

**THE IMPACTS OF GOVERNMENT EXPENDITURE, HUMAN DEVELOPMENT
INDEX AND ORIGINAL REGIONAL GOVERNMENT REVENUE, ON GROSS
DOMESTIC REGIONAL PRODUCT IN WEST JAVA (2015-2019) USING SPATIAL
AND PANEL DATA ANALYSIS.**

A THESIS

Presented to the Faculty of Business and Economics, Universitas Islam Indonesia
to Fulfill Part of the Requirements in order to obtain
a Bachelor's Degree in Economics Department



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YOGYAKARTA

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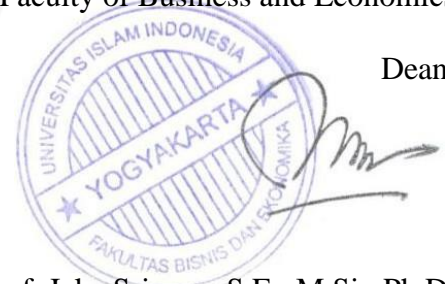
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DECLARATION OF AUTHENTICITY

I, the undersigned, declare that the originality of this thesis; I didn't and haven't presented someone else's work to obtain my bachelor's degree in University, 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 this 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.

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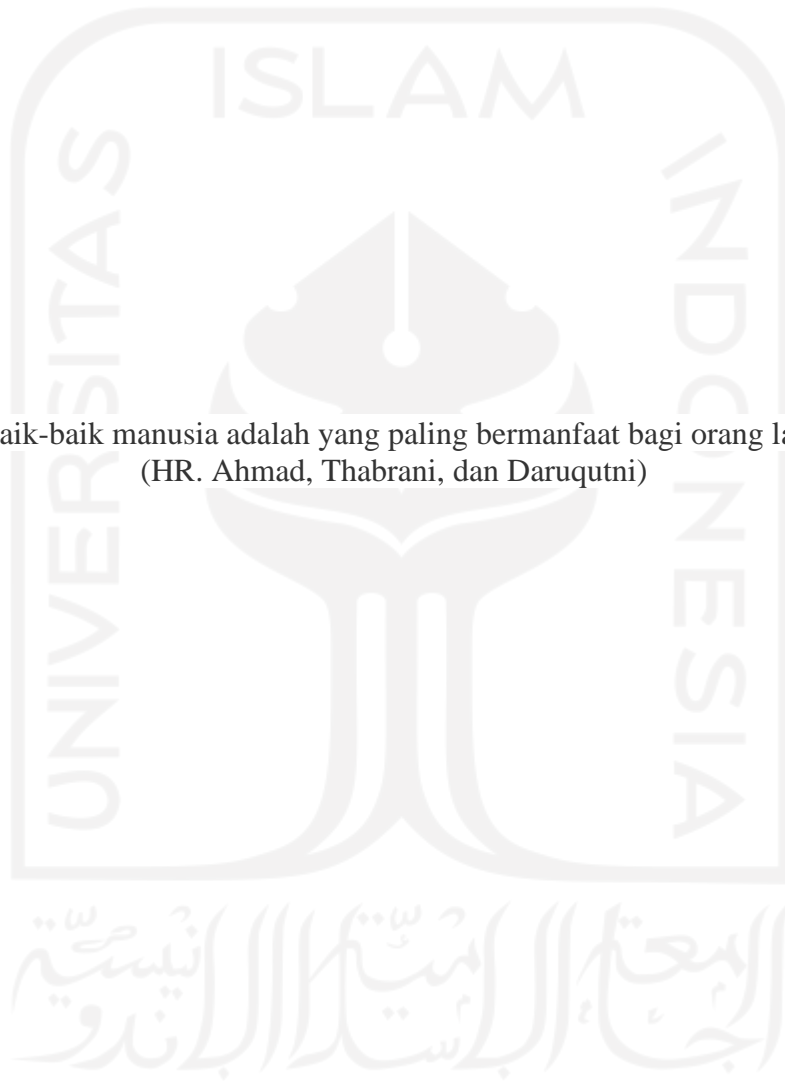
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MOTTOS

"Sebaik-baik manusia adalah yang paling bermanfaat bagi orang lain."
(HR. Ahmad, Thabrani, dan Daruqutni)



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Yogyakarta, 21th April 2021

Author,



(HIKAM IQBAL MADANY)

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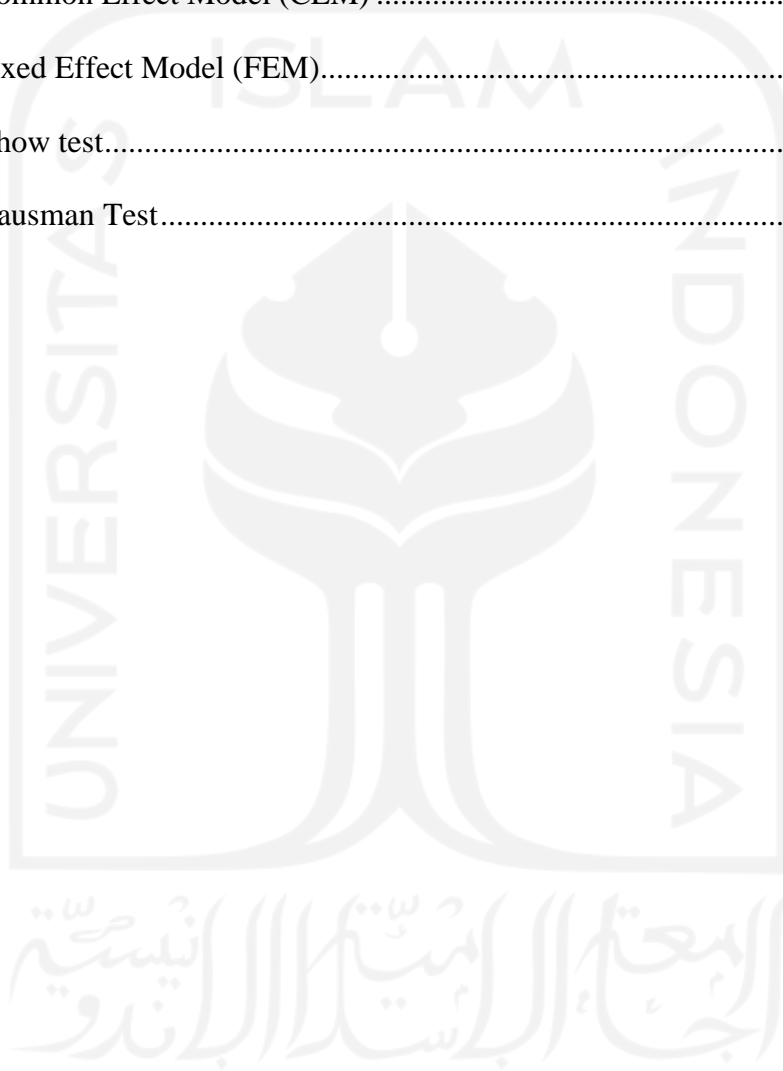
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ABSTRACT

GRDP is defined as an indicator in the amount of value of goods or services as well as the added value produced by all economic activities in an area, in this study researcher used West Java province because West Java has potentials to increasing GRDP value such as human resources, natural resources and the biggest populations in our country come from West Java Province. This analysis aims to find out the factors that influence GRDP at constant price in West Java Province in the period of 2015-2019, and the factors in this research that researcher used is Government expenditure (GE), Human Development Index (HDI), and Original Regional Government Revenue (ORGR). The data obtained for this study is secondary data, taken from the Central Bureau of Statistic (BPS). In this study, the researcher uses the spatial and panel data model. Panel Data model is a mixture of cross-section data and time-series data and is analyzed using Eviews 9 software, with multiple linear regression models of fixed-effect analysis as the chosen model. In the spatial model, to find out the spatial dependency can be done using Spatial Auto-regressive as the chosen model. This spatial model uses cross-section data in 2019 which is analyzed using Geoda software. This study is a quantitative study with panel data of 27 regencies / municipalities in West Java during 2015-2019 periods.

The research findings show that the Human Development Index (HDI) and Original Regional Government Revenue (ORGR) variables have a positive and significant impact on GRDP at a constant price in West Java. Meanwhile, the Government Expenditure variable has positive and insignificant effect on GRDP at a constant price.

Keywords: *GRDP at constant price, Government Expenditure (GE), Human Development Index (HDI) and Original Regional Government Revenue (ORGR).*

ABSTRAK

PDRB diartikan sebagai indikator besaran nilai barang atau jasa serta nilai tambah yang dihasilkan oleh seluruh kegiatan ekonomi di suatu daerah, dalam penelitian ini peneliti menggunakan Provinsi Jawa Barat karena Jawa Barat memiliki potensi untuk meningkatkan nilai PDRB seperti sumber daya manusia, sumber daya alam dan penduduk terbesar di negara kita berasal dari Provinsi Jawa Barat. Analisis ini bertujuan untuk mengetahui faktor-faktor yang mempengaruhi PDRB pada harga konstant di provinsi Jawa Barat pada periode 2015-2019, dan factor yang di gunakan dalam penelitian ini oleh penulis adalah pengeluaran Pemerintah (GE), Indeks Pembangunan Manusia (IPM), dan Pendapatan Asli Daerah (PAD). Data yang diperoleh untuk penelitian ini merupakan data sekunder yang diambil dari Badan Pusat Statistic (BPS). Dalam penelitian ini peneliti menggunakan model Spasial dan Panel Data. Panel Data model adalah campuran dari data cross section dan data time series dan dianalisis menggunakan software Eviews 9, dengan model regresi linier berganda dari analisis fixed effect model sebagai model yang dipilih. Pada model spasial, untuk mengetahui ketergantungan spasial dapat dilakukan dengan menggunakan Spatial Auto-regressive sebagai model yang terpilih. Model spasial ini menggunakan data cross section tahun 2019 yang dianalisis menggunakan software Geoda. Penelitian ini merupakan penelitian kuantitatif dengan data panel 27 kabupaten / kota di Jawa Barat periode 2015-2019.

Hasil penelitian menunjukkan bahwa variabel Indeks Pembangunan Manusia (IPM) dan Pendapatan Asli Daerah (PAD) berpengaruh positif dan signifikan terhadap PDRB dengan harga konstan di Jawa Barat. Sedangkan variabel Belanja Pemerintah berpengaruh positif dan tidak signifikan terhadap PDRB dengan harga konstan.

Kata kunci: PDRB atas dasar harga konstan, Belanja Pemerintah (BP), Indeks Pembangunan Manusia (IPM), dan Pendapatan Asli Daerah (PAD).

CHAPTER I

INTRODUCTION

1.1. Background

Economic growth is a condition that gives a description for a country whether the country is successful or not in prospering its people or economic growth is a developing economic activity in which the production of goods and services increases as well as the prosperity of the people. Therefore, Indonesia itself has a goal of being able to provide increased welfare and prosperity to its people. but all of that must go through several processes such as carrying out economic development, economic development is an indicator of whether or not economic growth itself is good because both are interrelated with one another as is the case with economic growth which will facilitate economic development itself. The meaning of economic growth itself is an increase in the production of goods or services in the economy, with an increase in per capita income and the welfare of local and state communities. Basically, economic growth itself is an indicator to determine that an increase in economic growth is calculated through the Gross Domestic Product (GDP) of a country, whereas if you want to know the economic growth of a region, it can be calculated through the Gross Regional Domestic Product (GRDP).

It cannot be denied that the benchmark in economic development is where there is increased economic growth in terms of changes in GRDP in a region. According to Romhadhoni et al., (2018), GRDP is defined as an indicator in the amount of value of goods or services as well as the added value produced by all economic activities in an area. From the above understanding, we can conclude that an increase in the GRDP in a region indicates that economic growth has increased, with the intention that Gross Regional Domestic Product is an indicator of economic growth itself. The total all of GRDP from each region will be calculated for GDP in a country.

In this study, we used West Java to be a central point because as we know West Java has many potentials for contributions to our country to push the economic growth because West Java has many human resources, as the biggest populations in our country comes from West Java that is amounting to 45,161,325 and West Java also familiar with his natural resources are added to the tourism sector, but it all doesn't matter because West Java still below another province in Java Island such as below East Java and the data from Central Bureau of Statistic (BPS) below:

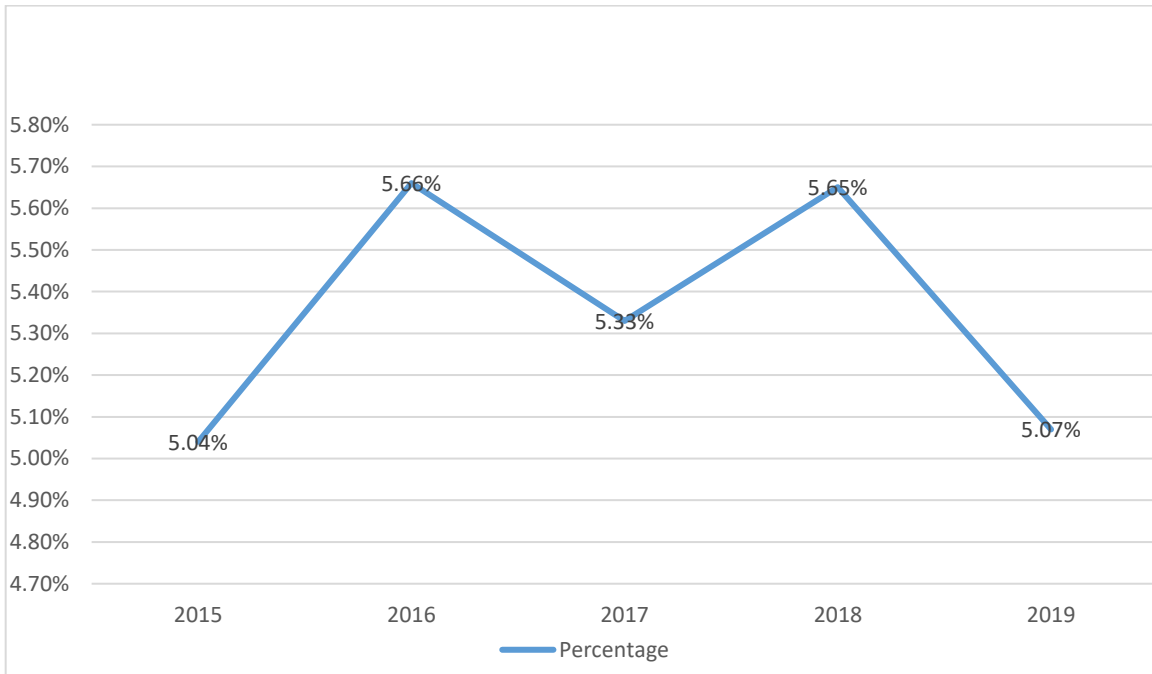
Table 1. 1 GRDP at constant price of Java Island in Period 2015-2019

