

# Migration, Remittance Inflows and Human Capital Development in Nigeria

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## *Abstract*

*Nigeria is both labour importing and exporting country, contributing to international migrant stock since the wake of this century. Despite the increase in migrant remittances flow to Nigeria, the country still lags behind in human capital development, as it consistently records a low human development index. This study, therefore, examines the relationship between migration, remittances and sustainable human capital by using annual time series data from 1990–2021. Based on the fully modified ordinary least squares (FMOLS) regression, the outcome suggests that remittance inflow has a significant influence on human development. Also, migration is positively related to human capital. The combined impact of migration and remittances on human development shows a significant positive relation between the variables. Hence, given the increased globalization and quest to migrate abroad by most Nigerians, the study suggests that the Nigerian government, diaspora commission, and policymakers should develop a proactive strategy to increase the inflows of remittances through proper international travelling documentation, and flexible policy on migration. The country needs to strengthen its institutions to woo its diaspora home to invest in human capital through investment in education and health.*

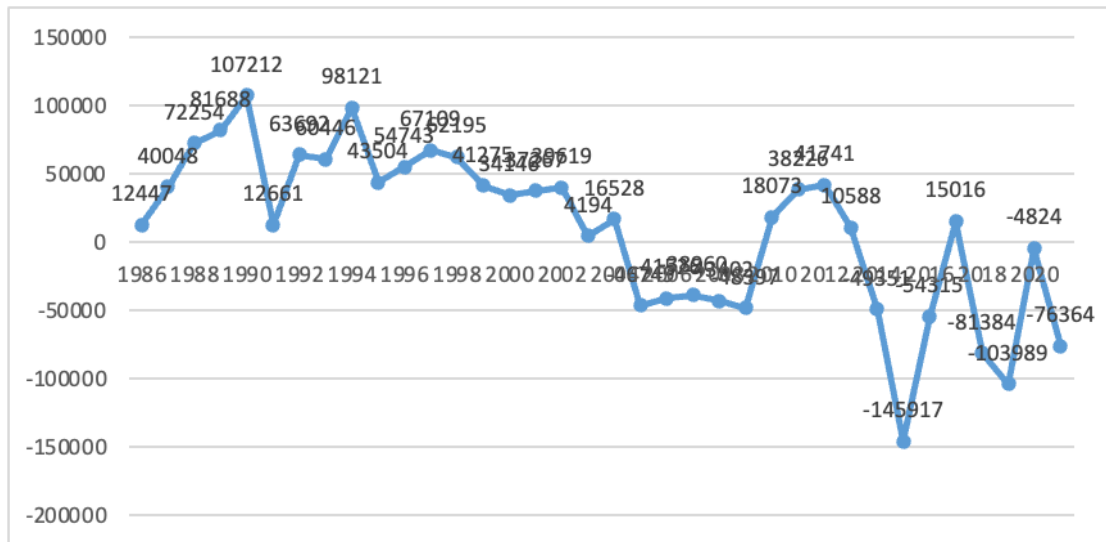
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**JEL Classification:** F22, F24, O15

## **I. Introduction**

Remittances to developing countries have increased significant recently, and have now make up a sizable source of country's external financing. This upsurge can probably be attributed to increasing international movement and refugee's flows, particularly to developed nations due to climate change, conflicts, high unemployment, poor economic conditions etc. in some part of the countries. Besides, increasing countries interconnectedness and modernization as well as quest for robust standard of living are forcing more people from the less developed and emerging countries to flew their home country (Clemens, 2011; Banerjee & Duflo, 2007). Nigeria has historically serves as both origin and destination country for migrants across the globe; however, the wage gaps, high unemployment, rising poverty, and insecurity are currently pushing its labour force, both skilled and unskilled to seek better opportunities and a higher living standard elsewhere outside the country. For instance, approximately 447,411 Nigerians were reported living outside the country in 1990, and this number increased to 751,126 and 1,233,592 in 2000 and 2013, respectively. Although there is no accurate data on Nigerians in the diaspora, however, 1.3 million people were reported living outside the country in 2017 (Nevin & Omosomi, 2019; United Nations Department of Economic and Social Affairs (UNDESA), 2020). On average, the net migration rate between 2015 and 2021 according to figure 1 rose to -6.4 per 1,000 people, indicating that more

people left the country than entered it, according to the World Development Indicators (WDI) (2023).



