DETERMINANTS AND IMPACT OF REMITTANCES ON THE NIGERIAN ECONOMY: 1996-2009

BY

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DECLARATION

I hereby declare that this thesis titled **“Determinants and Impact of Remittances on the Nigerian Economy: 1996-2009”** is original and is based on my research efforts under the supervision of Dr. P. P Njiforti and Prof. G. D Olowononi. It has not been earlier presented for award of a degree in any university or for any publication. All sources used have been duly acknowledged by way of referencing. Also the responsibility for any error(s) therein is mine.

Declared this day:

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CERTIFICATION

This is to certify that this thesis is an original work written by **EDOMWONYI-OTU** Osarense **(M.SC/SOC-SCIE/15410/2009-2010)** and has been examined and approved as meeting the requirement of the Department of Economics, Faculty of Social Sciences, Ahmadu Bello University Zaria, for the award of Master of Science M.Sc. (Hons) degree in Economics and was carried out under our supervision.

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DEDICATION

This thesis is dedicated first to the Almighty God, the eternal Father and possessor of the heavens and the earth and to my husband, Lawrence Edomwonyi-Otu with whom I am in every wise complete.

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ABTRACT

Remittances, over the years have become a topical issue globally because of its phenomenal volume and its potential to serve as an alternative source of development finance in a nation's economy. The growing importance of remittances as a source of foreign exchange is reflected in the fact that they have outpaced foreign direct investment and official development assistance to Nigeria in recent years. In order to investigate the impact of remittances on economic growth in Nigeria and its macroeconomic determinants, the Regression and VEC models were used in carrying out the analysis using quarterly data from 1996-2009. Variables included in the Regression model are GDP, remittance, foreign aid, investment in physical and human capital, portfolio investments, degree of openness, FDI and institutions, while for the VAR, remittances, real agricultural GDP, exchange rate and inflation were used. We found remittances have a positive and significant impact on economic growth and real agricultural GDP, exchange rate and inflation determine remittances inflow in Nigeria. Finally we found that Nigerians in diaspora are motivated to remit for investment and altruism motives. The main policy implications from this study are that Nigeria can improve her economic growth performance by strategically harnessing the contributions of remittances for economic development.

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CHAPTER ONE

GENERAL INTRODUCTION

1.1. BACKGROUND TO THE STUDY

Economic performance has been highly unsatisfactory in Nigeria in the last thirty years. The per capita GDP for Nigeria has remained almost the same as it was in 1972 and GDP growth rate has been slow, with negative growth in 1981-84. This situation coupled with other macroeconomic problems led the country to adopt the Structural Adjustment Programme (SAP) in 1986. Despite this the growth rate was still negative in 1987. This poor economic performance characterized by economic stagnation, macroeconomic instability, corruption, poor resource management and untold economic hardship (Chukwuone et al, 2007) has continued in Nigeria forcing international migration in the country. The need to accelerate the rate of economic growth has motivated policymakers to make effort to encourage foreign capital flow into the country, which could be in the form of Foreign Direct Investments (FDI), remittances which is of particular interest to this study, Overseas Development Assistance (ODA) and the like.

Migration which involves relocation of residence assumed a phenomenal dimension in the past decades as a result of poor economic performance which resulted in economic hardship in the country. Tanner (2005) defines migration as the international migrant residing in a country in which they are not natives. It is estimated that one out of every 35 persons is an international migrant. This is equivalent to about three percent of the world population. According to the United Nations Population Fund (UNFPA) report, these numbers are “expected to grow as migration pressures, created by the development gaps between poor and rich countries and fuelled by the process of globalization and demographic dynamics, will result in further migration". International migration is believed to generate welfare gains for both migrants, countries of origin and destination as well as reduce poverty, the benefits to home countries of migrants been realized basically through remittances (Ratha and Mohapatra, 2007).

Remittance is generally defined as that portion of migrants' earnings sent from the migration destination to the place of origin. Although remittances can also be sent in kind, the term "remittances" is usually limited to monetary and other cash transfers transmitted by migrant workers to their families and communities back home (Puput, 2010). As migration continues to increase, the corresponding growth of remittances has come to constitute a critical flow of foreign currency into many developing countries and Africa in particular. Migrant remittances from abroad are an important source of income for the Nigerian economy, representing 4.71 percent of the Gross Domestic Product (GDP) in 2008. In fact over the last decade Nigeria, according to the World Bank, is believed to be the single largest recipient of remittance in Sub-Saharan Africa receiving between 30 and 60 percent of remittance to the region and the 20th largest recipient in the world as at 2005 according to the Global Economic Prospects (2006). Remittance has in recent times become a major source of development finance and the nature of remittances makes it a viable finance tool in the hands of economists for national development for many developing and developed countries alike.

Remittances flow into a country through formal and informal channels. It is pertinent to note however that, the amount of remittances arriving through the formal channel historically depends upon several factors. Macroeconomic variables such as home and host country GDP, exchange rate, interest rate, inflation, investment facilities, and financial infrastructure for remitters etc. are considered to be important factors (Barua et al, 2007). The question however is, to what extent do remittance impact on economic growth in Nigeria, secondly to what extent does macroeconomic variables affect remittance inflow in Nigeria?

The consequences of international migration for growth and development in countries of origin remain hotly debated and poorly understood (Nwajiuba, 2005). However, the role of migrant remittances is one of much interest within the current discourse on international migration and development. It is significant particularly for countries which are still developing (Ratha et al., 2008) and Nigeria is no exception to these trends. This study is an attempt to help make contributions to the global debate in this direction. Empirical investigation into the impact of remittances on economic growth and the macroeconomic determinants of remittances in Nigeria is relevant given the volume of remittances inflow into the country and the increasing role economist now place on remittances as an alternative source of development finance.

1.2. STATEMENT OF THE PROBLEM

The gap between domestic savings and investment is wide in Nigeria. Though savings has risen steadily in real terms from N277,667.5[1] in 1996 to N5,763,511.2 in 2009, domestic savings still fall short of investments which stood at N7,284,945.38 in 2009. The dearth of capital for financing developmental policies and project has been a major problem plaguing the country and has forestalled projected growth in Nigeria (Ihimodu, 1985). Furthermore, the inability of government in Nigeria to generate sufficient foreign exchange due to heavy reliance on a mono-product export which is prone to negative price shock in the case of oil at the international

[1]CBN Statistical Bulletin (2009): all figures are in N'Million

market has led to many years of instability in government revenue and consequently served as checks on import demand and a constraint to effective implementation of national development plans (Adewuyi and Adeoye 2003). This problem of inadequate capital for development financing has led the government into huge deficit financing through borrowing both domestic and external debt with domestic debt more than tripling in the period under study; rising from N419,975.6 in 1996 to N3,228,032.5 in the first half of 2009 alone, and external debt also rising four times over from N617,320.0 in 1996 to N2,695,072.2 in 2005. Although it declined in 2006 and 2007, it rose again in 2008 and 2009.

Also, since 1990 total Overseas Development Assistance (ODA) has dropped by more than half (Sims & Lake, 2000) and foreign direct investments are dwindling. Given the above scenario greater importance is now being placed on alternative sources of finance such as remittances for national development (ECOSOC (2000); Ratha, (2003). Remittances now represent a major part of international capital flows, surpassing foreign direct investment (FDI), export revenues, and foreign aid for many developing countries (Giuliano and Ruiz-Arranz (2005) in Bichaka and Christian (2008). The assertion by Nightingale (2003) indicates that a well-articulated remittance management regime will aid economic growth and development as an alternative source of foreign exchange earnings and as a source of liquidity and palliative for balance of payment deficit.

While migrant remittances have been acknowledged to be increasingly important to developing countries, little incentives seem to have been put in place to strengthen them. The lack of policies to channel or encourage remittances through formal channels and to investment sectors over time has probably impacted on the overall contribution of remittances to economic development in Nigeria. A recent survey of the remittance industry by the Central bank of Nigeria in collaboration with some Development Partners acknowledged like many others before it, that the size of remittance transfers may be bigger than variously estimated. Measured by the policy measures and incentives, it is safe to assert that policy interest in migrant remittances is still weak in Nigeria despite high human capital migration from the country since the adoption of Structural Adjustment Programme (SAP) which brought untold economic hardship. It is in this light that this study will contribute to the weak and recent literature with respect to remittances and growth in Nigeria

1.3. RESEARCH OBJECTIVES

Given the size of remittance inflows to developing countries, Nigeria in particular and the on-going debate on the linkages between remittance and economic growth, it is imperative to undertake this research work. In the light of the above, this research is to achieve the following broad objectives

1. To determine the impact of remittance on economic growth in Nigeria.
2. To investigate the macroeconomic determinants of remittances inflow in Nigeria.

The specific objective includes:

3. To find out the impact of shocks of macroeconomic determinants on remittances inflow in Nigeria.

1.4. SIGNIFICANCE OF THE STUDY

This study is first justified by the dearth of capital problem plaguing the country which has forestalled projected growth and the consensus by economists that remittances could be used as an alternative source of development finance. Even though Nigeria is agreed to be one of the largest recipients of remittances in Sub Saharan Africa and the twentieth largest recipient of remittances in the world as at 2005 according to the Global Economic Prospects (2006), it is yet to be ascertained the direct impact of remittances on economic growth in Nigeria. Much attention has been placed on other sources of foreign capital like FDI and foreign aid but very little attention seems to have been placed on remittances in the country. However, the growing importance of remittances as a source of foreign exchange is reflected in the fact that they have outpaced foreign direct investment and official development assistance to the country in recent years. Given the volume of remittance inflow into Nigeria in recent years it is critical to carry out this research to find out if remittances have had any significant impact on economic growth in the country.

Furthermore, understanding the impact of remittances on growth and the macroeconomic determinants of remittances should create a climate for policies that have the capacity to encourage and fully harness the benefits of remittances towards economic growth and development in Nigeria.

1.5. SCOPE OF THE STUDY

This study covers a period of fourteen years from 1996:1 to 2009:4. The choice of this period accrues to the unavailability of official data on remittances prior to this time and the fact that the economic hardship that forced many families to make migration decisions started with the introduction of the Structural Adjustment Program (SAP) which was introduced in the country in 1986 and this period is well beyond the SAP period, giving migrants enough time to have settled down and started remitting. It also marks the period where the percentage of remittance to GDP increased in Nigeria and became a topical issue globally because of its phenomenal volume.

1.6. STATEMENT OF HYPOTHESES

The following hypotheses will guide this research:

H_0: Remittances do not have significant impact on economic growth in Nigeria.

H_0: Macroeconomic determinants of remittances do not have significant impact on remittances inflow in Nigeria.

H_0: Remittance inflow to Nigeria is not affected by shocks to its determinants.

1.7 ORGANIZATION OF THE STUDY

This proposal is organized into three chapters. Chapter one is on the general introduction and it consist of background to the study, statement of research problems, objectives of the study, significance of the study, research hypothesis, scope of the study and outline of the study. Chapter two focuses on review of literature while chapter three contains the methodology. Chapter four is presentation of result and discussions while chapter five is the summary, conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1. CONCEPTUAL LITERATURE

Economic growth has been defined by different scholars in many ways. A look at some of these definitions will give us a clearer picture of what growth is. Economic growth is best defined as a long-term expansion of the productive potential of the economy. Sustained growth should lead to higher real living standards and rising employment. Simon Kuznets defined a country's economic growth as "a long term rise in the capacity to supply increasingly diverse economic goods to its populations, this growing capacity based on advancing technology and the institutional and ideological adjustments that it demands" (Todaro, 1935). One of the consequences of poor economic performance in a country is migration.

Neoclassical micro-economics defines migration as an individual strategy for income maximization. Migration is in two folds, internal and international, which is phenomenal in developed and developing countries respectively. Internal migration is defined as the movement of people within their country of origin (in-migration and out-migration), which could be due to various social, economic and political factors. International migration, which is the interest of this study is the movement of people outside their countries of origin (emigration) into another country (immigration) (Nwajiuba, 2005).The decision to migrate stems from a search for self and family improvement and is usually to a place where opportunities are perceived as better (Nwajiuba, 2005). Migration is a result of wage differences between developed and developing countries caused by differences in availability of physical, social and human capital. According to Todaro (1969), migration is an economic phenomenon, fueled by differences in expected, and not necessarily, actual earning opportunities and this has remained a landmark in the analyses of migration and remittances.

The term remittance has been defined by various people and organizations. According to Magnusson, 2009 remittances are the portion of migrant workers' earnings sent back to their countries of origin primarily used to support families back home (Magnusson, 2009).Remittance which is a consequence of migration is also defined broadly as monetary transfers that a migrant makes to the country of origin, in other words, financial flows associated with migration. Most of the time, remittances are personal, cash transfers from a migrant worker or immigrant to a relative in the country of origin. They can also be funds invested, deposited or donated by the migrant to the country of origin (IOM Glossary). Remittances can include personal deposits, investments, intra-family transfers, charitable donations made by migrants both as crisis relief and long-term development contributions, and pension and social security transfers from destination countries where migrants obtain the right to pensions.

2.2 THEORETICAL LITERATURE REVIEW

2.2.1 Growth Theories

Although individual amounts of remittances might be negligible, their cumulative sum adds up to substantial amounts which should contribute significantly towards foreign currency build-up (Singh and Sausi, 2010) and consequently impact growth. Ratha (2003) calls remittances "an important and stable source of external development finance". A review of some growth theories therefore, will help in understanding the remittance-growth nexus.

2.2.1.1 *The Harrod – Domar Model*

In Keynesian literature, development and growth models emerged according to Harrod (1939) and Domar (1946). This model which is a synthesis of two growth models done by Sir Roy Harrod (1939) and Evsey Domar (1946, 1947) is one of the earliest fall out of Keynes's (1936) General Theory aimed at extending Keynes's analysis into the long run (Hacche, 1979). According to Keynes in the short run the overriding significance of investment is its influence on effective demand and the stock of capital may be taken as given and independent of it. However in the long run this is not so, investment expenditure does augment capital stock. The Harrod – Domar Model attempts to show the relationship between the Savings Ratio (SR), the Capital – Output Ratio (COR) and economic growth (Iyoha et al, 2002). Where Capital – Output Ratio (COR) is the unit of capital required to produce a unit of output while the savings ratio is the ratio of aggregate savings to the national income. According to Harrod and Domar every economy must save a percentage of its national income and invest in new investments in order to increase its capital stock, a condition necessary for growth. The basic assumptions of the model are as follows:

1. The model assumes a closed economy without government intervention.
2. It is assumed that for equilibrium to exist planned investments should equal planned savings.
3. The assumption of only two factors of production i.e labour and capital and no technical progress.
4. It assumes the homogeneity of labour which grows at a natural constant rate.
5. The model also assumes a constant return to scale.

The economic reasoning behind the Harrod – Domar Model is that to grow the economy, a nation must save and invest a certain proportion of its GDP and that the more a nation can save and invest the faster the rate of growth of that economy. However the actual rate of growth of an economy for any level of saving and investment will depend on how much additional output they get from an additional unit of investment.

The implication of the Harrod – Domar Model was that the automatic maintained of the steady-state growth, with full employment was unlikely to be accomplished in a free market capitalist economy. The Harrod – Domar Model is described as a knife-edge model because it has no built-in stabilizers that tend to move an economy back to a full employment equilibrium rate of growth once it has deviated from it. The Harrod – Domar Model is also criticized for its absolute rigidity of the assumptions upon which the model was built; the growth rate of the labour force is exogenously determined, and hence if the savings ratio and the capital-output ratio are fixed which means they cannot be determined within the system, then the model leaves no room for flexibility.

2.2.1.2. *The Two-Gap Theory*

Although it is more of a debt theory, the two-gap theory is considered here because it gives us insight into how foreign resources can bridge the capital gap for economic development. Some growth theories assume that some gaps can only be filled by transfer of resources from abroad. These foreign resources are considered necessary for growth in developing countries. Growth models such as the Harrod-Domar which emphasized capital shortage tend to imply that the infusion of foreign capital leads to growth. Since capital is scarce in developing countries, attempt to secure it from outside are made in order to achieve growth. According to Ihimodu (1985) foreign resources are capable of replenishing the dearth of domestic savings in developing countries. While a particular size of savings or investment is required to attain a target rate of growth, there is always a difference between planned savings and planned investment. This gap is taken as an indication of the size of foreign resources required to achieve planned growth. This implies that given the required foreign resources (in this case remittance) a developing country may tend to achieve planned growth.

One argument for foreign resources is that even if a savings-gap does not exist, a trade-gap may exist (balance of trade deficit) which still necessitates foreign resources. Generally, the demand for foreign resources, including remittances is based on the ability of foreign resources to relieve the countries of the burden of scarce domestic savings and foreign exchange. The potential of remittances to bridge the two gaps and therefore contribute to growth is not in doubt. It is therefore necessary to investigate whether they actually contribute to growth in Nigeria.

2.2.2 New Growth (Endogenous Growth) Theories

2.2.2.1 *Kenneth Arrow (1962)*

Kenneth Arrow led the pioneering work on the concept learning-by-doing in 1962 by regarding it as endogenous in the growth process. It is based on the hypothesis that at any moment of time capital goods incorporate all the knowledge available at the time based on past experience. This implies that knowledge spills over to the economy and is therefore reflective of the technology level of the whole economy and is proportional to the change in the aggregate capital stock.

2.2.2.2 *Romer Model (1988, 1990)*

Paul Romer bases his theory of long-term economic growth on the accumulation of knowledge by including it as one of the inputs alongside labor and capital in the production process. The earlier work by Romer (1988) contributed to the new growth theories through his finding that any technical knowledge discovered by a firm (and embodied in its products) will have a spillover effect on other firms, even those that do not engage in research and development (R&D) this is possible because knowledge is a non-rival good. Consequently, firms benefit not only from the knowledge they generate but also from the total stock of knowledge available in the economy.