Provinces	2015	2016	2017	2018	2019
DKI Jakarta	Rp1,454,564	Rp1,539,917	Rp1,635,359	Rp1,736,291	Rp1,838,501
West Java	Rp1,207,232	Rp1,275,619	Rp1,343,662	Rp1,419,689	Rp1,491,706
Central Java	Rp806,765	Rp849,099	Rp893,750	Rp941,164	Rp992,106
DI Yogyakarta	Rp83,474	Rp87,686	Rp92,300	Rp98,024	Rp104,490
East Java	Rp1,331.376	Rp1,405.564	Rp1,482,300	Rp1,563,769	Rp1,650,143
Banten	Rp368,377	Rp387,835	Rp410,137	Rp434,015	Rp458,023

Source: Produk Domestik Bruto, BPS, 2020

From table 1.1 above, we can conclude that the highest GRDP comes from DKI Jakarta since 2015-2019 because as we know that DKI Jakarta has many potentials for push GRDP such as the centre point of economic in Indonesia is DKI Jakarta with almost economics sector are conducted in DKI Jakarta, and the second one is taken by East Java, with its performance since years 2015-2019 East Java always increasing and farther away from West Java and closer to DKI Jakarta whereas the economic sector in East Java is not much different from the economic sector in West Java. Meanwhile, in West Java, it has many potentials to push GRDP from his resources but it is below East Java and DKI Jakarta, actually West Java also has good resources to support closer with East Java in value of GRDP, and fortunately, it still be the third largest contributor on the island of Java above Central Java, DI Yogyakarta and Banten. If we are looking at the trend of West Java from year to years since 2015-2019 it has a positive trend which is always increasing every year, but is still, below the increasing percentage of East Java and DKI Jakarta. It means to have something that should improve it can be from internal or external, we need government intervention to make increasing regional income from potential resources that available in West java. Based on Mulyasari (2016), the development of a region depends on the potential of a region and its characteristics, and to develop it there must be a role for the government in regulating it

and implementing its policies and encouraging its development. And if we are looking from the value of GRDP above, we can look at the percentage of economic growth of West Java, below:

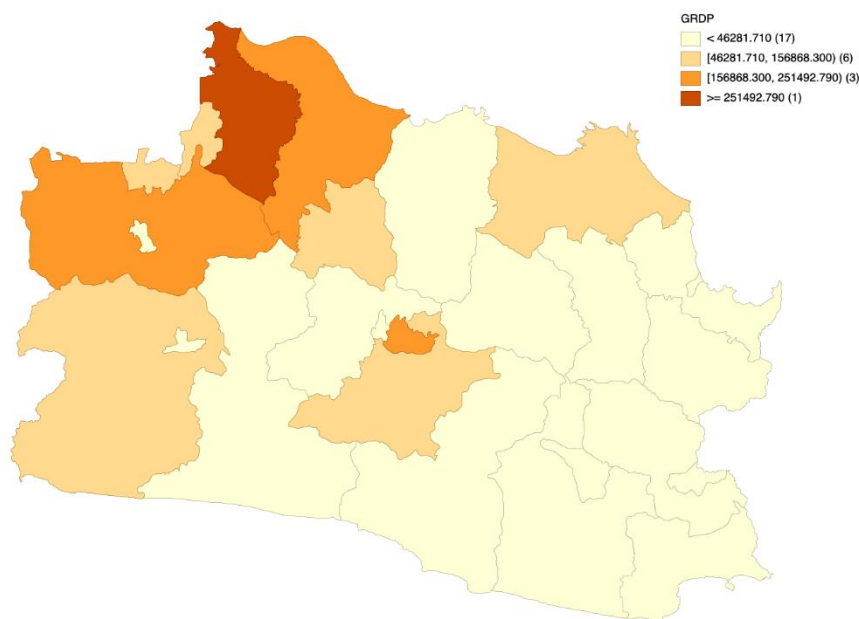


Source: Produk Domestik Bruto, BPS, 2020

Figure 1. 1 Economic Growth of West Java in period 2015-2019

Figure 1.1 above shows us that the economic growth of West java in the period 2015-2019 was only 5.35% on average, which means the average economic growth in West java is exceeding the average of national economic growth which is only 5.03%. Therefore, West Java has the potential to support growth for the country. To achieve that, West Java must have policies that can support the progress of economic growth that is much better. It should be remembered that economic growth in the region influences each other or influences each other between regions. According to Ervina & Jaya (2018), in analyzing the regional economy, such as to analyzing GRDP at constant prices, what must be done is the interaction between regions. because with the surrounding economy it will also affect the economy of an area, for example, is the supply of production factors by the surrounding area or the demand of commodity comes from another region to commodity from that area. And based on Haviliana (2017) cited in Ervina & Jaya (2018), it was stated that influencing the interaction between region is has three factors, namely:

1. With the limitation or excess capacity of resources between regions or with areas experiencing resource deficits, regional complementarity can be overcome.
2. In the interaction between regions, there are several inhibiting opportunities, such as the intervention factor. To prevent it, there are other areas to meet their needs.
3. With the interaction between regions, it will make it easier to transfer things, such as the ability to transfer spatial where there is the ease in transferring in space in the form of ideas, information or in the form of humans. Because there are absolute and relative distances between regions and the cost of transportation and the ease of transportation.



Source: Data processed with Geoda, 2021

Figure 1. 2 GRDP at constant prices by Regencies / Municipalities

Figure 1.2 above shows that there are similarities in the magnitude of the GRDP value of the constant price limits of several districts in West Java. Thus, it can be concluded that the region's GRDP of regencies / municipalities at constant price values has a special dependence that is not mutually independent. Based on the above statement according to LeSage and Pace (2009) cited in Ervina & Jaya (2018), the observation value from the nearest neighbour affects the observed values in a region or location which is called spatial dependence.

Based on the description above, the researcher is interested in analysis each factor have autocorrelation between region or no using spatial method model. The spatial method is a method where an area is influenced by space or the influence of an area that is directly adjacent which is called the spatial effect. Therefore, this study will analyze the spatial effects seen from the GRDP of Regencies / municipalities in West Java and we will estimate with the model which is OLS models. According to LeSage & Pace (2004) cited in Ervina & Jaya (2018), the OLS method is the method that estimates spatial dependencies that occur in observation objects namely locations or regions which is will result in biased and inconsistent estimates. The spatial panel data model will involve the dimensions of space and time which will result in the possibility to calculate spatial dependence.

In achieving GRDP, the government must have a policy and have a cooperative relationship with the private sector that help this economic activity. If we return to the macroeconomic theory, the gross regional income and expenditure theory section is believed by Keynesians to argue that the source of income itself consists of several components such as $Y = C + G + I + (XM)$ where the indicator Y is income, C is consumption, G is government expenditure, I is an investment and (EM) is net exports or exports (X) minus imports(M). If we are looking from that statement, it should behave good intervention from government to take the policy, so as not to carry out the wrong policy. All of those factors should be through process analysis to prove that these factors have a strong influence on GRDP. But apart from the macro theory that has been conveyed above, there are other economic factors that affect the GRDP itself, such as the Human Development Index (HDI) and Original Regional Government Expenditure. therefore, these factors require a study to obtain results on whether these factors can affect GRDP at a constant price.

As we all know, Investment is a crucial factor that affected GRDP. With the investment, the development in that area grows rapidly. Investments does not only target output yields but they provide opportunities for the rate of the income distribution, distribution of labor and provide skills to improve the quality of the population as well as technology. According to Sukirno (2005), Investment is a condition that increases the ability of the community to increase its production by means of expenditure. If this expenditure has an effect on the ability of the people to increase production, it will increase income and production by itself and economic development will occur. And in our country as a developing country, an increase in investment is very necessary to make efforts to reduce underdevelopment. So, financing in investment is very valuable in the process of

economic development itself. but it seems like if we only depend on investment, it will be difficult to catch up with other developed countries, therefore the shortage of investment will be helped by government spending or what we call government expenditures.

Investment is one of the most important factors in GRDP, but to see regional economic growth also cannot be separated from government spending (Maisaroh & Risyanto, 2017). Government expenditure is usually used for something that provides to support the means for economic development itself, such as when the government draws up policies, and these policies will require costs where the costs are partly derived from government expenditure. Based on Maulisansyah & Mard (2017), for the welfare of its people, one of the government's methods is to allocate a budget that has been calculated in the State Budget (APBN) to each sector or sector every year. So, it means government expenditure is something that will take West Java into a positive trend, and West Java also from the year 2015-2019, but in 2017 has through negative in Government Expenditure, such as the table below.

Table 1. 2 Realization of GE in West Java Province in Period 2015-2019

Years	Regional Expenditure Value
2015	Rp18,837.82
2016	Rp27,621.90
2017	Rp24,162.90
2018	Rp33,117.93
2019	Rp35,833.09

Source: Jabar Dalam Angka, BPS, 2020

Table 1.2 shows the data that happened in West Java Expenditure, wherein 2015 they have value Rp18,837.82 billion and have good trend increasing in next year which is in 2016 with an increase of 46.63 percent or the amount is to be Rp27,621.90 billion after that year, West Java has experienced a decline in 2017 to be 12.52 percent or the amount will be Rp24,162.90 billion, but after that West Java experienced soaring increases where the increasing up to IDR 33,117.93 billion or around 37.06 percent in 2018, in 2019 is the peak where regional expenditure is the largest for West Java which the value Rp35,833.09.

The function of Government expenditure for the development of the region is to develop the quality of society such as education, also for development infrastructure that area and something that makes social welfare, if both of case is already good, it will boost economic growth. Then, based on Maisaroh & Risyanto (2017), with the amount of government effort in making productive regional expenditures, the economic level of an area will increase. Based on the previous research conducted by Ezkirianto & A (2013), in regional economic development, there must be intervention from the government which has been determined by the center, the role of the government itself is to carry out policies in the provision of infrastructure and also to allocate its spending. In the GRDP per capita of an area, government spending is proven to have a significant effect, so, the government of West Java be tries to make West Java more advanced with the highest value of regional expenditure in West Java is expected to increase infrastructure, decrease poverty and make economic growth increasing, and in this case, government expenditure also has a responsibility to human development index (HDI).

The factor that influences GRDP that has been discussed is about investment which is Foreign Direct Investment and Government Expenditure, but all of that factors should have the good quality from the society first to make both between FDI and Government Expenditure efficient, and these factors also will help to increase the GRDP value which will increase economic growth, if this factor already advances the factor that influence GRDP also will follow. GRDP also will be supported by the human so another factor that will be influenced is Human Development Index (HDI). Human Development Index definition based on Todaro & Smith (2015), is where education, health and real income per capita are the benchmarks for national socio-economic development. If the human in that area already good, the GRDP value will be good too. If we want our investments to be productive, so the best investment is human capital. It means they have some of these criteria skills, values, and health resulting from expenditures on education, on-the-job training programs (Todaro & Smith, 2015). As we know, good human resources with adequate capabilities will increase their participation in economic growth itself. West Java has a positive increase from 2015-2019, and this data conducted by 27 regencies in West Java as shown in the table below:

Table 1. 3 HDI in West Java Province in Period 2015-2019.

Area	2019	2018	2017	2016	2015
	HDI (%)	HDI (%)	HDI (%)	HDI (%)	HDI (%)
Bogor	70.65	69.69	63.13	68.32	67.77
Sukabumi	66.87	66.05	65.49	65.13	64.44
Cianjur	65.38	64.62	63.7	62.92	62.42
Bandung	72.41	71.75	71.02	70.69	70.05
Garut	66.22	65.42	64.52	63.64	63.21
Tasikmalaya	65.64	65	64.14	63.57	63.17
Ciamis	70.39	69.63	68.87	68.45	68.02
Kuningan	69.12	68.55	67.78	67.51	67.19
Cirebon	68.69	68.05	67.39	66.7	66.07
Majalengka	67.52	66.72	65.92	65.25	64.75
Sumedang	71.46	70.99	70.07	69.45	69.29
Indramayu	66.97	66.36	65.58	64.78	64.36
Subang	68.69	68.3	67.73	67.14	66.52
Purwakarta	70.67	69.98	69.28	68.56	67.84
Karawang	70.86	69.89	69.17	68.19	67.66
Bekasi	73.99	73.49	72.63	71.83	71.19
Bandung Barat	68.27	67.46	66.63	65.81	65.23
Pangandaran	68.21	67.44	66.6	65.79	65.62
Kota Bogor	76.23	75.66	75.16	74.5	73.65
Kota Sukabumi	74.31	73.55	73.03	72.33	71.84
Kota Bandung	81.62	81.06	80.31	80.13	79.67
Kota Cirebon	74.92	74.35	74	73.7	73.34
Kota Bekasi	81.59	81.04	80.3	79.95	79.63
Kota Depok	80.82	80.29	79.83	79.6	79.11
Kota Cimahi	78.11	77.56	76.95	76.69	76.42
Kota Tasikmalaya	72.84	72.03	71.51	70.58	69.99
Kota Banjar	71.75	71.25	70.79	70.09	69.31

Source: Jabar Dalam Angka, BPS, 2020

Like table 1.3 above, Human Development Index in 27 regency's west java has positive trends from year to year. Bandung city ranks one out of 27 regencies above, which means the Human Development Index in that city has a good level of human resources. And followed by Bekasi city, as we know Bekasi is the point of industrial sector where many people from some regencies in

West Java who work in that area, it leads Bekasi to have a good level of human resources and be successfully increase the human development index for example the income of people there to be the index. But all of that is don not matter for economic growth based on Ezkirianto & A (2013), because in Indonesia, in fact, high human development does not determine high economic growth, this condition is called looped economic growth. In the other hand, high economic growth does not depend on high human development. That case happened based on the data from Central Bureau of Statistic (BPS) DI Yogyakarta which has a higher value of Human Development Index with 79.99 percent compared with West Java that only has 72.03 percent, but in fact, West Java GRDP is higher than DI Yogyakarta. So, it is necessary to analyze the relationship between GRDP with Human Development in West Java.

As we know the government through that policy such as the explained above like government expenditure and also Human Development Index are hoped that they can improve the standard of living of the community which is increasingly supportive of economic development, wherewith the existence of government spending is hoped that there will be reciprocity from becoming Original Regional Government Revenue.

ORGR is the factor that supports the development of the economy in the region, Original regional income is very important in the process of economic growth itself because over time, the ORGR can fill the shortage of budget to support economic growth and the needs of the community. That statement also is supported by the government through the Law no. 33 of 2004 in the implementation of fiscal decentralization, Original Regional Government Revenue (ORGR), General Allocation Fund (DAU), Special Allocation Fund (DAK), Profit Sharing Fund (DBH), regional loans and other legal revenue is the source of revenue used for regional government funding.

Decentralization is the policy the government made for regional government be more focused in increasing economic growth and make development economic faster because the policy from Central government to regional government or to autonomous regions based on the principle of autonomy. The aim of decentralization through regional autonomy itself is expected by the government to reduce vertical and horizontal imbalances between regions. Therefore, with this policy each region can be evenly divided in its development according to its ability and desire to develop the potential of the region (Kusumawati & Wiksuana , 2018).