**Figure 1:** Nigeria’s Net migration (1986–2021)

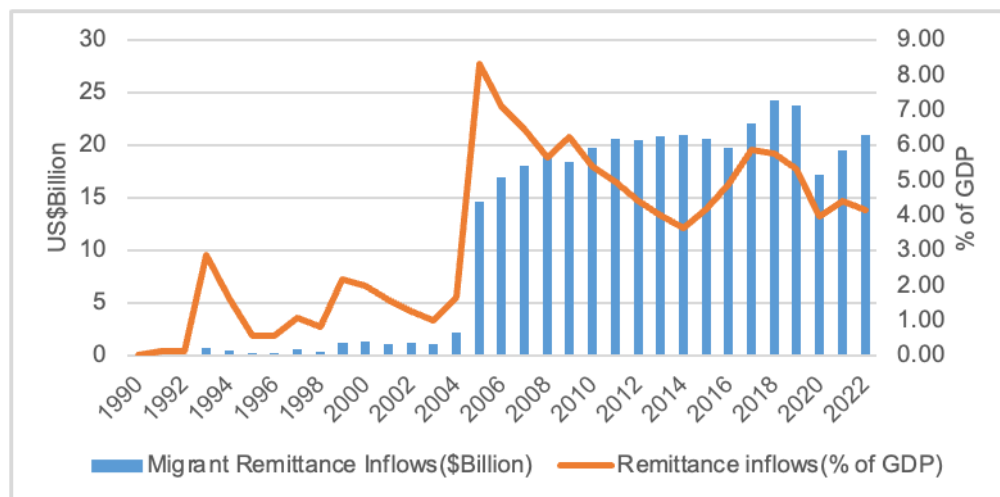
Although there is controversy on the impact of migration on the development of home country. While some studies argued that international migration has adverse effects on the migrant’s country of origin, causing brain drain and labour force depletion (Adam Jr., 2003; Ngoma & Ismail, 2013; United Nations Department of Economic and Social Affairs (UNDESA), 2014; Migration & Development, 2016), others suggested that external migration could improve the home country’s human capital through remittances (Khraiche & Boudreau, 2020), which could be invested in education (Beine, Docquier & Rapoport, 2008), health care, and income-generating activities (UNDESA, 2012; Hines & Simpson, 2019; Deonanan, Ramkissoon & Mohammed, 2021). However, scholars tend to focus more on the adverse effect of migration on the home country. Borrowing from the latter argument, migration can also enhance human capital development. Scholars (such as Matano & Ramos, 2018; Gao, Kikkawa & Kang, 2021; Qamruzzaman & Adow, 2022) demonstrate that remittances enhance overall human capital, however, some find a negligible influence of migration on human development (Kroeger & Anderson, 2014; Bansak, Chesum & Giri, 2015; Gao *et al.*, 2021). Therefore, suggesting that the relationship between remittances and human development is ambiguous. Notwithstanding, Human capital development is critical for sustainable development (Xia, Qamruzzaman & Adow, 2022).

The influence of migrant’s remittances in the home countries, particularly on human development is a subject of continual debate in the literature for proper policy formulation on human capital development. To this effect, the question is: Do migration and remittances promote human capital in the home country? Although there are studies on the relationship between remittances and economic growth (Udah, 2011; Afaha, 2013.); poverty reduction (Ewubare & Okpoi, 2018; etc.); and household welfare (Ajaero, Nzeadibe, Obisie-Nmehielle & Ike, 2018; Ajefu & Ogebe, 2019); little empirical evidence is seen on the influence of remittances on human capital in Nigeria (Wanger & Aras, 2022). Therefore, this study contributes to fill this gap by focusing on the interaction impact of migration and remittances on human development using time series data from 1990 to 2021. The choice of data is due to non-availability of data on remittance-recipients and usage in Nigeria. Nigeria’s Migrants’ survey was last conducted in 2009 which may not capture the present surge in migration and remittances particularly since 2015. The rest of the paper is organized as follows: Section 2

discusses the stylized fact of remittances and human capital; Section 3 reviews the related literature on migration and remittances' impacts on human capital. Section 4 contains the study's methodology. Section 5 presents and discusses the estimated result; next is Section 5, which concludes the study.

