

**An Analysis on Factors Affecting Gross Regional Domestic Product of Riau
Province in 2011-2015**

A THESIS

Presented as Partial Fulfillment of the Requirements to Obtain the Bachelor
Degree in Economics Department



By :

Amelia Hasanah

Student Number: 13313275

DEPARTMENT OF ECONOMICS

INTERNATIONAL PROGRAM

FACULTY OF BUSINESS AND ECONOMICS

UNIVERSITAS ISLAM INDONESIA

2017

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DECLARATION OF AUTHENTICITY

Hereby I declare the originality of the thesis; I have not presented someone else's work to obtain my university degree, nor I have presented someone else's words, ideas or expressions without any of the acknowledgments. All quotations are cited and listed in the bibliography of the thesis. If in the future this statement is proven to be false, I am willing to accept any sanction complying with the determined regulation or its consequence.

Yogyakarta, September 19th, 2017



Amelia Hasanah

MOTTOS

“So verily with the hardship there is relief, verily with the hardship
there is relief”

(Quran, 94:5-6)

“Allah does not burden a soul beyond that it can bear”

(Quran, 2:286)

“Do not pray for an easy life, pray for the strength to endure a difficult
one”

(Unknown)

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I would like to thank everyone who have participated in making this thesis a success. Hopefully, this will be the starting point of initiating other studies.

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ABSTRACT

This study aims to analyze the factors which influence the Gross Regional Domestic Product (GRDP) in Riau Province in the period of 2011-2015. Those factors are government spending, infrastructure (length of road), domestic investment, foreign direct investment, export, and labor.

The research makes use of secondary data from BPS. The data analysis uses the panel data which focuses on random effect analysis. The sample data is the data from total five districts (Indragiri Hilir, Indragiri Hulu, Bengkalis, Siak , and Pelalawan) and two cities (Pekanbaru and Dumai) in the province of Riau in the period of 2011-2015.

The result of the analysis shows that the GRDP in Riau province has been significantly influenced by government spending, infrastucture, export and labor. Government spending and labor give positive impact toward GRDP, while infrastructure and export gives negative impact toward GRDP in Riau province. Meanwhile, domestic investment and foreign direct investment do not significantly affect the GRDP in Riau province.

Keywords: GRDP, Government Spending, Infrastructure, Domestic Investment, Foreign Direct Investment, Export, Labor.

ABSTRAK

Penelitian ini bertujuan untuk menganalisa faktor-faktor yang mempengaruhi Produk Domestik Regional Bruto (PDRB) di provinsi Riau periode 2011-2015. Faktor-faktor tersebut adalah pengeluaran pemerintah, infrastruktur (panjang jalan), investasi dalam negeri, investasi asing langsung, ekspor, dan tenaga kerja.

Penelitian ini menggunakan data sekunder dari BPS. Analisis data yang digunakan yaitu fokus terhadap random effect analysis. Sampel data yang digunakan yaitu data dari total lima kabupaten (Indragiri Hilir, Indragiri Hulu, Bengkalis, Siak dan Pelalawan) dan dua kota (Pekanbaru dan Dumai) di provinsi Riau periode 2011-2015.

Hasil dari penelitian menunjukkan bahwa PDRB di provinsi Riau dipengaruhi secara signifikan oleh pengeluaran pemerintah, infrastruktur, ekspor dan tenaga kerja. Pengeluaran pemerintah dan tenaga kerja memberi pengaruh yang positif terhadap PDRB, sedangkan infrastruktur dan ekspor memberi pengaruh negatif terhadap PDRB di provinsi Riau. Sementara itu, investasi dalam negeri dan investasi asing langsung tidak berpengaruh signifikan terhadap PDRB di provinsi Riau.

Kata kunci: PDRB, Pengeluaran Pemerintah, Infrastruktur, Investasi Dalam Negeri, Investasi Asing Langsung, Ekspor, Tenaga Kerja.

CHAPTER I

INTRODUCTION

1.1 Background

The effort to boost economic growth is done not only at large or central area but also in a smaller scope, ie region, provinces, districts, sub-districts and villages. Development which is done in a smaller area would provide results that are capable to support the development carried out in a larger area (Wijaya, Indrawati, & Pailis, 2014).

To see the economic growth of a region is using an indicator called Gross Regional Domestic Product (GRDP). By definition, GRDP is the total value of products of goods and services produced in a particular area within a certain time regardless of ownership factor (Badan Pusat Statistika, 2016).

GRDP in an area depends on many factors such as one of which is the government's policy. The factors must be recognized and identified appropriately so that it can affect the rate of GRDP. Therefore increasing GRDP has become the main attention of every government including Riau province's government. GRDP of a region is a barometer of that region's wealth itself . Thus, the higher economic growth, the more prosperous the people.

Riau is one of the province in Sumatra island that has an area of 107,932.71 km² laying on the slopes of the Bukit Barisan to the Strait of

Malacca. Riau Province consists of 10 districts and 2 cities. Each districts and cities has an economic potential in various sectors such as plantation, agriculture, palm oil, and trade. The performance of economic growth of 5 districts and 2 cities in Riau province in 2011 until 2015 showed in the table below:

Table 1.1 GRDP of 7 districts in Riau Province at 2010 constant market price (billion rupiahs), 2011-2015

Districts	2011	2012	2013	2014	2015
Indragiri Hulu	21,874.1	23,708.4	23,180.1	26,572.9	25,804.9
Indragiri Hilir	30,006.5	32,444.4	34,769.5	37,155.8	37,922.0
Bengkalis	91,999.3	91,397.0	88,441.1	85,003.7	82,676.4
Pekanbaru	44,845.7	48,351.7	51,053.1	54,570.3	57,557.3
Dumai	18,242.2	18,909.8	19,605.7	20,204.8	20,445.6
Siak	52,147.1	53,227.0	51,866.2	51,500.2	51,369.0
Pelalawan	25,161.1	25,920.9	27,360.6	29,056.8	29,776.0

Source: Badan Pusat Statistika Riau

GRDP of 5 districts and 2 cities in Riau Province shows favorable development from year 2011-2015. District with the biggest amount of GRDP is Bengkalis of which largest revenue is obtained from mining and quarrying (oil and gas), agriculture, and manufacturing. Although Bengkalis is on the first rank for the greatest revenue in all districts and cities in Riau, Bengkalis economic growth had been decreasing since 2013. Meanwhile other districts and cities are increasing significantly every year. It happens due to a fall in oil lifting in Bengkalis that occurred since the year 2012 to 2015. Based on data obtained from the Ministry of Energy and Mineral Resources, it is known that the volume of oil

lifting in Bengkalis fell by -7.48 percent or 56,291 thousand barrels of 60,842 thousand barrels in 2014.

The least GRDP contribution in Riau is from Dumai city with 18 million rupiahs in 2011 and 20 million rupiahs in 2015. Despite being least wealth out of 7 districts, Dumai city's economy shows a good progress especially in mining and quarrying (oil and gas), agriculture, and manufacturing sectors.

Pekanbaru in other hand shows a great performance but as a capital city of Riau, it did not give figures that it should be. Pekanbaru largest revenue is obtained from construction, so it makes sense since Pekanbaru is the center of infrastructure and buildings in Riau. Processing industry and trading also gave large revenue to Pekanbaru even though it is still not enough if compared to Bengkalis.

