Impact of Remittances on Healthcare Development: Empirical Evidence from a Nigerian Data

[1]Victoria Hauwa Ibrahim, [2]Divine Ndubuisi Obodoechi & [3]Sumaila Adavani Joseph Obansa

1 = Department of Economics, Nasawara State University, Keffi Nasarawa State Nigeria

2 = Department of Economics, University of Nigeria, Nsukka, Enugu State Nigeria

3 = Department of Economics, University of Abuja, FCT Nigeria

Abstract

The study assessed the impact of remittances on healthcare development in Nigeria for the period 1990 to 2020. The specific objectives were to determine if foreign remittance, foreign direct investment and foreign direct aid have a major impact on government health expenditure in Nigeria. The data source for the objectives analysis was collected from the database of the Central Bank of Nigeria, the National Bureau of Statistics and the World Development Indicators, which were analyzed through multiple linear regression. The findings revealed that both foreign direct investment and foreign direct aid had a significant and positive impact on government health expenditure in Nigeria while foreign direct remittances had a negative and insignificant impact on government health expenditure in Nigeria. The study, therefore, suggests that the Nigerian government should formulate a health insurance scheme that would cut across the citizens irrespective of age, status, and gender; to reduce the health burden on foreign direct remittances. Only then can remittances outperform their complementary role in the economy. Also, the government should invest more in the healthcare sector to attract foreign investors; and at the same time create policies that would limit cash outflows in the form of profit repatriation from the Nigerian economy.

Keywords: Foreign Aid, Foreign Direct Investment, Foreign Direct Remittance, Health Development, Multiple Linear Regression, Nigeria.

JEL Classification: C22, F22, F24, H51, I15.

1. Introduction

The United Nations Assembly decided on an eight-point development plan known as the Millennium Development Goals in September 2000. (MDGs). The MDGs aimed to achieve a universal basic primary education system, encourage and promote gender equality and women's empowerment, reduce child mortality, improve maternal health, combat and control HIV/AIDS, malaria, and other diseases, maintain the environment and create a global partnership that will

[1] Department of Economics, Nasarawa State University, Keffi, Nigeria;

spur development in all of the world's developing nations (United Nations, 2003). MDGs approval by the United Nations strengthened the need to embrace economic development in developing countries (Iwuagwu, 2000).

Developing countries have similar characteristics which include; low savings, foreign currency, tax revenue, and human capital levels. Growth concepts factors have been recognized as a determining factor of economic growth and development in both conventional and modern thinking. Over the years, it has been seen that migrant remittances have filled the gap in the supply of these essential dental inputs due to the paucity of these variables.

Migrant remittances from their host countries to families in other developing nations have constituted a significant portion of household income. This form of income enables the household to participate in subsistence farming and other non-agricultural investment options, enhancing one's health and scholastic achievements.

Remittances are financial inflows into a country by its citizens overseas or abroad. It is important to household households to increase their level of income and standard of living by enhancing the availability of resources for the provision of food, access to education and healthcare services (Uzochukwu and Chukwunonso, 2014).

The importance of health in terms of its contribution to human development has been revealed by Sustainable Development Goals (SDGs). About 40 per cent of the targets of the SDGs are directed toward the health sector. Amongst them are the improvement of the mother's health, reduced level of infant and child mortality and the struggle against HIV/AIDS. Child health is a very good measure of the overall services provided to and by the health sector (Muhammad & Seemab, 2018). The inadequacy of health insurance schemes in developing countries in general and Nigeria in particular; and the poverty rate which is seemingly high places low-income earners in a very risky condition when sick. Any attempt to solve health problems with their low income further worsens their condition by pushing them far below the poverty line. Over the years, remittances from abroad have been used by low-income earners to subsidize their health expenditures in developing countries. The question here is "can remittance serve as a full-time alternative to formal healthcare insurance schemes"? This study is being conducted to determine the extent of the impact of remittances on the growth of the healthcare sector in Nigeria in this regard. Specifically, the study seeks to examine the impact of foreign direct remittance, foreign direct investment and foreign direct aid on government health expenditure, as well as to determine the existence of a long-run relationship between foreign remittances and healthcare development in Nigeria. In achieving its objectives, the study is restricted to the period from the year 1990 to 2021. The rest of the paper dwells on the theoretical and empirical literature, methodology, theoretical framework, discussion of results, conclusion and policy recommendations.