## 2. A Stylized Facts on Remittance Inflows and Human Development in Nigeria

In recent years, remittances from Nigeria's diaspora have played a key role in the country's foreign financial inflows, making a significant contribution to its finances. Fig. 1 shows a significant increase in remittances flow to Nigeria from \$1.3 billion in 2000 to \$14.64 billion in 2005 (8.4% of the country's GDP), placing the country as the fourth largest recipient in the world during the year. Remittance inflows to Nigeria totalled \$19.20 billion in 2008, declined by 4% in 2009 to \$18.37 billion and increased by 7.5% to \$19.74 billion or 5.5% of the country's GDP in 2010. Consecutively for three years, remittance flows to Nigeria stood at approximately \$20 billion from 2011–2013. In 2014 and 2015, remittance inflows to Nigeria totalled over \$20 billion, placing the country the largest recipient in Africa and sixth in the world. Remittances to Nigeria plummeted to \$19.69 billion in 2016, probably due to a decline in commodity prices and the economic crisis in some parts of the developed world. In 2018, 47% (\$24.31 billion or 6.1% of GDP) of the total \$46 billion inflows to Sub-Saharan Africa was remitted to Nigeria. However, remittances to Nigeria declined by 28% in 2020 to \$17.21 billion or 4% of GDP, due to the outbreak of the COVID-19 pandemic, representing 56% of the total inflows to Africa and making the country the tenth in the world and second in Africa. In 2021, remittances to Nigeria rebounded by 13.2% to \$19.5 billion. Inflows to Sub-Saharan Africa increased by 6.1% to \$53 billion in 2022, out of which 38%, or \$20.9 billion (3.3% increase from 2021), were remitted to Nigeria (Migration and Development Brief, 2023).



**Fig. 1:** Nigeria's Migrants' Remittance

Source: World Bank, W DI (2023)

Despite the increase in remittance inflow, Nigeria has achieved limited success in term of human capital development. Nigeria's human capital index (HCI) was 0.34 and 0.35 in 2019 and 2020, respectively. Also, the country's out-of-school children grew from 10.5 million in 2018 to 18.5 million in 2021 and 20 million in 2022, respectively (UNESCO, 2022). Besides, the country's human development index fluctuates between 0.4 and 0.5, placing the country at the bottom of human development index. The HDI value was 0.44 in 1990 and 0.47 in

2000, ranking it 151 among 174 countries. It ranked 142nd (with a value of 0.51) in 2010, and from 2015 to 2021, the country stayed at 163 positions with an HDI value of approximately 0.54. However, some scholars have attributed the dismal country's HDI ranks to poor public funding of the key sectors – education and health (Ifejika, 2017; World Bank Group, 2018; Ugbor, Agodo, Nwafor & Ugwuanyi, 2019; Ojike *et al.*, 2021). As a result, there is need for funding.