An unexpected performance comes from Siak which managed to getting large revenue. In 2011, Siak managed to earn 52 millions rupiahs and 51 million rupiahs in 2014. Although Siak GRDP had a little decrease for the past 3 years, but its revenue almost as the same as capital city Pekanbaru despite of being small district. Based on Siak's GRDP published by *Badan Pusat Statistika (BPS)*, Siak main revenue comes from mining which are oil, gas and geothermal mining amounting to 90.42 percent in 2014, which slightly decreased from 90.85 percent in 2010. Overall in 2014, the category of Mining and Quarrying show negative

growth rate of 10.95 percent, which due to a construction in oil, gas and geothermal mining growth for past few years.

Overall Riau economy is strongly influenced by the global economy, especially the oil and gas sector and palm oil. The financial crisis that hit countries in Europe and the United States in 2012 began to disrupt the performance of the global economy including Indonesia which is also affected by the crisis, as reflected in the performance of economies which are starting to slow down. Similarly, in 2012 Riau's oil and gas economy declined from 3.76 percent to 2.48 percent in 2013. In 2015, World Crude oil price tumbled approximately 33 USD / barrel and is compounded with fog conditions that hit Riau and most of the island of Sumatra. It caused economic growth of Riau bottle up, only grow 0.22 Percent.

The current economic growth is certainly expected to increase in the years to come. In order to achieve these expectations, facilities and infrastructure and funding support are needed, therefore the role of the government and investment is really important to support the regional and national development through many sectors. The purpose of government and investment roles is to support the implementation of national development in order to increase equalization of GRDP and national stability and the improvement of people's welfare.

The relationship between GRDP and government spending can be measured from the public sector. In general, the picture of public expenditure

which are physical infrastructure or human capital, can enhance economic growth. Meanwhile, finance in particular expenditure can cause the growth run slower. In general, government spending has a positive effect on GRDP and economic growth but the facts show that the relationship is not consistent which can be positive or negative. Folster & Henrekson (1999), argue that the relationship is negative, while Agell, Lindh, & Ohlsson, (1999), found an insignificant relationship.

In supporting the GRDP, it is also required investments such as domestic investment (DI) and foreign direct investment (FDI). Riau Province has immense potential for the activities of investment, especially FDI because of the availability of various raw materials from various sectors such as agriculture and plantation sectors so if the potential of this area is empowered, it is very beneficial in generating foreign exchange (Wijaya, Indrawati, & Pailis, 2014). As more savings are invested, the faster economic growth takes place. Nevertheless, in real term, the rate of economic growth that occurred in each savings and investment depends on the level of productivity of the investment (Todaro M. P., 2000).

Based on the issues above, this research discusses the GRDP and the factors that influence GRDP in Riau Province with title **“An Analysis on Factors Affecting Gross Regional Domestic Product of Riau Province in 2011-2015”**

1.2 Problem Formulation

Based on the description above, the issues to be analyzed in this study are:

1. Does government spending have influence towards GRDP in Riau?
2. Does infrastructure (length of road) have influence towards GRDP in Riau?
3. Does domestic investment have influence towards GRDP in Riau?
4. Does foreign investment have influence towards GRDP in Riau?
5. Does export have influence towards GRDP in Riau?
6. Does labor have influence towards GRDP in Riau?

1.3 Research Objective

Based on the problems formulation written in above, this research aims to:

1. Analyze the influence of government spending towards GRDP Riau.
2. Analyze the influence of infrastructure (length of road) towards GRDP in Riau.
3. Analyze the influence of domestic investment toward GRDP in Riau.
4. Analyze the influence of foreign investment toward GRDP in Riau.
5. Analyze the influence of export toward GRDP in Riau.
6. Analyze the influence of labor toward GRDP in Riau.

1.4 Research Contribution

Benefits from this research:

1. To researcher,

This research provides knowledge and a deep understanding of the factors that affect the GRDP in Riau Province. This study will be useful as a material of knowledge to enter in the field of governance, particularly the government of Riau Province.

2. To future researcher,

This research can be beneficial as a reference for future researchers who are interested to study the same field with different approach and a different scope.

3. To Government,

This research provides suggestion to the Government associated with the GRDP in order to take the right policy in the future.

1.5 Writing systematic

To simplify and clarify the writing of this thesis, the writer uses systematics of writing so that the writing will be more focused. This research will be divided into several chapters, they are:

CHAPTER I: INTRODUCTION

This chapter contains background of the study, problem identification, problem formulation, problem limitation, research objectives, research contributions, and systematic of writing.

CHAPTER II: LITERATURE REVIEW AND THEORETICAL FRAMEWORK

This chapter describes references of previous studies which were ever done in the same field as well as load the foundation of theory used to approach the issues that will be examined.

CHAPTER III: RESEARCH METHOD

Chapter III elaborates the method of analysis used in the study and data source that are used.

CHAPTER IV: DATA ANALYSIS AND DISCUSSIONS

Chapter IV contains the finding results from the data that have been obtained previously and analysis to find out the influence of the respective data obtained.

CHAPTER V: CONCLUSION AND RECOMENDATION

This chapter is the concluding chapter which contains the conclusions and implications of the analysis results of the data of the previous chapters.

CHAPTER II

LITERATURE REVIEW & THEORETICAL FRAMEWORK

2.1 Theoretical Framework

2.1.1 GRDP

The economic growth of a region can be measured by looking at the GRDP and its growth rate at constant prices. GRDP is the total value added of goods and services generated from all economic activities throughout the region within a given period of time generally in one year.

One of the goals of macro development is to increase the economic growth. Economic growth is related to the process of increasing the production of goods and services in the economic activities of the people and can be said that economic growth concerns the development and improvement of production and income.

According to Boediono (1999) in Putra (2015), economic growth is the process of increasing per capita output in the long term. Economic growth reflects the dynamic aspect of an economy, which aims to see how an economy develops or changes over time. An economy is said to be growing if the level of economic activity achieved is now higher than it was in the past. Jhingan (2007) stated in the theory of development economics, there are six proposed characteristics of economic growth, namely:

1. There is a high rate of increase in per capita production to keep pace with the rapid population growth.
2. The increasing rate of production per capita mainly due to the improvement of technology and the quality of inputs used.
3. There is a change of economic structure from the agricultural sector to the industrial and service sectors.
4. Increasing population moves from rural to urban areas (urbanization).
5. Economic growth occurs due to the expansion of developed countries and the strength of international relations.
6. Increasing flow of goods and capital in international trade.