Therefore, with the existence of original regional revenue, the regional government can use its funds to reserve expenditures where the regional government does not depend on the central government for its expenditures. According to Kusumawat & Wiksuana (2018), its insights to streamline regional development costs, local revenue is an option which does not only depend on the government center. West Java has a qualified source of regional revenue, and the table below will show the ORGR of the West Java region from 2015-2019.

Table 1. 4 Recapitulation of ORGR in West Java Province in Period 2015-2019

year	ORGR
2015	Rp16,263,235,947
2016	Rp16,180,205,532
2017	Rp17,102,520,316
2018	Rp19,642,915,449
2019	Rp21,244,266,598

Source: Jabar Dalam Angka, BPS, 2020

If we look at the data in the table in 1.4 above, it can be concluded that the value of regional revenue in West Java has fluctuated in the initial year and has an uptrend starting from the year 2017-2019. The higher value of ORGR is 2019 which is in that year West Java has a value of Rp21,244,266,598 and the lowest value was in 2015 where the ORGR value of the West Java area was only Rp16,263,235,947. We can conclude that West Java has positive trend and it has increasing Original Regional Government Revenue based on what it has such as their resources through tax, and based on Putri (2015), calculating the growth of an area, an indicator can be used through the results of the original regional income, if the income of an area in the area increases or is high, it can increase the economic growth that occurs in that area, and vice versa. Therefore, it is necessary to conduct an in-depth examination of the ORGR factor, whether this ORGR has a major influence on GRDP in West Java.

Based on the description above, the researcher is interested in analyzing and conducting research to determine the relationship between the independent variable and the dependent variable. In this

study, the independent variables we used are Government Expenditure, HDI and Original Regional Government Revenue for the dependent variable itself is GRDP at constant price, and to make difference with another researchers, this study used periods of time 2015-2019 with SAR and Fixed Effect Model. Based on explanation above, the researcher conducts a research entitled “The impacts of Government Expenditure, Human Development Index (HDI) and Original Regional Government Revenue (ORGR), on GRDP at constant price in West Java 2015-2019 Using Spatial and Panel Data Analysis”.

1.2. Problem Formulation

Based on the background explanation above, the problem of research can be formulated:

1. What is the form of spatial dependency on the data?
2. What are the appropriate panel data regression model used for analysing the influence of Government Expenditure (GE), Human Development Index (HDI), Original Regional Government Revenue (ORGR) on Gross Regional Domestic Product (GRDP)?

1.3. Research Objective

Based on the background explanation above, the objectives of this study are as follows:

1. To Investigate the form of spatial dependency on data.
2. To analyze the influence of Government Expenditure (GE), Human Development Index (HDI), Original Regional Government Revenue (ORGR) on Gross Regional Domestic Product (GRDP).

1.4. The Study Benefits

The result of this study is expected to contribute to elevate the literature in the context of The Factors that affecting GRDP, especially for West Java.

The results of this study are expected to contribute to give a description of the Government to take a policy to decide the factors when they want to enrich GRDP.

1.5. Systematics of Report

Chapter I : Introduction

This part will discuss the Research Background, Problem Formulation, Research Objectives, The Study Benefits and Systematics of Writing.

Chapter II : Review of Related Literatures

Chapter 2 contains a description of theories related to this research, such as the theory of Economic Growth, Government expenditure and others that are related to this study and have the relationship among research variables. This chapter also discusses the outlines of theoretical frameworks, previous research and research hypotheses.

Chapter III : Research Method

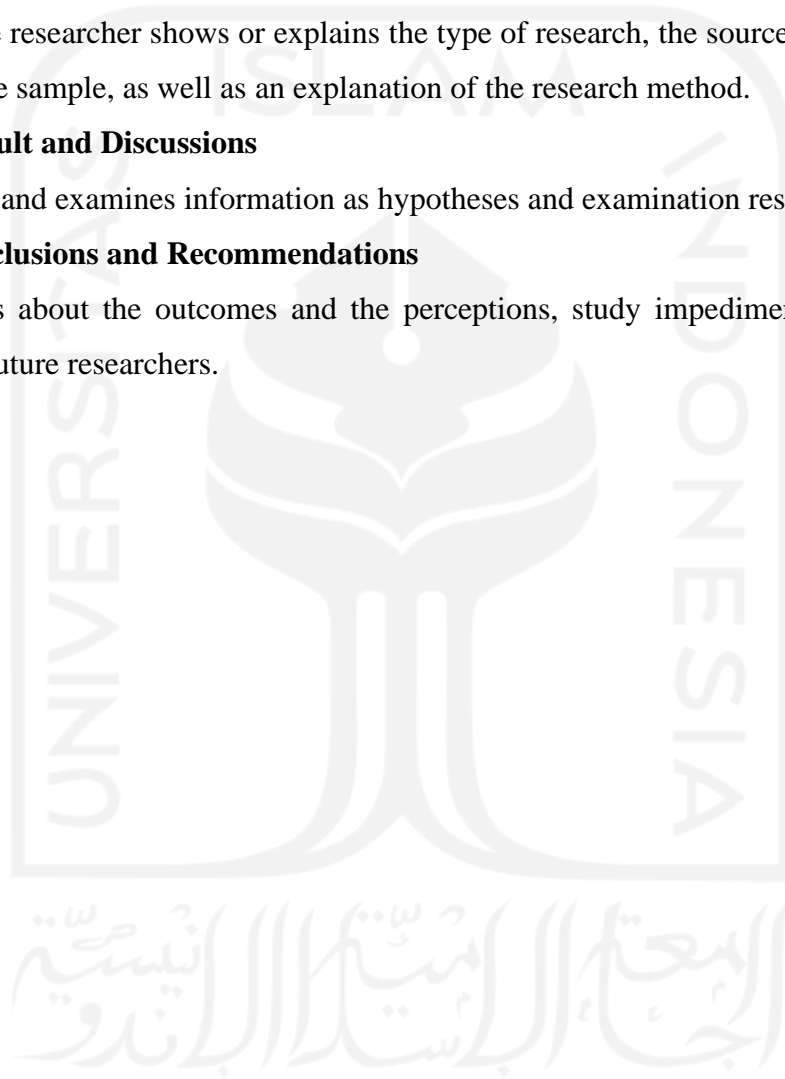
In this chapter the researcher shows or explains the type of research, the source of the data or the population and the sample, as well as an explanation of the research method.

Chapter IV: Result and Discussions

This part looks at and examines information as hypotheses and examination results.

Chapter V: Conclusions and Recommendations

This section talks about the outcomes and the perceptions, study impediments, and ideas for foundations and future researchers.



CHAPTER II

REVIEW OF RELATED LITERATURE

2.1. Theoretical Background

2.1.1. Economic Growth

Economic growth is a condition that gives a description for a country whether the country is successful or not in prospering its people or economic growth is a developing economic activity in which the production of goods and services increases as well as the prosperity of the people. It means from year to year the ability of a country to produce goods or services is increasing. Besides that, the economic growth can increase because of some factors. In this case, the government should have a program or policy which is can make the factor of sustainable economic growth. Sustainable economic growth based on Rori et al., (2016), a higher standard of living and where the condition of a country's economy is sustainable towards a better state during a certain period, or have improvement from time to time called economic growth sustainable. Therefore, to realize it all it should behave government intervention which one can get through the policy such as investment, Government expenditure, and other. With investment, it will provide tools to increase the production of goods and also provide good technology. Indirectly, it will increase the standard of living of the community, if there is an investment, it will be possible to increase employment opportunities that increase one's income and will improve their education.

Economic growth is the indicator to know the development of economic in a country because economic growth and development economic complete each other such as economic development is an indicator of whether or not economic growth itself is good because both are interrelated with one another as is the case with economic growth which will facilitate economic development itself. And economic growth based on Arsyad (1998), a situation where an increase in GDP / GNP is not influenced by the size of the increase in population growth or changes in economic structure occurs or not. So, if development economics is a process where the increasing of income total, income per capita but they are looking for population growth and changes in economic structure occur or not.

Economic growth itself is an indicator to determine that an increase in economic growth is calculated through the Gross Domestic Product (GDP) of a country, whereas if someone wants to

know the economic growth of a region, it can be calculated through the Gross Regional Domestic Product (GRDP). So, if we want to conclude that economic growth regional is increasing, it means there is an increase in GRDP value and the GRDP value is from constant price. This is to determine the process of the rate of economic growth in long run, where an increase in output per capita in the long run will be shown in the data in GRDP. The process itself contains elements of dynamic, development and the existence of a change. In general, the model of the formula to know the economic growth is as follows:

$$\text{Growth Rate of real GDP} = \frac{\text{Real GDP in current year} - \text{Real GDP in previous year}}{\text{Real GDP in previous year}} \times 100$$

As we know the theory of economic growth through long process. Based on Todaro & Smith (2015), to achieve economic growth requires a development process as a series of stages through which all countries go through according to theorists of the 1950s and 1960s. With the existence of economic development, it will stimulate to achieve the desired amount such as savings, investment and foreign assistance which will be needed for developing countries for the rate of economic growth. And in its development, economic growth has several theories from one economist to another.

Economic Growth Theory According to Classics based on Arsyad (1988), Adam Smith said that economic growth is based on population development, where population growth will have an impact on the market which will expand, with expansion will lead to specialization, with the development of specialization will have an impact on the level of economic activity which will increase. Basically, division of labor and specialization occurs which results in an increase in productivity, an increase in national income as a result of these market developments, and an increase in productivity that will increase saving. If the development is successful, where specialization increases and the market becomes broader, there will be an emerging of technology and an innovation (renewal). This development will lead to an increase in per capita income from time to time. Another classic theory put forward by Ricardo is different from Smith in where he thought that population development will reduce marginal product. And according to Ricardo, there are several processes in economic growth including low population growth which will increase natural resources. for the entrepreneur he wants a profit. to get profit reflected in the

formation of capital. where if you want to get high profits, it will also create a high capital formation, such as increasing production. if production increases, there will be a demand for labor but on another side, the growth of population will decrease the natural resource such as availability of land decreases, with reduced availability of land, land rental prices increase and can reduce profits, which will cause the capital formation to decrease, if capital formation is reduced, there will be a decrease in demand for workers and also the level of wages will decrease over time and circumstances like this are called a stationary state. The second is, where technological advances will encourage an increase in productivity, but technology also will make stationary state happened, to avoid that case based on Ricardo society in economic divided by three categories which are workers, employers and landlords (Sukirno, 2005).

The Harrod-Domar Economic Growth Model, theory comes from two persons they are Evsey Domar with his theory in American Economic review (1947) and R.F. Harrod with his theory in Economic Journal (1939). Harrod-Domar theory is a compliment of Keynes theory because Keynes theory is considered incomplete because it only addresses short-term economic problems, therefore the Harrod-Domar theory will complement its weaknesses. Basically, in the theory of Harrod-domar, both of them analyze the conditions that must be fulfilled for capital goods use in an economy to always increase from their period of time. His theory explains that in economic growth, investment is one of the most important because the investment can increase the capacity of capital goods and also increase aggregate spending or increase public spending (Sukirno, 2005).

According to Sukirno (2005), another economist theory developed from neoclassical economic growth theory, in this theory has contrary to the theory put forward by Harrod-Domar, wherein the neoclassical growth factor itself is the addition of supply of production factors and also technological progress, while according to Harrod-Domar one of the factors of growth is the demand for the community. As we know that the neoclassical growth theory has several kinds of factors, and the rate of economic growth based on neoclassic caused by several factors including the equation below:

$$\Gamma_Y = \Gamma_T + \alpha \Gamma_K + \beta \Gamma_L \dots\dots\dots (2.1)$$

where,

Γ_Y = Rate of increase in national income.

Γ_T = The level of technological development.

α_K = The rate of increase in capital stock.

β_L = The rate of increase in labor.

One who has a major contribution to the neoclassical growth theory which has been awarded as a noble in the field of economics is named Robert Solow and Trevor Swan in their theory, it is said that economic growth is influenced by the increase in the supply of production factors and also the level of technological progress. What is meant by the provision of factors of production is population, labor and capital accumulation (Arsyad, 1988).

Another theory about economic growth is the Endogenous growth theory (new growth theory), What is meant by endogenous growth is that GNP growth is more determined by the production process system than outside the system (Kuncoro, 2006). Another understanding based on Todaro & Smith (2015) said that economic growth here is caused by factors in the production process such as increasing uptake or technological changes that are induced and have been studied in the growth model.

2.1.2. Government Expenditure

Government expenditure is where expenditure or value issued by local governments routinely finance community interests such as development, employee salaries, public health, education and also other interests related to community development. Government expenditure usually used for something that provides to support the means for economic development itself, such as when the government makes policies, and these policies will require costs where the costs are partly derived from government expenditure. And based on Mauliansyah & Mard (2017), for the welfare of its people, one of the government's methods is to allocate a budget that has been calculated in the State Budget (APBN) to each sector every year.

In the explanation above, it can be concluded that the existence of government spending will increase economic growth means increase in GRDP, Indonesian government also supports the existence of a law on government spending itself as set out in law of the Republic of Indonesia number 20 the year 2019 concerning the 2020 State Budget (APBN), with the following objectives:

1. Human Development and Poverty Alleviation.
2. National Priority for Infrastructure and Regional Equity.

3. National Priorities for Added Value to the Real Sector, Industrialization and Employment Opportunity.
4. Fourth, the Environment.
5. Defences and Security Stability National Priority

2.1.3. Human Development Index

In this case, GRDP will happen based on the resources that supports the occurrence of GRDP, one of the indicators is human resources, human resources here is an indicator to the development of a country if the quality of human in that country it's advanced, sometimes that indicator can be seen from the level of education, real income and also about the health quality. According to Jhingan (2000), with the idea of a modern economy where there is a process of increasing the skills, knowledge and abilities of all the population of the country concerned, this process will also cover the quality of health education and social services in general. The above process is called by modern economists as human investment, wherewith this process there is an increase in efficiency and also productivity among workers which causes an increase in GNP per capita which is will developed. So, Human Development Index is something that will discuss the quality of human infrastructure such as the quality of education, health and others that support human development factors that will support economic growth. Based on Todaro & Smith (2005) HDI is a rule whereby an index of national socio-economic development, health, real income per capita and also based on a combination of measures of education.

To find out the comparison of social status that occurs in the country, it will be differentiated into 2 where the scale is from 0 (lowest human development) to 1 (highest human development) in terms of human development in that country. This method is used by UNDP (United Nations Development Program) to rank all countries. All of this is done in order to describe the level of development of a country in 3 goals which are analyzed through indicators and other information such as:

1. Long life and healthy life, which is measured by the Life expectancy of birth.
2. Knowledge, which is measured by Expected years of schooling or Mean years of schooling.
3. A decent standard of living, which is measured by GNI per capita.

