Financial Inclusion and Human Development in OIC Member Countries: Evidence from Panel Quantile Regression Method

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Article Info	ABSTRACT
	The Organization of Islamic Cooperation (OIC) member countries has the lowest human development index (0.63) compared with the world average (0.73) and developing countries' average (0.68). However, the level of human development varies among the member countries, with the majority of the members categorized under low and medium levels of human development. To explore more information about the effect of financial inclusion on human development across different level of human development of OIC countries, this study used panel quantile regression to examine the effect of financial inclusion on low, medium, high and very high human development levels of OIC countries. The results revealed that financial inclusion promote higher human development in countries with medium human development, because of increase in income and investment in countries that move from low-income level to medium income status. Institutions found to promote higher human development in countries with high and very high human development and negatively affect human development in countries with low and medium human development levels. Also, remittance inflows have positive effect on human development across all levels of human development but stronger in countries at lower level of human development. Thus, policymakers in OIC should formulate policies that will promote financial inclusion in low- and meddle-income countries to achieve higher human development. In addition, policymakers should revitalize institutions especially in countries with low and medium human development levels. Also, the cost of sending remittance into OIC should be reduce to attract more remittances into the member countries.

1. Introduction

The approach to human development attracts the attentions of scholars in the 1980s, though it appeared in the work of great minds like Aristotle where he stated that "wealth is evidently not the goods we are seeking, for it is merely useful for something else". Likewise, the works of Karl Marx and Adam Smith proposed putting human beings at the centre stage of all development agendas, down to the works of Sen (1994) and Nussbaum (2000) that came up with the capability approach to human development. In his work, Sen (1989)argued that development is about people, to enlarge their choices, preferences and choice to do what they are capable of "doing" and be what they are capable of "being", known as "functioning". He maintained that human beings can achieve numerous "functionings" when they have access to quality education and health care services, which constitute the basic requirement for quality life. Conversely, the "Trickle down" school argued that, an increase in income is the basis for achieving higher human development. By combining the two arguments, human development report by UNDP (1990) measured human development using an index constructed with three dimensions of human development, namely, human capital, healthy life and income. Nevertheless, the main focus of policymakers in developing countries is stabilizing macroeconomic variables to reduce poverty and income inequality, promote local production, generates employment opportunities, income, consequently, growth and development.

Even though progress has been reported in many OIC member countries in terms of GDP growth, many of the countries has been categorized with higher rate of corruption and mismanagement of resources that contributed to the higher level of poverty and unemployment, poor human capital development and under funded health care system, which contributed to low level of human development in many of the OIC member countries, especially those that fall under lower and middle income incomes groups (COMCEC,

2018). The trend in human development show that, OIC countries experienced upward movement in human development index (0.51 to 0.63) from 1990 to 2019, but fall short of world average (0.60 to 0.73) and developing countries' average (0.52 to 0.68), only slightly above the least developed countries' average (0.35 to 0.52). However, the trends within the OIC also shows uneven level of human development, from countries with Human Development Index (HDI) values as low as 0.35 (Niger) to countries with HDI values as high as0.863 (UNDP, 2019). Therefore, it is apparent that, human development not only varies across the country groups but also shows a widening gap between OIC member countries.

Financial inclusion is recognised to be vital tools for poverty alleviation, employment generation and inclusive growth and development (Kamalu et al., 2019), which become part of government policies not only in developing countries but also in developed countries (Wang and Guan, 2017). In addition, all-inclusive financial system promotes effective and efficient allocation of financial resources for productive use, also promote the growth and development of small and medium scale businesses, facilitate the acquisition and development of human capital and access to quality health care services etc. Even though the level of financial inclusion has improve in OIC member countries, more than half of adult age 15 and above are financiallyexcluded (SESRIC, 2019). However, the Sustainable Development Goals (SDGs) of United Nation listed 17 goals as a target for sustainable development. Interestingly, 7 out of the 17 SDGs can be achieved through inclusive financial system. For instance, the goal of no poverty, quality education, gender equality, health care among others, can be achieved when people have access to affordable financial products andservices (World Bank, 2018). Thus, financial inclusion that provides access to affordable financial products and services will provide employment opportunities facilitate income generation, increase access to quality education and health

care services, reduce poverty and income inequality, hence promote human development (Ababio et al., 2020; Datta and Singh, 2019a).

This work will examine the effect of financial inclusion on human development in OIC member countries using panel quantile regression method. Basically, the level of human development varies greatly across OIC members, with majority of the countries falls under low andmedium level of human development according to categorization by UNDP-HDR (2018). Therefore, this study employed to examine the effect of financial inclusion across different levels of human development (low, medium, high and very high) of OIC member countries. Panel quantile regression is efficient and robust when compared with ordinary least square, pool OLS or even General Method of the Moment (GMM). The reason was that, the method uncovers additional vital information about tails of the data distribution that cannot be revealed by these other methods. Thus, panel quantile regression methods is consistent and unbiased when the data is not normally distributed (Xu et al., 2017), this work used various normally tests, both statistical and graphical, to check the nature of the data distribution. This work will contribute to the literature on the effect of financial inclusion on human development across different quantiles for OIC member countries. Also, we constructed financial inclusion index using principal component analysis, to measure financial inclusion in OIC.

