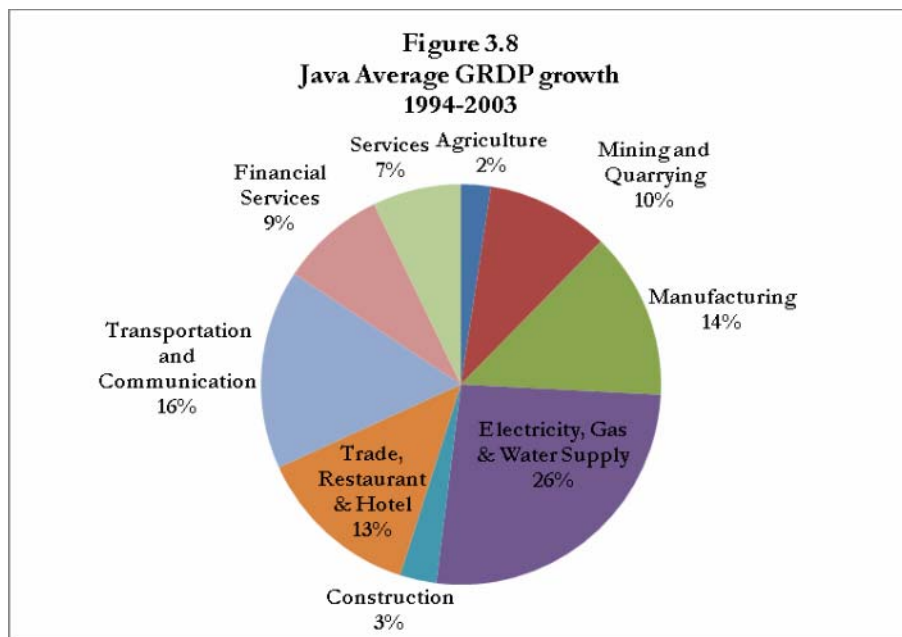
In the crisis, industry sectors, construction, mining and quarrying, and manufacturing hit severely with the growth -35.69%, 21,67%, and 19.05% respectively. There is no sector in that time which has positive growth.

Post crisis, mining and quarrying sector gave the highest responsiveness with the significant growth 26.79% compare to the others which most of them gave negative growth except for agriculture sector with growth 3.06%.

Agriculture growth sector in Java was not impressive where on average this sector grew 0.68%. This sector also has already been in negative growth from beginning of the study period which it grew -0.04%. The highest growth of this sector occurred in 1995 by 3.84. it means that agriculture sector is not a primary sector to boost economy in Java. The growth of this sector was not so different in pre and post of crisis. Pre crisis this sector grew 1.16% while post crisis it grew 1.34%.

In short, Java economic concern is spreading among sectors. This can be traced by looking at the average growth sectors where there is no significant majority sector on that region. Electricity, gas, and water supply is the highest growth on average, but the proportion on economic is quite low. This sector also showed a stable one which it can be seen when there are two kind of economic contraction in 1998 on economic crisis and in 2001 on global economic slowdown. This sector also is quite responsive on recovery. This sector is favourable for employment absorption but it is still not enough. Agriculture though has a highest economic proportion, it growth is small on average. This sector showed a stable sector toward economic contraction and fast recovery. Though it has a stabilisation from economic contraction but it is not favourable enough for employment absorption because the trend of this sector was declined and it can only absorb the employment for a small part. Transportation and communication sector is quite high on growth with 4.52% on average but this sector is not stable from economic contraction. It can be seen from the plunge in crisis and global economic slowdown. The recovery process of this sector is different toward economic crisis and global economic slowdown, for instance, toward the economic crisis this sector is so slow in

recovery and so fast on the latter. This sector is good enough for employment creation but it still unstable in the economy.

c. Kalimantan

The focus of economic growth in Kalimantan is on electricity, gas, and water supply. This sector becomes a principal sector to enhance the economy in region. The portion of this sector is 21% which can be seen on graph 3.8 while mining and quarrying takes the second place for 14%, and third is communication for 12%. Agriculture sector takes 8% portion in economy. It is still higher than manufacturing and financial services.

Figure 3.9
Sector proportions in Kalimantan
1993-2003
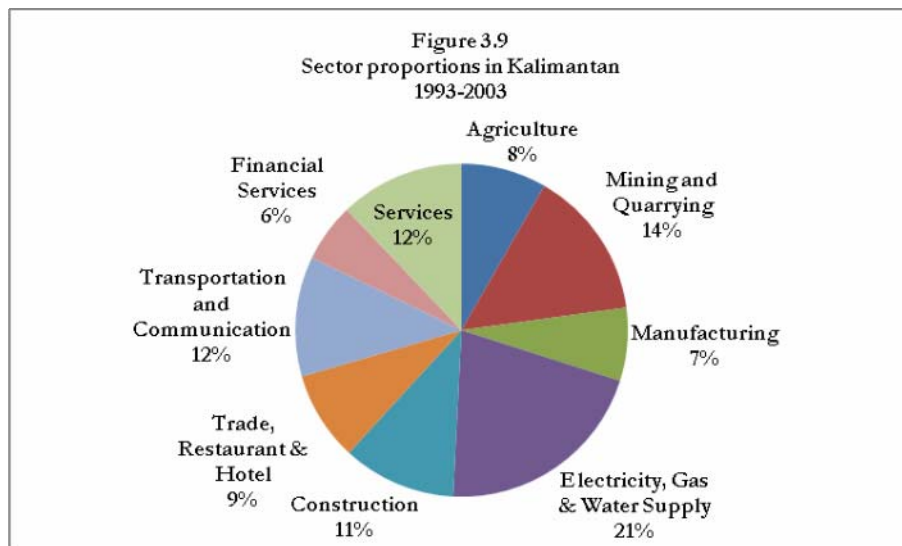
Source : BPS 1993-2003 (data processed)

The highest economic proportion is manufacturing with 25.53% on average and the growth of this sector is high with 6.63% on average. During the study period this sector also showed a stable toward twice economic contraction, crisis, and global economic slowdown. Due to the extractive type of economy, this sector growth declines over time. For the employment creation, this characteristic is not favourable besides it is not the labour intensive sector especially for low education population.

The highest growth sector as mentioned above is electricity, gas, and water supply. This sector is also quite stable when there is an economic

contraction. In 1998 the growth of this sector was still positive 5.71% and in 2001 this sector increased to 12.73 instead decreased when the global economic slowdown but unfortunately this sector proportion is the lowest among the sectors. In other words, this sector is not quite enough to absorb the employment due to the low volume of this output.

Services sector is the third highest sector with 5.54% growth on average. The trend of this sector is not clear, and it shows that this sector is not stable economic sector. Due to unstable in growth, this sector becomes vulnerable toward economic contraction, for instance, in 1998 when a crisis, this sector growth plunged to -0.56% whereas in 1997 the growth was 6.73%, but in 2001 when the global economic slowdown this sector increased 2.55% instead decreased from the previous year. On average the services sector proportion on the economic is in moderate position with 5.85%, and it proportion is quite stable during study period, but comparing to the manufacturing, it is till low enough with the 1:5 for services sector.

Transportation sector is the fourth place on the average growth, but this sector is still not stable in growth term. The trend of this sector is unclear decrease in first year but then increased in the next. Due to unstable growth, this sector is vulnerable toward economic contraction especially for economic crisis. In 1998 this sector growth was -2.19% but in global economic slowdown this sector increased 3.20 instead of decreased. Unfortunately in the end of this study, this sector plunged -4.64% though it increased in the previous year.

For the employment absorption this sector is not good enough because unstable sector this is too difficult for hired and fired the employment. It could be the movement of employment on this sector is quite high. Though instability in growth, this sector is quite moderate in position on economic proportion, it means that this sector can absorb employment quite large.

Initially, construction is in good growth with the average 10.79% before the crisis. Due to that, this sector plunged drastically with growth -17.94% in 1998 and this is the sector that hit by crisis severely among the sectors. The recovery for this sector is takes longer time than the others. It needs two or

three year to grow back. This sector was not affected by global economic slowdown. The growth increase to 7.64% or it increased 4.68% from the previous year.

On the economic proportion, this sector position is quite low. It lays on the seventh place among the sectors. It means that the development of infrastructure in Kalimantan is quite low, and it can cause the development in other sector low.

Construction sector is a one of the sector that absorb employment prior to the crisis. With the high rate of growth, this sector can create employment opportunities and the job availability for this sector generally for the low education population, because the higher portion of this job is for unskilled workers.

Financial sector is the lowest growth on average in Kalimantan with the average growth 2.60%. Initially this sector has already shown an increase trend prior the study with growth on average 17.15%. Due to the crisis in 1998, this sector growth plunged 12.15% and negative growth continued in 1999 with the growth -8.00%. The recovery process for this sector is so fast. It has been shown in 2000 with the growth 7.63%. Though it decreased in the next two year, it has shown an increase in the end of the study period.

For the employment purpose, this sector will become a one sector that can absorb employment in the future. It needs more stability to grow and it is a good prospect for Indonesian employment in the future especially in Kalimantan.

d. Sulawesi

In general, the main concern of economic activity is in electricity, gas, and water supply sector which is 18% of average growth proportion in term of growth enhancing policy. The second is transportation and communication sector by 14% while the lowest proportion is from construction sector which has 6% proportion of GRDP growth as seen in graph 3.9 below. From this sight, Sulawesi tends to focus the economic activity on the manufacturing

service while agriculture only takes 7% average growth proportion even less than the services sector.