2.0 Literature Review

2.1 Theoretical Literature

Based on their acclaimed study titled "Motivations to remit: Evidence from Botswana," Lucas and Stark (1985) developed the hypotheses relating to remittance determinants. According to Hagen-Zanker & Siegel (2007), in their study of household remittance levels, Lucas and Stark proposed that "pure altruism," "pure self-interest," and "tempered altruism or enlightened self-interest" were the three key factors.

Any arrangement between the migrant and the family they left behind, such as one based on exchange of goods or services, debt repayment, or co-insurance, falls under the heading of pure altruism. As a result, this factor presupposes that migrants' altruistic impulses are the reason they send remittances to the family they left behind. Therefore, the immigrant sends remittances because they are concerned about poverty or any other shocks to the family they have left behind. This being said, there is a correlation between the household receiving the remittances and the unfavourable circumstances associated with it.

Hagen-Zanker & Siegel (2007) proposed that self-interest is also an incentive to remit, in contrast to altruism. In this instance, a migrant sends remittance with the intention of inheriting, exhibiting admirable behaviour as an investment in the future, or returning home. If a migrant decides to invest at home, the household they leave behind will have a trustworthy, knowledgeable agent. If a migrant wishes to return home, he may already have assets in houses, cattle, and other things. He will ask the family who was left behind to act as his agent. This hypothesis states that remittance increases with household assets and income, the likelihood of inheriting (depending on the parent's age, number of siblings, etc.), the migrants' wealth and income, and a decrease in risk aversion. Self-interest can differ from altruism in migrant behaviour only if they have the mindset to inherit it, and a higher household income should lead to more remittances.

The Tempered Altruism comes last. In this instance, migration benefits both the immigrant and the family left behind due to some form of intrinsic agreement. By having the agreements self-enforcing, altruism and self-interest may as well not come into play in this situation. These agreements cover debt repayment, services exchange, and co-insurance. (Hagen-Zanker & Siegel, 2007).

2.2 Empirical Literature

Anetor (2019) studied the relationship between remittances, financial sector growth, and economic growth in Nigeria from 1981 to 2017. In order to evaluate the long-run and short-run correlations between the variables, the study used the autoregressive distributed lag (ARDL) model. The study's conclusions showed that over time, the variables are intertwined. The results

also showed that both in the long run and the short run, remittances had a negative and considerable impact on economic growth. The study also showed that, both in the long run and the short run, the rise of the financial sector had a negative and considerable influence on economic growth. Additionally, the study showed that remittances and the expansion of the banking sector work in tandem to stimulate economic growth. The study also showed that, both over the long and short terms, the rate of inflation had a negative and significant effect on economic growth. The study's findings demonstrated that neither long-term nor short-term economic development is significantly impacted by trade liberalization, government spending, or population expansion.

Egbulonu and Chukuezi (2019) determined the impact of foreign remittances on Nigeria's Economic Growth for the period between 1990 and 2018. They utilized the OLS technique to analyze our data because all of the variables we used to evaluate the data were determined to be integrated at the first difference. The correlation and linkage between overseas remittances and economic growth were shown to be favourable. Additionally, a solid reciprocal relationship between overseas remittances and foreign external reserves was developed. For many Nigerian families and households, international remittances now represent a significant source of income. In addition to being on the decline, the infant mortality rate—which was incorporated into our model as a gauge of social welfare and human development—was also found to have no causal connection to international remittances. This was justified since, as the survey demonstrates, households' foreign receipts spending patterns are skewed toward consumption.

Henri and Sosson (2019) investigated from 2008 to 2014 the effect of remittances on under-five mortality in 38 Sub-Saharan African nations. The empirical pieces of evidence are based on estimators for quantiles, fixed effects, and the Generalized Method of Moments. The primary findings demonstrate that remittances make a significant contribution to a decrease in under-five mortality. These findings held up when alternative mortality metrics, such as newborn and neonatal mortality, and additional control variables were used.