2.1.2 Theories of Economic Growth

In economics, there are many theories of growth. Economists have view or perception that is not always the same about the process of growth of an economy. The theories of economic growth can be grouped into several theories as follows:

a. Classical Economic Growth

According to Classical thinking, in such conditions the economy experiences a degree of saturation or stationary state. This is a situation where the economy has mature, established and society have been prosperous, but without further development (Tambunan, 2011). According to David Ricardo's growth theory (1817) in Putra (2015), economic growth is determined by an unlimited number of natural resources, and the number of

people generating the amount of labor that adjusts to wage levels, above and below the natural (or minimal) wage rate. David Ricardo also noticed a technological change, which led to increase labor productivity and cause the process of diminishing return or wage levels and profits be slow down to the minimum. David Ricardo also saw agriculture as a key sector and the driving force for economic growth.

b. Harrod-Domar Economic Growth Theory

The Harrod-Domar theory was developed by two economists Harrod and Domar who tried to extend Keynes's theory of the balance of economic growth in a long-term perspective by looking at the effect of investment on both aggregate demand and on expanding production capacity or aggregate supply, which in turn will increase economic growth. According to Harrod (1939) and Domar (1947) in Mainaki (2012), economic growth in a period of time will depend on savings and capital efficiency. Thus, if the rate of economic growth wants to be increased, then it can be in two ways, namely increasing savings and increasing the efficiency / productivity of capital.

2.1.3 Factors Affecting GRDP

2.1.3.1 Government spending

Government spending reflects government policy. If the government has established a policy to purchase goods and services, government spending reflects the costs to be incurred by Government to implement the policy.

Boediono (1999) stated that in macroeconomic theory, government spending consists of three main posts that can be classified as follows:

- a. Government spending on goods and services purchases.
- b. Government spending on staff salaries. Employee salary changes have an effect on macroeconomic processes, where changes in staff salaries will affect the level of demand in an indirect manner.
- c. Government spending on transfer payments. Transfer payment is not a purchase of goods or services by the government in the goods market but rather records payments or direct grants to various community groups, retired payments, interest payments or government loans to the public. Economically, the transfer payment has the same status and influence as the salary post of the employees even though the administrative aspects are different.

The type of government spending is divided into two, namely according to the organization, and by nature. According to the organization, government spending is classified into three, they are:

- a. Central government

In the central government, there is the state budget of revenues and expenditure, the funds used to improve the welfare of the community. In state budget, central government expenditure is divided into two, which include expenditure for expenditure and expenditure for financing.

Spending for expenditures, among others, is used for central government expenditure such as personnel expenditures, goods expenditures, capital expenditures, interest payments on debt, subsidies, grant expenditures, social assistance, etc. Also to be allocated to regions for balancing funds as well as special autonomy funds and adjustments, while expenditures for financing include expenditures on government bonds, foreign loan, principal payments, etc.

b. Provincial government

If in the central government there is state budget, then in the provincial government there is regional government budget which is the result of fund allocation of state budget from central government and result from taxation levy from society. State budget funds are used for expenditures including expenditure and capital expenditures. Expense shopping includes employee spending, goods and services spending, maintenance expenditures, official travel expenses, loan expenditures, subsidy spending, grant spending, social assistance spending, and other operational expenses. While capital expenditures such as fixed asset expenditures, other asset expenditures, and unexpected expenditures.

c. District / City Government

State budget in districts / city is used, among others, for expenditure for expenditure, revenue sharing to village, consisting of tax revenue sharing to village, sharing of other income to village, financing,

comprising, principal repayment, payment of government capital, lending to Regional Owned Enterprises/ State Owned Enterprises/ Central Government / other Autonomous Region Heads.

Meanwhile, by its nature, government spending is divided into five, among others:

a. Investment Spending

Investment spendings are expenditures that are shown to add strength and economic resilience in the future.

b. Expenditure on the Creation of Labor

Expenditures to create employment, as well as triggering an increase in community economic activity.

c. Expenditures on People's Welfare

People's welfare expenditures are expenditures that have a direct influence on the welfare of society, or expenditures that make people happy, for example expenditures for the construction of recreational areas, subsidies, direct cash assistance, disaster victims, etc.

d. Future Austerity Expenditures

Future austerity expenditures are revenues that do not provide immediate benefits to the state, but when issued today, it will reduce future government spending in the future., such as expenditures on community health and education, expenditures on orphans, etc.

e. Unproductive Expenditure

Unproductive expenditures are expenditures that do not directly benefit the community, but are required by the government.

Rostow (1960) in Putra (2015) introduced the Development Model about the development of government spending. This model links the development of government spending to the stages of economic development that distinguishes between the early, middle, and advanced stages. In the early stages of economic development, the percentage of government investment on total investments is huge because the government must provide facilities and services such as education, health, transportation. Then at the stage of suppressing economic development, government investment is still needed to increase economic growth. At this stage the role of private investment is also greater. Actually the role of government is not less big than private role. The greater role of the private sector also causes a lot of market failures occur.

2.1.3.2 Infrastructure

Kodoatie (2003) defined infrastructure as the physical facilities developed or required by public agencies to function demand functions in the provision of water, electricity, waste disposal, transportation and other services to facilitate economic and social objectives.

The infrastructure system is a major supporter of the functions of social systems and economic systems in the daily life of the community. Infrastructure systems can be defined as basic facilities or structures, equipment, institutions built and needed for the functioning of social systems and economic systems of society (Kodoatie, 2003). The World Bank (1994) divided infrastructure into three:

1. Economic infrastructure, is a physical infrastructure necessary to support economic activities, including public utilities (public works, roads, dams, irrigation canals and drainage), and the transportation sector (roads, railways, ports, airports and so on).
2. Social infrastructure, including education, health, housing and recreation.
3. Administrative infrastructure, including law enforcement, control of administrative and coordination.

The Government through Presidential Regulation No. 42/2005 concerned the committee to accelerate the provision of infrastructure that provides the government regulation, namely: transportation infrastructure, road infrastructure, irrigation infrastructure, drinking water and sanitation infrastructure, telematics infrastructure, electricity infrastructure and oil and natural gas agro-infrastructure. Classification of the above infrastructures can be categorized as basic infrastructure, because the

nature is needed by the wider community so it needs to be regulated by the government.

2.1.3.3 Domestic Investment

Domestic Investment can be defined as expenditure of investments or companies to purchase goods of production, to increase the ability to produce goods and services available in the economy derived from domestic investment. Investments accumulate capital accumulation by building a number of buildings and equipment that are useful for productive activities, then the potential output of a nation will increase and long-term economic growth will also increase. It is clear therefore that investment, especially Domestic Investment plays an important role in determining the amount of output and income. So domestic investment has a positive relationship to economic growth.

2.1.3.4 Foreign Investment (FDI)

Investment is often referred to foreign investment. Investment can be interpreted as an investment expenditure or a company expenditure to buy capital goods and equipment production to increase the ability to produce goods and services available in the economy (Sukirno, 2012)

In Indonesia, foreign investment is based on the provisions of Law no. 1 year 1967. Foreign direct investment is very important role for the Indonesian economy. In addition to be a source to increase foreign exchange, direct investment also serves as

a technology transfer, and new employment opportunities. In addition, for financing the development, foreign investment will bring a positive influence on the monetary sector. Increased investment will boost the country's foreign exchange reserves. With sufficient foreign exchange reserves, the rupiah exchange rate is expected to be stable and inflation will not occur due to the weakening of the exchange rate.

2.1.3.5 Export

Exports represent the total goods and services sold by a country to another country, including goods, insurance, and services in a given year. Important functions of export components from foreign trade for a country are to get profit and to rise national income, which then to increase the amount of output and economic growth. With higher output levels, the vicious cycle of poverty can be gone and economic development can be improved (Jhingan, 2007).