However, Romer (1990) later refined his ideas about the accumulation of knowledge and its role as a driver of long-run growth. Romer sought to explain why private, profit-maximizing firms would produce technical knowledge through R&D even though such knowledge is non rivarious and at best only partially excludable. According to Romer a new design is essentially costless to reproduce for sale or use within the firm and that such new design gives the firm a degree of monopoly power through for example patent right which allows the firms charge a higher price. In his assertion even though other firms would take advantage of the new technical knowledge, thereby eliminating the innovating firm's monopoly profits by producing goods that are similar or more advanced, that erosion of the firm's profits would spur further innovation leading to more stock of knowledge.

An important advantage of Romer’s model is that it does not supplant the neoclassical model. Instead, it fills an important gap in the neoclassical theory by providing a rigorous description of the source of technological progress. According to Romer if innovation in his model was removed, then his model would collapse to the neoclassical model.

2.2.2.3 *The Lucas Model*

Robert Lucas' work of 1988 started his research in human capital and built upon the Solow model. The main feature of the Lucas model is that human capital is the primary 'engine' of growth. Lucas (1988) focuses on the effect of externalities generated by human capital. Robert Lucas postulated a model with two parts: In both, Lucas interprets human capital as the overall level of skill available in the economy. Lucas makes a distinction between the internal and external effects of human capital. A worker undergoing training (learning-by-doing) and becoming more productive is an internal effect, while the spillover from the investment people make in formal education resulting in increase in productivity of capital of other workers in the economy is an external effect. The investment in human capital rather than physical capital is seen to have spill-over effects which has the capacity to increase the level of technology. Hence it is expected that with effectiveness in the investment in human capital, economic growth should result. Lucas however noted that merely allowing for investment in human capital is not a sufficient condition to support endogenous growth. Hence Lucas also assumes that there is a spill-over effect associated with human capital.

The second part of Lucas's model is based on the premise that workers accumulate human capital through on-the-job training rather than through investments in formal education. According to him, as long as new goods are continually introduced, especially if they become more technologically advanced, the stock of human capital will grow thereby gingering economic growth through the driving of growth of per capita output. Lucas model is in line with international evidence on migration. If human capital has external effects, then workers in rich countries with high levels of human capital will be more productive and earn higher wages than those in poorer countries with lower levels of human and physical capital, which will give workers in poorer countries an incentive to migrate to richer countries. This assertion is consistent with the theory of Push and Pull factors of migration.

Rebelo (1991) criticized Lucas model taking a key insight into endogenous growth models; that to produce perpetual growth there must be a factor or a combination of factors that can be accumulated indefinitely without diminishing returns. Also according to Mankiw (1995) since lifetimes are finite, there is a maximum limit to the amount of human capital that can be accumulated. Thus, while increasing human capital (with more years of schooling) this may be able to extend the length of the transition period in a growth model; however human capital accumulation cannot be the source of perpetual growth. According to them it is more plausible to think that knowledge can be accumulated indefinitely. Lucas's framework is also criticized as not been complete because he did not model the factors that cause new goods to be introduced instead, he assumes that they do.

2.2.3. Theories of Migration and Remittance

There are a number of models and theories available in economic literature that explains the reasons and factors of migration. These theories are an integral part of the theory of remittances. The process of remittance is linked with migration hence the need to review a few literatures on migration.

2.2.3.1. *Neo-Classical Theory of Migration*

The Neo-classical theory of migration arose from the theoretical model explaining internal labor migration in the face of economic development (Harris and Todaro, 1970). The theory explained the motives or decisions that inform migration. The theory is one of the models that conceptualize migration as an individuals' decision contrary to the New Economics of Labor

Migration (NELM) that looks at migration as a household decision. According to the neo-classical theory of migration, the individual migrant based his choice to migrate on maximizing his utility level. In the context of macroeconomics, the neo-classical economic theory suggests that real wage differences among different countries were the main cause of migration and flow of capital (Lewis, 1954). The theory is based on the assumption that wage differences and employment opportunities between countries are important factors for emigration. The perceived earnings in the host country (in the form of increased real salary and more opportunities for employment) increased the likelihood to migrate. Another assumption of the theory is that international labor migration can be controlled by the government through regulating labor markets in both sending and receiving countries (Massey, 1993).

The theory was criticized on the basis that it did not come to terms with reality. The argument is that if migration flow were to align to the neo classical theory then the size of international immigrants should be much higher than the figures we have in reality. It is believed that economic disparities are not sufficient to explain migration flows nowadays. However the report by UNFPA 2004 suggest otherwise. In her report Europe was the largest host of international migrants, with 56 million migrants in 2000, followed by Asia, and Northern America. Indeed, these three regions hosted most of the international migrants (84%) in the world. In the USA alone, there were 16.7 million immigrants between 1970 and 1995 followed by 13 million in the Russian Federation and 7 million in Germany. Another critic of the theory is that the theory is unable to explain differential migration.

2.2.3.2. *Push-Pull Theory of Migration*

Ernest Ravenstein (1889) is widely regarded as the earliest migration theorist. He concluded that migration was governed by a "push-pull" process; that is, unfavorable conditions in one place (oppressive laws, heavy taxation, etc.) "push" people out, and favorable conditions in an external location "pull" them in. Ravenstein's laws stated that the primary cause for migration was better external economic opportunities and that the volume of migration decreased as distance increased. Since then a lot of scholars have contributed to the theory amongst them is Everett Lee (1966). The push-pull theory of migration is a neo-classical theory that suggests that people move from highly to less populated areas or from low to high wage areas. Push factors include population growth, low standards of living, lack of economic opportunities and political repression. Pull factors are demand for labour, availability of land, good economic opportunities and political freedoms. The theory of pull and push examined and explained the factors of migration in both countries of origin and destination. Both internal and international migration can be analyzed in the light of these pull and push factors. This theory still has relevance, and in the case of Nigerian migration, it is very helpful in highlighting reasons for migration, such as the economic crisis that started in the mid 1980’s, increasing unemployment, and lack of opportunities for upward mobility. Meanwhile, the increasing demand for workers in the service sector, the garment industry as well as in construction served to “pull” migrants towards the United States (Castles and Miller, 2009). As these immigrants get settled and start to send remittances, these resources also serve to “pull” other family members and influence others to migrate.

2.2.3.3. *New Economics of Labor Migration (NELM) Theory*

The New Economics of Labor Migration (NELM) Theory associated with the work of Oded Stark (Stark, 1991) is seen as a criticism of the micro version of the Neo-classical theory conceptualizing migration as an individual decision. According to Stark (1991), migration is a tool that households use to maximize income as well as diversify sources of income. By sending a family member away from home to work, a household makes an investment that will be recovered given that the migrant's remit some income later. They posit that if individuals migrate to increase their own income, as suggested by Hay and Co (1980) in Stark, (1991), then they are not expected to send remittances back home. The NELM theory fits into the Nigerian situation where a household pulls resources together to send one member out of the country with an agreement/unvoiced expectation to remitting back home. This is collaborated by Stark and Lucas (1988) in their argument that there exists an implicit or explicit contractual arrangement between the family and the migrant.

The family angle of migration is also articulated by Taylor (1999). According to him, although individuals migrate, they do not sever ties with their source households. In this case the family seeks to maximize utility instead of the individual. Migration may have significant effects on household economic activities regardless of the theories. Migrant-sending households are often recipients of remittances from migrants. As Taylor et al (2001) indicated, migrants are usually attached to their rural homes and as a result of their "homeward" focus they have economic incentives to promote and enhance the welfare of those left behind. This is possible, through remittances that they send back home to loved ones.

Another point raised by NELM proponents is that wage differential is not a necessary condition for making a decision about migration because international migration does not necessarily stop when differences in wages disappear. The theory indicates that migration stems from market failures outside the labor market. According to NELM theory, missing, inefficient, or poorly functioning markets are conditions necessary for the migration of labor to occur.

2.2.3.4. *Labor Market or Segmented Labor Theory of Migration*

The Neo-classical migration theory and the New Economic theory of migration conceptualized migration decisions as the outcome of rational economic decisions by individuals or families respectively. While segmented (dual) Labor Market theory of migration is based on a different conceptualization where immigration responds to demand driven forces within structural imbalances for highly skilled and lower skilled workers in advanced economies (Piore, 1979). Dual (or Segmented) Labor Market Theory highlighted the importance of institutional factors, race and gender in the process of migration and in explaining the labor market segmentation (Castle and Miller, 2009). Hence differences in international wages are neither a necessary nor a sufficient condition for arising and existing migration of labor workers (this is one of the critics of the Neo-classical migration theory but concurs with the NELM theory).

According to Piore (1979) the reason for the demand for migrant workers in the modern industrial societies were general shortage of labour required to fill the base positions in the job hierarchy or a situation where residents shun away from certain occupations.

2.2.3.5. *Trans-Nationalism Theory of Migration*

Trans-nationalism theory of migration was based on the premise of expanding globalization, rapid communication system and modern technologies adopted by countries. The availability of modern facilities for example communication technology, air transport and so on enables migrants to have connections with their family members back home and established cross-border activities with their relatives. The theory of transnationalism recognizes migration as a household rather than an individual decision. The debate about the most precise definition for transnationalism is still ongoing and has several variants. Schiller et al, (1992) stated that trans-nationalism is a method in which immigrants form and maintain dimensional social associations that connect with their countries of origin and host. The stress given in this case was on the immigrants framing ties and their use of framework to contain and oppose the difficult situation of their migration occurrence. Transnationalism is often followed by remittance sending, which is not limited to the money and financial goods that immigrants send but also what Levitt introduced as social remittances. Social remittances are the "ideas, behaviors, identities, and social capital that flow from host to country of origin community". These remittances are harder to quantify but they are very important parts of transnational communities (Levitt, 2001).

Although, the material well-being for most migrants improves, they may be at the bottom of the socioeconomic ladder in the host community, with few options for upward mobility. However when compared to their home community, it can be said that they are doing well economically. From that perspective, it becomes obligatory for migrants to send remittances to family and relatives back home.

2.3. MOTIVES FOR REMITTANCES

Solimano (2003) defined and explained four motives of remittances. These include: (i) Altruism which suggests that migrants seek to improve their households' welfare by remitting given that migrants are committed to the household due to act of love and liability (Ana, 2006). Altruism is defined in the sense of the migrant being a part of a large household (in Africa the extended family) and remittance is near-obligatory (Agu, 2009). Becker's conceived the utility of the migrant to be optimized as the rest of the household is doing well (Becker, 1974). The most viable motive for remitting is pure altruism in which migrant consider the care for the family members at home as optimizing their own utility. Altruism is believed to be the single idea in the fundamental literature of remittances (Lucas and Stark 1985).

(ii) Self-interest, where the migrants' motivation is based on expectation to inherit land or other wealth and the desire to return home in the future.

(iii) Motive of Loan Repayment (concept of exchange) is a process in which migrants are viewed as effectively paying back family and relatives for investments in the education or travel of the migrant (Cox, 1987). As a result, the migrant worker was obligated to send remittances to the family members at home.

(iv) The notion of co-insurance, where both migrant and family provide monetary and in-kind transfers to ensure each other against temporary shocks (Lucas and Stark 1985).

2.4. SIZE AND GROWTH OF REMITTANCE

It is estimated that the average remittances to developing countries during the 1990s was US$ 81 billion per year (Buch et al, 2002). However in 2006, remittances to developing countries grew to nearly US$ 206 billion, doubled from that in 2001 (IMF Balance of Payment Statistics Yearbook, 2007). In 2007 alone, over $300 billion of workers' remittances were transferred worldwide through official channels, and it is likely that billions more were transferred through unofficial ones (Acosta, et al, 2007). According to Giuliano and Ruiz-Arranz (2005) in Bichaka and Christian (2008,) remittances, now represent a major part of international capital flows, surpassing foreign direct investment (FDI), export revenues, and foreign aid for many developing countries. Barajas et al (2009) confirmed that remittances have recently become as large as foreign direct investment (FDI) flows to developing countries and in the last decade, remittance flows were about one third of export earnings, and twice private capital flows, also about 10 times official capital flows.

Nigeria is one of the world's largest recipients of remittances and the largest recipient of remittance in Sub Saharan Africa (Chukwuone et al, 2007). She was the 20th largerst recipient of remittances in the world in 2005 (see figure 2.2). According to Mbutor (2010) remittances form a significant portion of total foreign inflows into the Nigerian economy. Between 1997 and 2006 the ratio of remittances to total GDP was an average of 2.76 percent. This ratio according to him surpassed the contribution of foreign direct investment and portfolio investments put together in the same period. The growth of total remittances from 2004 to 2006 averaged 121% and contributed on the average to GDP about six times the contribution of all export proceeds except from oil (Mbutor , 2010). FDI and portfolio investments grew marginally from 0.8 per cent and 0.1 per cent in 1996 to 3.2 per cent and 0.6 in 2006 respectively. Non-oil exports receipts to GDP accounted for 0.2, 0.4 and 0.9 in 1996, 2000 and 2003, respectively (Ezra and Nwosu, 2008).

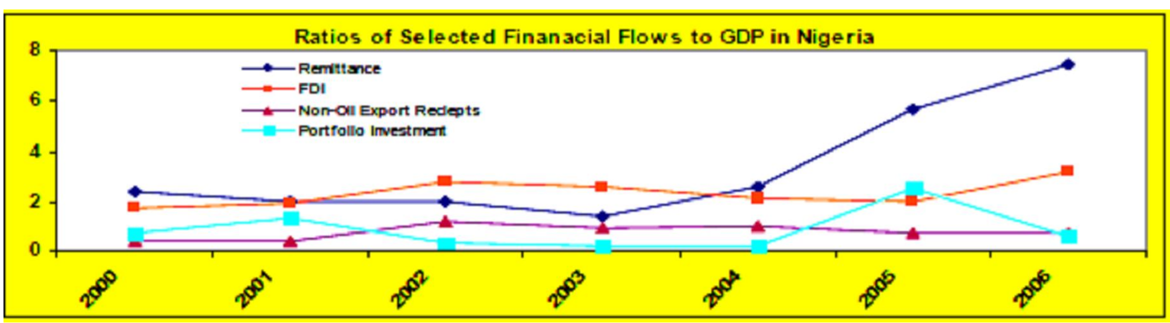

Figure 2.1: Ratios of Selected Financial Flows to GDP in Nigeria
Source: Ezra and Nwosu (2008)

With remittances at approximately $18 billion US Dollars as at 2007 (CBN, 2007), remittance inflows into the country significantly outpaced all forms of foreign flows with the exception of oil receipts as in the periods 2004-2007(Agu, 2009). Also from 2005-2009, the average contribution of remittances to Real GDP was 2.74% on average, non-oil exports was less than

1% and manufacturing was roughly 4% on average (authors calculation from the CBN Statistical Bulletin, 2010).

Conditions in both host and recipient country tend to influence the amount of remittances. However, remittances tend to be countercyclical relative to recipient countries' economies, rising when the receiving country suffers an economic downturn/following a financial crisis, natural disaster or political conflict, as migrants transfer more funds during hard times to help their family and friends while capital flows tends to rise during upswings of economic cycles and decline in bad times (Quartey and Blankson, 2004).

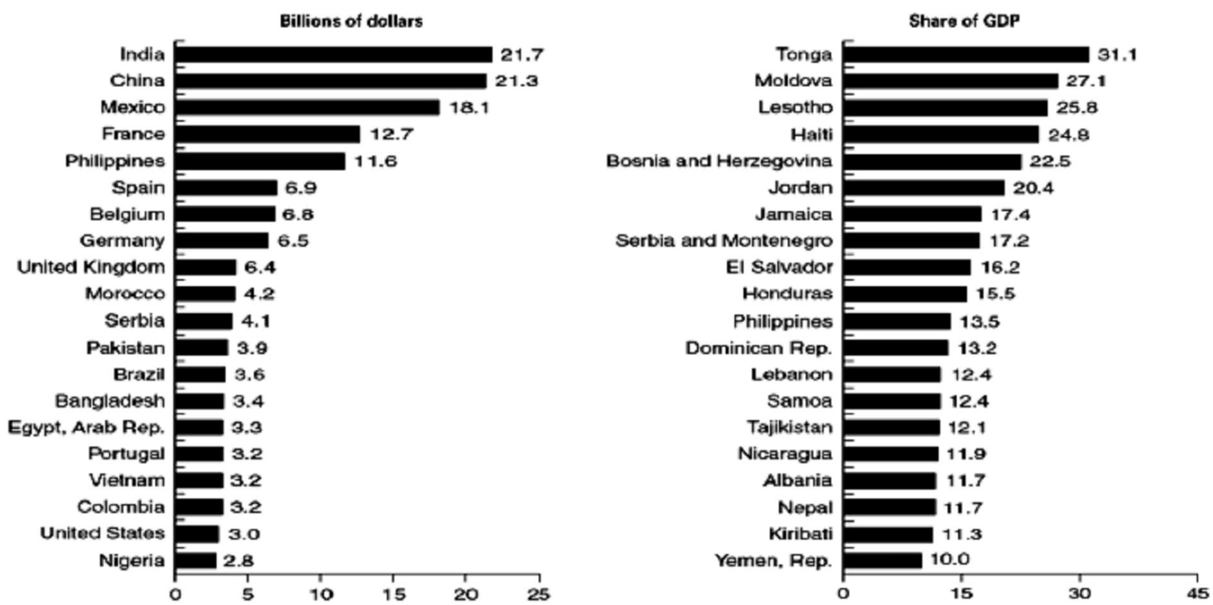

Figure 2.2: The Principal Remittance Recipient Countries

Source: IBRD, Global Economic Prospects, Economic Implications of Remittances and Migration, 2006.

2.5. DETERMINANTS OF MIGRATION AND REMITTANCE

According to Garip (2007) explanations for remittances is backed by the individuals' reasons for migrating, in the same vain, theories of migration suggest expectations about prospective remittance behavior. The determinants of remittances are divided into the micro and macro factors. The microeconomic factors are socio demographic determinants of remittances and relate to the dynamics of family ties, they include the migrant worker's age, gender, marital status, the number of children, educational attainment, number of years the migrant has spent abroad, work experience, income level of the migrant's family, job situation of other members of the family, and his family's socioeconomic characteristics (Ilahi and Jafarey, 1999).

