



The Effect of Financial Development on Economic Growth in East Kalimantan Province in 2013-2021

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Abstract. Indonesia has a strong commitment to realizing inclusive and sustainable economic growth. The 8th SDGs achievement program has become the government's main program implemented in all provinces in Indonesia. The economic growth of a region can be measured using growth of Gross Regional Domestic Product (GRDP). East Kalimantan is one of the largest GRDP contributing provinces in Indonesia with the mining and quarrying sector as the leading sector. However, economic growth in the province is still relatively low and has never reached national figures. This forces the government to consider and develop the potential of other sectors. The Fiscal Policy Agency stated that the financial sector with its development has driven Indonesia's economic growth in the last few decades. This study aims to analyze the general picture of economic growth and financial development as well as the influence of financial development factors on the economic growth of districts/cities in East Kalimantan Province in 2013-2021. The analytical method used in this research is panel data regression. The results obtained are number of bank offices per population, number of cooperatives per population, credit distribution per GRDP, and number of workers have a positive effect on the economic growth of districts/cities in East Kalimantan Province in 2013-2021.

1. Introduction

Economic growth is the most important part of economic policy in a country. A country is said to be successful in implementing development if the economic growth of the community is high enough [5]. At the international level, Indonesia has made a very strong commitment to realizing inclusive and sustainable economic growth. This commitment is contained in one of the SDGs goals, namely decent work and economic growth. The achievement of inclusive economic growth which is synergized with the SDGs achievement program has become one of the government's main programs implemented in all provinces in Indonesia [13].

The economic performance of a region can be measured by three macroeconomic variables, namely: gross regional domestic product (GRDP), inflation rate, and unemployment rate. In calculating economic growth, The Central Bureau of Statistics (known in Indonesia as BPS) uses GRDP (Gross Regional Domestic Product), namely on the basis of constant prices. GRDP is basically the total added value generated by all business units in a certain area, or the total value of final goods and services produced by all economic units.

East Kalimantan Province is one of the largest GRDP contributing provinces in Indonesia. Every year, East Kalimantan consistently ranks among the 10 largest provinces as a GRDP contributor. In 2021, East Kalimantan contributes 4.36% of Indonesia's GRDP, which is worth 484,297.35 billion



rupiah. This value brings East Kalimantan Province to 7th position as the largest contributor to GRDP. However, since 2013, East Kalimantan's economic growth rate has remained slow compared to other provinces and has never reached national figures. Figure 1 shows that from 2013-2021, East Kalimantan Province had the lowest average economic growth rate compared to other provinces contributing to the largest GRDP.

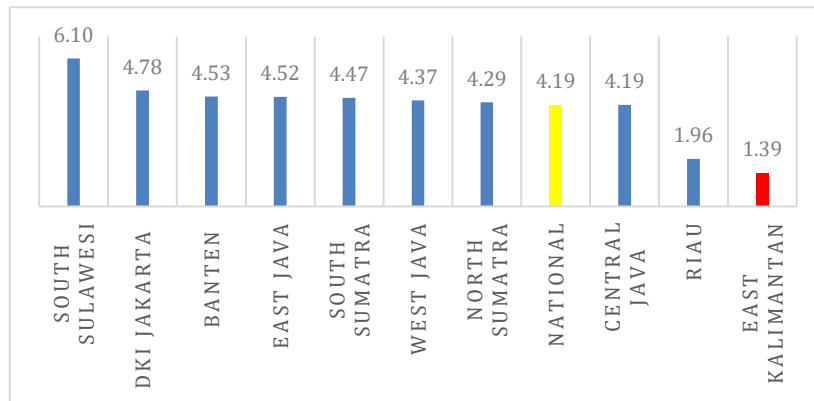


Figure 1. Average economic growth (percent) of the ten largest of GRDP and national contributing provinces in 2013-2021

East Kalimantan's economy is still supported by the mining and quarrying sector. In 2021, this sector contributes 47.069% to East Kalimantan's GRDP. The contribution of the mining and quarrying sector to East Kalimantan is worth 227952.68 billion rupiahs. This figure brings East Kalimantan as the number one contributor to the mining and quarrying sector in Indonesia. However, the lack of the mining and quarrying sector's role as the main sector to drive East Kalimantan's economic growth rate must become the full attention of the East Kalimantan Provincial Government regarding the potential of other sectors that are more influential on East Kalimantan's economic growth rate. The comparison of the contribution of the mining and quarrying sector to economic growth between the five provinces that contribute the most to the mining and quarrying sector in 2021 can be seen in Figure 2.