Both export and import are important factors in stimulating economic growth of a country. Export and import will increase the capacity of consumption of a country then increase the world output, as well as provide access to scarce resources and international markets. This opens up the potential to export the products that poor countries need to develop their national economy.

Exports can also assist all countries in carrying out their development efforts through the promotion and strengthening the economic sectors that contain comparative advantages, whether it is the availability of certain factors of production

in abundance, or efficiency advantages or labor productivity. Exports can also help all countries to take advantage of economies of scale that they have to promote economic growth and development in general (Todaro & Smith, 2012).

Exports have a positive relationship with economic growth, it means that when exports increase, economic growth will also increase and if exports decrease, economic growth will decrease.

2.1.3.6 Labor

Labor is defined as a population of 15 years or older people who work, look for work, and do other activities, such as in school and take care of household and get income from what they have done. According to BPS, the population aged 15 are said to be labor if they do work with the intention of obtaining or earning income or profits and the duration of working at least 1 (one) hour continuously over the past week.

Labor growth can be a positive factor that will trigger an increase in economic growth. The larger number of workers means increasing the level of production. However, labor growth can also have a negative impact. It will happen if the regional economic system is not able to absorb labor increase productively.

2.2 Literature Review

Yunan (2009) did the research that aimed to analyze the influence of the bank credit, export, government spending, and labor to the economic growth in Indonesia.

The dependent variable was Gross Domestic Product (GDP) while, independent variables were bank credit, export, government spending, and labor. The method that used in this research is *Ordinary Least Square* (OLS). The result from analysis was the bank credit, government spending and the amount of labor had significant and positive effect on economic growth in Indonesia, while exports did not significantly affect Indonesia's economic growth.

Hadiati (2002) conducted research entitled Analysis of Economic Growth in Central Java Province with OLS method. The variables used were investment, labor, number of public transport and the total regional output. The results showed a positive relationship between all independent variables on the economic growth of Central Java province.

Hidayat, Sari, & Aqualdo (2011) conducted a study aimed to analyze the influence of domestic investment, exports, labor and road infrastructure to economic growth in Pekanbaru city. The method of analysis used is linear regression method (multiple linear regression). To conduct the analysis used secondary data from 1995-2009. The results showed that exports and labor significantly affected the GRDP of Pekanbaru City. This is because Pekanbaru City has export supporting facilities such as airport and harbor which are adequate, and the improvement of quality of its workforce.

Rustiono (2008) did the research to analyze the influence of labor force, foreign investment, domestic investment and local government expenditure on GRDP

of Central Java Province during the period of 1985-2006. This study used time data from 1985-2006 and used multiple linear regression analysis. The findings of this study indicated that the labor force, private investment (PMA and PMDN) and local government spending had a positive impact on the growth of GRDP of Central Java Province.

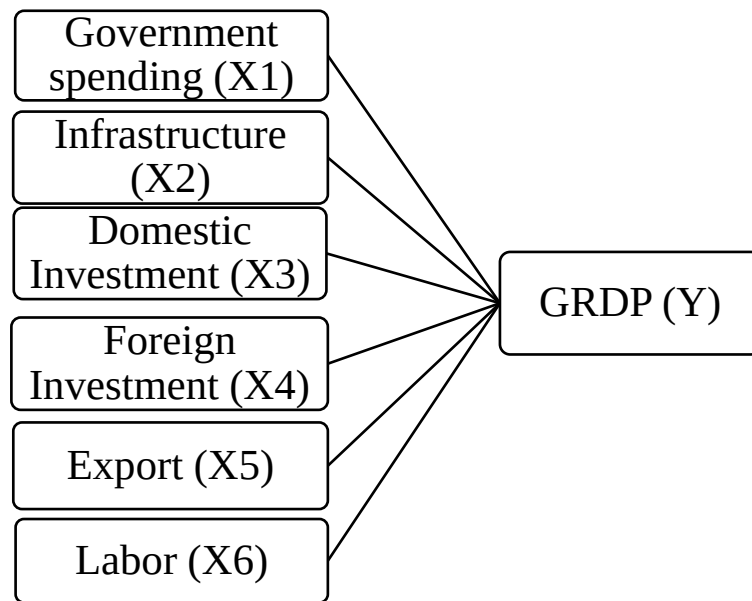
The research conducted by Upreti (2015) was about the factors affecting economic growth in developing countries. It used cross-country data from 76 countries on 2010, 2005, 2000, and 1995. It found that the volume of exports and the production of natural resources had positive impacts on GDP in developing countries during all time periods measured. It also found that higher life expectancy and increasing in investment had a positive impact on GDP, but this result was only valid for three out of four time periods. However, this study did not give clear indication on the effects of some variables on GDP of developing countries. First, it found contradictory result on the effects of foreign direct investment on GDP. It found that inflow of foreign investment had positive effects on GDP in one time period, whereas it had a negative effect in another developing countries.

Mainaki (2012), in research entitled Factors Affecting Economic Growth in Lampung Province in 1997-2013, revealed that there is no significant influence of government expenditure on GRDP in Lampung Province, there is a significant influence of total road length on GRDP in Lampung Province both in the long term and short term, also there is a significant effect of exports on GRDP in Lampung

Province both in the long term and short term. While domestic investment and foreign investment has no significant effect on GRDP in Lampung Province.

2.3 Framework for Thinking

The framework of this research can be explained through the following picture:



2.4 Hypothesis

A hypothesis is a temporary assumption of a problem and that needs to be tested for truth. Hypothesis in this research are:

1. Government spending has a positive and significant impact on GRDP of Riau.
2. Infrastructure (length of road) has a positive and significant impact to GRDP of Riau.
3. Domestic Investment has positive and significant impact on GRDP of Riau.

4. Foreign Investment (FDI) has a positive and significant impact on GRDP of Riau.
5. Export is expected to have positive and significant impact on GRDP of Riau.
6. Labor is expected to have positive and significant impact on GRDP of Riau.

CHAPTER III

RESEARCH METHOD

3.1 Type of Study

Type of study which is used by researcher is quantitative research. This research uses quantitative method by way of generating numerical data or data that can be transformed into useable statistics. The type of data in this research is secondary data, the researcher reuses and repurposes information as secondary data because it is easier and less expensive to collect the data. Secondary data is data obtained directly from the source, such as a quote from the books, literature, scientific journals, as well as data sources published by several agencies which have relevance to the theme of research. Data needed in this research are:

- a. Gross Regional Domestic Product data of Riau Province by districts 2011-2015
- b. Government spending data of Riau province by districts 2011-2015
- c. Infrastructure data (length of road) of Riau Province by districts 2011-2015.
- d. Domestic investment data of Riau Province by districts 2011-2015.
- e. Foreign investment data of Riau Province by districts 2011-2015.
- f. Export data of Riau Province by districts 2011-2015.
- g. Labor data of Riau Province by districts 2011-2015.

3.2 Data Collection Method

Method of collecting data used in this research is the study of the literature. It is an attempt to obtain data by studying and analyzing the literature books and processed data. The collections of data in this study are intended to obtain materials that are relevant and accurate. The data used are secondary data by using a data collection method in studies of original documents from the BPS as well as other library resources related with the research.