Amakom and Iheoma (2014) utilizing data from 18 sub-Saharan African nations, examine the effects of foreign migrant remittances on the performance of the health and education sectors. The authors created two simultaneous equation models and used the two-stage-least square (2SLS) estimation method to take into consideration the endogeneity between remittances and the outcomes of health and education. The results showed that remittances had a favourable and noteworthy impact on the health and educational outcomes of particular countries. In general, basic education outcomes rise by 4.2% on average, secondary school outcomes by 8.8%, and health outcomes by 1.2% for every 10% increase in remittances. Results showed that remittances continue to be a significant factor in accelerating improvements in the outcomes of both the health and education sectors in recipient developing (Sub-Saharan African) nations even after individual country heterogeneity was taken into account. Other factors were discovered to be important, including per capita income, education spending, and health spending.

The impact of remittances on the Nigerian economy was examined by Iheke (2012). The study used secondary data from the years 1980 to 2008. The World Bank's database, the Central Bank of Nigeria's Statistical Bulletin, the National Bureau of Statistics, journals, and other pertinent publications served as the sources of data for the analysis. Regression analysis and trend were used to analyze the data. The results of the data analysis showed that remittance inflow has grown during the previous 20 years. Additionally, time, investment, per capita income, and remittances were the positive and major elements affecting output, while the consumer price index dramatically reduced output.

Onah (2010) examined the extent to which remittances have an impact on poverty and the development of human capital in Nigeria since they can help families get out of poverty by funding education, lowering child labour, improving family health, and boosting durable ownership. The study used a linear regression model to estimate hypothetical per capita household spending and educational attainment without remittances, a probit regression model to determine the difference between receiving and non-receiving households based on the impact of remittances on poverty, and a Heckman selection model with two-step estimates to eliminate selection bias that results in inconsistent estimates because migrants are not randomly chosen from a pool of households. Using the estimated coefficients of the variables, the findings indicated that remittances have a favourable impact on poverty and human capital accumulation in Nigeria.

However, the studies reviewed focused only on the impact of foreign remittances on economic growth and other sectors in Nigeria without referring to its impact on the health sector. In addition, only Henri & Sosson (2019) among the reviewed studies investigated 38 nations' under-five mortality and the effect of remittances in African sub-Saharan countries. However, Nigeria was not the main focus of their study, which is a major focus of this study. More so, this study shall employ foreign direct remittance, foreign direct investment, and foreign direct aid to capture the level of foreign remittances on health development in Nigeria which the reviewed studies did not capture.

3.0 Methodology

3.1 Theoretical Framework

This study adopts the altruism theory which explains the motivation behind a migrant's decision to remit. This theory is of the view that individual family members have the responsibility of helping each other, which explains migrant remittance decisions. According to this hypothesis, migrants are eager to transfer resources to make up for the lack of family members' income, either for personal use or investment. This theory further explains that a migrant will be ready to give up his or her well-being for the welfare of relatives due to the love and affection they have for them. This sacrifice can take the form of physical resources, time or energy without expecting compensation for his or her activity.

3.2 Data Sources and Types

The study's data is comprised of annual observations on Foreign Direct Remittance to Household, Foreign Direct Investment, Foreign Direct Aid, and Government Health Expenditure proxied for Healthcare Development which spans a period covering 1990 to 2020. The data were obtained from several issues of World Development Indicators, National Bureau of Statistics, and the Central Bank of Nigeria's Statistical Bulletin 2020.

3.3 Model Specification

The study adopted the Ordinary Least Square (OLS) technique to examine the impact of remittances on healthcare development in Nigeria. The methods and strategies employed for the study are based on theoretical precepts and an analysis of pertinent literature. Model employed in the study presupposes that healthcare development in Nigeria is a function of foreign remittances. Hence, our multiple regression is structured in its implicit form as thus:

$$GHEX = f\ (DREM, FODI, FODA) \quad \text{.....[1]}$$

Where GHEX is Government Health Expenditure (proxied for Health Care Development), DREM is Foreign Direct Remittance to households, FODI is Foreign Direct Investment, and FODA is Foreign Direct Aid. Direct foreign remittance to households, foreign direct investment, and foreign aid served as proxies for foreign remittances while government health expenditure served as a proxy for health care development.

Econometrically, the model is specified as:

$$GHEX = b_0 + b_1 DREM + b_2 FODI + b_3 FODA + e \quad \text{.....[2]}$$

Where b_0, b_1, b_2 *and* b_3 *are coefficients while e is the residual.*

Apriori Expectation: $b_1 > 0$, $b_2 > 0$, $b_3 > 0$.