The remaining sections of this paper will be organised as follows. The next section will review the important related literatures, section 3 will present the methodology and data, section 4 will present the results and discussion, and in the last section conclusion and policy implication will be provided.

2. Literature Review

The argument in the literature that development should focus on improving peoples' standard of living started with the writings of

Aristotle that postulate that human development is the end that all policymakers must take into account. The idea that human beings should be put at the centre stage gained more prominence after the Second World War when economic growth and national income failed to improve human lives; the obsession grew to find the better measure away from per capita GDP/GNP. The major counter-offensive came around late 1980s as the dissatisfaction grew in the field of development economics that developing countries experienced GDP growth, while standard of living deteriorating (Bagolin and Comim, 2008), especially with structural adjustment programs and continuous dominance of IMF and World Bank policies. The approach to economic development with focus on human wellbeing rather than per capita income became prominent in the work of Sen (1989) who pioneered the capability approach to human development, which was later expanded in the work of Nussbaum (2000) known as capabilities approach.

The Capability approach to human development is based on the argument that development is beyond increase in GNP/GDP per capita and changes in income alone cannot explain the changes in human development. The capability approach emphasised on what people can "do and be" which were called "functionings" that influences peoples' wellbeing. Capabilities refer to a person's array of important functionings that reflect his freedom to choose between various combinations of these functionings. Whereas functionings are the capabilities that individual possessed "to do" what he is capable of "doing" and "be" what he is capable of "being". In other words, "capability set" are different possible combinations of functionings that can be achievable by any individual. Furthermore, Sen (1989) argued that individual live with interrelated functionings that are unique to him and are multidimensional in nature. Therefore, capability approach recognised individual differences and the vital role that freedom of choice plays in promoting capabilities to function

in a society full of human dignity and ultimate happiness. This approach was criticized for not providing the list of capabilities required for proper functionings. However, the work of Nussbaum (2000) expanded the capability approach by providing detailed list of 10 capabilities needed by all human beings to live a dignified life. Nussbaum (2000) argued that, the idea of quality living should be qualified with capabilities, not with singular term, hence, her approach is known as capabilities approach.

Nonetheless, in collaboration with other researchers and economic theorist, Sen Capability approach provided a framework used by UNDP to construct the first human development index (HDI), which captured the human capabilities in three dimensions of human development: knowledge dimension, long and healthy living dimension, and income dimension, considered to better proxy human development than a single measure of GNP/GDP per capita (UNDP, 1990). The UNDP has been publishing human development report (HDR) every year since the first HDR of 1990, which handed human development approach a very solid institutional backing. Basically, HDI provided a good measure of human development and for comparing levels of human development across countries and regions. Even though HDI suffers criticism on measurement and quantification, it is undoubtedly a better measure of human wellbeing than a single measure of GNP/GDP (Comim, 2016).

Thus, the human development is all about expanding peoples' choices and freedoms, through improving their capabilities. Basically, these choices are considered to revolve around quality education, affordable healthcare and decent living standard, which can be achieved with access to affordable finance. Kuri and Laha (2017) argued that financial inclusion and human development may have a two-way causal link, especially in developing countries, where both human development and financial inclusion are lower. However, Sarma and Pais (2010) argued that formal financial institutions play a

vital role in increasing the level of financial inclusion by increasing the number of formal bank branches and ATMs, especially in remote areas and disadvantaged communities hitherto without access to formal financial services. Moreover, Demirgüç-Kunt et al. (2017) pointed out that access to mobile money services that gives people a platform to save and transfer money with the use of mobile phone, will promote economic activities, provide employment opportunities and income generation, consequently, reduces the level of poverty and income inequality.

In their paper, Kim et al. (2017) did a systematic article review of 54 papers on financial inclusion, mobile money and economic development in developing countries. Overall, the works reviewed articles that mainly focus on delivery of formal financial services, environmental conditions and mobile money and its impact on macroeconomic variables. The study found that the financial inclusion-development nexus needs further research, especially for mixed method. Nonetheless, the work of Datta and Singh (2019a) argued that, the dynamics of development entail provisions of financial infrastructures at the doorstep of people, especially remote areas and disadvantage communities, so that people without access to formal financial products and services can be financially included. They maintained that, better living standard is conditioned by individual ability and capability to generate income, quality education and better health care services, which can be possible when, access to affordable formal financial products and services are available. Thus, financial inclusion can be a vital tool to promote human development, through efficient allocation of financial resources.