3.3 Research Variable

This research contains of independent variable and dependent variable. Dependent variable in this research is Economic Growth (GRDP) of 5 districts and 2 cities in Riau province, and the independent variables are government spending, infrastructure, domestic investment, foreign investment, export and labor that can be defined as follows:

3.3.1 Dependent Variable

Dependent variable is a variable of which magnitude is influenced by other variables. This study used economic growth as a dependent variable. Economic Growth of Riau Province by districts is calculated from Gross Regional Domestic Product (GRDP) at constant prices.

3.3.2 Independent Variable

The independent variable is the variable that can affect another variable. Independent variables used in this study are:

a. Government Spending (X1)

Government spending reflects government policy. If the government has established a policy to purchase goods and services, the government's expenditure reflects the cost to be spent by the government to implement the policy. Data released by the Central Bureau of Statistics of Riau Province are expressed in units (million rupiah).

b. Infrastructure (road length) (X2)

Infrastructure as the physical facilities is developed or required by public agencies for the demand function and other services to facilitate economic and social objectives. Infrastructure in this research is the length of the road which the data released by the Central Bureau of Statistics of Riau Province is stated in Kilometers (Km).

c. Domestic Investment (X3)

Domestic Investment is the total of investment which has been approved by the government according to economic sector activity in Riau Province. The data used in this research is taken from the data released by the Central Bureau of Statistics of Riau Province stated in form of million rupiahs.

d. Foreign Investment (FDI) (X4)

Foreign Direct Investment is the total of Foreign Investment approved by the government according to the activities of the economic sector in Provinsi Riau. The data used in this research is taken from the data released by the Central Bureau of Statistics of Riau Province stated in form of thousand US dollars.

e. Export (X5)

Export is the total amount of goods and services exports to other regions. The operational data used in this research is taken from the data released by the Central Bureau of Statistics of Riau Province stated in the form of million rupiah.

f. Labor (X6)

Labor is calculated from the number of working-age populations who worked in Riau Province. The data used in this research are taken from data released by the Central Bureau of Statistics of Riau Province stated in units (people).

3.4 Analysis Technique

Processing of secondary data that have been collected from various sources is uses some statistical program packages, such as Microsoft Excel 2010 and EViews. In processing data activities, the researcher uses Microsoft Excel 2013 to create tables and analysis. Meanwhile on the processing regression data panel, the researcher uses program package EViews.

3.4.1 Panel Data Method

Panel data is combination between time series data and cross section data. In other words, panel data are data obtained from some of the same individuals that are observed in certain period of time. The use of panel data allows researcher to be able to capture the characteristic between individuals and between different times. The advantages of using panel data regression are, the data panel is able to provide more data and more complete information. The use of panel data obtained a larger degree of freedom (df), so that the resulting estimation is better. By combining the information from the time series data and cross section, it can overcome the problems that arise because there is a problem removing variables (omitted variable), the panel data was able to reduce the collinearity between variables, and panel data better in detecting and measuring effect that in simply not being able to do by the time series data of pure and cross section (Gujarati, 2004).

There are three standard estimation models to data panel regression, which are Polled Regression (Common Effect Model), Fixed Effect Model (Least Square Dummy Variable), and Random Effect Model.

3.4.2 Selection Panel Data Estimation Model

a. The Significance Fixed Effects Model

The significance of the model of fixed effects statistical test can be done by F-test. F-test Statistics are used to determine whether fixed effects models or common effects model is better to be use and see the residual sum of squares (RSS). If the

statistic value is greater than the significance level, then the null hypothesis will be rejected. So the data is better using fixed effect than common effect.

b. The Significance of Random Effects Model

To find out whether a random effects model is better than common effects model, the researcher uses a test of Lagrange Multiplier (LM) developed by Bruesch-Pagan. This method is based on the residual value method of common effects. The null hypothesis (H_0) that is used is that intercept is not a random or stochastic variable. In other words, the variance of the residual value is zero. If the results of the LM test are greater than the critical value of chi-square statistic, then the null hypothesis will be rejected, it means that exact estimation for regression data panel is a method of random effects rather than the method of common effects.

c. Hausman test

To find out the best model among fixed effects with random effects, the researcher uses significance Hausman. Significance test of the null hypothesis using Hausman residual equations panel does not correlate with independent variables which means random effects model is better than the model of fixed effects. Hausman test statistic follows distribution of chi-square statistic with free degrees as much as the number of independent variables. If the value is greater than the Hausman statistics value critical chi-square statistic, then the null hypothesis will be rejected, it means that exact estimation for regression data panel fixed effects model is compared with the random effects model.

3.4.3 Hypothesis Testing

Hypothesis testing is useful for examining or testing whether the regression coefficient obtained significant or not. The intent of this significant is a regression coefficient value which is significantly is not equal to zero. If the slope coefficient is equal to zero, it can be said that there was not enough evidence to declare the independent variables had the effect on the dependent variable. Therefore, all the regression coefficients should be tested.

1. F-test

F-test is used to perform a test of hypothesis of the regression coefficient (slope) thoroughly/ simultaneously. F-test shows independent variables affect the dependent variables simultaneously. Hypothesis in F-test are:

$$H_0 : \beta_1 = \beta_2 = \dots = 0$$

$$H_1 : \beta_1 \neq \beta_2 \neq \dots \neq 0$$

If F-test is greater than F critical H_0 is rejected. Rejected H_0 means there is minimum of one independent variable that influenced dependent variable.

2. T-test

T-test is individual coefficient test. This test used in order to know the effect of significance of independent variable individually.

Hypothesis in T-test are:

$$H_0 : \beta_i = 0 ,$$

$H_1 : \beta_i \neq 0$.

If the probability value $t < \alpha = 0,05$ so reject H_0 , means independent variable partially significance influenced dependent variable.

3. Coefficient Determination (R^2)

Coefficient determination (Goodness of Fit) is an important measurement in the regression, because it can inform good or whether the regression model estimated is good. The value of R^2 reflects the extent of the variation of the dependent variable can be explained by the independent variable X or how large diversity of the dependent variable that is able to be explained by the model. If $R^2 = 0$, then the variation of the Y cannot be explained by X altogether and if $R^2 = 1$ it means a variation of Y as a whole can be described by the X.

3.4.4 Model

Systematically the influence of independent variable toward dependent variable can be described in the function as follows:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 X_{6it} + e_{it}$$

where:

Y = Dependent Variable

$X_1, X_2, \dots, X_n$ = Independent Variable

β_0 = Constanta

$\beta_1, \beta_2, \dots, \beta_n$ = The magnitude of the influence of independent variable toward the dependent variable

i = Province

t = Series 2011-2015

e_{it} = *error term*

CHAPTER IV

DATA ANALYSIS DISCUSSIONS

4.1 Panel Data Result

4.1.1 Common Effect Result

The simplest panel data model approach is common effect model. It is assumed that there is the same behavior between individuals in different period of times, so that this model does not notice the dimensions of the individual and time. This research employs technique of the data regression of *cross section* or *time series*. For the panel data, it combines the *cross section* with *time series* data, then this combination data is treated as a combination observation to estimate the model by OLS (*Ordinary Least Square*).

