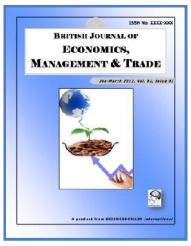

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Remittances and the National Household Disposable Income in Nigeria (1980-2025): Dynamic Forecasting Approach

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Author's contribution

The only Author carried out the whole research work. Author ESO wrote the first draft of the manuscript. Author ESO proof read the manuscript throughout all the stages of the review process.

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ABSTRACT

This paper uses a data from the National Bureau of Statistics (NBS) from Nigeria and World Bank to analyze how the receipt of international remittances (from the rest of the world) affects the National Household Disposable-Income in Nigeria being one of the top 10 remittance-receiving countries in the world, with about 10,045 billion US$ in 2010. The study employs a dynamic forecast model to analyse the nature of this effect for both the short run (1980-2015) and long run (1980-2025). To ensure stationarity of the data, the study uses the individual root of Im, Pesaran and Shin unit root test. From the result, it is found that remittances have a significant effect on the national household disposable-income both in short and long run in Nigeria. These findings support the growing view that remittances can help increase the level of investment in human and physical capital in remittance-receiving countries. It was recommended that policies should be designed to ensure that remittances sent through the banks and other transfer institutions attract little or no interest.

Keywords: Remittances; household disposable income; Nigeria; dynamic forecasting.

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1. INTRODUCTION

International remittance payments are an important component of the global economy today. Remittances are flows of capital defined as: “money earned or acquired by migrants that are transmitted back to their country of origin [1]. Migrant remittances have become an important source of income and foreign exchange for many developing countries. International migration has become a major concern for policy makers, while countries are worried about the leakage of intelligence through migration, the contributions of international migration in the form of remittances to the economies of several less developed countries are worth noting. The remittances from migrants working abroad are important for both families of migrants and the balance of payment of their home country, while remittances contribute significantly to the welfare of the migrant households; it also has a considerable impact on GDP as well as foreign exchange earnings of developing countries [2].

Also, remittances could be seen as the portion of international migrant workers’ earnings sent back from the country of employment to the country of origin. Remittances can be sent in cash or kind [3]. The growing importance of remittances as a source of foreign exchange is reflected in the fact that remittance growth has outpaced private capital flows and ODA over the last decade, going up from 31.2 billion USD in 1990 to 483 billion USD in 2011 [4]. This phenomenon has turned great attention to the causes and effects of international migration and remittances, both in the migrant source and destination country. For example, Evidence collected by the World Bank indicates that when a country encounters political or economic difficulties, citizens who are living and working abroad supports their compatriots by increasing the amount of money they send.

According to [4] more than 215 million people (3% of the world's population) live outside their countries of birth and over 700 million migrate within their countries. In the coming decades, according to [4] demographic forces, globalization, and climate change will increase migration pressures both within and across borders. Then remittances, the money sent home by migrants, will be three times the size of official development assistance and these will provide an important lifeline for millions of poor households.

[4] officially recorded the global remittance flows, including those to high-income countries, estimated to be $483 billion in 2011, while remittances flowing to developing countries are estimated to total $351 billion in 2011. An increase of 8% over the previous year, according to figures contained in the latest issue of the World Bank’s Migration and Development Brief. The top recipients of officially recorded remittances in 2011 were India ($58 billion), China ($57 billion), Mexico ($24 billion), and the Philippines ($23 billion). Other large recipients included Pakistan, Bangladesh, Nigeria, Vietnam, Egypt and Lebanon. However, as a share of GDP, remittances were larger in smaller and lower income countries; top recipients relative to GDP were Tajikistan, Lesotho, Nepal, Samoa and Tonga. This shows that the overall economic gains from international migration for sending countries, receiving countries, and the migrants themselves are substantial.

Despite the current global economic weakness, remittance flows are expected to continue growing, with global remittances expected to exceed $593 billion by 2014, of which $441 billion will flow to developing countries. The officially recorded remittance flows to the African continent are similar in size to official aid flows, according to the report. For instance, they are several times larger than official aid to North Africa (3.3 percent of GDP versus 0.6 percent of GDP) and two-thirds the size of official aid flows to Sub-Saharan Africa (2.2 percent of GDP versus 3.7 percent of GDP). However, as a share of GDP, the largest

recipients in Africa are Lesotho (28.5 percent), Togo (10.7 percent), Cape Verde (9.4 percent), Senegal (9.3 percent), and The Gambia (8.2 percent). For the Sub-Saharan African countries, according to the World Bank (2011), only about 2 percent of households receiving remittances from outside Africa use banks; "the share is slightly higher in Uganda (12.5 percent), Kenya (16.2 percent) and Nigeria (22.3 percent)." The “formal channels’ for remittances from outside Africa and within the region are heavily dominated by money transfer companies, particularly Western Union.

For developing economies like Nigeria, overseas remittances are vital source of income for many households. The majority of overseas remittances are aimed at easing the financial situation of the households receiving the money. The World Bank report on Africa added a few countries account for a substantial share of remittances to Sub-Saharan Africa and North Africa and Nigeria is high ranking in the remittances chart. The remittances to Nigeria, $10,045 billion equaled about half of all officially recorded remittances to Sub-Saharan Africa in 2010." That is the estimated remittances flow into Nigeria from its people abroad were $10,045 billion in 2010 and $10,681 billion in 2011 and the expected remittance to flow to developing countries in 2012 is total $351, and worldwide remittances, including those to high-income countries, will reach $406 billion in 2012.

Nigeria has a strong and growing Diaspora community, especially in the US, Europe and Asia, many of whom are responsible for this remittance flows. Nigeria qualifies as the 10th country on a list of the world’s most remittances recipient countries, with an annual inflow of remittances amounting to 4.5% of its GDP share [5]. From 2000 to 2011 the Nigerian economy experienced the slowest rise in real GDP in Western Africa. During the same period, the country experienced a massive outflow of labour, with some 10% of the population living and working abroad by the end of 2010. At the same time, remittances received showed an upward trend. Nigeria has a high dependency on remittances and this is a challenge to the Nigerian economy. It is therefore interesting to dig deeper into the impacts of remittances and investigate if it is a benefit, or a burden, to the country.

