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The Influence of Institutional Quality on Human Development: Evidence from Developing Countries

(Pengaruh Kualiti Institusi ke atas Pembangunan Manusia: Bukti dari Negara-negara Membangun)

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ABSTRACT

The paper evaluates the influence of institutional quality on human development in 14 developing countries using data over 1991-2019. We employed the Dynamic Common Correlated Effect method that accounts for heterogeneity and cross-sectional dependency associated with panel data, due to unobserved common factors. The findings revealed the evidence of positive and statistically significant long run effect of institutional quality on human development. In addition, financial development was found to promote human development whereas higher military expenditure negatively affected it in the long run. The results suggest that institutional quality promotes long run human development. Policymakers should nurture and develop institutions that have good quality such as deterring corruption, improving quality regulation and the application of the rule of law.

Keywords: Institutional quality; dynamic common correlated effect; human development; cross-sectional dependency: developing countries
JEL: P48, C33, O15, C31

ABSTRAK

Kertas kajian ini bertujuan mengkaji pengaruh kualiti institusi terhadap pembangunan manusia melibatkan 14 buah negara membangun menggunakan data bagi tahun 1991 hingga 2019. Kaedah Dynamic Common Correlated Effect diaplikasikan dan disebabkan oleh faktor sepunya yang tidak diperhatikan, ia menyumbang kepada heterogeniti dan pergantungan keratan rentas yang dikaitkan dengan data panel. Dapatan analisis dapat membuktikan kesan jangka panjang yang positif dan signifikan kualiti institusi ke atas pembangunan manusia. Walaupun pembangunan kewangan mempengaruhi pembangunan manusia, namun perbelanjaan ketenteraan memberi kesan sebaliknya kepada pembangunan manusia dalam jangka masa panjang. Di samping itu, keputusan turut menunjukkan bahawa kualiti institusi menggalakkan pembangunan manusia untuk jangka masa panjang. Penggubal dasar harus memupuk dan membangunkan institusi yang berkualiti baik dengan mengurangkan rasuah, menambah baik kualiti peraturan dan melaksanakan kedaulatan undang-undang.

Kata kunci: Kualiti institusi; kesan dinamik berkorelasi umum; pembangunan manusia; kebergantungan keratan rentas: negara membangun

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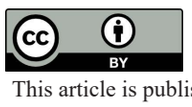
INTRODUCTION

Over the last two decades, the connection between institutions and macroeconomic performance was established not only in developed countries, but also in developing countries and emerging markets, as especially mentioned in North (1992). Political and socio-economic constraints, such as transaction and information costs, property rights, rule of law, regulations, freedoms and rights, directly or indirectly influence human welfare (Arndt 2009). However, as a rule of the game in every human society and institutions are "humanly devised constraints that shape human interactions" according to North (1992) Thus, institutions have enormous influence on the way and manner societies develop over time and play a critical role in understanding historical dynamics of human societies. Even though the institution was missing in most neoclassical economic theories, market efficiency can be best arrived at with lower transaction cost and effective enforcement of contracts, which are



consequent of quality institutions (Carter 2014). Perhaps, the argument that differences in economic performance of countries is attributed to variances in the quality of institutions is no longer controversial. Nevertheless, substantial evidence revealed that social and economic exclusion resulted from poor institutions, which have tendencies of acerbating inequality and poverty that consequently result in poor human development (Uddin et al. 2021; UNDP 2019).

Institutions are multidimensional in nature. From formal to informal, political and social to economic, institutions have colossal influence on growth and development outcomes in all economies, regardless the level of development (Balcerzak & Pietrzak 2017; Carter 2014). Nonetheless, whether formal or informal, institutions are the determiner and organiser of political and socio-economic interactions in every society. It may be inclusive institution when it confers equal opportunities, rights and freedom, or exclusive institution, when it compromises equal opportunities, efficiency in resource distribution and undermine the spirit of justice and fairness, among others (Lee & Law 2016). In addition, the extent to which an institutional framework effectively enforces contracts, minimises transaction costs, provides equal opportunities, freedom and right in a society, determines the degree of economic performance and welfare improvement in that society (Evans & Ferguson 2013). Conversely, exclusive institutions plays a role that worsen economic conditions, such as widening the income inequality, exacerbate poverty, unemployment, poor delivery of essential services, bribery and corruption that consequently reduce the level of human development (Buttis 2020). On the other hand, inclusive institutions play an important role in ensuring that proceeds from economic growth are shared by all, in such a way as to better the overall human welfare in a society (Carter 2014). Thus, countries build and grow inclusive institutions and achieve higher human development faster while those with exclusive institutions stagnate at low level of human development (Acemoglu & Robinson 2015).