Table 4.1
Common Effect

Dependent Variable: GRDP
Method: Panel Least Squares
Date: 10/09/17 Time: 08:23
Sample: 2011 2015
Periods included: 5
Cross-sections included: 7
Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1030.294	14287.98	0.072109	0.9432
GOV	0.021939	0.003061	7.167126	0.0000
INF	-2.351166	4.877145	-0.482078	0.6350
DI	-0.000745	0.002967	-0.251272	0.8042
FDI	0.001150	0.015179	0.075753	0.9404
EXP01	-0.000186	0.000607	-0.307149	0.7619
LBR	0.028863	0.030929	0.933217	0.3618
R-squared	0.823705	Mean dependent var		45151.63
Adjusted R-squared	0.770816	S.D. dependent var		24459.40
S.E. of regression	11709.48	Akaike info criterion		21.79260
Sum squared resid	2.74E+09	Schwarz criterion		22.12856
Log likelihood	-287.2001	Hannan-Quinn criter.		21.89250
F-statistic	15.57434	Durbin-Watson stat		0.611463
Prob(F-statistic)	0.000001			

4.1.2 Fixed Effect Result

There are different effects between individuals, namely the assumption of *Fixed Effect Model*. The difference in the intercept can be accommodated through the differences. Thus, by using the technique of dummy variables, the unknown parameter could be estimated.

Table 4.2**Fixed Effect**

Dependent Variable: GRDP
 Method: Panel Least Squares
 Date: 10/09/17 Time: 08:24
 Sample: 2011 2015
 Periods included: 5
 Cross-sections included: 7
 Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	55771.03	13809.70	4.038539	0.0012
GOV	-0.002448	0.001263	-1.937587	0.0731
INF	-4.026786	6.717006	-0.599491	0.5584
DI	0.002481	0.000597	4.155983	0.0010
FDI	-0.003902	0.003406	-1.145676	0.2711
EXP01	0.000448	0.000491	0.911667	0.3774
LBR	-0.003293	0.033180	-0.099257	0.9223
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.996783	Mean dependent var	45151.63	
Adjusted R-squared	0.994025	S.D. dependent var	24459.40	
S.E. of regression	1890.603	Akaike info criterion	18.23336	
Sum squared resid	50041333	Schwarz criterion	18.85728	
Log likelihood	-233.1504	Hannan-Quinn criter.	18.41889	
F-statistic	361.4793	Durbin-Watson stat	2.012450	
Prob(F-statistic)	0.000000			

4.1.3 Random Effect Result

Variation of generalized least squares estimation is called Random Effect Model (REM). Generalized least squares method is another name for the method of fixed effect and random effect. The estimation of the panel data with the *fixed*

effects by the dummy variable technique shows the uncertain model used. To solve this problem, it uses residual variable known as *random effect*.

Table 4.3

Random Effect

Dependent Variable: GRDP

Method: Panel EGLS (Cross-section random effects)

Date: 10/09/17 Time: 08:20

Sample: 2011 2015

Periods included: 5

Cross-sections included: 7

Total panel (unbalanced) observations: 27

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1030.294	2306.926	0.446609	0.6600
GOV	0.021939	0.000494	44.38972	0.0000
INF	-2.351166	0.787460	-2.985761	0.0073
DI	-0.000745	0.000479	-1.556255	0.1353
FDI	0.001150	0.002451	0.469178	0.6440
EXP01	-0.000186	9.80E-05	-1.902335	0.0716
LBR	0.028863	0.004994	5.779898	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			0.002301	0.0000
Idiosyncratic random			1890.603	1.0000
Weighted Statistics				
R-squared	0.823705	Mean dependent var		45151.63
Adjusted R-squared	0.770816	S.D. dependent var		24459.40
S.E. of regression	11709.48	Sum squared resid		2.74E+09
F-statistic	15.57434	Durbin-Watson stat		0.611463
Prob(F-statistic)	0.000001			
Unweighted Statistics				
R-squared	0.823705	Mean dependent var		45151.63
Sum squared resid	2.74E+09	Durbin-Watson stat		0.611463

4.1.4 Chow Test and Hausman Test

The kind of estimation model used for the analysis are based on two tests, they are Chow test and Hausman test. Chow test has been used to decide the best model between common effect model and fixed effect model, while Hausman test is used to decide the best model that is the use of whether fixed effect model or random effect model.

Table 4.4

Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	125.532191	(6,14)	0.0000
Cross-section Chi-square	108.099394	6	0.0000

The result of the test obtained the probability value is 0.0000 or smaller than $\alpha = 0.05$, it means H_0 is rejected. If H_0 is rejected, so Fixed Effect Model is better than Common Effect model. The next step is continued with Hausman test to identify the model estimation that is suitable for the research. If the value of probability is smaller than the Hausman statistics value, then the null hypothesis will be rejected, which means that exact estimation for regression data panel fixed effects model is better compared to the random effects model. Decision in rejecting H_0 is carried out by comparing it with Chi square. If the value is <0.05 , then H_0 is rejected so the models

used are the fixed effects. Conversely, if the rejection of H_0 is not significant or do not reject H_0 , then model use is random effect.

Table 4.5

Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	753.193146	6	0.0000

From the calculation that has been performed in table 4.5, it can be seen that the value of probability on a cross section random effect test shows the number of probability is 0.0000. It means the model is significant with the level of significance $\alpha=0.05$ and using chi-squared statistic (Gujarati, 2003).

The decisions taken on Hausman test is do not reject H_0 , with the hypotheses:

H_0 : Random effect model

H_1 : Fixed effect model

So based on the test performed by Hausman test, the preferred method being used is *random effect model*.

4.2 Hypothesis Testing

4.2.1 T-test

The hypothesis presented in this test is the respective coefficients of the equation, that is zero or $\beta_i = 0$. It means that there is no influence of independent variable toward dependent variable. Whereas the alternative hypothesis is $\beta_i \neq 0$, which means there are influences from each of the independent variable to dependent variable. This testing is done by comparing the t-test and t-critical or by looking at the value of the probability of t-test. If the value t test $>$ t critical or if the value of the probability $t < \alpha = 0.05$ then H_0 will be rejected, so the conclusion is independent variables partially significantly affect the dependent variable.

H_0 : partially independent variable has no effect toward dependent variable.

H_1 : partially independent variable has effect toward dependent variable.

The t-test results can be seen in table 4.3. If the value of prob. T-statistic (shown in Prob.) is smaller than the error rate $\alpha = 0.05$, then it can be said that the independent variables affect significantly to dependent variable. While when the value of the prob. t statistic is greater than 0.05 error rate, then it can be said that the independent variables do not affect significantly to the dependent variable.

The value of the probability t statistic of independent variables of government spending (GOV) and labor (LBR) are both 0.0000, while infrastructure (INF) is 0.0073. Those three independent variables are less than alpha 0.05 so the independent variable of government spending, labor, and infrastructure had significant influence toward dependent variable bound to the alpha 5% or in other words, the influence of

government spending, labor, and infrastructure to Riau's GRDP are significantly at the 95% confidence level. The probability of export (EXP) is 0.0716 smaller than 10%, so export significantly influence Riau' GRDP at 90% confidence level.

Meanwhile, Foreign direct investment (FDI) and domestic investment (DI) had greater t statistic of probability value than the alpha where probability of FDI is 0.6440 and DI is 0.1353. In other words, both variables have no significant effect toward GRDP of Riau province.