And according to Todaro & Smith (2015), to know the scale of HDI, they have formula used is as follows:

$$\text{Dimension Index} = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}}$$

And from the equation above, we can calculate the HDI with the following formula:

$$\text{HDI} = 1/3[x_{(1)} + x_{(2)} + X_{(3)}]$$

Where it is known:

$x_{(1)}$ = Life expectancy of birth.

$x_{(2)}$ = Education index, where $\frac{2}{3}$ literacy indexes and $\frac{1}{3}$ Mean years of schooling index

$x_{(3)}$ = Index a decent standart of living.

Based on Kuncoro (2006), the standard of minimum and maximum value of indicator in HDI components are as follows:

Life expectancy of birth = 25-85, the standard based on UNDP

Literacy rate = 0-100, the standard based on UNDP

Mean years of schooling = 0-15, the standard based on UNDP

2.1.4. Original Regional Government Revenue (ORGR)

Original Regional Government Revenue, is the factor that support the development of the economy in the region. Original regional income is very important in the process of economic growth itself because over time, ORGR can fill the shortage of budget to support economic growth and also the needs of the community. And according to Law of the Republic of Indonesia Number 33 year 2004 Concerning Financial Balances Between Central Government and Regional Governments explains the meaning of Original Regional Government Revenue where ORGR is a fee or fund that is obtained from levies based on local regulations that have been set in statutory regulations.

Based on Ervina & Jaya (2018), the source of ORGR itself is obtained from the regional income according to the ability of the region, such as local taxes, regional levies, revenue from services, the share of BUMD profits and other revenue. According to Law of the Republic of Indonesia Number 33 year 2004 Concerning Financial Balances Between Central Government and Regional Governments chapter IV regional revenue sources, article 5 states that the sources of other revenue is demand deposit services, interest income, non-segregated proceeds from the sale of regional assets, gains on the difference in rupiah exchange rates against foreign currencies and

commissions, discounts, or other forms as a result of the sale and / or procurement of goods and / or services by the Region.

2.2. The Relationship between Dependent Variable and Independent Variables.

2.2.1. The Relationship between Government Expenditure and GRDP at constant price.

Investment is one of the most important factors in economic growth, to see regional economic growth also cannot be separated from government spending (Maisyaroh & Risyanto, 2017). Government expenditure usually used for something that provides to support the means for economic development itself, such as when the government makes policies, and these policies will require costs where the costs are partly derived from government expenditure. And based on Mauliansyah & Mard (2017), for the welfare of its people, one of the government's methods is to allocate a budget that has been calculated in the State Revenue and Expenditure Budget (APBN) to each sector or sector every year.

Government spending aims to provide welfare to its people with policies that the government has carried out, A lot of government spending will provide welfare to the community with the facilities and infrastructure so that is will increase their income and will have an impact on state income. The function of Government expenditure or Regional expenditure for the development of the region is to develop the quality of society such as education, also for infrastructure development and for social welfare, if both of case is already good enough will boost economic growth. Then, According to Maisyaroh & Risyanto (2017), by the amount of government effort in making productive regional expenditures, the economic level of an area will increase. And based on the research conducted by Haryanto (2013), government expenditure through direct and indirect expenditures has an impact on increasing economic growth, then according to Mauliansyah & Mard (2017), government spending is government spending on goods and services, therefore an increase in production with an increase in production will increase the value of GRDP with the intention that government spending affects the increase in GRDP, by realizing government spending and doing it effectively, it will increase the GRDP.

2.2.2. The Relationship between Human Development Index (HDI) and GRDP at constant price.

In an economic growth, the role of human resources is related to each other, where human development with good quality will lead to an increase in economic growth and vice versa where the existence of economic growth will help human development get better (Sjafii, 2009). According to Jhingan (2000), with the idea of a modern economy where there is a process of increasing the skills, knowledge and abilities of all the population of the country concerned, this process will also cover the quality of health education and social services in general. the above process is called by modern economists the name human investment, wherewith this process there is an increase in efficiency and also productivity among workers which causes an increase in GNP per capita.

Economics growth also will have conducted by the human so another factor that will be influenced is Human Development Index (HDI), Human Development Index definition based on Todaro & Smith (2015), is where education, health and real income per capita are the benchmarks for national socio-economic development. If the human in that area already good, the economic growth will be good too. Based on Jhingan (2000), in a study conducted by a group of economists in America, it shows that the funding of education for a society which increases relatively every year has a good impact on the increasing of economic growth, where investing dollars in education causes an increase in national income that is more significant compared to invest in dams, road factories and other capital. The development of the human index will provide a picture or level of human development itself. A high level of human development will support economic growth because if the quality of human development is good, it will be easier for the population to absorb and manage sources of economic growth, for example, with qualified technological and institutional facilities that are needed to achieve economic growth itself (Utami, 2020).

Therefore, it can be defined that the Human Development Index is the quality of human resources which has a good impact on economic growth because economic growth will occur if human resources are in a good quality and are advanced. For example, as the education factor will provide income to regional income, because good and decent quality education will create an educated and trained quality workforce, and income and will increase their standard of living which will affect local or national income.

2.2.3. The Relationship between Original Regional Government Revenue and GRDP at constant price.

Original Regional Government Revenue is the factor that supports the development of economic in region, ORGR is very important in the process of GRDP at constant price itself because over time, ORGR can fill the shortage of budget to support economic growth and also the needs of the community. According to Law of the Republic of Indonesia Number 33-year 2004 Concerning Financial Balances Between Central Government and Regional Governments, the meaning of Original Regional Government Revenue where ORGR is a fee or fund that is obtained from levies based on local regulations that have been set in statutory regulations.

Based on Kusumawat & Wiksuana (2018), in regional development, the government requires large funds to be spent, not only depending on funds from the centre. Therefore the ORGR provides independence to each region in financing shortages for its development. Thus, indirectly, ORGR funds have an interest in regional economic growth, with the result of study shows that ORGR has a positive and significant effect on economic growth through GRDP at constant price.

Another statement has been conveyed by Putri (2015), where one of the indicators to determining economic growth in region is by looking at the ORGR of the area. If the value of Original Regional Government Revenue of that area is high it is means it will increase the GRDP at constant price, but if the Original Regional Government Revenue is low then it will decrease the GRDP at constant price. It is proven by her study in Central Java of which result is the relationship between Original Regional Government Revenue and economic growth is significantly positive.

2.3. Literatures Review

In this section, the literature review will be discuss various studies that have been carried out by other researchers. When we want to find the variables, analysis, and also territory in this research, is needed to refer to previous researchers who conducted journal or thesis.

Ervina & Jaya (2018), analyzed Factors Affecting GRDP in Indonesia Using Spatial Panel Data Model and the study explained about the factor affecting Gross Regional Domestic Product (GRDP) at constant prices or economic growth. In this study, researcher used Population, Original Local Government Revenue (OLGR), Government Expenditure (GE), Domestic Investment (DI), Foreign Investment (FI), Total Manpower as independent variable and then, for the dependent variable is Gross Regional Domestic Product (GRDP) or economic growth. And the result explains

that the independent variable except Manpower plays important role to increase the value of GRDP at constant price or economic growth or the independent variable of this study except Manpower give the positive and significant influence for GRDP in Indonesia. That statement was also proven through the method Spatial Panel Data Model with the quasi-maximum likelihood estimation method. The researchers used quantitative study with panel data of 33 provinces in Indonesia during 2010-2016 periods with 5 variable independents.

Mutia Sari et al., (2016), stated in the study entitled “Effect of Investment, Labor and Expenditure the Government on Economic Growth in Indonesia” and the study used Ordinary Least Square (OLS) method and paid attention to the possibility of deviating classical assumptions, namely multicollinearity, heteroscedasticity and autocorrelation. Based on the researchers said that the that influence of economic growth is investment one of them. Because the first step in economic activity is increasing production that make increasing economic growth. So, in this study, the variable Investment becomes one of independent variables which has significant and positive impact. And another independent variables in this study are labor and government expenditure which have significant and positive impact on economic growth in Indonesia, and then, for the significant influence of investment and also government expenditure are supported by Karlita & AG (2013) and Fahlewi, et al (2020).

Haryanto (2013) conducted a research under the title “The Influence of Government Expenditure on Economic Growth of District / City in Central Java Province 2007-2011”. In his research, it aims to analyse and find out the economic growth that occurs with the role of the government through government expenditure. It’s independent variable are direct expenditure and indirect expenditure. This study used a quantitative method in which the researcher get the data from secondary data which is obtained through documentation techniques through notes, books, newspapers or transcripts and others. With this analysis, the researcher can conclude that with the government expenditure, direct and indirect expenditures have an impact on increasing economic growth, therefore government expenditure has a significant and positive impact on economic growth.

Sumadiasa et al., (2016), conducted a study to analyze the impact of development of road infrastructure, electricity and PMA on the growth of PDRB in Bali Province, entitled “Analysis of Effect of Road Infrastructure Development, Electricity and FDI on The Growth of Province GRDP Bali in 1993-2014”. The data comes from secondary data and data processing uses path analysis

techniques. From the factors above, there will be a correlation each other, including road construction which has a positive and significant relationship to electricity infrastructure, and also road construction which has a significant and positive effect on FDI, but not with electricity infrastructure which only has a positive but not significant effect. in his research, the presence of FDI has a significant and positive impact on economic growth or GRDP.

Dewi & Sutrisna (2014), conducted a study entitled " The Influence of Human Development Index Components on Economic Growth of Bali Province". In this study, the independent variables used are health index, an index of education and purchasing power indices. Meanwhile, the dependent variable used is Economic Growth. the method of regression analysis techniques and associative data panel with Pooled Least Square method and the data used secondary data from the central statistical agency of Bali province. The results of this research indicate that Independent variables such as education index and purchasing power index in this study have a positive and significant effect on economic growth. but for the health index itself does not have a significant effect on the economic growth of the province of Bali, therefore with a positive relationship for the education index, it is meant that there is a positive relationship between human development and economic growth, therefore the government must pay special attention to human development policies.

Mahmudah & Subroto (2017), analyzed the factors that influence the increase of Economic growth in East Java. In this study, the independent variables used are the Foreign Direct Investment and Domestic Investment. Meanwhile, the dependent variable used is Economic growth. The data used are secondary data which are obtained from Central Bureau of Statistics of East Java starting from the year 2002 to 2012. The method used in this research is doubled linear regression through F-test and t-test with classic assumption. The results of this study show that FDI simultaneously has a significant effect on economic growth but DI is the opposite or has no significant effect on economic growth. In the simultaneous test, FDI and DI simultaneously influence economic growth in East Java in 2002-2012.

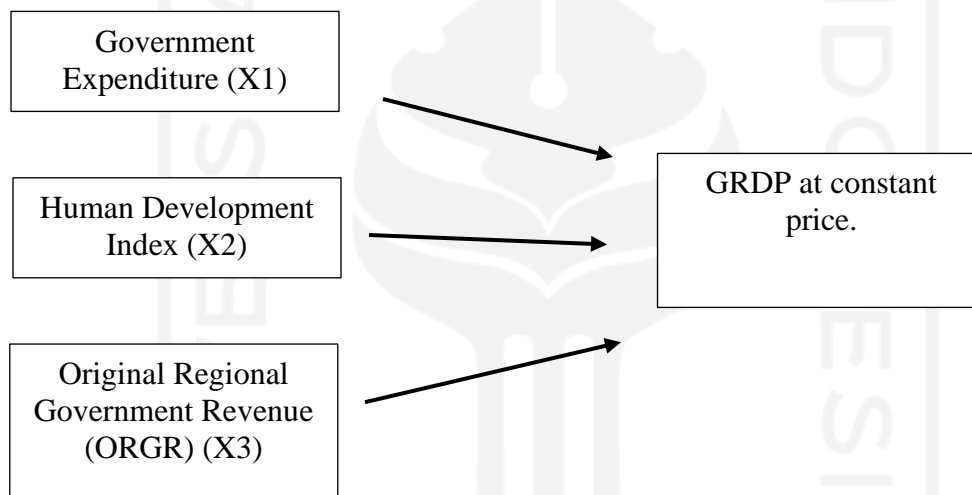
Table 2. 1 Previous Research

AUTHOR	TITLE	DEPENDENT & INDEPENDT VARIABLES	METHOD	RESULT
Ervina & I Jaya (2018)	Analyzing Factors Affecting GRDP in Indonesia Using Spatial Panel Data Model	Dependent: Gross Regional Domestic Product (GRDP) Independent: Population, OLGR, GE, DI and FI	Spatial Panel Data Model	Independent Variables have positive and significant to the dependent variables.
Mutia Sari, et al (2016)	Pengaruh Investasi, Tenaga kerja dan Pengeluaran Pemerintah Terhadap Pertumbuhan Ekonomi di Indonesia	Dependent: Economic growth. Independent: Investment, Labor and Government spending	Ordinary Least Square (OLS)	Investment, Labor and Government expenditure where it has a positive and significant impact on economic growth in Indonesia.
Karlita & AG (2013)	Pengaruh Investasi, Tenaga Kerja, Dan Ekspor Terhadap PDRB Sektor Industri Di Kota Semarang Tahun 1993-2010	Dependent: GRDP industry sector. Independent: Investment, Labor and Exports	Multiple linear regression	Investment variable has a significant influence, but labor and export variable did not have a significant influence.
Fahlewi et al., (2020)	Analysis of Effect of Education Level, Labor Force And Government Expenditures On GRDP In South Sumatra Province	Dependent: Gross Regional Domestic Product Independent: Education, Labor Force and Government Expenditure.	Panel Data	Overall, all independent variable affects the dependent variable, except Education.
Haryanto (2013)	The Influence of Government Expenditure on Economic Growth of District / City in Central Java Province 2007-2011	Dependent: Economic Growth. Independent: direct and indirect expenditures.	Panel Data Fixed effects model	The results show that government expenditure has a significant and positive impact on economic growth.
Sumadias et al., (2016)	Analisis Pengaruh Pembangunan Infrastruktur jalan, Listrik dan PMA Terhadap Pertumbuhan PDRB Provinsi Bali Tahun 1993-2014	Dependent: GRDP Inependent: Development of road infrastructure, Electricity and FDI	Doubled linear regression	Has correlation each other between independent variable to FDI, except electricity non-significant effect, the presence of FDI has a significant and positive impact on e GRDP.
Dewi & Sutrisna (2014)	Pengaruh Komponen Indeks Pembangunan Manusia Terhadap Pertumbuhan Ekonomi Provinsi Bali	Independent: Economic Growth. Dependent: Human Development Index (HDI)	Pooled Least Square method.	Overall, all independent variable affects the dependent variable, except Health index.
Mahmudah & Subroto (2017)	Pengaruh Foreign Direct Investment (FDI) dan Investasi Dalam Negeri Terhadap Pertumbuhan Ekonomi di Jawa Timur	Independent: Economic Growth. Dependent: FDI and DI	Doubled linear regression	Variable FDI simultaneously has a significant effect on economic growth but DI is the opposite.