While the macroeconomic factors affecting remittances include migration rates; the higher the migration rate the higher the stock of migrant workers and the higher the volume of remittances. High unemployment rate, political and economic instability serve as a push factors. Economic condition in the migrants' home country is commonly believed to be an important determinant of migrant remittances; this is in line with the countercyclical nature of remittances. Altruistic motive is believed to play an important role in sending remittances home. Adverse economic situations such as high inflationary conditions or even low wages in the migrants' home country, which can reduce family income at home, should lead to a surge in inflow of remittances. Remittances tend to respond strongly to prices; migrants feel the need to increase family support when prices rise. On the other hand, it also represents more risk and uncertainty in the home country thereby discouraging them to send more remittances (Glytsos, 1988; Aydaş et al, 2004). The economic situation of both the origin and the host country can be measured by the wage rate, growth rate and inflation rate which help to determine remittance inflow especially given the countercyclical nature of remittances.

Bilateral exchange rate plays an important role in workers' motive to remit. It is believed that exchange rate could influence the level of migrant remittances. The exchange rate used basically in Nigeria is the US$ exchange rate against the local currency. The effect of this variable is not always clear a priori (Bouhga-Hagbe, 2004, 2006). The exchange rate can have both a positive and a negative effect on the level of migrant remittances. Given the degree of attachment to the family in the home country and depreciation of currency, the migrant is better-off as his/her income increases in the domestic currency, thereby encouraging him/her to buy more goods (including real estates) and services in home country.

Bouhga-Hagbe (2004*)* indicates that depreciation of currency may temporarily increase the flow of workers' remittances in the home country in the long- run it might undermine migrants' confidence in the economy. There is also the possibility that the exchange rate may become endogenous to remittances (higher amount of remittances may lead to stronger currency Bouhga-Hagbe (2004). Interest rate differences between the country of origin and that of the destination countries, political stability at the origin country are also determinants of remittances. According to Wahba (1991) in Elkhider et al (2008) political stability, coupled with consistent government policy and financial intermediation, have significant impact on remittance flows. According to the World Bank (2006), government policies clearly affect remittance flows.

2.6. REMITTANCE INSTITUTIONS IN NIGERIA

Africa is one of the major regional destinations for UK remittances (DfID 2005). According to Agu (2009) most Nigerian banks in the remittance service industry act as agents of the global Money Tranfer Operators (MTOs), the most prominent being Western Union, MoneyGram, Travelex, Vigo, and Cash4Africa with Western Union and MoneyGram dominates the industry, NIPOST also work with some MTOs to provide remittance services. Also many of the telecommunications operators provide indirect remittance instruments for consumers using recharge cards as instruments for funds transfers among family members and acquaintances

(Agu, 2009) Remittances are also sent through informal channels reflecting the social network system of a typical African country, which may be in form of cash, valuables such as jewelry, electronics, cars, and clothing usually carried by traveling individuals. The benefits of remittances through informal channels include reduced fees (or no fee at all) for senders and favorable exchange rates for recipients using the black market (Osili 2004; Agu, 2009). Although the informal channels of sending remittances in Nigeria is neither organized nor recognized but these informal channels make it difficult for accurate estimation of remittances inflow and their effect cannot be captured on policy formulation (Orozco 2007).

The Central Bank of Nigeria (CBN) is the principal institution for financial services and consequently remittance regulation and every Remittance Service Provider (RSP) with the exception of NIPOST must be registered with the CBN. There is no tax by the Nigerian government on the amount remitted because it is considered the principal however; a value added tax is levied on the income of banks from remittance services. The banks, in turn, incorporate this tax into their user fees. In the area of remittances, the consolidation implied the reconsideration of several agreements and as a result, a new bank was meant to choose between Western Union and MoneyGram. The partnerships between banks and Western Union or MoneyGram are based on agreements containing exclusive partnership provisions. As a result Western Union prevents these banks from forming partnerships with other MTOs, despite the expressed interests among most banks in doing business with other MTOs (Orozco, 2007). This results in the Western Union having significant control of the market at monopoly levels. Nigeria has 24 deposit money banks (DMBs) and several other classes of financial institutions providing remittance service (see table 2.1).

About 59 percent of DMBs have working relationships with Western Union and another 18 percent are allied with MoneyGram. The rest of the MTOs, including Travelex and Vigo, account for the balance of market share (Agu, 2009). As agents, the DMBs provide fund-transfer desks for the MTOs, while the MTOs design the transfer instruments and set the rules, including identification procedures for remittance recipients.

Table 2.1: Branches and Coverage of Primary Remittance Service Providers in Nigeria

RSP type	*Number of firms in country*	*Number of firms interviewed*	*Average number of branches*[a]	*Average number of rural branches*[a]	*Percentag of rural branches*[1]
Firms specializing in money transfers	5	0	—	—	—
Currency exchanges	610	—	—	—	—
Private commercial banks	24	16	262	92	35.1
NIPOST	1	1	3,955	3,000	75.9
Mobile-phone or telecom providers	6	0	n.a.	n.a.	n.a.
Courier, bus, and other transport services	—	1	15	5	33.3
Microfinance institutions	744	—	—	—	—
Total	1,390	18	4,232	3,097	48.1

Source: Agu, 2009[a] from 2008 RSP survey in Nigeria.
Note: — = not available, n.a. = not applicable.

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[1]Among interviewed firms. Estimates of banks' rural coverage may be overstated because the classification of urban and rural areas, particularly in some states in the south, is somewhat subjective

Furthermore from table 2.2 in the appendix, we will observe that some banks have only one, in some cases between two and five branches in some states, only a few states like Lagos are densely populated with bank branches, when compared with the number of local government areas in each state it is safe to assert that many of the bank branches are located in the urban areas. This scenario encourages remitting through informal channels.

In the UK-Nigeria Remittance Corridor, Remittance Service Providers (RSPs) include banks, money transfer operators (MTOs), and informal providers. MTOs have the largest share for remittances originating through formal channels, with Western Union as the biggest player (DfID 2005a). According to the study conducted in 2004 by DFID and the Banking Codes Standards Board (BCSB) on the UK Remittance Products Survey entitled, “Sending Money Home?” the study found that, when sending money via MTOs, prices ranged from 5 percent to 12 percent for sending £100, and from 4 percent to 6 percent for £500.

2.7. INTERNATIONAL MIGRATION LAWS

Immigration is regulated by international law and is very closely associated with nationality law, which is basically dealing with a person’s legal status as a citizen. Immigration laws are not uniform throughout the world, but the United Nations International Covenant on Civil and Political Rights has decreed that all countries must allow entry to its own citizens.

In the European Union the general conditions for legal immigration are not harmonized, however conditions which are applied by the vast majority of countries are general conditions. Foreigners are required to possess not only a permit to reside in the country, but also a specific permission allowing them to work. Different countries have different permit systems either a two-permit system or a one-permit system. In the case of one-permit system, one permit is required. The migrant will be granted a residence permit for employment. However in the two-permit system, two permits are needed, a residence permit and a work permit must be applied for separately. This additional permit requirement serves the purpose of protecting the employment market.

The legislation of most Member States of the EU, (which also applies to the U.S.) contains a provision relating to health, the financial means, integration and accommodation which must be adequate in terms of size that the third country national or alien must have at his disposal in order to obtain a resident permit. This is to ensure that the arrival of the migrant will not have negative repercussions on the national economy by becoming a financial burden on the State.

2.8. WORK PERMIT

Different countries have different permit systems either a two-permit system or a one-permit system. In the case of one-permit system, one permit is required; the migrant will be granted a residence permit for employment that enables him to reside in the territory and to work. However in the two-permit system, two permits are needed, a residence permit and a work permit must be applied for separately. It is noteworthy that there are also differences as to who has to apply for the permits and to whom the permits are issued – the potential employer or employee. In some countries the foreigner requires a third authorization in addition to residence and work permits**,** in the form of an employer authorization. This additional permit requirement serves the purpose of protecting the employment market.

There are however various concerns about the work permit system and the inability of this kind of system to protect the migrant worker. The argument put forward by Baruah and Cholewinski (2007) is that if work permits are sometimes granted to the employer and not to the migrant then the employer holds too much authority over the worker, which may lead to abusive situations (Baruah and Cholewinski 2007).

2.9. FUNDAMENTAL ISSUES IN REMITTANCES

Migration generates economic benefits for countries of origin, the bulk of this economic gain from migration accrues to migrants and their families back home through remittances. It is believed that once basic needs are met, remittances are used for education and healthcare, savings and investments, debt repayment, consumer durables, land and housing purchases, small enterprise development and agriculture. Because of their relative stability and targeting (directly to households), they may bring some additional benefits to recipient countries.

However migration has economic implications for origin countries beyond remittances. On the surface it is presumed that international migration will lead to net gains in economic welfare. Some studies indicate that the emigrants' countries of origin can benefit from the emigration of skilled workers, but generally it is the emigration of unskilled and semi-skilled workers that is of economic benefit to countries of origin, by reducing pressure for employment creation. Low-skilled migration can greatly benefit migrants and their families and help relieve labor market pressures. In addition to enabling emigrants escape poverty and reducing poverty in the country of origin through remittances, low-skilled emigration can increase wages and reduce unemployment and underemployment of poor workers in the country of origin consequently improving labor market conditions for other poor worker.

Where emigration is concentrated in skilled labour, such as doctors, engineers, accountants and so on, the consequences are severe and even catastrophic depending on the volume of emigrants (Global Economic Prospects, 2006). Economic theory however suggests that the movement of a skilled worker from a place where wages are low to a place where wages are high should produce a net gain.

Many econometric studies have tried to quantify those gains. Evidence from the United States suggests that the economic benefits of migration to the receiving country are relatively small, and that the presence of immigrants in its labour market results in only a small reduction in domestic wages. Studies carried out for developing countries show that the emigration of skilled workers represents a loss of human capital (brain drain), leaving the remaining workforce without the benefit of their support. However that effect is largely offset by the remittances that are sent home by the emigrants, and by the enhanced technical know-how with which some of them return.

Another study introduced a further offsetting factor to suggest that the opportunity to migrate promotes enrolment in education thus promoting human capital development (brain gain) that counteracts the loss of human capital associated with emigration. At the same time, large outflows of high-skilled workers can reduce growth in the origin country. This is so because it is believed that if highly educated citizens stayed in their countries, they could help to improve governance, improve the quality of debate on public issues, encourage education of children, and strengthen the administrative capacity of the state. It is impossible to reliably estimate the net benefit, or cost, to origin countries of high-skilled emigration, however international migration should produce net gains for a country like Nigeria, who finds it difficult to provide productive employment for many high-skilled workers.

Migration of high-skilled workers may reduce living standards of those left behind and impair growth, but can also be beneficial. Some recent articles have claimed that high-skilled emigration, even of productively employed workers, may benefit development. The opportunity to emigrate increases the returns to education, leading more individuals to invest in education with a view to emigrating. It is difficult to generalize about the impact of skilled migration. The dispute over gains and losses has remained largely conjectural and has not been settled by the available empirical studies (The World Bank).The main gains however, come from the higher incomes the new migrant workers can earn in the destination country relative to what they would have earned in their country of origin.

Remittances are believed to reduce poverty, and their compensatory nature is responsible for minimizing consumption volatility of transfer recipients (Chami, et al, 2003; World Bank, 2006; among others). However one concern is that the increase in remittances provides an opportunity for developing countries to import more and export less, as their current-account balance will increase by the size of the remittances.

The result of Abdih et al (2009) show that remittances have a significant effect on fiscal policy and debt sustainability, since remittances enter the recipient economy through familial transfers they affect fiscal policy and debt sustainability indirectly through the activities of remittance-receiving households, primarily through their consumption decisions and saving patterns. Existing literature and evidence as cited in the Global Economic Prospects of The World Bank (2006) suggests that remittances can be viewed as part of the potential tax base, augmenting the available resources that a country has to service its debt. The trend analysis for Nigeria with respect to remittance, household consumption GDP and gross fixed capital formation from 1996 to 2009 shows that remittances does have impact on our national economy especially on GDP and household consumption.

Figure 2.3 below shows that increases in remittances leads to a corresponding increase in GDP and household consumption. Interestingly a decline in remittances in 2004 led to slight decline in household consumption, this is to corroborate the point that remittances have impact on consumption of recipient household. Also there was a surge of remittances in 2005 followed by a decline from 2006 to 2008 where it picked up slightly, while there was a slight increase in

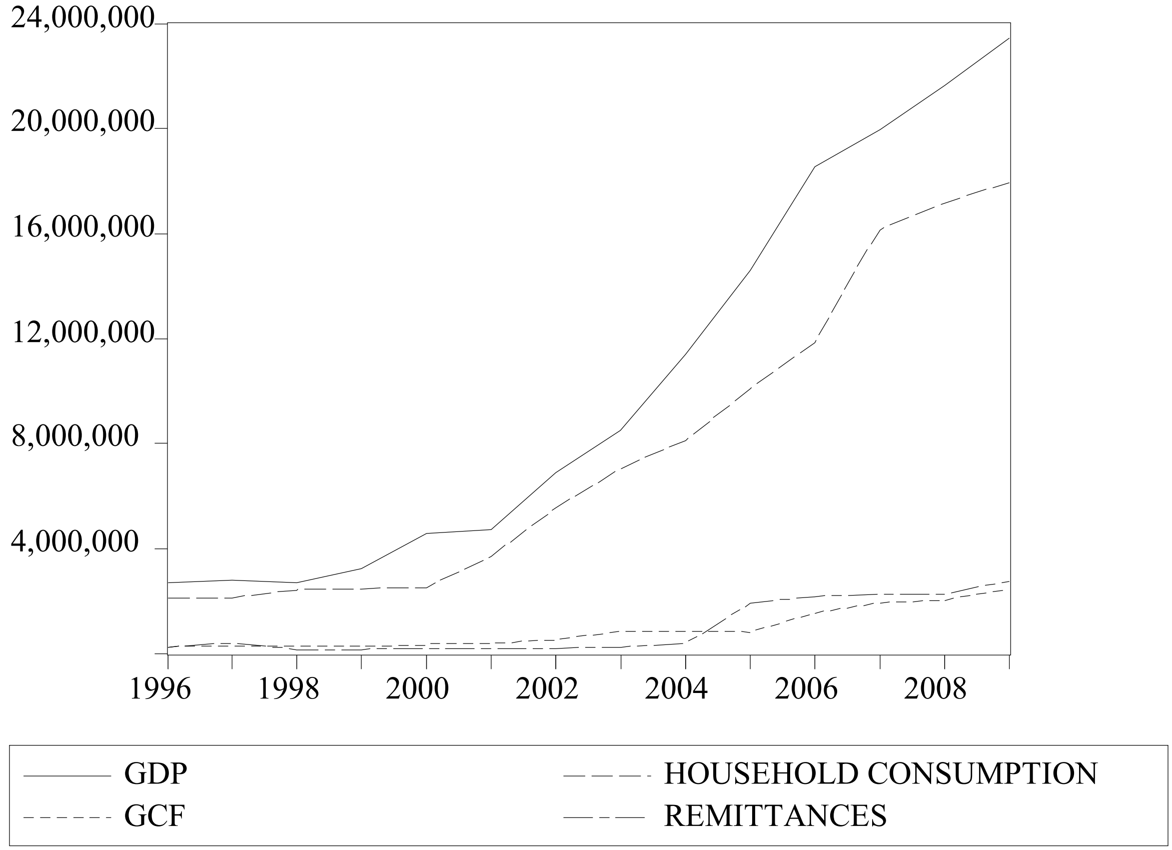

Figure 2.3: Trend Analysis Graph
Source: CBN Statistical Bulletin, 2010

household consumption from 2005 dropping slightly in 2007 (representing the effect of one lagged period) picking in 2007 and declining again, this trend is believed to be partly attributed to the global financial crisis. However remittances does not seem to have effect on gross fixed capital formation, although from the graph gross fixed capital formation declined in 2005 and rose slowly but steadily from 2006, however its size which is even below remittances shows that investment in capital formation in the country should be boasted.

The large size of remittances relative to other external flows and to the GDP in many countries suggests that the macroeconomic effects of remittances may be of critical importance in many countries. High levels (or large increases) in remittance flows can be expected to have direct repercussions on foreign exchange rates, domestic interest rates, and the balance of payments. However many of the works on remittances believe the volume of recorded remittances are below the actual volumes coming into the country (CBN), if this is so given that remittances come in as foreign capital, this may have repercussions on policy formulation and invariably on macroeconomic variables.

As the experience with and analysis of natural resource booms have shown, large inflows can also have some undesirable side effects. Remittances can improve a country's creditworthiness and thereby enhance its access to international capital markets. Large and sustained remittance inflows can cause an appreciation of the real exchange rate and make the production of cost-sensitive tradables, including cash crops and manufacturing less profitable. However, as remittances tend to be relatively stable and persistent over long periods, the "Dutch disease" effects of remittances are less of a concern than similar effects of natural resource windfalls and other cyclical flows, and the real exchange rate level achieved through sensible policies may be sustainable (IMF 2005). By generating a steady stream of foreign exchange earnings, remittances can improve a country's creditworthiness for external borrowing mechanisms (such as securitization of remittance flows), they can expand access to capital and lower borrowing costs. While large and sustained remittance inflows can contribute to currency appreciation, this outcome may be less severe than it is in the case of natural resource earnings, because remittances are distributed more widely and may avoid exacerbating strains on institutional capacity that are often associated with natural resource booms. However, this increase in remittances may also provide an opportunity for developing countries to import more and export less.

Remittances also raise a range of important political and economic concerns for example the public moral hazard problem. If remittances catalyze public investment that would not otherwise occur, then it can be said that the net effect is positive. But if remittances crowd-out public investment and private income by inducing a public moral hazard, then their contribution may be marginal or even negative. Remittances may also indirectly affect labor supply, by encouraging some remittance-recipient households to choose more leisure than labor (Chami et al, 2005). The possibility that reliance on unearned income in the form of remittances has adverse effects on the incentives to work by individual, as well as on the quality of economic policies and governance such as the public moral hazard problem described above.