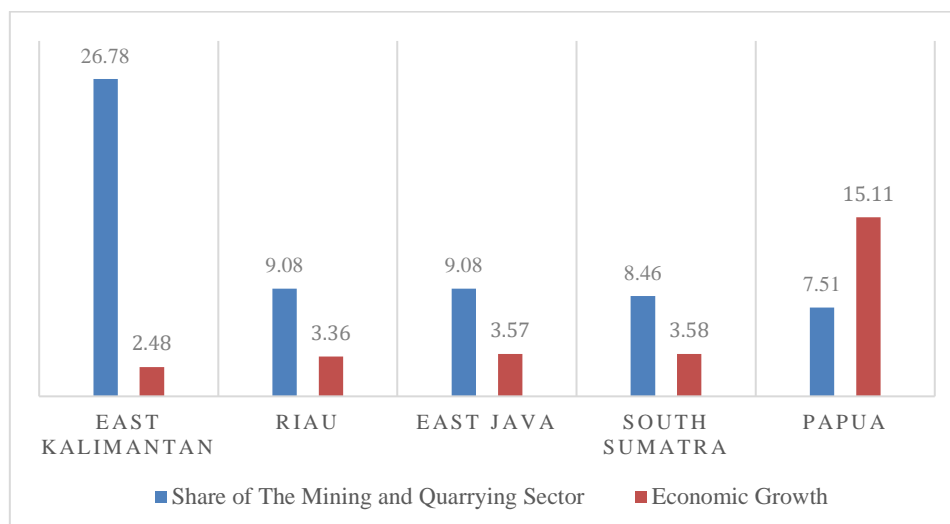


Figure 2. The largest contribution from the mining and quarrying sector (percent) and economic growth (percent) in five provinces in 2021

The Solow growth model shows how growth in capital, labor, and technological advances interact in the economy and their effect on a country's total output of goods and services [8]. Capital is never



separated from the financial sector. In the last few decades, the financial sector has become a very strategic sector, especially through the intermediary and provision of funds functions in driving Indonesia's economic growth [2]. The Fiscal Policy Agency (2021) also states that the deeper and more sustainable the development of the financial sector, the greater the opportunity or potential to achieve high and sustainable levels of economic growth. This is because there is support from funding sources for investments in large and varied amounts.

The International Monetary Fund (IMF) states that there are three dimensions to financial development, namely depth, access and efficiency [14]. As indicators of the financial sector, the dimensions of access and depth play a role in supporting a country's economic growth [15]. According to the Fiscal Policy Agency, the access dimension is the dimension used to measure ability to use financial services. In this case, the role of financial institutions such as banks and cooperatives is needed for easy access. The depth dimension plays a role in making credit distribution more effective and efficient to potential sectors [11]. Thus, this research aims to analyze the general picture of economic growth and financial development of districts/cities in East Kalimantan Province in 2013-2021 and analyze the effect of financial development and other variables on the economic growth of districts/cities in East Kalimantan Province in 2013-2021.

2. Methodology

2.1. General Theory

Economic growth is part of the change in the state of a country's economy on an ongoing basis during a certain period. High and sustainable economic growth is a must for the continuity of economic development and increased welfare [3]. The Solow growth model assumes that economic growth is effected by changes in the production factors of capital and labor. Technologies that represent efficiency are considered as residuals. The capital factor cannot be separated from the role of the financial sector.

The financial sector is a sector consisting of companies that provide financial services to commercial and retail customers, including investment funds, banks and insurance companies [2]. With the development of the financial sector, it is able to encourage economic growth and increase investment efficiency and use of resources through investment [9]. As a benchmark for financial development in the financial sector, the dimensions of access and depth play a role in the process of providing and channeling the flow of funds to the real sector. The depth dimension is often associated with investment and consumption which have a direct effect on economic growth. The access dimension is related to increasing people's access to credit which has the potential to encourage economic activity [15].

Banks and cooperatives play an important role in increasing the access dimension in financial development. Kaleem (2000) reveals that economic growth in developing countries cannot be separated from the role of banking [12]. As for cooperatives, in their development they have attempted to meet the necessities of life and solve economic problems in society. This problem is inseparable from how to fulfill their unlimited needs, while economic resources are very limited. In terms of the depth dimension, banks play an important role in supporting industrial and business development through channeling credit to the public as an effort to increase economic growth. Economic activity, especially the business sector can move with credit [7].

2.2. Scope

The unit of analysis for this research is the Regency/City in East Kalimantan Province, except Mahakam Ulu Regency. This is because the data needed for this district is not available in several years. In addition, Mahakam Ulu's GRDP contribution to East Kalimantan in 2021 is only 0.45%, so excluding this district from this study will not have a big impact. The research period used is 2013 to 2021.

The dependent variable used is economic growth which is approximated by the GRDP at constant prices value, while the independent variables used are, number of workers, number of bank offices per population, number of cooperatives per population, and credit distribution per GRDP at current prices value. The data used in this research is secondary data that comes from BPS publications. Economic



growth data was obtained from the publication of Regency/City Gross Regional Domestic Product in East Kalimantan Province in 2013-2021. Data on the number of bank offices, the number of cooperatives, and credit distribution were obtained from the East Kalimantan publication in Figures 2013-2021. The number of workers data is obtained from employment publications.

2.3. Analysis Method

The analytical method used in this research is descriptive analysis and inferential analysis. Descriptive analysis is presented using line graphs, bar graphs, and quadrant graphs. Quadrant graphs are used to describe current conditions related to economic growth and financial development of districts/cities in East Kalimantan. The quadrant graph divides the districts/cities in East Kalimantan into four quadrants. A district/city will be said to be ideal if it has above average economic conditions and financial development. Districts/cities that are in quadrant III indicate that these districts/cities are still far from ideal and need the government's full attention because they have economic conditions and financial development that are still below average. In this quadrant analysis, the GRDP per capita approach will be used. This is because whether a district/city's GRDP value is high or low really depends on the population and area of the district/city. Therefore, GRDP per capita is used to describe the actual GRDP condition of the region and make it easier to classify whether the district/city is ideal or not.