Human development is all about the process of enlarging people's choice, freedom and opportunities to improve their overall wellbeing (Comim 2016). The approach to human development is predicated on human "capability and functioning" in the notable work of Amartya Sen, which emphasised on what people are enabled to "do" and "be" (Sen 1994). This approach was the basis of the annual human development report by United Nations Development Program (UNDP). Basically, developing countries are bedevilled with so many socio-economic and political challenges, such as extreme poverty, wide income gap, unemployment, insecurity, instability, corruptions and mismanagement, which are considered the by-products of poor institutions. In addition, many of the developing countries experience shortages in resources necessary to invest in healthcare, human capital development, and they also lack social safety nets for the majority of poor households, due mainly to high level of corruption, embezzlement and capital flights (OECD 2020). As a result, most of these countries performed poorly in the Human Development Index (HDI).

Evidence from cross country level data shows that countries at the same stage of development achieve different levels of human development (UNDP 2020) which may result from differences in the quality of institutions, macroeconomic stability, efficient allocation of resources, among others. This work examines the heterogeneous dynamic relationship between institutional quality and human development in developing countries. The question here is that, does institutional quality influence human development after accounting for heterogeneous dynamics and cross-sectional dependency? This study therefore makes an important contribution to the debate on institutions-human development nexus in developing countries given that few studies have hitherto been carried out. Further, the earlier studies employed methods that assume slope homogeneity and cross-sectional independence across the units which may lead to spurious regressions (Chudik & Pesaran 2015). This study will thus make another important contribution through employing the Dynamic Common Correlated Effect (DCCE) method that accounts for heterogeneity, dynamics and unobserved common factors shared in all cross-sections, but affecting them differently. As a powerful tool, DCCE takes into account unobserved factors and heterogeneous dynamics, while at the same time achieve efficient and less biased estimators (Chudik & Pesaran 2015). Interestingly, the DCCE estimator avoids inconsistency and biased observation present in earlier studies that ignored slope heterogeneity and unobserved common factors (Chudik et al. 2015).

The rest of the paper includes the review of the relevant literature in Section 2.0, the methodology in Section 3.0, results and discussion in Section 4.0, while the conclusions and policy implications comprise the final Section 5.0.

THEORETICAL LITERATURE

Evidence in the literature has shown that positioning people at the centre stage of development can be traced to the early works of great thinkers like Aristotle, Karl Marx and Adam Smith. With time, the idea kept growing, albeit in an amorphous manner, until it was formulated and developed by Sen (1989) in what is now known as capability approach to human development. The capability approach provided an alternative medium of measuring development, considered more comprehensive than the classical approach that

used GNI/GDP per capita as a measure of economic development. In his work, Sen (1989) argued that the basic difference between the traditional model of development and the capability approach to human development is the notion of human "capabilities and functionings", which relates to the activities that the individual is able to undertake (doings) and the kind of person the individual is able to become (beings) that promote his human development. Unlike the traditional development model, the capability approach to human development considers human beings as the means and ends of development (Streeten 1994). The capability approach goes beyond distribution of resources to include on what people are enabled to "do" and "be", as well as the conversion of the resources into different opportunities, which may lead to different achievements (Robeyns & Byskov 2020) hence forging different levels of human development. The fundamental of this approach considers improving human welfare to be at the centre stage of development agendas that include having a healthy life, being knowledgeable, and living a better and more decent life (Stewart 2019).

Overall, human development, as demonstrated in Sen's capability approach, concerns mainly with improving people's life against the assumption that GDP growth will automatically promote standard of living (HDRO 2016). Nevertheless, Robeyns and Byskov (2020) posits that, even though disagreements ensue on the best way to explain the capability approach, the approach provides important conceptual framework to assess various issues bordering human wellbeing, institutional arrangements and dynamism in human societies. They maintained that, human capabilities and functions are the conceptualisations of freedoms of doing and being, as well as the achievement that follows, which can be best nurtured and promoted by the existence of quality institutions. Moreover, Wolff and De-Shalit (2007) argued that the capability approach provides a framework for evaluating institutions, as well as assessing development policy designs not only in higher income economies but also of those in low and middle income societies. However, Sen (1999) considered that the circumstances in which people live are determined by environmental factors, rather than the resources they have or use in order to achieve certain level of human wellbeing. Hence, institutions plays a critical role in influencing such factors.