Figure 3.10
Growth proportion sector in Sulawesi
1993-2003
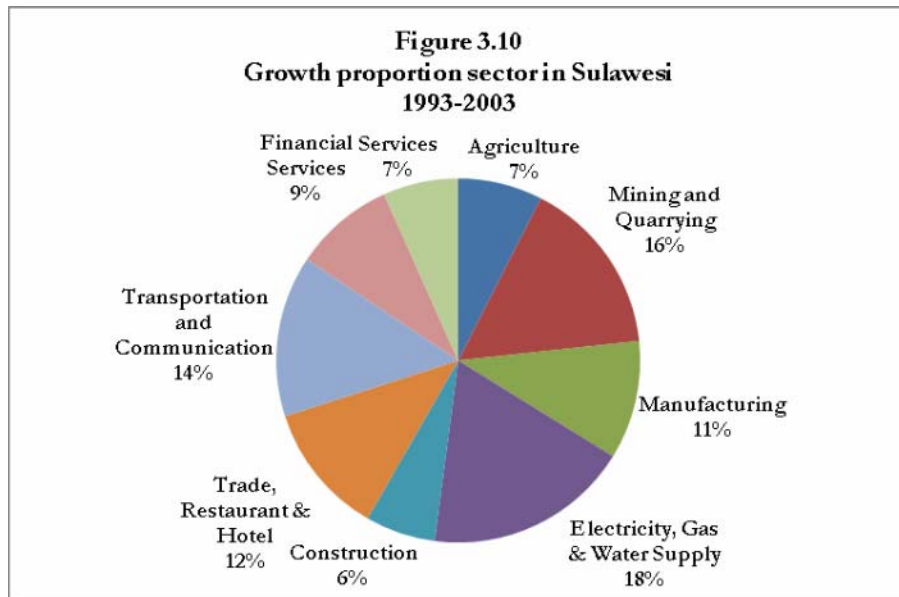
If we look at the economic proportion, electricity, gas, and water supply is the smallest compare to the other sectors and it proportion is less than 1.05% on average. The highest proportion is agriculture. During study period, this sector economic proportion is 34.10%. The other sectors that are more than 10% proportion are manufacturing 10.58%, trade, hotel, and restaurant, and services but again these sector proportions seem stable.

The growth trend of electricity, gas, and water supply during the period on average is 9.68%. Actually this sector growth is high prior the crisis but due to economic crisis, this sector was in negative growth or growth of this sector decreased to -24.26% and this is the lowest growth during study period.

Electricity, gas, and water supply has been as a leading sector with the GRDP growth in 1994 was 16.46% and it higher 3.45% from mining and quarrying sector which had economic growth 13.01%. In 1995, the leading sector had changed to transportation and communication sector which in that year had 11.55% of economic growth and the electricity, gas, and water supply became a second sector with growth 10.33%. This sector showed unstable

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trend as seen in graph 3.10. In 1995, growth of this sector decreased 9.28% from that 1994. In the crisis, when the other sector decreased, this sector growth increased to 31.74%. In 2001, this sector increased when the average growth decreased. In the end of the study period, this sector decreased to 3.61% compare to the previous year. It seems not good to be primary employment-absorbed sector because growth of this sector is fluctuate year by year and the proportion in economic is quite low.

Figure 3.11
Average GRDP growth, and electricity, gas, and water supply growth 1993-2003
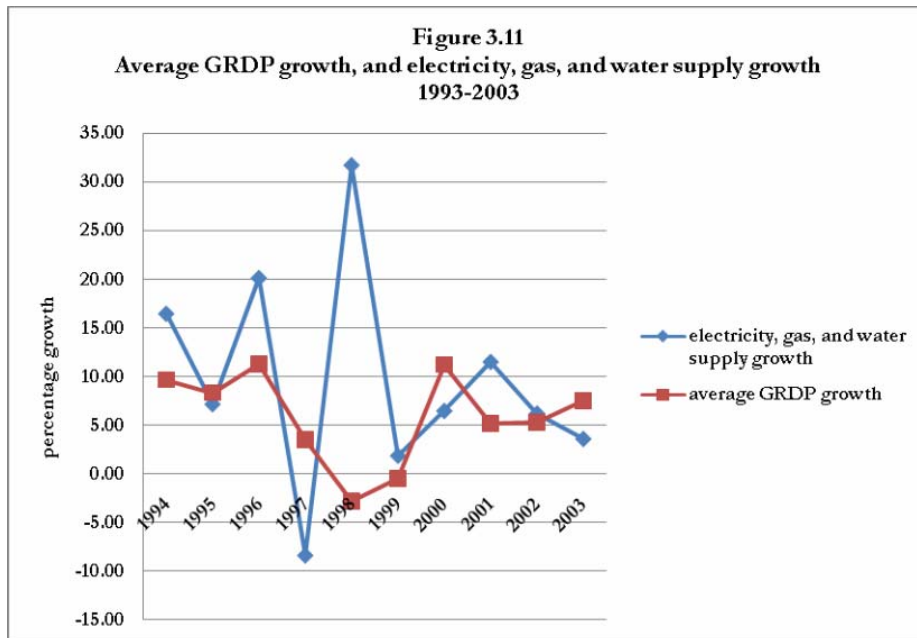
Source : BPS 1993-2003 (data processed)

Contrast to electricity, gas, and water supply, agriculture sector which usually absorb a lot of employment takes only 7% average growth during study period. It proportion quite similar with service sector but higher than construction sector. Though this sector proportion is high, it can not absorb more employment because growth of this sector is quite low and the proportion of this sector seems stable.

The character of mining and quarrying sector is looks like electricity, gas, and water supply which is high in growth but in the economic proportion it seems stable. The economic proportion of this sector is 4.04% and the growth

of this sector is 8.37% on average but this sector is not a labour intensive sector. It is rather capital intensive in on its activity.

Trade, hotel, and restaurant growth which has economic proportion 14.82% on average is in quite high growth with 6.23% on average. During the study period, proportion of this sector is quite stable. The growth of this sector is also quite high and on economic crisis this sector growth was -1.56%. For the employment absorption is good enough because of high growth and high proportion and also this sector is quite stable. It will profitable for economic growth enhancing employment policy.

Services sector is a sector that is high in proportion and moderate in economic growth. This sector economic proportion is quite high 14.01% on average and 4.73% growth on average. This sector is still vulnerable from the economic contraction. For instances, growth of this sector was -5.39 at crisis and it still in negative growth in a year after crisis; this sector growth decreased in global economic slowdown and it is still low years after. It shows that this sector structure still unstable to enhance the economic activity in Sulawesi and it still can not be a determinant factor for growth, employment enhancing policies.

Manufacturing sector economic proportion is 10.58%, and this sector is quite high on proportion. This sector is in moderate on economic growth its only 5.59% growth on average. Actually before the crisis, this sector growth is quite high 9.52% on average, and this sector growth -3.98% on crisis; -2.22% a year after crisis while on global economic slowdown this sector growth was 2.8% or it lower 0.89 than that the year before. This sector is quite responsive on recovery process by showing and increase growth a year or two after economic contraction. If it is the labour intensive, it is quite good for economic growth, employment enhancing policy though it is slightly vulnerable from economic contraction.

In short, the economic sector in Sulawesi that favourable for employment enhancing policy is agriculture, manufacturing, trade, hotel and restaurant, services, and manufacturing sectors. Agriculture sector with the highest

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economic proportions and stable is favourable to maintain employment but it less for economic growth employment enhancing policy. Manufacturing with the characters high proportion on economic, moderate in economic growth, quite vulnerable to economic contraction but responsive enough for recovery is favourable for the economic growth, employment enhancing policy. Trade hotel and restaurant which has a high economic proportion, high growth, stable is good enough for economic growth, employment enhancing policy.

3.2 Employment

Employment growth in Indonesia during 1993-2003 is fluctuating. In 1994 the growth of employment was only 0.99% and then slightly in 1995. In 1996, employment plunged to -3.27%. This drastically decrease was due to definition change on employment and it changed the number of employment. During the crisis, employment decreased slightly -0.11%. the global economic slowdown hit the employment with the decrease -1.95%.

From this feature, we can conclude that employment condition defined as a share population that works at least one hour a week is stable during the contraction or expansion. Decrease or increase in employment growth is not quite significant.
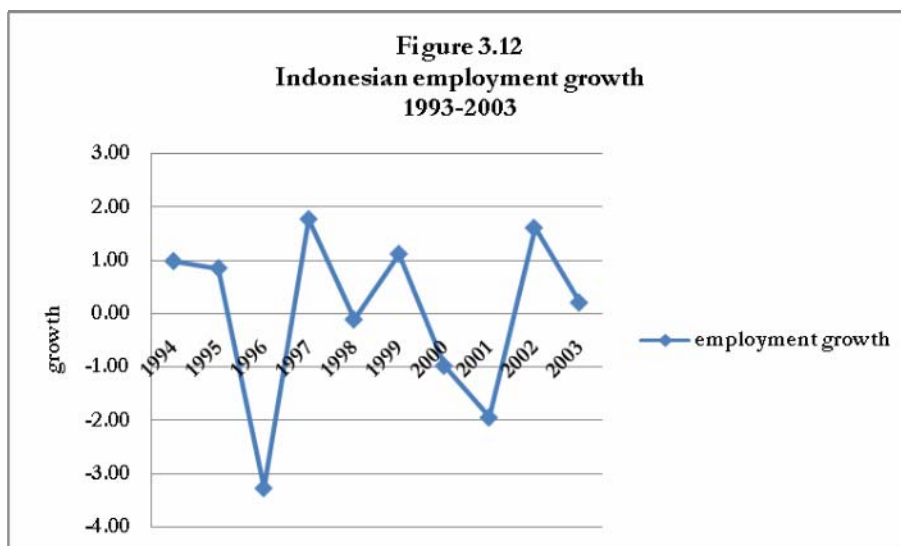
Source : BPS, Sakernas 1993-2003 (data processed)

a. Sumatera

The fluctuation of employment in Sumatera was not so different with Indonesian on general. It trend followed gradually. In 1995, Sumatera employment decreased 0.81% more than Indonesia, but then increased 6.03 on the next year. The crisis impact was more sever in Sumatera than the average. In that time employment decreased 5.32% or -5.21% more than Indonesia on average.

There was a revers trend in 1997 and 2001, Sumateran employment increased 1.27% when on average decreased 0.11 and increased 1.05% when on average decreased 1.95. it means that people who are originally from Sumatera move back to their hometown when they fired from work in another Island especially from Jawa.

