DO DIASPORA REMITTANCES CONTRIBUTE TO HUMAN CAPITAL DEVELOPMENT IN NIGERIA?

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ABSTRACT

This study investigates the impact of diaspora remittance inflow on human capital development (HCD) in Nigeria by adopting improvements in health and education as metrics for HCD. Using the Autoregressive Distributive Lag (ARDL) model and bounds testing approach on data from 1980 to 2021, the results indicate that remittance inflow have a positive effect on HCD in Nigeria. The study discovered that remittances have a negative and substantial link with infant mortality rate i.e., remittance inflow substantially reduce infant mortality rate. Also, remittance have a positive relationship with life expectancy, particularly in the short-run. Additionally, remittances were found to have a positive relationship with school enrollment rates. Although remittances proved to play a role in improving HCD in Nigeria, the study recommends that families receiving remittance inflow should not become overly reliant on it by working less as this has the potential to stifle labour supply and slowdown economic growth.

Key words: Diaspora Remittances, Human capital development, ARDL, Bounds Test.
JEL Classification: D64, F22, O15, J24.

INTRODUCTION

The world is fast becoming more developed and this has led to the creation of opportunities for people in various countries to migrate with ease. The current estimate is that there were around 281 million international migrants in the world in 2020 compared with 220 million and 173 million by 2010 and 2000 respectively (World Migration Report, 2022). This shows that international migration has risen by about 87% over the past 22 years. Although migration has both negative and positive impacts on 'host' and 'home' countries, financial remittances remain a major universal positive benefit of migration. Put differently, this increase in migration has resulted in a rise in the magnitude of remittances, with remittances increasingly serving as an important mechanism for transferring resources from developed to developing nations. In fact, remittances have emerged in recent decades as a stable source of international financial resources in developing nations (Usman, 2019).

In recent time in Nigeria, we find a lot of people especially the young populace relocating or taking evident steps towards relocating, mainly in search of 'greener pastures" (Owusu and Malami, 2020). These overseas migrants send remittances, or a portion of their salary, to their relatives back home after moving. Here, the term "remittances" refers to unrequited payments made by migrant workers to their family members back in their own countries (Okeke, 2021). Remittance inflow can also be the financial transfers to households which does not require any reciprocal in economic value (Adeseye, 2021; Jijin *et al*., 2022).

According to the Migration and Development Brief (2022), among Low- and Middle-Income Countries (LMICs), Nigeria was the eighth largest recipient of remittances with an estimated value of $20.9billion and also the largest remittance-receiving country in Sub-Saharan Africa. This invariably puts Nigeria ahead of other countries in African as the biggest remittance recipient. Thus, in the sub-Saharan African region, Nigeria ranks as the largest remittance in 2022 with Ghana and Kenya trailing behind (Migration and Development Brief, 2022). Remittance inflow has come to occupy an important position among the sources of foreign currencies to an economy.

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Also, some of the problems plaguing developing nations such as poverty, income volatility, income and opportunities inequality, and credit market failures may be ameliorated by remittances (Karagoz, 2009). Essentially, remittances have served as a crucial source of income to most households, especially in LMICs. It has helped to alleviate poverty, reduce child labor in disadvantaged households, enhance nutritional outcomes and as well led to higher spending on education. International remittances have also reduced the issue of credit limits by giving receivers at home working capital to engage in entrepreneurial activity (Wahba, 2021).

On the other hand, human capital development (HCD) means creating an appropriate balance and a critical mass of human resource base as well as providing an environment conducive for the optimal use of labour towards contributing to national development. HCD can also be defined as a process of training and increasing the number of persons with skills, education and experience that are vital for the economic and political development of a nation (Jhingan, 2007). Certain parameters such as health, education and nutrition come to mind in the discussion of HCD. All of these are the areas in which investments could be made to develop the human capital in a country. Studies have shown that more than half of remittances received goes into investments in these three areas. For instance, additional income in the form of remittances, increases receiving-households demand for food, which in turn boosts production and thereby improves nutrition, which is a form of developing human capital. In terms of health, remittances are also invested in healthcare by providing access to healthcare insurance, preventive care and access to medicine, thereby improving the health and wellbeing of recipient families. Education is also another key aspect of HCD. One prominent rationale for international migrants sending money home is to provide the younger members of their family or children access to better education. Households receiving remittances have obvious better educational participation than non-recipients. Remittances has also helped in substantially reducing the likelihood of child labour participation and also helped double school enrollment because children from remittance-receiving families especially girls register higher school attendance and enrolment rates.