Stewart (2019) argued that the capability approach provided a theoretical framework for human-oriented school of thought, that evaluated development on the basis of enlarging human capabilities, and provides a conducive atmosphere for humans, either individually or as a group, to achieve their full potential, and to live the productive life they aspire. However, institutions, formal or informal, have profound influence on human capabilities, which create conditions for improving human development. Sound institutional framework ensures good governance that is capable of designing and implementing policies and programs for the betterment of healthcare services and education (Alkhamery et al. 2021) and that reduces transaction and information costs, control corruption, promote quality regulations and rule of law. It creates conditions that enlarge capabilities and enhance achievement that directly promote human development (Bass et al. 2013; HDRO 2016). However, Esquith and Gifford (2010) argued that quality institutions create conditions for basic capabilities, such as education and healthcare, which are required for proper functioning of society. According to Sen (1999) people live and function in a "world of institutions" that shape their opportunities, prospect and freedom. Therefore, the existence of quality institutions that curtail mismanagement of resources, control corruption and promote efficient allocation of resources to essential projects, improver the life of people. For instance, available evidence confirmed that investment in human capital development, provisions of quality healthcare services and basic infrastructures, directly improves human development (UNDP 2020).

EMPIRICAL LITERATURE

The link between institutional quality and human development has been fairly explored in the literature, but the debate is still ongoing on the differences in measurements, methodologies and choice of regressions. The study by Ejuvbekpokpo (2016) examined the impact of institutional quality on human development in sub-Saharan Africa using traditional panel data model (FE) and Generalised Method of Moment (GMM) using data from 2005 to 2013. The results revealed that institutional quality promotes human development in sub-Saharan African countries. The work of Bhanumurthy et al. (2016) explored the relationship between public expenditure, governance and human development in Madhya Pradesh district, India. The study established that government spending is not sufficient to foster human development without quality institutions in place. The results revealed that all five governance indicators exerted significant effect on human development outcomes in the district. Additionally Andrés et al. (2017) explored the connection between ICT adoption and inclusive human development in sub-Saharan Africa. The results showed that institutional quality promotes ICT development in the region with positive impact on inclusive human development. Further, Choi et al. (2017) analysed the link between e-governance and human development in developing countries and the results revealed that implementation of e-governance services has strong positive effect on human development in developing countries.

In another study, Balcerzak and Pietrzak (2017) explored the relationship between quality institutions

and human development for 24 developed countries, using GMM estimator, with data form 2004 to 2010. The finding showed that quality institutions promote human development in developing countries. Further, the work of Muhanji et al. (2018) evaluated the effect of natural resources endowment and institutional quality on human welfare and debt in Africa. The study measured human development using database index constructed by Mo Ibrahim (2020) for Africa. The results revealed that human development is enhanced by the existence of quality institutions in Africa. Aloui (2019) established that institutional quality, as proxy by rule of law, have positive and statistically significant impact on human welfare in sub-Saharan Africa and South American countries, but the impact is higher in the latter than in the former. In addition, Hashem (2019) found that good governance has positive effect on human development in 20 MENA countries. Similarly, Kamalu and Ibrahim (2021) reported the same effect for sub-Saharan Africa. Additionally, Mardanov (2020) investigated the impact of political and economic institutions on human development in 22 transitional economies, using two-stage OLS method of analysis. The results revealed that freedom from corruption and economic freedom have positive and statistically significant effects on human development. Similarly, Ali et al. (2020) examined the moderating role of institutional quality in the relationship between Foreign Direct Investment (FDI) and human development in 65 developing countries, using two-step GMM technique of analysis. The results revealed that institutional quality enhances the positive effect of FDI on human development in developing countries. Further, the study by Mazlan et al. (2019) revealed that globalization and FDI promotes human development in Malaysia. Conversely however, Ejemeyovwi et al. (2018) reported that investment in information technology have insignificant impact on human development in the Economic Community of West African States (ECOWAS) due to weak institutions in the region. Kait et al. (2020) reported that cost is an important determinant of standard of living, where the lagged values of the independent variables play more significant role than the values of the dependent variables.

DATA AND METHODOLOGY

This study examined the heterogeneous dynamic connection between institutional quality and human development in developing countries. The study utilised data from 14 developing countries, that cut across Africa, Asia and Latin America (Appendix A), with available data covering 1991 to 2019 for all the variables, except for institutional quality where the data spanned 1996 to 2019. The study applied the Dynamic Common Correlated Effect (DCCE) method of analysis for unbalanced panel of 14 developing countries selected based on the availability of full data. Further, the study used Pool Mean Group (PMG) and Mean Group (MG) methods as robust.

DATA

The dependent variable in this study is human development, proxy by Human Development Index (HDI) constructed by United Nation Development Program (UNDP) and published annually in human development report since 1990. The HDI comprises three dimensions of human development; first, knowledge dimension measured by the mean and expected years of schooling; second, longevity dimension, measured by life expectancy at birth; and third, decent living dimension, measured by per capita gross national income. The independent variable of interest is institutional quality (LINQ), measured by the average of three governance indicators which include control of corruption, regulatory quality and rule of law. These three indicators represent political and economic dimensions of institutions, considered to influence developmental outcomes (Faundez 2016; Persekitaran & Tadbir 2020). However, the argument in this study is that poorly developed institutional framework encourages corruptions, deteriorate quality regulations and tempered with the application of the rule of law, which may negatively affect human capital development (Aljarallah 2020), economic performance (Ahmed et al. 2021) with consequent result in low human development (Stewart et al. 2018). The institutional quality data were sourced from the World Governance Indicators (WGI 2020) and World Bank database.