4.2.2 F-test

F-test is used to perform a hypotheses test of the regression coefficient (slope) simultaneously. F test shows the effect of independent variables toward the dependent variables simultaneously. If F is calculated from the data greater than F-critical, H_0 is rejected. Rejected H_0 means there is minimum one independent variable that influenced dependent variable. If viewed from the value of the probability of the F-statistic is 0.00001, then the value is smaller than $\alpha = 0.05$. Based on this condition, the decision taken was to reject the null hypothesis or accept the alternative hypothesis. This means the independent variables in the model simultaneously have significant effects toward the GRDP.

4.2.3 Coefficient determination R^2

Coefficient determination (R^2) is used to see the level of appropriateness or suitability of the estimation model that is formed (goodness of fit), that is done by

looking at the value of R^2 in the model. Table 4.3 shows coefficients determination (R^2) generated by the model is 0.823705.

This figure means variable GRDP is explained by government spending, infrastucture, FDI, DI, exports and labor number by 82% and the residual 18% described by the other variables outside the model.

4.3 Discussions

a. Government Spending

Government spending' probability is 0.0000 smaller than 5%. It means government spending significantly had positive impact toward GRDP in Riau province by significant level under 5%. The regression estimation Panel Data model obtained the coefficient of government spending was 0.021939, it means that an increase in 1 million of government spending will increase 0.21939 billion number of GRDP in Riau province. In other words, government spending and GRDP of Riau province had significant and positive relationship. The effect of government spending in this research is same with previous research conducted by Yunan (2009) where government spending and the amount of labor had significant and positive effect on economic growth in Indonesia.

The government in Riau province has been focused on Government Public adiministration and settlement for the past 5 years. In 2012, Riau's government expend more on youth and sport sector mainly due to *Pekan Olahraga Nasional* 2012 which was held in Riau. While in 2015, Riau's government more focused on health

and agriculture due to smoke haze disaster at that time. Riau's government has been controlled its expenditure aligned with the real needs.

b. Infrastructure

Based on regression data panel model the probability of infrastructure obtained is 0.0073 and smaller than 5% so, infrastructure significantly affecting GRDP in Riau province is significant. The regression estimation Panel Data model obtained the coefficient of infrastructure is -2.351166. It means, increasing 1 km in infrastructure will decrease 2.351166 billion number of GRDP in Riau province. In other word, infrastructure and GRDP of Riau province had significant and negative relationship.

Infrastructure is actually a factor that determine the sustainability of economy activities to support the economic and interconnected between regions. In 2012, Riau' government build the infrastructure on large scale in order to catch up *Pekan Olahraga Nasional* 2012. Many roads and highway are built and repaired in Pekanbaru. Unfortunately, the infrastructure could not be finished because corruption case of Riau's government regarding infrastructure and sport funds. It left many unfinished infrastructures and economic losses due to that case.

Eventhought, infrastructure negatively affecting GRDP of Riau province, infrastructure should not be ignore because basically infrastructure will produce positive results in the future.

c. Foreign Direct Investment

The panel data regression shows that foreign investment had no impact to GDP in Riau province with the value of probability is 0.6440 greater than 5%. It means, increasing or decreasing Foreign Direct Investment do not affecting GRDP in Riau province.

the number of FDI in Riau Province in 2013 is 165 companies almost all sectors entered by the FDI, at first FDI can help solving economic problems, but to attract foreign investors to invest their capital, government must make facilities that needed and offer some fiscal relief such as not having to pay taxes for several years and exempting import duty payments on the capital equipment of the equipment used, as a result of this government policy in several activities, the economy must be sacrificed, and also the government does not make more profit than what the government has done. In making investments, the investors is seeking its own profits and the results are brought to the investor's country .

d. Domestic investment

According to the data obtained, the result of probability value of domestic investment is 0.1353, the result shows the impact of domestic investment to GRDP of Riau province is not significant. It means, increasing or decreasing domestic investment do not affecting GRDP in Riau province.

e. Export

The data shows the probability value of export was 0.0716 smaller than 10%. The meaning of this is export significantly influence GRDP in Riau province at 90% confidence level. The result is the same with reasearch conducted by Hiadayat, Sari, et al (2011) where export found to be significantly affecting GRDP in Pekanbaru city. Meanwhile, the coefficient value of export was -0.000186. The interpretation of the coefficient is increasing export 1 million will decrease 0.000186 billion number of GRDP in Riau province. In other word, export significantly and negatively affecting GRDP of Riau.

The export of Riau province is strongly influence by the global economy, especially oil, palm oil, and gas. The financial crisis that hit Europe and The United States in 2012 distrupt the performance of global economy including Indonesia, as reflected the performance of Indonesia's export was going down. Riau's oil and gas economy declined from 3.76 percent in 2012 to 2.48 percent in 2013. In 2015, World Crude Oil price tumbled approximately 33 USD/barrel then Riau and most of the Sumatera island suffered fog condition which caused many economic losses. This explain why export negatively influence Riau's GRDP in that years.

f. Labor

The panel data regression shows that labor give ssignificant and positive impact to GRDP in Riau province with coefficient by 0.28863 and the value of

probability is 0.0000. It also means increasing 1 people in labor will increase 0.28863 billion number of GRDP in Riau province. This result is the same as the research conducted by Rustiono (2008) in which the study indicated that labor force have a positive impact on the growth of GRDP of Central Java Province.

A positive and significant influence on labor to GRDP and economic growth of Riau province is because people who have the status of labor is the element that drives economic activity in Riau. Based on data Riau's rate of labor is keep increasing every year, therefore government need to provide many job opportunities in order to absorb more labor in the future.

CHAPTER V

CONCLUSIONS & RECOMMENDATIONS

5.1 Conclusions

Based on the empirical results and discussion, it can be summed up as follows:

1. Factors that significantly influence GRDP of Riau province in 2011-2015 are government spending, infrastructure, export and labor. Government spending and labor has positive impact toward GRDP in Riau province, while infrastructure and export gives negative impact to GRDP of Riau province in 2011-2015.
2. Increasing in government spending would have an effect on the increasing in the number of GRDP of Riau province in 2011-2015, assuming the other variables considered fixed or constant.
3. Increasing in labor would have an effect on the increasing in the number of GRDP of Riau province in 2011-2015, assuming the other variables considered fixed or constant.
4. Increasing in export will decrease the GRDP of Riau province in 2011-2015.
5. Increasing in infrastructure will decrease the GRDP of Riau province in 2011-2015
6. Domestic Investment and Foreign Direct Investment has no significant impact towards GRDP of Riau province in 2011-2015.

5.2 Recommendations

Based on the conclusions of the results study, some recommendations given are as follows:

1. Government spending and labor are the most influential variables toward GRDP in Riau province among other variables. Therefore, the government should maintain it. The governmental policies must be in line with the real needs for the better government, development, economy and welfare of the people, so that the expenditure is not in vain and can prevent the waste of expenditures that are should not be done. It also necessary for government to provide many job opportunities in order to absorb more labor in the future.
2. Export is the variable that gives significant and negative impact to economic growth in Riau Province. The negative impact of rising exports is decreasing the availability of goods in the country due to the producers exporting their goods to other countries. To prevent this, the government should limit the amount of goods exported and encourage Indonesian producers to target their sale to domestic consumers first.
3. By knowing the factors that significantly and positively influence the GRDP of Riau province, therefore government should prioritize those sectors without ignoring the other sectors.