Figure 3.13
Sumatera and Indonesia employment growth
1993-2003
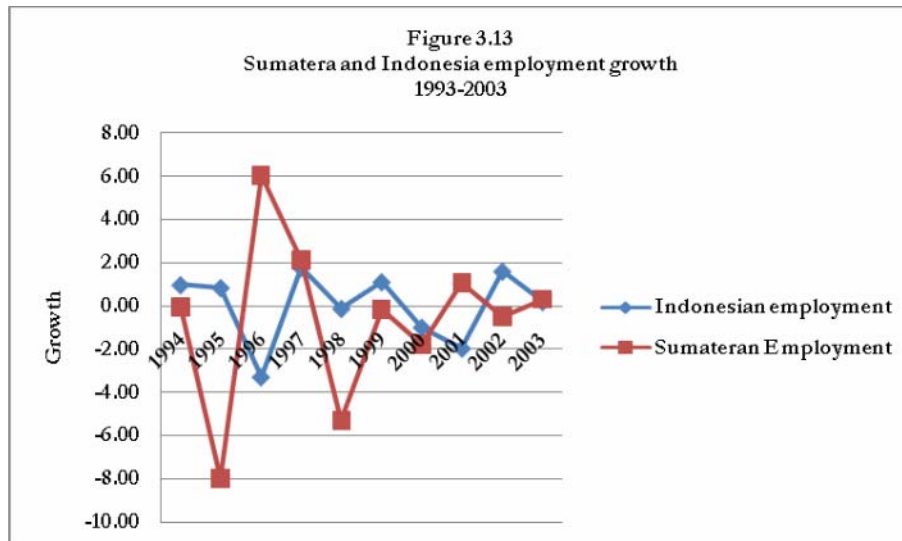
Source : BPS 1993-2003 (data processed)

b. Java

Employment growth in Java is coherent with Indonesia gradually. It means that the trend of Indonesian employment is more affected by Java trend because most people employed in Java. Related with Sumatera trend, it could be an increase in Sumatera in economic contraction is because employment in Java decreased.

Figure 3.14
Jawa and Indonesia employment growth
1993-2003
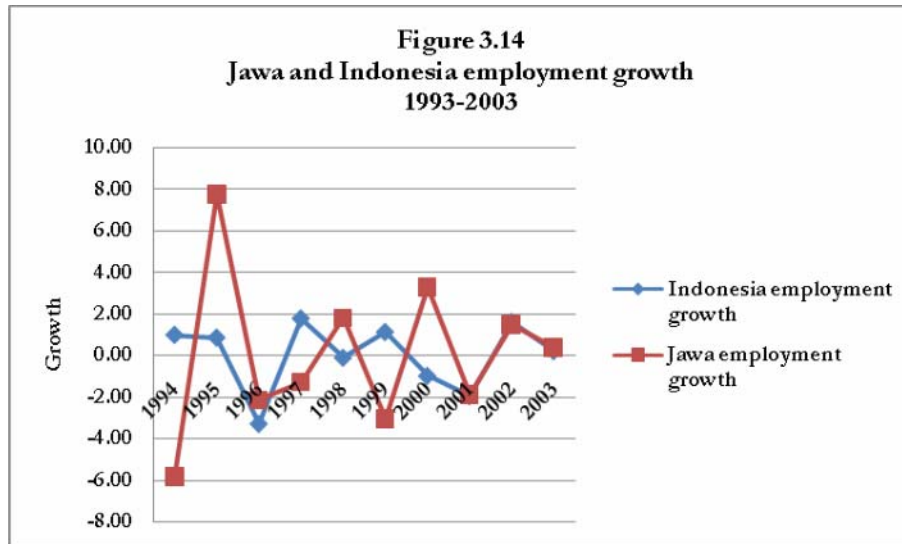
c. Kalimantan

There is not so much different trend of employment in Kalimantan with Indonesia on average but again the fluctuation in Kalimantan is higher than Indonesia, this phenomenon is quite similar with the other region. In 1997 a year before crisis, Kalimantan employment growth has already decreased 6.16% but then it increased till 1999. It implies that a decrease or increase in national level is already happened a year before in Kalimantan. The economic activity in Kalimantan is more sensitive to the economic situation.

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Figure 3.15
Kalimantan and Indonesia employment growth
1993-2003
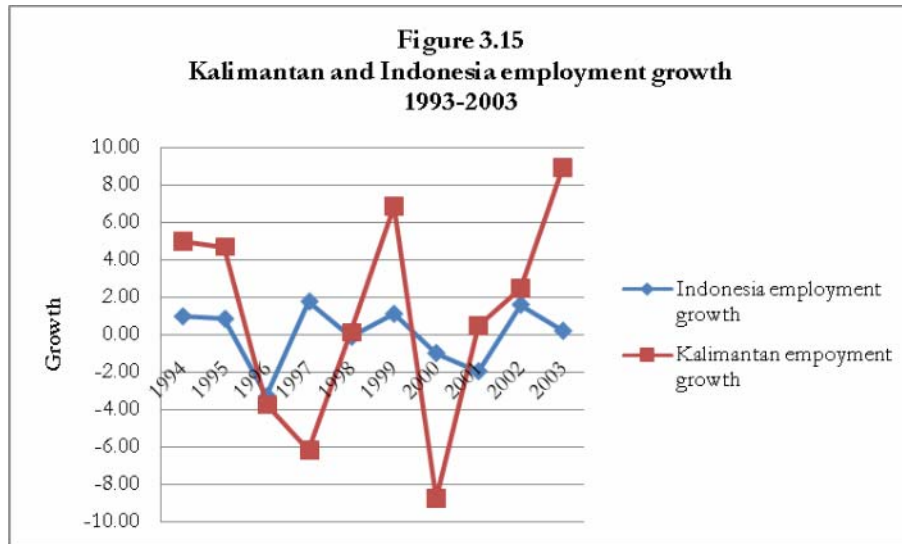
d. Sulawesi

Sulawesi employment growth decreased 1994 while on average increased. It implies that when the economy is stable or in good climate, labour from Sulawesi could move to another Island especially to find a better job, but they back soon when the economy is contraction. As we seen in 1998 in time crisis, the trend of employment in Sulawesi is so high more than 8% while indonesia on average was negative. This phenomenon was also happened in 2003 when the national economy is in good way, employment in Sulawesi decreased.

Figure 3.16
Sulawesi and Indonesia employment growth
1993-2003
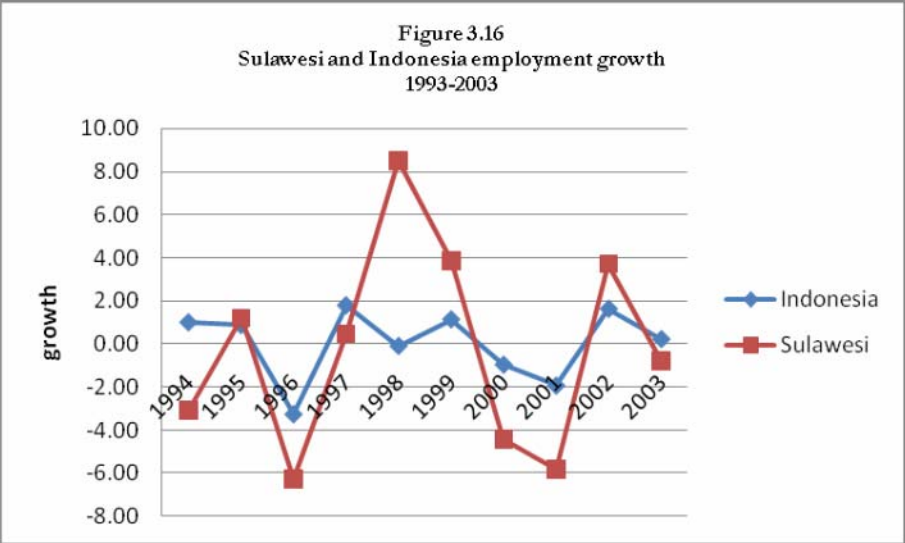
Source : BPS 1993-2003 (data processed)

Chapter 4
Data and Analysis Method

Measuring unemployment needs consistent definition; otherwise it leads to different estimation result. Like Indonesian case, spanning from 1994 to 2001, Indonesia Board of Statistic (BPS) changed in the definition of open unemployment twice. First, in 1994 BPS changed the time period of seeking work from the week preceding the survey to unlimited time as long as she/he actively looked for work and still waiting for the job search, and this change of definition explained most of the increase of unemployment rate from 2.78% in 1993 to 4.37% in 1994 (Suryadarma et al., 2005).

Second, in 2001 the definition of unemployment again re-changed (accommodating the ILO definition) to include even slightly different discourage workers who are not working but willing to work (Hussmanns et al., 1990). This change implied that there was an increasing trend of discouraged workers in Indonesia compare to the previous definition which showed slightly stable.

Consistency is also needed in estimating employment correlated with economic growth, because different technique will lead to different result as well. There are various ways in estimation ranging from the simplest to the relative complex. The first and the simplest one is use the percentage of change in employment over the percentage of change of GDP. In this way, it can only measure two different points in time rather than elasticity and also it is volatile and difficult for policy making in interpreting the result, (Islam and Nazara, 2000). The second technique is use double-log linear equation. This technique comes up with the point of elasticity that measures the percentage of change in employment if GDP change. Furthermore, it can be used in regression technique using OLS and pooling time series and cross-sectional data and it is widely used.

4.1 Data

This paper uses secondary data from *Survey Sosial Ekonomi Nasional (SUSENAS)* or The National Social Economic Survey produced by Indonesian Central Board of Statistic (BPS). SUSENAS is designed to collect information in wide scope about social population data included amongst other things education, employment, and expenditure[1]. Areas which are being conducted are urban and rural areas with 214,144 households sample size excluded military complex, jail, dormitory, and other special household.

Beside data from SUSENAS, I used also gross regional domestic product (GRDP) published by BPS. According to BPS:

> 'Conceptually there are there are three approaches for measuring Gross Regional Domestic Product (GRDP), namely, production approach, expenditure approach, and income approach. The two approaches are published regularly by the CBS and its office branches in provincial level. The last one is only calculated in line with the calculation of Regional Input-Output Table' (http://www.bps.go.id/sector/nra/grdp/)

For this objective, I used GRDP with production approach which expresses a total value of final goods and services within a certain period.