The other independent variables include financial development (LDCP) proxy by domestic credit to the private sector (% of GDP). The argument is that, increase allocation of credit to domestic private sector increased the level of economic activities, which provide employment opportunities and income which may reduce poverty and inequality (Ahmed et al. 2021; Bayar et al. 2018) and consequently, promote human development. Additionally the study used military expenditure (% of GDP) to evaluate its impact on human development in developing countries. Developing countries face many development challenges, the most prominent of which include insecurity, terrorism, internal uprisings and migration. These variables in turn divert resources away from investment in human capital development, healthcare development and poverty alleviation programs, to investment in military infrastructures, which may impede progress in welfare improvement in the long run (UNDP 2019). Further, the study also used the rate of population growth (LPG) to evaluate its impact on human development. With the rapid progress in technological development, population growth may not be seen as impediment to human development.

However the reverse is the case in developing countries, especially for those with low income (Permanyer & Smits 2020; Zgheib et al. 2006). The study also used Inflation (LINF) proxy by consumers' price index as control variable. Inflation affects all macroeconomic variables and as such it also influence human welfare. The data for all the variables were sourced from world development indicators of the World Bank database (World Bank 2020).

METHODOLOGY

In order to evaluate the heterogeneity and cross-section dependency that probably exist in all panel data, this study used homogeneity test and cross-section dependency test to diagnose the sample data. In addition, second generation panel unit root tests were used to assess the stationarity nature of the series. Subsequently, the study employed the DCCE estimators to examine the role of institutional quality in influencing human development in developing countries. The Pool Mean Group (PMG) and Mean Group (MG) estimators were employed as robust.

HOMOGENEITY TEST

Homogeneity test was used to determine whether two or more populations have the same distribution. The test identifies the difference between two or more populations and suggests that the responses of categorical variables are the same across all cross-sections. The null hypothesis of homogeneity test says the distribution of the parameters are the same across all the cross-sections (H_0: $\beta_a=\beta_b=\beta_c$), and the reverse is the alternative hypothesis that assumes the distribution of the parameters is not the same across all the cross-sections (H_1: $\beta_a=\beta_b=\beta_c$). Thus, when the null hypothesis of homogeneity is rejected, the outcome is that the parameters are heterogeneous across all the cross-sections and vice versa.

CROSS-SECTION DEPENDENCY TESTS

Cross-sectional dependency in panel data arises when all individual cross-sections in the panel are correlated with each other, due to unobserved common factors that similarly or differently affect all individual units in the panel. To examine the cross-section dependence or independence in the sample data, this study used Pesaran (2007) Cross-section Dependency (CD) test based on scale average of pairwise correlation parameters between the residual of each cross-sectional unit in the panel. The null hypothesis of Pesaran CD test is stated below.

H_0: Cross-sectional independence exists across panel

The null hypothesis will be rejected when the probability value is less than 0.05, and the alternative hypothesis of cross-sectional dependence between the individual cross-sections in the panel will instead be accepted.

PANEL UNIT ROOT TESTS

The panel unit root tests have power advantage over the time series unit tests, especially in terms of small sample properties and are available under first and second generations. The first generation panel unit root tests for instance, are based on the assumption that individual cross-sections across the panel are independent (Levin et al. 2002; Im et al. 2003). However the second-generation tests are based on the converse assumption that cross-sectional units are dependent. This study used two second generation panel unit root tests to determine the stationarity nature of the study sample data based on their assumption of cross-sectional dependence. The two tests employed were Cross-sectional augmented ADF (CADF) and Cross-sectional augmented IPS (CIPS) panel unit root tests. The CADF test is based on simple averages of individual cross-sections obtained from lagged and first differences of each cross-sectional unit whereas the CIPS is based on simple averages of CADF statistics (Pesaran 2007). However, both CADF and CIPS tests have small sample properties as their power and does not depend on N and T. CIPS test is however considered efficient (Westerlund et al. 2014). The null hypothesis of the two tests is set as follows:

H_0: The series are homogenous and non-stationary

The hypothesis is to be rejected at probability value of less than 0.05 at first difference and to be accepted on the contrary.

