# INCLUSIVE FINANCE IN BANKING AND THEIR EFFECT ON ECONOMIC GROWTH AND POVERTY RATE IN DISTRICT/CITY IN WEST JAVA PROVINCE

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## Abstract

The National Financial Inclusive Strategy (SNKI) aims to achieve economic prosperity through financial ranking, and regulating system finance in Indonesia by creating a financial system that can be accessed by all levels of society. The purpose of this study is to analyze financial inclusion on economic growth and poverty levels in districts / cities in West Java Province 2010-2015. This study us panel data using the period 2010- 2015. To achieve the purpose of the study, this research used four econometric models . The first econometric model is related to investigating the effects of the per capita Gross Regional Domestic Product (GRDP), education level, and infrastructure (road) on the financial inclusion. The access dimension is calculated from the number of bank offices per 100,000 adult population. The second econometric models studies the effects of the number of MSME loans to Third Party Funds, education, and infrastructure to financial inclusion. The usage dimension is calculated from the number of Third Party Funds (TPF) accounts per 1,000 adult population. The third econometric models investigates the effects of inclusive finance and investment on economic growth. The last models studies the effect of the inclisuve finance, economic growth and the amount of credit to TPF on the poverty level. The data panel regression method with the recursive model is applied to estimate the system of equations. The results of the study conclude that financial inclusiveness is affected by the GDP per capita the level of education but was not affected by road infrastructure. Financial inclusiveness (usage) is influence by the amount of credit and education level but was not affected by road infrastructure. Economic investment is affected by the inclusive finance (access and usage) while investment has no effect. Lastly, the poverty rates affected financial inclusion, Economic Growth and the number of MSME credits.

**Keywords**:
financial inclusive, economic growth, poverty, education, MSME credit, deposits account, GDP per capita

## 1. Introduction

Financial services should be available to all people, especially the productive poor, migrant workers, and residents in remote areas. Financial inclusion is a comprehensive activity that aims to eliminate all forms of price and non-price barriers to access to and utilization of financial services(Johnston & Morduch, 2008). To improve public access in utilizing financial service facilities to formal financial institutions, the government determines a policy whose main objective is how to achieve economic prosperity through poverty reduction, income distribution, and financial system stability through the National Strategy for Financial Inclusion (*Peraturan Presiden Republik Indonesia Nomor 82 Tahun 2016 Tentang Strategi Nasional Keuangan Inklusif*, 2016).

After the crisis in 2008 that had an impact in 2011 to 2014, account ownership in Indonesia in formal financial institutions for those aged 15 years and over was only 19.6% for savings accounts and 8.5% for credit accounts of the total population in Indonesia (Demirguc-kunt, 2015). The definition of financial inclusion is describing the right of everyone to have access and get full services from financial institutions in a timely, convenient, informative, and affordable way from the cost side (Bank Indonesia, 2014). The low level of financial inclusion in Indonesia is due to the fact that there are still obstacles in accessing formal financial institutions caused by the lack of public knowledge about the functions of financial institutions, and the incompatibility of the products offered.

West Java Province is one of the provinces in Indonesia with an area of 35,377,760 m2 and occupies the third position in Indonesia in measuring the Financial Inclusion Index (IFI) as of March 2012 while the number of MSMEs is IDR. 75.6 trillion and the poverty rate is 14.8% of the total population (BPS, 2013). The thing that underlies the researchers to analyze the obstacles that exist in the districts/cities in West Java Province in supporting the SNKI policy by paying attention to the variables of a region's economic capacity, the readiness of supporting infrastructure, namely road access, education level, number of MSME loans in an area to be able to achieve sustainable economic growth and reduce poverty.