> 'Production units are grouped as in the International Standard Industrial Classification of All Economic Activities (ISIC), which are: Agriculture; Mining and Quarrying; Manufacturing Industries; Electricity, Gas and Water Supply; Construction; Trade, Hotel and Restaurant; Transport and Communication; Financial, Ownership and Business Services; Services including government services.' (Ibid)

GRDP publications consist as such GRDP at current price and constant price and also it provides percentage of GRDP distributions; GRDP per capita; and economic growth of regencies / municipalities.

Data that I used regarding to the objective is employment in term of share of population that work at least one hour a week for a dependent variable. Meanwhile GRDP both in total and sector; education variable in term of share of adult completed education with category uncompleted primary school used as a base, Completed primary school, completed junior secondary school, completed senior secondary school, and higher education attainment; share of

population age 15-60; share of population that live in rural area and number district split up.

Data consists of for 261 districts based on amount of district in 1993 excluded all districts in Aceh, Maluku, East Timor provinces, and Papua. These excluded due to uncompleted data. The study period contains eleven years starting from 1993 to 2003, so total number of observation become 2871.

Data missing rises up in term of GRDP sector where there are various missing across districts and years. GRDP sector data are missing for all districts at year 2003.[2] In Java, the missing data vary across year spanning from 1993 to 1995, 1996, and 1998[3]. In term of population for both total population and population age 15-60 are missing for various year[4].

Moreover, there is a significant policy change in Indonesian government since 1999. Decentralization of authority to manage the needs and income of district becomes a new paradigm in districts level. Starting from that year, some districts split up become 2 or more districts. Based on Indonesian home affair department, there are 159 split up cases spanning from 1993 to 2003. Sumatera has 63 cases; Java 17 cases; Kalimantan 23 cases; Sulawesi 24 cases; Maluku 12 cases; and Papua 20 Cases.

4.2 Analysis Method

The method that I used in this paper is Quantitative analysis based on the output of the model proceed by using stata program.

The idea of the model basically based on equation that had been constructed by Suryadarma at.al in assessing growth-employment elasticity model (Suryadarma et al., 2007). Adjustment of the equation is admitted in order to assessing the objective of the study. Model consists of four parts, aggregate growth, sector growth, average distributional effect, and quintile distributional effect.

On aggregate growth, I estimate aggregate GRDP with respect to employment. This estimation will answer the main objective of the paper in aggregate term. Besides estimating GRDP on employment, I also add some

variables, number district split up, share of population living in rural areas, share of population age 15-60, educational attainment, and time dummy which are used as a control variables.

Number district split up is used to control district dynamic change and also represented amount of split up cases. As we know in Indonesia there are some districts which split up during the study period. This variable also is used to know whether split up has an effect on employment or not.

Share of population living in rural area is used to control population which affect onto employment and also to know whether rural population has a contribution to employment or not.

Share of population age 15-60 is a labour force that has affect on employment. This variable is also useful to know whether the employed people are come within the district itself.

Educational attainment is background information of employment character. From this variable we will know where the employment comes from, and also knowing the composition of education that affect to the employment.

Time dummy is used to know time shock that affect the employment. During the study period, there are two incidents economy crisis in 1998 and global economic slow down in 2001. From this time dummy we can know whether economic incidents affect employment in Indonesia.

From the information above, now we can construct the model based on specification mentioned. The models are:

$$E_{dt} = \alpha + \beta_1 \ln Y_{dt} + \beta_2 nsplit_{dt} + \beta_3 rural_{dt} + \beta_4 \ln pop1560_{dt} + \beta_5 att_{dt} + \delta_t + \varepsilon_{dt} \quad \dots\dots\dots\dots\dots\dots\dots\dots\dots \quad (1)$$

$$E_{dt} = \alpha + \sum_{i=1}^{9} \beta_1 \ln Y_{dt} + \beta_2 nsplit_{dt} + \beta_3 rural_{dt} + \beta_4 \ln pop1560_{dt} + \beta_5 att_{dt} + \delta_t + \varepsilon_{dt} \quad \dots\dots\dots\dots\dots\dots\dots\dots \quad (2)$$

$$E_{qdt} = \alpha + \sum_{i=1}^{9} \beta_{1q} \ln Y_{dt} + \beta_2 nsplit_{qdt} + \beta_3 rural_{qdt} + \beta_4 \ln pop1560_{dqt} + \beta_5 att_{qdt} + \delta_{dq} + \delta_t + \varepsilon_{qdt} \quad \dots\dots\dots\dots\dots\dots\dots \quad (3)$$

$$E_{qdt} = \alpha + \sum_{i=1}^{9} \sum_{q=1}^{5} \beta_{1qi} \ln Y_{dt} + \beta_2 nsplit_{qdt} + \beta_3 rural_{qdt} + \beta_4 \ln pop1560_{dqt} + \beta_5 att_{qdt} + \delta_{dq} + \delta_t + \varepsilon_{qdt} \quad \dots\dots\dots\dots\dots \quad (4)$$

Description:

E	= share of employment	d = district	α = constant
Y	= real GRDP per capita	t = time	ε = error term
nsplit	= number district split up	q = quintile	
rural	= share of rural population	i = sector	
pop1560	= share of population age 15-60	δ = dummy variable	
att	= level of education attainment	β = coefficient	

Equation (1) is a model that will estimate the correlation between GRDP in aggregate growth with respect to the employment; equation (2) estimate the correlation between GRDP sector growth with respect to the employment; equation (3) for estimating average distributional effect of GRDP with respect to the employment; and equation (4) estimates the correlation between GRDP in quintile distributional effect with respect to the employment.

The equation that has been constructed is applied to the variables mentioned above to make a regression by using panel data regression model. Panel data is used due to some advantages, heterogeneity between unit analysis, appropriate for dynamic of change, giving more information, more degree of freedom, more variability, efficient and less collinearity among variable (Gujarati, 2003). Panel data also captures all information between and within variables.

I estimate the model using both random effect and fixed effect model. There are advantages and disadvantages using this regression model. Fixed effect model has advantages such as the intercept among units is allowed to differ due to the fact that each unit has some features of its own. Fixed effect model is also suitable for the situation in which the individual specific intercept might be correlated with one or more independent variables. The disadvantage of the fixed effect model is that a lot of degree of freedom is consumed when the number of cross-sectional unit is bulky.

Random effect model advantages are the intercept of individual is a random with constant mean value and less consume degree of freedom. Random effect model would be biased when individual error component are correlated with one or more independent variable.

The output results from random effect and fixed effect are compared by using Hausman test. This test is used to check whether random effect or fixed effect is better. The null hypothesis of this test is underlay on random effect and fixed effect estimator does not differ significantly. If the null hypothesis is rejected, it means that fixed effect appropriate for the model.

Chapter 5
Estimation Result

In this chapter, we estimate result based on equation denoted in chapter four accordingly. First is aggregate growth, second aggregate sector growth, third is average distribution effect and fourth is specific distributional effect. By assuming that error component ε_i correlate with independent variable, I used fixed effect model for explanation.

5.1 Aggregate Growth Result

Overall, eighteen seventeen out of eighteen variables are significant, twelve variables are significant in 1% and five variables are significant in 5% as seen on table 5.1. Variables that are significant in 1% are rural population, junior high school education, higher education, and all time dummy except second time dummy while variables that are significance in 5% are number split up, share population age 15-60, primary education, senior high school education, and second time dummy. GRDP variable is not significant in explaining model.

The R^2 within shows 90.77%, it means that employment as dependent variable can be explained by within independent variables or it can be explained 90.77% by independent variables in term of across time. Meanwhile employment can be explained 23.05% by between-independent variables. R-squared within is higher than between shows that dynamic change of dependent variable can be more explained by dynamic change in time than variation between variables. As we combine dynamic change of independent variables across time and across units, we get that 62.54% dynamic change in dependent variable can be explained by combination of across time and units independent variables. F test in this model shows that 49.97% dynamic change of independent variable is explained by independent variable collectively.

Hausman test shows that we reject null hypothesis and we can say that random effect and fixed effect differ significantly and fixed effect is appropriate for this model.

Table 5.1
Aggregate output

Variables	Random Effect		Fixed Effect	
	Coeff	Std.Error	Coeff	Std.Error
Lngrdp per capita	-0.002486	0.0029138	-0.0006154	0.0032516
Number split up	0.0035297*	0.0017548	0.0036556**	0.0017732
Rural	0.0655207***	0.0102803	0.0426249***	0.0125065
share population age 15-60	-0.0004868	0.0039741	0.0172875**	0.0078489
Primary education	0.0533313***	0.0202832	0.0500755**	0.0210211
Junior high school educ.	-0.1457476***	0.0305974	-0.15499***	0.0318857
Senior high school educ.	-0.0657058**	0.0284563	-0.0660092**	0.00294769
Higher education	-0.1937529***	0.0709151	-0.1884131***	0.0725814
Dummy year2	0.0068086**	0.0026754	0.0057085**	0.0026996
Dummy year3	0.0098009***	0.0026867	0.0083248***	0.0027282
Dummy year4	0.2154966***	0.0028405	0.2132716***	0.0029973
Dummy year5	0.2115364***	0.0029203	0.2088293***	0.0031052
Dummy year6	0.2116906***	0.0028405	0.2083891***	0.0030431
Dummy year7	0.2197742***	0.0029385	0.2156814***	0.0032251
Dummy year8	0.2069649***	0.0030408	0.2020038***	0.0034248
Dummy year9	0.2292098***	0.0031319	0.2237503***	0.0035928
Dummy year10	0.2100557***	0.0033936	0.2037056***	0.0040013
Dummy year11	0.2180091***	0.0034441	0.2117648***	0.0040476
R-squared				
- Within	0.9073		0.9077	
- Between	0.3264		0.2305	
- Overall	0.6635		0.6254	
F test			F(260, 2592) = 49.97	
Hausman test	chi2(18) = 43.84			

Note: *** significant 1%; ** significant 5%; * significant 10%

261 number of districts; 1993-2003 period

District split up positively contributes to the employment though it only in a small amount 0.0037 percentage point. It means that in any split up cases, it creates employment by 0.0037 percent point. An employment opportunity created by districts which have smaller area administration is better and

significant than in wide area though it is only in small amount. It is generally known that administration in district is quite complex. There are so many procedures administration that we have to go trough in order to finish one objection. Beside administration process, it also known that the higher a charge is the faster the process and the shorter the procedures.