HETEROGENEOUS DYNAMIC PANEL MODELS

The shortcomings of panel homogenous estimators such as the fixed and random effects models led to the emergence of heterogeneous estimators that account for unobserved common factors, which may be common to all cross-sections, but may exert different impacts across them (Henningsen & Henningsen 2019). Theoretical literature as provided in Chudik et al. (2015); Chudik and Pesaran (2015) modelled an estimator that accounts for cross-sectional dependency in panel data. Ignoring cross-sectional dependency among different individual units in panel data may cause the error term to correlate with the regressor and hence produce inefficient, biased and spurious parameters. The work of Pesaran and Smith (1995) introduced heterogeneous estimator with N and T that approach infinity known as Mean Group (MG) estimator. Thus, MG estimator is based on the average of individual parameters and has sufficient time series to provide separate parameters for each

individual cross-section. Pesaran et al. (1999) proposed another estimator called Pool Mean Group (PMG). The basic difference between MG and PMG is that, both estimators allow short run coefficients and intercepts to differ across the individual unit but PMG assumes that the long run coefficients are the same across all the cross-sections. Even if both estimators are consistent, the approximation of unobserved common factor by the PMG estimator is considered efficient (Tugcu 2018). To select the appropriate model Pesaran et al. (1999) provided the Hausman test with null hypothesis of long run homogenous slope across the panel.

The inability of MG and PMG estimators to capture cross-sectional dependency across panel, the estimators may produce inefficient and inconsistent parameters (Henningsen & Henningsen 2019). Thus, Pesaran (2006) came up with an estimator that fully account for cross-sectional dependency and heterogeneity known as Common Correlated Effects (CCE). The CCE estimator produces efficient and consistent parameters better than that of PMG, but maintained the long run slope homogeneity as with the PMG estimator. However, the CCE estimator failed to include dynamic term/weakly exogenous variable as explanatory variable. Therefore, an extension of the CCE estimator, the Common Correlated Effect Pool (CCEP) was formulated to perform better with larger N and T. Another extension of CCE however, was provided in Chudik and Pesaran (2015) known as Common Correlated Effect Mean Group (CCEMG), that included lagged dependent variables as one of the regressors that accounted for cross-sectional dependency, dynamics and heterogeneity. The dynamic CCEMG known as Dynamic Common Correlated Effect (DCCE) requires sufficiently large time dimension and cross-sections to achieve efficient parameters. To account for small sample bias, Chudik and Pesaran (2015) suggested the use of Jack-knife correction method or recursive mean adjustment. Hence, bias that emanates as a result of cross-sectional dependency will be reduced as the time dimension approaches infinity (T□□). In addition, the DCCE can be applied to unbalanced data. It can perform well under different dynamic parameter configurations irrespective of the number of unobserved common factors, as long as they do not exceed the number of cross-sectional averages and the T is sufficiently large (Ditzen 2018).

In this study the DCCE estimator was employed to evaluate the role of institutional quality in influencing human development in developing countries. The cross-sectional dimension comprised 14 countries (N=14) with the time dimension over the period 1991-2019 (T=29) for all variables, except for institutional quality which spanned 1996-2019 (T=24) thus producing an unbalanced panel data. Due to small sample size the Jack knife correction method was adopted. In accordance to Chudik et al. (2015) and Ali et al. (2020) the DCCE model used is expressed as follows:

$$y_{i,t} = \delta_i y_{i,t-1} + \propto_i X_{i,t} + \sum_{p=0}^{P_T} \lambda_{x,i,p} \overline{X}_{t-p} + \sum_{p=0}^{P_T} \lambda_{y,i,p} \overline{X}_{t-p} + \mu_{i,t}$$

Where $y_{i,t}$ is the dependent variable, $y_{i,t-1}$ is the lagged dependent variable to be used as one of the regressors, $X_{i,t}$ is the vector of explanatory variables, $\overline{X}_{t-p}$ is the cross-sectional averages and P_T is the lag of cross-sectional averages and $\mu_{i,t}$ is the normal error term. Following model (1), this study specifies its empirical model as follows:

$$LHDI_{i,t} = \delta_i LHDI_{i,t-1} + \propto_i LINQ_{i,t} + \propto_i Z_{i,t} \sum_{p=0}^{P_T} \lambda_{x,i,p} \overline{X}_{t-p}$$

The dependent variable is $LHDI_{i,t}$ which stands for human development, $LHDI_{i,t-1}$ is the lagged dependent variable used as one of the explanatory variables, $LINQ_{i,t}$ is the log of institutional quality that stands as the variable of interest and $Z_{i,t}$ is the vector of other independent variables that includes inflation (LINF), financial development (LDCP), military expenditure (LME) and population growth (LPG).

RESULTS AND DISCUSSIONS

The results for descriptive statistics presented in Table 1 shows that all the statistics are within the accepted range and all variables have 406 observations except for institutional quality (LINQ) that has 336 observations. The results of correlation matrix in Table 2 show that all the explanatory variables have significant correlation with the dependent variable (LHDI) but with weak correlation between them. As such there's no multicollinearity in the sample data.