The inferential analysis was carried out using the panel data regression method which aims to analyze the factors that effect the economic growth of districts/cities in East Kalimantan Province in 2013-2021. The variables in this study have different units, so as to facilitate the interpretation of the resulting regression coefficients, data transformation is performed using natural logarithms which are also used to calculate changes in GRDP that describe economic growth. The proposed panel data regression model can be seen in equation 1.

$$EG_{it} = \alpha + \beta_1 \text{Ln}BANK_{it} + \beta_2 \text{Ln}COP_{it} + \beta_3 \text{Ln}CREDIT_{it} + \beta_4 \text{Ln}LABOR_{it} + u_{it} \quad (1)$$

$$u_{it} = \mu_i + v_{it} \quad (2)$$

Information:

EG_{it}	= Economic growth in the i-th province in the t-th period
i	= Regencies/cities in East Kalimantan Province; $i: 1, 2, \dots, 9$
t	= research period; $t: 2013, 2014, \dots, 2021$
α	= intercept
β_p	= slope of the p-th independent variable; $p: 1, 2, 3, 4$
$\text{Ln}BANK_{it}$	= natural logarithmic value of the number of district/city bank offices in the t-period
$\text{Ln}COP_{it}$	= natural logarithmic value of the number of district/city cooperatives in the t-period
$\text{Ln}CREDIT_{it}$	= natural logarithm value of the i-th district/city credit ratio t-period
$\text{Ln}LABOR_{it}$	= natural logarithm value of the number of district/city workers in the t-period
u_{it}	= error component of the i-th district/city for the t-th period
μ_i	= i-th individual specific effects
v_{it}	= interaction effects between individuals and time simultaneously

3. Results and Discussion

3.1. Overview of Economic Growth

The economic growth of a region can be seen using GRDP at constant prices. Figure 3 shows that the GRDP of districts/cities in East Kalimantan Province tends to increase every year. Kutai Kartanegara and East Kutai are the two largest GRDP contributing districts for East Kalimantan. The two regencies beat Samarinda City which is the capital of East Kalimantan itself. This is because the main sectors of East Kalimantan, namely mining and quarrying, are concentrated in these two districts. Meanwhile, the district with the smallest contributor to GRDP is North Penajam Paser Regency which in 2021 is only worth 6492342.58 billion rupiahs.

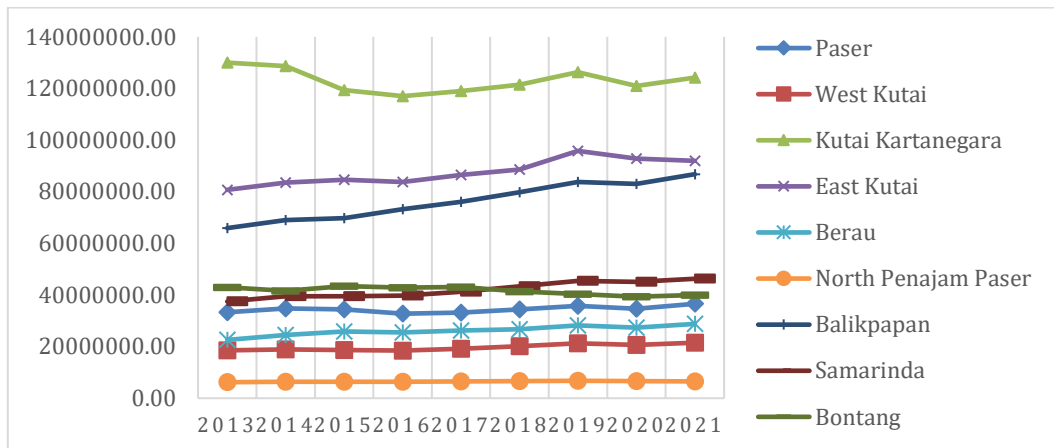


Figure 3. GRDP at constant prices districts/cities in East Kalimantan Province in 2013-2021

Figure 4 shows that the economic growth of districts/cities in East Kalimantan is still fluctuating. Kutai Kartanegara Regency, which is the number one contributor to GRDP for East Kalimantan, has a relatively slow rate of economic growth. Especially in 2015 and 2020, Kutai Kartanegara's economic growth experienced a slowdown of -7.17 and -4.21. This is because Kutai Kartanegara's economy is still dominated and centered on the mining and quarrying sector which is vulnerable to global market prices. In general, all regencies/cities in East Kalimantan experienced an economic slowdown in 2020 due to the Covid-19 pandemic and will bounce back in 2021.