Based on Table above, the difference between this study and previous research, such as:

1. The difference between this research with another researches is sample that researcher used, which is in this study used 27 regencies or municipalities in West Java Province with periods of time 2015-2019 and this study uses the instruments such as Government Expenditure, Human Development Index (HDI) and Original Regional Government Revenue (ORGR)
2. This study uses a panel data model regression method with fixed effect model and It finds out the spatial dependency for every region with SAR.

2.4. Research Framework



2.5. Hypothesis

The theory taken or relevant is based on previous researches with the results on Government Expenditure, Human Development Index (HDI) and Original Regional Government Expenditure (ORGR) with the answers can be temporarily used for existing problems. and the hypothesis in this study are as follows:

H1: There is a positive relationship between Government Expenditure and GRDP at constant price.

H3: There is a positive relationship between Human Development Index (HDI) and GRDP at constant price.

H3: There is a positive relationship between Original Regional Government Revenue (ORGR) and GRDP at constant price.

CHAPTER III

RESEARCH METHOD

3.1. Data sources

In this study, the data that the researcher used is GRDP at constant price, Government Expenditure (GE) Human Development Index (HDI) and Original Regional Government Revenue (ORGR) is secondary data. Secondary data in this study comes from Central Bureau of Statistic (BPS) West Java or through <https://jabar.bps.go.id>. The boundaries of the study area are regencies and municipalities, namely 27 regencies and municipalities in West Java Province for the period 2015-2019.

3.2. Data Definition

In this study, the data used by the author are as follows:

1. Gross Regional Domestic Product (GRDP) at constant price by 27 regencies / municipalities in West Java according to the period 2015-2019 (in million IDR) for economic growth.
2. Government Expenditure (GE) by regencies / municipalities in West Java Province for the period 2015-2019 (in thousand IDR).
3. Human Development Index (HDI) data according to regencies / municipalities in West Java for the period 2015-2019 (in percentage).
4. Recapitulation of West Java Original Regional government revenue (ORGR) (thousands of rupiah), 2015-2019.

3.3. Data Analysis Method

This research use Panel Data Regression and Spatial Analysis.

3.3.1. Spatial Analysis

Spatial data analysis is a statistical method that contains information related to the location of observation, and it involves spatial influence or is called regional science and the interaction between its spatial units. According to Agustina (2015) cited in Ervina & Jaya (2018), the concept of the spatial data method has several types, including spatial dependence (autocorrelation) and spatial heterogeneity. Based on Ervina & Jaya (2018), to analyze the conditions between locations with different structures, spatial heterogeneity is the choice because it is possible to have different

modelling, while for the spatial concept of dependencies everything is related to each other, but something close is preferred, where the statement is based on Tobler's I Law.

In spatial autocorrelation, the first care measure is to define what is meant by two close observations, of which one distance must be specified. The distance in question is in the form of a weighted matrix. According to Dubin (2019), cited in Putra (2017), it was defined that a spatial weighting matrix, where according to him the matrix explains the areas of the relationship between regions and is obtained based on distance or proximity information. In this matrix, the diagonals in general are filled with zero values. Since N is the number of locations or the number of units across objects, the dimensions of the matrix will be NxN because the weighted matrix shows the relationship between all locations.

As we know there are three kinds of approaches in spatial dependence. There are several tests that can be used to detect spatial dependence in a model such as the Moran's Index test and the Lagrange Multiplier (LM) test. The Lagrange Multiplier test provides more specific results than the Moran's Index test because it is able to see whether the dependency that occurs is spatial lag or spatial error. And the three we will explain below:

3.3.2. Spatial Panel Data Analysis

1. Spatial Lag Panel Data Model

Spatial Lag Model or Spatial Autoregressive Model is the existence of a spatial dependent variable that has an influence on the spatial model. Another definition based on Karim et al., (2016), this model is defined as a standard tool for analyzing any concern for correlation between regions or according to Ervina & Jaya (2018), Spatial Autoregressive Model is where the dependence of the dependent variable on the independent variable being observed and also the dependent variable in the nearest unit / area. Another definition of Spatial Autoregressive Model according to Anselin (1988) cited in Putra (2017) mention that the spatial autoregressive model uses a cross section that combines a simple regression model with a spatial lag on the dependent variable. The lag model in SAR is stated in the following statement:

$$y_{it} = \rho \sum_{j=1}^N W_{ij} Y_j + X_{it}\beta + \mu_i + \varepsilon_{it}$$

where,

ρ : spatial autoregressive coefficient.

W_{ij} : element of standardized weight matrix W (row-i and column-j)

β : regression coefficient vector;

μ : spatial specific effect.

ε_{it} : error term, $\varepsilon_{it} \sim \text{Normal}(0, \sigma^2)$.

Then, in this study SAR models will be:

$$y_{it} = \alpha + \rho \sum_{j=1}^N W_{ij} Y_{jt} + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \varepsilon_{it}$$

Where,

Y = GRDP at Constant Prices.

X1 = Government Expenditure (GE)

X2 = Human Development Index (HDI)

X3 = Original Regional Government Revenue (ORGR)

2. Spatial Error Panel Data Model

The Spatial Error Model a data model where the error has a correlation between spaces that are close to each other and shows the dependence of the dependent variable on the independent variable being observed (Ervina & I Gede, 2018). Another definition of the Spatial Error model is a spatial regression model where the error has a special suitability or a special model where the error occurs at that location. The equations in this model are stated as follows:

$$Y_{it} = X_{it}\beta + \mu_i + \varepsilon_{it}$$

Where

$$\mu_i = \lambda \sum_{j=1}^N W_{ij} \mu_j + \varepsilon_i$$

Where λ is the spatial autocorrelation coefficient.

Then, this study uses SEM which can be written as the following equation:

$$y_{it} = \alpha + \rho \sum_{j=1}^N W_{ij} Y_{jt} + \beta_1 x_{1i} + \beta_2 x_{2i} + \beta_3 x_{3i} + \varepsilon_{it} + \mu_{it}$$

Where,

Y = GRDP at Constant Prices.

X1 = Government Expenditure (GE)

X2 = Human Development Index (HDI)

X3 = Original Regional Government Revenue (ORGR)

3.3.3. Panel Data Regression

This research was conducted to determine the relationship between dependent and independent variables, to support the research results, the research data obtained will be analyzed using multiple linear research. In this study the data to be used is panel data where the mixture of time series and cross section is used. the data that will be used for this study is Data Panel, while for Panel Data testing was Eviews 9 by entering the data into Microsoft Excel 2016 software in the.xlsx format, then imported into Eviews 9 software to be tested. And then, in general, the model of the panel data regression equation as follow:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_n X_{nit} + e_{it}$$

Or

$$\log Y_{it} = \beta_0 + \beta_1 \log X_{1it} + \beta_2 \log X_{2it} + \dots + \beta_n \log X_{nit} + e_{it}$$

Is known:

Y_{it} = Dependent Variable

X_{it} = Independent Variable

β_0 = Intercept or Constant

e = Variable outside the model

N = Amount of observations ($i = 1, 2, \dots, N$)

T = Period of t ($t = 1, 2, \dots, T$)

N x T = Panel Data

log = change of a unit to a percent

The combination that occurs between time series and cross section data can provide an increase in the quality and quantity of data because this approach is impossible to do with an approach that only uses one of these data (Gujarati, 2005). The use of panel data can explain two kinds of information, namely information from the cross-section on the differences between subjects, and

time-series information which describes changes in the subject of time. This panel data analysis can be used when both of this information already exists. Panel data itself has other advantages, including the availability of the amount of data to be analyzed, which means that some analyzes have shortcomings in numbers, both from cross-section and time series. Therefore, panel data provides an increasing amount of data so that it can meet the requirements.

1. Common Effect Model

The common effects model is to combine time series data and cross section data into the data panel regardless of time and individual differences. And the data will be regressed into the OLS method which will produce an equation with constant intersection and the coefficient of the independent variable for each unit. Here is a regression model for this model:

$$\log Y_{it} = \beta_0 + \beta_1 \log X_{1it} + \beta_2 X_{2it} + \beta_3 \log X_{3it} + \beta_4 \log X_{4it} + e_{it}$$

2. Fixed Effect Model

Basically, this model assumes that there are differences in intercepts between individuals but the tilt between individuals remains (same). Or we can conclude that the fixed effect model is the same between the time variants and the difference in the intercept the cross sections. To overcome this, all fixed effect models (FEM) require dummy variables to complement the different intercepts between individuals, the estimation model is often called the Least Square Dummy Variable (LSDV). The estimation model using the Fixed Effect Model and used variable Dummy is as follows:

$$\log Y_{it} = \beta_0 + \beta_1 \log X_{1it} + \beta_2 X_{2it} + \beta_3 \log X_{3it} + \beta_4 \log X_{4it} + D + e_{it}$$

3. Random Effect Model

The decision to include dummy variables in the fixed effect model has a consequence of reducing the degree of freedom which in turn reduces the efficiency of the estimated parameters. In this case, we will use error terms as a solution using the random effect method. The researcher will estimate panel data where the error terms will have a relationship between time and between individuals. In this case used in the random effect illustrates that each company has different

interceptions, which concludes that the intercept is a random or stochastic variable. This model will be useful if individuals (entities) are randomly selected as a sample and can represent the population. Based on Widarjono (2018), in the random effect model there will be a change in β_{0i} , it is no longer fixed or non-stochastic but it is random so that it can be expressed in the form of the following equation as follows:

$$\beta_{0i} = \bar{\beta}_0 + \mu_i \text{ where } i = 1, 2, \dots, n$$

Therefore, the unknown parameter that shows the average intercept of the population is $\bar{\beta}_0$, and the random variable that represents the difference in the behavior of an individual company is represented by μ_i .

So the writing of constants in the random effects model is no longer regulated but is random. The following is an equation model for this model:

$$\log Y_{it} = \bar{\beta}_0 + \beta_1 \log X_{1it} + \beta_2 X_{2it} + \beta_3 \log X_{3it} + \beta_4 \log X_{4it} + vit$$

As known : $vit = e_{it} + \mu_i$

3.3.4. Selection of Estimation Model

This study uses panel data regression in analyzing the influence of Government Expenditure Human Development Index and Original Regional Government Revenue (ORGR) on GRDP at constant price, where cross-section data are from the three estimation techniques, one of the most appropriate techniques will be chosen to estimate data regression panel. There are three kinds of data model that can be used for estimating panel data regression, which is the Common Effect Model, the Fixed Effect Model and the Random Effect Model. To determine a model in research must be based on statistical considerations, so to achieve an efficient estimate must be based on the selection according to the following tests:

1. Chow Test

The F statistical test is used to choose between the OLS or Common Effects Model (CEM) method without dummy variables or the Fixed Effects model (FEM).

And it will be:

H0: Common Effect Model (CEM) is better than the Fixed Effect Model (FEM).

H1: Fixed Effect Model (FEM) is better than Common Effect Model (CEM).

It means, If $F \text{ stat} < F \text{ table}$ then H_0 is accepted and it can be concluded that the best model is the Common Effect Model (CEM). But, if $F \text{ stat} > F \text{ table}$ then H_0 is rejected and it can be concluded that the best model is the Fixed Effect Model (FEM).

2. Hausman Test

Hausman test was conducted to determine which one is the best between the Fixed Effect Model (FEM) and Random Effect Model (REM) which is best.

The hypotheses proposed are the following:

H_0 : Random Effect Model (REM) is better than the Fixed Effect Model (FEM).

H_1 : Fixed Effect Model (FEM) is better than Random Effect Model (REM).

In this case when $\chi^2 \text{ table} > \chi^2 \text{ statistic}$, so accept H_0 then Random Effect Model (REM) is better and vice versa.

3. Lagrange Multiplier (LM)

To choose between the random effects model (without a Dummy variable) and the Common Effects Model and the model used is The Breusch-Pagan LM Test using the following hypothesis:

H_0 : Common effects model

H_1 : random effects model

3.3.5. Hypothesis Testing

1. Coefficient of Determination (R^2)

The value of the coefficient of determination (R^2) is an important measure to determine how much the independent variables used in research can explain the dependent variable, and also one of the most important things to measure in regression because the coefficient of determination (R^2) itself will determine whether the regression model is good or not. if the value of R^2 lies in the middle between zero to one and where if it gets closer to one then the model is good.

2. T-Test

T-test, it is usually used to test whether the dependent variable is influenced by each independent variable, the t-test hypothesis will be:

H0 = independent variable does not influence the dependent variable significantly

H1 = independent variable influenced the dependent variable significantly.

It is usually used to determine the significant level the value alpha (α) which is 1%, 5%, and 10%

It means when prob. T-statistic $> \alpha$ then, H0 is accepted and reject H1. And vice versa, if the test value is prob. T-statistic $\leq \alpha$ then, H0 is rejected, which indicates the significant influence of the independent variable to the dependent variable.

3. F-Test

In f-Test, testing will be carried out simultaneously the influence of all independent variables on the dependent variable with the F-test. And F-test hypothesis will follow:

H0 = all independent variable cannot influence significantly the dependent variable.

H1 = some of the independent variable influenced significantly the dependent variable.

where if F statistics probability $<$ Significance level, H0 is rejected. and its opponents, if the probability of F statistics probability $>$ Sig level, H0 is accepted. By using the F-table statistics obtained if F-count $>$ F-table then H0 is rejected and if F-count $<$ F-table then H0 is accepted.

And the formula for F count itself is follows:

$$F\text{-Count} = \frac{R^2/(k-1)}{(1-R^2)/(n-k)}$$

Where,

R^2 = Coefficient of Determination

k = amount of independent variables

n = amount of samples

CHAPTER IV

RESULT AND DISCUSSIONS

4.1. Data Description

The goals of this quantitative research are to determine the factors that influence Economic growth based on GRDP at a constant price in West Java 2015-2019, and to know if there are any spatial relationships. This quantitative research uses econometric tools in the form of Eviews 9 software to know the appropriate model to use. In conducting this research, the data used is a combination of Time Series data and Cross-Section data that usually called Panel Data, and the data that researcher used is secondary data from Central Bureau of Statistic (BPS) West Java. The dependent variable in this study is GRDP at constant price and is symbolized by Y. Meanwhile, there are 3 independent variables used which is Government Expenditure (X1), Human Development Index (X2), and Original Regional Government Revenue (X3), and is symbolized by X. The population in this study is 27 regencies/municipalities in West Java province. The data sample in this study was regencies/municipalities of which data from all variables were available from 2015 to 2019. And then, to know the spatial relationship, the researcher only used the data comes from the year 2019.

And the data that the researcher used will be conducted in the descriptive statistic will divided into some of area that contain regencies and municipalities of West Java province, and then the regencies and municipalities will be divided into 4 areas based on Development Government Coordination Agency of West Java Province itself. Based on the table 4.1 below, it is shown that within five years all variables namely the gross regional domestic product (GRDP), government spending, Human Development Index (HDI), Original Regional Government Expenditure still centred on the area II which is this area consists of Purwakarta, Subang, Karawang, Bekasi, and Bekasi City, where in this area is a centred point of economic production happened.

