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The Analysis of Regional Investment Model for Improving Development: The Case of Bungo District

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Abstract

This study aimed to determine the scale of local investment with incremental capital output ratio (ICOR) approach and to analyze the factors influenced private investment and their impact on economic development in Bungo District. The ICOR model was used to answer the purpose of the first research question, a multiple regression model was used to answer the purpose of the second research question, and simple regression model was used to for the purpose of the third research question. The finding showed that the average amount of investment in Bungo District for the last 5 years was Rp 0.905 trillion with an accumulated ICOR of 1.0992 and an average ICOR of 1.2360. Capital and resource expenditure factor. It was a very significant factor affected private investment in Bungo District at P <0.05. Meanwhile, local investment also had significant and positive impacts on economic development represented by PDRB. From the findings, it is suggested to the government of Bungo District to increase capital expenditure especially basic infrastructure and economy expenditure and human resource competence improvement. Besides, it is also necessary to provide incentives and promotions to potential private investors attracting interest to invest in Bungo District, Sumatra, Indonesia.

Keywords: Economic development; Incremental capital Output ratio; Investment model.

1. Introduction

High economic growth is impossible to achieve without support from investment. Investment is the driving force for economic development and employment provider for the workforce. The investment can be carried out by government, private or public. In the era of regional autonomy, the local government should be creative in inviting investors to invest in the region. Local governments should provide facilities and appeal so that the realization of regional investment can continue to increase every year. Therefore, local governments are building economic infrastructure to offer investors the opportunity to utilize the potential of natural resources and human resources that benefit for the investor. As one of the districts within in Jambi, Bungo has great potential to be developed through increasing local investment. Regional investment in Bungo is still dominated by investments made by district governments through regional expenditures and investments and by private parties financed by banks. Meanwhile, the direct public or private sector that is not financed by the banking sector has not yet been envisaged.

Therefore, it is necessary to determine the amount of real regional investment in order to assess the impact of regional investment on economic development in Bungo, Sumatra, Indonesia. Quantitatively, the economic development of a district can be said to succeed when its economic growth grows above the provincial and national economic growth. In this case, the economic growth of Bungo grew by 7.48% in 2013 (Statistic Center Board Bungo District, 2015), growing higher than the economic growth of Jambi Province in the same year as 6.70%. In fact, the investment of Bungo is about 1.13 trillion rupiahs derived from government investment and private investment financed by banks. On the other hand, the increase of local investment in Bungo has not been synergized with the absorption of local workforce, especially in reducing unemployment. Recorded in 2013, the unemployment rate reached 4.38% (Statistic Center Board Bungo District, 2015) of which the majority is educated unemployed or unemployed who have education. In order for regional investment to encourage the reduction of unemployment in Bungo, local investment should be led to productive works. This also means that an assessment of the factors influencing the increase of regional investment oriented to economic development needs to be done. Shortly, from the result of this study, it is expected to be obtained an output in the form of regional investment model in term of academic and practical with ICOR approach. Therefore, it is also necessary to formulate the factors influencing the private investment to further formulate the policy materials for increasing investment in Bungo, Sumatra, Indonesia.

2. Literature Reviews

In fact, previous studies on regional investment model for the improvement of complete economic development and using ICOR approach have not been found in Bungo. Particularly, whitin the case, there are several previous studies related to the local investment with the ICOR approach. Sastri and Aimon (2013), by using three variables; economic growth, investment, regional government expenditures, and interest rates, to find out analysis and planning

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of economic and investment growth in West Sumatera, found that consumption, investment, government spending and net exports together have a significant effect on economic growth in West Sumatra. Economic growth, interest rates and money supply have a significant effect on investment in West Sumatra. Prospects investment and economic growth in West Sumatra is increasing continuously in 2013-2017. Zaenudin (2009) studied about analysis of affecting investment factors of foreign investment in Batam by using variables of foreign investment, housing industry, and investment plan. The results showed that maintenance fee, labor and export variables significantly affected the flow of foreign investment in Batam.