The main objective of this study is to empirically evaluate how remittances impact on the national household disposable income in Nigeria, by applying a time series data ranging for the period of 1980-2015 (a forecast for the short run) and forecasting to 2025 (a forecast for the long run). The main research questions that steer this paper are; what is the relationship between remittances and the national household disposable income in Nigeria? Has remittances affected the households’ disposable-income in short run or what will be the level of impacts in long run?This paper is disposed in the following way: The first section gives a general introduction to the phenomenon of remittances and background of the paper stating its problem and its objectives.Section2 looks into the review of existing and related literature on the topic; it will examine the limits to which other authors have contributed to the expansion of the frontier of knowledge on the subject matter. Section 3 explains the theoretical framework while section 4 presents the research estimation strategy.Section 5 discusses the empirical results of the paper and section 6 is the policy implication and recommendations while, section 7 concludes with a brief.

2. LITERATURE REVIEW

Earlier literature on remittances has emphasized their negative impacts and cautioned against the possible damaging effects of labour migration and remittance sending, arguing that remittances, being compensatory, are mainly spent on consumer goods instead of productive investment and thus create a culture of dependency which undermines the

prospects for development. Recently, development practitioners have viewed remittances as having an important role to play in the development efforts of recipient countries. This opens up a debate about possible mechanisms that could be developed or improved to maximize the positive development impacts from remittances. Such policy implications are especially interesting for developing country governments.

2.1 Remittances and Aggregate Household Welfare

Although, economic motivations of migration have long been recognized; the economic development effects of migration on countries of origin and destination are only recently coming into focus. At present, remittances are the most tangible and perhaps the least controversial level between migration and development [6].Remittances play an important role in the development of households at micro level and development of community or country at macro level. Though remittances can improve the standard of living such as housing, education, health and esteem needs at the household level, for countries, remittances have become the cheapest source of development finance.

Benefits of remittances to the countries of origin are many. Remittances may improve income distribution and quality of life beyond what other available development approaches could deliver, especially if the poor, unskilled labour emigrated. Most studies about remittance uses found that remittances are spent on current consumption, health and education, thus leading to improved standards of living for emigrant households compared to non-emigrant households.

Remittances generally reduce the level and severity of poverty and frequently lead to higher human capital accumulation, higher health and education expenditures, better access to information and communication technologies, greater financial access, small business investment and entrepreneurship, the reduction of child labour and help households to be better prepared for adverse shocks such as droughts, earthquakes, and cyclones. Diasporas can be an important source of trade, capital, technology, and knowledge for origin countries and destination [7].

[8] examines the economic impact of remittances in India and Pakistan. He analyses the impact at national and local levels and found that the standard of living of the inhabitants of areas of migration are higher than non-migrant areas. Migrants' savings in the banks serves as a means of financing loan to customers living elsewhere. [9] in his paper reviews the magnitude of remittance flows and also examines the consumption pattern of remittance receiving households in Mexico. He is of the opinion that the remittances are not limited to migrant households but extend to entire communities. On the domestic front, remittances increase household income of migrant families, improve living standards enhance savings and generally contribute to national economic growth [10].

[11], investigated the impact of remittances on poverty reduction in Rural Egypt for the first time and concluded that number of poor household declines by 9.8 % when households incomes includes foreign remittances, and that remittances income accounts for 14.7% of total income of poor segments. Furthermore, [12], argued that remittances are mostly spent on consumption, housing and land and are not used for productive investment that would contribute to long–run development in Turkey. However, market linkages transmit the impacts of remittances from the households receiving them to others in the local, regional or national economy. Although emigration is rarely a solution to the problems of national

development, these direct and indirect income effects of remittances potentially have important influences on production, income inequality and poverty at least on local level.

[11,13], analyzed the impact of international migration and foreign remittances on poverty reduction. A 10 percent increase in international remittances in developing economy will decline the poverty by 3.5 percent in that country. [11] and [13] also instituted that remittances reduce the severity of poverty in Guatemala; furthermore, Guatemalan families tend to spend a lower share of total income through remittances on food and other non-food goods but more on durables goods like housing, education and health. Continuous flow of remittances boosts the education spending in Pakistan [14]. [15] investigated the relationship between remittances and poverty in Egypt, Guatemala and Mexico respectively and argued that a one-percentage point increase in fraction of remittance-receiving households in a municipality significantly reduces the fraction of population earning relatively low income.

[16] utilized the Propensity Score Matching Approach to investigate the impact of remittances on poverty reduction among Mexican households. They conclude that receiving remittances (regardless of amount) reduces the households' probability of being in food-based and in capabilities-based poverty by 8% & 6 % points, respectively. If the remittance senders resemble the Mexican population, this effect is equivalent to a reduction of around 50 & 30 percent in corresponding poverty rates for remittance receiving households' vis-à-vis non- remittance receiving households. However, receiving remittances does not seem to affect the probability of being in asset-based poverty and remittances help to reduce the level and depth of poverty up to certain level. In the case of Pakistan, [17] found that trade liberalization and international remittances reduce gap between urban and rural households but gain in welfare from trade liberalization is larger for urban households as compared to rural households.

Recent survey of remittances in Pakistan has unequivocally pushed the growth momentum of the economy along with macroeconomic stability. In addition to that, more foreign capital inflow (remittances) is likely to have impact on economic planning and human development that would lead to institutional strengthening. It is commonly believed that heavy flow of remittances has greatly stabilized Pakistan's financial sector that is in initial level of development. Therefore, remittances increase the money supply and stimulate demand for consumption and investment. Remittances are also poverty cushion as increased money supply to stimulate the demand and increased consumption expenditures on goods and services would ultimately benefit the poor. Low level of economic activity has created unemployment for skilled labour while the remittances have created the opportunities even for unskilled labors. It has been generally argued that globalization has caused loss of power of nation- states and dismantled welfare state model that grossly reduced the efficiency of the governments [18].