The purpose of this research is to contribute to the development of knowledge, especially for the economics literature to explain theories and models about the relationship between financial inclusion, economic growth, and poverty levels. This research is also expected to be input for policy makers in carrying out implementations in encouraging economic growth and reducing poverty levels, as well as information material for further research. The purpose of

this research is Analyzing the influence of per capita GRDP, education, and road infrastructure on financial inclusion (access); Analyzing the effect of MSME credit, education, and road infrastructure on financial inclusion (use); Analyzing the magnitude of the influence of financial inclusion and investment on economic growth; Analyzing the magnitude of the influence of financial inclusion, economic growth, and MSME credit on the poverty level.

## 2. Literature Review

From previous research, it is clear to distinguish between the concepts of access to financial services and the use of financial services. (Sarma, 2012), (Demirgüç-Kunt & Klapper, 2012), (Beck, 2012), and (Kpodar & Andrianaivo, 2011) which emphasize the concept of access to financial services and the use of financial services. Research in 99 countries in 2003-2004 which gives the results that people with low education have a low probability of financial inclusion. The most affecting access to financial services is the level of economic development of a region (S. Chandrasekhar, 2014). Research conducted by (DEMİRGÜÇ-KUNT et al., 2014) concludes that it is possible for individuals to have a banking account because it is used to save and make loans at formal financial institutions (Demirguc-kunt, 2015)(. A study that discusses the relationship between financial inclusion and its relationship to the banking intermediation function shows the results that banking intermediation has a significant relationship to financial inclusion and to credit for rural communities (Onaolapo, 2015). Other studies conclude that the development of the financial sector is a driver of economic growth and will indirectly reduce poverty and income inequality (Hannig & Jansen, 2010).

### 2.1 Financial Inclusion

To determine the financial inclusion of a region, Bank Indonesia uses indicators of access and use (Bank Indonesia, 2014). Access is measured by the number of access points (bank offices) per 100,000 adult residents in an area. Meanwhile, usage is measured by the percentage of the adult population who has at least one type of savings account per 1,000 adult residents.

Access is the ability to reach formal financial products, such as opening and using a bank account. There are 40% of the population who do not have access to financial service products, both formal and non-formal (Financial Services Authority, 2014). Some of the inhibiting factors are the lack of knowledge and public awareness of financial services, especially rural communities, low incomes, and the absence of social security. To reduce barriers to access to financial services based on previous research, it is necessary to have good economic growth as measured by a proxy for GDP per capita of a region, the level of education of the community, and must be supported by infrastructure in the form of good roads.

Usage is used to measure people who use financial products and services, including related to regularity, frequency and duration of use. There are many reasons why there are still many people who have not taken advantage of the existence of financial services even though they have access to financial services. The problems, among others, are the distance from home to the bank office and the products or services offered by financial institutions are not what the public wants.

### 2.2 Economic growth

A country is said to experience economic growth or development if the level of economic activity increases or is higher than the previous year. There are three main factors in the economic growth of a country, namely capital accumulation, population growth, and technological progress (Todaro, 2000). Capital accumulation is successful if there is a proportion of existing income saved or invested to increase output and income in the future. One of the measures in determining the success of economic development is economic growth which is the real impact of the development policies implemented. Economic growth is defined as an increase in community output caused by the increasing number of production factors used in the production process without any change in the methods or technology itself (Schumpeter, 1934).

### 2.3 Poverty

The poverty rate reflects the percentage of people living on less than or half of the average national income. Poverty is not only related to the level of income but also related to social, environmental, empowerment and participation aspects. Poverty can be explained as hunger, having no place to live, not having the opportunity to go to school, not having a job, having no security for the future, and not having freedom (World Bank, 2000). One of the causes of poverty is because the prevailing socio-economic system allows the concentration of power and resources in certain parties, which hinders the opportunities for other parties to participate in accessing and using economic facilities and facilities that are actually available to them (Samuelson & Nordhaus, 2004).

## 3. Methodology

The variables used in this study are exogenous variables and endogenous variables. Broadly speaking, this study has three important variables, namely financial inclusion (access and use), economic growth, and poverty in districts/cities in West Java Province in 2010-2015.

