

The Role of Digital Financial Inclusion and Social Welfare in Realizing Sustainable Development

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Abstract

The goal of this study is to determine how social welfare and digital financial inclusion relate to one another and to how they affect sustainable development in Malaysia. We take data from the World Bank as a secondary source for the years 2000 to 2020, From our estimation results, We find that the variables we estimate have long-term and short-term correlations such as economic growth and digital financial inclusion and economic growth with life expectancy, in the short term digital financial inclusion has a negative effect on economic growth, then life expectancy also has a significant negative relationship with economic growth, but in the long term, it is significantly positive. This shows that between the two variables, with increasing economic growth, the number of digital financial inclusion will actually decrease, although this only applies in the short term, then in the long term with increasing life expectations will increase economic growth in Malaysia.

Keyword : Malaysia, Economic growth, Digital financial inclusion, Life expectancy.

JEL Classification : C31, I31, G50.

Received: November 6,2021 Accepted: Desember 1,2021
DOI : 10.54204/TMJ/1/Vol412022008

Background

The COVID-19 epidemic has seriously and protractedly disrupted people's lives all across the world, in both poor and rich nations. Lockdowns and curfews have been implemented by nations as a prophylactic measure to limit the viral outbreak. As a result, many businesses see a decline in income since they are unable to continue operating. Moreover, it poses a challenge for organizations to retain a large workforce and thereby cut employees, leading to higher unemployment rates (Duan, et al., 2021).

During a pandemic, access to financial services is crucial, particularly for those who are underprivileged and those who rely on financing to maintain their way of life or their companies. As a result, the COVID-19 outbreak has made financial inclusion an even more important significant development concern. The digital revolution of financial services has increased at the same time as the COVID-19 epidemic (Kouladoum, Wirajing, & Nchofoung, 2022; Astuti & Prabowo, 2021). Government authorities and medical specialists are promoting the adoption of cashless, contactless payment systems, and other digital financial services to lessen the danger of virus transmission through money handling, opening up new opportunities for the adoption of digital financial inclusion (Asongu, Biekpe, & Cassimon, 2022).

In order to improve the quality of people's lives, it is important to accelerate economic growth. However, this cannot be done if there is no community-based economic activity. Observations show that the financial sector is one of the industries that strategically influence the direction of the economy. The dynamics that occur in the financial sector cannot be separated from the journey of the financial system in carrying out its functions. In the system there are actors,

products, policies, and the mechanism for carrying out an activity. The existence of a financial system in the realm of the national economy can provide a wider space for economic actors to be able to carry out their economic transactions (Musibau, Yusuf, & Gold, 2019).

Economic growth is a long-term process of increasing production per capita. Output per capita is correlated with aspects of total output and population, which over the long term demonstrates the tendency of economic changes in a specific period of time governed by internal economic processes. The process describes the development of the economy from time to time which is more dynamic. Regardless of whether the rise is lower or greater than the population growth rate and regardless of whether economic growth occurs after it or not, economic growth is generally often understood to mean an increase in total production over the long term. The primary prerequisites for economic development are high economic growth and its sustainable process (Sun & Tang, 2022). According to Sun & Tang (2022) economic growth also demonstrates how much a community will earn more money over time as a result of economic activity. To put it another way, the economy is considered to be expanding if the locality's real income for a given year is higher than its real income for the preceding year. Macroeconomically speaking, economic growth is the rise in the national income as a result of the addition of Gross Domestic Product.

According to Ding (2021) economic growth is the expansion of economic activity that raises the number of goods and services generated in society. Real GDP or GNP growth is a sign of economic expansion. Economists have studied the key variables that affect economic growth for a very long time. Based on the expansion of economic power in different nations, It is possible to come to the conclusion that the wealth of natural materials and land, the quality and quantity of labor, the accessibility of capital goods, the sophistication of technology, the social structures and cultural attitudes of the populace, and the availability of capital goods are the main factors that influence a country's growth and development.