2.2 Remittances and Investment

It is been argued by general studies that remittances provide capital to small entrepreneurs and there by entrepreneurship [6]. Fig. 1 shows the links between remittance usage at present, and 'development' and consumption in the future. If remittances are invested or saved instead of present consumption, it would generate future streams of income for future consumption. Based on the available literature, the range of productive investment and investment portfolios can be summarized into five categories, which include Savings strategies; location-specific capital ventures; human capital resource investment; diversified microeconomic investments and community support, maintenance and sustenance.

Volume of investment or savings of present remittances depends on the volume of remittances, sources of other income and spending behaviour of the remitter and his household. The remittances saved in banks and financial institutions can increase credit availability in the remittance receiving country and can provide finance to entrepreneurs which in turn cause positive impact on development. The impact on development does increase when migrants or their household members invest the remittances in profitable ventures. "When migrants do invest, their emotional attachment to their (often marginal) regions of origin can help compensate for the disadvantages of these regions in the eyes of purely profit-seeking investors [19]. For example, the contribution of migrants from Kerala, a southernmost state in India, to development can be seen in various areas like housing, transportation, town planning, educational and religious institutions, amenities and other infrastructural facilities [20].

Remittances can improve countries credit worthiness and thereby enhance its access to international capital markets [6]. Properly accounted currency remittances, can improve a country's risk rating. In turn the improvement in risk rating would enable these countries to borrow at lower cost in international markets. Based on future remittance flow, banks in remittance receiving countries are able to borrow long-term financing at lower costs from international markets through the securitization of expected remittance flows. [3] opined that remittances are currently the second most important source of external finance to developing countries after foreign direct investment. He further asserts that remittances have a potential positive impact as a development tool for the recipient countries. [21], states that remittances have become a major component in the foreign exchange earnings of a number of countries.

Another macroeconomic impact stemming from remittances inflow is the appreciation of the national currency as the total amount of money in the economy increases without affecting the inflation rate. However, this real appreciation of the exchange rate makes the country's exports relatively more expensive and worsens the competitiveness of the sectors exposed to international competition. As a result, increasing imports and decreasing exports will cause a deficit in the external current account. This phenomenon is known as the Dutch Disease [22]. Other negative effects include the potential impact of remittances on inflation and wage rate. Remittances are expected to increase demand for goods and services. If this demand is not met by responsive supply, inflation rises, sometimes to such a level as to annihilate the positive effects of remittances on development. The increased demand may also lead to a rise in wages and in turn shift the production to non-traded goods and, again, harm the competitiveness of the exporting sector. The wage increase can also come from reduced labour supply caused by increased leisure of recipients.

As stated earlier, remittances also contribute to increased savings and investment. However, some studies show a negative relationship between remittances and growth. [23] show empirically that remittances tend to be compensatory in nature and have a negative effect on economic growth. They also show that moral hazard problems created by remittances can be severe enough to reduce economic activity.

In a conducive economic and investment climate, remittances provide an easy source of capital to small and medium entrepreneurs who in turn reduce the credit constant and increase the essence of entrepreneurship, leading to better remittance management. So it is important that governments of remittance receiving countries should develop various measures to attract uses of remittances towards productive investments. [24] stated that where opportunities arise, remittances are used for investment and can be investment motivated.

2.3 Determinants of Remittances

The decision to remit, however, depends on a variety of variables. Besides the demographic characteristics of emigrants, that is age, sex, marital status, number of dependents and links with family at the country of origin, the occupational status of emigrants plays an important role in determining the amount of remittances sent home.

One of the major determinants is worker's occupational status abroad. Workers of low occupational status who live in poor living conditions in the country of destination do not often take their families abroad. Therefore their propensity to save from their income is high and these savings are generally remitted to their families in their home countries upon which these families live in the absence of migrants. On the other hand workers of higher occupational status generally take their families to the country of employment and hence, they are not obliged to remit their savings to their home country.

The decision to remit is also dependent on a variety of macroeconomic policy variables. Interest rates, exchange rates and income tax are the variables which affect the decision of emigrants to remit. The choice of emigrants to remit their savings through formal and informal channels also depends on the relevance of these variables.

[25] uses a framework for analysis of the determinants of remittances and their implications. According to him, the following elements are supposed to have a positive impact on remittances: number of workers abroad; economic activity in host and origin country; facility of transferring funds and the marital status of the migrants (married migrants tend to send more remittances to their family members). In view of [25], the factors that have negative influence on remittance flows are political risk factors in source countries (the larger the risk, the smaller the willingness of remitting); the ratio of females in the population in host country (the larger the ratio of females, the lesser the remittances); the number of other employed people in the household; the level of education and the occupational level of migrants (it is assumed that poorer households tend to send individuals with lower education and skill levels abroad, and consequently have a greater propensity to remit). Lastly, there are factors that may have a positive or negative impact on remittance flows, depending on the individual country/ household structure: wage rates, exchange rates, relative real interest rates and years since out-migration.

[25] further explained that, the decision-making for remitting appears as follows. Several factors determine migrant's foreign earned disposable income and generate a "pool of remittances". The most important factors determining the disposable pool of remittances are the number of workers, foreign country's wage levels and economic activity in the host and source country. Given the pool of remittances, the migrant has to make a decision whether to send remittances or keep them in the source country. The migrants' decision is affected by relative interest rates, exchange rates, facility in transferring funds, income level of household, ratio of females in population in host country, time passed since outward migration and political risk factors in the recipient country. When a migrant has decided to remit, the next question is whether to do so via formal or informal channels. This is determined by relative interest rates, exchange rates, facility in transferring funds and migrant's level of education. The amount to remit will be determined by the number of years since out-migration, the income level of the household, employment of other members of the household, marital status, and the migrants' occupational and educational level. Then, the migrant or/and receiving household has to decide if the remittances are to be consumed or

invested/saved. Once again, this decision will be influenced by the same factors as the amount being remitted.

