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The Influence of Financial Inclusion on the Human Development Index in Indonesia, 2017-2019

[1]Faricha Karin Avida*, [1]Fadli Septianto, [2]Tina Fepriyanti

[1]Development Economics, Faculty of Economics and Business, Universitas Sebelas Maret, Surakarta, Indonesia
[2]Dapartment of Economic Education, Faculty of Teacher Training and Education, Universitas Sebelas Maret, Surakarta, indonesia

Abstract:
Financial inclusion refers to the expansion of accessible and unobstructed financial services, which are the entitlements of all individuals, particularly marginalized and low-income populations. Facilitating access to banking services that are convenient, economical, secure, and tailored to individual needs would enhance overall welfare. Enhancing financial inclusion is anticipated to promote an elevation in the Human Development Index. This study seeks to assess the impact of financial inclusion on the Human Development Index in Indonesia, utilizing the penetration and usability dimensions as independent factors and the Human Development Index as the dependent variable. This study employs a quantitative descriptive methodology utilizing regression analysis of panel data from 34 Indonesian provinces for the years 2017 to 2019, processed using the Eviews9 software. This research indicates that: (1) the penetration dimension positively and significantly affects the Human Development Index across 34 provinces in Indonesia, (2) the usability dimension positively and insignificantly influences the Human Development Index across 34 provinces in Indonesia.

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Corresponding Author*:
Faricha Karin Avida

Email:
farichaavd01@gmail.com

DOI:

1. Introduction

The financial sector is one of the sectors that dominates the financial industry in Indonesia. The financial sector has an important role in the Indonesian economy, this important role is the intermediation function to encourage poverty alleviation, economic growth, income distribution and achieving financial system stability (Bank Indonesia, 2014). This important role must be accompanied by community involvement in financial institutions. So there is a need for easy access for the community. People's difficulties in using financial services can affect low income levels, financial service products that do not meet their needs, lack of education related to financial services and quite a long distance between the bank and where they live.

The level of financial inclusion is one technique to find out how services are spread out in the financial industry. Easy access to and use of financial services is intimately linked to financial inclusion. At the moment, financial inclusion is a big deal in many nations, especially Indonesia. The Indonesian government released the National Financial Inclusion Strategy in 2012. This strategy lays out the structure and steps for making financial services available to everyone. The National Strategy for Inclusive Finance lists six pillars that make up the inclusive financial strategy: financial education, public financial facilities, financial information mapping, supporting policies or regulations, intermediation and distribution facilities, and consumer protection.

More inclusive finance can give everyone better access to financial services, especially impoverished individuals who have trouble getting them. People who are poor can make their lives better and become more successful by getting better access to financial services. This can help the poor make more money, which will help close the income gap. This research indicates that advancements in the financial sector can mitigate income disparity (Shahbaz and Islam, 2011; Ang, 2010) and alleviate poverty (Jalilian and Kirkpatrick, 2002; Deininger and Ollinto, 2001; Dollar and Kraay, 2000; Galbraith and Lu, 2000).

The primary objective of development is to establish conditions that enable individuals to experience prolonged, healthy lives and engage in productive activities (Central Statistics Agency, 2014). Economic development requires to pay attention to more than only the banking sector. You can look at financial inclusion to see how it can help the economy, make the financial system more stable, lower the number of non-bank financial institutions, help the local and national economy grow in a sustainable way, close income gaps that can improve community welfare, and raise Indonesia's Human Development Index (Central Statistics Agency, 2014). The Human Development Index is a key measure of social wellbeing and of how well we are improving the quality of life for people. A province's Human Development Index may not be the same across all of its areas. This could be because of things like where the province is located, how many services and infrastructure are available, and how different regional governments enforce their rules. The goal of financial inclusion is to lower the gap between rich and poor and raise the Human Development Index for each province in Indonesia.

A multitude of prior researchers have conducted studies examining the relationship between financial inclusion and the Human Development Index. Sarma and Pais (2011) discovered a positive and significant correlation between the levels of human development and financial inclusion. Sarma (2012) elucidates that financial inclusion employs a multifaceted approach in the construction of a Financial Inclusion Index. Financial inclusion can be analyzed through three distinct dimensions: penetration, availability, and usability. In the study conducted by Irsyandinnas (2019), employing panel data regression analysis across 14 provinces in Indonesia, it was elucidated that Third Party Funds exerted a negative and significant influence on the Human Development Index. In the interim, the credit variables, alongside the quantity of customers and users of card payment instruments, exert a positive and significant influence on the Human Development Index. In light of the disparities in the research findings outlined previously, this study will examine the correlation between financial inclusion, with an emphasis on Third Party Funds and Credit Received, and the Human Development Index across 34 Provinces in Indonesia. crucial for realizing equitable development within a nation (Karlan, Ratan, and Zinman, 2014; Allen et al., 2016; Goksu Aslan, Corinne Deléchat, Monique Newiak & IMF, 2017; Wardhono et al., 2018; Dabla-Norris et al., 2021). This understanding has historically served as a significant catalyst for the implementation of policies and strategies designed to enhance ICT and promote global financial inclusion as a method for mitigating inequality worldwide. (Devarajan and Fengler, 2013; Lusardi and Mitchell, 2014; Wang'oo, 2013; Goksu Aslan, Corinne Deléchat, Monique Newiak & IMF, 2017).