Despite the surge in the value of remittances, there has been little or no effort to assess and investigate the impact of remittances on HCD in Nigeria. With a population of over 200 million Nigeria recorded an unemployment rate of 33% in the fourth quarter of 2020 and most recent multi-dimensional poverty index as released by the National Bureau of Statistics (NBS) shows poverty rate of 63% (NBS, 2022). This invariably means that there is still a lot that ought to be done in terms of investing in HCD and this is where remittances come to play.

Additionally, the recent COVID-19 pandemic's effects on remittances must be considered. According to the World Bank, global remittances for 2020 was projected to decline by about 20% as a result of the economic crisis which was caused by COVID-19 pandemic and shutdown of most economic activities. The pandemic brought the whole world to a near standstill as a result of travel bans, social distancing and lockdowns. It also led to an economic crisis that not only affected the economy of individual countries but the global economy at large. Usually, during most economic crises, a lot of migrant workers tend to be more vulnerable to loss of employment, health insurance coverage and wage reduction. These are some of the likely causes of the projected decline in global remittances. Consequently, migrant remittances are greatly affected by these aforementioned losses which in turn affects several households in different countries, especially LMICs. A decline in remittance inflows could further lead to a reduction in households' access to healthcare services, increase in poverty and even a decline in investment in education, as most poor households would rather spend their income (remittance flows) on core survival needs such as food and medicals.

Only a few papers have empirically examined the association between remittances and HCD, particularly for Nigeria, despite the fact that several studies on remittances and economic growth including Meyer and Shera (2017), Cazachevici *et al.*, (2020), Sobiech (2019), Eggoh *et al.*,

(2019), Adeseye (2021), Orok *et al.*, (2020), Anetor (2019) among others have been undertaken, both independently and together. Similarly, despite the official international remittances' steadily growing magnitude, little has been done to investigate the economic effects of these transfers on households in poor countries. It is obvious that empirical researches such as Oluwafemi and Ayandibu (2014), Oluyemi *et al.*, (2015), Ajaero *et al.*, (2018), Alechenu (2021) and several others have reported the various developmental impacts of remittances while few have analyzed the effects of remittances on HCD, particularly in a developing country like Nigeria. This is an area that remains unexplored. In light of this, this study aims to objectively investigate the impact of remittances on HCD in Nigeria using the prisms of education and health.

LITERATURE REVIEW

Theoretical literature review
The pure altruism theory is one major theory that explains remittances. This theory is based on the idea that international migrants transfer money back home solely because he/she is concerned about the wellbeing of his/her family member in his country of origin (Kaasschieter, 2014). Three basic assumptions form the basis of the pure altruism theory. The first is that the level of remittances depends on the immigrant's income. The second is that the amount of income earned by the family members of the international migrant will determine how much will be sent as remittances (that is, the lower the income earned, the higher the remittances). The last is the extent to which the migrant is attached to his/her family in the home country, the lower the level of attachment, the lower the remittances.

This theory is also based on the responsibility and affection that international migrants feel towards their family members. It has also been reported that international migrants derive satisfaction when they are assured that the welfare of their family members are better off, especially when the economic conditions in their country of origin are unfavorable (OECD 2006).

There is also the New Economics of Labor Migration (NELM) theory by Stark and Bloom (1985). According to this theory, migration is not just an individual decision, rather international migration is viewed as a means for diversifying the income of households. This theory is somewhat similar to the implicit family theory agreement whereby migrants are expected to remit their income back to their relatives in the home country. The NELM theory largely explains the situation of migration in Nigeria, where we find families pooling their resources for their children with the express purpose of sending them abroad in search of better opportunities for both the children's own well-being and the status of the family as a whole.