There are therefore good reasons for adopting a disaggregated perspective. [26] argues that microeconomic data should be used to model remittance behaviour because of the inability of macro-models to control for individual and demographic differences. Most of the existing microeconometric studies consider urban to rural transfers within developing countries rather than focusing on international flows [27,28,29,30,31,32]. In comparison there has been little research on the remittance behaviour of immigrants in the host country, reflecting the difficulty of obtaining suitable data.

Among those studies which do paper international transfers, [33] uses information on the remitter and recipient households in El Salvador and Nicaragua to model the determinants of remittances. However, there is only limited information on the sender household as the questions about the emigrants were only asked to the non-migrating household. [34] also focus on the remittance behaviour of Latin American immigrants in the US, although their survey is confined to residents of Los Angeles County. [35] emonstrate an informal contract exists between a migrant and their extended family using a sample of around 1000 return migrants to Pakistan.

[36] analyse the effect of savings and remittances on return migration. They suggest that remittances are a special form of savings if there is an intention to return to the home country. Their paper comprises exclusively of short term migrants from Southern Europe, especially Turkey, who return home immediately after their work period in Germany has been completed. In comparison to these studies, we have access to a much larger dataset, which relates mainly to permanent, or at least long-term, migrants as well as second generation immigrants and native- born minority individuals with family abroad. This type of remitter may have motives for sending money overseas which are different to those discussed in the existing literature.

3. THEORETICAL FRAMEWORK

3.1 Motivations to Remit

In order to understand how remittances are used and invested, the motives behind remitting should be investigated. The earliest literature on remittances claims that the reasons for remittances are pure altruistic ones. Lucas and Stark introduce an altruistic utility function where the migrant's utility emboldens the consumption of the other household members. Recent studies have also focused on the fact that self-interesting reasons for remitting exist. This theory still puts the family in focus since it regards the family as a business or a network of contracts that empower the members to engage in Pareto-improving arrangements. If migrants have investments that need to be looked after while they are abroad, they will employ family members in the home country as their agents. In this case, remittances are used for managing migrants' interests as well as some compensation for the agents. Furthermore, the family may have the role of financial intermediary.

[37] as well as [38] and [39], claim that the family can act as an insurance company that protects its members against income shocks by verifying the sources of income. On the other hand, [40] and [35] portray the household as a bank that finances migration for its

members. The borrowers remit to pay back the loans that are put towards more loans to promote the interests of other household members.

Migrants are risk averse and sensitive to political and economic situation in their home country when remitting. [41] suggests that money flows determined by these characteristics are "desired" remittances, whereas transfers that are of a more obligatory character for family support are "required" remittances.

The motives to remit may be a combination of altruism and self-interest, so called "tempered altruism" or "enlightened self-interest". Despite the motives, the magnitude of remittances is to be decided by the income of the remitter. The higher the income, the larger the remittances into the recipient country, this has to be complemented by the income of the receiver. If the motives to remit are altruistic ones, remittances are larger the lower the income of the recipient. On the other hand, if the motives to remit are self-interest ones, the determinant factor for the magnitude of remittances will be the migrant's return on investment in the home country, and the difference between this return and the return in the emigration country [42].

Even though remittance arrangements seem to be truly self-interested at first sight, the mechanism on which they rest upon may be an altruistic one. A migrant might be expected to live up to her obligations or family's expectations whose members are the counterparties to the agreement. Research has shown strong evidence that family ties which rest upon altruism justify much of the remittances. Altruism in this sense is the migrant's concern about income or consumption levels of its' family in the home country.

Numerous theories have been advanced to explain why one rational household will send some level of remittances to another. Most of these explanations have viewed remittances within the context of internal or international migration. In this section we present a simple, very general model of remittances which focuses on two key reasons identified in the literature for the existence of remittance payments: altruism and exchange. We begin by positing, for potential donor and recipient households, utility functions which encompass varied motives for the payment of remittances.

The utility of the potential recipient household (labeled R) is represented as:

$$V(yR + r, s) \tag{1}$$

while for the potential donor household (labeled D) we have

$$U(yD - r, s, V(yR + r, s)) \tag{2}$$

Here y is the level of household disposable income, r (≥ 0) is the amount of remittances paid by the donor to the recipient and s (≥ 0) is the value of some service which only the recipient household can provide to the donor. Each household derives utility from consumption thus $V_1 > 0$ and $U_1 > 0$ where the subscripts indicate the first partial derivative of the utility function with respect to its first argument. Note that the budget constraint is assumed to be binding - the whole of disposable income net of remittances is consumed.

Three further assumptions are made:

i.) $V_2 \leq 0$. The provision of services may be at some utility cost to the recipient household.
ii.) $U_2 \geq 0$. Services provided by the recipient may benefit the donor.
iii.) $U_V \geq 0$ where U_V is the partial derivative of the donor's utility function with respect to the utility of the recipient. This allows for the possibility of some degree of altruism on the part of the donor. The framework outlined above allows the consideration of three special cases namely, altruistic preferences, pure self-interest and more general cases [42]. This study considers only the first two cases.

3.2 Altruistic Preferences

The possibility that economic agents have preferences which are other-regarding is frequently used to explain types of behaviour which might otherwise appear anomalous. The existence of income transfers between households for which there is no apparent exchange motive is one example of such behaviour and altruism has been suggested as a potential explanation of remittances [31,42]. In our framework, altruism can be introduced most simply by assuming $U_2 = 0$, $U_V > 0$ and $V_2 = 0$.

The first order condition for utility maximisation by the donor household is

$$\frac{Du}{dr} = - U_1 + U_V V_1 = 0 \quad (3)$$

which suggests that remittances are paid up to the point where the marginal utility cost in terms of foregone consumption is exactly offset by the "warm glow" afforded by altruistic behaviour. Assuming diminishing marginal utility of consumption, we would expect remittances to be an increasing function of the income differential between donors and recipients.