Table 3 presents the results of homogeneity test and cross-sectional dependence (CD) test. The homogeneity test shows that the study failed to accept the null hypothesis of slope homogeneity, hence, the cross-sectional units have heterogeneous slope. Using models that assume homogenous slope coefficient will produce inefficient, biased and spurious estimators. Thus in consequence the heterogeneous model (DCCE) is the appropriate choice for this study. However, the results of Pesaran (2007) CD test showed that the null hypothesis of cross-sectional independence is rejected at 5% and 1% level of significance thus suggesting that the cross-sectional units have cross-sectional dependence among them. This is due to the existence of unobserved common factors, which may correlate with regressors. Ignoring dependency in panel data may thus lead to bias and inefficient parameters (Ditzen 2018). In addition, the results are important in determining the type of unit root test to conduct. For instance, the first-generation unit root tests are based on cross-sectional independence, while the second generation tests are based on cross-section dependency.

TABLE 1. Descriptive statistics

Statistics/Variables	LHDI	LINQ	LINF	LDCP	LME	LPG
Mean	-0.3717	-0.0444	4.2125	3.7011	0.4620	0.2227
Std. Dev.	0.0862	0.4585	0.8570	0.8149	0.9008	0.6605
Minimum	-0.6792	-1.0711	-5.3483	1.3629	-1.9271	-3.4345
Maximum	-0.2107	0.9139	5.1204	5.1083	2.2999	1.7254
Observations	406	336	406	406	406	406

TABLE 2. Correlation matrix

Variables	LHDI	LINQ	LINF	LDCP	LME	LPG
LHDI	1.0000					
LINQ	0.0452	1.0000				
LINF	0.6190	-0.0550	1.0000			
LDCP	0.2170	0.3307	0.3132	1.0000		
LME	-0.1977	-0.2023	-0.0221	-0.0942	1.0000	
LPG	-0.2441	-0.0876	-0.1410	-0.1500	0.2289	1.0000

TABLE 3. Homogeneity and cross-section dependency tests

Homogeneity Test			Cross Section Dependency (CD) Test	
	Delta	P-value	Variables	Statistics
	10.912	0.000	LHDI	46.443* (0.000)
Adj.	14.348	0.000	LINQ	-11.403** (0.041)
			LINF	47.879* (0.000)
			LDCP	19.769* (0.000)
			LME	7.353* (0.000)
			LPG	24.530* (0.000)

* &** stand for 1% &5% level of significance, and the values in parenthesis () are the p-value
Source: Author's results

Based on the results of homogeneity and cross-sectional dependency tests the study used Cross-sectional ADF (CADF) and Cross-sectional IPS (CIPS) panel unit root tests on the assumption of cross-sectional dependency. The results of CADF and CIPS tests presented in Table 3 show that the study failed to reject the null hypothesis of unit root at level (%?) in all the variables and it failed to accept the null hypothesis of unit root at first difference, except for LDCP and LPG that rejected the null of unit root at level (%?) in the CADF test. Thus, all the variables achieved stationarity at first difference in CIPS test I (1). This study hence adopts the CIPS test results, and declares that all the variables are non-stationary at level (%?) and stationary at first difference.

The study also conducted panel cointegration tests proposed by Pedroni (1999) and Kao (1999). Even though these are first generation tests, running the second generation test is not feasible with our data, due to the small sample bias in the Westerlund second generation cointegration test. The results of Pedroni cointegration test presented in Table 5 show that the null hypothesis of no cointegration was rejected in 7 out of the 11 statistics, within and between dimensions. The majority of the statistics confirmed the existence of cointegration thus indicating the variables have long run relationship. Further in Table 5, Kao cointegration tests result failed to accept the null hypothesis of no cointegration at 5% level of significance. Therefore, both tests confirmed the existence of long run relationship

between the variables. The results indicate that human development, institutional quality, inflation, financial development, military expenditure and population growth cointegrated and hence they move together in the long run. The existence of long run relationship between variables reveals an equilibrium point where they converge thus indicating a stable distance between them. In outcome all short run deviations among these variables will be restored in the long run.