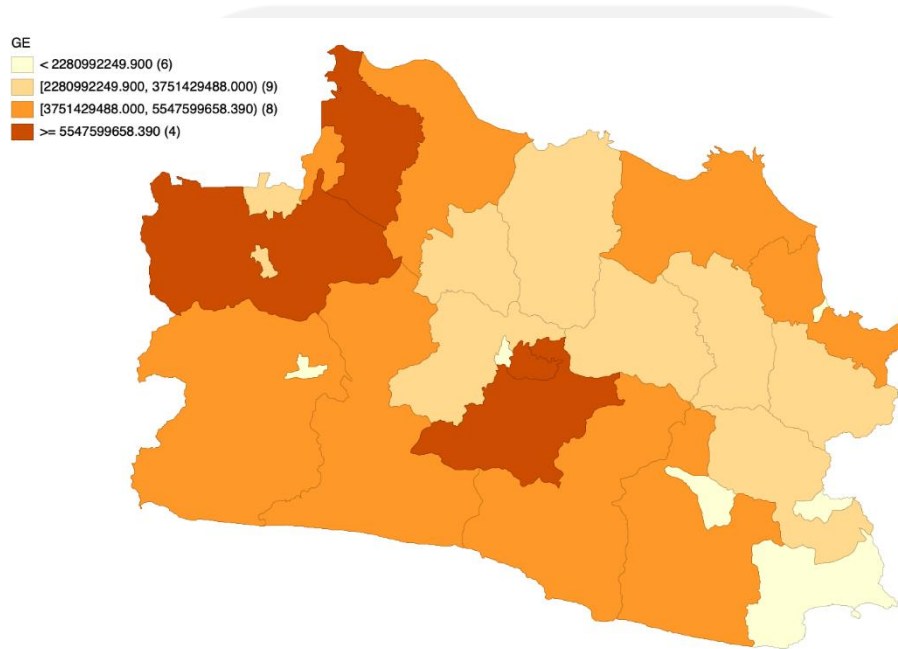
Table 4. 1 Descriptive Statistics of Research Data in West Java Province

Area I				
	GRDP at constant price (in million IDR)	Government Expenditure (in billion IDR)	HDI (%)	ORGR (in billion IDR)
Mean	48,387.19	3,307.00	70.88	971.02
Median	34,759.38	3,127.44	71.25	705.74
Min	6,985.33	1,057.84	62.42	276.85
Max	156,868.30	7,771.22	80.82	3,041.87
Std.Dev	43,729.01	1,802.31	5.89	754.89
Area II				
	GRDP at constant price (in million IDR)	Government Expenditure (in billion IDR)	HDI (%)	ORGR (in billion IDR)
Mean	101,728.80	3,666.65	71.84	1,214.97
Median	62,202.01	3,882.24	69.98	1,169.57
Min	23,696.76	1,794.16	66.52	234.64
Max	251,492.79	5,547.60	81.59	3,273.60
Std.Dev	78,561.25	1,288.83	4.82	828.85
Area III				
	GRDP at constant price (in million IDR)	Government Expenditure (in billion IDR)	HDI (%)	ORGR (in billion IDR)
Mean	27,460.11	2,702.80	68.35	418.12
Median	18,789.49	2,650.61	67.51	439.59
Min	13,175.67	1,354.73	64.36	229.17
Max	60,153.18	4,023.38	74.92	597.48
Std.Dev	16,662.00	775.60	3.19	106.64
Area IV				
	GRDP at constant price (in million IDR)	Government Expenditure (in billion IDR)	HDI (%)	ORGR (in billion IDR)
Mean	41,087.19	3,879.20	70.58	588.37
Median	22,290.23	2,633.21	70.08	365.53
Min	2,264.24	724.39	63.17	116.17
Max	197,642.89	48,776.47	81.62	3,055.01
Std.Dev	48,322.28	6,661.85	4.99	670.91

4.2. Results

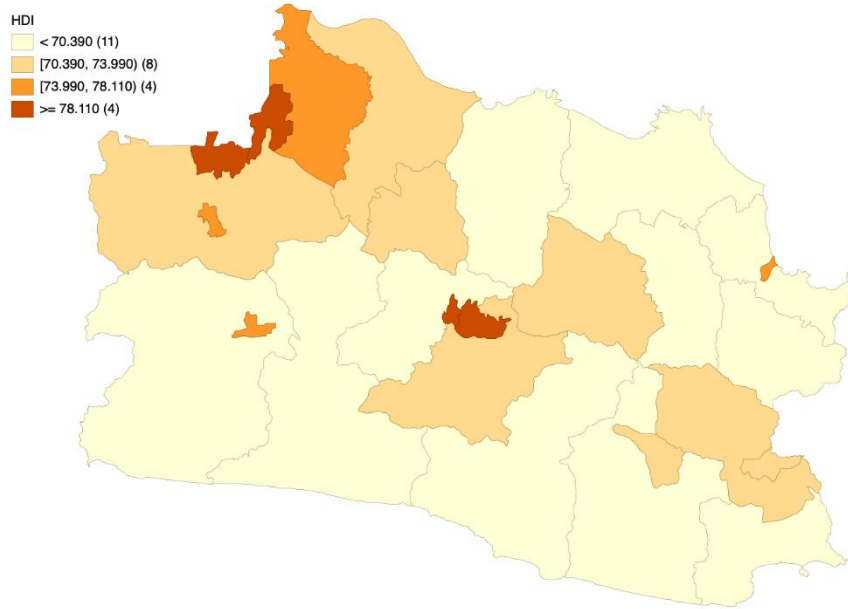
4.2.1. Spatial Dependency.

This part will show thematic maps of Government Expenditure, Human Development Index and Original Regional Government Revenue in 2019 of West Java province are shown in Figures below:



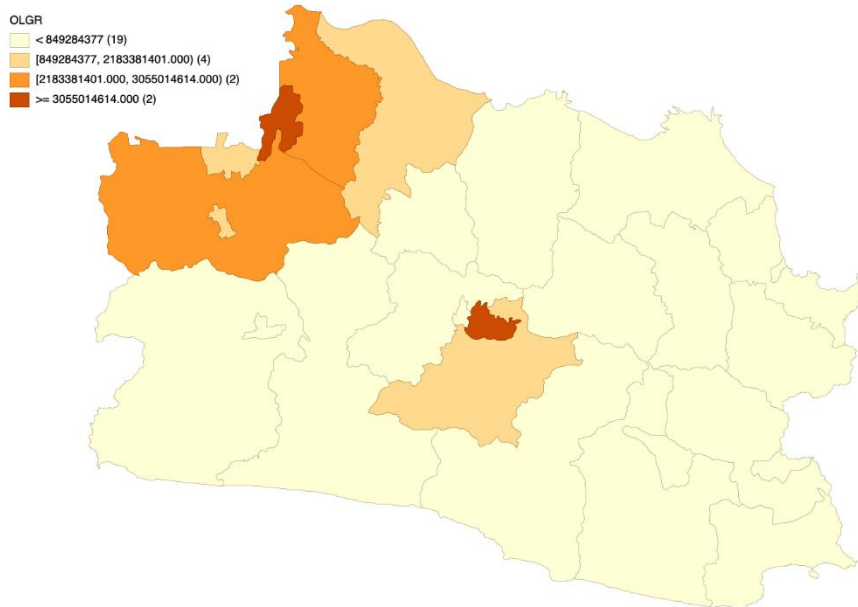
Source: Data processed with Geoda, 2021

Figure 4. 1 Thematic Map of Government Expenditure 2019



Source: Data processed with Geoda, 2021

Figure 4. 2 Thematic Map of Human Development Index 2019



Source: Data processed with Geoda, 2021

Figure 4. 3 Thematic Map of Original Regional Government Revenue 2019

In the picture above, it explains that the value of each variable in each district or city in West Java has almost the same value which can be said to have geographic proximity by being marked with colors that are almost similar to each other. The value of the distribution of each variable on the map above is divided into four, namely, the variable value is very high, high, medium, and low which is indicated by the thickness of the color, where the thicker the color on the map, the higher the value of the variable value level in the area. And to be sure in this case, there was a spatial dependency test using the Moran's Index test and the Lagrange Multiplier (LM) test.

Table 4.2 Moran's Index test

TEST	MI/DF	VALUE	P-value
Moran's I (error)	0.1898	1.6353	0.10199

Source: Secondary data processed with Geoda, 2021

The Moran's Index value in 2019 is 0.1898, which is in the range $0 < I \leq 1$ and shows that there is positive spatial autocorrelation and the correlation can be said to be strong because it is close to one. So that between districts tend to be grouped and in accordance with neighboring areas. But in this study, the researcher performs a Lagrange Multiplier test to see whether the dependence that occurs is spatial lag or spatial error.

Table 4.3 Langer Multiplier test

Test	Value	Prob.
Lagrange Multiplier (lag)	4.0850	0.04326
Robust LM (LAG)	2.9977	0.08326
Lagrange Multiplier (error)	1.2755	0.25873
Robust LM (error)	0.1882	0.66443
Adjusted R ²	0.634428	

Source: Data processed with Geoda, 2021

The specification test on the spatial model uses the LM test to determine the best model that will be used to see whether the dependence that occurs is spatial lag or spatial error. The test was carried out by looking at the LM lag (SAR) and LM error. Based on Table 4.2. above, for 2019 I used the LM lag test to show a significant result of $0.04326 < 0.05$, it means this case have spatial

effect / dependency, while for the LM error it shows insignificant results $0.25873 > 0.05$. So that the best model used is SAR. It means every area in West Java Province have autocorrelation between near area to another area, such as in this study for the factor Original Regional Government Revenue, in this study based on figure 4.3 shows the colour between one and other almost have same colour and also supported by results that show SAR is the chosen model, means in this study the area have autocorrelation or spatial dependency between one to other, such as in variable in this case between Garut and Tasikmalaya the ORGR between that region have same colour means the ORGR of Garut influence by Tasikmalaya, where if Garut have production or services such as tourism in Garut will be comes from people Tasikmalaya anymore, and vice versa. And also Human Development Index where the area between Bandung and Sumedang, to increasing the HDI such as increasing quality of health or education of people from Sumedang, that people can used health and education in Bandung and also vice versa. It means with the existence of autocorrelation or spatial dependency, it will eliminate inequality in the increase of each factor.

4.2.2. Panel Data Effect Result.

The important thing in panel data is to evaluate the data with each model to find out which model is best for the estimation. The models used are Common Effect Model, Fixed Effect Model, and Random Effect Model. If the calculation is tried out, the regression will know the best model used in the data panel regression. Gujarati & Porter (2009), to know the appropriate model we need through test, which is in this case we should through the test the Chow and Hausman test was used in order to choose the best regression model with the results as follows:

4.2.2.1. Chow and Hausman test result.

In this part, we want to know the best model that we should use. Then, for chow test, the F statistical test is used to choose between the OLS or Common Effects Model (CEM) method without dummy variables or the Fixed Effects model (FEM). And Hausman test is to determine which are is the best between the Fixed Effect Model (FEM) and Random Effect Model (REM).

Chow		Hausman	
Ho:	Common Effect Model (CEM)	Ho:	random Effect Model REM
H1:	Fixed Effect Model (FEM)	H1:	Fixed Effect Model (FEM)

This test will decide and compare the probability value with an alpha of 5%. If the probability value is greater than alpha, then H_0 is accepted and vice versa. The results that researcher conduct of chow test and Hausman test calculation using Eviews 9 are concluded as follow:

Table 4.4 Chow Test

Effects Test	Statistic	d.f.	Prob.
Cross-section F	436.823713	(26,105)	0.0000
Cross-section Chi-square	633.537245	26	0.0000

Source: Secondary data processed with Eviews 9, 2021

The results of the Chow Test above shows us that the Chi-square statistic is 633.537245 with a probability of 0.0000 which is significant in alpha 5%, which means that H_0 is rejected and H_1 is accepted then the most appropriate model to use is Fixed Effect Model (FEM). After that the researcher also should has Hausman test that will be shown in table below:

Table 4.5 Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	119.995792	3	0.0000

Source: Secondary data processed with Eviews 9, 2021

It can be seen from the Hausman test results above the Chi-square statistic is 119.005792 with a probability of 0.0000 which is significant in the alpha of 5%, which means that H0 is rejected and accepts H1, then the most appropriate model to use is the Fixed Effect Models (FEM).

4.2.2.2. Fixed Effect Result

Fixed Effect Model (FEM) assumed there are different effects between individuals (Regencies / municipality) of which intercept is constant-coefficient and not constant.

Table 4.6 FEM Estimation Result

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	3.841204	0.491692	7.812214	0.0000
Log (X1?)	0.016090	0.020094	0.800731	0.4251
X2	0.055523	0.004225	13.14202	0.0000
Log (X3?)	0.111914	0.021692	5.159307	0.0000
Cross-section fixed (dummy variables)				
R-squared			0.998561	
Adjusted R-squared			0.998164	
S.E. of regression			0.042311	
Sum squared resid			0.187975	
Log likelihood			252.3719	
F-statistic			2512.651	
Prob(F-statistic)			0.000000	

Source: Secondary data processed with Eviews 9, 2021

The data in table above shows the Constanta value is 3.84, it means the dependent variable (GRDP) value will be 3.84 percent if the independent variable is valued at zero. Then, from the value of R-squared itself is 0.998561, it means the change in the dependent variable that can be explained by the independent variable is 99.98%. The value of F-statistic in this case is 2512.651 with a prob (F-statistic) of 0.0000 which means that the independent variables simultaneously

influence the dependent variable. And then, only Government Expenditure does not have a significant influence on GRDP in West Java 2015-2019, if the t-statistic in this model if using alpha 0.05 percent.

4.2.3. Hypothesis Testing

After through some of regression which is selecting the model and getting the fixed model which one is the most appropriate model to used, then, in this part, the result of regression will be explained.

4.2.3.1. Determination Coefficient (R^2)

The coefficient of determination (R^2) is a value that shows the extent to which the dependent variable, in this case is GRDP at constant price, can be explained by the independent variables they are Government Expenditure, Human Development Index and ORGR. Based on our regression on table 4.5 the appropriate model showed coefficients determination (R^2) generated by the model is 0.998561. It means variable GRDP at constant price as dependent variable is explained by government expenditure (X1), HDI (X2), ORGR (X3) and by 99,98 % as the independent variable. Meanwhile, the remaining 0.02% is explained by other variables excluded in this research.

4.2.4. T-Test Hypothesis

1. Government Expenditure

Government expenditure variable coefficient is 0.016090 and t-statistic is 0.800731, and then probability is 0.4251, which is more than 5% or 0.05. It means that H_0 is accepted and H_1 is rejected. So according to Fixed Effect Model estimation result, Government Expenditure does not have significant effect on the GRDP at constant price or economic growth in the value of t-statistic in West java. It can be concluded that the increasing in government expenditure will not have a serious impact on GRDP at constant price.