Another significant finding by proponents of the NELM is that wage disparities are not a required prerequisite for making a migration decision because international migration does not necessarily cease when wage disparities decrease. According to the theoretical model, migration is caused by market failures outside of the labor market. Absent, inefficient, or poorly functioning markets, according to NELM theory, are crucial circumstances for labor migration to occur. Indeed, the NELM approach suggests that migration is a dependable method for mitigating the numerous risks associated with living in developing nations with local and international markets. This is especially true and justifiable in developing nations, where financial credits and health insurance are scarce and expensive. Households in developing nations rely on remittance inflow as a source of income and survival means. Thus, this viewpoint supports the idea that remittances, through alleviates poverty, contributes to an improvement in t h e quality of living, including better nutrition, education, and basic healthcare, all of which are essential for development. Most recent empirical research, in accordance with NELM and livelihood approaches, reinforces the opinion that labour migration, instead of just being a response to destitution or absolute poverty is a source of livelihoods undertaken by some members of society

or households in response to deprivations (Haas, 2021). Household methods to overcome local development limitations also rely heavily on remittances.

Furthermore, two key perspectives speak about the impact of remittances. First is the neo-liberal functionalist persuasion which implies that remittance inflow is advantageous across all the levels of the economy- both national and household levels (Ratha, 2005). It has been observed that remittances play a vital role in increasing demand for goods and services (consumption) and also the development of productive infrastructure. The other perspective is the historical-structural perspective which suggests that remittances are the major factor that contributes to the growth of dependent relations between the countries sending and receiving these remittances (Atuoye *et al.*, 2017).

The Human Capital Theory (HCT), on the other hand, hinges on the assumption that formal education is vital towards enhancing the productive capability of a population. Providing formal education is viewed as human capital investment by its advocates who perceived it as more worthwhile than investing in physical capital (Psacharopoulos and Woodhall, 1993). HCT therefore emphasizes that investment in human capital will increase economic output greatly. Schultz (1961) introduced the theory of human capital by asserting that human capital is a product of "deliberate investment. He cited instances of Western nations where investments in human capital were responsible for the clear increase in their national productivity. According to Schultz, the concept of human capital entails investment in people. He posited that training, investments in health and education provides opportunities that would otherwise not have been available to many individuals. Mincer (1958) developed the 'schooling model" which attempted to use human capital- training and education- as key explanatory tools for empirical studies such as increased remunerations for jobs that require more training and also higher and better income pattern due to job training. Human capital, according to Becker (1994), involves investment into those activities that influences the psychic and monetary income earning potential of the people such as on-the-job training, schooling, migration or even medical care. He added that financial and physical capital are not as effective at enhancing human capital as investments in education, training, and health care. This is because an individual cannot be disassociated from his/her health, skills, values and knowledge even when it is possible to move both financial and physical capital at the same time.

Empirical Review

There is considerable debate regarding the relative contribution of international migrants' remittances to sustainable economic development (Sahoo *et al.*, 2020) and there have been several empirical of evidences that remittances enhance HCD at various levels in an economy- both at community and household levels (Cox *et al.*, 2003). For example, it has been observed that a surge in school enrolment caused by inflows of remittances directly leads to a reduction in child mortality, thereby contributing to the HCD (Gianetti *et al.*, 2009). Remittances can significantly improve the welfare of migrant families as well as poor households (Dillip and Sanket, 2007). It can also assist unskilled family members of international migrants to gain access to different social services and also increase their financial resources (Kakhkharov *et al.*, 2021).

Several studies have established a positive relationship between remittances and human capital development. Focusing on the South Asian countries with increasing number of immigrants and remittance inflow, Sahoo *et al.*, (2020) estimated the fully modified OLS and Dynamic OLS and found a positive impact of remittance on human capital development. The study also found a unidirectional causality running from remittance to human development in this region. Githaiga and Kilong'i (2023) use a sample of 34 Sub-Saharan nations to examine the effect of remittances

on human capital development in the context of institutional quality. The study discovered a link between regional capital inflow and the growth of human capital.

Azam and Raza (2016) examined the impact of remittances on the development of human capital in a sample of 17 nations between 1996 and 2013 and discovered that worker remittances had a positive impact on these countries' human capital growth. Additionally, Nigeria was one of the top 10 remittance-receiving nations evaluated by Xia *et al.,* (2022) in their study of remittance-led human capital development. The results of the symmetric and asymmetric empirical frameworks showed a favorable and statistically significant relationship between remittances and the growth of human capital.