The evidence on the effect of remittances on long-term growth is inconclusive. To the extent that they finance education and health and increase investment, remittances could have a positive effect on economic growth. Remittances may relieve credit constraints in the recipient community and spur entrepreneurial activity (Funkhouser (1992); Yang (2004) in Global Economic Prospects, (2006). He argues that remittances overcome capital market imperfections and allow migrant households to accumulate positive assets, as claimed by Stark and Lucas (1988). Remittances may increase per capita income levels to the extent that they increase consumption and reduce poverty and income inequality, even if they do not directly impact growth. Remittances, like aid, may be more effective in a good policy environment. For instance, a good investment climate with well-developed financial systems and sound institutions is likely to imply that a higher share of remittances is invested in physical and human capital (IMF 2005).

2.10 EMPIRICAL LITERATURE

The volume of remittances inflow as discussed above has brought remittances to the center stage of economic discourse as it relates to various aspects of a nation's economy. A review of some of the works on remittances will help form a base for our discourse in this research. Several theoretical and empirical works such as Köksal (2006); Barua et al (2007); Glystos (1993) amongst others contributed to the global debate on the impact of remittances on a nation's economy, which if properly directed and channeled has the capacity to grow a nation's economy.

2.10.1. Determinants and Remittances

Köksal (2006) analyzed the determinants and impact of remittances using the Turkish economy as a case study. In addition to confirming the micro and macroeconomic determinants traditionally emphasized in the remittance literature with respect to the Turkish economy. He stressed the financial infrastructure offered to Turkish migrants. Turkish Banks according to him are the most important channels for the transmission of remittances, along with the Central Bank of Turkey; they are the main actors for collecting and placing these funds and have played a crucial role for attracting remittances into the country. The Central Bank of Turkey achieved this by allowing only migrants and Turkish citizens residing abroad to open bank accounts for medium and long-term savings accounts from which direct withdrawals are only possible within Turkey, the Central Bank offered higher interest rates than the Turkish commercial banks.

Barua et al (2007) analyzed remittances using two broad approaches to remit; altruism and portfolio (investment). They formulated the remittance-determination model selecting variables according to the objective of the study and in line with the existing literature in this field.

The variables used include Workers' remittances, Migration stock, Host country economic condition, Home country economic condition, Income differential, Dummy variables, Inflation Differential, Return on financial assets, Exchange rate. The main variable of interest was income differential between host and home country, which they found to be positively correlated with the inflow of remittances to Bangladesh in all the regression results, an indication of altruistic motive to remit. There was no evidence of investment motive to remit in their preliminary model. They found Stock of migrants abroad and exchange rate to be positively significant in most of their regression analysis but found inflation differential (difference of home-host country inflation using consumer price index) to be negatively correlated with the remittances where real interest rate was excluded.

Abeng (2006) reviewed the work of Netapti et al (2005) titled Determinants of Workers' Remittances: The Case of Turkey. In his review, he indicated that the Turkish economy was similar to that of the Nigerian economy because historically the Turkish economy just like the Nigerian economy in the 1960s was predominantly agricultural before being transformed into an industrialized economy. Based on the existing literature and the economic topography of the country they used a macroeconomic model in the analysis of the determinants of workers remittances, and estimated using official cash remittances, stock of workers abroad, per capita income of Turkey, black market premium, real overvaluation, domestic inflation, and domestic output growth. Other variables included a dummy variable for years of military rule as well as the host country per capita income and interest rate differential of about eleven host countries with the largest stock of Turkish emigrants. The paper employed the Ordinary Least Squares (OLS) technique. Their findings included that higher interest rate in Turkey attracted remittances while political instability significantly discouraged remittance flows. They found that for the period 1979–1993, macroeconomic variables such as black market premium, interest rate differentials, growth, inflation rate, and period of military rule significantly affected remittance flows. The central thrust of their findings was that a sound exchange rate policy coupled with economic and political stability was key factors in attracting remittance flows.

Aydas et al. (2005) demonstrated that macroeconomic variables have a significant impact on workers' remittances to Turkey also. Using the black market premium, interest rate differential, inflation rate, growth in home and host country incomes, and periods of military regime. They found these to have significantly affected Turkish remittance flows.

Using co-integration techniques, Bouhga-Hagbe (2004) provided a model on how altruism, "attachment" to the home country, and portfolio diversification may act as potential motives behind workers' remittances. Their findings show that the impact of workers' remittances on Morocco's external position and the conduct of monetary policy were significant. Remittances almost covered the trade deficit and had contributed to surpluses of the external current account, as well as the overall BOP. The study shows that remittance increase with poor economic performances in the home country. Altruism as a motive for remittance according to them, could also contribute positively to the stability of remittances in the long run, also exchange rate through the "substitution" and "wealth" effects could influence the level of remittances.

Another study by Bouhga-Hagbe (2006) investigating "altruism," as a motive for sending remittance and argue this motive could contribute to the stability of its inflow. Using cointegration techniques, they estimated the long-run relation between remittances and some of their potential determinants for Egypt, Jordan, Morocco, Pakistan, and Tunisia. Their model is specified as follows:

Remittancest= α *Agricultural GDP* + β *Exchange rate* + γ *Trend* + ε …………………….. (2.2)

Where Remittances denotes remittances by migrants resident abroad; Agricultural GDP stands for real agricultural GDP; Exchange rate is the US$ exchange rate against the local currency; Trend represents time; and ε is a Gaussian error term with zero mean and finite variance. Agricultural real GDP was used as a proxy for "hardship". According to Bouhga-Hagbe (2006), real agricultural GDP was used as an indicator of 'hardship' for a country that receives remittances from migrants resident abroad. In other words, a fall in real agricultural GDP may be interpreted as an increase in 'hardship' which according to the literature should be a 'push' for migration. It is expected that as 'hardship' increases indicated by a fall in real agricultural GDP emigration rates would rise. Their results suggest that the statistical model explained the evolution of remittances in the long-run in the five countries, which means the variable "Agricultural GDP" significantly enters the long-run relation and remittances tend to be negatively correlated with agricultural GDP which supports the view that altruism played an important role in workers' decision to send money .

Adopting the model developed by Bouhga-Hagbe, (2006), Elkhider and co-workers (2008) used the VAR model to investigate the relationship between remittances and other variables (agricultural GDP and exchange rates). Their results showed remittances have no effect on themselves but they have a permanent negative shock on the exchange rate over a period of one to three years and that the exchange rate had a negative effect on remittances, while agricultural

GDP had a positive influence. Their results suggest that exchange rate policy (devaluations, changes in parity or the parity premium, etc.) does not have a positive impact on remittances. On the other hand, a change in agricultural GDP resulted in a change in remittances in the same direction. For the short-term trend under the VECM, the exchange rate had a positive effect on remittances. The exchange rate has a provisional or transitory shock effect on itself. It also had a transitory shock effect on remittances and GDP. GDP had a transitory shock effect on itself and remittances and the exchange rate.

Chami, et al, 2006 in a study for the IMF (based on annual panel data) of 87 countries during the period 1980-2003 indicated that while host country GDP has a positive significant impact on remittances, home country GDP, presence of multiple exchange rates and black market premia, restrictions on holding foreign exchange deposits have a statistically negative impact on remittances. Variables like financial development, political risk, law and order, relative investment opportunity were found to be of little significance in influencing inward remittance flows. The study also investigated and found that removal of all exchange rate distortions led remittances to increase by 1-2 percentage points of GDP, implying that policies and regulations have important bearing on the inflow of remittances.

2.10.2. Remittances and Growth

Chami et al (2003) used panel data for the period 1970-1998 to investigate the relationship between workers' remittances and per capita GDP growth. They estimated using the change in the log of workers remittances to GDP ratio as an independent variable

$$\Delta y_i = \beta_0 + \beta_1 y_{0i} + \beta_2 \Delta wr_i + \beta_3 gcf_i + \beta_4 npcf_i + u_i \ldots\ldots\ldots\ldots\ldots\ldots \quad (2.3)$$

Their panel regressions found remittances to be negatively correlated with growth among a sample of developing and developed economies. To support this result they gave the reason that income from remittances can lead to a moral hazard problem, where the migrant's family members reduce their work effort and depend on remittances.

Natalia et al, (2006) examined whether the results obtained by Chami et al (2003) suffered from model mis-specification, using a dynamic panel regression. Their argument is that contradictory findings have resulted when looking at the remittances-growth link because of an omitted variable bias. Their main argument is that the effect of remittances on growth could work through different channels with institutions being the most important one. They used the logarithm of the Remittances/GDP ratio as the independent variable in all their estimations as well as the control variables of Chami et al (2003).

$$g_{it} = \beta_i + \beta_1 g_{it-1} + \beta_2 wr_{it} + \beta_3 Ins_{it} + \beta_4 (wr_{it} * Ins_{it}) + \beta_5 gcf_{it} + \beta_6 npcf_{it} + u_t \;\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2.4)$$

Where β_i captures the fixed effects, g is the growth rate of per-capita income, wr is the log of worker remittances to GDP ratio, Ins is institutions, gcf is the log of gross capital formation to GDP ratio, and $npcf$ is the log of net private capital flows to GDP ratio. In order to test the hypothesis that institutions affect the impact of remittances on growth, they interacted remittance variables separately in the regression equation with different indexes of institutional quality in order to ensure that the interaction term does not proxy for remittances or institutions and test the significance of the interacted coefficient. The result of their dynamic panel regressions showed that remittances have positive and statistically significant impact on long-term macroeconomic growth when controlling for endogeneity. They also found that remittances impact tend to increase, the higher the quality of the receiving countries' policies, institutions, and political environment.

Using unbalanced panel data spanning from 1980 to 2004 for 37 African countries Bichaka and Christian, (2008) investigated the effect of remittances relative to the other external sources of capital on economic growth using a simple double log-linear Cobb-Douglass production function as specified below

$$lnGDP_{it} = \beta_0 + \beta_1 lnREM_{it} + \beta_2 lnGCF_{it} + \beta_3 lnAID_{it} + \beta_4 lnENR_{it} + \beta_5 lnFDI_{it} + \beta_6 lnTOT_{it} + \beta_7 lnINY_{it} + \beta_8 lnPRI_{it} + \varepsilon_{it} \quad \ldots\ldots (2.5)$$

Where *lnGDPit* is the natural log of real GDP per capita and *lnREMit* is log of remittances per capita in US$; *lnGCFit* is the log of gross fixed capital formation as a percent of real GDP used as a proxy for investment in physical capital. *lnENRit* is log of secondary school enrollment used as measure of investment in human capital which has a positive effect on the economic growth of developing countries, *ln AIDit* is the log of foreign aid, *ln FDIit* is the log of foreign direct investment, *lnTOTit* is the log of the terms of trade for each country under consideration, measured by the ratio of the export to import price indices growth. INY_{it} is the initial level of GDP per capita while *lnPRIit* is log of a measure of the political rights index which captures the effect of institutional factors. Equation (2.5) is estimated using OLS. Their results show that a 10 percent increase in remittances lead to a 0.3 percent increase in the GDP per capita income, hence remittances have positive impact on the economic growth of African countries. They also found that African countries can improve their economic growth performance by strategically harnessing the contributions of remittances by ensuring their efficient and reliable transfers and reducing the cost of transfers by improving their governance performance.

Using an unbalanced panel data from 28 Sub-Saharan Africa (SSA) countries, Yéro (2009) investigated the impact of remittances on the long term economic growth of SSA using a Two Stage Least Stage (TSLS) instrumental variable method. The growth equation estimated is specified below;

$$Growth_{it} = \beta_0 + \beta_1 GDPpc_{in} + \beta_2 REMIT_{it} + \beta_3 X_{it} + \alpha_i + \varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2.6)$$

Where $Growth_{it}$ is the average growth rate of real GDP per capita in the country i to the date t covering 3 years and expressed as annual rate, $GDPpc_{in}$ is real GDP per capita at the first period; *REMITit* is the amount of money sent by migrants to their countries of origin, and *Xit* is the vector of other control variables including investment, financial development, education, official development aid, institutions, population growth, degree of openness, inflation and government expenditure; α_i is the unobserved country-specific effect or country-fixed effects and ε_{it} is the error term. His result show that there is no direct relationship between remittances and economic growth in Sub-Saharan Africa and that remittance do not have a direct positive impact on economic growth in SSA rather an indirect positive impact on growth through other channels such as saving or investment, education and financial development.

2.10.3. Nigeria studies

Ezra and Nwosu (2008) presented a paper on Worker's Remittances And Economic Growth : Evidences From Nigeria. The objectives of this paper was to spur discussions on how the utilization of remittances could lead to economic growth in a developing country, to identify how the correlations of remittances with macroeconomic variables help to illuminate their role in buffering economic shocks: trade shocks, large swings on capital flows, or natural disasters and encourage policies that will favour remittance inflow into the country through official channels for proper documentation. Their model is specified below:

$$\Delta Y/Y = (\alpha x\ \Delta K/K) + (\beta x\ \Delta G/G) + (\lambda x\ \Delta L/L) + \delta x\ \Delta H/H + (\gamma x\ \Delta D/D) + (\zeta x\ \Delta R^*/R^*) + (\Delta A/A) \quad (2.7)$$

Where α, β, λ, δ, γ and ζ are respectively, the shares (output elasticities) of private capital, public capital, Labor, human capital, domestic oil consumption and import capital. They also conducted a test for endogeneity of some of the chosen variables in the model using a two–stage Least Squares Instrumental Variable [2SLSIV] approach. They found that remittances have a significant impact on economic growth in Nigeria through investment in private and human capital, with a pass-through effect on private consumption. Also remittances have the capacity to reduce poverty through a multiplier effect.

In another work by Chukwuma Agu (2009), the relationship between remittance flows and the rest of the economy was investigated using a four-sector medium scale macro model with 49 variables comprising 18 endogenous variables, 31 exogenous variables and 14 identities. The study found very weak link between remittances, the real sector and components of aggregate demand except private consumption which showed marginal significance. His results show significant leakages for remittance proceeds through imports and that non-subsistent remittances are channeled into the stock market. As a result of his findings he recommends that using specific policies, the weak relationship between remittances and the rest of the domestic economy (domestic output and employment) could be strengthened to bring about development.

Mbutor (2010) employed the vector autoregressive (VAR) methodology with two stage deductions. His operational model is specified below:

$$Rm = v\,(GDP, Inf, Dr, Xr, Tbr) + Ut \ldots\ldots\ldots\ldots \quad (2.8)$$

Where Rm is remittance inflow, GDP is Gross Domestic Product, Inf is inflation, Dr is deposit rate, Xr is exchange rate, tbr is treasury bills rate and Ut is error term. His findings showed that a one unit innovation on the policy rate does not have an immediate impact on all the intervening variables. In the second period, GDP stays unchanged: aggregate prices rise by 2.2%; deposit rates decline marginally; while exchange rate appreciates by 1.4%. This results show that the prosperity of the domestic economy increases remittances to Nigeria; while exchange rate depreciation depresses remittances.

A recent work by Oke (2008) uses survey data on Remittance and the Socio-Economic Conditions of Nigerian Migrants in the Netherlands. Some of the findings include that the degree of integration into host country matters for Nigerian migrants to settle and send remittance home. Secondly, his work proved the countercyclical nature of remittances in that the migrants and confirmed that the probability to remit is not dominated by income. The work indicated that most of the Nigerian migrants migrated on their own against the household theories of migration to escape socio-economic hardship and to better their life. However their major aim for coming might also be connected with remittance according to migration theory. His work also confirmed that migrants face many problems of settling down when they first come to Europe.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. INTRODUCTION

The theoretical framework for this study is anchored on the endogenous growth theory. Secondly the work of Ernest Ravenstein (1889) known as the Push and Pull theory which provides adequate understanding of the macroeconomic determinants affecting remittances in an economy. Also The New Economics of Labor Migration (NELM) Theory associated with the work of Stark (1991) which provides a model on how attachment to the home country (altruism) acts as potential motives for remittances. This study will investigate the altruistic motive for remittances thereby retaining only variables within the domestic economy. The theory is reflective as members of the Nigerian diaspora remain closely connected to their home Country; reflected in the widespread practice of remitting money to family back home (Orozco, 2007).

3.2. MODEL 1

To achieve the first objective, this study adapted the model of Bichaka and Christian, (2008) which give adequate understanding into the remittance-growth nexus relative to other sources of external capital, also taking into consideration other traditional sources of economic growth and the institutional factor as one of the variables. The model is adapted to include portfolio investment which is traditionally known to impact on economic growth in developing countries[1]

[1]see Harrod-Domar model; In the Keynesian and post-Keynesian traditions investment plays a critical role both as a component of aggregate demand (probably the most volatile) as well as a vehicle of creation of productive capacity on the supply side. In post Keynesian demand-driven models investment still plays a crucial role in determining medium run growth rates.

and remittance is believed to impact on economic growth through different channels including investment (see Yéro (2009)[2]) while initial level of GDP per capita (*INYi*t) is excluded as the impact of the initial level of GDP per capita (*INYi*t) on economic growth has been controversial at best (Bichaka and Christian, 2008[3]). Bichaka and Christian, (2008) equation is shown below:

$$lnGDP_{it} = \beta_0 + \beta_1 lnREM_{it} + \beta_2 lnGCF_{it} + \beta_3 lnAID_{it} + \beta_4 lnENR_{it} + \beta_5 lnFDI_{it} + \beta_6 lnTOT_{it} + \beta_7 lnINY_{it} + \beta_8 lnPRI_{it} + \varepsilon_{it} \quad (3.1)$$

Where

GDP_t is real GDP

REM_t is official remittances

GCF_t is gross fixed capital formation as a percent of real GDP measure investment in physical capital

ENR_t is investment in human capital measured by government expenditure on education and health

AID_t is foreign aid

FDI_t is foreign direct investment

TOT_t is the degree of openness measured by the terms of trade

INY_t is the initial level of GDP per capita

PRI_t is political right index which captures the effect of institutional factors.

[2]Yéro (2009) found no direct relationship between remittances and economic growth in Sub-Saharan Africa but an indirect positive impact on growth through other channels such as saving or investment, education and financial development

[3]While Blomstrom (1996) and Casseli, et al, (1996) found an indirect positive relationship between growth rate and the initial level GDP per capita growth rate through its positive impact on capital formation, Barro (1997) found a negative relationship between the initial GDP per capita and the GDP growth rate.