The analysis of the model in Equation [2] was made possible by using the E-view Econometric program, version 10.0. The data set was put through a stationary test using the Augmented Dickey-Fuller test to be sure the regression's result was not a fluke. The long-term link between the variables in the study's model was determined using the Johansen Co-integration test.

4.0 Results and Discussion

4.1 Stationarity Test

Table 1 displays the Augmented Dickey-Fuller unit root test result for stationarity and non-stationarity of the time series.

Table 1: Stationarity Test Result

Model Variables	Stationarity Order	Aug. Dickey-Fuller Calculated	Aug. Dickey-Fuller Critical Value	Integration Order	Choice Outcome
GHEX	At level	-2.833096	-3.580623	1(0)	Not stationary
	1st Difference	-5.707689	-3.574244	1(1)	Stationary
DREM	At level	-1.370998	-3.568379	1(0)	Not stationary
	1st Difference	-3.424264	-3.574244	1(1)	Not Stationary
FODI	At level	-3.115648	-3.612199	1(0)	Not stationary
	1st Difference	-4.083210	-3.595026	1(1)	Stationary
FODA	At level	-3.437176	-3.568379	1(0)	Not stationary
	1st Difference	-5.574430	-3.580623	1(1)	Stationary

Computed at 5% ADF critical value
Source: Researcher's Computation (2021) using Eviews 10.0.

The Augmented Dickey-Fuller unit root results in Table 1 show that all the time series data except *DREM* were not stationary at levels, but they however became stationary at 1st difference. Specifically, at a 5% critical level, *GHEX*, *FODI*, and *FODA* were stationary at 1st difference; while *DREM* was not stationary at both levels and 1st difference.

4.2 Test of Co-Integration

The results of the Johansen Co-integration test are shown in Table 2. The result was used to ascertain the number of co-integrating equation(s) in the model of the study.

Table 2: Test of Co-Integration Result

Estimated number of CE(s)	Trace Number	5 Percent Significant Value	Estimated number of CE(s)	Maximum Eigen Number	5 Percent Critical Value
None *	94.02695	47.85613	None *	62.55122	27.58434
At most 1*	31.47573	29.79707	At most 1*	26.25615	21.13162
At most 2	5.219577	15.49471	At most 2	3.874089	14.26460
At most 3	1.345488	3.841466	At most 3	1.345488	3.841466

** indicates that the hypothesis was rejected at a level of 5%.*
Result Source: Researcher's Analysis employing Eviews Version 10.0 (2021).

The Johansen co-integration test findings in Table 2 demonstrate that two co-integrating equations are indicated by the trace test statistics and two co-integrating equations are also indicated at a 5% level by the Max-Eigen statistics. The Trace test and Max-Eigen value test results are used to support the assertion that the variables have a long-term relationship. Therefore, there is a long-term connection between overseas remittances and the expansion of healthcare in Nigeria.

4.3 Multiple Regression Result

The results of the estimated multiple regression model are presented in Table 3.

Table 3: OLS Result for the Impact of Remittances on Healthcare Development in Nigeria

Dependent Variable	Independent Variables	Coefficient	Standard Error (S.E)	T-Statistics (Prob.)
GHEX	*C*	15.52715	20.86115	0.744310 (0.4631)
	DREM	8.23	2.16	3.811548 (0.0007)
	FODI	-1.18	3.43	-0.343853 (0.7336)
	FODA	-3.71	7.27	-0.510994 (0.6135)
R^2	0.552359			
F-Statistic	11.10538			
Prob(F-statistic)	0.000063			
DW	1.478567			

Source: Researcher's Computation (2021) using Eviews 10.0.

From Table 3, since the ½(b_1) is greater than its S.E, that is ½(8.23) = 4.115 > 2.16, the alternative hypothesis that b_1 is statistically significant is accepted and the conclusion that there is a significant impact of foreign direct remittance to the household on government health expenditure in Nigeria is made. On the other hand, since the ½(b_2) is greater than its S.E, that is ½(-1.18) = -0.59 < 3.43, the null hypothesis that b_2 is statistically insignificant is accepted and the conclusion that there is no significant impact of foreign direct investment on government health expenditure in Nigeria is made. Lastly, since the ½(b_3) is greater than its S.E, that is ½(-3.71) = -1.855 < 7.27, the null hypothesis that b_3 is statistically insignificant is accepted and the conclusion that there is no significant impact of foreign direct aid on government health expenditure in Nigeria is made.