### 3. Related literature

The relationship between remittances and human development has formed part of the developmental debate due to the importance of human capital in country's growth process. Researchers like (Huay, Winterton, Bani & Matemilola, 2019; Ustubici & Islam, 2012; Hassan, Mehmood & Hassan, 2013; Koska, Saygin, Çağatay & Artal-Tur, 2013; Hines & Simpson, 2019; Sahoo & Seth, 2020; Deonanan *et al.*, 2021; Kamalu & Ibrahim, 2022; Xia *et al.*, 2022) suggest a positive impact of remittance on human capital. On the contrary, Kroeger and Anderson (2014) reveal that in Kyrgyzstan, the impact of remittances on overall school enrollment is insignificant with an adverse effect on children's nutrition during the country's revolution and the global financial crisis of 2005 and 2009. Similar result is found by Gao *et al.* (2021) in Kyrgyz Republic on relationship between remittances and children education completion. According to Pounce, Olive and Onofa (2008), while remittance contributes significantly to improve consumption, education and health outcome of the recipients in the short-term, its long-term impact is ambiguous. Study by Beine *et al.* (2008) disclose that international migration has the potential to improve human capital in the origin countries by 5% through investment in education via remittances. Accordingly, Metu (2011) reveals that human capital development in developing countries are significantly related to remittances to family members.

Adenutsi (2010) establishes that in Sub-Saharan Africa, remittances have a significant and positive long-run impact on human capital. Uдах (2011) identified investment in human and physical capital, education, infrastructure, and technology diffusion as channels through which remittances (if serve as external finance) contributes to economic growth. Study by Acharya and Leon-Gonzalez (2014) observe that children of less-educated parents benefit significantly from migration and remittances. Bansak and Chesum (2009) find that children's school enrollment, particularly girl children is positively related to increase in remittances. Bansak, Chesum and Giri (2015) examine the relationship between internal and external remittances, school quality, and investment in human capital. They found that human development responds positively to internal remittances than foreign remittances. According to Matano and Ramos (2018), the chances of high school enrollment is high for children of remittance-recipient families in a study conducted in Moldova region. Salas (2014) notes an impressive contribution of remittances to children's enrollment in private schools in Peru during their parent absence.

Edwards and Ureta (2003) reveal a positively significant contribution of remittances to children's school enrollment and completion. According to Ngoma and Ismail (2013), a 1% increase in remittances inflow result in a 2% decline in school dropout rates among schoolchildren. Also, Naanwaab and Yeboah (2013) notice that increase in education and health spending is associated with increased remittances. Ajaero *et al.* (2018) state that improved welfare of recipient household members in Nigeria is linked to the remittances according to Koska *et al.* (2013), migration and remittances positively influence education attainment and labour force participation. According to Aziz (2018), remittance increases enrollment and completion rate of schoolchildren, particularly girls' children and increases female labour participation, with a negligible impact on children health. Kamalu and Ibrahim

(2022) stated that remittances promote human development irrespective of the type of skills possessed.

A study by Aregbesola (2022) confirms that remittances improve human development via its contribution to children school's enrollment. Wanger and Aras (2022) noticed that Nigeria's diaspora remittances contribute positively to human capital development. Studies have also shown that remittances' impact on human capital depends on country's institutional environment. For instance, Azam and Raza (2016) assert that in low-, middle- and high-income countries, strong institutions serve as intermediating factor between remittances–human development nexus. Mohammed (2022) observes that while remittances promote human capital in a country with a weak institution, the impact of remittance as a source of human capital finance declines in a country with strong institutions. In conclusion, it is evident from the reviews that remittances are capable of promoting human capital if properly maximized. However, there is little empirical evidence on the remittances' and international migration's impact on human development in Nigeria. Considering the rate at which people travel abroad, the inflows of remittances to Nigeria, and the dismal condition of the human capital, there is a need to examine the relationship between human capital development, migration and the remittance inflows to the country.

## 4. Methodology and Data

### 4.1. Model specification

The relationship between international migration, remittances and human capital is analysed following the work of Matano and Ramos (2018); Hines and Simpson (2019), Huay *et al* (2019). The estimated model is specified in equation below:

$$HD_t = \partial_0 + \partial_1 HD_{t-1} + \partial_2 remit_t + \partial_3 mgn_t + \partial_4 \log pse_t + \partial_5 inf_t + \partial_6 ins_t + \partial_7 \log open_t + \partial_8 \log pcgdp_t + \partial_9 (mgn * remit)_t + \mu_t$$