Small area district will make easier for local government to improve management service, because it easier to control the activity of each agency or in bahasa Indonesia is Dinas. Spirit that brought by "new leader in new districts" gives positive effect on employment creation in its own district.

Fiscal decentralization that embedded to the "new districts" makes it possible for them to allocate the budget efficiently because it enhance fiscal capacity of "new districts" to develop the "new district"

As we know in Indonesia most of district populations live in rural area by 63.80% on average. These populations live depend not only on job opportunities that available in their areas but also they come to the urban area.

Table 5.1 shows that increase one percent population in rural areas will increase 0.043 percent point share of adult population that work at least one hour a week. It means that job opportunities available in rural areas are smaller than that of one percent additional rural population. A little job opportunities caused they move to urban area for a while.

In line with rural population, an increase in percentage change share of population age 15-60 in other words share of labour force one percent will increase employment 0.0173 percentage point. It means that mutation of population between districts is small because change of district population is quite small. So many way of rural population to get a job amongst other things they go in the morning to the city and back in the afternoon on the same day; they stay for a week in the city and back in the end of week. By these reasons, they administratively counted in one district but the work in another district.

Labours with primary education attainment are absorbed more 0.05 percentage point than that who are not finish primary education. Compare to the other level of education, this level is still higher than other levels. A one

percentage increase in Junior high school education, senior high school education, and higher education decrease employment by 0.155, 0.066, and 0.188 percentage point of employment compare to not completed primary school respectively. From this sight, only people who are completed primary education are interested with this type of work. Higher education tends to leave more than the other level of education for this kind of work and find another that more interesting for them or they keep stay with their parents with unemployment status in case they are rich. Junior high school attainment is the second highest percentage points of people who are leave this kind of work. The reason is that this level tends to continue their study more than find a job and this is in line with the Indonesian government education program, compulsory minimum nine years education *wajib belajar sembilan tahun*. Senior high school attainment is a least population to get a job compare to junior and higher education. Though it is only -0.066 percentage point it is significant in reducing employment. In this level, decision between continuing to higher education and finding a job is not only crucial but also depends on the parent wealth levels. People whom their parents are rich tend to continue their study but for whom they are poor it is better to find a job or could be just to be unemployed for a while or take a decision not to be in labour force.

Time dummies are all significant in one percent except for second year dummy which significant in five percent. By using first time dummy or 1993 as a base, we can say that employment creation can be explained more in dynamic change of time than that output economy as we know that there are two economic incidences in the study period, crisis economy in 1998 and global economy slow down in 2001. There is also a change in definition of unemployment that it caused the change in amount.

The dynamic change in time from the second to the eleventh years is more than that on the first year. In the second year, there is an increase in employment 0.006 percentage point greater than the first year. On the third year, the increase in employment is 0.008 percentage point more than the first year. This increase is also greater than the second year for 0.002 percentage point. It means that job creation is being continued on the third year. On the

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fourth year, there is a significant increase in employment creation that is 0.21 percentage point higher than that in the first year, but this increase is due to change of unemployment definition by CBS Indonesia. In this mater we can not see how much more an increase in employment created in that year.

In economic crisis, percentage point of unemployment is still higher than 1993 by 0.209. This percentage is quite equal with the previous year. It means that employment was not affected by the crisis though output plunged drastically and resulted negative growth.

There is no significant decrease or increase from 1999 to 2000. A significant increase was in 2001 where the employment increased 0.02 percentage point from the previous. The global economic slowdown on that time had not direct negative effect to the employment. The effect of global economic slowdown is affected on the employment after second year where employment decreased 0.02 percentage point from the previous year. In 2003 employment increased 0.211 percentage point and it means that recovery process has shown the impact to employment creation.

5.2 Aggregate Sector Growth

In this part we will look at GRDP sector and the other variables with respect to employment.

There are seventeen out of twenty six of variables are significant in 1% and 5% level both positive and negative sign. Variables in positive sign are number split up district, share of rural population, share of population age 15-60, primary education attainment, and all time dummy. while variables in negative sign are junior high school attainment, senior high school attainment, and higher education. Variables GRDP sector are all not significant.

Table 5.2

Sector output

Variables	Random Effect		Fixed Effect	
	Coeff	Std.Error	Coeff	Std.Error
Lngrdp per capita sector1	0.0027205*	0.0016182	0.0021174	0.0017128
Lngrdp per capita sector2	0.0000595	0.0006856	0.0002059	0.0007154
Lngrdp per capita sector3	0.0004957	0.0013965	0.0012511	0.0014495
Lngrdp per capita sector4	-0.0010599	0.0017341	0.0000103	0.001807
Lngrdp per capita sector5	-0.003315	0.0025615	-0.0037085	0.0026528
Lngrdp per capita sector6	-0.0028443	0.0028199	-0.0037059	0.0029499
Lngrdp per capita sector7	0.0022335	0.0025809	0.0033737	0.0026831
Lngrdp per capita sector8	0.0033741	0.0027888	0.0028934	0.0028698
Lngrdp per capita sector9	-0.0012716	0.0033298	-0.0042828	0.0034297
Number split up	0.0034985**	0.0017706	0.0035962**	0.0017845
Rural	0.0642595***	0.0103854	0.0425493***	0.125218
share population age 15-60	0.0004581	0.0039866	0.0178067**	0.0078283
Primary education	0.525923***	0.0203199	0.0505034**	0.0210118
Junior high school educ.	-0.1403885***	0.0310513	-0.1521855***	0.323448
Senior high school educ.	-0.0720891**	0.0286278	-0.0693779**	0.0299201
Higher education	-0.1870886***	0.0712005	-0.1899137***	0.0726768
Dummy year2	0.0069566***	0.0026893	0.0059899**	0.0027025
Dummy year3	0.009574***	0.0026937	0.0083067***	0.0027126
Dummy year4	0.2148473***	0.0028187	0.2134469***	0.0028894
Dummy year5	0.2111811***	0.0028965	0.2089806***	0.0030251
Dummy year6	0.2111276***	0.002947	0.2078703***	0.0031025
Dummy year7	0.219283***	0.003082	0.2152123***	0.0033097
Dummy year8	0.2061817***	0.0031759	0.201467***	0.0034821
Dummy year9	0.2280924***	0.0031915	0.2232264***	0.0035066
Dummy year10	0.2087575***	0.0034337	0.2031608***	0.003873
Dummy year11	0.2175338***	0.0050639	0.212275***	0.0054072
R-squared				
- Within	0.9076		0.908	
- Between	0.324		0.2205	
- Overall	0.6632		0.6216	
F test			F(260, 2584) = 47.32	
Hausman test	ch2(26) = 50.75			

Note: *** significant 1%; ** significant 5%; * significant 10%

261 number of districts; 1993-2003 period

Compared to the aggregate output in table5.1, output result on table 5.2 is quite similar in term of sign and amount. Clearer sight can we get when we compare GRDP total and sector. In latter case, insignificant sector are spread out among sector. A positive sign that resulted form agriculture, mining and quarrying, manufacturing, electricity, gas, and water supply, transportation and communication, and financial services are setoff by construction, trade, hotel, and restaurant, and services sectors. If we sum up both in negative and positive sign, total negative effect sectors are higher than total in positive sign, so in total GRDP becomes in negative sign.

5.3 Average distribution effect

On the poorest group, only thirteen out of eighteen variables are significant in explaining employment. GRDP, number split up, share of population age 15-60, senior high education and time dummy on the forth, fifth, sixth, eight, and eleventh are significantly and in negative sign variables. It means that an increase in each variable will reduce employment. Meanwhile, share of rural population, primary education, and the third time dummy are significant and in positive sign in explaining employment. The increase on these variables will increase employment.

On the second quintile is slightly different with the first quintile in term of sign and significances. On sign the different is in the ninth time dummy while on variable significances are in the second and the ninth time dummy which are not significant in quintile one. Senior high school, the third, the fourth, and the eleventh time dummy become not significant in the second quintile.

On the third quintile, the differences with the quintile one set on the third, the fourth, the eight, and the eleventh which become not significant in explaining employment. The sign of the third quintile is not quite different except for senior high school attainment, and the ninth time dummy.

The fourth quintile, junior high school and the seventh time dummy become significant in explaining employment with the difference in sign compare to the first quintile.

On the fifth quintile, variable GRDP is not significant in affecting employment while higher education becomes significant compare to the first quintile.

On GRDP per capita, every an increase in percentage change of GRDP significantly decrease employment in four groups except in richest quintile which is not significant. It means that if the income per capita from quintile one to quintile four increase, they tend to exist from this job. They may change the job to a better one, or they may try a self employment to get more income. The poorer of groups is the bigger the percentage point of decrease.

For each an increase in district split up, it decreases 0.015 percentage point of employment of the poorest group, 0.015 in second quintile, 0.017 in third quintile, 0.015 in fourth quintile, and 0.008 in fifth quintile. Decrease of employment from the poorest to the middle income is quite similar while the richest group less by half. It means that district split up produce unproductive condition for the majority of group income and it reduces more people in group bottom and middle than on the top. Instability of the "new district" especially in economy affected the poor and the middle income groups.

An increase one percent in share of rural population will increase employment for each quintile. The poorest the group is the biggest increase percentage point of employment. We can see that the poorest group increases 0.174 percentage point while the richest increases only 0.085. It implies that poor people from rural area eager to take the employment opportunities and it of course different with richest one in rural area. They may take opportunities to get better job in urban area in other words they become an urban people or they also may just continue their parents job which have been given to them as a heritage.

Share of population age 15-60 for all group quintile has a negative sign. An increase one percentage of this variable decreased employment. It means that the movement of this population from one district to another is only for taking a new job and in a better position. The middle income of this group is an active one to move inter district for better job. We can see from the table

5.3 that group people in quintile 3 is the highest on decreasing share of people that works at least one hour a week. This group decreased employment 0.0462 percentage point and slightly higher than group people in quintile 4. Job opportunities that available in their rural area lived by them because they one take a new one in another city.

Adult population who completed primary education for all quintile group increases employment. The richest group is the highest in increasing share of people that works at least one hour. An increase one percentage adult population who completed primary education and they are from richest group increases 0.267 percentage point of employment higher than adult population that are not completed primary school.