In a study conducted by Ozturk & Ullah (2022) the main goal of financial inclusion is an effort to improve social aspects such as poverty and the environment. The reality that not all inhabitants have the same access to economic resources yet at the same time every citizen must satisfy their daily necessities highlights the significance of financial inclusion. The inability of the community to utilize the current financial system might result in poverty and inequality amongst community groups. As a result, the presence of other sectors outside the financial sector has nothing to do with the financial system, which exists exclusively in its own context.

The COVID-19 epidemic is changing these industries, making it imperative that everyone has access to digital financial services in order to ensure sustainable economic growth (Cao, Nie, Sun, Sun, & Taghizadeh-Hesary, 2021). Governments in developing nations, particularly those in Asia, are embracing and expanding digital financial inclusion in an effort to combat poverty. But the results show that in terms of using and having access to digital financial services, there are still differences between affluent and poor, urban and rural locations, and gender in developing nations. We make a number of recommendations at the conclusion of the study, concentrating on improving the nation's digital infrastructure, reducing complex banking procedures, and emphasizing the value of financial education, which allows for a seamless application of the effects of digital financial inclusion (Tay, Tai, & Tan, 2022).

Economic growth is often recognized as one sign of successful development. While reducing poverty, which may be accomplished through economic expansion or income redistribution, is the primary objective of development (Zhang, et al., 2021). According to the trickle-down effect idea, when a group of individuals makes success, that development will naturally spread to other

people, leading to the creation of employment and other prospects for economic growth, which will in turn help to generate a number of favorable conditions. According to the hypothesis, economic expansion will be followed by an inevitable vertical flow from the affluent to the poor. The affluent will experience the advantages of economic expansion first, while the poor won't start to benefit until the rich start spending the gains of their economic growth till then. As a result, the vertical movement from the affluent to the poor has an indirect influence on how much poverty is reduced by economic progress. This also implies that if the poor only receive a little portion of the overall advantages brought about by economic progress, poverty will be eliminated on a very modest scale. Due to rising income disparity brought on by economic development that benefits the wealthy over the poor, this circumstance may create chances for poverty to expand. Therefore, if economic growth occurs in a way that benefits the poor, it may be stated that this will contribute to the elimination of poverty (Kouadio & Gakpa, 2022). According to Ding (2021), economic development is a prerequisite for eliminating poverty, whereas the adequacy criterion stipulates that economic growth must be successful in doing so. An individual or group of people who are unable to live their life to a standard that is deemed humane are said to be experiencing poverty (supplying their fundamental necessities) (Lin, et al., 2022). So it can be concluded that poverty is a condition of a person's life which refers to a state of deficiency in meeting the basic needs of life and not being able to enjoy life in terms of health, religious worship, education, work, high income and a decent standard of living. Underdeveloped countries or developing countries are generally trapped in a cycle of poverty (Erlando, Riyanto, & Masakazu, 2020). The goal of this study is to determine how social welfare and digital financial inclusion relate to one another and to how they affect sustainable development in Malaysia.

Research methods

We take data from the World Bank as a secondary source for the years 2000 to 2020, the following variables will be analyzed using two different time series models. The country's GDP is used as a measure of economic growth in this study. Digital Financial inclusion (DFI) and life expectancy (LE) are independent variables of this study because they show how these two factors link to economic growth both long-term and short-term, respectively. We employ the subsequent econometric model:

$$EG_t = \beta_0 + \beta_1 EG_{t-1} + \beta_2 DFI_{t-2} + \beta_3 LE_{t-3} + e_t$$

Where,

EG : economic growth

DFI : digital financial inclusion

LE : life expectancy

e : Error phrase

t : Time series

Dynamic ARDL was used in the study. According to Khan et al. (2020), the ARDL model may be used to investigate, simulate, and make predictions in situations where the independent variables experience a shock. If the study variables have a cointegration connection, ARDL simulation models may be used.

Result and Discussion

Table 1 displays descriptive data based on the study's variables.