Where, *HD* is human development proxied as human development index developed by UNDP. The relationship of the previous year human development,  $HD_{t-1}$  and the current year human development is also investigated in the study, based on Huay *et al* (2019) who posited that the previous year human capital may have significant impact on the current human capital. *Remit* represents remittance inflows to Nigeria and measured as percentage of gross domestic product (GDP). *MGN* is net migration rate. *logpse* is natural logarithm of public spending on education, *inf* is inflation (consumer price index). Inflation is used to proxy the country's macroeconomic environment. *logopen* is logarithm of openness measured as the country's overall globalisation index. *logpcgdp* is natural logarithm of GDP per capita which captures economic growth. *ins* is institutional quality generated using four indicators (corruption, democratic accountability, government stability, and law and order) of international country risk guide by the PRS Group. In this study, the interaction effect of migration and remittances is examined to ascertain whether migration and remittance can significantly influence human capital development. This is based on the intuition that it is possible for migrant not to send money to the left-back family members, and if the migrant send money to the family, the coefficient of which is expected to be positive, and negative if otherwise.

### 4.2. Method of analysis

The paper employs fully modified ordinary least square (FM-OLS) to examine the relationship between migration, remittances and human development in Nigeria. FMOLS was

developed by Phillips and Hansen (1990) to analyse cointegrating relationship between variables and account for serial autocorrelation effects and endogeneity in the regressors that may result from the existing cointegration relationship which is lacking in ordinary least square.

### 4.3. Data

Time series annual data from 1990 to 2021 is employed and sourced from the World Bank World Development Indicators (WDI, 2023) and the Central Bank of Nigeria Statistical Bulletin, 2022. Human development (dependent variable) is proxied by the human development index developed by the UNDP. The HDI comprises three-dimensional variables including (i) health, which measures the life expectancy at birth; (ii) education, is expressed as the mean years of schooling for adults aged 25+ and the expected years of schooling; and (iii) the living standard, expressed as the gross national income (GNI) per capita (PPP \$). This is preferred because it incorporates health, education, and the living standard which are the key indicators of human capital. Migration is proxied by the net migration rate which is the difference between the number of immigrants and emigrants in Nigeria. This becomes an option due to non-availability or up-to-date data on Nigeria’s international migration stock. It is sourced from the World Bank WDI, 2023. Remittance is the migrant remittance inflows as a percentage of the country’s GDP. Public spending on education is measured in Million naira and sourced from the CBN statistical bulletin. Inflation is consumer price, annual (%) use to proxy country’s macroeconomic environment and drawn from the WDI. It is included in the model based on the fact that country’s macroeconomic environment has significant influence on the consumer’s spending. Data on institutions is sourced from the International Country Risk Guide database by the PRS Group. Openness is proxied by overall globalization index of the country, measured in logarithm (annual) and sourced from KOF Globalisation Index developed by Gygli, Haelg, Potrafke and Jan-Egbert (2019).

## 5. Results and Discussion

### 5.1. Descriptive statistics

The summary statistics of the variables is showed in Table 2. The Table showed that the mean value of human development is 48%, minimum of 44% and maximum of 54%, respectively. By the UNDP standards, these values are very low, which place the country at the bottom line of the human development index. On the average, remittance inflows accounts for 3.4% of the gross domestic product in Nigeria, with a minimum of 0.02% and 8.3% maximum. The net migrates average value is 4099.3, with a minimum of -145917.0 and a maximum of 107212%. Also, the average value of public education spending is 4%, with a minimum of -1.23 and a maximum of 6%. This is very low compared to the UNESCO benchmark of 15% and 20% of the annual budget for education. This reveals the government's poor funding of education sector during the study period, resulting in country’s low human development index. Economic openness (proxied as globalisation index) shows an average of 4% ,4% minimum and maximum. This indicates that the country is moderately open to the external world. The statistics shows a high inflation rate at 72.9 and lower rate at 12.7% which could hamper the impact of remittances as a driver of human development in the country.