This is not, however, the only prediction. The weight put on the recipient's utility by the donor (U_V) will influence the desired level of remittances at any level of the income differential. Two sets of factors are likely to affect the extent to which altruistic concerns are important. First, the ‘closeness’ or otherwise of the relationship between the two parties will be important, an idea which can be traced back to[43] discussion of how increased ‘social distance’ between individuals diminishes altruism. Second, the weight put on altruistic behaviour within a particular culture or ethnic community may differ. [44] discusses how, for particular groups, other-regarding social norms may emerge as a response to strategic or information problems which would lead to market failure. In our framework each of these considerations will affect the magnitude of U_V.

3.3 Pure Self-Interest

While altruistic motives might be sufficient to explain the existence of positive levels of income transfers between households, it is far from necessary to invoke other-regarding behaviour in order to provide a rationale for remittances. Households which are purely motivated by self- interest may find it optimal to remit as part of a, possibly intertemporal, implicit or explicit exchange contract. A variety of such models exist in the literature; the common feature is that remittances are paid in exchange for some service which the recipient household provides.

According to the literature on migration, migrant welfare might depend on actions undertaken by the residuary household in the past, at present, or in the future. This might involve strategic bequests [31] of wealth or land whereby the division of the residuary household's estate is conditional on actions, including the payment of remittances, undertaken by the migrant. Another potential service provided by residuary households is the management or disposal of migrants' assets held in the home land or region which the migrant envisages enjoying on return [31]. [40] views remittances as the repayment of an informal loan which migrants borrowed in order to invest in human capital, while [45] view remittances as a bribe which prevents the migration of unskilled workers from the home country or region diluting the quality of the pool of migrant labour in the destination location. The service provided by the recipients need not be so tangible; where a migrant donor has a reputation as a generous remitter, this may increase their standing in the community on return to the homeland. The 'service' provided by the recipient might simply be to receive the remittance payments and presumably make sure that it is common knowledge that they have been received.

Whatever the precise form of the service, a purely self-interested donor will only provide remittances in exchange for some level of s. We assume $U_2 > 0$, $UV = 0$, $V_2 < 0$. A contract curve has been drawn through the points of tangency indicating that we can consider the outcome to be the result of a Nash bargain between the two parties. An interior solution, however, must satisfy a participation constraint. There must exist gains from trade otherwise at least one party will prefer not to enter the transaction. Specifically, we require a range of strictly positive r and s such that:

$$U(yD - r, s) > U(yD, 0) \text{ and } V(yR + r, s) > V(yR, 0) \quad (4)$$

Given diminishing marginal utility of consumption, this is more likely where there exists a relatively wealthy donor and relatively poor recipient. Assuming that the participation constraint is satisfied, the precise outcome will depend *inter alia* on the bargaining power of the two parties and will entail an implicit price of the service.

This scenario might appear to be nothing more than a market transaction between the two parties wherein a service is traded at a particular price. It should be borne in mind, however, that the recipient is likely to be in a privileged position insofar as providing the required service is concerned. For example, migrants may have little or no choice over which member of their family is left in charge of their assets, and cultural reasons may dictate that the provision of this service requires a *quid pro quo* in the form of remittance payments.

4. ESTIMATION STRATEGY

The estimation technique consists of three steps procedure. First, the unit root test, using the individual root of Im, Pesaran and Shin unit root test. Second, the least squares estimation of the model with an autoregressive and AR(1) series, which forecast both for the short run (1980-2015) and long run (1980-2025) dynamism. Autoregressive was included to enables account for serial correlation and create dynamic forecasts of multi-step forecasts and finally, analysis of forecast evaluation. Third, evaluate the dynamic forecasts of the model goodness of fit.

The dynamic forecasts are true multi-step forecasts (from the start of the forecast sample), since they use the recursively computed forecast of the lagged value of the dependent

variable. Both the lagged dependent variable and the lagged residuals forecasted dynamically.

These forecasts may be interpreted as the forecasts for subsequent periods that would be computed using information available at the start of the forecast sample.

The study use two years moving average growth rate to forecast for the short and long run. The variables under consideration include; National Household Disposable-Income (NHD) the dependent variable and the independent variables are, Migrant Remittance Inflows (MRI), Compensation of Employees from the Rest of the World (CER), Property and Entrepreneurial Income from the Rest of the World (PER), Business Money Transfers from the Rest of the World (BTR) and Export of Goods and Services (EGS). The data set for this paper consists of annual time series from 1980 – 2011, they were obtained from the Nigeria National Bureau of Statistics [46,47]and the World Bank's Migrant Remittance Inflows (US$ million) by countries from 1980 to 2011.

4.1 The Model

4.1.1 Dynamic forecasting

In the general form we can augment the earlier specification of the model to include the first lag of y:

y c x z y(-1) (5)

With dynamic forecasting, we perform a multi-step forecast of *y*, beginning at the start of the forecast sample

For our single lag specification above in equation (5) we have the one-step ahead forecast,

$$\hat{y}_S = \hat{c}_0 + \hat{c}_1 x_S + \hat{c}_2 z_S + \hat{c}_3 y_{S-1} \quad (6)$$

where y_{S-1} is the value of the lagged endogenous variable in the period prior to the start of the forecast sample.