Adult populations who are rich tend to participate in this type of job. They may be involved on job only as an investigator in particular job in other word they are as land owners. It is usually happened in rural area where the land owners just visit and investigate for one hour or less the work of their workers. It can be argued that the richest people with primary education take opportunities from temporary job or part time job more than the poorest one especially in urban area where there are a lot of part time job.

The poorest quintile with primary education is less to involve in this job. Temporary job in rural area where most of the poorest live is rarely available. The availability of part time job depends on cultivation season usually in quarter.

There is only in quintile four that share of adult completed junior high school is negatively significant while the rest quintiles are not significant. An increase one percent adult population in quintile four that completed junior secondary school decreased employment for 0.111 percentage point share of population age 15-60 employed in the same quintile. it means that more people in quintile for completed junior high school they less likely to get job by using this education attainment. They are more likely to go to continue the study to next education attainment for preparing better job and better position in the future.

For the population with the senior high education attainment, a one percentage increase of this population decreases 0.053 percentage point of employment. This means that the poorest group of population who has senior high educational attainment probably do not want to take employment opportunities directly or they could tend to find another job that give them better condition. The higher the wealth of the group is the higher the opportunities to be an employment.

On the quintile three, an increase a population completed senior high school education increases 0.062 percentage point of employment while in quintile for, a one percent increase of population completed senior high school of this group increase 0.092 percentage point share of population age 15-60 employed. The group quintile five, an increase of population completed senior high school increase employment 0.15%. This means that more people employed are from the richest group with the senior high school attainment.

In broader interpretation, this phenomenon occurs may be due to limited labour market information access for the poorest quintile. Though they are all have an equal education, they have different level access of information especially between rural and urban area. In urban area the information is easy to get through electronic or news paper, and in recent years the information can be got from internet connection. Internet connection becomes a fast track to get information. Different with urban people, rural population is rather hard to get information, they could be live in remote area where the information is hard to get or unavailable. Another possibility is that they have not enough money the get the information this latter possibility is always happening both in rural and urban area.

In 1994, there was an increase in employment in quintile 2 while the other information is not significant in explaining employment. In 1998 where there was an economic crisis, the impact of economic crisis has been felt by the population in quintile one, quintile two, and quintile three with a decreased employment for they quintile, while quintile 5, the richest group, negative

effects of employment did not occur instead of positive impact on employment for the richest.

Some sectors in economy have high dependence to the economic situation as we known in the third chapter. It could be that most people who are not included in the richest group are work in that sector or they could work in informal sector, and self employed. These kinds of works are vulnerable on the economic situation. The crisis hit all sector economy that in average pulled down the economy to -12.06% of GRDP Indonesia.

The effect of economic crisis has been felt a year before for the group in quintile one through quintile three. In 1997, the percentage point of employment decrease 0.019 in quintile one, 0.012 in quintile two, and 0.016 in quintile three.

The impact of global economic slowdown did not affect the employment in quintile two through quintile five. Instead of decreased, the employment in those quintile increased 0.009 percentage point in second quintile, 0.011 in third quintile, 0.033 in fourth quintile, and 0.035 in fifth quintile. The richer the group the more they absorbed in employment.

Table 5.3
Average distributional effect output

Variables	Random Effect					Fixed Effect				
	Coefficient					Coefficient				
	q1	q2	q3	q4	q5	q1	q2	q3	q4	q5
Lngrdp per capita	-0.0354056***	-0.0242643***	-0.0145863***	-0.0091228**	0.0071135*	-0.0241134***	-0.0195358***	-0.0134565***	-0.0199112***	-0.0082023
Number split up	-0.0156703***	-0.0151842***	-0.0173582***	-0.0147763***	-0.0064765**	-0.0149378***	-0.0149037***	-0.0172498***	-0.0149011***	-0.0078025***
Rural	0.2019621***	0.1787286***	0.1654123***	0.1499514***	0.0991795***	0.1740154***	0.1545429***	0.1470096***	0.145936***	0.0848486***
share population 15-60 age	-0.031902***	-0.360897***	-0.0408427***	-0.0396963***	-0.0346865***	-0.0359098***	-0.0406665***	-0.0462159***	-0.0461528***	-0.0411546***
Primary education	0.0687218***	0.1083698***	0.1525333***	0.2144225***	0.3177139***	0.0429488**	0.0806318***	0.1200824***	0.1721595***	0.2670139***
Junior high school educ.	0.0180356	-0.0044904	-0.0187683	-0.0640134**	0.0615581**	0.0020372	-0.0240035	-0.040722	-0.1116389***	0.0169112
Senior high school educ.	-0.0461425	-0.0038085	0.0740694***	0.114909***	0.1720092***	-0.0533253*	-0.0093267	0.0621231**	0.0921049***	0.1489649***
Higher education	-0.0607082	-0.0871751	0.353207	0.0245802	0.2083391***	-0.03691418	-0.0641719	0.041206	0.0014321	0.1899536***
Dummy year2	0.0023307	0.0073491	-0.0010683	0.0029452	-0.000411	0.0025464	0.0077268*	-0.0003979	0.0044047	0.0003655
Dummy year3	0.0114612*	0.0076257*	0.0036652	0.011478***	0.0102813**	0.0104867*	0.0071233	0.0034896	0.0130572***	0.0115716***
Dummy year4	-0.0116317*	-0.0007493	-0.0064439	-0.0001092	0.0004151	-0.0135475**	-0.0016772	-0.0060239	0.0041504	0.0044787
Dummy year5	-0.0188126***	-0.0114765**	-0.0166093***	-0.0050906	-0.0012076	-0.0199105***	-0.0115455**	-0.0160708***	-0.0008552	0.0018913
Dummy year6	-0.0219345***	-0.0088676*	-0.0106527**	0.0055252	0.0127177***	-0.0236625***	-0.0101665**	-0.0113545***	0.0069097	0.0135155***
Dummy year7	-0.0018619	-0.0001937	-0.0002012	0.178169***	0.0276049***	-0.0040989	-0.0018103	-0.0008905	0.0194373***	0.0291725***
Dummy year8	-0.0210643***	-0.0155061***	-0.0049751	0.0109831**	0.0105647**	-0.0239691***	-0.0178103***	-0.0063627	0.013287***	0.0130231***
Dummy year9	0.0001893	0.0128588***	0.0129881***	0.0288165***	0.030475***	-0.0052143	0.0094594*	0.0112891**	0.0326997***	0.0346836***
Dummy year10	-0.0205955***	-0.0078944	-0.0071733	0.0088452*	0.0084532*	-0.025237***	-0.0106533**	-0.0083955*	0.0139385***	0.0123384**
Dummy year11	-0.0113693	0.0019342	0.0057892	0.0167346***	0.0121696**	-0.016288**	-0.000801	0.0049309	0.0223414	0.017443***
R-squared										
- Within	0.4198	0.449	0.4716	0.4387	0.3948	0.4224	0.4514	0.4767	0.4417	0.3997
- Between	0.3681	0.3546	0.31	0.3482	0.4321	0.2893	0.2915	0.2592	0.3179	0.3732
- Overall	0.3876	0.3815	0.3527	0.3702	0.4149	0.3396	0.3372	0.3156	0.3446	0.374
F test						16.51	26.15	29.46	22.62	12.06
Hausman test						63.26	67.95	152.76	86.93	60.57

Note: *** significant 1%; ** significant 5%; * significant 10%

261 number of districts; 1993-2003 period

5.4 Quintile distribution effect

Overall, there are thirteen out of 25 variables are significant in explaining employment. Number split up district, share of rural population, and primary education are positively significant variables while output per capita income in services sector, share of population age 15-60, senior high school education attainment, and time dummy in the fourth year, fifth year, sixth year, eight year, ninth year, tenth, and eleventh year are negatively significant variables.

On the second quintile, only nine out of 25 variables are significant to employment. Percentage change of output per capita, number district split up, share of population age 15-60, the fifth, the sixth, the eight, and the eleventh time dummy are significantly negative variables while share of rural population, and primary education attainment are positively significant variables.

On the third quintile, output per capita of electricity, gas, and water supply sector, share of rural population, primary education, and senior high school attainment are positively significant variables meanwhile output per capita in financial services sector, number district split up, share of population age 15-60, and the fourth, the fifth, the sixth, the eight, the tenth time dummy are negatively significant in explaining employment.

On the fourth quintile, there are thirteen out of twenty five variables are significant in explaining employment. Variables that are positively significant are senior high education, time dummy on the third, the seventh, the eight, the ninth, the tenth, the eleventh, and the twelfth. Variables that are negatively significant are output per capita of trade, restaurant, and hotel, number district split up, share of population age 15-60, and junior high school attainment.

On the fifth quintile, thirteen out of twenty five variables are significant in explaining share of population age 15-60 that works at least one hour a week employed. They are output per capita of mining sectors, number district split up, and share of population age 15-60 which are negatively significant while share of rural population, primary education, senior high education, higher

education, time dummy on the third, the sixth, the seventh, the eight, the ninth, the tenth, and the twelfth are positively significant variables.

An increase one percent of mining and quarrying sector has decreased 0.003% employment form the fifth quintile. it means that this sector to expand the product capacity used more capital intensive than labour intensive. The employment that has been there reduced and changed with machine. Because the raw material that used is not renewable, the output from this sector decreased automatically. But the decrease is still in a small percentage.

An increase one percent in Electricity, gas, and water supply output per capita increase employment 0.005 in quintile four while the others are not significant. It means that output growth from this sector significantly increase employment only in the fourth quintile. The employment that is absorbed is specifically form the medium level of income but it was still low in absorption because the output proportion from this sector is low on average is under two percent.

An increase one percent from the trade, restaurant, and hotel decreased 0.012 percentage point employment of quintile four. It could be that employer who has been there reduced due to the profit maximization reasons.

A one percent of financial services reduced 0.007 percent point of employment in quintile two. The characteristic of this sector usually is that it needs a skilled worker. because the employment in this quintile comes majority from primary education and senior high school attainment, the employment from this quintile reduced.

A decreased 0.014% and 0.011% of employment from quintile one and quintile two respectively was caused by an increase one percentage of output in services sector. The lower the quintile is the more employment decreases. It implies that with the educational background majority from primary education and senior high school attainment is not appropriate for this kind of economic activity. This sector needs more from skilled workers with especially higher education attainment.