The study examined the heterogeneous dynamic relationship between institutional quality and human development in developing countries with the main focus on the long run coefficients. The study employed the DCCE method to achieve this objective while the PMG and MG methods used as robusts. The results of various pre-estimation tests confirmed the existence of heterogeneous slope and cross-sectional dependency in the panel, which validate the choice of DCCE as the appropriate estimator, due to its ability to account for heterogeneity and cross-sectional dependency. Results of the DCCE method presented in Table 6 show that the coefficient of lagged dependent variable is positive and significant thus indicating that the model is dynamic. The long run coefficient of institutional quality (LINQ) is positive and statistically significant at 1% level. The finding reveals that institutional quality promotes long run human development in developing countries. This indicates that whenever the level of corruption is minimised, rule of law unambiguously and evenly applied to all, sound policies are designed and implemented, economic activities will be boosted and delivery of essential services enhanced together with equity and justice, employment and income (Carter 2014; Samarasinghe 2019). In the long run the positive impact will directly promote human development. The result is similar those of Mardanov (2020) and Balcerzak and Pietrzak (2017) but differ with the findings of Ejuvbekpokpo (2016) who discovered

TABLE 4. Panel unit root tests

Variables	CADF Test		CIPS Test	
	Level	First Difference	Level	First Difference
LHDI	-1.405 (-2.960)	-3.190* (-2.960)	-1.281 (-2.960)	-4.421* (-2.960)
LINQ	-1.680 (-2.960)	-4.241* (-2.960)	-2.003 (-2.960)	-4.581* (-2.960)
LINF	-2.445 (-2.960)	-4.133* (-2.960)	-2.355 (-2.960)	-4.361* (-2.960)
LDCP	-3.693* (0.000)	-2.919* (0.002)	-2.643 (-2.960)	3.843* (-2.960)
LME	-2.341 (-2.960)	-3.847* (-2.960)	-2.834 (-2.960)	-5.261* (-2.960)
LPG	-4.645* (0.000)	-3.375* (-2.960)	-2.872 (-2.960)	-3.142* (-2.960)

* Stand for 1% level of significance, and the values in parenthesis () contains standard error
Source: Author's results

TABLE 5. Panel cointegration tests

Pedroni Cointegration Test					Kao Cointegration Test	
	Within Dimension		Between Dimension		Test	Statistics
Test	Statistic	Weighted Statistics	Test	Statistics	ADF	-1.5948** (0.0504)
Panel V-Statistic	5.3098* (0.0000)	-0.1872 (0.5743)	Group rho-Statistics	4.9612** (0.0024)	Residual Variance	2.7300
Panel rho-Statistic	2.0476 (0.9797)	5.1797* (0.0000)	Group PP-Statistics	-5.6291* (0.0000)	HAC Variance	5.3200
Panel PP-Statistic	-2.2087** (0.0136)	-4.7569* (0.0000)	Group ADF-Statistics	0.9545 (0.8301)		
Panel ADF-Statistic	1.7165 (0.9570)	3.6900* (0.0000)				

* Stand for 1% level of significance, and the values in parenthesis () contains standard error
Source: Author's results

inverse relationship between institutional quality and human development. This may however be misleading due to the methodology used that assumed homogenous slope.

The results for other independent variables presented in Table 6 show that inflation (LINF) and financial development (LDCP) have positive and statistically significant coefficients. Both variables thus promote long run human development in developing countries. Inflation plays an important role in influencing macroeconomic variables in all economies. Thus, positive association of inflation with human development is due to the role inflation plays in boosting economic activities, employment, consumption and growth (Carvalho et al. 2018). Human development in turn is promoted in the long run. Furthermore, the positive coefficient produced by the financial development-human development nexus confirms the proposition that better finance and better growth (Kamalu et al. 2019; Puatwoe & Piabuo 2017) will thus boost long run human development. However, military expenditure (LME) shows negative and statistically significant coefficient on human development suggesting that lower military expenditure promotes long run human development in developing countries. Many of these are faced with increasing military expenditures due to boarder conflicts, terrorism and insurgency, which drain resources from essential services that have direct impact on human development (Brauer 1996; Herrera 2015). The coefficient of population growth (LPG) revealed positive and insignificant coefficient. Interestingly, the coefficient of ECT_{t-1} produced negative and statistically significant value at 5% level. Deviations in short run will thus be corrected in the long run.

The long run results of PMG and MG presented in Table 6 show that institutional quality (LINQ) has positive and statistically significant coefficient at 1% in the PMG model. It is however negative and statistically significant at 1% in the MG model. The PMG result is robust and obtained in the DCCE model. Conversely, the MG results contradicted this. Results from the Hausman test revealed significant coefficient at 5%