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APPENDIX

Appendix 1

Datas of GRDP, Government Spending, Infrastructure, Foreign Direct Investment,
Domestic Investment, Export and Labor per districts in Riau Province in 2011-2015.

Districts	Year	GRDP (billion Rp)	GOV (million Rp)	INF (Km)	FDI (thousand US \$)	DI (million Rp)	EXP (million Rp)	LBR (people)
INHUL	2011	21874	862285	1737	18889	NA	310980	155714
INHUL	2012	23708	1136423	1737	5509	79075	175811	162367
INHUL	2013	23180	1422404	1737	898	33111	27605	169438
INHUL	2014	26573	1736011	1737	38211	388662	14363	175055
INHUL	2015	25805	1373078	1737	60	188630	46821	190247
INHIL	2011	30006	1176257	2056	NA	692152	289322	286800
INHIL	2012	32444	NA	1757	0	84439	2213982	312996
INHIL	2013	34769	1524027	1757	65229	407752	322881	333719
INHIL	2014	37156	1711906	1757	62944	14134	346711	292361
INHIL	2015	37922	1620834	1863	21980	528930	255139	318233
PLW	2011	25161	1134240	2354	NA	61717	201	131259
PLW	2012	25921	1312050	2354	225778	833892	166	143551
PLW	2013	27360	1339240	2402	33935	219044	574	157968
PLW	2014	29057	1485410	2556	7014	48803	NA	172931
PLW	2015	29776	1311303	1975	316380	823300	NA	175037
SIAC	2011	52147	1676722	2880	2494	96400	2492029	158686
SIAC	2012	53227	2071317	2880	754859	1195675	4102477	166367
SIAC	2013	51866	NA	2880	647940	681172	2633752	170743
SIAC	2014	51500	2647678	2880	501238	2395755	3360253	172931
SIAC	2015	51369	2690439	2880	6910	527650	2561731	178326
BLS	2011	91999	2704278	1139	38655	1471060	420235	207514
BLS	2012	91397	3055954	1139	12362	75443	520217	234652
BLS	2013	88441	3686421	1319	53758	208015	334782	217013
BLS	2014	85004	3544642	1319	1377	12719	342504	257808
BLS	2015	82676	4546130	1319	23690	205110	63803	243440
PKU	2011	44846	1447375	2617	NA	120583	132411	369321

Districts	Year	GRDP (billion Rp)	GOV (million Rp)	INF (Km)	FDI (thousand US \$)	DI (million Rp)	EXP (million Rp)	LBR (people)
PKU	2012	48352	1504968	2658	7078	4761	54917	408871
PKU	2013	51053	1938863	2726	5464	1322628	33988	441678
PKU	2014	54570	2337100	2771	18919	2658319	32895	449694
PKU	2015	57557	2529424	2771	69550	4463500	16474	476420
DMI	2011	18242	751145	1750	262812	42600	16485320	105410
DMI	2012	18910	952156	1804	78641	582874	15516801	117663
DMI	2013	19606	1212894	1561	415926	1389182	14195673	120250
DMI	2014	20205	1291017	1561	644288	1238227	17746297	125545
DMI	2015	20445	1044125	1806	81880	1707760	11415970	132113

Notes:

INHUL = Indragiri Hulu

INHIL = Indragiri Hilir

PLW = Pelalawan

BLS = Bengkalis

PKU = Pekanbaru

DMI = Dumai

Appendix 2

Result of Data Panel Test Using Eviews 9.0

Common Effect Model

Dependent Variable: GRDP

Method: Panel Least Squares

Date: 10/09/17 Time: 08:23

Sample: 2011 2015

Periods included: 5

Cross-sections included: 7

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1030.294	14287.98	0.072109	0.9432
GOV	0.021939	0.003061	7.167126	0.0000
INF	-2.351166	4.877145	-0.482078	0.6350
DI	-0.000745	0.002967	-0.251272	0.8042
FDI	0.001150	0.015179	0.075753	0.9404
EXP01	-0.000186	0.000607	-0.307149	0.7619
LBR	0.028863	0.030929	0.933217	0.3618
R-squared	0.823705	Mean dependent var	45151.63	
Adjusted R-squared	0.770816	S.D. dependent var	24459.40	
S.E. of regression	11709.48	Akaike info criterion	21.79260	
Sum squared resid	2.74E+09	Schwarz criterion	22.12856	
Log likelihood	-287.2001	Hannan-Quinn criter.	21.89250	
F-statistic	15.57434	Durbin-Watson stat	0.611463	
Prob(F-statistic)	0.000001			

Fixed Effect Model

Dependent Variable: GRDP

Method: Panel Least Squares

Date: 10/09/17 Time: 08:24

Sample: 2011 2015

Periods included: 5

Cross-sections included: 7

Total panel (unbalanced) observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	55771.03	13809.70	4.038539	0.0012
GOV	-0.002448	0.001263	-1.937587	0.0731
INF	-4.026786	6.717006	-0.599491	0.5584
DI	0.002481	0.000597	4.155983	0.0010
FDI	-0.003902	0.003406	-1.145676	0.2711
EXP01	0.000448	0.000491	0.911667	0.3774
LBR	-0.003293	0.033180	-0.099257	0.9223

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.996783	Mean dependent var	45151.63
Adjusted R-squared	0.994025	S.D. dependent var	24459.40
S.E. of regression	1890.603	Akaike info criterion	18.23336
Sum squared resid	50041333	Schwarz criterion	18.85728
Log likelihood	-233.1504	Hannan-Quinn criter.	18.41889
F-statistic	361.4793	Durbin-Watson stat	2.012450
Prob(F-statistic)	0.000000		

Random Effect Model

Dependent Variable: GRDP

Method: Panel EGLS (Cross-section random effects)

Date: 10/09/17 Time: 08:20

Sample: 2011 2015

Periods included: 5

Cross-sections included: 7

Total panel (unbalanced) observations: 27

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1030.294	2306.926	0.446609	0.6600
GOV	0.021939	0.000494	44.38972	0.0000
INF	-2.351166	0.787460	-2.985761	0.0073
DI	-0.000745	0.000479	-1.556255	0.1353
FDI	0.001150	0.002451	0.469178	0.6440
EXP01	-0.000186	9.80E-05	-1.902335	0.0716
LBR	0.028863	0.004994	5.779898	0.0000

Effects Specification

	S.D.	Rho
Cross-section random	0.002301	0.0000
Idiosyncratic random	1890.603	1.0000

Weighted Statistics

R-squared	0.823705	Mean dependent var	45151.63
Adjusted R-squared	0.770816	S.D. dependent var	24459.40
S.E. of regression	11709.48	Sum squared resid	2.74E+09
F-statistic	15.57434	Durbin-Watson stat	0.611463
Prob(F-statistic)	0.000001		

Unweighted Statistics

R-squared	0.823705	Mean dependent var	45151.63
Sum squared resid	2.74E+09	Durbin-Watson stat	0.611463

Chow test

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	125.532191	(6,14)	0.0000
Cross-section Chi-square	108.099394	6	0.0000

Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	753.193146	6	0.0000