The rest of variables is quite similar with the average distributional part in term of sign and it slightly different in amount. The significant quintile for all variables is not change only for the level of significance.

Table 5.4
Quintile distributional effect output

Variables	Random Effect					Fixed Effect				
	Coeff					Coeff				
	q1	q2	q3	q4	q5	q1	q2	q3	q4	q5
Lngrdp per capita sector1	0.0020918	-0.0000529	0.0016751	-0.0016363	0.0006222	-0.0043526	-0.0043952	-0.0012604	-0.0034477	-0.0020281
Lngrdp per capita sector2	0.0010764	0.0003818	-0.001108	-0.0016983*	-0.0022747**	0.002236	0.0009598	-0.0006647	-0.0010041	-0.00265**
Lngrdp per capita sector3	-0.0012428	0.002306	0.0023757	0.0037171*	0.0045596**	0.009558	0.0031715	0.0019382	0.002042	0.0033219
Lngrdp per capita sector4	-0.0006801	0.0040888	0.0036695	0.000635	-0.0005756	-0.0007341	0.0050425	0.0049484*	0.0028002	0.0034373
Lngrdp per capita sector5	-0.0053997	-0.0023143	-0.0027154	-0.0001135	-0.0030457	-0.0052541	-0.000636	-0.0016597	0.0020483	-0.0034038
Lngrdp per capita sector6	0.0010822	-0.0042043	0.0018908	-0.0021972	0.0064287	-0.0012882	-0.0078907	-0.0032191	-0.0122696***	-0.0055161
Lngrdp per capita sector7	0.0005734	-0.00456	-0.0018027	-0.0030273	0.0021503	0.0103966	0.0012902	0.0038744	0.0011881	0.0052147
Lngrdp per capita sector8	0.004401	-0.0007168	-0.0055341	0.0002612	0.0009066	0.0040777	-0.0008727	-0.0076098*	-0.000556	-0.0000841
Lngrdp per capita sector9	-0.0055072	-0.0051535	-0.0035657	-0.0025504	-0.0067649	-0.013842*	-0.0108977*	-0.006887	-0.0059904	-0.0070353
Number split up	-0.0170246***	-0.0159964***	-0.0179143***	-0.0153912***	-0.0066747**	0.0157516***	-0.0156333***	-0.0177539***	-0.0154085***	-0.0083214***
Rural	0.2120777***	0.1845039***	0.1665665***	0.1518739***	0.1002291***	0.1742496***	0.1530961***	0.144825***	0.1429063***	0.0853324***
share population 15-60 age	-0.0310718***	-0.0358161***	-0.0411037***	-0.0401802***	-0.03524***	-0.0359867***	-0.0409921***	-0.046587***	-0.0467412***	-0.0413415***
Primary education	0.0731841***	0.1085649***	0.1505792***	32107499***	0.3111219***	0.0412342**	0.07985***	0.1194196***	0.1711649***	0.2644775***
Junior high school educ.	0.022159	-0.0018208	-0.0160499	-0.0670733**	0.057639**	0.0008677	-0.0232807	-0.0407137	-0.1157162***	0.0144918
Senior high school educ.	-0.0497974*	-0.0025572	0.071481***	0.1107252***	0.1698211***	-0.0490574*	-0.0057084	0.0620427**	0.0884078***	0.1487878***
Higher education	-0.0692006	-0.0870771	0.410387	0.0174306	0.2002474***	-0.0767689	-0.0739909	0.0373521	-0.0054437	0.1842949***
Dummy year2	0.0012586	0.0066231	-0.0012144	0.0033975	0.0001942	0.001707	0.0070501	-0.0005513	0.0044603	0.0005228
Dummy year3	0.0075354	0.0046656	0.0015695	0.0106634***	0.0106495**	0.0077998	0.0048122	0.0019466	0.0117096***	0.0112805**
Dummy year4	-0.0216091***	-0.0067419	-0.0104079**	-0.0015664	0.0016125	-0.0198825***	-0.0057007	-0.0086623**	0.0013575	0.003757
Dummy year5	-0.0262122***	-0.0162496***	-0.0200832***	-0.0064911	-0.000646	-0.0251259***	-0.0153436***	-0.0190166***	-0.0036788	0.0003845
Dummy year6	-0.0267541***	-0.0126978***	-0.0148829***	0.0043282	0.0123798***	-0.0278035***	-0.01371***	-0.0156273***	0.0048624	0.0110603**
Dummy year7	-0.0063749	-0.004092	-0.0048327	0.0166945***	0.0272178***	-0.0082996	-0.0055817	-0.005676	0.0174228***	0.026466***
Dummy year8	-0.0269848***	-0.020075***	-0.0099699**	0.0098378**	0.0102837**	-0.0291842***	-0.0219594***	-0.0112648**	0.0110433**	0.0101919**

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Dummy year9	-0.0106767	0.0049095	0.0059315	0.0265438***	0.0314013***	-0.013834**	0.0026242	0.004495	0.0276859***	0.030824***
Dummy year10	-0.0325683***	-0.0163896***	-0.0143446***	0.0066384	0.0097495*	-0.0345067***	-0.0179116***	-0.0152792***	0.0085569*	0.00837
Dummy year11	-0.0161995	-0.0011206	0.009788	0.0273024***	0.0196583**	-0.0232342**	-0.0039828	0.0086022	0.0289748***	0.0221646***
R-squared										
- Within	0.4163	0.4469	0.4712	0.4377	0.3972	0.4225	0.4513	0.4746	0.4418	0.4024
- Between	0.3313	0.3338	0.3114	0.3572	0.4441	0.1692	0.2158	0.2282	0.2961	0.3656
- Overall	0.3634	0.366	0.3549	0.3789	0.4234	0.2642	0.2829	0.294	0.3332	0.3744
F test						16.4	25.55	28.13	21.09	11.64
Hausman test						77.82	102.37	83.10	96.91	64.34

Note: *** significant 1%; ** significant 5%; * significant 10%

261 number of districts; 1993-2003 period

Chapter 6
Summary and Policy Implication

5.1 Summary

From the whole chapters we going trough, we can summarized some finding from this paper. With the main objective of this study is to analyze the relationship between the economic growth and employment, we found that:

Electricity, gas and water supply sector dominated GRDP growth by 24% from total and second domination was transportation and communication sector by 15% while agriculture sector was the same proportion with service sector by 7%. This means that on average the main focus of economic activity in Indonesia for four islands is industry sector and supported by service sector.

In Sumatera, sectors that are favourable for employment enhancing policy are electricity, gas, and water supply, trade hotel, and restaurant, and agriculture. Electricity, gas, and water supply has the characteristics such as high in economic proportion, high on growth, stable, and fast in recovery. Trade, hotel, and restaurant has the characteristic amongst other things high in economic proportion, average on growth, quite stable on contraction, but it shows a decreasing over time. Agriculture has the characteristics for example the highest economic proportion, and quite stable. These kinds of characteristics can at least maintain the employment absorption and in the next can absorb more employment.

The economic activity in Java is mainly on electricity, gas, and water supply sector. This type of economy had dominated during study period with growth 7.33% on average. This sector become a leading sector starting form 1996 with growth 12.84% where in 1994 manufacturing was a leading sector with growth 11.91%.

Spreading out of economy is Java model of economy. This can be traced by looking at the average growth sectors where there is no significant majority sector on that region.

Kalimantan main focus is electricity, gas, and water supply. This sector becomes a principal sector to enhance the economy in region. For the employment absorption this sector is not good enough because unstable sector this is too difficult for hired and fired the employment. It could be the movement of employment on this sector is quite high. Though instability in growth, this sector is quite moderate in position on economic proportion, it means that this sector can absorb employment quite large.

For the employment purpose, this sector will become a one sector that can absorb employment in the future. It needs more stability to grow and it is a good prospect for Indonesian employment in the future especially in Kalimantan.

Sulawesi main concern of the economic activity is in electricity, gas, and water supply sector which is 18% of average growth proportion in term of growth enhancing policy. The second is transportation and communication sector by 14% while the lowest proportion is from construction sector which has 6% proportion of GRDP growth as seen in graph 3.9 below. From this sight, Sulawesi tends to focus the economic activity on the manufacturing service while agriculture only takes 7% average growth proportion even less than the services sector.

Sectors in Sulawesi that favourable for employment enhancing policy are agriculture, manufacturing, trade, hotel and restaurant, services, and manufacturing sectors. Agriculture sector with the highest economic proportions and stable is favourable to maintain employment but it less for economic growth employment enhancing policy. Manufacturing with the characters high proportion on economic, moderate in economic growth, quite vulnerable to economic contraction but responsive enough for recovery is favourable for the economic growth, employment enhancing policy. Trade

hotel and restaurant which has a high economic proportion, high growth, stable is good enough for economic growth, employment enhancing policy.

Employment growth in Indonesia during 1993-2003 is fluctuating. In 1994 the growth of employment was only 0.99% and then slightly in 1995. In 1996, employment plunged to -3.27%. This drastically decrease was due to definition change on employment and it changed the number of employment. During the crisis, employment decreased slightly -0.11%. the global economic slowdown hit the employment with the decrease -1.95%.

From this feature, we can conclude that employment condition defined as a share population that works at least one hour a week is stable during the contraction or expansion. Decrease or increase in employment growth is not quite significant.

There are seventeen out of eighteen variables are significant, twelve variables are significant in 1% and five variables are significant in 5% as seen on table 5.1. Variables that are significant in 1% are rural population, junior high school education, higher education, and all time dummy except second time dummy while variables that are significance in 5% are number split up, share population age 15-60, primary education, senior high school education, and second time dummy. GRDP variable is not significant in explaining model.

There are seventeen out of twenty six of variables are significant in 1% and 5% level both positive and negative sign. Variables in positive sign are number split up district, share of rural population, share of population age 15-60, primary education attainment, and all time dummy. while variables in negative sign are junior high school attainment, senior high school attainment, and higher education. Variables GRDP sector are all not significant.