The study by Beck et al. (2007) established association between financial inclusion and human development index and found that higher financial inclusion lead to higher human development. And also financial inclusion for lower quantile group has strong effect on the level of poverty and income inequality. In their work, Datta and

Singh (2019b) maintained that, the lower the level of poverty, the higher will be the level of human development. Financial services provided to poor, disadvantaged people and communities will increase the chances of obtaining quality education and healthcare services, which believe to promote human development. In addition, inclusive finance provide opportunities for people with talent to access funds to start new business and SMEs to expand the existing businesses, thereby provide employment opportunities, increase in income, and overall growth and development.

The work of Nanda and Kaur (2016) used financial inclusion index to measure the level of financial inclusion in 68 countries of the world, with data from 2004 to 2012. The result found that HDI and financial inclusion have strong association in the long run. Furthermore, they also found that the level of financial inclusion converge in those countries. Similarly, Raichoudhury (2016) examine the effect of financial inclusion on human development, using index of financial inclusion and human development index. The results revealed that HDI and financial inclusion index move together, except in some countries, where a high level of financial inclusion is greeted with lower human development. The work by Demirgüç-Kunt et al. (2017) revealed that financial inclusion promote human capital development, which is one of the important dimension of human development.

In their work, Park and Mercado (2017) study the impact of financial inclusion on poverty and income inequality for 176 countries of the world. The study constructed financial inclusion index and examine the factors that determine the level of financial inclusion. They estimated two models: for the world and for 46 Asian countries. The results show that higher financial inclusion reduces the level of poverty and income inequality for the full sample and insignificant for Asian countries. This result indicates the importance of financial inclusion in promoting human development through reducing the level

of poverty and inequality, by providing access to finance to poor and disadvantaged people. Similarly, Li (2018) investigates the effect of financial inclusion on poverty in China by considering the role of relative income. The work tests two hypothesis of "keeping up with Joneses hypothesis", where the poor people seek fund from formal financial institution to replicate the consumption lifestyle of the rich among them; and the "Tunnel effect hypothesis", where the poor get inspired by the success of their pairs, which makes them seek formal credit from formal financial institution. The result found no evidence of keeping it with Joneses but found that, tunnel effect hypothesis is significant. This result revealed that poor people borrow to invest in human capital, to follow the footsteps of their pairs, which reduces the level of poverty and inequality, hence, higher human development.

The study by Ibrahim et al. (2018) investigates the effect of financial inclusion on welfare and income inequality for 1,750 rural households in Nigeria, using micro data. The results show that inclusive financial system enhanced household welfare in rural Nigeria. A further analysis indicate higher and middle income household benefit more from access to finance than the lower income household. Another work by Datta and Singh (2019a) examined variation and determinants of financial inclusion and their correlation with human development in developed and developing countries, using data from 2011 to 2014. The study used financial inclusion index and human development index, and the results from Pool OLS with clustered standard error revealed that, significant positive association exist between HDI and financial inclusion. Moreover, the study found that, the wide differences in the level of financial inclusion exist among developed and developing countries. Lower income countries have lower financial inclusion and lower human development, and reverse is the case with higher income countries. The work of Matekenya et al. (2020) also found that financial inclusion promote human development in sub-Saharan Africa.

Nevertheless, Ababio et al. (2020) examines the link between human development and financial inclusion using dynamic System Generalised Method of the Moment (SGMM) with data from 20 frontier markets indexed by Standard and Poor. Interestingly, bi-directional causality was found between financial inclusion and human development. The results found that lower human development (financial inclusion) causes lower financial inclusion (human development) and vice versa. Thus, the study concludes that, increasing human development will promote higher financial inclusion, through formal banking services that promote economic development in Frontier markets. And also promoting financial inclusion will increase the level of human development. In addition the work reported that income, quality healthcare delivery and financial literacy are important determinant of financial inclusion.

The previous literatures reviewed that examined the effect of financial inclusion on human development used OLS, Pool OLS, GMM, and static panel, none of the studies used panel Quantile regression method. Panel Quantile regression methods have many advantages over other methods, as it provide more robust, unbiased and efficient estimators when the variables are not normally distributed. Basically, normality assumptions are very difficult to achieve in economics and financial data. Moreover, the level of human development varies across OIC member countries; hence, quantile regression will examine the effect of financial inclusion on human development across different quantiles, representing different level of human development, to explore more information that otherwise cannot be obtained with other methods.