**Table 2:** Summary of descriptive analysis, 1990–2021

	HD	remit	logpse	logopen	logpcgdp	mgn	ins	inf
Mean	48.043	3.380	4.200	3.922	7.575	4099.31	-1.25	18.060
Median	47.300	3.819	4.59785	3.942	7.591	15772.0	-0.371	12.716

Maximum	53.800	8.334	6.471	4.047	7.893	107212.0	3.211	72.835
Minimum	43.800	0.019	-1.233	3.679	7.264	-145917.0	-2.428	5.388
Std. Dev.	3.210	2.356	1.958	0.110	0.236	59926.27	1.591	16.365
Skewness	0.479	0.173	-0.973	-0.605	-0.052	-0.530	0.815	2.170
Kurtosis	1.883	1.863	3.316	2.080	1.340	2.696	2.567	6.633
Jarque-Bera	2.884	1.882	5.179	3.084	3.685	1.621	3.789	42.718
Observations	32	32	32	32	32	32	32	32

Source: Author's computation

## 5.2. Test for stationarity of the series

Table 3 shows the outcome of the stationarity using Augmented Dickey-Fuller (ADF) and Phillip Peron (PP) unit root tests. The Table shows that all the series are stationary after first differenced, i.e. I(1). Therefore, since the variables are stationary at I(1), a fully modified ordinary least squares (FMOLS) developed by Hansen and Phillip (1990), can be employed to estimate the cointegrating relationship of the variables.

**Table 3:** Summary of Unit Root Test

Variable	Augmented Dickey-Fuller (ADF)			Phillips-Perron (PP)		
	Level	First Diff.	Decision	Level	First Diff	Decision
Human development	...	-3.760** (0.0080)	I(1)	...	-3.760** (0.0080)	I(1)
Migration	...	-4.439** (0.0018)	I(1)	...	-11.798** (0.0000)	I(1)
Remittances	...	-5.712** (0.0001)	I(1)	...	-7.113** (0.000)	I(1)
Log. public spending on education	...	-7.83 (0.0000)	I(1)	...	-9.389 (0.0000)	I(1)
Log. per capita GDP	..	-2.927* (0.0549)	I(1)	...	-2.891* (0.0000)	I(1)
Institutions	...	-3.512** (0.0149)	I(1)	...	-3.302** (0.0237)	I(1)
Inflation (CPI)		-4.511** (0.0012)	I(1)		-4.499** (0.0012)	I(1)
Log. openness		-4.841** (0.0005)	I(1)		-5.076 (0.0003)	I(1)
Test Critical Values						
	<b>5%</b>	-2.981	-2.963		-2.963	
	<b>10%</b>	-2.630	-2.621		-2.621	

Note: \*\*\*, \*\*, \* are levels of significance at 1%, 5% and 10% respectively. ADF Automatic lag length selection based on Akaike Info Criterion (SIC), MaxLags=7 while PP is Andrews Bandwidth. All the tests are at intercept only.

Source: Author's computation

## 5.3. Empirical result

Table 4 shows a positive relationship between remittances and human capital development, suggesting that a 1% increase in remittances will contribute a 12% to human capital development. The relationship between human development and migration is also positive and significant at 1%, showing that the higher the number of migrants, the higher the remittances and the better their development. This result corroborates the findings of Ustubici and Islam (2012), Hassan *et al.* (2013) for Pakistan, Koska *et al.* (2013), Kamalu and Ibrahim (2021), Deonanan *et al.* (2021) for developing countries, and Xia *et al.* (2022) sub-Saharan African countries. Also, a 10% improvement in human capital in the previous year is said to

determines the current year's human capital development by 42%. This result aligns with the findings of Huay *et al.* (2019), who found that the previous year's human capital improvement had a positive impact on the current year's development in human capital.