The initial observation in the forecast sample (equation 6) will use the actual value of lagged Y. Thus, *S* if is the first observation in the forecast sample,

Forecasts for subsequent observations will use the previously *forecasted* values of Y:

$$\hat{y}_{S+k} = \hat{c}_0 + \hat{c}_1 x_{S+k} + \hat{c}_2 z_{S+k} + \hat{c}_3 y_{S+k-1} \quad (7)$$

If there are additional lags of *y* in the estimating equation, the above algorithm is modified to account for the non-availability of lagged forecasted values in the additional period. For example, if there are three lags of *y* in the equation:

i. The first observation (*S*) uses the actual values for all three lags, y_{S-3}, y_{S-2} and y_{S-1}

ii. The second observation (*S+1*) uses actual values for Y_{S-2} and Y_{S-1} the forecasted value $\hat{Y}_S$ of the first lag of Y_{S+1}

iii. The third observation (*S+2*) will use the actual values for Y_{S-1} , and forecasted values $\hat{Y}_{S+1}$ and $\hat{Y}_S$ for the first and second lags of Y_{S+2} .

iv. All subsequent observations will use the forecasted values for all two lags

4.1.2 Therefore the stochastic equation in its empirical forms is specified as follow:

$$NHD_t = \alpha_0 + \sum_{j=1}^{n} \alpha_1 \log BTR_t + \sum_{j=1}^{n} \alpha_2 \log CER_t + \sum_{j=1}^{n} \alpha_3 \log EGS_t +$$

$$\sum_{j=1}^{n} \alpha_4 \log MRI_t + \sum_{j=1}^{n} \alpha_5 \log PER_t + \sum_{j=1}^{n} \alpha_6 \log NHD(-2_t) + AR(1) + U_t \quad (8)$$

Equation (8) is designed to forecast the relationship that exists between the dependent variable, the past value of National Household Disposable-Income in period t (and independent variables as defined earlier. This is to see how those explanatory variables influence the growth rate of National Household Disposable-Income both in the short run (1980-2015) and long run (1980-2025).

The a-priori assumptions for the above model based on (equation 8) are: $\alpha_0 > 0$, $\alpha_1 > 0$ $\alpha_2 > 0$, $\alpha_3 > 0$ $\alpha_4 > 0$, $\alpha_5 > 0$ Equations (8) above is designed to measure the relationship that exists between the dependent variable, the National Household Disposable-Income and the independent variables. $\alpha_{,S} > 0$ implies a positive relationship between the dependent variable and independent variables. This implies that an increase in the independent variables will lead to an increase in the National Household Disposable-Income while, $\alpha_{,S} < 0$ implies a negative relationship between the dependent variable and the independent variables, This means that an increase in the independent variables will lead to a decrease in the National Household Disposable-Income. The expectations of the model are quite clear from the a priori signs of the coefficients based on economic literatures.

5. EMPIRICAL RESULTS

To ensure stationarity of the data we employed the group unit root test of the individual root, of the Im, Pesaran and Shin unit root test. This test is to detect the order of integration of the variables before estimation. The Im, Pesaran and Shin unit root test is advantageous to other methods because, it summaries (once) the results of ADF series t-stat and probabilities test. The unit root test is necessary because research has shown that non-stationary data lea ADF ds to spurious regression. The summary of the results of the tests are presented in Table 1.

Table 1. Summary of results of unit root tests

Null Hypothesis: Unit root (individual unit root process)							
Sample: 1980 2025							
Method: Im, Pesaran and Shin W-stat					Statistic		Prob.**
					-11.8188		0.0000
** Probabilities are computed assuming asymptotic normality							
Intermediate ADF test results							
Series	**t-Stat**	**Prob.**	**E(t)**	**E(Var)**	**Lag**	**Max Lag**	**Obs**
D(LOGNHD)	-6.0866	0.0014	-2.174	0.646	I(1)	1	44
D(LOGBTR)	-7.3192	0.0000	-2.174	0.646	I(1)	1	44
D(LOGCER)	-7.7577	0.0000	-2.174	0.646	I(1)	1	44
D(LOGEGS)	-8.5502	0.0000	-2.174	0.646	I(1)	1	44
D(LOGMRI,2)	-20.239	0.0000	-2.174	0.648	I(2)	1	43
D(LOGPER)	-6.1404	0.0009	-2.174	0.646	I(1)	1	44
Average	-6.0689		-2.175	0.651			

Source: Author's Computation

From the ADF test statistics, the results show that LOGNHD, LOGBTR, LOGCER, LOGEGS and LOGPER were integrated at order one, that is I(1) or they were stationary at first difference, while LOGMRI was integrated at order two, I(2), or stationary at second difference. with the critical values and various probabilities, the Im, Pesaran and Shin unit root test statistics show that five variables were integrated at order one I(1) while, only one was integrated at order of two I(2), looking at the group absolute ADF test statistic of 11.8188 and the average 6.0689

Furthermore, this implies that all the series are non-stationary at levels except. Therefore the null hypothesis ($\rho = 1$) is accepted at levels and the null hypothesis ($\rho = 1$) that the series are non-stationary after the first difference is rejected for all the series. For the random walk above, this implies that there is an existence of unit root, so it is an I(1) and I(2). We therefore concluded that the series are of order one I(1) and I(2). These are MacKinnon critical values for the rejection of hypothesis of a unit root. Next we look for the dynamic linear relationship using the least squares.

A look at the regression result in Table 2 below indicates partial conformity of the result with the postulated theory that NHD is positively related to its passed value MRI, CER and EGS and negatively related to PER and BTR. The coefficients of determinations are partially in line with our apriori expectation. Furthermore, an examination of the results shows a good fit in terms of the standard error of the parameters (Stdα_0 >Stdα_1 - α_5), for both the short run (0.72) and long run (0.56). The result show non-negative constant term for Household Disposable-Income for both the short run (2.03) and long run (2.24) the long run, with indicates 10.65% impact changes between 1980 and 2025, in implies 10.65% shift in the slope.