3. Methodology and Data

This work examines the effect of financial inclusion on human development across different quantiles in OIC member countries, using panel quantile regression method of analysis. The method

produce robust estimator when the variables are not normally distributed. Thus, this paper used various diagnostics test to establish the stationarity nature and normality distribution of the variables. Firstly, unit root test is use to ascertain the stationary nature of the variables. This study uses first generation and second-generation unit root tests to establish the nature of stationarity of the data. The first-generation test is based on the assumption that all individual cross sections are cross sectionally independent, while on the other hand, the second-generation panel unit root tests capture cross sectional dependence on the data. The null hypothesis of the first generation assumes homogenous unit root process in the case of Im et al. (2003), Choi (2001) and Maddala et al. (1999) tests, while Hadri (2000) test assumes heterogeneity unit root process. However, the second-generation unit root test uses the null hypothesis of heterogenous unit root process, without common autoregressive structure in the series (Tugcu, 2018). Therefore, this work employed two first generation test (Maddala and Wu; IPS) and a second-generation test (CIPS) to examine the sample data. Secondly, the study uses Quantile-Quantile (Q-Q plot) graphical method to test normality distribution of the data. Thirdly, two statistical tests by Shapiro Wilk and Shapiro Francia are used to test for normality distribution of the data. In addition, two descriptive statistics tests of Kurtosis and Skewness are also used to determine the normality distribution of the data. The normality test is use to determine whether the distribution of the data follow normal distribution. The quantile regression method produce consistent and efficient estimators when the variables are not normally distributed (Xu et al., 2017).

3.1 Panel Quantile Regression Method
This method was first introduced in the work of Koenker and Bassett (1978) as a robust estimator, which minimised the residual sum of squares that will serve as an alternative to the ordinary least square

method. The method has the power to determine the effect of the covariates for different locations in the distribution of the independent variables. In addition, the method also account for unobserved heterogeneity across the individual cross sections and heterogeneity in covariates of the distribution. To achieve our objective, this work will follow the model used by Xu et al. (2017) and presented as follows:

$$y_{i,t} = x'_{i,t}\beta_\vartheta + \varepsilon_{i,t} \qquad for\ 0 < \vartheta < 1 \tag{1}$$

where $y_{i,t}$ represent the dependent variable, $x'_{i,t}$ is the vector of explanatory variables, t is the time dimension, i is the cross section dimension, β_ϑ is the ϑth quantile estimator and $\varepsilon_{i,t}$ is the random error with its distribution of conditional quantile equal to zero. Thus, the quantile of ϑ is given:

$$Quant_\vartheta\left(\frac{y_{i,t}}{x_{i,t}}\right) = \beta_\vartheta x_{i,t} \tag{2}$$

where $Quant_\vartheta\left(\frac{y_{i,t}}{x_{i,t}}\right)$ stand for means of ϑth quantile of the explained variable ($y_{i,t}$) and $\beta_\vartheta x_{i,t}$ is the mean quantile parameter to be estimated. The solution of the mean quantile regression is given as follows:

$$min \sum_{y_{i,t}\geq x_{i,t}\beta}\vartheta\ |y_{i,t} - x_{i,t}\beta| + \sum_{y_{i,t}\leq x_{i,t}\beta}(1-\vartheta)|y_{i,t} - x'_{i,t}\beta| \tag{3}$$

The equation (3) solution can be obtained using linear programming techniques. Where $\vartheta = 0.5$ regarded as the median quantile; and different quantiles can be set by changing the values of ϑ in the model. Thus, this work examines the effect of financial inclusion on human development in OIC member countries across different quantiles. For this purpose, this paper set five different quantiles: 10th, 25th, 50th, 75th and 95th quantiles. Basically, this study formulated its model by following equation (2) and (3) as follows:

$$Q_\vartheta HDI_{i,t}(\vartheta|x_{i,t}) = \beta_{0\vartheta} + \beta_{1\vartheta}FII_{i,t} + \beta_{2\vartheta}RM_{i,t} + \beta_{3\vartheta}IN_{i,t} + \beta_{4\vartheta}IF_{i,t}$$
$$+\beta_{5\vartheta}FDI_{i,t} + \varepsilon_{i,t} \tag{4}$$

where, $QHDI_{i,t}(\vartheta|x_{i,t})$ is the quantile function, HDI stand for human development index, which serve as our dependent variable, FII is the index of financial inclusion which is the variable of interest in this study, RM is the remittance inflows and IN stand for institutions, as the explanatory variables, IF is macroeconomic variable to control for internal shock, and FDI is the foreign direct investment, which control for external shock, ε is the random disturbance term, $\beta_{1\vartheta}$ to $\beta_{5\vartheta}$ are the parameters of the ϑth quantile to be estimated, i and t stand for cross section and time dimension respectively.