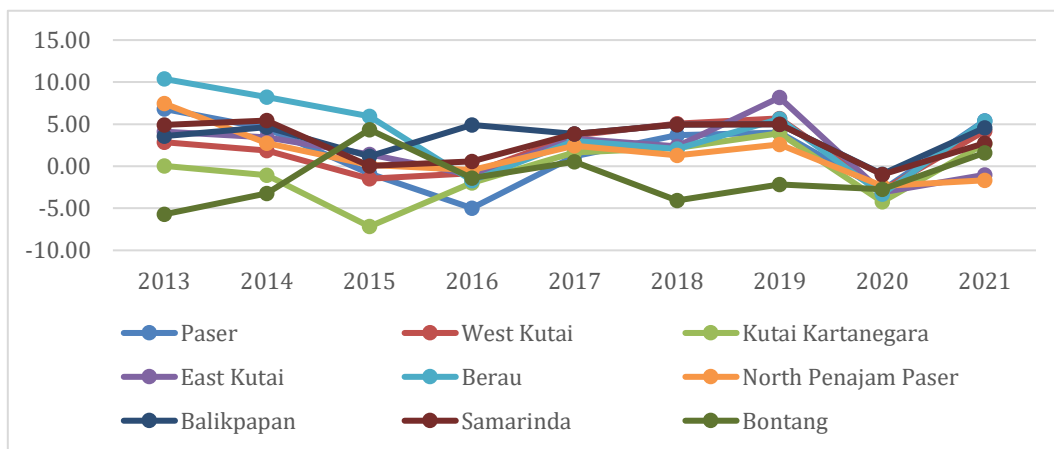


Figure 4. Regency/city economic growth in East Kalimantan Province 2013-2021

3.2. Overview of Financial Development and Labor

Figure 5 shows that in general the ratio of bank offices in East Kalimantan districts/cities has tended to increase since 2013. However, in 2021, there will be three districts/cities that will experience a decline in the ratio of bank offices, namely Bontang, Samarinda and Berau. This means that in the three regencies/cities there has been a decrease in the number of bank offices or no increase in the number of bank offices along with an increase in population. The highest bank office ratio in 2021 is in the City of Balikpapan, which is worth 0.000373. This means that out of 100,000 residents in Balikpapan City, there are 37 to 38 bank offices. This value increased by 31 percent compared to 2013 which was only 0.000283.

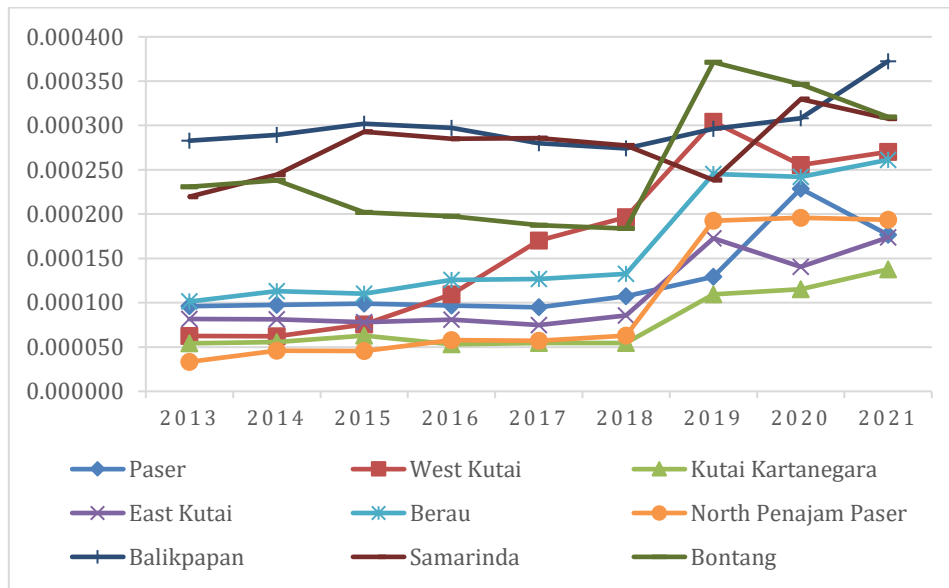


Figure 5. Number of bank offices per district/city population in East Kalimantan 2013-2021

Figure 6 shows that the ratio of cooperatives in the districts/cities of East Kalimantan in 2021 tends to decline compared to 2013. The highest decline in the cooperative ratio was in Bontang City, namely -38 percent. In 2013, the city of Bontang had 69 to 70 cooperatives per 100,000 residents. However, in 2021 it decreased to 43 to 44 cooperatives per 100,000 residents. West Kutai Regency always has the highest cooperative ratio apart from 2015. In 2021, the cooperative ratio in West Kutai Regency is 0.005127. This means that out of 100,000 residents in West Kutai Regency there are 512 to 513 cooperatives. This number also decreased compared to 2013. This decrease in the number of cooperatives was generally due to adjustments to cooperatives that were no longer active.