The type of data used is panel data, which is individual data at a time and provides several observations for each individual. Panel data is a combination of time series data and cross section data (Gujarati, 2011). Financial inclusion uses the indicators of the number of bank offices per 100,000 population (access) and the number of deposit accounts per 1,000 per population. Variable operationalization limitations are as follows:

Table 1 Operationalization of Variables

| No. | Variable | Measurement | Symbol | unit |
|---|---|---|---|---|
| 1 | Access | Number of bank offices per 100,000 adult population | access | Number of bank offices |
| 2. | Usage | Total savings accounts per 1,000 adult population | Usage | Total deposit accounts |

| No. | Variable | Measurement | Symbol | unit |
|---|---|---|---|---|
| 3 | GDRP | GDRP per capita on the basis of Constant Price | GDRP | Million Rp |
| 4 | infrastructure | Good road quality ratio to total road length | infrs | Unit rasio |
| 5 | Credit | MSME / Micro, Small and Medium Enterproses | cr | Million Rp |
| 6 | Education | The number of years used by residents in districts/cities in West Java Province in undergoing formal education during 2010 - 2015 (primary to upper secondary education) | edu | Year |
| 7 | Economic Growth | Economic Growth | EG | % |
| 8. | Poverty Rate | Poverty Rate | PR | % |
| 9. | Investasi | Investment growth of Domestic Investment and Foreign Investment | Inv | % |

## 4. Data Collection

This study uses four econometric models to see the trend of the relationship between financial inclusion and economic growth and poverty levels. The equations used in this research are simultaneous equations and recursive equations.

### 4.1. Effect of GRDP per Capita and Financial Inclusion (access)

This model is to see the effect of per capita GRDP, infrastructure, and education level on financial inclusion where the indicator of financial inclusion (access) is the number of bank offices per 100,000 population in districts/cities in West Java Province. The models used are:

$$Acces_{it} = \vartheta_0 + \vartheta_1 PDRB_{it} + \vartheta_2 Edu_{it} + \vartheta_3 infrs_{it} + \varepsilon_{1it} \quad (1)$$

This equation is based on the analysis conducted by Sarma & Pais (2011) where the factors that influence financial inclusion are through two approaches, namely the socio-economic approach and the infrastructure approach with indicators of GDP, literacy rate, and road length.

### 4.2. Effect of MSME Credit, Infrastructure, Education Level on Financial Inclusion (use)

This equation is based on research conducted by Onaolapo (2015), where to measure financial inclusion for the use of financial services, the loan variable for people living in rural areas is used,

$$Usage_{it} = \pi_0 + \pi_1 Cr_{it} + \pi_2 edu_{it} + \pi_3 infrs_{it} + \varepsilon_{2it} \quad (2)$$

Using the MSME credit variable which refers to the second pillar of the SNKI, namely public financial facilities to encourage community economic empowerment through empowerment and development of MSME financial access.

### 4.3. The Effect of Financial Inclusion and Investment on Economic Growth

Based on research to see the correlation of financial inclusion with economic growth conducted by (Onaolapo, 2015) where economic growth is influenced by Foreign Direct Investment, LDR, LQR. The equation model of the relationship between financial inclusion and economic growth is:

$$EGi_t = \lambda_0 + \lambda_1 \widehat{Access}_{it} + \lambda_2 \widehat{Usage}_{it} + \lambda_3 Inv_{it} + \varepsilon_{3it} \quad (3)$$

In this equation, the financial inclusion variable is obtained from equations (1) and (2) which have been tested for contemporaneous relationships first. Contemporaneous error correlation occurs when at the same time unit, errors in different equations are correlated.

### 4.4. The Effect of Financial Inclusion, MSME Credit, and Economic Growth on Poverty

Previous studies have shown a correlation between poverty and financial inclusion using the average income of the population as a proxy for poverty. The model used is

$$Pr_{it} = \beta_0 + \beta_1 \widehat{Access}_{it} + \beta_2 \widehat{Usage}_{it} + \beta_3 \widehat{EG}_{it} + \beta_4 cr_{it} + \varepsilon_{4it} \quad (4)$$

This equation uses financial inclusion variables (access and use), MSME credit, and economic growth to measure poverty in districts/cities in West Java Province.