Table 2. Summary of estimated results

Dependent variable: LOGNHD										
		1980-2015				**1980-2025**				
Variable		**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**	**Long run impact %**
C	α_0	2.027596	0.719033	2.819893	0.0093	2.243501	0.557889	4.021408	0.0003	10.648
LOGBTR	α_1	-0.046058	0.026817	-1.717489	0.0983	-0.048040	0.022797	-2.107319	0.0423	4.303
LOGCER	α_2	0.098473	0.045286	2.174482	0.0393	0.101845	0.037959	2.683014	0.0111	3.424
LOGEGS	α_3	0.494431	0.077338	6.393143	0.0000	0.483500	0.064756	7.466544	0.0000	-2.210
LOGMRI	α_4	0.002210	0.033230	0.066499	0.9475	0.004443	0.027918	0.159147	0.8745	101.040
LOGPER	α_5	-0.053579	0.045827	-1.169168	0.2534	-0.047256	0.038991	-1.211978	0.2336	-11.801
LOGNHD(-2)	α_6	0.438687	0.081915	5.355367	0.0000	0.427939	0.068190	6.275701	0.0000	-2.450
AR(1)		0.507372	0.191827	2.644946	0.0139	0.554568	0.159581	3.475155	0.0014	
R-squared		0.998004				R-squared		0.998620		
Durbin-Watson stat		2.027904				Durbin-Watson stat		2.054986		
Inverted AR Roots		.51				Inverted AR Roots		.55		

Source: Author's computation

From the estimated result in Table 2, it is obvious that business money transfers from the rest of the world (BTR) and entrepreneurial income from the rest of the world (PER) both has decreasing or negative impact on household disposable-Income (NHD) level. The negative impact of BTR on NHD seem to be increasing in the long run with a percentage change of 4.30%, while, the negative impact of PER on NHD seem to be decreasing in the long run with a percentage change of 11.80%.

Also from the in Table 2, it is cleared that compensation of employees from the rest of the world (CER), export of goods and services (EGS), migrant remittance inflows (MRI) and lagged of Household Disposable-Income (NHD(-2)) are positively related to Household Disposable-Income (NHD). But CER, EGS and NHD(-2) are significant both on the short and long run, while MRI is neither significant in short run none in the long run though positively related to NHD given their probabilities values. The low probabilities values of CER, EGS and NHD(-2) strongly rejected null hypotheses and indicate that these variables are significant , while the high probability of values MRI strongly accepted null hypotheses and indicate that the variable is not significant in explaining NHD. For this paper we are performing the test at the 1% and 5% significance level, that is, a p-value that ranges between 0.01 - 0.05 are taken as evidence to reject the null hypothesis of a zero coefficient.

The positive impact of CER and MRI on NHD seem to be increasing in the long run with percentage changes of 3.42% and 101.04%, respectively, though they are no significant but positive judging by their probabilities values, while, the positive impact of EGS and NHD(-2) on NHD seem to be decreasing in the long run with percentage changes of 2.21% and 2.45%, respectively. The results of the forecasting show that remittances inflows from export of goods and services and compensation of employees from the rest of the world are the most important variables in determining Household Disposable-Income both in the short run and long run in Nigeria, their significance are much felt.

For both the short and long run the result show that only 99.% of variations in the Household Disposable-Income (NHD) are accounted for by the changes in the explanatory variables, while, the Durbin-Watson (DW) test statistic (d*) shows the presence of no serial correlation between the error terms.

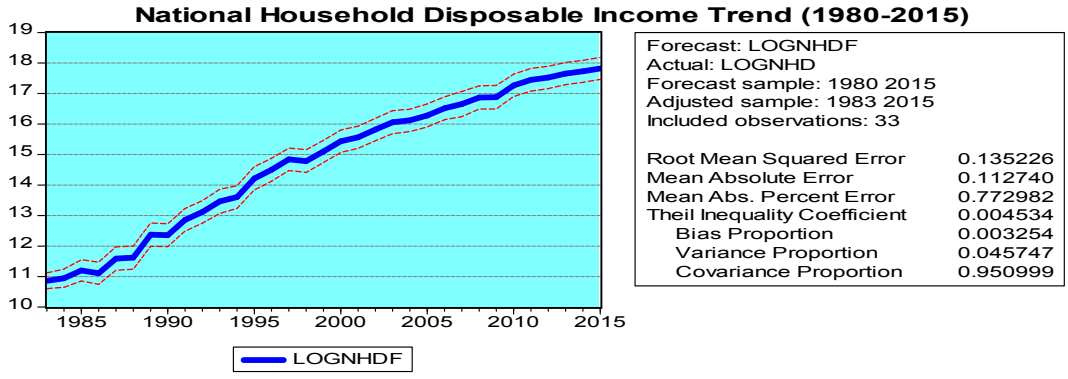

Fig. 1. National household disposable income trend (1980-2015)

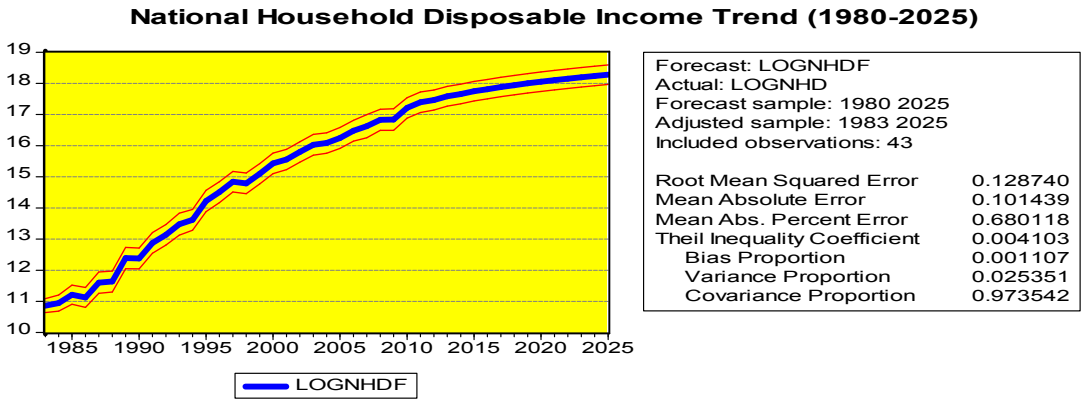

Fig. 2. National household disposable income trend (1980-2025)

5.1 Dynamic Forecast Evaluation: The Goodness of Fit

Our dynamic forecasts are multi-step forecasts (from the start of the forecast sample), the model used the recursively computed forecast of the lagged value of the dependent variable to predict the future effects.