This study uses the panel quantile regression method to determine the effect of financial inclusion on human development in OIC member countries across the five different quantiles (10th, 25th, 50th, 75th and 95th). Based on the categorization of level of human development by UNDP human development report, this work proposed quantile groups for OIC member countries based on their level of human development. The countries with lower human development represent lower quantile group (10th - 25th quant); countries with medium level of human development fall under medium quantile group (25th-50th quant); countries with high human development make up high quantile group (50th - 75th quant); while countries with very high human development categorised under very high quantile (75th - 95th quant) group (see Table 1)

Table 1. Distribution of Human Development and Quantile Groups in OIC Member Countries

Low HD $10^{th} - 25^{th}$ Quantile	Medium HD $25^{th} - 50^{th}$ Quantile	High HD $50^{th} - 75^{th}$ Quantile	Very high HD 75th -95th
Nigeria, Mauritania, Uganda, Benin, Senegal, Comoros, Togo, Sudan, Afghanistan, Ivory Coast, Djibouti, Guinea, Guinea-Bissau, Yemen,	Egypt, Indonesia, Palestine, Iraq, Kyrgyzstan, Morocco, Guyana, Tajikistan, Bangladesh, Pakistan and Cameroon.	Iran, Turkey, Albania, Azerbaijan, Lebanon, Algeria, Jordan, Tunisia, Suriname, Maldives, Uzbekistan, Libya, Turkmenistan and Gabon	Qatar, Saudi Arabia, Brunei, Oman, Kuwait, Malaysia and Kazakhstan.

Low HD 10th −25th Quantile	Medium HD 25th − 50th Quantile	High HD 50th −75th Quantile	Very high HD 75th -95th
Mozambique, Mali, Burkina Faso, Sierra Leone and Niger			

Source: UNDP Human Development Report (2018).

3.2 Data and Priory Expectations

Based on the categorization of the level of human development (HDR-UNDP, 2018), where all countries of the world are categorized into four levels human development: Low, Medium, High and Very high human development level. Based on this categorization, this work formed four quantile groups (10th to 25th; 25th to 50th; 50th to 75th and 75th to 95th), representing each level of human development respectively (Table 1). The study obtained its data from 50 out of 57 OIC member countries with available data, from 2005 to 2018. The dependent variable is human development proxy by Human Development Index (HDI) constructed by HDR-UNDP (2018). The HDI is constructed with three dimensions: human capital dimension, healthy and longer life dimension and decent standard of living dimension. The explanatory variable of interest is financial inclusion, proxy by financial inclusion index (FII), constructed with three dimensions of financial inclusion, using principal component analysis. The three dimensions of FII include availability dimension proxy by commercial banks branches per 100,000 people; accessibility dimension proxy by number of ATMs per 100,000 people; and usage dimension proxy by number of accounts with commercial banks. When poor people and disadvantaged communities hitherto financially excluded, will better their living standard when they are financiallyincluded (Sarma and Pais, 2010). Thus, expected sign of the coefficient of FII is positive. The data is obtained from world development indicators, World Bank database.

Institutions (IN) as explanatory variable is proxy by control of corruption index constructed by world governance indicators (WGI,

2018) World Bank database. It is argued by Demetriades and Law (2006) that countries with better institution benefitted more from development programs than countries with poor institutions. This work argued that, controlling the level of corruption will better the delivery of essential services, such as quality education and health care services, which promote human development. Therefore, institution (IN) as proxy by control of corruption in this study is expected to produce positive coefficient. The data is obtained from world governance indicators, World Bank data base. The money remit by migrants to their families and communities in their home country is known as remittance inflows. Remittance inflows better the life of the recipients' families and communities, through investment in human capital, healthcareservices and physical capital (Rapoport and Docquier, 2005). Therefore, remittance inflows (RM) as one of the explanatory variables is expected to produce positive coefficient, and the data is obtained from world development indicators (WDI, 2018), World Bank database.

This work also uses inflation proxy by consumer price index (IF), as a control variable. Inflation affects many macroeconomic variables that determine human development. For instance, it deteriorates purchasing power and increases cost of production (Hemmati et al., 2018), which negatively affects human development. Thus, it is expected to produce negative coefficient and the data is obtained from world development indicators (WDI, 2018) World Bank database. Another control variable in this work is FDI, which argued to promote human development, through transfer of technology, employment opportunities, additional revenue to the government, social responsibility etc., to the host economy (Habibi and Karimi, 2017). Thus, FDI is expected to have positive coefficient and the data is obtained from world development indicators (WDI, 2018) World Bank database.

4. Results and Discussion

The results of panel unit root tests are presented in table 2, where two first generation unit root testsproposed by (Im et al., 2003) and Maddala and Wu (1999) and one second generation unit root test, CIPS proposed by Pesaran, (2007) were used. The first generation assumed cross sectional independence, while on the other hand, the second-generation unit root tests account for the existence of cross-sectional dependency in the data. The results show that, all the variables are I(1) in the first generation tests except institution (IN) and FDI which are I(0). Whereas, the results of the second generation test show that all the variables are I(1). In table 3, the results of Shapiro-Wilk and Shapiro-Francia tests show that all the variables are statistically significant, which revealed that our variables are not normally distributed. More also, in table 3 the results of descriptive statistics show that, none of the variables have zero value in Skewness statistics; and all the variables have values greater than 3 in Kurtosisstatistics (Neuberger et al., 2014). Consequently, all the results of the normality tests show that, our variables do not follow normality distribution. Lastly on normality test, is the graphical test based on Q-Q plot. The graphs (i to vi) presented in figure 1 indicate that, the blue lines deviate from the normal distribution line, which show that all the variables are not normally distributed. Overall, all the different normality tests results in table 3 and 4, as well as figure 1, proved our choice of panel quantile regression as appropriate method for our data.