Therefore, the result from the estimated multiple regression in Table 3 indicates that there exists a positive and significant impact of foreign direct remittance to the household (DREM) on government health expenditure (GHEX) in Nigeria. The interpretation of its coefficient explains that increasing DREM by a certain percentage while keeping all other factors the same raises GHEX by 8.23%. On the other hand, the result from Table 3 indicates that there exists a negative and insignificant impact of foreign direct investment (FODI) on government health expenditure (GHEX) in Nigeria. Specifically, a percentage increase in FODI holding other variables constant reduces GHEX by 1.18 per cent. Lastly, the result from Table 3 indicates that there exists a negative and insignificant impact of foreign direct aid (FODA) on government health expenditure (GHEX) in Nigeria. Specifically, a percentage increase in FODA holding other variables constant decreases GHEX by 3.71 per cent.

Additionally, the R-Squared coefficient of determination for the model's overall goodness of fit is 0.552359, which indicates that the independent variables in the model account for roughly

55% of the variation in government health spending (GHEX) in Nigeria for the time period under study.

Lastly, the Durbin-Watson (DW) test is employed to test for autocorrelation in the model. As a decision rule, a Durbin-Watson value of ≥ 2 signifies the absence of autocorrelation. Hence, from Table 3, the value of the Durbin-Watson statistic is 1.478567 (which is close to 2) for the model. This implies that there is an absence of serial autocorrelation in the model.

4.4 Discussion of Findings

From the analysis above, it would be observed that foreign direct remittances had a positive sign which implies that an increase in the variable would lead to an increase in government health expenditure. This conforms to the apriori expectation of an increase in the variable resulting in a rise in government health expenditure. Since direct remittances are a financial inflow which comes into the home country of migrants abroad to their household, and with the increase in foreign direct remittances for the period of 1990-2020, one would expect that such funds would subsidize health expenses for the household. This is the case with the positive value as the coefficient of these variables. Firstly, this implies that majorities of the household population in Nigeria are with migrants in their families and as such migrant remittances have an impact on them. Secondly, the increase in foreign exchange has led to an increase in inflation (imported inflation), since Nigeria produces little or nothing, especially in health, resulting in difficulty accessing quality healthcare. Fourthly, a majority of Nigerians live below the poverty line making it difficult to access health facilities.

The negative sign on the coefficient of foreign direct investment may be because a majority of foreign direct investors invest in a particular sector like oil and gas and neglect other sectors like health, communication, agriculture, and others for which a high return on investment is guaranteed. Also, multinational companies over the years in their operations have been known to create pollution and health hazards unhealthy food, tobacco and other harmful goods which harm health conditions. So many multinational companies are mainly concerned about their profit and not about the welfare of the populace. This capital outflow in the form of profit repatriated to their home country erodes the impact of the cash inflows spent on the business.

The coefficient of foreign direct aid had a negative sign which implied that an increase in foreign aid led to a decrease in government health expenditure. This is because aid granted for the development of the Nigerian health sector by international agencies and donors is not properly and effectively monitored from time to time to ascertain that it was spent for the purpose it was meant for. Such aid if not properly utilized for its purpose, would hinder the granting of further aid.

5. Concluding Remarks and Policy Suggestions

For the years 1990 to 2020, the study looked at how foreign remittances affected Nigeria's health progress. The findings of the research concluded that; foreign direct remittance has a positive and significant impact on government health expenditure in Nigeria; foreign direct investment

has a negative and insignificant impact on government health expenditure in Nigeria; foreign direct aid has a negative and insignificant impact on government health expenditure in Nigeria.

The study's findings support the recommendation that the government ought to formulate a health insurance scheme that would cut across the citizens irrespective of age, status, and gender; to reduce the health burden on foreign direct remittances. Only then can remittances outperform their complementary role to the economy, and also boost the expenditure pattern of the government on the health sector. Also, the government should invest more in the health sector to attract foreign investors; and at the same time create policies that would limit cash outflows in the form of profit repatriation from the Nigerian economy.

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