On the poorest group, only thirteen out of eighteen variables are significant in explaining employment. GRDP, number split up, share of population age 15-60, senior high education and time dummy on the forth, fifth, sixth, eight, and eleventh are significantly and in negative sign variables. It means that an increase in each variable will reduce employment.

Meanwhile, share of rural population, primary education, and the third time dummy are significant and in positive sign in explaining employment. The increase on these variables will increase employment.

On the second quintile is slightly different with the first quintile in term of sign and significances. On sign the different is in the ninth time dummy while on variable significances are in the second and the ninth time dummy which are not significant in quintile one. Senior high school, the third, the fourth, and the eleventh time dummy become not significant in the second quintile. On the third quintile, the differences with the quintile one set on the third, the fourth, the eight, and the eleventh which become not significant in explaining employment. The sign of the third quintile is not quite different except for senior high school attainment, and the ninth time dummy. The fourth quintile, junior high school and the seventh time dummy become significant in explaining employment with the difference in sign compare to the first quintile. On the fifth quintile, variable GRDP is not significant in affecting employment while higher education becomes significant compare to the first quintile.

On GRDP per capita, every an increase in percentage change of GRDP significantly decrease employment in four groups except in richest quintile which is not significant. They may change the job to a better one, or they may try a self employment to get more income. The poorer of groups is the bigger the percentage point of decrease.

District split up produce unproductive condition for the majority of group income and it reduces more people in group bottom and middle than on the top. Instability of the "new district" especially in economy affected the poor and the middle income groups.

Poor people from rural area are eager to take the employment opportunities and it of course different with richest one in rural area. They may take opportunities to get better job in urban area in other words they become an urban people or they also may just continue their parents job which have been given to them as a heritage.

The movement of the population from one district to another is only for taking a new job and in a better position. The middle income of this group is an active one to move inter district for better job.

Adult population who completed primary education for all quintile group increases employment. The richest group is the highest in increasing share of people that works at least one hour. An increase one percentage adult population who completed primary education and they are from richest group increases 0.267 percentage point of employment higher than adult population that are not completed primary school.

The poorest quintile with primary education is less to involve in this job. Temporary job in rural area where most of the poorest live is rarely available. The availability of part time job depends on cultivation season usually in quarter.

People in quintile that completed junior high school they less likely to get job by using this education attainment. They are more likely to go to continue the study to next education attainment for preparing better job and better position in the future. More people employed are from the richest group with the senior high school attainment. In broader interpretation, this phenomenon occurs may be due to limited labour market information access for the poorest quintile.

Overall, there are thirteen out of 25 variables are significant in explaining employment. Number split up district, share of rural population, and primary education are positively significant variables while output per capita income in services sector, share of population age 15-60, senior high school education attainment, and time dummy in the fourth year, fifth year, sixth year, eight year, ninth year, tenth, and eleventh year are negatively significant variables.

This sector to expand the product capacity used more capital intensive than labour intensive. The employment that has been there reduced and changed with machine. Because the raw material that used is not renewable,

the output from this sector decreased automatically. But the decrease is still in a small percentage.

Output growth from this sector is significantly increase employment only in the fourth quintile. The employment that is absorbed is specifically form the medium level of income but it was still low in absorption because the output proportion from this sector is low on average is under two percent.

6.2 Policy Implication

Generally, we find from the output result that economic growth has a negative correlation with the employment. This case is similar with the Bolivian economy experience. Bolivia has good economic stability but the unemployment is high because sectors that high contribution is capital intensive instead labour intensive.

The output results are also contra productive with growth theory and also some empirical studies among other things Seyfried (2005); Boltho and Glynn(1995); Padaline and Vivarelly (1997); and Walterskirchen (1999), while for Indonesia cases Suryadarma (2007); and Islam and Nazara (2000). They found that there is a positive relationship between economic growth and employment for each particular case.

The reason behind this is that (1) there is a trade-off between sectors which are in positive sign and negative sign, and the latter have more impact on employment. (2) Sectors that are impressive in growth have only a small part on the economy, so in result, the growth of this sector can not hire more than that growth in labour force. (3) The growth of sectors that are dominant in economy is quite stagnant; in result those sector absorptions are quite low. (4) Indonesian economic has already shifted from agriculture to manufacturing that has impact on the low employment creation. As we know, manufacturing is a sector that more capital intensive instead of labour intensive. Service sector is also less in using employment. It use more advance technology rather than labour. (5) Apparently the study period

contain two economic contractions, economic crisis, and global economic slowdown. These two contractions make Indonesian economy collapse especially economic crisis that had plunged the economy to -12.16% in that year.

Indonesian economic growth is mainly from manufacturing, trade hotel and restaurant, and agriculture in order. But those sector unfortunately less impressive than electricity, gas, and water supply. The former seem to be stable in term of growth which implies that those sectors can not hire more employment. Electricity, gas, and water supply has only a small part of the Indonesian economy. It has proportion 1.91% to the economy. The effect of this sector is less to the employment, because the capacity of this sector is still low and this is part of industry sector which mean that the labours that are hired generally skilled worker with the high educational attainment.

Due to those facts, government needs a policy to push the majority of the economic output to expand the capacity more and keeps the expansive sector to increase their capacity unless it can not be as a leading sector in term of employment creation.

In line with this the availability of human resources that support the economy is a crucial thing. From the output result we known that economic growth and employment has negative correlation and the poorest group is the least active in the economy and the least group that can be absorbed by the economy. Even all quintiles are in the some condition, the poorest group always get less than the other.

To solve this problem, government should enhance skilled labour to fill the job created by the economy by enhancing the education especially for the poorest group to make the poorest active in the economic process.

Notes

[1] Susenas collecting data is renewed since 1992 where the information about welfare indicator in module collected every three year is joined into core collected every year

[2] In Sumatera, there are some districts with missing data such as Nias and Medan for year 1994, and 1995. Jambi missed data on Kabupaten Kerinci, Kabupaten Batang Hari and Kota Jambi from 1994 to 1996; Kabupaten Bungo Tebo, Sarolangun Banko, and Tanjung Jabung from 1994 to 1997. There are three kabupaten South Bengkulu, Rejang Lebong, and Noth Bengkulu which are missing data from 1993 to 1996.

[3] Districts that have missed data from 1993 to 1995 are Kabupaten Karang Anyar, Sragen, Rembang, and Pati. Kabupaten Banjarnegara, Kebumen, Purwerejo, Boyolali, Sukoharjo, Grobogan, Pasir, and Blora were missing for data 1993, 1994, 1995, and 1996, while Kabupaten Magelang was missing from year 1993 to 1998.

[4] Districts that have missed data from 1993 to 1995 are Kabupaten Karang Anyar, Sragen, Rembang, and Pati. Kabupaten Banjarnegara, Kebumen, Purwerejo, Boyolali, Sukoharjo, Grobogan, Pasir, and Blora were missing for data 1993, 1994, 1995, and 1996, while Kabupaten Magelang was missing from year 1993 to 1998.

References

AGRAWAL, N. (1996) The Benefits of Growth for Indonesian Workers. *Policy Research Working Paper, World Bank,* Vol. 6.

BLANCHARD, O. (2000) The Facts of Growth. *Macroeconomics.* Massachusetts, New Jersey, Prentice Hall International, Inc.

BROOKS, R. (2002) Why is Unemployment High in the Philippines? *IMF Working Paper* WP/02/23.

CHADHA, G. K. (1994) *Employment, earnings and poverty: a study of rural India and Indonesia,* Sage Publication India Pvt Ltd.

DOLLAR, D. & KRAAY, A. (2002) Growth is good for the poor. *Journal of Economic Growth,* 7**,** 195-225.

GROOT, H. L. F. D. (1998) *Economic Growth, Sectoral Structure and Unemployment,* Tilburg, Tilburg University.

GUJARATI, D. N. (2003) Panel Data Regression. *Basic Econometrics.* West Point, The McGraw-Hill companies.

HUSSMANNS, RALF, MEHRAN, F. & VERMA, V. (1990) Surveys of Economically Active Population, Employment, and Underemployment: An ILO Manual and Concepts and Methods. *International Labour Office.*

ISLAM, I. & NAZARA, S. (2000) Estimating Employment Elasticity for the Indonesian Economy, Technical Note on the Indoensian Labour Market. *International Labour Office.*

ISLAM, R. (2004) The Nexus of Economic Growth, Employment and Poverty Reduction: An Empirical Analysis. *International Labour Office.*

KAKWANI, N. & PERNIA, E. M. (2000) What is Pro-poor Growth? *Asian Development Review,* 18.

KHAN, A. R. (2001) "Employment Policies for Poverty Reduction". Issues in Employment and Poverty Discussion Paper 1. Geneva, ILO, Recovery and Reconstruction Department.

KRAAY, A. (2006) When is growth pro-poor? Evidence from a panel of countries. *Journal of Development Economics,* 80**,** 198-227.

OSMANI, S. R. (2005) The Employment Nexus Between Growth and Poverty: An Asian Perspective. *Sida Studies,* 15.

PRACHOWNY, M. F. J. (1993) Okun's Law: Theoretical Foundations and Revised Estimates. *The Review of Economics and Statistics,* 75**,** 331-336.

RAVALLION, M. & CHEN, S. (2003) Measuring pro-poor growth. *Economics Letters,* 78**,** 93-99.

SEYFRIED, W. (2005) Examining The Relationship between Employment and Economic Growth in The Ten Largest States. *Southwestern Economic Review.*

SUMMERS, L. H. (1990) *Understanding Unemployment,* Massachusetts, The MIT Press.

SURYADARMA, D., SURYAHADI, A. & SUMARTO, S. (2005) The Measurement and Trends of Unemployment in Indonesia: The Issue of Discourage Workers

SMERU Working Paper.

_____(2007) Reducing Unemployment in Indonesia: Results from a Growth-Employment Elasticity Model. *SMERU.*

VERBEEK, M. (2000) *A Guide to Modern Econometrics,* Chicester, John Wiley & Sons, Ltd.

VERBEEK, M. & NIJMAN, T. (1992) Testing for Selectivity Bias in Panel Data Models. *International Economic Review,* 33**,** 681-703.

WALTERSKIRCHEN, E. (1999) The Relationship Between Growth, Employment and Unemployment in the UE. *European Economist for an Alternative Economic Policy Workshop.*