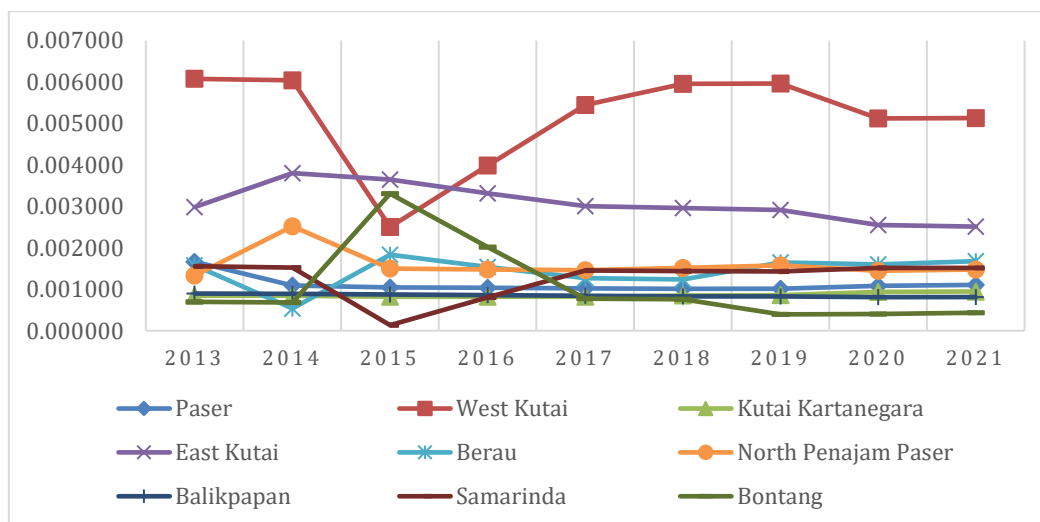


Figure 6. Number of cooperatives per district/city population in East Kalimantan 2013-2021

GRDP in the ratio of credit per GRDP can reflect the ability of the people in the district/city to pay back. Figure 7 shows the ratio of credit to regencies/cities in East Kalimantan Province which tends to fluctuate and never reaches 1. This means that credit extended to regencies/cities in East Kalimantan Province is still relatively low, but has the ability to repay. Samarinda City, which has the highest credit



ratio since 2013, which is 56.84 percent of GRDP, continues to decrease every year to only 37.54 percent in 2021. The highest credit ratio in 2021 is in West Kutai Regency with a value of 49.30 percent which increased rapidly compared to 2020 which was only 13.46 percent of GRDP. Besides that, the lowest credit ratio in 2021 is occupied by Paser Regency, which is only 6.74 percent of GRDP. This is partly due to the limited bank branch offices. As shown in Figure 5, Paser Regency is ranked second lowest, having only 17 to 18 bank offices per 100,000 residents.

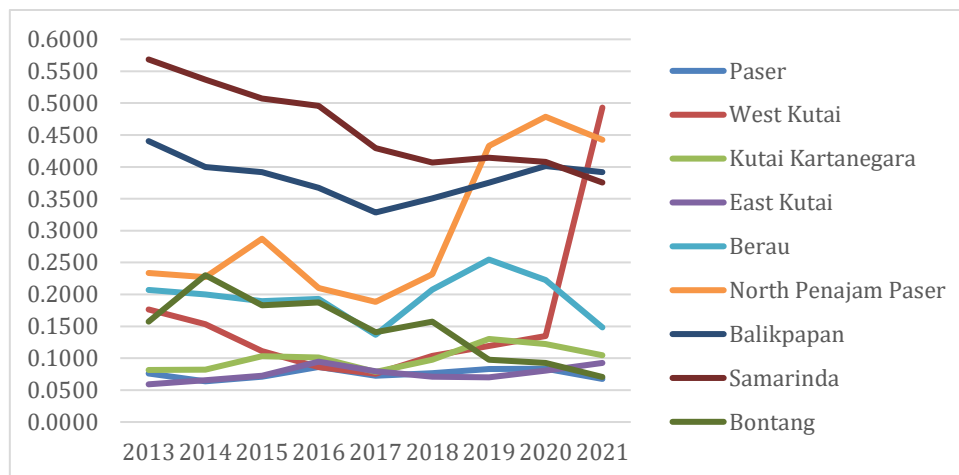


Figure 7. Credit distribution per district/city GRDP in East Kalimantan 2013-2021

In general, every year, the number of district/city workers in East Kalimantan tends to increase until 2019 and decrease in 2020. The decrease in the number of workers in 2020 was due to layoffs due to the crisis during the Covid-19 pandemic. However, as the pandemic subsides, the number of district/city workers in East Kalimantan will increase again in 2021. Figure 8 shows that Samarinda City is the district/city with the largest number of workers among other districts/cities in East Kalimantan. Until 2021, it was recorded that the number of workers in Samarinda City was 393,454 people. The smallest number of workers is in North Penajam Paser Regency, namely only 180,657 people.