Table 1. Descriptive Statistics

	EG	DFI	LE
Mean	4.559798	57.81279	71356.00
Median	5.332139	56.30000	74493.00
Maximum	8.858868	89.55501	76306.00
Minimum	-5.646940	21.38473	7317.000
Std. Dev.	3.173540	19.12861	14716.47
Skewness	-1.961798	-0.184270	-4.207274
Kurtosis	6.695058	2.249091	18.82859
Jarque-Bera	25.41705	0.612226	281.1802
Probability	0.000003	0.736303	0.000000
Sum	95.75576	1214.068	1498476.
Sum Sq. Dev.	201.4271	7318.072	4.33E+09
Observations	21	21	21

The results of descriptive statistics are expressed in terms of mean, min, max, and Std Dev. EG Mean 4,559, EG Min -5,646, EG Max 8,858, EG Std Dev 3,173. DFI Mean 57,81, DFI Min 21,38, DFI Max 89,55, DFI Std Dev 19,12, and so on. EG is Malaysia's economic growth, DFI is digital financial inclusion represented by internet users, and LE is life expectancy.

The ARDL model should not be used to forecast the value without first performing a stationary test. Augmented Dickey-Fuller (ADF) may evaluate whether a series is stationary or not by examining the error component, which includes any potential for autocorrelation. The results are as follows:

Table 2. Unit Root Test

Variable	Unit Root	ADF Test stat.	Signif.	Description
Economic Growth (EG)	Level	-3.865447	0.0089	Stationer
Life Expectancy (LE)	Level	-4.249318	0.0039	Stationer
Digital Financial Inclusion (DFI)	Level	-1.014848	0.7271	
	First Diff	-4.177608	0.0049	Stationer

The EG and LE data are stationary in the original data, while the DFI data are stationary in the first difference. Since all the data are stationary, we can proceed to estimate the ARDL.

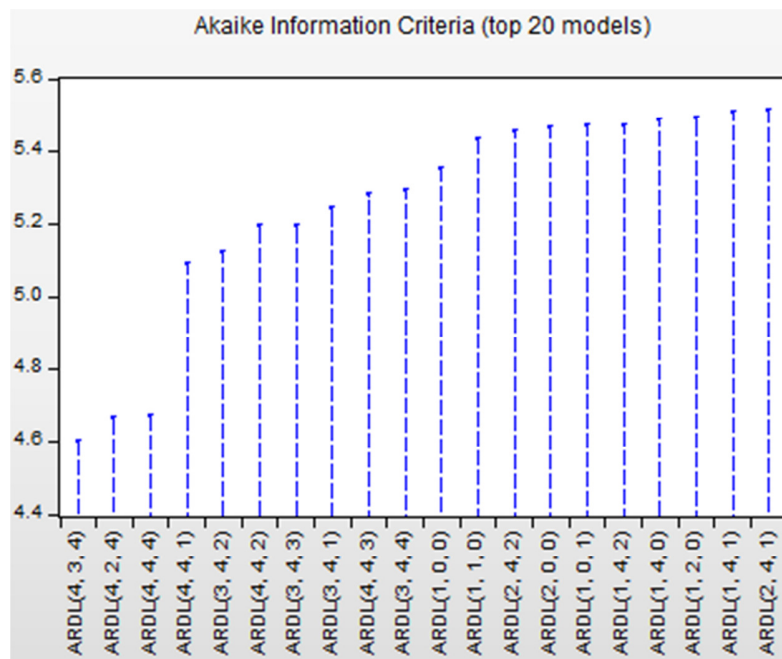


Figure 1. Optimum Lag Test

The best lag to employ in the following test is determined by optimal lag testing, and as can be seen in the image above, the best lag is 4,3,4.

Tabel 3. ARDL Bounds Test

Test Stat.	Value	Signif.	I(0)	I(1)
F-stat.	4.795775	10%	2.63	3.35
k	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Asymptotic : n=1000

Based on the findings of the Limit model test, which are displayed in Table 3, the ARDL model's F-statistic value is 4.795775 more than the upper limit value at the 5% level and even greater than the upper bound value at the 2.5% level. This shows cointegration, or movement in the same direction, of the three variables examined in this study: economic growth, digital financial inclusion, and life expectancy.