## 5. Results and Discussion

### 5.1 Effect of GRDP per Capita and Financial Inclusion (access)

Access as an indicator of financial inclusion has an average of 12.88, meaning that the contribution of districts/cities in West Java Province to financial inclusion is 12.88 bank offices per 100,000 population with a maximum value of 42.60 bank offices per 100,000 population and a minimum value of 0.88 bank offices per 100,000 population. The estimation results of GRDP, infrastructure, and education level on financial inclusion (access) are as shown in table 2 below:

Table 2. Estimated Results of GRDP per Capita, Education Level, and Infrastructure for Inclusive Finance (access)

| Variabel | Coefficient | t-Statistik | |
|---|---|---|---|
| **C** | -9,408 | -4,211*** | |
| **PDRB** | 0,166 | 5,126*** | |
| **Infrs** | 0,006 | 1,189 | |
| **Edu** | 2,273 | 10,028*** | |
| **R-Squared** | 0,97 | F-statistic | 180,7607 |
| **Adjusted R-Squared** | 0,97 | Prob(F-statistic) | 0,000000 |

Note: ***significant at = 0.01;**significant at = 0.05;*significant to =0.1

GRDP per Capita, infrastructure, and public education are able to explain financial inclusion (access) where the R-Square is 97%, which means that all independent variables are able to explain the dependent variable. While 3% is explained by other variables outside the model.
If the GRDP per capita of the community increases by Rp. 1.000.000,- will add 0.17 bank offices per 100.000 population. If the average length of public education increases by 1 year, the number of bank offices will increase by 2.27 bank offices per 100,000 population, while infrastructure has no effect on the number of bank offices in districts/cities in West Java Province.

### 5.2 Effect of MSME Credit, Infrastructure, Education Level on Financial Inclusion (usage)

The influence of road infrastructure, MSME credit, and education on Financial Inclusion (usability), can be seen in table 3 below:

Table 3. Estimation Results of MSME Credit, Education, and Infrastructure for Inclusive Finance (Usage)

| Variabel | Coefficient | t-Statistik | |
|---|---|---|---|
| **C** | -2085,53 | - 6,9552*** | |
| **Infrs** | 0,490 | 0,8096 | |
| **Cr** | 0,00002 | 2,0186** | |
| **Edu** | 340,73 | 13,205*** | |
| **R-Squared** | 0,97 | F-statistic | 169,6383 |
| **Adjusted R-Squared** | 0,97 | Prob(F-statistic) | 0,000000 |

Note: ***significant at = 0.01;**significant at = 0.05;*significant to =0.1

It can be seen that all independent variables are able to explain the dependent variable indicated by the R-Squared of 97% while 3% is explained by other variables outside the model. Infrastructure does not affect the number of TPF accounts in formal financial institutions. What matters is the length of public education and the number of MSME loans. If the length of public education is increased by 1 year, the number of TPF accounts per 1,000 population will increase by 340.73 accounts. The increase in MSME loans has an effect on increasing the number of TPF accounts per 1,000 population, where if MSME credit increases by 1,000,000, it will result in an increase in the number of TPF accounts by 0.000002 accounts for 1,000 population.