Variables of rental rate and electric power did not significantly affect the flow of foreign investment in Batam. A study conducted by Sopandi and Nazmulmunir (2012) focused on the development of regional investment climate discovered that there are several factors that affect investment; political and social stability, basic infrastructure conditions, financing sector, labor market, regulation, taxation, bureaucracy, corruption, consistency, and policy guarantees. An analysis of incremental capital output ratio (ICOR) on investment in Sleman District studied by (Khasanah, 2007) suggested that domestic investors should conduct business principles such as foreign investors did, for instance in the efficiency of utilization of capital production factors and quality improvement of managerial and organizational skills of the company; and drafting regional regulations that are not resulting in high cost economy for investors, so investors feel more comfortable and secure in running their business. Finally, an analysis of incremental capital output ratio (ICOR) in North Sumatera, Indonesia, carried out by Irawan (2010) located that the total coefficient of ICOR in North Sumatra with lag0, the average coefficient of ICOR of 3.30, which means that to increase one unit of output in North Sumatra, it required investment of 3.30 units. To conclude, from the findings of those studies, the policy implications of determining the total value of the total ICOR for future estimated investment can still be developed.

3. Research Methods

This study used secondary data and observation method. Secondary data was used to analyze available data in the form of publication of related institution and first level research report. Data collection for analysis of secondary data from the publications of related institutions or first level research reports, especially in determining the scale of regional investment through the ICOR approach. For the method of observation, data collection done by observing the factors affecting the regional investment and its impact on economic development in Bungo. The results of these observations would be useful for the formulation of policies to increase investment in Bungo for the future. There were three stages of analysis of regional investment model for improving economic development; determining of regional investment with ICOR approach, determining factors affecting private investment by using multiple regression models, determining the impact of regional investment on economic development using a simple regression model.

An analysis of Local Investment Model was used to analyze the data in terms of Increasing Economic Development in Jambi. This was a quantitative analysis model. It was used to answer the research objectives; 1) ICOR (Incremental Capital Output Ratio) model was used to answer the purpose of the first research question to find out regional investment. Therefore, the assumptions used were investments invested in the year t-new that can produce additional output year t + 1. In addition, the additional output in year t + 1 was also the result of investments invested in t-1 and t-2. 2) A multiple regression equation model was used to answer the second research objective. 3) Simple regression model was used to answer the third research objective.

4. Findings and Discussion

4.1. Local Government Investment Scale

The capital expenditure in regional expenditure budget of Bungo is the total amount of local investment made by Government of Bungo District. Capital expenditure is part of total spending. Over the last 5 years, an average of 18.50% of total expenditure is capital expenditure categorized as the amount of regional investment implemented by the Government during the period 2011-2015. Further, the amount of local government investment during 2011-2015 can be observed in the following table which presented the investment development for 5 years.

Table-1. Development of local government investment and total expenditure of government in 2011-2015

No	Year	Local Government Investment (Capital Expenditure)		Total of Local Government Expenditure	
		Rp	%	Rp	%
1	2011	118.712.915.024,00	18,28	649.381.932.895,00	100,00
2	2012	103.057.185.676,00	14,19	726.098.588.898,00	100,00
3	2013	246.894.933.407,34	25,53	966.904.327.562,00	100,00
4	2014	195.187.452.817,00	18,90	1.032.862.862.685,00	100,00
5	2015	170.769.586.571,00	15,60	1.094.777.965.819,00	100,00

The data presented in the table above illustrated that the amount of local government investment (capital expenditure) tended to decline after 2013. In 2013 recorded, capital expenditure amounted to IDR. 246.89 billion. Then in 2014 it decreased to be IDR. 195.18 billion and decreased again in 2015 until capital expenditure became IDR. 170, 76 billion.