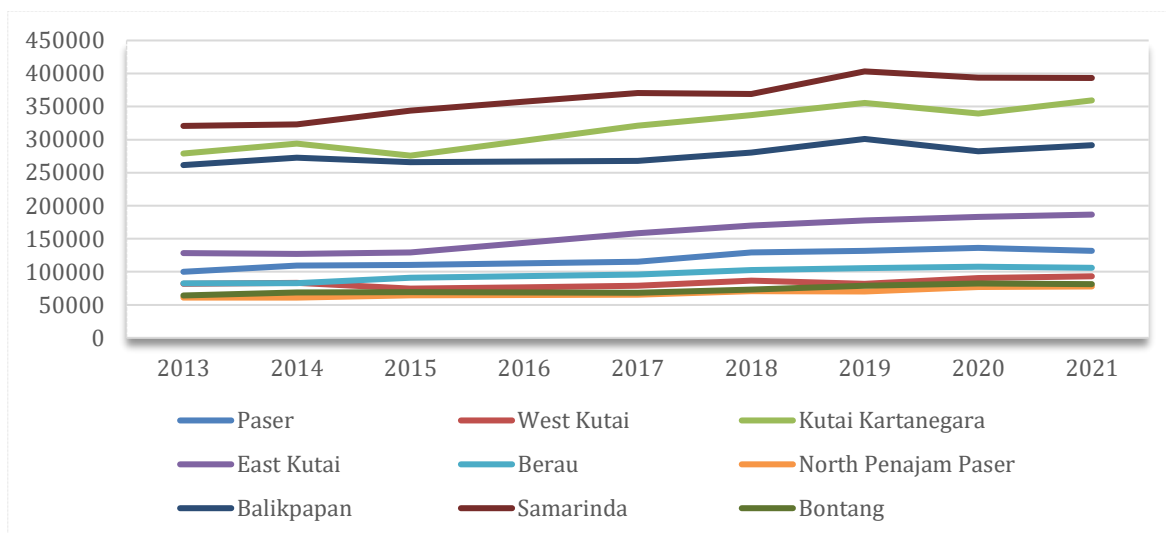


Figure 8. Number of district/city workers in East Kalimantan in 2013-2021

Figure 9 shows that in terms of the access dimension, there are four districts/cities that are still in quadrant III. This means that the four districts/cities still have below average GRDP per capita and access to finance such as banks and cooperatives. These districts/cities include North Penajam Paser,



Berau, Balikpapan and Samarinda. Then, in terms of the depth dimension, there is one district that is in quadrant III, namely Berau District. This means that Berau Regency still has a GRDP per capita and a credit distribution ratio that is below average. As for the workforce, there are Berau, West Kutai and North Penajam Paser districts which are in quadrant III. This means that the three districts still have per capita GRDP and a below average number of workers. However, Two districts, namely West Kutai and North Penajem Paser, need to be made fair. This is because the population in the two districts/cities is smaller and has not yet reached the average number of workers themselves. Therefore, one district that is not ideal and could be the government's focus is Berau District.

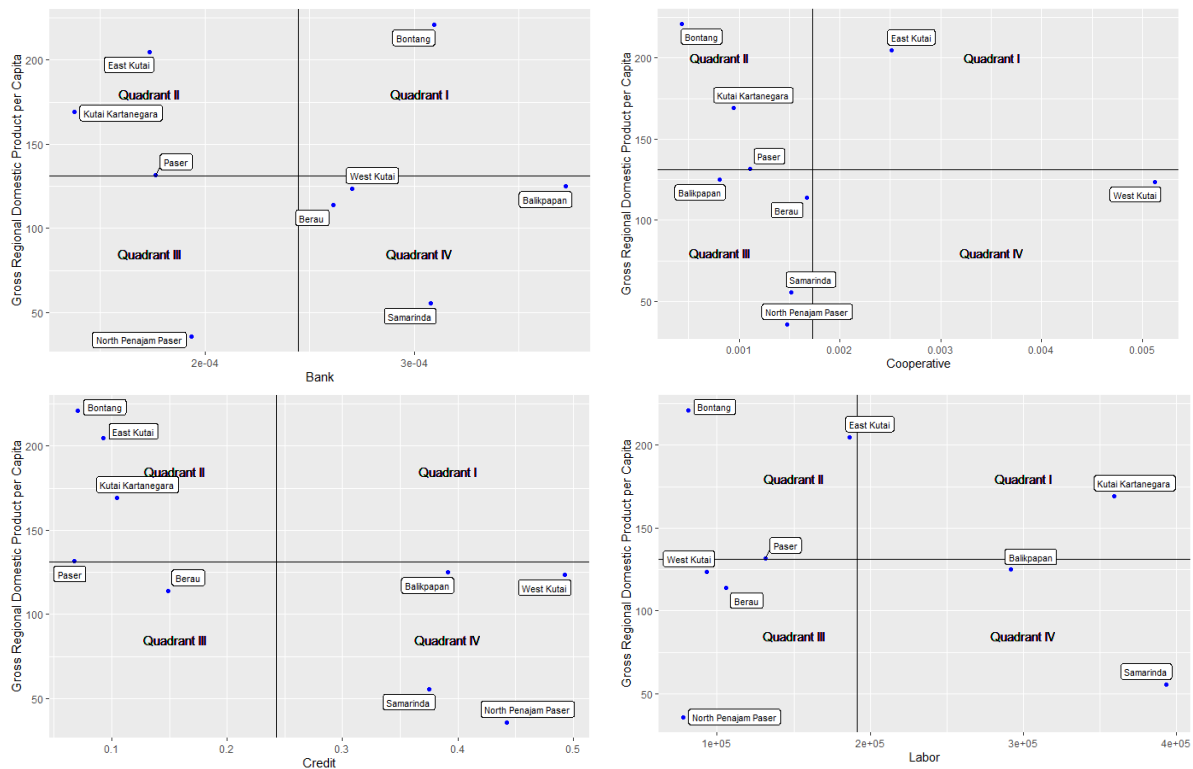


Figure 9. Quadrant graph of GRDP per capita vs financial development of districts/cities in East Kalimantan in 2021: (a) number of bank offices; (b) the number of cooperatives; (c) credit distribution per GRDP; (d) the number of workers