In a similar fashion, Ahamd *et al.,* (2019) studied the impact of remittances on human resource development in developing countries by adopting infant mortality rate and secondary school enrollment as proxies to measure HRD. The study found that remittances have a positive impact on human resource development (HRD) in developing countries, particularly in terms of health and education. The study suggests that policymakers should develop suitable incentives for migrants to remit, and focus on strategies to uplift budget constraints by providing income-earning opportunities for poor households.

Bloom *et al.,* (2015) emphasized that education, training and health impart a plethora of advantages that extend beyond mere economic growth. These benefits encompass a reduction in infant and maternal mortality rates, improved health and nutrition, and more. This is due to the fact that education, regardless of its nature, plays a critical role in augmenting the cognitive abilities of individuals and, in turn, leads to various positive implications (Mozumdar and Islam, 2017). Looking at the effect of remittances on education, Hanson and Woodruff (2003) discovered that the attainment of higher education in Mexico can be attributed to the inflow of remittances, especially amongst girls within the age range of 10-15 years whose mothers did not have such educational status. The study conducted by Elsalvador *et al.,* (2003) also revealed that children from households that receive remittances have lower tendencies to drop out of school as a result of an increase in their financial resources or capabilities and a consequent relaxation in their budget constraints. Yang (2005) discovered that remittances also have an impact on investments specifically on education and the possession of durable goods. Likewise, the study conducted by Lopez- cordove (2005) which reveal that increases in inflows of remittances lead to a reduction in illiteracy in Mexican municipalities, although the result on its effect on attendance in schools is mixed.

In their study on Mexico, Hildebrandt and McKenzie (2005) investigated the effects of remittances on health and found that households with immigrant members have greater birth weights and lower infant mortality rates. In addition to this, they also discovered that the migration of their family members improves the knowledge on maternal health and the chances that children will be delivered by doctors. Kanaivpumi and Donate (1999) also reported that during the early periods of migration, infant mortality tends to rise, however, this increase is short-lived as the inflows of remittances increases in Mexico.

Summarily, the review of literature shows that most of the studies focused on countries other than Nigeria, even though some focused on developing countries. The major focus of this study shall therefore be to investigate the impact of remittances on HCD in Nigeria.

METHODOLOGY

Theoretical framework
The framework for this study is anchored on the NELM theory of Stark and Bloom (1985). The selection of this hypothesis is largely attributable to the study's goal of experimentally examining how remittances affect health and education as stand-ins for HCD.

According to the NELM theory, the incentive for migration is a collective decision made at the household level. This theory states that migration is not just an individual decision, rather international migration is viewed as a means of diversifying households' income (Stark and Bloom, 1985). Another significant finding by proponents of the NELM theory is that wage disparities are no prerequisite for migration decision because international migration does not necessarily cease when wage disparities decrease.

Based on the theoretical model, migration is caused by market failures outside of the labor market. Absent, inefficient, or poorly functioning markets, according to the NELM theory, are crucial circumstances for labor migration to occur. Indeed, the NELM approach suggests that migration is a dependable method for mitigating the numerous risks associated with living in developing nations with local and international markets. This is somewhat true and justifiable in developing nations where financial credits and health insurance are scarce and expensive. Households in developing nations rely on remittance inflow as income source and survival means. As a result, this viewpoint supports the idea that remittances, through poverty alleviation, contributes to an improvement in the quality of living, including better and improved nutrition, education, and basic healthcare, all of which are essential for development. These impacts of remittances are reflected in the NELM view of remittances as overt family loans, when migration expenses are compensated for by the positive effect of remittances on human development of households.

Model Specification

The baseline model for the study is stated as;

$$HCD = f(ree, reh, Z) \tag{1}$$

where *ree* and *reh* represents expenditure on education and health respectively while Z is a vector of strategically important variables in the realization of human capital development. As noted earlier, human capital development can be assessed through the lens of education and health outcomes. Therefore, this study would adopt health status and education proxies to capture human capital development. Hence, life expectancy and death rate are used in this analysis as proxies for health status.