The political rights index goes from 1 to 7, where 1 denotes "most free" and 7 denotes the least level of political liberty.

3.3. MODEL SPECIFICATION

$$GDP_t = \beta_0 + \beta_1 REM_t + \beta_2 GCF_t + \beta_3 AID_t + \beta_4 ENR_t + \beta_5 FDI_t + \beta_6 TOT_t + \beta_7 INV + \beta_8 PRI_t + + \varepsilon_{t\ldots} \quad \ldots\ldots (3.2)$$

Equation 3.1 is adapted to include portfolio investment (INV) while the the initial level of GDP per capita is excluded.

The *a priori* expectations are as follows*:* $\beta_0, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ □ 0

The Ordinary Least Square (OLS) will be used to estimate.

3.4. MODEL 2

From the literature we understand that altruism is the single idea in the fundamental literature of remittances (Lucas and Stark, 1985) and we understand the countercyclical nature of remittances. This means that remittances are drawn more by conditions in the country of origin; based on these assumptions we will look at the macroeconomic determinants of remittances as it relates to the altruism motive for remittances.

3.4.1. Analysis of the macroeconomic determinants of remittances

The framework of this study follows the literature on the Push and Pull theory. The equation to estimate therefore is adapted from the work of Elkhider et al (2008) in accordance with the literature. The model of Elkhider et al (2008) is specified below:

$$Remittances_t = \_\alpha AgriculturalGDP_t + \beta Exchangerate_t + \gamma Trend + \varepsilon_t \ldots\ldots (3.3)$$

Where *Remittances* denotes remittances by migrants resident abroad; *Agricultural GDP* stands for real agricultural GDP; *Exchange rate* is the US$ exchange rate against the local currency; *Trend* represents time; and ε is a Gaussian error term with zero mean and finite variance.

This study however, retains and draws variables from this model and from the literature that reflects only the real economy being studied in line with the altruistic motive for remittance.

3.4.2. MODEL SPECIFICATION

REMIT = f (SMW, EXCH, ECOSTA) …………………………………………………… (3.4)

SMW is stock of migrant workers or emigration rate which will be measured by real agricultural GDP (AGRIGDP). According to Bouhga-Hagbe (2004; 2006), real agricultural GDP is used as an indicator of 'hardship' for a country that receives remittances from migrants resident abroad. In other words, a fall in real agricultural GDP may be interpreted as an increase in 'hardship'. From a theoretical point of view it is believed that as hardship increases more people will migrate (internal and external). Following the immigration of agricultural workers, unemployment will rise further pushing international migration consequently increasing the stock of migrant workers abroad.

ECOSTA is the economic condition in the domestic economy which is measured by domestic rate of inflation. Although in the model of Elkhider et al (2008) economic condition was not included in the model, it is believed that from the literature this is a strong determinant of remittance. There are three main variables to measure economic condition. Inflation which is a general and persistent rise in prices affects the purchasing power of all individuals in the country. From the literature remittances are drawn by decreasing real value of money. Growth rate which is usually measured by GDP may not be truly reflective of the purchasing power of all individuals while wage rate may be positively or negatively skewed.

Exchange rate: Bilateral exchange rate plays an important role in workers' motive to remit. It is believed that exchange rate could strongly influence the level of migrant remittances. The exchange rate used here is the US$ exchange rate against the local currency. The effect of this variable is not always clear a priori (Bouhga-Hagbe, 2004; 2006).

The equation is further re-specified as

REMIT = f (AGRIGDP, EXCH, INF) ………………………………………………………… (3.5)

Where;

REMIT = official cash remittances

AGRIGDP = real agricultural GDP used as a proxy for emigration rate.

EXCH = exchange rate

INF = domestic rate of inflation measured by CPI

The a prior expectations are α_2 □ 0, $\alpha_{1,}$ α_3 □ 0

Logarithmic form will be used for the data. This transformation is to reduce the problem of heteroscedasticity, as log transformation compresses the scale in which the variables are measured (Gujarati, 2004).

3.5. VECTOR AUTOREGRESSIVE (VAR) MODEL

The VAR model is adopted in order to estimate the impact of shocks of the lagged values of remittances on its present value and the impact of shocks caused by the emigration rate, exchange rate and domestic inflation rate on remittances given the terrorist attacks of September

11, 2001 and the recent global financial crisis which also crept into the local economy. The non-structural VAR is used because all the variables in this VAR are considered endogenous in line with the literature. The use of the VAR model in this analysis is justified because it is commonly used in forecasting systems of interrelated time series and for analyzing the dynamic impact or shocks of random disturbances on the system of variables. Secondly the VAR allows each endogenous variable to be explained by its lagged or past values and the lagged values of all other endogenous variables in the model. Furthermore, the estimation is simple; that is, the usual OLS method can be applied to each equation separately and the forecasts obtained by this method are in many cases better than those obtained from the more complex simultaneous-equation models (Gujarati, 2004). The VAR is expressed in terms of vectors and is specified below in mathematical form:

$$X_t = c_0 + c_1X_{t-1} + ... + c_pX_{t-p} + U_t \text{ , } \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (3.6)$$

Where according to equation (3.6)

X_t = [REMIT, AGRIGDP, EXCH, INF] …………. ……………………………………….. (3.7)

- $X_t = (X_{1,t}, ... ,X_{k,t})'$ is a vector time series of macroeconomic variables,
- c_0 is a k-vector of intercept parameters,
- the C_j are $k'k$ parameter matrices, and
- U_t is the error vector, which is assumed to be i.i.d. k-variate normally distributed with expectation the zero vector

We determine the optimal lag length for the VAR system by using the Schwarz (1978) Criterion (SC), the Akaike (1974) Information Criterion (AIC), Log likelihood and HQ

3.5.1. Impulse-Response Function and Variance Decomposition

The VAR is interpreted using an impulse-response function; this is used to trace the effect of shocks from one endogenous variable to other variables in the VAR. Another instrument for interpreting the VAR is the Variance Decomposition, which separates the variation in an endogenous variable into the components shocks. The Variance Decomposition gives information about the importance of each random innovation relative to other random variables in the VAR (Hamilton, 1994).

3.5.2. Co-Integration and VECM Estimation

To investigate the long run relationship between macroeconomic variables most of which are not stationary, cointegration technique and Vector Error Correction Model (VECM) are often employed as the main research tools. There are two reasons for choosing these two techniques. First, conventional econometric approaches such as OLS are subjected to spurious regression problems (Granger and Newbold 1974). Second, because most of the economic variables employed are likely to be endogenous, a single equation may produce simultaneous bias and hence lead to unreliable results. Both problems can be overcome with the help of the Vector Error Correction model (VECM). The specification of VEC models contains the cointegration relations, so it assumes that the economy converges to the long-run relationships. On the other hand, it allows also for the short-run adjustment dynamics. In addition, a VEC model can capture the long-run relationship between the variables. If the above cointegration test suggests that there exists at least one cointegrating vector, the VECM can be expressed as

$$\Delta X_t = A_0 + \alpha\beta X_{t-p} + \sum_{i=1}^{p-1} \pi_i \Delta X_{t-i} + u_t \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3.8)}$$

Therefore to investigate whether there exist long-run cointegrating relationships among the variables or not, the Johansen cointegrating test is employed in this study. The purpose of this stage of analysis is to determine the number of co-integrating relationships in the VAR system. Finally in order to estimate the long-term solutions and verify the stability of the coefficients we will use the VECM (Vector error correction) estimation.

3.6. ESTIMATION TECHNIQUES

In the literature most time series data are non-stationary. Therefore to statistically validate the stationarity properties of our variables, we formally test the stationarity properties of our series using the Augmented Dickey-Fuller (ADF) unit-root test and test for the presence of unit roots using the systematic procedure described by Dickey and Fuller (1979), The ADF test here consists of estimating the following regression:

$$\Delta Yt = \beta 1 + \beta 2t + \delta Yt\text{-}1 + \sum_{i=1}^{m} \alpha i \Delta Yt\text{-}1 + \varepsilon_t \;\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \;(3.9)$$

Where εt is a pure white noise error term and where $\Delta Yt-1 = (Yt-1 - Yt-2)$ and $\Delta Yt-2 = (Yt-2 - Yt-3)$, etc. The number of lagged difference terms included depends on how many will ensure that the error term in the equation is serially uncorrelated.

Given the hypothesis

$$H0: \beta = 0$$

$$H1: \beta < 0$$

Thus if $\beta = 0$, there is no presence of unit root, if $\beta < 0$, then the series contains unit root.

Decision rule: if the computed absolute value of the ADF statistic exceeds the absolute critical value, we reject the null hypothesis; that is the time series is stationary. On the other hand, if the computed ADF statistic does not exceed the absolute critical value, we do not reject the null hypothesis; in which case the time series is non-stationary. A non-stationary time series will lead to a spurious regression estimate. In order to avoid this problem, we have to transform non-stationary time series to make them stationary using appropriate corrections that is through the differencing operators.

3.7. SOURCES OF DATA

The data for the study are secondary data. Data were collected from the most accurate and comprehensive remittances data available from the Central Bank of Nigeria[4] (C.B.N). Other data were sourced from Central Bank of Nigeria (C.B.N), Statistical Bulletin, 2009 and National Bureau of Statistics as well as relevant websites. The political rights index (*PRIit*) to capture the effect of this institutional factor is obtained from the Freedom House's Freedom in the World Country Ratings.

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[4] annual data was converted to quarterly data where quarterly data was not available see Ana. A and Enrique M. Q (2005): "Software to perform temporal disaggregation of economic time series", European Commission, Working Paper and Studies, ISSN 1725-4825 and How Economist Convert Quarterly Data into Monthly: Cubic Spline Interpolation. Chamberlain Economics, L.L.C

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.0 INTRODUCTION

This chapter discusses the result of the empirical findings. This is done in line with the objectives. Various econometric and statistical techniques have been employed. These include; Regression model, VAR, cointergration and so on. The time series properties of the data have also been verified by the use of the Augmented Dickey Fuller.

4.1 RESULTS OF THE UNIT ROOT TEST

The purpose of this level of the analysis is to see how we can transform our original series to make them stationary given that time series data are usually non stationary and if that is the case will lead to spurious results. The stationarity analysis is carried out on the basis of the Augmented Dickey – Fuller (ADF) approach. Given the hypothesis

$$H0: \beta = 0$$

$$H1: \beta < 0$$

Thus if $\beta = 0$, there is no presence of unit root, if $\beta < 0$, then the series contains unit root.

Decision rule: if the computed absolute value of the ADF statistic exceeds the absolute critical value, we reject the null hypothesis; that is the time series is stationary. On the other hand, if the computed ADF statistic does not exceed the absolute critical value, we do not reject the null hypothesis; in which case the time series is non-stationary.

From table 1, all the variables are I(1) with the exception of ENR, which is stationary at 5% and 10% at levels. GDP, REMIT, GCF, AID, FDI, TOT, INV, PRI, AGRGDP, EXCH and INF are I(1) and are stationary at 1%, 5% and 10% with the exception of AGRGDP, which is stationary at 5% and 10%.

Table 4.1: Unit Root Test for Model 1

Variable	Absolute Critical Value of ADF Stat	ADF Stat 1%	ADF Stat 5%	ADF Stat 10%
GDP	2.590881	4.156734	3.504330	3.181826
D(GDP)	15.89252	3.560019	2.717658	2.596689
REMIT	0.134900	4.165756	3.508508	3.184230
D(REMIT)	5.468448	3.560019	2.917650	2.596689
GCF	0.686240	4.161144	3.568308	2.598551
D(GCF)	5.328577	3.568308	2.921175	2.598551
AID	2.931475	3.557472	2.916566	2.596116
D(AID)	7.501178	3.560019	2.917650	2.596689
ENR	3.541683	3.557472	2.916566	2.596116
FDI	0.143399	4.165756	3.508508	3.184230
D(FDI)	2.536787	2.609324	1.947119	1.612867
TOT	2.280055	4.161144	3.506374	3.183002
D(TOT)	2.860059	2.609324	1.947119	1.612867
INV	3.225661	4.140858	3.496960	3.177579
D(INV)	4.506226	3.560019	2.917650	2.596689
PRI	2.179898	3.555023	2.915522	2.595565
D(PRI)	7.280110	2.608490	1.946996	1.612934
AGRGDP	3.041240	4.148465	3.500495	3.179617
D(AGRGDP)	2.025449	2.611094	1.947381	1.612725
EXCH	1.509353	4.133838	3.493692	3.175693
D(EXCH)	6.697429	3.557472	2.916566	2.596116
INF	1.333479	4.133838	3.493692	3.175693
D(INF)	6.032077	3.560019	2.917650	2.596689

4.2 EMPIRICAL RESULTS AND INTERPRETATIONS OF THE IMPACT OF REMITTANCES ON ECONOMIC GROWTH IN NIGERIA.

To find out the impact of remittances on economic growth in Nigeria, GDP is used as a proxy for growth of the economy. We find the relative contribution of remittances alongside the contributions of other sources of foreign capital like FDI and foreign aid and some other traditional sources of growth to the Nigerian economy using OLS. The results of our estimation is shown in equation 4.1

D(GDP) = 1937.85 + 0.011D(REMIT) - 139.34D(GCF) + 0.969D(AID) + 0.026(ENR-1) –
[1.869] [2.30229689477] [-27.845739157] [5.7318733168] [3.16590548995]

{0.0680} [0.0259} {0.0000} {0.0000} {0.0027}

0.25D(FDI) - 0.0065D(TOT) + 0.049D(INV) + 1925.5D(PRI)
***[-2.42859548] [-3.1847815843] [8.52742063229] [1.03959035061]*……………… **(4.1)**

{0.0191} {0.0026} [0.0000} {0.3040}

R-squared	**0.946**	**Akaike info criterion**	**19.52619**
Adjusted R-squared	**0.937**	**Schwarz criterion**	**19.85466**
Durbin-Waston stat	**1.739**	**Prob(F-statistic)**	**0.000000**
F-statistic	**100.96**		

The t-statistics are in parenthesis [ ], the P-values are in {}

Several versions of equation 3.1 are tested in order to obtain a model which yields robust results and best fits the data. We thus base the discussion of our findings on the more robust results reported above. The result shows that the model is an excellent model with an R- squared value of about 0.95 and an Adjusted R-squared of about 0.94. This shows that 94% of the dependent variable (which is economic growth for Nigeria measured by GDP) is explained by the explanatory variables (remittance, foreign aid, investment in physical capital, investments in human capital, investments, degree of openness, FDI and institutions) while only 6% is explained by other variables outside the model (i.e. the error term). Also the Durbin- Waston statistic which is given as 1.74 falls within the determinate region and implies the absence of serial correlation among the explanatory variables in the model. The F-statistic given as 100.96 which measures the joint significance of the explanatory variables in the model shows that the variables are jointly significant with a probability value of 0.0000. The full result of the estimate is shown in table 1 of the appendix.

Broadly, some of the results reveal the expected relationship between growth measured by GDP*t* and the explanatory variables representing the sources of growth having the expected signs according to the a *priori* predictions. The results from our model indicate that remittance, foreign aid, investment in human capital and investments have positive and statistically significant effects on economic growth in Nigeria. Accordingly, we find that a naira change in the volume of remittances would result in a rate of change of about N0.01 in GDP (growth) in Nigeria. This is consistent with the findings of Bichaka and Christian, (2008); Natalia et al, (2006). Although its impact is very minimal, it is believed that the impact of remittances to the Nigerian economy is more because of those remittances coming in through unofficial channels and therefore is not accounted for in this study.

The CBN in a survey of the remittance industry in collaboration with other development partners had reported that the size of remittances has been under estimated. While according to Agu, (2009) the activities of informal remittance service providers are difficult to measure, however he noted that informal remittance service providers are estimated to possibly transact as high as between 30 and 45 percent of total remittance flows into the economy. Similarly, we find that a naira change in foreign aid would result in a rate of change of about N0.97 in GDP (growth). In the same vain a naira change in investment in human capital (*ENR*) results in a change/increase of GDP by about 0.03 naira. Consistent with the new growth theories and the findings of Solow(1956); Lucas (1988); Barro (1990); Bichaka and Christian, (2008) and Temple (1999), we also find that portfolio investments has a positive and statistically significant impact on the GDP , we observe that a naira change in investment will lead to a rate of change of about N0.05 in economic growth measured by GDP, this suggest investment is positively related to the growth of real GDP consistent with the Keynesian and Neo-classic investment theories.

However some of the variables showed unexpected signs. We find that investment in physical capital (*GCF*) as measured by the gross fixed capital formation as a percent of GDP has a negative but statistically significant impact on the real GDP. We observe that a naira change in investment in the physical capital will lead to a negative rate of change of in GDP. The only plausible reason deduced for this is that investment in physical capital as a percentage of GDP has been on the decline. Both the measure of the degree of openness of the economy (*TOT*) and foreign direct investment (*FDI*) were found to have negative impact on economic growth and were statistically significant.

Although the negative sign for the degree of openness was unexpected, this result could be explained by the arguments put forward by the opponents of free trade, they argue that the applicability of free trade is limited in the case of a developing economy, where vast segments of the productive resources/base of the economy are still unexploited, with acute problem of unemployment. A free trade regime will further compound these problems by weakening the domestic industries, especially when a country lacks sufficient competitive power (Singh, 1985[1]).

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[1]see Singh, M. P. (1985), "Import Policy of a Developing Economy, Chugh Publications, Allahabad, India.

Earlier opponents of free trade cited in Analogbei (2000[2]) such as Harry G. Johnson (1965), and Ellsworth (1969) argued in favor of trade intervention owing to the belief that "such interventions would help rectify the defects of free trade and thus provide the opportunity for developing economies to fully derive the benefits of international trade. Also Ndiyo and Ebong (2004) who wrote on the challenges of openness in developing economies using Nigeria as a case study found a negative relationship between growth and BOP used to measure foreign trade and the degree of openness. The reasons they deduced for this in Nigeria included non-performance of the non-oil sector, import dependency and misalignment of the exchange rate amongst others. The implication of this result is that trade intervention policy is preferable for now until the economy has attained full capacity.

