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## The Nexus Between Rural Bank Performance and Growth of Regional Gross Domestic Product in Depok, West Java

Chaerani Nisa<sup>1\*</sup>, Muhammad Nuruddin Subhan<sup>2</sup>, Tyahya Whisnu Hendratni<sup>3</sup>, Yohana Oentarjo<sup>4</sup>

<sup>1</sup>Faculty of Economic and Business, Pancasila University, Indonesia, email: [chaerani.nisa@univpancasila.ac.id](mailto:chaerani.nisa@univpancasila.ac.id)

<sup>2</sup>Faculty of Economic and Business, Pancasila University, Indonesia.

<sup>3</sup>Faculty of Economic and Business, Pancasila University, Indonesia.

<sup>4</sup> Faculty of Economic and Business, Pancasila University, Indonesia.

\*Corresponding Author: [chaerani.nisa@univpancasila.ac.id](mailto:chaerani.nisa@univpancasila.ac.id)

**Abstract:** This research examines the relationship between rural bank performance and regional GDP growth in Depok, West Java. Research data was collected from the Financial Service Authority website and the Central Bureau of Statistics Depok. The collected data covers 25 rural banks in Depok with a time span between the first quarter of 2017 to the first quarter of 2022. The research uses panel data, which is then regressed using a random effect model. The research results show that the Capital Adequacy Ratio and Loan Deposit Ratio have a positive impact on regional GDP growth. These findings show that healthy rural bank conditions will encourage economic growth. Therefore, a good policy atmosphere and supervision are needed to create healthy rural banks.

**Keyword:** Rural banks; Regional GDP; Banks performance

### INTRODUCTION

Banks, as financial institutions, have the main activity of accepting deposits from the public or other parties and disbursing them to the public to improve people's living standards. Apart from that, the bank also has activities such as providing other services in the banking sector. With its role known as a financial intermediary institution, the bank becomes an intermediary between people who have excess funds and people who need funds. Therefore, the bank needs to maintain the trust of the people who place their funds in the bank. As a financial institution, the bank also functions as a mediator between parties who have excess funds and parties who need funds. The fund distribution function is also called the credit distribution function. Through credit distribution activities, all banks, both state-owned and private banks, try to collect as many funds from the public as possible and channel them back to the community in the form of productive loans and consumer loans.

Rural banks are one type of bank in Indonesia besides commercial banks. Rural banks are one of the microfinance institutions in Indonesia because they offer banking services to

small and micro businesses and are generally located in rural areas Wiwoho et al. (2021). Rural banks play an essential role in advancing the economy of small communities, especially by encouraging savings habits and providing loans to them (Budiyanthi, 2018). Related to this role, rural banks often serve communities not served by commercial banks. Therefore, the existence of rural banks is needed to improve the welfare of the public, especially small communities.

Depok is part of the Jabodetabek Metropolitan City, apart from being a city that borders directly on the Special Capital Region of Jakarta, Depok City is also a buffer area for the National Capital which is designated as a Residential City, Education City, Trade and Service Center, and Tourism City, and as a Water Catchment City. There are four factors that trigger the development of the Depok City area, namely geographical proximity to the National Capital, the existence of the University of Indonesia, attractiveness as a place to live, and regional autonomy. These four factors work simultaneously to boost every sector in Depok to become an indicator in measuring the level of economic development. The consequences of developing a regional economy require mature goals and the participation of the regional government and community in designing and developing the regional economy. The participation of the community and government in regional development can be carried out in a conducive manner because it is supported by regional autonomy which is marked by the birth of two legislative products, namely the Law. No. 22 of 1999 (now the law has been replaced by Law No. 32 of 2004) concerning Regional Government and Laws. No. 25 of 1999 (now replaced by Law No. 33 of 2004) concerning Financial Balance between Regional Government and Central Government.

Furthermore, in the regional development stage, the city of Depok also faces problems in terms of equitable development between sub-districts. The source of inequality is estimated to be due to uneven population numbers and density, differences in the speed of economic development in each region, differences in the level of human resources providing facilities and infrastructure that can support the economy and the government's lack of attention in optimizing local potential in each sub-district.

Regional Gross Domestic Product (GDP) is an important indicator in a region that can indicate the total production of goods/services which can then be used as a basis for regional development planning and evaluation. Depok city's regional GDP growth rate is contributed by 9 (nine) sectors, namely: agriculture, mining and quarrying; processing industry; gas electricity and drinking water; building and construction; trading; hotels and restaurants; transport and communications; banks and other financial institutions; services.