2. Human development Index (HDI)

Human Development Index (X2) on the result table has the probability result 0.0000 means less than α 5% or 0.05 it rejects H_0 , which means has a positive significant effect on the GRDP at constant price in West Java in 2015-2019. It can be concluded that the increase in Human Development Index will increase GRDP simultaneously. The coefficient of HDI which is 0.55523 means that if HDI increase by 1%, the GRDP at constant price will increase by 0.55%.

3. Original Regional Government Revenue (ORGR)

ORGR (X3) in this case shows the value of coefficient is 0.111914 and 5.159307, and then in ORGR the probability is 0.0000 which is less than alpha 5% or 0.05. It means that it rejected H_0 and accepted H_1 . So, here we can conclude that ORGR has a positive significant effect to the GRDP at constant price in West Java in 2015-2019. Then, the conclusion is if the coefficient of ORGR is 0.111914 it means that if ORGR increase by 1%, the GRDP at constant price will be 0.11 percent.

4.2.5. F-Statistic test

F test is used to evaluate to determine whether the independent variables simultaneously affect the dependent variable or not. Based on calculations that researcher conducted using Eviews 9, the F-Statistic is 2512.651 and it shows the probability value of 0.00000 which is less than 5%, it means H_0 is rejected. It can be concluded that with Fixed Effect estimation, the GRDP at constant price, Government Expenditure, and ORGR simultaneously affect the dependent variable which is GRDP at constant price.

4.3. Discussion

1. Economic Analysis of Government Expenditure (GE) on GRDP at constant price in West Java.

In this study, the results that have been found show that the influence of Government Expenditure on GRDP at constant prices has a positive but insignificant effect, where Government Expenditure through the fixed effect model method produces a coefficient of 0.016090 and with the probability of 0.4251 which is greater than 10% or 0.1. It means that H₀ is accepted and H₁ is rejected, it means that the increasing in government expenditure will not have a serious impact on GRDP at constant price. This data indicates that Government Expenditure has an insignificant positive effect on GRDP at constant prices.

Therefore, the research conducted by researchers, in this case, is not in line with previous research conducted by Ervina & Jaya (2018) and Sari, et al (2016), who found that a high amount of government spending will increase the amount of GRDP at constant prices in an area. The insignificant influence of Government Expenditure on economic growth in West Java shows that the government must fix the allocation of capital expenditure to allocate it more precisely.

The Government Expenditure policy, which is thirsty for proper allocation, such as in the form of purchasing goods and services, is apparently unable to increase demand for products in the economy of the provinces in West Java, and for this study based on the information from BPS of West Java Province that the biggest expenditure for West Java Province is grant funds, where the government is only give free of charge without any education to the public, usually in a form cash of money. The Government Expenditure insignificant also can happened because the government cannot control its expenditure or is inefficient because government expenditure can be used in several other categories according to the needs of the local government, but in this study, the researcher uses government expenditure as a whole, it can be concluded that the bottom line is if government expenditure that expends by the government is greater than the needs from that area. And this condition not in line with hypothesis of researcher, which one should be have significant impact to the GRDP at constant price.

2. Economic Analysis of Human Development Index (HDI) on GRDP at constant price in West Java.

Based on the results of statistical tests, it explain that the increase in Human Development Index has a significant positive effect on GRDP at constant price or economic growth in West Java, in which the probability value of the t-statistic is 0.0000 or less than 10%. Then, Human Development Index in this case is shown by the coefficient of 0.055523, it means that each additional 1 percent of HDI will increase Economic Growth or GRDP at constant price by 0.05%. it means this variable HDI has strong impact on GRDP at constant price because the presence of HDI will attract increasing in quality of life such as the education, mental and physical health, and quality will attract performance, skills, and knowledge of workers in planning and pushing to achieve targets with efficiency to push Economic Growth in West Java. This certainly attracts GRDP at constant price because one of the production factors or input in producing an item is human resources, and to get the target, good quality and thinker in GRDP is needed. Indicators to determine how well the quality, performance, skills, and knowledge of human resources are based on HDI calculations, HDI is influential in increasing GRDP at constant price in a province.

The result of this research is in line with research as has been found by Dewi & Sutrisna (2014), where there is a strong influence between HDI on economic growth, while in his research suggests that government must pay special attention to human development policies. Human resource is one of the most supportive factors of production, for example if the health quality of human resources good enough and the human it will affected to the production which is will increase, and also can be seen in terms of the quality of education it will increase the production, because if the quality of education is higher will be higher also the ability to produce more the goods or services and education will create an educated and trained quality workforce, and income and will increase their standard of living which will affect local or national income. With a high HDI level, it is believed that all kinds of development production process will run maximally and effectively.

This case will have a positive impact on improving the quality of human resources in West Java Province. The higher the quality of human resources, the higher also the productivity, and it will also maximize the natural resources available in the area to be processed to increase the value of production, because if the quality of education higher it will increase the quality of workers to

utilize existing natural resources with efficiently. Consequently, it can expand the employment rate and will increase economic growth or attract GRDP at constant price value. This condition is under the hypothesis saying that there is a significant positive effect in increasing GRDP at constant price in West Java.

3. Economic Analysis of ORGR on GRDP at constant price in West Java.

With an ORGR t-statistic probability value of 0.0000 it indicates a significant relationship between ORGR and GRDP at constant price because the probability value of the t-statistic is 0.0000 or less than 10%, coupled with a positive t- statistic (5.159307) which indicates that the relationship is positive. An increase in the Original Regional Government Revenue will have a positive direct effect on GRDP at constant price or Economic Growth and with the coefficient of ORGR in this case is 0.111914, it means that each 1 percent increasing of ORGR will increase GRDP at constant price by 0.11.

As researched by Ervina & Jaya (2018), found the results of the study that ORGR is very influential on the growth of regional Gross Regional Domestic Product (GRDP) at constant price. Original Regional Government Revenue is the factor that support the development of economic in region, ORGR is very important in the process of economic growth itself because over time, the ORGR can fill the shortage of budget to support economic growth and also the needs of the community, so that is why ORGR has positive and significant impact toward GRDP at constant price in West Java, and that conditions are in line with the hypothesis of researcher.

CHAPTER V

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

From the results of the research conducted, several conclusions can be drawn as follows:

1. In this study, the data of variable for every regencies / municipalities in West Java for 2019 have spatial effect and the best Regression form is SAR, means every regencies / municipalities have corporate or influence each other to increasing the factors of GRDP at constant price.
2. The best model or the appropriate panel data regression model to be used is fixed effect model.
3. In this study, Government Expenditure in period 2015-2019 has a positive and insignificant effect on the GRDP variable at constant price. This is different from several previous studies that have shown positive results. This shows that the hypothesis used is not proven.
4. Human Development Index (HDI) has positive and significant impact in influencing GRDP at constant price, then an increase in Human Development Index (HDI) would increase Indonesia's GRDP at constant price in period 2015-2019.
5. Original Regional Government Revenue (ORGR) has the strongest effect on GRDP at constant price in West Java, as shown by the ORGR variable having the highest coefficient value compared to other variables in this research. And ORGR had positive and significant impact in West Java's GRDP at constant price, means an increase in ORGR would have an effect on the increasing of GRDP at constant price in West Java period 2015-2019.

5.2. Recommendations

1. In this study, the data of variable for every regencies/municipality in West Java for 2019 have a spatial effect and the best Regression form is SAR and the figure for each factor shows us almost the same color in every area, it means with the existence of autocorrelation or spatial dependency itself, it will eliminate inequality in the increase of each factor. So, it means to make GRDP at constant price effectively need the existence of cooperation from one region to another, wherewith the cooperation there will be rapid and even GRDP at a constant price, where the smallest area can be helped by near area who has good potential in increasing GRDP at constant prices, such as Sumedang will help by Bandung who has a good facility in increasing HDI, so, that is why government for every region should increasing the corporation between one to another region.
2. Government Expenditure is a variable that has no major influence on GRDP at constant price in West Java. This is because the government must fix the allocation of capital expenditure to allocate it more precisely. The Government Expenditure policy, which is inaccurate allocation, such as in the form of purchasing goods and services in West Java, and for this study based on the information from BPS of West Java Province that the biggest expenditure for West Java Province is grant funds, where the government is only give free of charge without any education to the public, usually in a form cash of money. Based on the literature that researcher used the government expenditure in another place have positive and significant impact to GRDP because with government expenditure it can increase aggregate production. therefore, the West Java government must be able to allocate it as effectively and efficiently in allocate the finance.
3. The Human Development Index is one of the variables that have a significant and positive effect on GRDP at constant price in West Java. This means that HDI, which is a measurement of the quality of human capital, is a key factor that must be focused on by the government of West Java. HDI also is the driving force behind all development activities, such as HDI as a driving force for regional income. Human resource labor is the

force behind all development activities for the economic sector, for example, if human resources or workers quality is good, it will have an impact on economic development. Therefore, the government must start to focus on the human resource sector because HDI will attract increasing in quality of life such as education, mental and physical health, and that quality will attract performance, skills, and knowledge of workers in planning and pushing to achieve targets with efficiency to push GRDP at constant price in West Java.

4. Original Regional Government Revenue is a variable that has a significant positive effect on the GRDP at constant price. This means that Original Regional Government Revenue is an important aspect that the government must continue and improve because with the increase in Original Regional Government Revenue, it will increase the costs for economic development and does not depend on costs from the government or private sector. Original regional income is very important in the process of economic growth itself because over time, the original local income can fill the shortage of budget to support economic growth and also the needs of the community, so that is why ORGR has positive and significant impact to GRDP at constant price in West Java.

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APPENDICES

APPENDIX 1. Spatial Data

kabupaten / kota	PDRB (in million IDR)	HDI (%)	GE (in thousand IDR)	ORthGR (in thousand IDR)
Bogor	156868.30	70.65	7771218179.78	2451753202.00
Sukabumi	46703.62	66.87	4081820368.39	556744295.00
Cianjur	32039.59	65.38	3935268663.06	602556114.00
Bandung	82373.18	72.41	5782093595.00	849284377.00
Garut	39092.49	66.22	5011267218.28	472939892.13
Tasikmalaya	24586.67	65.64	3794194776.00	257296742.99
Ciamis	22001.24	70.39	2692635013.10	238094915.00
Kuningan	16864.15	69.12	2650613856.19	331071737.00
Cirebon	33668.10	68.69	4023378396.00	597481096.00
Majalengka	21550.25	67.52	3013041916.15	473449999.99
Sumedang	23932.73	71.46	3022621821.16	530215807.00
Indramayu	60153.18	66.97	3751429488.00	439593641.00
Subang	28616.82	68.69	3053697757.86	473715728.00
Purwakarta	46281.71	70.67	2280992249.90	464858009.47
Karawang	163732.48	70.86	4673946380.45	1414407023.00
Bekasi	251492.79	73.99	5547599658.39	2183381401.00
Bandung Barat	31398.35	68.27	2941016481.85	581055644.71
Pangandaran	7742.87	68.21	1461491519.44	144933724.00
Kota Bogor	32253.51	76.23	2528500802.94	944394651.00
Kota Sukabumi	8661.02	74.31	1308065326.00	376146456.96
Kota Bandung	197642.89	81.62	6312147268.36	3055014614.00
Kota Cirebon	16811.69	74.92	1587249359.06	478150076.45
Kota Bekasi	69408.57	81.59	5189666404.78	3273595338.22
Kota Depok	49076.63	80.82	3213217901.08	1114036194.64

Kota Cimahi	22856.04	78.11	1501760938.25	444244273.04
Kota Tasikmalaya	15746.12	72.84	1920407378.89	298057366.37
Kota Banjar	3221.37	71.75	853667993.28	131881763.35

APPENDIX 2. Panel Data

Data of GRDP, Government Expenditure, HDI, ORGR per Regencies / Municipalities in West Java 2015-2019.

Regencies/ Municipalities	Year	GRDP at constant price (in million IDR)	GE (in thousand IDR)	HDI (%)	ORGR (in thousand IDR)
Bogor	2015	124486.98	4654301273.47	67.77	1904144073.93
Bogor	2016	131760.37	6465300553.88	68.32	2299862658.79
Bogor	2017	139561.45	6875742319.99	63.13	3041872447.91
Bogor	2018	148204.83	7304965986.85	69.69	2794723739.66
Bogor	2019	156868.30	7771218179.78	70.65	2451753202.00
Sukabumi	2015	37265.25	3204585073.04	64.44	509484993.71
Sukabumi	2016	39447.01	3388582158.30	65.13	548936312.98
Sukabumi	2017	41692.62	3388528157.85	65.49	799499855.49
Sukabumi	2018	44107.87	3832177045.00	66.05	565369087.00
Sukabumi	2019	46703.62	4081820368.39	66.87	556744295.00
Cianjur	2015	25352.13	3050296846.40	62.42	454627908.74
Cianjur	2016	26981.37	3379491095.96	62.92	455156876.76
Cianjur	2017	28524.43	3664119182.17	63.7	535232527.17
Cianjur	2018	30302.88	4000993750.00	64.62	569844590.54
Cianjur	2019	32039.59	3935268663.06	65.38	602556114.00
Bandung	2015	64701.52	5936142107.32	70.05	784216215.22
Bandung	2016	68804.85	4640192716.00	70.69	856514244.00
Bandung	2017	73039.45	4911935676.00	71.02	858875587.18
Bandung	2018	77603.12	5114895616.00	71.75	927543321.00
Bandung	2019	82373.18	5782093595.00	72.41	849284377.00
Garut	2015	31919.06	3547069624.59	63.21	419201758.62
Garut	2016	33803.54	3672855440.13	63.64	400395595.89
Garut	2017	35464.91	4369933641.00	64.52	688910453.27
Garut	2018	37224.12	4257224285.90	65.42	421299024.44