Hence, the model is specified as:

$$LE = \beta_0 + \beta_1 RPRGDP_t + \beta_2 REH_t + \beta_3 FDIGDP_t + \beta_4 PCGDP_t + \epsilon_t \tag{2}$$

$$MR = \alpha_0 + \alpha_1 RPRGDP_t + \alpha_2 REH_t + \alpha_3 FDIGDP_t + \alpha_4 PCGDP_t + \varepsilon_t \tag{3}$$

On the other hand, secondary school enrolment rate is adopted to depict the impact of remittance inflow on HCD through education. The model is then specified as:

$$SSER = \gamma_0 + \gamma_1 RPRGDP_t + \gamma_2 REE_t + \gamma_3 PCGDP_t + \gamma_4 POPGR_t + \varepsilon_t \tag{4}$$

where LE = Life expectancy, MR = mortality rate, SSER = Secondary school enrolment rate, RPRGDP = Remittances as a percentage of RGDP, REH = Health expenditure as a percentage of RGDP, REE = Education expenditure as a percentage of RGDP, FDIGDP= foreign direct investment as a percentage of RGDP, PCGDP= per capita GDP, POPGR = population growth rate.

Auto-regressive Distributed Lag (ARDL) and Error Correction Model (ECM)
This study utilized the ARDL model of Pesaran *et al.*, (2001) to determine the short and long-term parameters. The ARDL technique has the advantage of not requiring a pre-test for unit root, unlike other estimation methods. However, it is advisable to conduct a unit root test to prevent the ARDL method from failing in the event there are variables that are integrated of order 2. Essentially, the ARDL is a suitable method for estimating variables that are stationary at levels or first difference {i.e. I (0) or I (1)} or a combination of both.

Following Pesaran *et al.*, (2001), equations 2– 4 above can be specified in the ECM form of the ARDL model as follows:

$$D(LE)_t = \beta_0 + \sum_{i=1}^{m1} \beta_1 D(LE)_{t-1} + \sum_{i=0}^{m2} \beta_2 D(RPRGDP)_{t-i} + \sum_{i=0}^{m3} \beta_3 D(REH)_{t-i} + \sum_{i=0}^{m4} \beta_4 D(FDIGDP)_{t-i} + \sum_{i=0}^{m4} \beta_5 D(PCGDP)_{t-i} + ECM_{2t-1} + \lambda_2 (RPRGDP)_t + \lambda_{21}(REH)_t + \lambda_{22}FDIGDP_t + \lambda_{23}(PCGDP)_t + \varepsilon_{2t} \qquad (5)$$

$$D(MR)_t = \alpha_0 + \sum_{i=1}^{m1} \alpha_1 D(MR)_{t-1} + \sum_{i=0}^{m2} \alpha_2 D(RPRGDP)_{t-i} + \sum_{i=0}^{m3} \alpha_3 D(REH)_{t-i} + \sum_{i=0}^{m4} \alpha_4 D(FDIGDP)_{t-i} + \sum_{i=0}^{m4} \alpha_5 D(PCGDP)_{t-i} + ECM_{1t-1} + \lambda_1 (RPRGDP)_t + \lambda_{11}(REH)_t + \lambda_{12}FDIGDP_t + \lambda_{13}(PCGDP)_t + \varepsilon_{1t} \qquad (6)$$

$$D(SSER)_t = \gamma_0 + \sum_{i=1}^{m1} \gamma_1 D(SSER)_{t-1} + \sum_{i=0}^{m2} \gamma_2 D(RPRGDP)_{t-i} + \sum_{i=0}^{m3} \gamma_3 D(REH)_{t-i} + \sum_{i=0}^{m4} \gamma_4 D(FDIGDP)_{t-i} + \sum_{i=0}^{m4} \gamma_5 D(PCGDP)_{t-i} + ECM_{3t-1} + \lambda_3 (RPRGDP)_t + \lambda_{31}(REH)_t + \lambda_{32}FDIGDP_t + \lambda_{33}(PCGDP)_t + \varepsilon_{3t} \qquad (7)$$

Data measurements and sources
Data for the variables adopted in the study which spanned from 1980 to 2021 were obtained from National Bureau of Statistics (NBS) and World Development Indicators (WDI). Table 1 presents the variables and their sources.