Tabel 4. ARDL Analysis Results

Variable	Coef.	Std. Error	t-Stat.	Prob.*
EG(-1)	-0.553685	0.399604	-1.385586	0.2599
EG(-2)	-0.513686	0.419226	-1.225320	0.3079
EG(-3)	-1.065167	0.464127	-2.294991	0.1055
EG(-4)	2.812559	0.884965	3.178158	0.0502
DFI	-1.952271	0.556537	-3.507890	0.0393
DFI(-1)	1.494260	0.521863	2.863320	0.0644

DFI(-2)	-0.848244	0.334134	-2.538638	0.0848
DFI(-3)	-0.165523	0.214984	-0.769933	0.4974
LE	0.023951	0.006110	3.920005	0.0295
LE(-1)	9.09E-05	6.46E-05	1.407280	0.2541
LE(-2)	-0.000338	0.000119	-2.843313	0.0655
LE(-3)	-0.000113	6.48E-05	-1.747707	0.1788
LE(-4)	-0.000200	6.97E-05	-2.871148	0.0640
C	-1659.914	427.0895	-3.886572	0.0302
R-squared	0.883420	Adjusted R-squared		0.378237

The R-squared and R-squared values of the adjusted ARDL models varied between 0.88 and 0.37. The Adjusted R-squared value of 0.37 implies that each independent variable in the ARDL model, namely digital financial inclusion and life expectancy, can explain 37 percent of the variation in the dependent variable of economic growth. This shows that the research model is quite good for research.

The DFI variable (-3) has a coefficient value of -0.165 according to the findings of the ARDL estimate, which suggests that digital financial inclusion is a factor that influences economic growth. For example, a 1% increase in digital financial inclusion would result in a 16.5 percent decline in Malaysia's economic growth. This shows that digital financial inclusion, which is represented by an increase in internet users, although the influence is minimal over the long run, is considerably inversely correlated with economic growth.

Additionally, the LE variable's coefficient value at 0.023 suggests that the life expectancy component influences economic growth. For example, when there is an increase in the rate of life expectancy by 1%, It will lead to a 2.3 percent improvement in Malaysia's economic growth. In other words, the performance of economic growth this year will be greatly impacted by the rise in life expectancy.

Table 5. Analysis Results In The Long Term And Short Term

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1659.914	427.0895	-3.886572	0.0302
EG(-1)*	-0.319978	1.237085	-0.258655	0.8126
DFI(-1)	-1.471778	0.359301	-4.096228	0.0263
LE(-1)	0.023391	0.005964	3.921838	0.0295
D(EG(-1))	-1.233706	1.062470	-1.161168	0.3296
D(EG(-2))	-1.747392	0.880162	-1.985307	0.1413
D(EG(-3))	-2.812559	0.884965	-3.178158	0.0502
D(DFI)	-1.952271	0.556537	-3.507890	0.0393
D(DFI(-1))	1.013768	0.297885	3.403216	0.0424
D(DFI(-2))	0.165523	0.214984	0.769933	0.4974
D(LE)	0.023951	0.006110	3.920005	0.0295
D(LE(-1))	0.000651	0.000224	2.911727	0.0619
D(LE(-2))	0.000313	0.000121	2.582137	0.0816
D(LE(-3))	0.000200	6.97E-05	2.871148	0.0640

Because of the considerable negative association between the EG and DFI variables (-1) and the LE variable (also considerably negative), digital financial inclusion in Malaysia will likely have a short-term negative impact on both economic growth and life expectancy. has a considerable detrimental impact on economic development as well. However, there is a strong long-term correlation between economic growth and the variable of life expectancy.

Conclusion

We find that the variables we estimate have long-term and short-term correlations such as economic growth and digital financial inclusion and economic growth with life expectancy, in the short term digital financial inclusion has a negative effect on economic growth, then life expectancy also has a significant negative relationship with economic growth, but in the long term, it is significantly positive. This shows that between the two variables, with increasing economic growth, the number of digital financial inclusion will actually decrease, although this only applies in the short term, then in the long term with increasing life expectations will increase economic growth in Malaysia.

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