The following research shows the influence of rural bank performance on the regional economy in Indonesia. Budiyanthi (2018) found that working capital credit had a positive impact on regional Gross Domestic Product (GDP), however this impact was relatively small. This finding shows that credit distribution through rural banks has not been utilized optimally to be able to stimulate the economy. Meanwhile, Wiwoho et al. (2021) concluded that the loan-to-deposit ratio has a positive effect on economic growth, although in the long term this ratio causes a decrease in GDP, however, an increase in the loan-to-deposit ratio has a positive impact on reducing poverty levels. Using the rural bank financial score progress index, Supartoyo et al. (2018) demonstrated that the rural bank financial sector had a positive impact on economic growth in the Sulawesi region.

In relation to conditions in other countries, Abuamsha (2022) shows that bank credit increases home ownership in the Palestinian territories. Peng's et al. (2021) findings show that microcredit for farmers and students has a positive impact on economic growth in Jiangsu Province, China. In the case of France, Sfar & Ouda (2016) concluded that cooperative banks contributed positively to regional economic growth in the region. Tigari &

Gaganadeepa (2019) show the important role that rural banks play in regional economic condition which is in line with Meslier-Crouzille et al. (2012). However,

The explanation above explains the importance of the existence of rural banks as well as previous research which shows the positive impact of rural banks. This research looks at the impact of rural bank financial performance on GDP growth by focusing on the Depok area. This is because Depok is a buffer for the capital and Depok's economic condition has an impact on the capital area. Thus, the research question asked is what impact the performance of rural banks in Depok has on regional GDP growth in the region.

## METHOD

This research is quantitative research. Research population is all rural banks in Depok. Since some of them have been liquidated, research focuses on rural banks that still operate. Research period cover from first quarter of 2017 until the first quarter in 2022. Rural bank data are collected from Financial Service Authority website. The empirical model is as follow:

$$GDRPGR_t = CAR_{it} + LDR_{it} + ROA_{it} + CR_{it} + IPM_t + LBR_t + \varepsilon_{it}$$

Where:

GDRPGR	= Growth of regional Gross Domestic Product (GDP) in Depok
CAR	= Capital Adequacy Ratio of rural banks in Depok
LDR	= Loan to deposit ratio of rural banks in Depok
ROA	= Return on Asset of rural banks in Depok
CR	= Current ratio of rural banks in Depok
IPM	= Human development index in Depok
LBR	= Rate of labor participation for people above 15 years old in Depok

Rural banks data are collected from Financial Service Authority website. These data are CAR, LDR, ROA, and CR. Meanwhile, GDRPGR, IPM, and LBR are collected from Central Bureau of Statistics (Badan Pusat Statistik /BPS) for Depok. Rural banks data are in quarterly form, while GDRPGR, IPM, and LBR are in yearly form. Therefore, we conduct data interpolation for these three data. Our main variables are CAR, LDR, ROA and CR. While IPM and LBR are control variables.

The hypothesis are explained as follow. Alinda & Kusuma (2018) stated that CAR has an important role in determining rural banks performance. Jaya & Tisnawati (2016) also demonstrated that CAR contribute to rural banks good condition. Therefore, our first hypothesis is:

H<sub>1</sub> = CAR has a positive effect on growth of regional GDP.

Wiwoho et al. (2021) investigated that LDR able to stimulate regional economy. Since the higher LDR means the higher loan that rural banks provide to people and in the long term positively impact growth of regional GDP. Based on that, our hypothesis is:

H<sub>2</sub> = LDR has a positive effect on growth of regional GDP.

Klein & Weill (2022) and Petkovski & Skopje (2023) found that banks Return on Asset or bank profitability have positive impact on economic growth. Albeit the influence is stronger in Klein & Weill (2022), while Petkovski & Skopje (2023) still inconclusive related the extent of profitability. Regarding this result, our hypothesis is:

H<sub>3</sub> = ROA has positive impactt on growth of regional GDP.

Maryam et al. (2024) concluded current ratio have a significant impact on determining stock price. Current ratio also has impact on maintaining liquidity thus motivate people to put their fund in rural banks. Therefore, our hypothesis regarding CR is:

H<sub>4</sub> = CR has positive impact on growth of regional GDP

Our control variables are IPM and LBR. Wahyudin & Yuliadi (2013) demonstrated that labor has a negative impact on regional GDP. This condition is resulted from the facts that while marginal utility of labor increase it will worsen marginal utility of production. Meanwhile, higher human development index will give rise to growth of gross domestic period (Himannudin et al., 2022). Therefore, our hypotheses are:

H<sub>5</sub> = Control variables have impact on regional GDP

Our data consists of 25 rural banks located in Depok area with period from first quarter of 2017 until second quarter of 2022. Therefore, our data is panel data. To analyze panel data, there are three models that can be used which are Ordinary Least Square (OLS), Fixed Effect Model (FEM), and Random Effect Model (REM). This study uses Langrange Multiplier (LM) test to decide whether to use FEM/REM or OLS. Based on LM test, we use FEM or REM. Subsequently, the study employed the Hausman Test to determine whether to utilize FEM or REM. We use the REM method to examine the empirical model based on the results of the Hausman Test.