Table 1: Description of Variables

SN	Variable	Source
1	Life Expectancy (LE)	World Development Indicators (WDI)
2	Mortality Rate (MR)	World Development Indicators (WDI)
3	Secondary School Enrolment Rate (SSER)	World Development Indicators (WDI)
4	Remittances as a percentage of Real GDP (RPRGDP)	World Development Indicators (WDI)
5	Health expenditure as a percentage of Real GDP (REH)	National Bureau of Statistics (NBS)
6	Education expenditure as a percentage of Real GDP (REE)	National Bureau of Statistics (NBS)
7	Foreign direct investment as a percentage of Real GDP (FDIGDP)	World Development Indicators (WDI)
8	Per capita GDP (PCGDP)	World Development Indicators (WDI)
9	Population growth rate (POPGR)	World Development Indicators (WDI)

Source: Author's Computation

ESTIMATION RESULTS AND DISCUSSION

Stationarity Test
Table 2, from the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) tests result, reveals that the variables are of mixed order of integration, (I(0) and I(1). This makes the choice of ARDL estimation technique appropriate for this study.

Table 2: Stationarity test

	Augmented Dickey-Fuller (ADF)			Phillip-Perron (PP)		
	Levels	1st difference	Remark	Levels	1st difference	Remark
LNLE	4.2299***	0.5138	I(0)	-1.2702	-1.6131*	I(1)
LNMR	-4.5495***	-1.9135	I(0)	-3.1417***	-1.7754	I(0)
LNSSER	-3.0855	-6.3135***	I(1)	-3.2647*	-6.3251***	I(1)
LNPSER	-2.2056	-4.9290***	I(1)	-2.2056	-4.8740***	I(1)
LNPCGDP	-2.3329	-4.2908***	I(1)	-3.8904**	-4.2908***	I(1)
RPRGDP	-3.0326	-6.5155***	I(1)	-3.0481	-8.4413***	I(1)
LNREE	-2.9464	-5.9303***	I(1)	-2.8661	-13.8611***	I(1)
LNREH	-0.0461	-5.5196***	I(1)	-3.5034*	-23.0097***	I(1)
FDIGDP	-4.0133**	-8.3825***	I(1)	-3.9395**	-18.7767***	I(1)
POPGR	-2.9232	-5.1849***	I(1)	-3.9982**	-4.0460**	I(0)

Source: Author's computation.   *Note: ***, ** and * represent stationary at 1%, 5% and 10% respectively.*

Cointegration test: ARDL bounds test

To test for cointegration, the ARDL bounds test approach was applied. The estimated F-statistic for the bounds tests is shown in Table 3, along with the upper and lower bounds of each model's critical values. The evaluation criterion states that the null hypothesis of no cointegration is rejected if the estimated F-statistic is greater than both the upper and lower bound critical values for any of the significance levels. The results of the limits test for Table 3 demonstrate that each model's variable set has a long-term relationship.

Table 3: ARDL Bounds Test

	F Stat (k)	Lower Bound - I(0)	Upper Bound - I(1)	Remark
Model 1 - LE	3.9136 (4)	1% - 3.74 5% - 2.86 10% - 2.45	1% - 5.06 5% - 4.01 10% - 3.52	Co-integration
Model 2 - MR	8.9116 (4)	1% - 3.74 5% - 2.86 10% - 2.45	1% - 5.06 5% - 4.01 10% - 3.52	Co-integration
Model 3 - SSER	3.8964 (4)	1% - 3.74 5% - 2.86 10% - 2.45	1% - 5.06 5% - 4.01 10% - 3.52	Co-integration

Source: Author's computation

Autoregressive Distributive Lag (ARDL) Estimates

The results of the ARDL estimates for the models specified are presented in Table 4. The lagged value of mortality rate and life expectancy which are both proxies for health variables (a component of HCD) appeared to be positively related to their current values and also statistically significant at 1% level. The result implies that a 1% increase in infant mortality rate (MR) and life expectancy (LE) in the previous year increases their present value by 0.4498% and 2.4643% respectively. The result also shows that remittances as a percentage of GDP (RPRGDP) is negatively related to infant mortality rate (MR) while it positively impacts life expectancy. This means that a unit change in remittance leads to about 0.0011% decrease in infant mortality rate and increases life expectancy by 3.4309% respectively. In essence, increase in remittance inflow

positively affects both mortality rate and life expectancy. A percentage change in GDP per capita (PCGDP) will also lead to about 0.0549% decrease in infant mortality rate per 1000 live births. This implies that increase in output or income has the tendency to decrease infant mortality rate. Similarly, Table 4 shows the short-run estimates of the proxy for education, secondary school enrollment rate (SSER). The result of the analysis showed that remittance inflow and education expenditure (REE) are insignificant to secondary school enrollment rate (SSER). Also, per capita GDP(PCGDP) and population growth rate (POPGR) have positive relationship with secondary school enrolment rate. Specifically, a percentage increase in per capita income will lead to 0.8276% increase in secondary school enrolment rate while a similar percentage increase in population will increase secondary school enrollment rate by 0.5371%. Thus, both relationships have statistically significant impact on secondary school enrollment rate.