4.2. Private Investment- Banking Facility

Most investors used banking facilities to finance local investment in Bungo District. Interest rates are to decide factor in using banking facilities for investment especially for companies. In 2011-2015, an average of 23.02% of total bank loans in Bungo is distributed for investment credit. The rest is for working capital and consumption loans. For consumption credit, the allocation is quite large, which is an average of 39.59%. It means that the allocation of bank credit for Bungo Regency is mostly used for non-productive activities. More detailed description of private investment in Bungo financed by credit can be seen in the following table.

Table-2. The development of private credit in banking for working capital, investment and consumption in 2011-2015 (IDR. Millions)

No	Year	Working capital credit		Investment credit		Consumer Credit		Total	
		IDR	%	IDR	%	IDR	%	IDR	%
1	2011	957.836,00	43,11	284.405,00	12,80	979.768,00	44,09	2.222.009,00	100,00
2	2012	1.124.386,00	40,00	589.688,00	20,98	1.096.911,00	39,02	2.810.985,00	100,00
3	2013	1.083.088,00	34,54	883.097,00	28,13	1.171.011,00	37,33	3.136.196,00	100,00
4	2014	1.183.942,00	35,52	934.110,00	28,03	1.214.710,00	36,45	3.332.762,00	100,00
5	2015	1.077.960,00	35,27	768.336,00	25,14	1.210.007,00	39,59	3.056.303,00	100,00

From the data presented in the table above also illustrated that the amount of investment credit has increased until 2014 while in 2015 it decreased. In 2011, the recorded investment credit financed by banks reached IDR. 284, 41 billion and then continued to increase to IDR. 934, 11 billion in 2014. However, in 2015 it decreased to IDR. 768.34 billion.

4.3. Private Investment- Non Banking Facilities

Private investment is also financed by non-bank financing institutions such as savings and loan cooperatives, leasing companies, mortgage companies and other micro-financing businesses. Some are financed by individual funds. Furthermore, the number of private investment in the non-banking category over the last 5 years is relatively large. The development of non-banking private investment facilities can be seen in the following table.

Table-3. Development of private investment- non banking facilities in Bungo in 2011-2015 (IDR. Millions)

No	Year	Private Investment Non Banking Facility
1	2011	179.336
2	2012	270.885
3	2013	246.011
4	2014	262.529
5	2015	276.063

The data above showed that the amount of non-banking private investment was quite fluctuating. From 2011 to 2015, there was fluctuation. Clearly, in 2011 the investment amounted to IDR.179.34 billion and then increased to IDR.270.89 billion in 2012. Non-banking private investment decreased to IDR.246.01 billion in 2013 and then increased again in 2014 to IDR.262,59 billion and in 2015 it still rose to IDR. 276.06 billion.

4.4. The Magnitude of ICOR

In order to measure ICOR comprehensively, the total amount of investment is determined. Total investment is the accumulation of investments made by the Government Bungo through capital expenditures and investments by private parties financed by both banks and non-banks. The total investment of Bungo from those sources can be seen in the table below.

Table-4. Investment value of Bungo (IDR.Millons)

No	Year	Government Investment (Belanja Modal)		Private Invesment				Total of Investment	
				Banking Facility		Non- Banking Facility			
		IDR	%	IDR	%	IDR	%	IDR	%
1	2011	118.713	20,38	284.405	48,83	179.336	30,79	582.454	100,00
2	2012	103.057	10,70	589.688	61,19	270.885	28,11	963.630	100,00
3	2013	246.895	17,96	882.097	64,15	246.011	17,89	1.375.003	100,00
4	2014	195.187	14,02	934.110	67,11	262.592	18,87	1.391.889	100,00
5	2015	170.769	14,05	768.336	63,23	276.063	22,72	1.215.168	100,00
Average		166.924	15,42	691.727	60,90	246.977	23,68	905.629	100,00

The data above showed that on average for 5 years (2011-2015), government's investment has an average contribution of 15.42% of the total regional investment. For regional investments financed by banks had an average contribution of 60.90% and financed by non-banking had an average contribution of 23.68% of total regional investment. It meant that regional investment was mostly financed by banks in Bungo. The Government needs to

improve better cooperation with banks to encourage increased regional investment. To calculate the ICOR then used the formula ICOR = I / Y where ΔY = ΔPDRB the current price. The ICOR calculation results were presented in the following table.