2. Literature Review

2.1. Financial Inclusion

Sarma (2012) characterizes financial inclusion as a mechanism that guarantees accessible, available, and advantageous engagement with the formal financial system for all economic participants. Similar to Sarma's description, Gerdeva and Rhyne (2011) characterize financial inclusion as a state in which all individuals may obtain quality financial services that are accessible at reasonable prices, delivered in a convenient and satisfactory manner. Demirguc-Kunt and Klapper (2012) define financial inclusion as the provision of extensive access to financial services devoid of price or non-price impediments to their utilization.

Beck et al. (2006), building on the work of Aghion & Bolton (1997), Banerjee & Newman (1993), Barth et al. (2004), and Batra et al. (2003), asserted that access to financial services and the utilization of financial services represent distinct concepts. Economic actors may possess access to financial services yet choose not to utilize them. This may be attributed to socio-cultural factors or the prohibitive costs associated with financial services. Beck et al. differentiate between two concepts concerning the financial sector's reach: (i) the existence of access and the potential for utilizing financial services, and (ii) the actual utilization of financial services by individuals. The availability and accessibility of financial services in a region are quantified by the quantity of banking branch offices and ATMs present in that area. Increased intensity of bank branches and ATMs correlates with enhanced access to and utilization of financial services. The second concept is quantified by the count of credit and deposit accounts, as well as the average credit and deposit relative to GDP per capita. Elevated ownership of credit and deposit accounts signifies extensive utilization of financial services.

Demirguc-Kunt A et al. (2008) elucidates the distinctions between access to financial services and the utilization of financial services. Access primarily focuses on supply, whereas the utilization of financial services is influenced by both supply and demand factors. A high-income individual may have access to financial services but may lack interest in utilizing them. Similarly, customers, whether individuals or corporations, may not wish to borrow funds despite the availability of a low interest rate.

The World Bank (2009) says that in a perfect environment, the number of people, households, and businesses who save, get credit, make payments, and use other financial products from both official and informal financial institutions can be used to quantify access to financial services. The number of people who use savings services and the number of people who utilize loan services at financial institutions are the best ways to measure how easy it is to get financial services. But not all countries have all the data they need, especially from microfinance and informal financial institutions. The number of bank accounts per 1000 adults is the best way to determine how easy it is to use savings services. Sarma (2011) came up with the financial inclusion index by looking at three things: how many people use banks, how easy it is to get banking services, and how many people utilize banking services.

a. Banking Penetration

   A financial system that works for everyone needs to have as many people as possible. Because of this, the banking system needs to reach a lot of people. One way to measure banking usage is to look at the number of people who use banks, like the percentage of people who have an account at a bank. The main sign of financial inclusion is the number of people who have bank accounts.

b. Availability of financial services

   In a financial system that includes everyone, everyone should be able to use financial services. The number of outlets (branch offices, ATMs, etc.) is what this availability indication shows. The number of branches of a bank or the number of ATMs (Automatic Teller Machines) might show how available services are. ATMs are currently a very significant part of banking services that help clients. Besides making it easy to get cash,

you can also use ATMs to pay for things. People can readily get financial services because there are branch offices and ATMs. In addition to ATMs, mobile banking and online banking have been adopted by some countries to help their clients.

c. Use of banking services
Despite having access to financial services, certain groups of individuals remain unable to fully utilize these offerings. This may occur for various reasons, such as the distance to the bank outlet or a negative experience with the service provider. Consequently, merely possessing an account does not suffice to illustrate an inclusive financial system; it must also be functional. These applications may encompass credit, deposits, payments, remittances, and transfers.

2.2. Human Development Index

The development of human resources is a protracted, multi-faceted endeavor, influenced by a range of socio-economic factors. The process of human resource development encompasses a dynamic interplay of diverse cross-sector elements, unfolding in distinct stages from the traditional era through the developmental phase to the contemporary age. (BPS, 2008). The Arab Human Development Report (2002) articulates that societal advancement enhances human capabilities via the cultivation of human resources. Human development suggests that the advantages of growth should permeate individuals' lives, and it underscores the necessity for individuals to engage actively in shaping the processes that affect their existence.