Garut	2019	39092.49	5011267218.28	66.22	472939892.13
Tasikmalaya	2015	19662.49	2736269299.00	63.17	186487258.00
Tasikmalaya	2016	20824.80	3340087940.00	63.57	216227322.00
Tasikmalaya	2017	22063.29	3410282765.20	64.14	406334651.92
Tasikmalaya	2018	23319.64	3463278195.52	65	248420386.33
Tasikmalaya	2019	24586.67	3794194776.00	65.64	257296742.99
Ciamis	2015	17779.91	2319078153.29	68.02	180304950.79
Ciamis	2016	18844.97	2460806672.00	68.45	204759436.00
Ciamis	2017	19826.75	2526057464.00	68.87	222938975.24
Ciamis	2018	20904.75	2602915468.68	69.63	234610670.22
Ciamis	2019	22001.24	2692635013.10	70.39	238094915.00
Kuningan	2015	13175.67	2353037105.00	67.19	229170388.00
Kuningan	2016	13977.77	2629794856.00	67.51	262212854.00
Kuningan	2017	14866.62	2629543132.00	67.78	346954340.47
Kuningan	2018	15821.95	2508505985.50	68.55	303218053.00
Kuningan	2019	16864.15	2650613856.19	69.12	331071737.00
Cirebon	2015	27596.25	2987077821.46	67.19	478690101.57
Cirebon	2016	29149.31	3419428049.26	67.51	529050285.48
Cirebon	2017	30623.31	3598094924.23	67.78	557754725.36
Cirebon	2018	32160.19	3681465057.40	68.55	584810843.48
Cirebon	2019	33668.10	4023378396.00	69.12	597481096.00
Majalengka	2015	16590.93	2388970815.00	64.75	283735793.00
Majalengka	2016	17591.79	2633576715.22	65.25	331527582.02
Majalengka	2017	18789.49	2638825945.00	65.92	513783824.02
Majalengka	2018	19931.78	2777362357.00	66.72	449588421.00
Majalengka	2019	21550.25	3013041916.15	67.52	473449999.99
Sumedang	2015	18950.36	2352051738.50	69.29	327369262.02
Sumedang	2016	20029.72	2510899351.39	69.45	345804641.95
Sumedang	2017	21276.70	2622529787.51	70.07	553257332.80
Sumedang	2018	22517.16	2689967609.33	70.99	432196794.86
Sumedang	2019	23932.73	3022621821.16	71.46	530215807.00
Indramayu	2015	56663.30	2872004931.54	64.36	346871269.29
Indramayu	2016	56706.18	3218207580.03	64.78	351177413.77
Indramayu	2017	57515.01	3304474156.18	65.58	577594379.05
Indramayu	2018	58238.91	3250490346.42	66.36	419892815.09
Indramayu	2019	60153.18	3751429488.00	66.97	439593641.00
Subang	2015	23696.76	2303491332.56	66.52	316141442.55
Subang	2016	24976.92	2629608860.19	67.14	360621618.14
Subang	2017	26250.85	1954062811.46	67.73	234641213.11

Subang	2018	27412.66	2759422181.70	68.3	400755045.00
Subang	2019	28616.82	3053697757.86	68.69	473715728.00
Purwakarta	2015	37899.02	1803281187.00	67.84	331073426.00
Purwakarta	2016	40169.90	1794157784.62	68.56	341116103.33
Purwakarta	2017	42229.76	2023895830.00	69.28	472480560.98
Purwakarta	2018	44340.41	1920109639.26	69.98	368851052.93
Purwakarta	2019	46281.71	2280992249.90	70.67	464858009.47
Karawang	2015	132453.57	3614140806.00	67.66	1056535773.00
Karawang	2016	141125.54	3716163710.00	68.19	1003354916.00
Karawang	2017	149530.94	4146864585.00	69.17	1398309963.12
Karawang	2018	159186.82	4315267288.37	69.89	1169569261.04
Karawang	2019	163732.48	4673946380.45	70.86	1414407023.00
Bekasi	2015	205950.39	4217381260.64	71.19	1843836910.29
Bekasi	2016	215928.36	4899021295.42	71.83	1917814673.70
Bekasi	2017	228178.92	4864112354.12	72.63	2311805849.24
Bekasi	2018	242023.29	5057701595.99	73.49	2094369341.85
Bekasi	2019	251492.79	5547599658.39	73.99	2183381401.00
Bandung Barat	2015	25486.17	2055712975.67	65.23	314621268.89
Bandung Barat	2016	26925.88	2313023595.80	65.81	376220675.01
Bandung Barat	2017	28330.02	2581919094.00	66.63	609916387.81
Bandung Barat	2018	29888.89	2643896207.06	67.46	422495953.55
Bandung Barat	2019	31398.35	2941016481.85	68.27	581055644.71
Pangandaran	2015	6271.10	1029958434.22	65.62	180252335.43
Pangandaran	2016	6602.73	979407058.41	65.79	66385348.15
Pangandaran	2017	6939.64	1307759932.65	66.6	118011275.04
Pangandaran	2018	7315.30	1161646578.14	67.44	111217120.15
Pangandaran	2019	7742.87	1461491519.44	68.21	144933724.00
Kota bogor	2015	25298.60	1862982871.23	73.65	627597050.14
Kota bogor	2016	27002.25	2115296888.27	74.5	783873587.22
Kota bogor	2017	28654.97	2245590002.89	75.16	977803906.99
Kota bogor	2018	30413.57	2406586936.84	75.66	912197971.29
Kota bogor	2019	32253.51	2528500802.94	76.23	944394651.00
Kota sukabumi	2015	6985.33	1057842417.76	71.84	276845601.84
Kota sukabumi	2016	7379.48	1155744384.39	72.33	295257670.78
Kota sukabumi	2017	7780.42	1160219417.02	73.03	359024019.51
Kota sukabumi	2018	8208.78	1185870308.78	73.55	362342291.00
Kota sukabumi	2019	8661.02	1308065326.00	74.31	376146456.96
Kota Bandung	2015	149580.38	5201938207.17	79.67	1859694643.51
Kota Bandung	2016	161227.83	48776473450.00	80.13	2152755704.00

Kota Bandung	2017	172851.96	5544771974.20	80.31	2578457420.89
Kota Bandung	2018	185084.18	6114449088.00	81.06	2571591784.00
Kota Bandung	2019	197642.89	6312147268.36	81.62	3055014614.00
Kota Cirebon	2015	13269.24	1354729318.78	73.34	319893842.21
Kota Cirebon	2016	14077.05	1463440701.76	73.7	363115250.98
Kota Cirebon	2017	14893.14	1409419587.00	74	443929979.59
Kota Cirebon	2018	15817.43	1425813098.83	74.35	440169142.56
Kota Cirebon	2019	16811.69	1587249359.06	74.92	478150076.45
Kota Bekasi	2015	55456.07	3882237460.47	79.63	1497596390.24
Kota Bekasi	2016	58831.08	5035435715.58	79.95	1686600486.52
Kota Bekasi	2017	62202.01	4982355341.00	80.3	1757641804.43
Kota Bekasi	2018	65844.24	5001748526.41	81.04	2001150459.49
Kota Bekasi	2019	69408.57	5189666404.78	81.59	3273595338.22
Kota Depok	2015	37529.48	2178595019.63	79.11	818204601.27
Kota Depok	2016	40263.23	2755255603.57	79.6	922533784.27
Kota Depok	2017	42939.38	2273704101.81	79.83	1210748605.56
Kota Depok	2018	45870.49	2765083907.51	80.29	1059700282.00
Kota Depok	2019	49076.63	3213217901.08	80.82	1114036194.64
Kota Cimahi	2015	17876.44	1074961450.00	76.42	268816074.00
Kota Cimahi	2016	18882.16	1358743659.00	76.69	286049614.00
Kota Cimahi	2017	19907.13	1339382098.00	76.95	383911991.30
Kota Cimahi	2018	21038.45	1489072968.61	77.56	335016530.26
Kota Cimahi	2019	22856.04	1501760938.25	78.11	444244273.04
Kota Tasikmalaya	2015	12370.62	1410074071.74	69.99	117968218.39
Kota Tasikmalaya	2016	13225.25	1765510442.55	70.58	254532699.88
Kota Tasikmalaya	2017	14027.80	1864800183.32	71.51	354840203.84
Kota Tasikmalaya	2018	14861.53	1914915379.89	72.03	280014887.93
Kota Tasikmalaya	2019	15746.12	1920407378.89	72.84	298057366.37
Kota Banjar	2015	2624.24	724391370.22	69.31	119829130.61
Kota Banjar	2016	2772.84	877982552.17	70.09	116321781.01
Kota Banjar	2017	2918.87	787655763.34	70.79	125454618.14
Kota Banjar	2018	3066.88	803917301.98	71.25	116167055.64
Kota Banjar	2019	3221.37	853667993.28	71.75	131881763.35

Common Effect Model

APPENDIX 3. Common Effect Model (CEM)

Dependent Variable: LOG(Y?)
 Method: Pooled Least Squares
 Date: 03/29/21 Time: 10:31
 Sample: 2015 2019
 Included observations: 5
 Cross-sections included: 27
 Total pool (balanced) observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOG(X1?)	-0.394014	0.080325	-4.905233	0.0000
X2?	-0.072308	0.010653	-6.787353	0.0000
LOG(X3?)	1.196136	0.101130	11.82773	0.0000
R-squared	0.703796	Mean dependent var	10.34109	
Adjusted R-squared	0.699308	S.D. dependent var	0.987372	
S.E. of regression	0.541429	Akaike info criterion	1.632762	
Sum squared resid	38.69521	Schwarz criterion	1.697324	
Log likelihood	-107.2115	Hannan-Quinn criter.	1.658999	
Durbin-Watson stat	0.355285			

APPENDIX 4. Fixed Effect Model (FEM)

Dependent Variable: LOG(Y?)
 Method: Pooled Least Squares
 Date: 03/29/21 Time: 10:32
 Sample: 2015 2019
 Included observations: 5
 Cross-sections included: 27
 Total pool (balanced) observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.841204	0.491692	7.812214	0.0000
LOG(X1?)	0.016090	0.020094	0.800731	0.4251
X2?	0.055523	0.004225	13.14202	0.0000
LOG(X3?)	0.111914	0.021692	5.159307	0.0000
Fixed Effects (Cross)				
_A--C	1.451543			
_B--C	0.541495			
_C--C	0.275081			
_D--C	0.743467			
_E--C	0.455557			
_F--C	0.069801			
_G--C	-0.277575			
_H--C	-0.540039			
_I--C	0.103543			
_J--C	-0.231400			

_K--C	-0.350069
_L--C	0.906885
_M--C	0.022926
_N--C	0.401843
_O--C	1.533893
_P--C	1.704671
_Q--C	0.131073
_R--C	-1.115118
_S--C	-0.391586
_T--C	-1.467295
_U--C	0.957645
_V--C	-0.900151
_W--C	-0.026904
_X--C	-0.281316
_Y--C	-0.755106
_Z--C	-0.763034
_AA--C	-2.199829

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.998561	Mean dependent var	10.34109
Adjusted R-squared	0.998164	S.D. dependent var	0.987372
S.E. of regression	0.042311	Akaike info criterion	-3.294399
Sum squared resid	0.187975	Schwarz criterion	-2.648782
Log likelihood	252.3719	Hannan-Quinn criter.	-3.032038
F-statistic	2512.651	Durbin-Watson stat	2.053112
Prob(F-statistic)	0.000000		

Random Effect Model

Dependent Variable: LOG(Y?)
Method: Pooled EGLS (Cross-section random effects)
Date: 03/29/21 Time: 10:32
Sample: 2015 2019
Included observations: 5
Cross-sections included: 27
Total pool (balanced) observations: 135
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.884428	0.487312	5.919056	0.0000
LOG(X1?)	0.042195	0.019892	2.121244	0.0358
X2?	0.048680	0.004085	11.91760	0.0000
LOG(X3?)	0.155310	0.021297	7.292442	0.0000
Random Effects				
(Cross)				
_A--C	1.341282			
_B--C	0.495472			
_C--C	0.222680			
_D--C	0.708836			
_E--C	0.408743			
_F--C	0.054344			
_G--C	-0.245195			

_H--C	-0.527590		
_I--C	0.078599		
_J--C	-0.248454		
_K--C	-0.340389		
_L--C	0.876938		
_M--C	0.024293		
_N--C	0.414507		
_O--C	1.475442		
_P--C	1.641113		
_Q--C	0.114777		
_R--C	-1.050749		
_S--C	-0.373807		
_T--C	-1.403829		
_U--C	0.928002		
_V--C	-0.845081		
_W--C	-0.029606		
_X--C	-0.242944		
_Y--C	-0.669600		
_Z--C	-0.710062		
_AA--C	-2.097721		
Effects Specification			
		S.D.	Rho
Cross-section random		0.377038	0.9876
Idiosyncratic random		0.042311	0.0124
Weighted Statistics			
R-squared	0.620318	Mean dependent var	0.518329
Adjusted R-squared	0.611623	S.D. dependent var	0.093415
S.E. of regression	0.058216	Sum squared resid	0.443972
F-statistic	71.34196	Durbin-Watson stat	0.975996
Prob(F-statistic)	0.000000		
Unweighted Statistics			
R-squared	0.255425	Mean dependent var	10.34109
Sum squared resid	97.26917	Durbin-Watson stat	0.004455

APPENDIX 5. Chow test

Dependent Variable: LOG(Y?)
Method: Pooled Least Squares
Date: 03/29/21 Time: 10:43
Sample: 2015 2019
Included observations: 5
Cross-sections included: 27
Total pool (balanced) observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.841204	0.491692	7.812214	0.0000
LOG(X1?)	0.016090	0.020094	0.800731	0.4251
X2?	0.055523	0.004225	13.14202	0.0000
LOG(X3?)	0.111914	0.021692	5.159307	0.0000
Fixed Effects (Cross)				
_A--C	1.451543			

_B--C	0.541495
_C--C	0.275081
_D--C	0.743467
_E--C	0.455557
_F--C	0.069801
_G--C	-0.277575
_H--C	-0.540039
_I--C	0.103543
_J--C	-0.231400
_K--C	-0.350069
_L--C	0.906885
_M--C	0.022926
_N--C	0.401843
_O--C	1.533893
_P--C	1.704671
_Q--C	0.131073
_R--C	-1.115118
_S--C	-0.391586
_T--C	-1.467295
_U--C	0.957645
_V--C	-0.900151
_W--C	-0.026904
_X--C	-0.281316
_Y--C	-0.755106
_Z--C	-0.763034
_AA--C	-2.199829

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.998561	Mean dependent var	10.34109
Adjusted R-squared	0.998164	S.D. dependent var	0.987372
S.E. of regression	0.042311	Akaike info criterion	-3.294399
Sum squared resid	0.187975	Schwarz criterion	-2.648782
Log likelihood	252.3719	Hannan-Quinn criter.	-3.032038
F-statistic	2512.651	Durbin-Watson stat	2.053112
Prob(F-statistic)	0.000000		

APPENDIX 6. Hausman Test

Correlated Random Effects - Hausman Test

Pool: POOL

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	119.995792	3	0.0000

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LOG(X1?)	0.016090	0.042195	0.000008	0.0000
X2?	0.055523	0.048680	0.000001	0.0000

LOG(X3?)	0.111914	0.155310	0.000017	0.0000
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Cross-section random effects test equation:

Dependent Variable: LOG(Y?)

Method: Panel Least Squares

Date: 03/29/21 Time: 10:41

Sample: 2015 2019

Included observations: 5

Cross-sections included: 27

Total pool (balanced) observations: 135

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.841204	0.491692	7.812214	0.0000
LOG(X1?)	0.016090	0.020094	0.800731	0.4251
X2?	0.055523	0.004225	13.14202	0.0000
LOG(X3?)	0.111914	0.021692	5.159307	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.998561	Mean dependent var	10.34109
Adjusted R-squared	0.998164	S.D. dependent var	0.987372
S.E. of regression	0.042311	Akaike info criterion	-3.294399
Sum squared resid	0.187975	Schwarz criterion	-2.648782
Log likelihood	252.3719	Hannan-Quinn criter.	-3.032038
F-statistic	2512.651	Durbin-Watson stat	2.053112
Prob(F-statistic)	0.000000		