Table 3. Panel Unit Root Tests

	Panel Unit Root Tests					
	Im, Pesaran, and Shin		Maddala and Wu		CIPS	
Variables	Level	First Difference	Level	First Difference	Level	First Difference
Human Development (HDI)	-0.56170 (0.2872)	-3.9149*** (0.0000)	91.50 (0.716)	484.759*** (0.0000)	0.3930 (0.6530)	-9.5740*** (0.0000)
Financial Inclusion (FII)	-0.0492 (0.4804)	-4.1042*** (0.0000)	111.39 (0.2050)	443.348*** (0.0000)	0.8270 (0.7960)	-3.3540*** (0.0000)
Institutional Quality (IN)	-1.8399*** (0.0329)	-8.5863*** (0.0000)	214.829 (0.0000)	578.570*** (0.0000)	-1.0470 (0.1480)	-9.440*** (0.000)
Remittances	2.3333	-7.9286***	113.39	554.211***	-0.239	-8.882***

Panel Unit Root Tests					
	Im, Pesaran, and Shin		Maddala and Wu		CIPS	
Variables	Level	First Difference	Level	First Difference	Level	First Difference
Inflows(RMI)	(0.9902)	(0.0000)	(0.170)	(0.000)	(0.057)	(0.000)
Inflation (LIF)	-1.1654 (0.1219)	-4.5279*** (0.0000)	109.34 (0.2460)	421.275*** (0.0000)	-0.5560 (0.2890)	-3.1540*** (0.0010)
Foreign Direct Investment (FDI)	-4.375*** (0.0000)	-10.3985*** (0.0000)	242.08*** (0.0000)	595.968*** (0.0000)	-0.4150 (0.3390)	-7.3580*** (0.0000)

Source: Research finding.
Note: ***, ** & * are the level of significance at 1%, 5% and 10% respectively. The parenthesis contains the P-value.

Table 4. Normality Tests

Variables	Shapiro-Wilk Test	Shapiro-Francia Test	Skewness	Kurtosis
Human Development (LHDI)	7.625*** (22.559)	7.142*** (23.87)	-0.460938	2.195835
Financial Inclusion (LFII)	9.213*** (43.174)	8.588*** (45.37)	0.757699	2.615632
Institution Quality (LIN)	5.245*** (8.530)	4.852*** (8.632)	0.433369	2.885227
Remittance Inflows (LRMI)	13.94*** (297.74)	12.973*** (318.27)	0.029633	3.077002
Inflation (LIF)	0.5480*** (219.46)	0.5421*** (236.92)	1.101432	9.359047
Foreign Direct Investment (LFDI)	0.0153*** (478.05)	0.0134*** (510.49)	3.458137	22.38149

Source: Research finding.