3.3. Effects of Financial and Labor Development

3.3.1. Selection of Estimation Models. The first step in determining the estimation model is to determine the best model between Common Effect Model (CEM) and Fixed Effect Model (FEM). To determine the model, the Chow test was used. Table 1 shows that the calculated statistical F value is greater than the critical point value. Apart from that, the p-value is also smaller than 0.05. It shows the decision Reject H_0 . This means that with a significance level of 5%, FEM is better to use than CEM. After carrying out the chow test, the next step is to carry out the Hausman test. The Hausman test is used to determine the best model between FEM and Random Effect Model (REM)'. Table 1 shows that the model calculated statistical value is greater than the critical point. Apart from that, the p-value is also smaller than 0.05. This value leads to the decision to Reject H_0 which means that at the 5% significance level, FEM is better to use than REM.

**Table 1.** Chow test and Hausman test results

Test	Calculate Statistics	Critical Point	p-values	Decision
Chow test	1562,3313	2.0778	0.0000*	Reject H_0
Hausman test	23.8175	9.4877	0.0001*	Reject H_0

3.3.2. Testing the Residual Variance-Covariance Structure. Based on the results of determining the estimation model using the Chow test and the Hausman test, the results show that the best model for this study is FEM. The next step is to determine the appropriate estimation method using the Lagrange Multiplier (LM) test and the λ_{LM} test. The LM test aims to determine whether the variance-covariance structure formed is homoscedastic or heteroscedastic. The λ_{LM} test aims to determine whether there is a cross-sectional correlation in the residual variance-covariance structure which is heteroscedastic. Table 2 shows that the calculated statistical value of the two tests is greater than the critical point value which leads to the decision to Reject H_0 . Thus, it can be concluded that with a significance level of 5%, This research model has a residual variance-covariance structure that is heteroscedastic and there is a cross-sectional correlation. So, the parameter estimation method that is suitable to use is FGLS-SUR or Feasible Generalized Least Square (FGLS) with consideration in the form of Seemingly Unrelated Regression (SUR).

Table 2. LM test and λ_{LM} test results

Test	Calculate Statistics	Critical Point	Decision
LM	18.9440	$\chi^2_{0,05;(8)} = 15.5073$	Reject H_0
λ_{LM}	121.1158	$\chi^2_{0,05;(36)} = 50.9985$	Reject H_0

3.3.3. Classical Assumption Testing. The classic assumption test used when the estimation method chosen is FGLS-SUR, namely the normality and non-multicollinearity assumption test. In this study, the normality test used was the Jarque-Bera test. Table 3 shows that the statistical value calculated at is smaller than the critical point value and the p-value is greater than 0.05 so that a decision to reject H_0 . Thus, it can be concluded that with a significance level of 5%, the residuals in the model meet the normality assumption.

Table 3. Normality test results

Calculate Statistics	Critical Point	p-values	Decision
1,1891	5.9914	0.5518	Failed to reject H_0

Symptoms of multicollinearity can be detected using the Variance Inflation Factor (VIF) value of each independent variable. Table 4 shows that the VIF value of the independent variables in the model is not greater than 10. Thus, it can be concluded that there is no multicollinearity in the model.

Table 4. VIF value of independent variables

Independent Variable	VIF
Number of bank offices	1.893415
Number of cooperatives	1.515074
Credit per GRDP	1.780052
Labor	2.174317

3.3.4. Estimation Results. Before testing the significance of the model, must first look at the model resulting from the panel data regression estimation fixed effect model using the FGLS-SUR estimation method. These results can be seen in table 5 and equation 3.



Table 5. Summary output of model estimation results

Variable	Coefficient	t count	p-values		
C	15.9065	24.9081	0.0000*		
LnLABOR	0.1666	2.8635	0.0028*		
LnBANK	0.0192	1.8726	0.0327*		
lnCOP	0.0370	2.0549	0.0218*		
LnCREDIT	0.0038	1.6738	0.0494*		
<i>Adj R-Squared</i>		0.9987			
F count	5142,374	<i>p-values</i>	0.0000*		
Individual Effects					
Paser	-0.053171	East Kutai	0.802164	Balikpapan	0.585458
West Kutai	-0.613760	Berau	-0.308047	Samarinda	-0.06437
Kutai Kartanegara	1.075142	PPU	-1.639889	Bontang	0.216480

$$\widehat{EG}_{it} = (15,9065 + \widehat{\mu}_i) + 0,0192LnBANK_{it}^* + 0,0370LnCOP_{it}^* + 0,0038LnCREDIT_{it}^* + 0,1666LnLABOR_{it}^* \quad (3)$$

Information:

- \widehat{EG}_{it} = Economic growth in the i-th province in the t-th period
i = Regencies/cities in East Kalimantan Province; i: 1,2,...,9
t = research period; t: 2013,2014,...,2021
 μ_i = individual specific effect i
 $LnBANK_{it}$ = natural logarithmic value of the number of district/city bank offices in the t-period
 $LnCOP_{it}$ = natural logarithmic value of the number of district/city cooperatives in the t-period
 $LnCREDIT_{it}$ = natural logarithm value of the i-th district/city credit ratio t-period
 $LnLABOR_{it}$ = natural logarithm value of the number of district/city workers in the t-period