## RESULTS AND DISCUSSION

The research use STATA 18 for data processing. Table 1 displays the descriptive statistics of the entire dataset. The data comprises 25 rural banks reports from the first quarter of 2017 to the first quarter of 2022. There are a total of 272 firm-quarter in the overall observations.

**Table 1. Statistic Descriptive**

Variable	Obs	Mean	Std. Dev.	Min	Max
GDRPGR (%)	272	6.525	1.457	-1.92	7.147
CAR (%)	272	31.2	64.9	-54.02	103.06
LDR (%)	272	82.5	20.7	1.4	201.8
ROA (%)	272	-0.3	13.6	-148.3	50.3
CR (%)	272	29.4	48.6	1.3	39.8
IPM	272	80.2	0.43	79.7	81.7
LBR(%)	272	63.39	0.68	62.225	65.03

Source: Author's calculation with STATA 18

Table 1 indicates that the average regional growth rate of Depok's GDP over the observation period was 6.5%. Regional GDP growth had a negative value when COVID-19 struck, specifically in 2020. In 2017, the highest regional GDP increase took place. The subsequent results indicate that GDP growth after COVID-19, particularly in 2021 and 2022, is displaying a strong trajectory, albeit not yet surpassing pre-COVID-19 levels.

Rural banks in Depok have an average CAR of 31.4%. The value indicates that rural banks are in a good state as they exceed the acceptable threshold of 12%. The minimal number is -54%, indicating the bank's poor state. The peak value of 103% indicates that rural banks are relatively cautious in utilizing cash. The mean LDR is 80%. Rural banks often lend out 80% of the total third-party cash they obtain. The data indicate that rural banks in Depok exhibit a comparatively high level of aggressiveness compared to the average Loan to Deposit Ratio (LDR) of rural banks in Indonesia, which typically falls between 70% and 80%. The LDR value itself ranges from 1.4% to 201.8%.

The ROA indicates that the overall performance of rural banks in Depok is poor. The condition is indicated by the average ROA value of -0.3%. This number indicates many rural banks suffered great losses. The size of the loss can be seen by the minimum ROA value of -

148.3%, despite some rural banks showing strong performance with profits reaching 50% of assets. The cash ratio has an average value of 29.4%. This figure exceeds the 4% requirement of the Financial Services Authority (Otoritas Jasa Keuangan/OJK). This situation indicates that rural banks are generally cautious in managing their liquid assets. Some rural banks have alarming cash ratios, specifically at 1.3%. The highest cash ratio was 39.8%. Rural banks tend to utilize minimal current debt based on this grade.

IPM indicates the human development index value in Depok. The mean IPM value in Depok is 80.1. This value is above IPM for West Java from 2020 to 2022. This finding demonstrates that IPM value for Depok is quite high. LBR represents the percentage of residents over 15 years old who are employed. 64% of individuals over the age of 15 in Depok are actively employed.

Table 2 presents mean and standard deviation (in parentheses) for rural banks divided by their subdistrict. Mean and standard deviation are for rural banks that operate in observation year and have complete data. Based on subdistrict, there are seven subdistricts with rural banks that are being investigated in this study. Beji Subdistrict have eight rural banks, Cimanggis have six rural banks, Cinere have two rural banks, Limo have two rural banks, Pancoran Mas have two rural banks, and Sukma Jaya have five rural banks.

**Table 2. Mean and Standard Deviation for Subdistrict**

	Kecamatan						Total
	Beji	Cimanggis	Cinere	Limo	Pancoran Mas	Sukmajaya	
N	86 (31.6%)	61 (22.4%)	21 (7.7%)	19 (7.0%)	24 (8.8%)	61 (22.4%)	272 (100.0%)
CAR(%)	40.5 (1.109)	27.7 (0.304)	30.8 (0.227)	35.3 (0.101)	21.2 (0.060)	24.6 (0.146)	31.2 (0.649)
LDR(%)	82.5 (0.260)	89.1 (0.248)	71.4 (0.215)	75.8 (0.057)	76.0 (0.104)	84.3 (0.057)	82.5 (0.207)
ROA(%)	1.50 (0.040)	-5.9 (0.269)	-1.7 (0.047)	-1.60 (0.053)	2.80 (0.015)	2.60 (0.046)	-0.3 (0.136)
CR(%)	27.0 (0.460)	54.2 (0.814)	19.3 (0.116)	15.2 (0.087)	17.4 (0.072)	20.4 (0.099)	29.4 (0.486)