Figure 1 is the normality Quantile-Quantile (Q-Q) plots use to measure the distribution of the data. When the blue line in the Q-Q figure lie straight on the red line, it shows that the data is normally distributed. If the blue line deviates from the red diagonal line, it shows that the variable is not normally distributed. From diagrams i to iv in figure 1, all the blue lines deviated from the red diagonal lines, which show that all our variables are not normally distributed, hence, the parameters obtained from panel quantile regression produced consistent and efficient parameters.
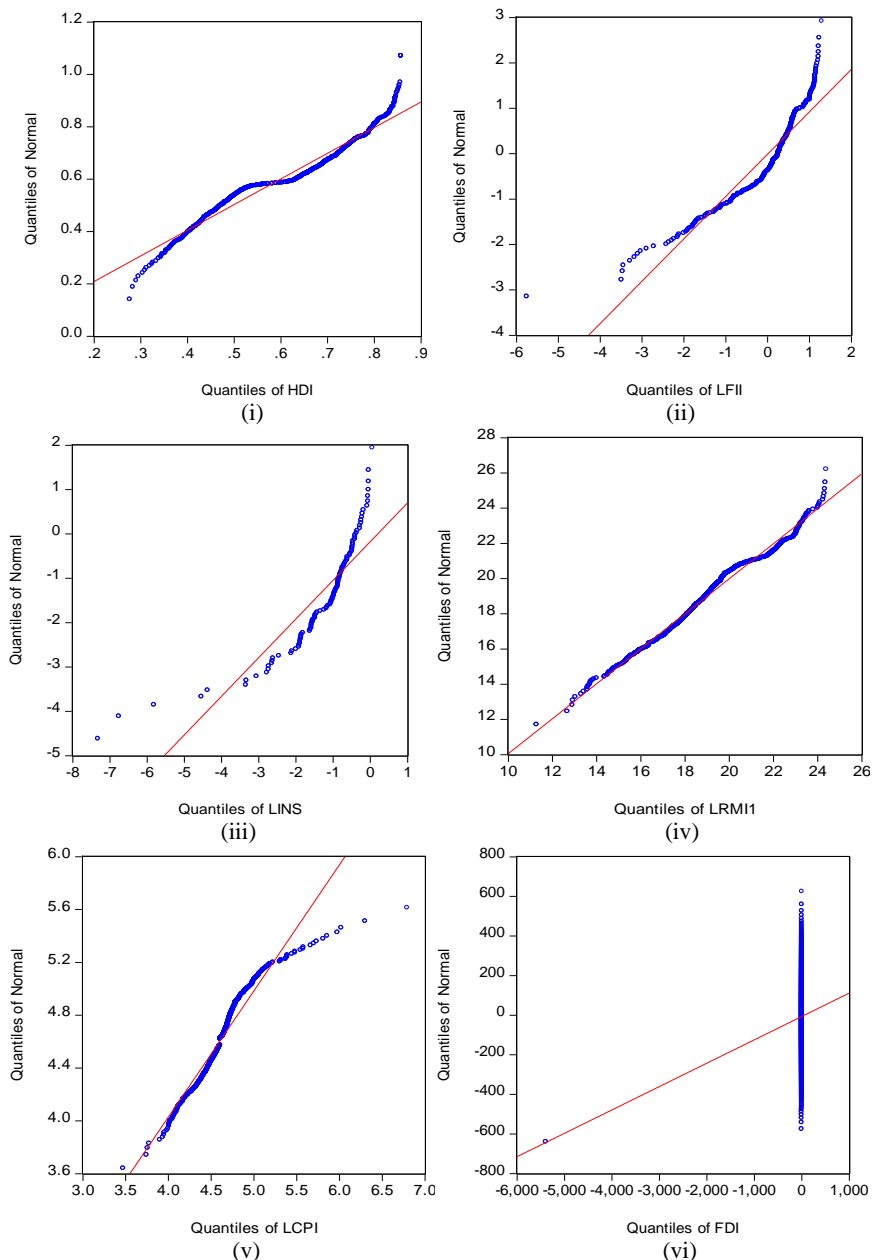
Figure 1. Quantile-Quantile plots for (i) LHDI (ii) LFII (iii) LIN(iv) LRM, (v) LIN, (vi) LFDI
Source: Research finding.

4.1 Discussions of the Panel Quantile Regression Results

The results of the panel quantile regression on the effect of financial inclusion on human development across 4 different quantiles groups that represent 4 different level of human development of OIC member countries are presented in table 5. The results show that, the coefficients of the variable of interest, financial inclusion (FII) is positive and statistically significant in all the quantiles (10th, 25th, 50th, 75th and 95th), but the coefficient is stronger in 50th quantile than in other quantiles. This result shows that financial inclusion promotes human development in OIC member countries, and the effect is greater in countries with middle level of human development (25th to 50th quant group). This may result from the fact that, countries at medium level of human development achieve increase of income and move from lower income countries to middle income countries. Thus, these countries experience higher demand for financial services, which promote investment in financial infrastructures, opening more branches and ATMs centres, thereby increasing the availability, accessibility and usage of financial services, hence, higher human development. This result is consistent with argument of Sharma, (2014) that demand of financial services promote investment in financial infrastructures, which increase the level of financial inclusion, thereby promote quality of life of poor people.

Table 5. Panel Quantile Regression Result

Variables	Dependent Variable: Human Development				
	10th Quantile	25th Quantile	50th Quantile	75th Quantile	95th Quantile
Financial Inclusion	0.0682***	0.0880***	0.0907***	0.0690***	0.0541***
(LFII)	(0.0099)	(0.0021)	(0.0035)	(0.0039)	(0.0041)
Institution Quality	-0.0564***	-0.0413***	-0.0176***	0.0355***	0.0690***
(LIN)	(0.0099)	(0.0061)	(0.0044)	(0.0048)	(0.0075)
Remittance Inflows	9.9100***	8.2100***	5.1100***	5.8700***	7.2400***
(LRMI)	(8.2700)	(6.4200)	(1.0900)	(9.6700)	(8.5900)
Inflation	0.0002**	0.0001	-0.0002	-0.0001*	0.0001
(LIF)	(0.0001)	(0.0001)	(0.0007)	(0.0001)	(0.0001)

Variables	Dependent Variable: Human Development				
	10th Quantile	25th Quantile	50th Quantile	75th Quantile	95th Quantile
Foreign Direct Investment (LFDI)	-8.8400 (0.0138)	-6.5400 (0.0042)	3.7800** (1.9789)	0.0001 (0.0338)	0.0002 (0.0130)
Constant	0.4103*** (0.0171)	0.4929*** (0.0115)	0.5879*** (0.0093)	0.6873*** (0.0064)	0.7189*** (0.0124)
Pseudo R	0.3323	0.4005	0.4371	0.3792	0.3665

Source: Research finding.