The fundamental concept driving the establishment of this index is the significance of prioritizing the quality of human resources. The Human Development Index (HDI) has assumed two pivotal functions within the realm of applied economic development: firstly, it serves as a mechanism to disseminate the concept of human development, offering a novel perspective on well-being; secondly, it acts as a substitute for GDP per capita, providing a framework for assessing development levels in comparative analyses across nations and temporal contexts (Elizabeth, 2007; Ravallion, 1997; Rao, 1991; Ram, 1982; Rawls, 1971).

Human development is measurable through the Human Development Index (HDI). The Human Development Index (HDI) quantifies a nation's socio-economic progress by integrating metrics from education, health, and adjusted real income per capita (Todaro, 2011). Human capital theory posits that individuals require access to financial institutions to obtain credit for business activities, thereby enhancing their personal capacity. This credit facilitates the execution of productive economic activities, the outcomes of which can subsequently be allocated to educational expenses, enabling individuals to secure well-paying employment, as well as cover health-related costs and other expenditures. In addition to credit access, individuals may also utilize savings and investment opportunities. Enhancing savings and investment can stimulate economic growth, ultimately leading to improved living standards (Mankiw, 2014).

3. Data and Methodology

This study looks at how financial inclusion changed the human development score from 2017 to 2019. The study for this project was done in 2017, 2018, and 2019. The reports on Indonesian Banking Statistics from the Financial Services Authority (OJK) and the Central Statistics Agency from 2017–2019 are used as secondary data for this study. Based on panel data from 34 Indonesian provinces that were processed with the Eviews9 tool, this study is both descriptive and quantitative. The human development index (HDI) is the dependent variable in this study. The penetration dimension and the usefulness dimension are the two independent variables. These are some ways that measuring financial inclusion factors can be put to use:

$$d_1 = \frac{Third\ Party\ Funds}{Population} \times 1000 \quad (1)$$

Usability Dimension (d2)

$$d_1 = \frac{Number\ of\ Credits}{GRD0} \times 100{,}000 \quad (2)$$

The regression model's functional form in this study employs a Semi-Log approach alongside the Lin-Log model. The Lin-Log model involves a transformation applied solely to the independent variable, while maintaining a linear relationship for the dependent variable (Gujarati, 2006). The equation for the panel data regression model utilized in this study is as follows:

$$Y_{it} = \beta_0 + \beta_1 LnX_{(1it)} + \beta_2 LnX_{(2it)} + \varepsilon_{it} \quad (3)$$

E-views software is used to process this data in various steps. The Chow Test and the Hausman Test can help you figure out which model is best: the Common Effect Model, the Fixed Effect Model, or the Random Effect Model. After that, the classical assumption test and the significance test are done.

4. Result and Discussion

Fixed Effect Regression Analysis

Table 1. Fixed Effect Regression Result

Source: Analysis, 2023

Variable	Coefficient	Std. Error	T-Statistic
C	59.47916	1.186354	50.13611***
X1	5.50E-06	5.99E-07	9.196139***
X2	7.83E-09	4.78E-09	1.638987
R Square	0.992472		
Observation	102		
Notes: Significant at ***1%, **5%, *10%			

The output from table 1 above shows the results of the best regression model with the equation

$$Y_{it} = 58.479 + 5.50 LnX_{(1it)} + 7.83 LnX_{(2it)} + n_0 \quad (4)$$

A fixed value of 58,478 signifies that when the independent variables, specifically the penetration dimension (X1) and usability dimension (X2), are set to zero, the Human Development Index will experience an increase of 58,478 percent. The value of the penetration dimension coefficient (X1) is 5.50. An increase of 1% in the penetration dimension value will elevate the Human Development Index for 34 provinces in Indonesia by 5.50%. The value of the utility dimension coefficient (X2) is 7.83. An increase of 1% in the usability component will elevate the Human Development Index for 34 provinces in Indonesia by 7.83%.

Chow Test and Hausman Test

Table 2. Chow Test
Source: Analysis, 2023

Effects Test	Statistic	d.f.	Prob.
Cross-section F	241.498732	(33,66)	0.0000
Cross-section Chi-square	489.800385	33	0.0000

Table 3. Hausman test
Source: Analysis, 2023

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	76.763436	2	0.0000

The optimal model was determined using the Chow test and the Hausman test. The information is presented in tables 2 and 3. The Chow test presented in table 2 shows a probability of 0.0000, which is less than 0.05, indicating that the Fixed Effect model is the most suitable choice. Additionally, in Table 3, the Hausman Test shows a probability value of 0.0000, which is less than 0.05, indicating that the Fixed Effect model is the most suitable choice.