Table-5. Magnitude of ICOR in Bungo in 2011-2015 (IDR. millions)

No	Tahun	Total Investasi (I)	ΔY (ΔPDRB Berlaku)	ICOR
1	2011	582.454	950.933,5	0,6125
2	2012	963.630	1.659.510,7	0,5807
3	2013	1.375.003	1.462.842,2	0,9399
4	2014	1.391.889	1.520.618,1	0,9153
5	2015	1.215.168	388.031,1	3,1316

The exposure of ICOR calculations contained in table above showed that the smallest ICOR was in 2012 at 0, 5807 and the largest was in 2015 of 3.1316. Smaller amount of ICOR means greater income generated by the GRDP. On the other hand, bigger amount of ICOR then the required investment is also bigger while the revenue is getting smaller. It means that the value of investment will be better if the value of ICOR is smaller. Comprehensive ICOR can also be calculated on an accumulated basis. ICOR accumulation for 2011-2015 can be calculated by using total local investments during the year (2011-2015). Added value of accumulated GRDP is calculated by calculating the increase of added value of GRDP in 2011-2015. It means that the added value can be calculated by calculating the increase of GRDP over the 5 year period. The calculation of ICOR accumulation calculation is listed in the following table.

Table-6. Magnitude of ICOR accumulation in Bungo in 2009-2013 (IDR. millions)

No	Year	Total of Investment (I)	ΔY (ΔPDRB Berlaku)	ICOR Accumulative
1	2011	582.454	7.970.596,5	1,0992
2	2012	963.630	9.630.107,2	
3	2013	1.375.003	11.092.949,4	
4	2014	1.391.889	12.613.567,5	
5	2015	1.215.168	13.001.598,6	
		∑ 4.030.580	$Y_{15} - Y_{11}$ = 5.031.002,1	

The table presented above showed that the ICOR value is accumulated at 1.0992. This meant that the investment for 5 years (2011-2015) amounted to IDR.5, 53 trillion was only able to create added value PDRB of IDR. 5, 03 trillion. It also required funds amounted to IDR.1.099 trillion to increase PDRB in Bungo amounted to IDR.1 trillion.

4.5. The Amount of Local Investment Needs

To calculate the needs of the government in Bungo in 2014-2016, it is used ICOR comprehensive 2013 (ICOR = 1.81) and economic growth projection contained in RPJMD in Bungo in 2012-2016. In RPJMD of Bungo is projected economic growth in 2014-2016 on each of 7.50% in 2014, as 7.75% in 2015 and as 8.00% in 2016. While the value of GDP in 2013 is used as the basis calculation to calculate PDRB value in 2014-2016. Description of the calculation of local investment using ICOR assumptions and economic growth is listed in the following table:

Table-7. The amount of investment requirement in Bungo in2017-2021 (IDR. millions)

No	Year	Average of ICOR in 2011-2015	Economic Growth Projection	Projection ofΔY (ΔPDRB Harga Berlaku)	Local Investment Needs (*I*)
1	2017	1,2364	6,37	880.958,3	1.089.216,84
2	2018	1,2364	6,39	940.017,5	1.162.237,64
3	2019	1,2364	6,41	1.003.214,7	1.240.374,66
4	2020	1,2364	6,43	1.070.851,6	1.324.000,92
5	2021	1,2364	6,50	1.152.114,8	1.424.474,74