The error correction term (ECM) that measures the adjustment speed after a disequilibrium in all the three models also reveals a negative and statistically significant relationship which aligns with theoretical expectation.

The long-run results from the estimation shows that all the variables are negatively related to infant mortality rate except for foreign investment (FDIGDP). This means that a percent change in remittance inflow (RPRGDP), health expenditure (REH) and per capita GDP (PCGDP) will respectively lead to 0.1408%, 0.0376%, and 0.2131% change in mortality rate in the long-run. The result also shows that foreign investment positively impacts mortality rate and is statistically significant at 1% level of significance. For the life expectancy model; health expenditure, foreign investment and per capita GDP have a negative relationship with life expectancy in the long run, although per capita GDP is not statistically significant. On the other hand, remittance (RPRGDP) positively impacts life expectancy and appeared statistically significant at 1% level of significance. In addition, per capita GDP (PCGDP) is positively related to education (SSER) in the long-run. Although per capita GDP, education expenditure, and population growth rate appeared to be negatively related to secondary school enrollment rate but they are insignificant.

Diagnostics test conducted on the models also showed the non-existence of autocorrelation in the models as shown by the results of the Breusch-Godfrey Serial Correlation LM Test. Similarly, the models are free from heteroskedasticity problem and are well specified and stable as shown by the results of ARCH Heteroskedasticity and Ramsey Reset Tests.

Table 4: Remittances and Human Capital Development

Variables	MR	LE	SSER
Short Run			
D(LNMR (-1))	0.4498***	-	-
D(LNLE (-1))	-	2.4643***	-
D(PRGDP)	-0.0011**	3.4309***	-0.0034
D(LNREH)	-0.0021	-0.00008	-
D(LNREE)	-	-	-0.0151
D(FDIGDP)	0.0009*	-0.0009***	
D(LNPCGDP)	-0.0549*	-0.0019	0.8276***
D(POPGR)	-	-	0.5371*
ECM (-1)	-0.1408***	-2.2576***	-0.5608***
Long Run			
PRGDP	-0.0077**	0.8948***	-0.0060
LNREH	-0.0376***	-0.0006***	-
LNREE	-	-	-0.0269
FDIGDP	0.0114***	-0.0014***	-
LNPCGDP	-0.2131**	-0.0019	1.4758***
POPGR	-	-	-0.3015
C	-2.7215***	-0.0040	-2.4339***
Breusch-Godfrey Serial Correlation LM Test (F-stat)	1.0010	0.4890	0.6491
Heteroskedasticity Test ARCH (F-stat)	0.3350	0.3158	0.7445
Ramsey RESET Test (F-stat)	2.4753	0.8641	0.3202

Source: Author's computation. Note: ***, ** and * represent stationary at 1%, 5% and 10% respectively.

CONCLUSION

By adopting the NELM theory, the study examined the impact of remittances on HCD in Nigeria with data covering the period between 1980 and 2021. The ARDL estimation result showed that a significant negative relationship exists between remittance inflow and mortality rate while the relationship is positive to life expectancy. The results of this study demonstrated that, both in the short and long run, remittance inflow has a favorable impact on the health indicator of HCD in Nigeria. Remittance-receiving households should avoid becoming overly dependent on remittances by working less because this may have a negative impact on the development of their own financial and economic resources. Remittances have been shown to have positive effects on health indicators of HCD in Nigeria as they help to reduce infant mortality rate as well as increase life expectancy. This overdependence could restrict the labor supply and impede economic expansion. A greater share of the receiving households' remittances should be put toward commercial ventures other than farming in order to increase their investment opportunities, especially for those in rural areas. It is also suggested that unskilled workers use their remittances to pay for any expert work that will assist them better their financial status.

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