The negative sign of the FDI variable could also be explained by the negative impact of dumping activities of foreign direct investors coupled with their unpatriotic and exploitative modus operandi (Obadan and Okojie 2008[3]). The result is consistent with the findings of Carkovic and Levine (2002) and De Mello (1999) cited in the work of Johnson (2006[4]) they found no robust link running from inward FDI to host country economic growth and only finds weak indications of a positive relationship between FDI and economic growth for a sample of 32 developed and developing countries respectively, while Obadan and Okojie (2008) finds a negative impact of

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[2]see Analogbei F. C. O (2000): "Trade Reforms and Productivity in Nigeria"

[3] see Obadan M.I and Okojie, I. E (2008); "An Empirical Analysis of the Impact of Trade on Economic Growth in Nigeria" Jos Journal of Economics, Vol.4, no.1

[4] Johnson A (2006); "The Effects of FDI Inflows on Host Country Economic Growth" Electronic Working Paper Series, CESIS(JIBS), Paper No. 58

FDI on economic growth in Nigeria. Their results rather suggest it is economic growth that generates FDI inflows.

Finally, the Political Rights Index (*PRI*) used to capture the effect of institutions shows that poor governance is an important bottleneck to the observed economic growth performances in Nigeria. Consistent with arguments made by Sen (1990) and Owen (1987), their study indicate that increase in political rights lead to an increase in GDP. Easterly and Levine (1997) cited in Bichaka and Christian (2008) empirically demonstrated that economic growth is affected by the quality of governance (ethnic divisions, political instability), schooling, state of the financial system, exchange markets distortions, high government deficits, and insufficient infrastructure in their article "Africa's Growth Tragedy: Policies and Ethnic Divisions,".

From table 4.2 we find that for fourteen (14) years, that is from 1996-2009, remittances have contributed more to GDP than FDI and foreign aid, with the exception of 1999 and 2001

Table 4.2 Relative Contributions to GDP of Foreign Capital Inflow Included in the Model

Year	Remittance%	Aid %	FDI %	Total FDI & Aid %
1996	7.197122	0.101046	4.166208	4.267254
1997	12.89166	0.204531	4.580052	4.784583
1998	4.248478	0.889031	5.627229	6.51626
1999	3.723071	0.055701	4.827423	4.883124
2000	3.610893	0.073045	3.438041	3.511085
2001	3.216978	0.07147	3.435777	3.507246
2002	2.457141	0.118707	2.401945	2.520652
2003	2.358497	0.153841	2.055493	2.209333
2004	3.136502	0.174472	2.184025	2.358497
2005	13.03588	0.17761	1.851772	2.029383
2006	11.5765	0.223387	1.631295	1.854681
2007	11.19638	0.27065	1.823007	2.093656
2008	10.42039	0.228166	1.844667	2.072832
2009	11.55452	0.176624	1.881255	2.05788

Source: Data from CBN statistical Bulletin (Authors computation) where FDI contributed slightly higher to GDP ; contributing 4.83% and 3.44% against 3.72% and 3.22% by remittances in the afore mentioned years. This goes further to confirm that remittances do have a positive impact on economic growth in Nigeria contributing as high as 13% to GDP in 2005 and its lowest contribution to GDP was 2.4% in 2003. While for FDI and foreign aid their highest contribution individually was 5.4% and 0.9% both in 1998 respectively, and their contribution since then till 2009 has been on the decline with foreign aid raising slightly in 2006 from 0.18% in 2005 to 0.22 in 2006 however declining again in 2009. This result is clearly shown in the bar chart below in figure 4.1. Also from table 4.2 we found that the contribution of remittances alone surpassed the contribution of both FDI and foreign aid put together.

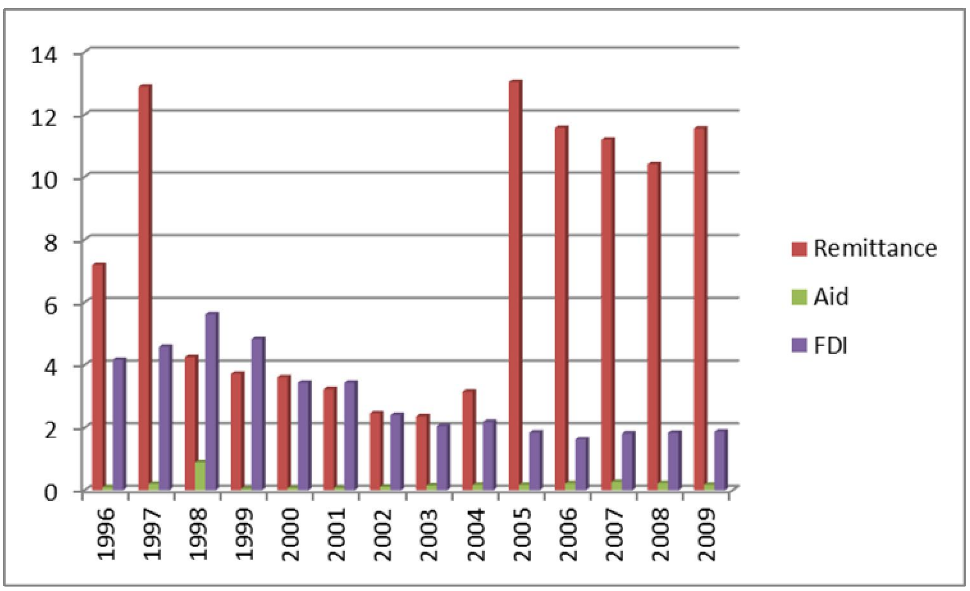

Figure 4.1 Relative Contributions to GDP of Foreign Capital Included in the Model

To further confirm this result a trend analysis is carried out using quarterly data from 1996-2009 and is shown in figure 1 in the appendix. Trends from data confirms that from the period 1996-2009 the volume of remittances surpassed that of FDI and foreign aid.

4.3 EMPIRICAL RESULTS AND INTERPRETATION FOR MACROECONOMIC DETERMINANTS OF REMITTANCES

In order to achieve this objective unit root test was carried out on the variables remittances, real agricultural GDP, exchange rate and inflation. The unit root test carried out on the time series data showed that none of the variables to be estimated are stationary at levels but are all I(1) (see table 4.1), that is they are integrated of order one and as such in other to analyze the relationship between the variables the OLS will no longer be efficient among the linear estimators because the residuals of non-stationary time series are correlated with their own lagged values, a standard assumption of OLS theory that disturbances are not correlated with each other is violated. Normally to avoid spurious OLS regression, we introduce the difference operator, however that will mean interpreting the results as rate of change, hence in order to be able to have an efficient result at levels we have adopted the VAR model. Also since the variables are all I(1) it is necessary to carry out a cointergration test in order to ascertain if there are any cointergrating equations which will then enable us estimate the system of equations using a Vector Error Correction model (VEC).

The VEC is a form of restricted VAR. In the VAR, the coefficients of the overall system are estimated using the Ordinary Least Square (OLS) to each individual equation and since the OLS estimator has asymptotic properties; it is possible to test any linear restrictions with the standard t and F statistics. The VAR is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables.

4.3.1 Johansen's Cointegration Test Result

The purpose of this level of the analysis is to determine the number of relationships of co-integration having confirmed that the variables in the model are integrated of order one. Our system estimation is obtained by first seeking an optimal lag among variables, since the result of the Johansen's cointegration test is very sensitive to the lag length selected. To select the optimal lag length this study took the criteria of Akaike (AIC), Hannan-Quinn (HQ) and Schwarz (SC) for lags h from 1 to 4 using the lag length criteria test. Lag 4 was chosen by all three criteria, however at lag 4 the VAR does not satisfy the stability condition and there is the presence of autocorrelation (see table 3 in appendix). We find the optimal lag length in which the VAR is stable and makes the residuals free from autocorrelation to be lag 2 (see tables 4 & 5 and figure 2 in appendix). These various checks are to ensure the consistency, reliability and efficiency of the results to be obtained in the VAR. We therefore selected lag 2. The Johansen's cointegration test was carried out and the results are shown on table 4.4 and equation 4.2.

Table 4.3 Results of Analysis of the Maximum number of Lags in the VAR Representation

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1541.800764	NA	2.49E+21	60.61964	60.77115	60.67754
1	-1485.548165	101.4753	5.16E+20	59.04110	59.79868	59.33060
2	-1401.746177	138.0268	3.66E+19	56.38220	57.74584	56.90329
3	-1347.833262	80.34081	8.53E+18	54.89542	56.86513	55.64810
4	-1315.497899	43.11382*	4.77E+18*	54.25482*	56.83059*	55.23910*

Table 4.4: Johansen's Cointegration Test Results

Trace Rank Test				
Hypothesis	**r=0***	**$r \leq 1$**	**$r \leq 2$**	**$r \leq 3$**
Trace statistics	**66.06**	**23.05**	**8.17**	**0.02**
5 Percent	**47.21**	**29.68**	**15.41**	**3.79**
1 Percent	**54.46**	**35.65**	**20.04**	**6.65**
Maximum Eigen Rank Test				
Hypothesis	**r=0***	**$r \leq 1$**	**$r \leq 2$**	**$r \leq 3$**
Max Eigen statistics	**43.01**	**14.88**	**8.15**	**0.02**
5 Percent	**27.07**	**20.97**	**14.07**	**3.76**
1 Percent	**32.24**	**25.52**	**18.63**	**6.65**

Note: Trace test indicates 1 cointegrating equation at both 5% and 1% level. Maximum-eigenvalue test indicates 1 cointegrating equation at both 5% and 1% level.

The normalized cointegration equation is shown below in equation 4.2

$$D(LREMIT) = 491.39D(LAGRGDP) + 32736.52D(LEXCH) + 86183.81D(LINF) - 11928.1 \quad \ldots\ldots\ldots\ldots 4.2$$
$$(27.6709) \qquad (30279.9) \qquad (59374.1) \qquad (13981.9)$$

Note: t- statistic in parentheses

The results suggest that there is evidence of cointegration for both the trace and maximum-eigen value statistics. The trace suggest one cointegrating equation at both 5% and 1% level, while the maximum-eigenvalue also suggest one cointegrating equation at both 5% and 1% level. The result of the Johansen's cointegration test therefore suggests that there is a long run relationship between AGRGDP, EXCH, INF and REMIT in the model. From the normalized cointegration equation AGRGDP, EXCH and INF are statistically significant and positively correlated to REMIT, which suggests that the variables explain the evolution of remittance in Nigeria in the long-run.

4.3.2 Vector Error Correction (VEC) Model

Having identified that there is at least one cointergrating equation which indicates that there is a long run relationship between the variables in the model, we then proceed to investigate the dynamic relationship using the Vector Error Correction model which usually captures both the short and long run relationships between the variables. Also given that all the variables in the model are integrated of order one I(1) brings to mind the Granger representation theorem. One of the implications of this theorem is that if two variables, say, Xt and Yt are cointegrated and each is individually $I(1)$, that is, integrated of order 1 then either Xt must Granger-cause Yt or Yt must Granger-cause Xt . This further justifies the use of the VEC model for our estimation. The VEC model was estimated with an optimal lag of one. The full estimates of the VEC are reported in table 7 in the appendix; however, the short run adjustment equation for DLREMIT is reported in table 4.5 below. The estimated specification suggests that the speed of adjustment (error correction mechanism) to the long run equilibrium is very slow. About 5% of the disequilibrium errors which occurred in the previous period are corrected in the current period.

Table 4.5: VECM Estimation Result of ΔLREMIT

Regressor	Coefficient	t-values	S.E
Intercept	0.03	1.78	0.017
DLREMIT(-1)	0.75	12.64	0.059
DLAGRIGDP(-1)	0.311	3.39	0.09
DLEXCH(-1)	0.028	0.388	0.072
DLINF(-1)	-1.498	-3.455	0.434
ECM(-1)	-0.053	-6.014	0.009

R-square Adjusted = 0.76, S.E = 0.096, F-stat =34.19

The above table 4.5 can be shown as a linear equation below

$$\Delta REMIT = O.03 - 0.053ECM + 0.75\, D(LREMIT)_{t-1} + 0.31D(LAGRIGDP)_{t-1} + 0.02D(LEXCH)_{t-1} - 1.498D(LINFL)_{t-1} \ldots\ldots\ldots\ldots (4.2)$$
$$\quad (1.78)^{*} \quad (-6.014)^{*} \quad (12.64)^{*} \quad (3.39)^{*} \quad (0.388)^{***} \quad (-3.455)^{*}$$

Note: t- statistic in parentheses
* = significant at 10 per cent level
** = significant at 5 per cent level
*** = significant at 1 per cent level
Source: Computed by author

From the results, the model is a good model with an R-square adjusted of 0.76. This means that 76% of changes in remittances is explained by the explanatory variables and are jointly significant given the value of the F-statistic (34.19). Remittance to Nigeria is driven by agricultural GDP (LAGRIGDP), exchange rate (LEXCH) and inflation (LINFL). The coefficient of real agricultural GDP (LAGRIGDP) has the expected sign and is significant in determining remittances flow to Nigeria. However exchange rate (LEXCH) and inflation (LINFL) does not have the expected sign but are statistically significant.

The estimated specification suggests that the speed of adjustment (error correction mechanism) to the long run equilibrium is low with the appropriate negative sign as is required for dynamic stability. This agrees with the validity of an equilibrium relationship among the variables in the cointegrating equation. Specifically, about 5% of the disequilibrium errors which occurred in the previous period are corrected in the current period. The short run adjustment model suggest that past changes in remittances, real agricultural GDP and exchange rate are positively related to the current changes in remittances and are statistically significant. While past changes in inflation is negatively related to the current changes in remittances and is statistically significant, this is consistent with the findings of Aydas et al. (2005). This means that in the short run a rise in inflation in the last period will be followed by a decrease in remittances in the current period. This finding supports the investment motive for remitting. The implication of this result is that high inflation rates (indicating worsening economic conditions in Nigeria) make migrants lose confidence in the economy.

Mbutor, (2010) inferred from his study on the role of monetary policy in enhancing remittances for economic growth in Nigeria that economic prosperity is an important inducement for remittances to flow to Nigeria. For LEXCH, the result means that in the short run an increase in exchange rate (depreciation) in the last period will be followed by an increase in remittances in the current period. This supports both the altruistic and investment motives for remitting and is

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[5](Bouhga-Hagbe, 2004, 2006) The exchange rate can have both a positive and a negative effect on the level of migrant remittances. Given the degree of attachment to the family in the home country and depreciation of currency, the migrant is better-off as his/her income increases in the domestic currency, thereby encouraging him/her to buy more goods (including real estates) and services in home country

consistent with the results of Bouhga-Hagbe (2004[5]) and Barua et al (2007). These results suggest that exchange rate policy (devaluations, changes in parity or the parity premium, etc.) have a positive impact on remittances by Nigerian residents abroad.

On the other hand, a change in agricultural GDP results in a change in remittances in the same direction. Real agricultural GDP which is used as a measure of hardship and is used as a proxy for stock of migrant workers abroad indicates that in the short run an increase in real agricultural GDP in the last period will be followed by an increase in remittances in the current period. This means that as hardship increases, remittances will also increase. This is consistent with the altruistic motive for remittances and the findings of Elkhider et al (2008) and Bouhga-Hagbe (2004). We can therefore conclude that real agricultural GDP, exchange rate and inflation determine remittance inflow in Nigeria and are driven by both investment and altruistic motives.

4.3.3 Impulse Response and Variance Decomposition Analysis

The purpose of this level of the analysis is to examine the respective contributions for the different shock fluctuations in remittances (LREMIT) and the explanatory variables (LEXCH, LINFL and LAGRIGDP). In order to highlight the internal dynamics of this four-variable system, we considered the response functions of the variables to different shocks by considering the impulse response to generalized one standard deviation (SD) innovations in the variables within a 10 quarter period. Table 4.6 and figure 4.1 below (see table 8 and figure 3 of the appendix) shows the impulse response to generalized one standard deviation (SD) innovations in the variables within a 10 quarter period. The responses are for a particular variable to a one-time shock. From table 4.6, it is observed that remittances do not respond to a shock in LAGRIGDP, LEXCH and LINFL in the first period, remittances only starts responding to shocks from the second period and the response of remittances to a shock in LAGRIGDP and LEXCH are consistently negative from the second period while that of LREMIT to itself and LINFL is positive with the exception of period 2 which is negative for LINFL. A shock to LREMIT itself does not lead to an immediate decline in remittances in the country, this implies that a shock to remittances will not have a negative impact on remittances in the short run but in the long run remittances will decline, this implies that in the long run conditions in destination countries do have impact on remittance inflow into Nigeria. A shock to LAGRIGDP and LEXCH is followed

Table 4.6: Impulse Response to Generalized One S.D. Innovations

Response of LREMIT:				
Period	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	**0.0665**	**0.0000**	**0.0000**	**0.0000**
2	**0.1473**	**-0.0232**	**-0.0182**	**-0.0056**
4	**0.2340**	**-0.1130**	**-0.0926**	**0.0328**
6	**0.2043**	**-0.1898**	**-0.1731**	**0.1024**
8	**0.1423**	**-0.2075**	**-0.2146**	**0.1411**
10	**0.1147**	**-0.1830**	**-0.2088**	**0.1391**
Response of LAGRIGDP:				
Period	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	**-0.0211**	**0.1228**	**0.0000**	**0.0000**
2	**-0.0259**	**0.0951**	**-0.0043**	**0.0234**
4	**-0.0073**	**0.0202**	**-0.0341**	**0.0009**
6	**-0.0390**	**0.0644**	**-0.0139**	**0.0297**
8	**-0.0247**	**0.0410**	**-0.0283**	**0.0073**
10	**-0.0329**	**0.0622**	**-0.0119**	**0.0187**

Response of LEXCH:				
Period	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	**-0.0114**	**-0.0574**	**0.1851**	**0.0000**
2	**-0.0187**	**-0.0790**	**0.1643**	**0.0049**
4	**-0.0588**	**-0.0850**	**0.1437**	**0.0142**
6	**-0.0991**	**-0.0874**	**0.1459**	**0.0192**
8	**-0.1104**	**-0.0567**	**0.1656**	**0.0081**
10	**-0.0938**	**-0.0484**	**0.1803**	**-0.0092**

Response of LINFL:

Period	LREMIT	LAGRIGDP	LEXCH	LINFL
1	**-0.0106**	**0.0004**	**0.0007**	**0.0261**
2	**-0.0095**	**-0.0044**	**-0.0030**	**0.0232**
4	**-0.0034**	**-0.0050**	**-0.0126**	**0.0210**
6	**-0.0008**	**-0.0047**	**-0.0120**	**0.0234**
8	**0.0021**	**-0.0067**	**-0.0148**	**0.0229**
10	**0.0007**	**-0.0094**	**-0.0164**	**0.0257**

by a persistent decline in remittances from the second period but of low magnitudes. For a shock in LINFL, remittances will remain unchanged in the first period but will impact negatively on remittances in the second period after which it becomes positive but not persistent and of low magnitude. Though this is of no interest to this study, we note that the response of LAGRIGDP, LEXCH and LINFL to a shock to remittances show that a shock to remittances is followed by a decline in LAGRIGDP, LEXCH and LINFL. In the case of LAGRIGDP and LEXC, it is persistent while for LINFL it is not persistent and becomes positive in the seventh quarter.