In accordance with the target of economic growth contained RPJMD in Bungo in 2017-2021 then it takes local investment of IDR.1.089 trillion with 6.37% economic growth in 2017. In 2018, it required an investment area of IDR.1, 162 trillion to achieve economic growth of 6.39 %. In 2019, it required local investment of IDR.1.240 trillion to support economic growth achievement of 6.41%. While in 2020, it required an investment of IDR. 1.324 trillion to meet the economic growth target of 6.43% and in 2021 it required an investment area of IDR.1.424 trillion in order to achieve economic growth target of 6.50%. Therefore, the amount of local investment needs is allocated to 3 categories of government investment, private investment banking facilities and private non-banking investment then the amount of investment needs of the region can also allocated by that category. In allocating the above investment

funds, the percentage allocation is allocated for three categories of investment in Bungo during 2011-2015. During the year of 2011-2015, it is obtained the percentage of investment allocation of these three investment categories. The allocation of local government investment amounted to 15.42%, which was carried out by private sector with banking facilities 60.90% and private sector with non-banking facilities 23.68%. More detailed description of the results of the calculations is listed in the following table.

Table-8. The Amount of government and private investment needs in Bungo in 2017-2021 (IDR. Millions)

No	Year	Total needs of Local Investment	Investment Needs		
			Government Investment (Capital Expenditure)	Private Investment Banking Facility	Private Investment Non-Banking Facility
1	2017	1.089.216,84	167.957,24	663.333,05	257.926,55
2	2018	1.162.237,64	179.217,04	707.802,72	275.217,88
3	2019	1.240.374,66	191.265,77	755.388,17	293.720,72
4	2020	1.324.000,92	204.160,94	806.316,56	313.523,42
5	2021	1.424.474,74	219.654,00	867.505,12	337.315,62

The table presented above showed that the government of Bungo needs to increase capital expenditure to IDR.167.56 billion in 2017 through regional expenditure budget. In 2018, it required capital expenditure amounting to IDR.179, 22 billion and in 2019 it takes another capital expenditure of IDR.191, 27 billion to increase investment in Bungo. Whereas in 2020 it required capital expenditure of Rp 204.16 billion and in 2021 it requires capital expenditure of IDR. 219.65 billion. For banking itself, it is necessary to increase investment credit in 2017 amounting to IDR. 663.33 billion. Then in 2018, the investment banking credit should be IDR.707,80 billion and in 2019 the investment banking credit should be IDR.755,39 billion. While in 2020 and 2021, banks should increase credit to IDR. 806.32 billion and IDR. 867.51 billion. Non-banking facility investment also needs to be encouraged so that its investment value in 2017 has become IDR. 257.93 billion, in 2018 the value of non-banking private investment needs to reach IDR.275.22 billion, and in 2019 it also required investment by non-investors banking facilities amounting to IDR.293, 72 billion to encourage the achievement of regional economic growth. Furthermore, in 2020 and 2021, non-banking investment is also required to build economy of IDR. 313.52 billion and IDR. 337.32 billion.

4.6. Analysis of Factors Affecting Private Investment

To analyze the factors affecting private investment in Bungo, multiple regression analysis models were used. In the analysis model, there were three things determined: investment credit interest rate, model spending by the government of Bungo, and human resources owned by the government of Bungo as the factors affecting the amount of private investment in Bungo. The results of multiple regression calculations with the help of processed computer programs produced the following regression equation:

INVs = - 695,073,589 - 688,517,167S SBK + 6,776 BM + 26,704 SDM + f
Prob. T sig : (0.075) (0.035) (0.027)
R Square : 0.961
Prob. F sig : 0.058

Overall, investment credit rates (ICR), capital expenditures (CE), and human resources (HR) have the significant effect on private investment in Bungo at P = 0.058 and R2 = 0.961. This means that all three factors (ICR, CE and HR) should be considered in an effort to increase private investment in Bungo because those three factors contributed 96.10% to private investment.

While partially, there were 2 factors that significantly affect the amount of private investment in Bungo. Both factors were significant capital expenditure (CE) at P = 0.035 and human resources (HR) was also very significant at P = 0.027. Especially for the interest rate of investment credit (ICR) significant at P = 0.075. It meant that the priority policy of increasing private investment in Bungo should prioritize capital expenditure (CE) and human resources (HR).

From the results of the partial test can also be interpreted that the government of Bungo should continue to increase its capital expenditure, especially capital expenditure for basic infrastructure and economic development. In addition, human resources should also be prepared by private investors. Human resources needed is a workforce having competence to work or human resources having the skills and quality in accordance with the business field of interest of private investors in Bungo.