Classical Assumption Test

Figure 1. Classical Assumption Test Result

Source: Analysis, 2023

The probability value is 0.78444, which can be derived from the findings of the residual normality test that was performed on figure 1 above. This number is greater than 0.05. It is possible to draw the conclusion that the data follows a normal distribution.

Table 4. Multicollinearity Test Result

Source: Analysis, 2023

	X1	X2
X1	1.000000	-0.059876
X2	-0.059876	1.000000

The multicollinearity test presented in Table 4 indicates that the penetration dimension variable (X1) is 1.000000, which exceeds 0.08, while the usability dimension variable (X2) is 0.0598, which is less than 0.08. The analysis indicates that the presentation dimension variable (X1) exhibits multicollinearity issues, whereas the usability dimension variable (X2) does not present such problems.

Table 5. Heteroscedasticity Test

Source: Analysis, 2023

Variable	Coefficient	Std. Error	T-Statistic
C	2.739616	0.773326	3.542640***
X1	-1.45E-07	6.18E-07	-0.234250
X2	-5.02E-08	1.94E-08	-2.592583**
Cross Section	34		
Observation	68		

Based on the heteroscedasticity test in table 5 above, the penetration dimension variable (X1) is 0.8163 > 0.05 and the usability dimension variable (X2) is 0.0142 < 0.05. It can be concluded that in this panel data the presentation dimension variable (X1) does not have heteroscedasticity problems, while the usability dimension variable (X2) has heteroscedasticity problems.

Significance Test

F test or F count 248.6196 while the F table is 3.29 with sig. F is 0.000000 or smaller than alpha 0.05. So it can be concluded that simultaneously the independent variables penetration dimension and financial dimension have a significant effect on the human development index. It can be seen that in general provinces in Indonesia have experienced an increase in banking services. This increase occurred due to the government's efforts to work together to improve services, such as issuing policies

or programs that support the community to more easily obtain services.

The t test on the penetration dimension variable (X1) with a probability value of 0.00000<0.05 and a positive coefficient value, means the penetration dimension variable (X1) has a significant positive influence on the human development index. Increasing the penetration dimension will increase the value of the human development index in 34 provinces in Indonesia. In the penetration dimension, it is represented by third party funds, these third party funds are in the form of savings, current accounts and/or deposits. This finding is in line with research by Ifiomu (2016) in this study stating that deposits will remain the main driver in banking operations as well as making a positive contribution to economic development as proxied by the human development index.

The t test on the usability dimension variable (X2) with a probability of 0.1060 > 0.05 and the coefficient value is positive. So it can be concluded that the usability dimension (X2) has an insignificant positive influence on the human development index. In the usefulness dimension, it is represented by the credit given, the credit given is in the form of rupiah and foreign currency. This research contradicts the research findings of Irsyadinnas (2019) which states that credit has a significant positive influence on the human development index.

Test the coefficient of determination to find out how far the model's ability to explain the dependent variable. The R-squared value is 0.992472 or 99.2472 percent. This shows that the human development index variable is explained by 99.24 percent by the penetration dimension and usability dimensions and the remaining 0.76 percent is explained by other independent variables outside the regression equation.

5. Conclusion

Based on the results of empirical testing in this research, several conclusions will be put forward. The conclusions from the research regarding the Influence of Financial Inclusion on the Human Development Index in Indonesia for 2017-2019 are as follows:

The t test on the penetration dimension variable (X1) with a probability value of 0.00000 <0.05 and a positive coefficient value, means the penetration dimension variable (X1) has a significant positive influence on the human development index. Meanwhile, the usability dimension variable (X2) has a probability of 0.1060 > 0.05 and the coefficient value is positive. So it can be concluded that the usability dimension (X2) has an insignificant positive influence on the human development index.

Coefficient of determination test show The R-squared value is 0.992472 or 99.2472 percent. This shows that the human development index variable is explained by 99.24 percent by the penetration dimension and usability dimensions and the remaining 0.76 percent is explained by other independent variables outside the regression equation.

F-test with sig. F is 0.000000 or smaller than alpha 0.05. So it can be concluded that simultaneously the independent variables penetration dimension and financial dimension have a significant effect on the human development index.

The results of this research show that the penetration dimension and usability dimension influence the human development index. These results show that in general 34 provinces in Indonesia experienced an increase in the financial inclusion dimension from 2017-2019. This increase in financial inclusion can be demonstrated by people enjoying formal banking financial services and products. With people enjoying banking services, it will increase the level of community welfare.

Based on the results of the empirical study, several suggestions can be proposed that should be implemented by several parties related to the problems discussed in this research. For banks, it is hoped that they can improve services and expand formal finance to maintain the stability of third party funds and credit provided as well as improve financial technology that is easily accessible so that people make good use of financial services.