The simultaneous test using the F test in table 5 shows that the p-value is less than 0.05 which gives a reject decision. Thus, it can be concluded that with a significance level of 5%, there is at least one independent variable, namely the number of bank offices, number of cooperatives, credit distribution per GRDP, and number of workers have a significant effect on the economic growth of districts/cities in East Kalimantan Province in 2013-2021. The partial test using the t test in table 5 also shows that the calculated t value of all independent variables is more than the t table value which gives a reject H_0 . Thus, it can be concluded that partially the variables number of bank offices, number of cooperatives, credit distribution per GRDP, and number of workers has a significant effect on economic growth of districts/cities in East Kalimantan Province in 2013-2021.

3.3.5. Goodness of Fit Model. Assessment of the accuracy of the model in the regression model can be done using the adjusted R^2 value which measures the proportion of the diversity of the dependent variable that can be explained by the independent variables. Table 5 shows that the adjusted R-square value of the model is 0.9987. Thus, it can be concluded that 99.87% of the economic growth can be explained by the variables of the number of bank offices, the number of cooperatives, credit distribution per GRDP, the number of workers, and the diversity of districts/cities, while the rest is explained by other variables outside this research model.

3.3.6. The Effect of the Number of Bank Offices per Population on Economic Growth. Based on the model obtained, the number of bank offices has a significant and positive effect on economic growth. The regression coefficient of this variable is 0.0192. This value means that every 1 percent increase in the number of bank offices will increase 0.0192 percent of economic growth assuming other variables



are constant. The greater the number of bank offices spread across all regions, the greater the bank's ability to collect public funds and channel them back in the form of credit. This will increase employment opportunities and ultimately increase people's income and GDP or GRDP as well [1].

3.3.7. *The Effect of the Number of Cooperatives per Population on Economic Growth.* Based on the model obtained, the number of cooperatives has a significant and positive effect on economic growth. The regression coefficient of this variable is 0.0370. This value means that every 1 percent increase in the number of cooperatives will increase 0.0370 percent of economic growth assuming other variables are constant. With the existence of cooperatives, there are increasingly more alternatives for the community to obtain funds in an effort to improve living standards, fulfill daily needs, and develop businesses in the long term which of course has an impact on economic growth [6].

3.3.8. *The effect of the Amount of Credit Disbursement per GRDP on Economic Growth.* Based on the model obtained, credit distribution per GRDP has a significant and positive effect on economic growth. The regression coefficient of this variable is 0.0038. This value means that every 1 percent increase in credit disbursed will increase 0.0038 percent of economic growth assuming other variables are constant. credit was issued by banks to help people in need, especially for business expansion and the establishment of new businesses [4]. With credit distribution, people can buy or complete production needs to support their business.

3.3.9. *The effect of the Number of Workers on Economic Growth.* Based on the model obtained, the number of workers has a positive effect on economic growth. The regression coefficient of this variable is 0.1666. This value means that every 1 percent increase in the number of workers will increase 0.1666 percent of economic growth assuming other variables are constant. The increase in labor in line with the population can increase the economic development of a country [10]. Increasing the availability of jobs can lead to a reduction in the number of unemployed thereby increasing the ability to produce output of goods or services in an area.

4. Conclusions and recommendations

Based on the results and discussion presented in the previous chapter, the following conclusions were obtained:

1. In the period 2013 to 2021, economic growth in districts/cities in East Kalimantan still tends to fluctuate. The district/city workforce in East Kalimantan tends to always increase, but there was a decline in 2020 due to the Covid-19 pandemic. The number of bank offices in East Kalimantan Regency/City continues to show a rapid increase. The number of cooperatives in 2021 tends to decrease compared to 2013. Then, the amount of credit disbursed in the Regency/City of East Kalimantan is still fluctuating.
2. The number of workers variables as well as variables from financial development such as the number of bank offices, number of cooperatives, and credit distribution each have a positive effect on the economic growth of districts/cities in East Kalimantan Province.

Some suggestions that researchers can put forward are as follows:

1. The government is expected to be able to increase the number of jobs, increase capital assistance programs and training that is right on target, especially in regencies/cities that still have a low GRDP per capita value and low workforce, such as Berau District.
2. It is hoped that the government and related parties will continue to increase the number of bank and cooperative offices for easy access in all districts/cities in East Kalimantan. Another way that can be used is to strengthen and increase the number of agents so that a wider range of services can be realized more quickly. These efforts can be focused on regencies/cities that still have low per capita GRDP values and little access to finance, such as North Penajam Paser Regency for increasing bank offices and Berau, North Penajam Paser Regencies, Balikpapan City, and Samarinda for increasing cooperatives.



3. The government and banks are expected to improve and maintain the process of lending by reducing interest rates and increasing promotional efforts to attract customers, either by providing promos or by holding certain events. The focus of these efforts can be made on regencies/cities that still have GRDP per capita values and low credit distribution, such as Berau District.
4. Future research could include technological variables and consider the spatial effects between districts/cities using spatial panel data.

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