### 5.3 Influence of Financial Inclusion and Investment on Economic Growth

Before looking at the influence between the variables in this equation, the Contemporaneous Correlation test is first carried out, the purpose of which is to measure the relationship between the errors of different models at the same time. To find out the existence of Contemporaneous Correlation between different models, it is done by comparing the squares of the i-th and j-th model errors with the standard deviation of the t-the model error and the j-the model's standard error of error (i, j = 1,2,. ..p). Then an estimate is made to see the effect of financial inclusion and investment on per capita economic growth. The estimation results can be seen in table 4 below:

Table 4 Effect of Financial Inclusion (access and use) and Investment on Economic Growth

| Variabel | Coefficient | t-Statistik | |
|---|---|---|---|
| C | 5,3202 | 47,968*** | |
| $\widehat{access}$ | 0,0232 | 1,7456* | |
| $\widehat{usage}$ | 0,0002 | 1,8305* | |
| Inv | 0,0009 | 0,5732 | |
| R-Squared | 0,83 | F-statistic | 22,297 |
| Adjusted R-Squared | 0,79 | Prob(F-statistic) | 0,0000 |

Note: ***significant at = 0.01;**significant at = 0.05;*significant to =0.1

The R-Square value of 83% means that all independent variables are able to explain the dependent variable, while 17% is explained by variables outside the model. The access variable has a significant effect on economic growth where if the bank office increases by 1 bank office per 100,000 adult population it will increase economic growth by 0.02%. If the use of TPF accounts is increased by 1 account per 1,000 adult population, it will increase economic growth by 0.0002%.

### 5.4 The Effect of Financial Inclusion, Economic Growth, and MSME Credit on Poverty Levels

The effect of financial inclusion, economic growth, and MSME credit on poverty levels is as shown in table 5 below:

Table 5. The effect of financial inclusion, economic growth, and MSME credit on poverty levels

| Variabel | Coefficient | t-Statistik | |
|---|---|---|---|
| C | 8,1526 | 26,2238*** | |
| $\widehat{access}$ | -0,0766 | -5,7835*** | |
| $\widehat{usage}$ | -0,0018 | -16,6444*** | |
| $\widehat{EG}$ | -0,66678 | -9,0751*** | |
| cr | -0,0003 | -5,1141*** | |
| R-Squared | 0,98 | F-statistic | 401,9054 |
| Adjusted R-Squared | 0,98 | Prob(F-statistic) | 0,000 |

Note: ***significant at = 0.01;**significant at = 0.05;*significant to =0.1

The estimation results show that the independent variable is 98% able to explain the dependent variable. All independent variables have a significant effect on the poverty level, each additional 1 bank office per 100,000 population will reduce the poverty rate by 0.08%, while if the number of accounts increases by 1 account per 1,000 population, it will reduce poverty by 0.002%. The poverty rate will decrease by 0.67% if economic growth increases by 1% and if MSME credit increases by Rp.1.000.000,- then the poverty rate will be reduced by 0.0003%.

## 6. Conclusion

GRDP per capita and education have an effect on financial inclusion in districts/cities in West Java Province in 2010-2015. For financial inclusion (access) if the GRDP per capita of the community increases, supported by a higher level of public education, it will be able to increase public access to financial institutions. formal.

The use of financial facilities provided by formal financial institutions is strongly influenced by the number of MSME loans and the level of public education. If MSME credit increases by Rp.1.000.000,- will increase TPF accounts by 0.000002 the number of accounts per 1000 population. Meanwhile, if the average length of schooling in the community is increased by 1 year, it will increase DPK accounts by 340 accounts per 1,000 population.

Economic growth in West Java Province during 2010 to 2015 showed that it was influenced by financial inclusion (access and use) where if public access increased by 1 bank office per 100,000 adult population, economic growth would increase by 0.0002% and if the use of facilities in financial institutions an increase of 1 TPF account per 1,000 adult population will increase economic growth by 0.02%.

Financial inclusion also greatly affects the poverty rate in West Java Province where if the public's financial access is increased by 1 bank office per 100,000 adult population, it will reduce the poverty rate by 7.6%. If the use of DPK accounts is increased by 1 account per 1,000 population, it will reduce the poverty rate by 0.18%. Another factor that affects the poverty rate is the economic growth per capita and the number of MSME loans where if the per capita economic growth of the community increases by 1% it will reduce the poverty rate by 0.67% on the other hand if the MSME lending increases by Rp. 1,000,000 will reduce the poverty rate by 0.0003%.

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