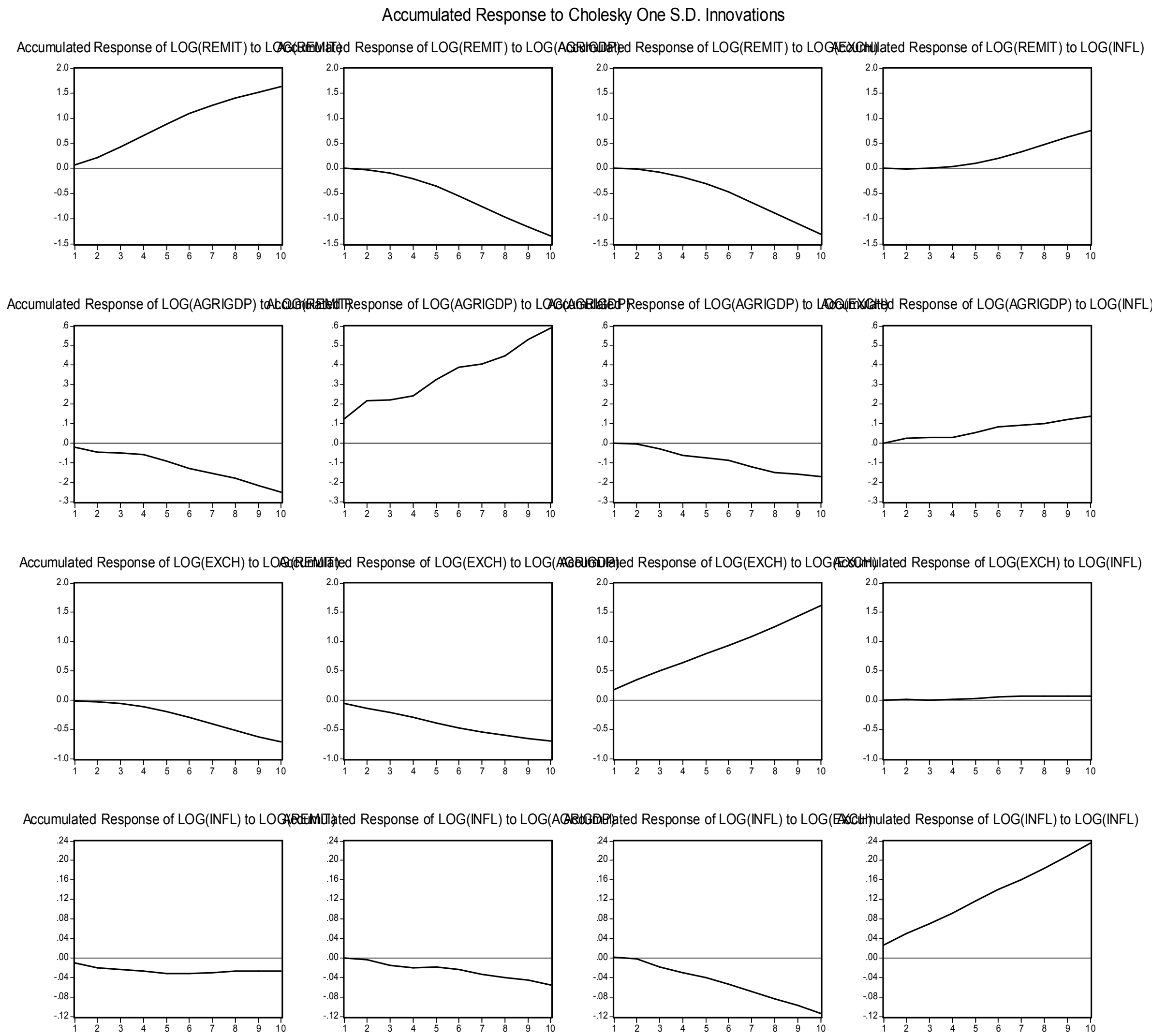

Figure 4.2: Accumulated Response to Generalized one S.D Innovation

4.3.4 Variance Decomposition

In order to further highlight the internal dynamics of this four-variable system, we conducted a decomposition variance analysis of forecasting errors. The forecast variance decomposition gives information on the dynamic behavior of the four-variable model. It decomposes historical variations in the variables and attributes the same to the effect of all the variables in the model.

The full estimate of the findings of the variance decomposition is reported in table 9 of the appendix.

Table 4.7: Variance Decomposition

Variance Decomposition of LREMIT:					
Period	**S.E.**	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	0.066488	100.0000	0.000000	0.000000	0.000000
2	0.164411	96.66722	1.991609	1.223124	0.118043
4	0.393841	80.10435	11.51806	7.646003	0.731593
6	0.609938	58.61876	20.88473	16.07184	4.424669
8	0.794770	42.46067	26.03756	23.20289	8.298886
10	0.928264	34.36740	27.41331	27.44556	10.77373
Variance Decomposition of LAGRIGDP:					
Period	**S.E.**	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	0.124619	2.875076	97.12492	0.000000	0.000000
2	0.160680	4.330988	93.48653	0.070446	2.112040
4	0.167541	4.214024	87.45327	6.330815	2.001895
6	0.209771	8.928905	81.68630	4.835619	4.549180
8	0.221618	10.30915	77.17463	8.099009	4.417214
10	0.251256	11.99963	76.68934	6.682225	4.628802

Variance Decomposition of LEXCH:					
Period	**S.E.**	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	0.194144	0.345448	8.749735	90.90482	0.000000
2	0.267024	0.670958	13.37660	85.91876	0.033684
4	0.362550	3.701987	17.42311	78.65887	0.216033
6	0.456744	10.37997	18.54302	70.56297	0.514040
8	0.540576	15.57946	16.12128	67.84972	0.449550
10	0.616398	17.14280	13.68609	68.80267	0.368437

Variance Decomposition of LINFL:					
Period	**S.E.**	**LREMIT**	**LAGRIGDP**	**LEXCH**	**LINFL**
1	0.028156	14.14683	0.021108	0.068377	85.76368
2	0.038089	13.88819	1.360232	0.676479	84.07510
4	0.054309	7.886414	6.077073	14.46067	71.57584
6	0.066300	5.691818	4.614830	15.33066	74.36269
8	0.077580	4.359036	5.934874	18.89659	70.80950
10	0.088965	3.323093	5.857568	20.31507	70.50427

Cholesky Ordering LREMIT LAGRIGDP LEXCH LINFL

The variance decomposition of LREMIT shows that a shock of remittances on itself constitutes a major and significant source of variation declining from 100% in the first period to 96.7% in the second period and declines rapidly to 34% in period 10, suggesting that ΔREMIT is persistent. This confirms the result of the impulse response that conditions in destination countries do have impact on remittance inflow into Nigeria. Neither LAGRIGDP, LEXCH nor LINF contribute significantly to variations in LREMIT in period two, while LINFL explains less than 1% up to period 4 and only 10% of LREMIT in period 10. This implies that hardship (stock of migrant workers abroad) and exchange rate influences remittance inflow to Nigeria in the long run more than inflation, that is not to say that inflation does not influence remittance inflow into the country.

A shock to LAGRIGDP shows LREMIT constitute a predominant source of LAGRIGDP variation explaining 12% of real agricultural GDP in period 1 and increasing to 25% in period 10. While a shock to LEXCH shows LREMIT do not contribute significantly to exchange rate variation in the short run, contributing less than 1% and 3.7% in periods 2 and 3 respectively, however in the long run remittances constitutes a predominant source of exchange rate fluctuations contributing 10%, 16% and 17% in period 6, 8 and 10 respectively. Also variance decomposition of LINFL shows that LREMIT constitutes a predominant source of variation in inflation in the short run contibuting14% in period 1, this is consistent with the theory of money supply that an increase in money supply will push prices up, however its effect dies down or declines in the long run dropping to 3% in period 10. This suggests that remittances affects inflation more in the short run than in the long run.

Overall the results of the VEC, impulse response and variance decomposition confirms that real agricultural GDP, exchange rate and inflation determine remittance inflow in Nigeria. The impulse response and variance decomposition analyses are consistent and suggest that that real agricultural GDP used as a measure of hardship (as a proxy for emigration rate) and exchange rate have long run effect on remittance inflow to Nigeria while inflation affects remittances more in the short run; inflow of remittances cause inflation to go up in the short run which then causes remittances to decline. Also conditions in destination countries do have impact on remittance inflow into Nigeria and that remittances are driven by both investment and altruistic motives

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

The main goal of this study was to investigate the impact of remittances on economic growth and its macroeconomic determinants in Nigeria using quarterly data from 1996-2009. In chapter one, the study traced Nigeria economic growth performance over the years and its effect on migration, a situation that has led to huge volumes of remittance inflow into the country. We reviewed some growth theories, migration theories, some macroeconomic determinants of remittances, the size of remittances and remittances institutions amongst others in chapter two. We observed that there are several push and pull factors forcing migration in Nigeria and pulling migrants into distination countries. Chapter three discussed the methodology adopted in order to empirically test our hypothesis. The study used the Ordinary Least Square (OLS) and the Vector Error Correction (VEC) for its analysis.

Major Findings

1. Remittances have a positive and significant impact on economic growth in Nigeria.
2. Real agricultural GDP, exchange rate and inflation are determinants of remittances in Nigeria.
3. There is a long run relationship between remittances and its determinants.
4. Based on the results we have achieved, the most plausible explanation for remittances from Nigerian residents abroad are investment and altruism motives.

5.2 CONCLUSION

This study undertook an empirical investigation of the impact of remittances on economic growth and the macroeconomic determinants of remittances in Nigeria. According to Gupta et al. (2007) cited in Bichaka and Christain (2008) "remittances are neither a panacea nor a substitute for a sustained and domestically engineered development endeavor for curing the problems of low- income countries". Furthermore, large-scale migration could have a catastrophic effect on domestic labor markets in specific sectors such as higher education, government services, science and technology, manufacturing and services, especially where those migrating to other countries are largely skilled workers who are difficult and expensive to replace. However in the case of Nigeria, in the face of mass unemployment migration could help ease the load on the domestic labor markets.

In this light, migrant transfers in the form of remittances can ease the immediate budget constraints of families by bolstering crucial spending needs on food, health care, and are also a valuable resource that provides access to education for children who otherwise would have left school for lack of means. Although individual amounts of remittances might be negligible, but their cumulative sum adds up to substantial amounts which should contribute significantly towards foreign currency build-up (Singh and Sausi, 2010) and ultimately impact on economic growth. Nigeria therefore, needs to pay more attention on policies that have the capacity to harness the benefits of remittances for economic development.

5.3 RECOMMENDATIONS

Policy implications that may be drawn from this study is that Nigeria can improve her economic growth performance, not only by investing on the traditional sources of growth such as human capital, trade, foreign direct investment e.t.c, but also by strategically harnessing the contributions of remittances. Firstly since there is a long run relationship between remittances and its determinants, these macroeconomic variables should be influenced positively to encourage remittance inflow into Nigeria. Also remittances inflow should be directed towards investment channels by increasing investment opportunities in the country. Finally to harness fully the benefits of remittances, formal channels of remitting which are efficient, reliable and goes down to the rural communities should be encouraged so it provides a source of foreign exchange which can be used for development financing.

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APPENDIX

Table 1: Result of Ordinary Least Square (OLS) for Model one

Dependent Variable: D(GDP)
Method: Least Squares
Date: 11/21/11 Time: 10:59
Sample(adjusted): 1996:2 2009:4
Included observations: 55 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1937.852	1036.805	1.869061	0.0680
D(REMIT)	0.011251	0.004887	2.302297	0.0259
D(GCF)	-139.3420	5.004067	-27.84574	0.0000
D(AID)	0.969913	0.169214	5.731873	0.0000
ENR-1	0.026422	0.008346	3.165905	0.0027
D(FDI)	-0.250482	0.103139	-2.428595	0.0191
D(BOP)	-0.006572	0.002064	-3.184782	0.0026
D(INV)	0.049421	0.005796	8.527421	0.0000
D(PRI)	1925.547	1852.217	1.039590	0.3040

R-squared	0.946116	Mean dependent var	2444.196
Adjusted R-squared	0.936745	S.D. dependent var	15524.25
S.E. of regression	3904.425	Akaike info criterion	19.52619
Sum squared resid	7.01E+08	Schwarz criterion	19.85466
Log likelihood	-527.9702	F-statistic	100.9613
Durbin-Watson stat	1.739187	Prob(F-statistic)	0.000000

Figure 1: Trend of Foreign Capital Included in the Model

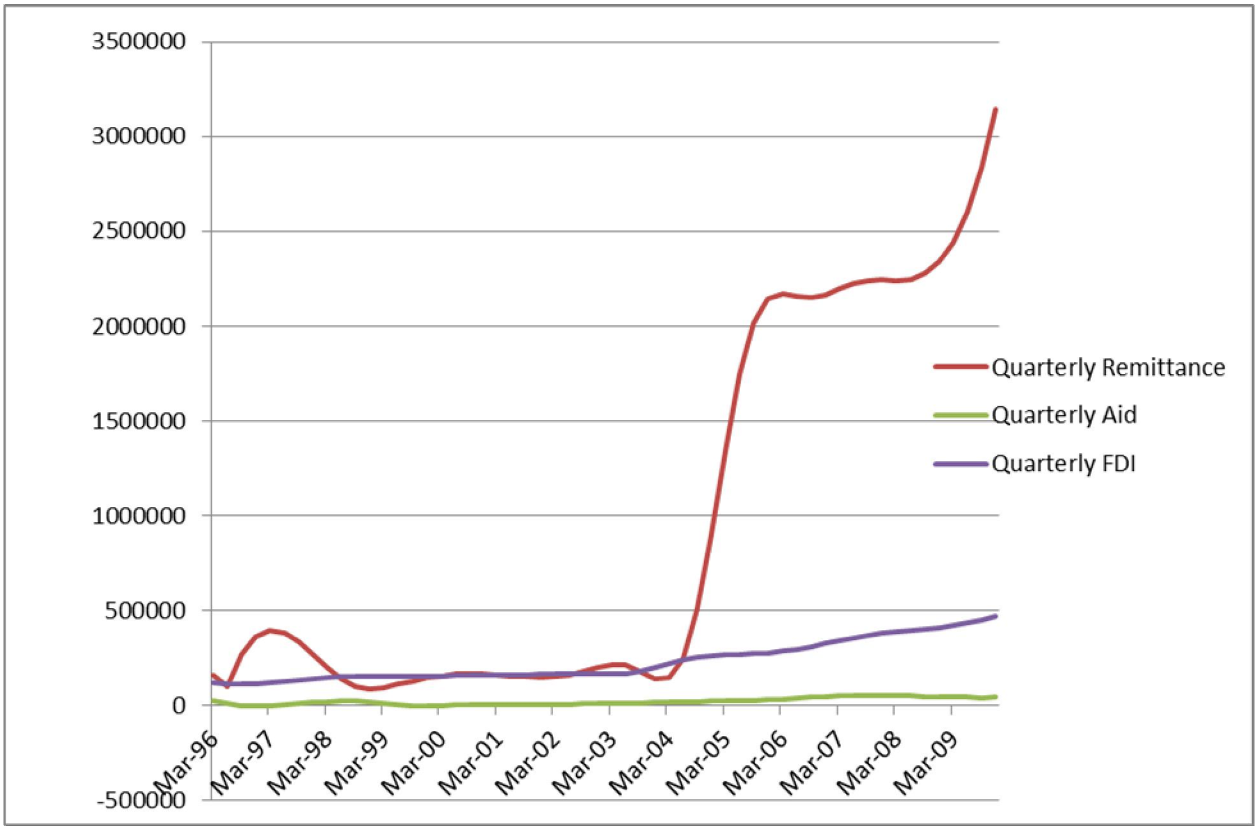

Table 2: VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: D(REMIT) D(AGRIGDP) D(EXCH) D(INFL)
Exogenous variables: C
Date: 11/22/11 Time: 09:32
Sample: 1996:1 2009:4
Included observations: 51

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1541.800764	NA	2.49E+21	60.61964	60.77115	60.67754
1	-1485.548165	101.4753	5.16E+20	59.04110	59.79868	59.33060
2	-1401.746177	138.0268	3.66E+19	56.38220	57.74584	56.90329
3	-1347.833262	80.34081	8.53E+18	54.89542	56.86513	55.64810
4	-1315.497899	43.11382*	4.77E+18*	54.25482*	56.83059*	55.23910*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion

Table 3: VAR Stability Check for Lag 1 4

Roots of Characteristic Polynomial
Endogenous variables: D(REMIT) D(AGRIGDP) D(EXCH) D(INFL)
Exogenous variables: C
Lag specification: 1 4
Date: 11/22/11 Time: 09:35

Root	Modulus
0.017745 + 1.019239i	1.019394
0.017745 - 1.019239i	1.019394
-1.000871	1.000871
0.702252 - 0.554069i	0.894511
0.702252 + 0.554069i	0.894511
0.865433 - 0.183702i	0.884715
0.865433 + 0.183702i	0.884715
-0.786785	0.786785
0.178948 + 0.734323i	0.755812
0.178948 - 0.734323i	0.755812
0.722946	0.722946
0.510413 + 0.482745i	0.702542
0.510413 - 0.482745i	0.702542
-0.261897 - 0.419206i	0.494291
-0.261897 + 0.419206i	0.494291
-0.432903	0.432903

Warning: At least one root outside the unit circle.
VAR does not satisfy the stability condition.