The positive coefficient and statistically significant of the interaction effects of migration and remittances demonstrated that if people migrate abroad and remit money, it could improve their household member's quality if properly maximized. The finding suggests that both variables complement each other rather than being a substitutes. Also, logarithm of per capita GDP is positively related to human development, suggesting that a country's growth rate has significant role to play in human development. This again supports the result of Huay *et al.* (2019). The positive relationship between education expenditure and human capital suggests that spending on education takes precedence in human development and the government has an important role to play in ensuring quality education (Becker, 1995; Adenutsi, 2010). Institution has a positive and significantly correlated with human capital development. This support the intuition that quality human capital depends on the quality of country's institutions. Strong institution is better serves as an intermediary between remittances and human capital if there is absence of corruption, stability political system and macroeconomic environment, voice and accountability and effective government. Despite the increased remittance inflows to Nigeria, its low human capital index is worrisome, pointing to the country's weak institutions. This is similar to findings of Azam and Raza (2016) and Mohammed (2022). The negative sign of openness shows that high economic openness is harmful. This buttress the fact that increased economy's interconnectedness exacerbates international migration which in turn causes brain drain, and labour loss in the origin country. This buttresses the point of Adam Jr., (2003), Ngoma and Ismail (2013) that international migration deplete home country's labour force. The post-estimation diagnostic test is presented in Table 5. The results show that the normality test conformed to the expectations, and the Hansen stability test shows that the model is stable.

**Table 4: FMOLS Result**

Dependent Variable: Human Development (HD)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Human Development (-1)	0.416***	0.091	4.539	0.0019
Remittances (% of GDP)	0.120**	0.050	2.372	0.0451
Migration	6.480*	2.986	2.173	0.0615
Migration*Remittance	1.999**	8.311	2.386	0.0433
Log. openness	-4.588*	2.154	-2.130	0.0658
Log. per capita GDP	7.904**	1.764	1.048	0.0003
Log. Public spending on education	0.923**	0.114	8.113	0.0000
Inflation (CPI)	0.025**	0.009	2.955	0.0183
Institutions	0.137**	0.0600	2.287	0.0515
Constant	49.083***	9.324	5.264	0.0008
R-squared	0.99	Mean dependent var.		48.46
Adjusted R-squared	0.99	S.D. dependent var.		3.08
S.E. of regression	0.299	Sum squared resid.		0.72
Long-run variance	0.008			

Note: \*, \*\*, \*\*\* indicate significant at  $p < 0.10$ ,  $p < 0.05$  and  $p < 0.01$  respectively.

Source: Author's computation

**Table 5: Diagnostic Test**

Test	Value	Prob.
Normality Test (Jargue-Bera)	0.8187	0.664



Hansen Parameter instability test (LC Stat)	9.3513	<0.01
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Source: Author's computation

## 6. Conclusion

This study examines the potential impact of international migration and migrant's remittance of human capital development in Nigeria from 1990–2021. Evidently, international migration has potential to improve human capital in the home country through remittances if properly maximized. Consistent with the existing research, we find a cointegrating relationship between remittances and human capital development. Also, the interaction effect of migration and remittances suggest that migration and remittances are capable of developing human capital in the home country. Therefore, we cannot hinder people from migrating to seek better opportunities, we rather allow them instead of becoming a nuisance, thief, arm robbery, or useless and becoming a headache in the society. Besides, although the migrant seeks improved living standards and better opportunities in the destination countries, they are also inclined to send money to the home country's family members for improved living standards. Eventhough migration may not be a perfect solution to poor human development in Nigeria, it forms part of the immediate remedy if properly maximized.

These findings provide some policy recommendations. First, the government needs to be flexible in its immigration laws so that people can leave the country with proper documentation, this will curtail illegal travel. Second, the Nigerian government needs to be proactive and develop a strategy to maximize remittances sent by the diaspora by creating an enabling environment with moderate inflation, security of life and property for the remittance-recipient's individuals to invest in education and other services that would boost their capabilities and develop their skill. Third, although the Central Bank of Nigeria recently launched a five-naira incentive on every dollar withdraw at the counter of the financial institutions in the country, the financial institutions should also lower the cost of money transfers from the destination countries to encourage the formal transfer by the migrants. Besides, the impact of remittances on human capital harps on good institutional environment such as absence of corruption, voice and accountability, political stability, good rule of law, government effectiveness, security of life and property etc. these could encourage the Nigeria in diaspora to invest particularly in education and health.

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