Source: Author's calculation with STATA 18

Table 2 demonstrates that rural banks in Beji have the highest CAR. It proves that most rural banks in this subdistrict have good precautionary character. Meanwhile, rural banks in Cimanggis are more aggressive since their Loan to Deposit Ratio is higher than other subdistricts. The highest ROA was achieved by Pancoran Mas. Thus, rural banks in this area are more profitable than other areas. Cimanggis Subdistrict confirmed as subdistrict that has rural banks with the highest cash ratio. Most rural banks have a high cash ratio thus it achieved mean value of cash ratio around 54%. Therefore, it can be said that many rural banks in this area have a big concern about their liquidity.

Table 3 provides pairwise correlation for independent variables in empirical model. This test is needed to know whether there is multicollinearity in the variables or not. If there is multicollinearity then the regression will give bias result.



**Table 3. Pairwise Correlation**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) GDRPGR	1.000						
(2) CAR	0.018	1.000					
(3) LDR	0.024	-0.267	1.000				
(4) ROA	-0.031	0.110	-0.219	1.000			
(5) CR	0.044	0.206	-0.073	-0.016	1.000		
(6) IPM	-0.087	-0.073	0.015	-0.041	-0.073	1.000	
(7) LBR	-0.053	-0.058	0.067	-0.035	-0.004	0.471	1.000

Source: Author's calculation with STATA 18

Table 3 shows that all the values are below 0.8. Multicollinearities exist when the correlation between independent variables is higher than 0.8. This result stated that the model can be regressed.

Table 4 exhibit regression result using Random Effect Model (REM). It consists of 272 observations span between the first quarter of 2017 until first quarter 2022. It covers 25 rural banks that are in Depok, West Java. The Chi-square value is 723.609 with probability 0.000 then it proves that all the coefficients in empirical model are in conjunction different from zero. In addition, regression model also cluster application in STATA 18 thus it able to remove heteroscedasticity and auto-correlation assumption. The standard error already cover the assumptions therefore it would give accurate t-value and p-value.

**Table 4. Regression Result**

GDRPGR	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CAR	.383	.056	6.78	0	.272	.493	***
LDR	1.762	.887	1.99	.047	.023	3.501	**
ROA	-.054	.577	-0.09	.925	-1.186	1.078	
CR	.424	.348	1.22	.223	-.257	1.105	
IPM	-.206	.348	-0.59	.554	-.889	.476	
LBR	.055	.177	0.31	.755	-.291	.401	
Constant	17.9	36.532	0.49	.624	-53.702	89.502	
Mean dependent var		6.525	SD dependent var				1.457
Overall r-squared		0.004	Number of obs				272
Chi-square		723.609	Prob > chi2				0.000
R-squared within		0.095	R-squared between				0.007

 \*\*\*  $p < .01$ , \*\*  $p < .05$ , \*  $p < .1$ 

The CAR variable has a positive and significant effect on regional GDP growth in Depok. This condition shows that when rural banks have sufficient capital, they will encourage economic growth. This is because healthy rural banks encourage people to put their funds in rural banks and then rural banks have enough funding to channel it back to communities in need. The large amount of public funds that can be collected by rural banks will make it easier for rural banks to meet community credit needs. In the following conditions, this will encourage credit creation while also motivating borrowers to borrow from rural banks and not borrow from loan sharks or other informal loan sources.

The LDR variable has a positive and significant effect on regional GDP growth. This finding means that the more financing distributed by rural banks, the higher economic growth in Depok will be. This condition is in line with the positive influence of CAR on economic growth. Healthy rural banks will be able to channel large amounts of financing and subsequently increase people's income, which will then have a positive impact on economic growth. This finding also in line with Wiwoho et al. (2021). The finding assert that credit deployment from rural banks will give good impact on regional economy.

## CONCLUSION

The existence of rural banks is often ignored by many parties because of their small size, but actually their existence is still needed because of the ability of rural banks to reach the wider community. Depok is a buffer city for the capital city of Jakarta with quite a significant contribution. Healthy rural banks and buffer cities with good economies will encourage better national economic growth. This research looks at the impact of rural bank performance on regional GDP growth in Depok. The research results show that CAR and LDR have a positive and significant impact on regional GDP growth. Conditions show support for creating healthy rural banks which can then have a positive impact on the regional economy.

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