To prepare competent human resources, education should be reoriented from academic-oriented education to competency-oriented education. Besides, it is also necessary to do educational reconstruction which is more dominated by technical education according to investor requirement so that the composition of technical education (Group of Science and Technology), it takes 70% of allocation and non-technical education (Group of Social Sciences) as 30%. Increasing the competence of prospective workers will be more meaningful if processed through polytechnic or vocational education techniques equipped with educational infrastructure, education personnel, and technical education professionalism. Going forward, the government should direct such education through reorientation and restructuring of competency-based education.

4.7. Analysis of Regional Investment Effect on Economic Development

In analyzing the impact of regional investment on improving economic development in Bungo, simple regression analysis was used. GRDP (Gross Regional Domestic Product) can represent value of economic development result. Technically econometric, it will be assessed the effect of regional investment on GDP in Bungo. By using SPSS computer program then it obtained a simple regression equation as follows:

GRDP = 5,675E6 + 4,832 INVD + e
Prob-t : (0,065)
R-Square : 0.614

The result of the simple regression calculation above showed that the increase of regional investment had a significant effect on the increase of GRDP at P = 0.065 and R2 = 0.614. GRDP represented economic development. It also meant that the increase of regional investment gave a positive effect for the improvement of regional economic development, especially in Bungo with a contribution amount of 61.40%.

To encourage faster economic development in Bungo, it is also necessary to encourage the growth of regional investment in Bungo through capital expenditure as well as by private parties through companies and individuals. The government of Bungo also needs to increase capital expenditure through direct expenditure because it affects the economic development in Bungo. Then the government also needs to provide facilities and incentives to private parties so they can increase their investment. The capital expenditure made by the government of Bungo is not only as a form of local investment but also as a factor driving and attracting the private sector to invest. For this reason, the government should use capital expenditure towards the development of economic infrastructure and area to become a factor of private party to carry out investment in Bungo, Sumatra, Indonesia.

5. Conclusions

From the exposure of research results along with the discussion there are three conclusions such; 1) through ICOR approach, the investment value of Bungo for the last 5 years (2011-2015), on average Rp 902.629 million or Rp0.905 trillion with ICOR accumulation of 1.0992 and ICOR average of 1.2360 during 5 years. 2) Capital Expenditure and Human Resources significantly affect the amount of private investment in Bungo at P <0.05. Meanwhile, the Interest Rate of Credit also affects private investment at P <0.1. The contribution of these three factors to the amount of investment in Bungo is very significant that is equal to 96.10%. 3) Regional investment in Bungo had a positive and significant effect on economic development as represented by the value of GRDP at current prices at P = 0.065. Increased regional investment has encouraged the growth of the regional economy in Bungo.

As a follow-up of the results of research and discussion, recommended suggestion pointed as; first, in order to achieve the economic growth target of the next 5 years (2017-2021) contained in the RPJMD in Bungo, it is necessary to encourage the growth of regional investment. Regional investment originating from private investment banking facilities and non-banking facilities require capital expenditure support and provision of competent human resources from the government of Bungo. The government needs to increase capital expenditure in the form of basic infrastructure and economic expenditure and to build education oriented on improving the quality and competence of human resources that will be useful for private investors. Second, to increase capital expenditure, the government needs to encourage the increase of Local Own Revenue (LOR) while relying on the source of fund from balancing fund obtained from State Budget Revenues (SBR). In order to increase LOR, capital expenditure should also be allocated for financing the development of economic infrastructure which will also increase the revenue of LOR in the future. Hence, capital expenditure as government investment can also stimulate the local economy and increase LOR. Third, in order to encourage private investment to grow faster, the government should also provide incentives and investment promotion packages to potential investors interested in investing in Bungo area. By providing incentives and promotions, it will be an attraction for prospective investment such as local tax exemption for a certain time interval and the provision of special investment areas equipped with competitive economic infrastructure.

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