TABLE 6. Results of DCCE, PMG and MG models

Variables	DCCE Model		PMG Model		MG Model	
Dependent Var.: LHDI	Long Run	Short Run	Long Run	Short Run	Long Run	Short Run
CONS		0.3396**		0.0302		0.1829**
		(0.138)		(0.0221)		(0.0966)
LHDI (-1)	1.4351*	0.3857*				
	(0.1405)	(0.0686)				
LINQ	0.1863*	-0.0054	0.6287*	0.0068	-0.0831*	-0.0852*
	(0.046)	(0.004)	(0.111)	(0.0072)	(0.0244)	(0.0100)
LINF	0.0929*	0.0326	-0.2852*	-0.0048	0.2639**	0.0005
	(0.019)	(0.031)	(0.0804)	(0.0093)	(0.1204)	(0.0107)
LDCP	0.0229**	-0.0415*	-0.4476*	-0.0109**	0.0514	-0.0106
	(0.010)	(0.012)	(0.1571)	(0.0044)	(0.0321)	(0.0111)
LME	-1.1742*	-0.0329	-0.2215*	0.0252	-0.0451	-0.0010**
	(0.098)	(0.030)	(0.0569)	(0.0209)	(0.0259)	(0.0005)
LPG	0.0081	0.0186**	0.0316	0.0212	-0.105**	0.0212
	(0.007)	(0.007)	(0.0304)	(0.0290)	(0.0416)	(0.0290)
ECT_{t-1}		-0.1982**		-0.0402*		0.2486**
		(0.098)		(0.0091)		(0.1055)
No. of Observations	120					
No. of Groups	5					
No. of Cross Sections	14					
CD Statistics	-2.750*					
	(0.006)					
R-Squared	0.51					
R-Squared (MG)	0.73					
Hausman Test			15.450**			
			(0.0086)			

* **&** stand for 1% &5% level of significance, and the values in parenthesis are the p-value
Source: Author's results.

level, which thus favour the MG as an appropriate model. Even though PMG produced positive coefficient on the effect of LINQ on LHDI, the model did not fully account for cross-sectional dependency and assumed homogenous long run coefficient. The results may hence be misleading, since the variables used in this study have cross-sectional dependence (Chudik et al. 2015). The assumption of cross-sectional independence of error term in the institutional quality-human development nexus can be contradictory, because many factors such as financial integration, energy price, global financial crisis and greenhouse effect, may serve as common factors that may affect, in similar or different ways, all the cross-sectional units. If such common factors are ignored the heterogeneity may be contradictory (Pesaran 2015). Therefore, the coefficients of DCCE model stand out as valid, appropriate, efficient and less biased, as it accounts for heterogeneity and cross-sectional dependency reported earlier in this study. Hence, building strong and quality institutions in developing countries is synonymous with promoting higher human development.

CONCLUSION AND POLICY IMPLICATIONS

Human development is a continuous journey and not a final destination. Due to availability of different choices the journey may lead to different levels of human development. The resultant wide disparity of human development may exist not only between developed and developing countries but also within the developing countries themselves. This may prompt various explanations such as the effect of institutional approach, geographical approach or environmental approach, as to why such disparity exists between these countries despite being at the same level of development. This study examined the question on whether institutional quality influences human development in a dynamic model with heterogeneity and cross-sectional dependency, in an unbalanced panel of 14 developing countries, spanning 1991 to 2019. The study provides new evidence through employing the heterogeneous Dynamic Common Correlated Effect (DCCE) model.

The results from homogeneity and cross-sectional dependency tests confirmed the existence of heterogeneous slope and cross-sectional dependence among the 14 developing countries selected based on the availability of full data. Additionally, the second generation panel unit root tests conducted revealed that all the variables achieved stationarity at first difference I (1). The results of panel cointegration tests showed that the variables were cointegrated, hence they move together in the long run. The main findings of the study proved that institutional quality promotes long run human development in developing countries when unobserved common factors and heterogeneity are considered. The results highlight the important role that institutions play in shaping human capabilities to achieve proper functioning in the society as posited in Sen's Capability Approach. The finding was robust when the PMG model was used but it was the reverse for the MG model. Results from other independent variables showed that inflation and financial development promote long run human development, while military expenditure produced inverse relationship with human development in the long run.

Quality institutions create conducive environment for economic activities to flourish, minimise transaction and information costs, protect property rights and equitable application of rule of law, which directly or indirectly create conditions that promote human development. Policymakers in developing countries should thus strive to build and nurture institutions capable of designing and implementing sound development policies for poverty alleviation, eliminating wide income gap controlling corruption and mismanagement. In addition, they should provide sound regulatory framework that will deliver enabling environment for businesses and investments to thrive, thereby generate employment opportunities, income, GDP growth and consequently higher human development.

Future research should however explore more heterogeneous dynamic evidence of the institutional quality-human development nexus in developing countries, and employ as many cross-sections as possible.

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APPENDIX A

List of Developing Countries

S/N	Countries		
1.	Algeria	8.	Malaysia
2.	Botswana	9.	Mauritius
3.	Brazil	10.	Mexico
4.	China	11.	Paraguay
5.	Colombia	12.	Peru
6.	Jamaica	13.	South Africa
7.	Jordan	14.	Sri Lanka