Looking at the Figs. 1 and 2 above and comparing the root mean squared error and mean absolute error statistics for both the short run (Fig. 1) and long run (Fig. 2) which depend on the scale of the dependent variable, showed that the errors get smaller in the long run. This implies that the forecasting ability of both models are good, but long run model seem better forecasted.

Also, observation from Figs. 1 and 2, above show scale invariants. From the observation, The Theil inequality coefficients are closes zero, they lies between zero in both cases (Figs. 1 and 2), both indicate perfect fits. Also, from the result in Figs.1 and 2, the bias proportion shows that the mean of the forecast is not different from the mean of the actual series, this being close to zero, while the variance proportion of the variation of the forecast is also not different from the variation of the actual series. The covariance proportion which measuresthe remaining unsystematic forecasting errors shows that only 0.97 unsystematic forecasting errors were not measures.

Finally, note that the bias, variance, and covariance proportions add up to one. If the forecast is “good”, the bias and variance proportions should be small so that most of the bias should be concentrated on the covariance proportions. This is showed in both figures of the short run and long run. It implies the models are good fit.

6. POLICY IMPLICATIONS AND RECOMMENDATION

A few government recognizing the valuable contributions of remittances through their effects on foreign exchange reserves, balance of payments, improved livelihoods, and on human capital investments. For many Nigerian households, remittances are tremendously important source of finance and foreign exchange - helping to stabilize irregular incomes and to build human and social capital. Remittance receivers are typically better off than their peers who lack this source of income and yet remittance flows to Nigeria are heavily underreported and

to date, remain in the backwaters of academic paper. Its purpose is to stimulate and inform discussions of the role remittances play in Nigerian economy and to help stakeholders design appropriate policy interventions.

The empirical findings above have several key policy and research implications. Above all, they suggest that our understanding of different kind of inflows into Nigeria. The deductions that could be made from the empirical findings are predicted on the sizes and magnitude of the slope coefficient. Looking at the findings from the above results analysis, the paper finds that some of the variables are significant both in the short and long run. These partial conformations to our expectation may be due to financial and monetary policies regulations that have created barriers to the flow of remittances and their impact on the national household disposable-income.

Obstacles embedded in financial systems and policy environments limit the volume of remittances, divert them into informal channels, and discourage their use for saving, investment, and development. The magnitude of remittances through informal channels and the adverse effects of weak financial systems require further probing. The following recommendations for this research are intended to generate better information to support policy changes and other interventions to boost remittances and increase their impact on development.

A migrant's choices of whether and how much to remit, through what channel, and for what use are shaped by factors such as the economic and political stability or volatility of the home country, by foreign exchange and taxation policies, and by regulations and policies that affect money transfer services. Regulatory and policy contexts vary widely in African countries, but no comprehensive review has been done of the conditions that hamper or enable remittances in receiving countries like Nigeria. Generally and particularly for Nigeria, and for remittances to foster poverty alleviation in countries of origin, increase productivity and investments, promote economic development, augment national savings, ease foreign exchange constraints, the focus of discussions on remittance-related regulation and policies should be on monetary policies, particularly foreign exchange policies, and taxation.

In view of the positive impact, the regulation and policies should be able to prevent the negative side of remittance for example, remittance create dependency, wealth disparities, currency appreciation, inflation, displace local jobs, higher import content of consumption, encourage further migration and may cause labour shortages. A negative impact of remittances is that they create a potential dependency for the receiving country. Governments in the recipient countries may view remittances as a stable source of income to count on. Accordingly, remittances may cause governments to relax and even rely on these flows financing deficits and thereby not adopting long-term economic policies to create a competitive domestic market.

A key policy recommendation for this research that is intended to generate better information to support policy changes and other interventions to boost remittances and increase their impact on development, is the current licensing regulations for money transfer services center on foreign exchange trading. For smaller money transfer operators and informal services, they often are opaque and hard to access; compliance may be unaffordable. To put ourselves in a better position to review and enhance the regulatory frameworks used in Nigeria, we must improve our understanding not only of Nigeria remittance markets and the business models that make non-bank transfer services attractive to various client segments elsewhere in the world, and of how those models are licensed and regulated. A facilitative

framework in which licensing requirements were adjusted to reflect actual needs for transparency and for managing foreign.

Another key recommendation is that since migrant remittances have become important sources of income for consumption smoothing for households, policies should be designed to ensure that remittances sent through the banks and other transfer institutions attract little or no interest and also attention should be paid to the sustainability of remittances as an income source and especially their impact on households.

7. CONCLUSIONS

The basic objective of the paper is to empirically investigate how remittances (income and service inflows from the rest of the world) contribute to the national household disposable income in Nigeria, by applying a time series data ranging for the period of 1980-2015 and forecasting to 2025. The analysis of the time series properties of the data employed revealed that most of the series were integrated of order one except for migrant remittance inflows stationary at the second difference. We use a dynamic forecasting model to enable us distinguishes between short and long run dynamism. Evidence from the dynamic forecast results showed that national household disposable income has both positive and negative short and long run relationship with the explanatory variables.

The paper reveals that the coefficient in the results showed that Export of Goods and Services (EGS) and Compensation of Employees from the Rest of the World (CER) are the most important variable in determining Household Disposable-Income both in the short and long run in Nigeria, while, Business Money Transfers from the Rest of the World (BTR) and Property and Entrepreneurial Income from the rest of the world (PER) are never statistically significant, The result shows that both do not have effect on national household disposable-income (NHD) in short run and long run.

Finally, further research and policy analysis would improve our understanding of remittances as a private and public financial flow large, highly segmented, and consisting of many small transactions—and enable governments and their development partners to create policies that maximize the individual and social benefits of remittances. Much more could be done, as proposed, to collect and analyze data and translate the findings into actions by bringing together key stakeholders from policymaking and regulatory bodies, financial service providers, and diaspora groups.

COMPETING INTERESTS

Author has declared that no competing interests exist.

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