Note: ***, ** & * are the level of significance at 1%, 5% and 10% respectively. The parenthesis contains the standard errors.

Institution (IN) show negative and statistically significant coefficients in 10th, 25th and 50th quantiles; and it produce positive and significant coefficients in 75th and 95th quantiles. This results show that, the lower institutional quality promote higher human development in countries with lower human development (10th to 25th quant group) and countries with medium level of human development (25th to 50th quants group). Conversely, higher institutional quality found to promote higher human development for the countries at high level of human development (50th to 75th quant group) and countries with very high human development (75th to 95th quants group). The negative coefficients of institution for the low and medium human development countries are a result of poor governance indicators (WGI, 2019), where many essential services are not accessible without bribing the official that render it. However, the positive coefficient of institution for high human development countries (50th to 75th quants) and very high human development countries (75th to 95th quants) result from the better governance indicators (WGI, 2019) and increase in income as level of human development found to correlate with the level of income (SESRIC, 2019).

The coefficients of remittance inflows (RM) found to be positive and significant across the 10th, 25th, 50th, 75th and 95th quantiles but stronger in 10th and 25th quantiles. This result means that countries

with lower human development benefit more from the remittance inflows than those countries with medium, high and very high human development. This may result from the fact that, most of the migrants' workers migrated from countries with lower income to search for better life in higher income countries, and remit to support their families back home. Thus, this finding is consistent with Rapoport & Docquier, (2005) that remittances received are use in human capital development, healthcare services and physical capital investment, which better the life of recipient families, hence higher human development.

   Moreover, the coefficients of inflation appeared to be positive and significant in 10th quantile, while negative and significant in 75th quantile. Also, the coefficient of inflation is insignificant in 25th, 50th and 95th quantiles. The positive coefficient of inflation for countries at lower quantile group results from low income status of countries with low human development, which inherently have poor productive capacity. Thus, increase of money in circulation that raises the general price level will encourage productivity, increase employment and income, hence, higher human development. On the other hand, the negative coefficient of inflation for high quantile group means that, lower inflation promote higher human development and vice versa. Theoretically, inflation decreases purchasing power in the long run and negatively affects people with fixed income; consequent upon these is decrease in human development (Uddin and Masih, 2015). The coefficients of FDI are statistically insignificant in all the quantiles.

5. Conclusion

This work used data from 50 out 57 OIC member countries with available data, from 2004 to 2018 and examines the effect of financial inclusion on human development across different quantiles groups, based on the level of human development of member countries. The

result revealed that financial inclusion promote human development across all the quantile groups (10th, 25th, 50th, 75th, and 95th quantile) but the effect is higher in countries with medium level of human development (25th to 50th quantile group), due to increase in the level of investment in physical asset, human capital and health care sector in countries that move out from low income to medium income level. Nevertheless, the result indicated that poor institutions promote human development in countries with low and medium level of human development; whereas it promote human development in countries with high (50th - 75th quant group) and very high (75th - 95th quant group) level of human development, due to good governance, which reduce mismanagement and promote investment, employment and income (Kamalu & Ibrahim, 2020). Remittance inflows to OIC member countries promote human development in all quantiles groups, but the impact is higher in low human development countries (10th to 25th quant group). Moreover, low inflation found to promote higher human development in countries with low level of human development, and high inflation promotes higher human development in countries with high level of human development. Conversely, FDI have no significant effect on human development across all levels of human development.

The policymakers in OIC countries that seek to promote human development should devise a policy that will increase the level of financial inclusion especially low- and meddle-income member countries, because they have highest percentage of people without formal bank account, and the impact of financial inclusion on human development is higher at low and medium quantiles. Thus, absorbing them into the formal financial system will better their life, hence higher human development. In addition, policymakers should provide required infrastructures especially in disadvantaged and minority areas that will derive their economies, increase in productive capacity and investment, consequently, level of unemployment and poverty will

reduce, income will rise, which will lead to higher financial inclusion, thereby promote higher human development. Moreover, policymakers at OIC should strengthen institutions to promote good governance and better regulatory frameworks to promote economic activities, thereby promote human development. The stakeholders in the formal financial sector should be encourage to establish more branches and ATMs centres especially in remote areas or economically disadvantaged localities, to increase availability, accessibility and usage of formal financial services, hence, higher human development. Furthermore, the cost of sending remittances also should be reduce, to encourage migrants workers to remit through formal financial sector, thus, getting the maximum benefits of remittance inflows to the economy and to the recipients' families, consequently higher human development.

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