Table 4: VAR Stability Check for Lag 1 2

Roots of Characteristic Polynomial
Endogenous variables: D(REMIT) D(AGRIGDP) D(EXCH) D(INFL)
Exogenous variables: C
Lag specification: 1 2
Date: 11/22/11 Time: 10:01

Root	Modulus
0.877994 - 0.369114i	0.952427
0.877994 + 0.369114i	0.952427
-0.015766 - 0.950600i	0.950730
-0.015766 + 0.950600i	0.950730
-0.624154	0.624154
0.448917	0.448917
0.011022 - 0.199800i	0.200104
0.011022 + 0.199800i	0.200104

No root lies outside the unit circle.
VAR satisfies the stability condition.

Figure 2: VAR Stability Check for Lag 1 2

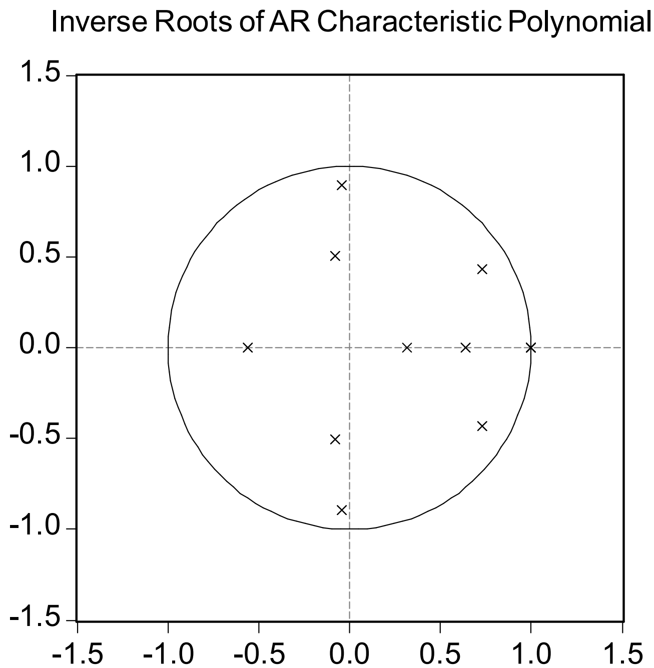

Table 5: VAR Residual Serial Correlation LM Tests
H0: no serial correlation at lag order h
Date: 11/22/11   Time: 09:38
Sample: 1996:1 2009:4
Included observations: 52

Lags	LM-Stat	Prob
1	40.12645	0.0007
2	27.67633	0.0346
3	14.65306	0.5502
4	38.93794	0.0011
5	14.81659	0.5381
6	18.19864	0.3124
7	12.16591	0.7325
8	29.75433	0.0193
9	15.16072	0.5129
10	15.83132	0.4648
11	13.06795	0.6678
12	19.47703	0.2447

Probs from chi-square with 16 df.

Table 6: Johansen's Cointergration Test

Date: 11/23/11 Time: 11:24
Sample(adjusted): 1996:4 2009:4
Included observations: 53 after adjusting endpoints
Trend assumption: Linear deterministic trend
Series: REMIT AGRIGDP EXCH INFL
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.555830	66.06327	47.21	54.46
At most 1	0.244843	23.05128	29.68	35.65
At most 2	0.142514	8.167307	15.41	20.04
At most 3	0.000349	0.018517	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Trace test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	5 Percent Critical Value	1 Percent Critical Value
None **	0.555830	43.01199	27.07	32.24
At most 1	0.244843	14.88398	20.97	25.52
At most 2	0.142514	8.148790	14.07	18.63
At most 3	0.000349	0.018517	3.76	6.65

*(**) denotes rejection of the hypothesis at the 5%(1%) level
Max-eigenvalue test indicates 1 cointegrating equation(s) at both 5% and 1% levels

Normalized cointegrating coefficients (standard error in parentheses)

D(LREMIT)	D(LAGRGDP)	D(EXCH)	D(INF)	@TREND(96 Q2)
1.000000	491.3879	32736.52	86183.81	-11928.11
	(27.6709)	(30279.9)	(59374.1)	(13981.9)

Table 7:Vector Error Correction Estimates
Date: 11/23/11 Time: 11:39
Sample(adjusted): 1996:4 2009:4
Included observations: 53 after adjusting endpoints
Standard errors in ( ) & t-statistics in [ ]

Cointegration Restrictions:
B(1,3)=1
Convergence achieved after 1 iterations.
Restrictions identify all cointegrating vectors
Restrictions are not binding (LR test not available)

Cointegrating Eq:	CointEq1
LOG(REMIT(-1))	1.994298
	(0.25128)
	[7.93656]
LOG(AGRIGDP(-1))	11.32630
	(1.54100)
	[7.34996]
LOG(EXCH(-1))	1.000000
LOG(INFL(-1))	-16.37625
	(1.56639)
	[-10.4548]
C	-75.52165

Error Correction:	D(LREMIT)	D(LAGRIGDP)	D(LEXCH)	D(LINFL)
CointEq1	-0.053170	-0.066158	-0.013787	-0.005226
	(0.00884)	(0.01428)	(0.01799)	(0.00333)
	[-6.01391]	[-4.63271]	[-0.76630]	[-1.57035]
D(LREMIT(-1)	0.745895	0.114381	-0.068493	0.000966
	(0.05900)	(0.09530)	(0.12006)	(0.02221)
	[12.6425]	[1.20025]	[-0.57049]	[0.04350]
D(LAGRIGDP(-1)	0.311843	0.159967	-0.009158	-0.025456
	(0.09193)	(0.14850)	(0.18708)	(0.03460)
	[3.39204]	[1.07726]	[-0.04895]	[-0.73565]
D(LEXCH(-1)	0.027925	0.016212	-0.000622	-0.017108
	(0.07194)	(0.11621)	(0.14640)	(0.02708)

	[0.38816]	[0.13951]	[-0.00425]	[-0.63177]
D(LINFL(-1)	-1.498429	0.658763	-0.159164	-0.064626
	(0.43366)	(0.70047)	(0.88247)	(0.16323)
	[-3.45530]	[0.94046]	[-0.18036]	[-0.39593]
C	0.030805	-0.007235	0.045001	0.028867
	(0.01729)	(0.02793)	(0.03519)	(0.00651)
	[1.78137]	[-0.25901]	[1.27883]	[4.43514]
R-squared	0.784373	0.404459	0.034255	0.124409
Adj. R-squared	0.761434	0.341104	-0.068483	0.031261
Sum sq. resids	0.434802	1.134400	1.800482	0.061598
S.E. equation	0.096183	0.155358	0.195725	0.036202
F-statistic	34.19373	6.383980	0.333423	1.335603
Log likelihood	52.07990	26.66724	14.42556	103.8680
Akaike AIC	-1.738864	-0.779896	-0.317946	-3.693132
Schwarz SC	-1.515812	-0.556844	-0.094894	-3.470080
Mean dependent	0.046423	0.021777	0.036218	0.026000
S.D. dependent	0.196921	0.191393	0.189348	0.036782
Determinant Residual Covariance		8.04E-09		
Log Likelihood		205.8569		
Log Likelihood (d.f. adjusted)		193.1216		
Akaike Information Criteria		-6.231004		
Schwarz Criteria		-5.190095		

Table 8: Impulse Response to Generalized one S.D Innovation

Response of L(REMIT):

Period	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	0.066488	0.000000	0.000000	0.000000
2	0.147341	-0.023202	-0.018183	-0.005649
3	0.208296	-0.067543	-0.054363	0.005284
4	0.233951	-0.112984	-0.092595	0.032786
5	0.228211	-0.154311	-0.134080	0.069562
6	0.204317	-0.189786	-0.173072	0.102407
7	0.172825	-0.209052	-0.201739	0.126656
8	0.142347	-0.207533	-0.214647	0.141132
9	0.121512	-0.195619	-0.215203	0.145100
10	0.114728	-0.182969	-0.208843	0.139138

Response of L(AGRIGDP):

Period	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)

1	-0.021130	0.122814	0.000000	0.000000
2	-0.025917	0.095148	-0.004265	0.023351
3	-0.003405	0.002205	-0.024449	0.003974
4	-0.007287	0.020168	-0.034075	0.000922
5	-0.035003	0.085161	-0.012565	0.023679
6	-0.039000	0.064378	-0.013889	0.029651
7	-0.022867	0.016768	-0.032407	0.010683
8	-0.024725	0.040960	-0.028279	0.007319
9	-0.037793	0.081469	-0.009951	0.020079
10	-0.032920	0.062231	-0.011902	0.018694

Response of L(EXCH):

Period	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	-0.011411	-0.057428	0.185104	0.000000
2	-0.018660	-0.078993	0.164311	0.004901
3	-0.030409	-0.078389	0.146573	-0.007721
4	-0.058846	-0.084963	0.143686	0.014154
5	-0.083490	-0.090201	0.150129	0.020518
6	-0.099084	-0.087442	0.145862	0.019168
7	-0.108108	-0.072216	0.153753	0.013252
8	-0.110386	-0.056668	0.165610	0.008106
9	-0.103981	-0.050429	0.174983	-0.000835
10	-0.093780	-0.048443	0.180339	-0.009245

Response of L(INFL):

Period	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	-0.010590	0.000409	0.000736	0.026075
2	-0.009452	-0.004423	-0.003045	0.023234
3	-0.004391	-0.011598	-0.016027	0.021230
4	-0.003442	-0.004999	-0.012642	0.020992
5	-0.004126	0.001217	-0.010156	0.024710
6	-0.000753	-0.004705	-0.012010	0.023390
7	0.002747	-0.010469	-0.015542	0.021600
8	0.002147	-0.006689	-0.014895	0.022944
9	0.000333	-0.004349	-0.014247	0.025672
10	0.000743	-0.009355	-0.016359	0.025680

Cholesky Ordering: LOG(REMIT) LOG(AGRIGDP) LOG(EXCH) LOG(INFL)

Figure 3: Accumulated Response to Generalized one S.D Innovation

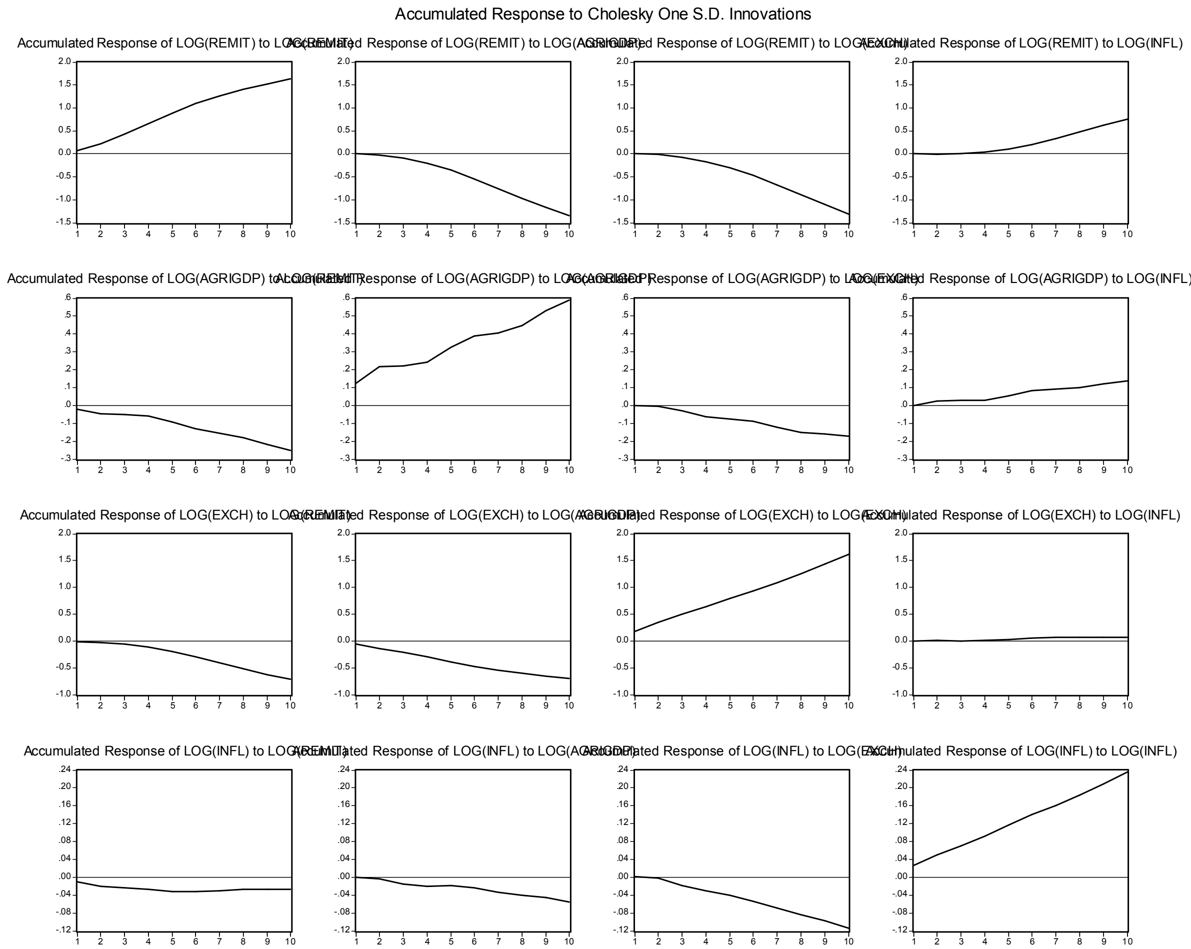

Table 9: Variance Decomposition

Variance Decomposition of L(REMIT):

Period	S.E.	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	0.066488	100.0000	0.000000	0.000000	0.000000
2	0.164411	96.66722	1.991609	1.223124	0.118043
3	0.279219	89.16637	6.542099	4.214786	0.076744
4	0.393841	80.10435	11.51806	7.646003	0.731593
5	0.503804	69.47096	16.42023	11.75532	2.353493
6	0.609938	58.61876	20.88473	16.07184	4.424669
7	0.708756	49.35832	24.16689	20.00452	6.470271
8	0.794770	42.46067	26.03756	23.20289	8.298886
9	0.867213	37.62637	26.95743	25.64636	9.769840
10	0.928264	34.36740	27.41331	27.44556	10.77373

Variance Decomposition of L(AGRIGDP):

Period	S.E.	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	0.124619	2.875076	97.12492	0.000000	0.000000
2	0.160680	4.330988	93.48653	0.070446	2.112040
3	0.162629	4.271654	91.27804	2.328864	2.121441
4	0.167541	4.214024	87.45327	6.330815	2.001895
5	0.193044	6.461792	85.33354	5.192228	3.012441
6	0.209771	8.928905	81.68630	4.835619	4.549180
7	0.214411	9.684040	78.80030	6.913032	4.602625
8	0.221618	10.30915	77.17463	8.099009	4.417214
9	0.240171	11.25408	77.21813	7.067703	4.460091
10	0.251256	11.99963	76.68934	6.682225	4.628802

Variance Decomposition of L(EXCH):

Period	S.E.	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	0.194144	0.345448	8.749735	90.90482	0.000000
2	0.267024	0.670958	13.37660	85.91876	0.033684
3	0.316093	1.404314	15.69597	82.81602	0.083699
4	0.362550	3.701987	17.42311	78.65887	0.216033
5	0.411714	6.982881	18.31032	74.29093	0.415874
6	0.456744	10.37997	18.54302	70.56297	0.514040
7	0.499333	13.37231	17.60641	68.52076	0.500526
8	0.540576	15.57946	16.12128	67.84972	0.449550
9	0.579825	16.75766	14.76903	68.08236	0.390956
10	0.616398	17.14280	13.68609	68.80267	0.368437

Variance Decomposition of L(INFL):

Period	S.E.	L(REMIT)	L(AGRIGDP)	L(EXCH)	L(INFL)
1	0.028156	14.14683	0.021108	0.068377	85.76368
2	0.038089	13.88819	1.360232	0.676479	84.07510
3	0.048085	9.547975	6.671248	11.53449	72.24629
4	0.054309	7.886414	6.077073	14.46067	71.57584
5	0.060677	6.780305	4.908637	14.38604	73.92502
6	0.066300	5.691818	4.614830	15.33066	74.36269
7	0.072257	4.936713	5.984508	17.53423	71.54455
8	0.077580	4.359036	5.934874	18.89659	70.80950
9	0.083064	3.804000	5.451108	19.42541	71.31948
10	0.088965	3.323093	5.857568	20.31507	70.50427

Cholesky Ordering: L(REMIT) L(AGRIGDP) L(EXCH) L(INFL)

Table 10: VEC Residual Normality Tests
Orthogonalization: Cholesky (Lutkepohl)
H0: residuals are multivariate normal
Date: 11/29/11 Time: 13:31
Sample: 1996:1 2009:4
Included observations: 53

Component	Skewness	Chi-sq	df	Prob.
1	0.172401	0.262544	1	0.6084
2	-0.526780	2.451226	1	0.1174
3	3.441499	104.6212	1	0.0000
4	0.162780	0.234060	1	0.6285
Joint		107.5691	4	0.0000

Component	Kurtosis	Chi-sq	df	Prob.
1	2.139539	1.635036	1	0.2010
2	3.027296	0.001645	1	0.9676
3	19.82973	625.4878	1	0.0000
4	1.632572	4.129271	1	0.0421
Joint		631.2538	4	0.0000

Component	Jarque-Bera	Df	Prob.
1	1.897580	2	0.3872
2	2.452872	2	0.2933
3	730.1091	2	0.0000
4	4.363331	2	0.1129
Joint	738.8229	8	0.0000

Figure 4: VEC Residual Normality Graph

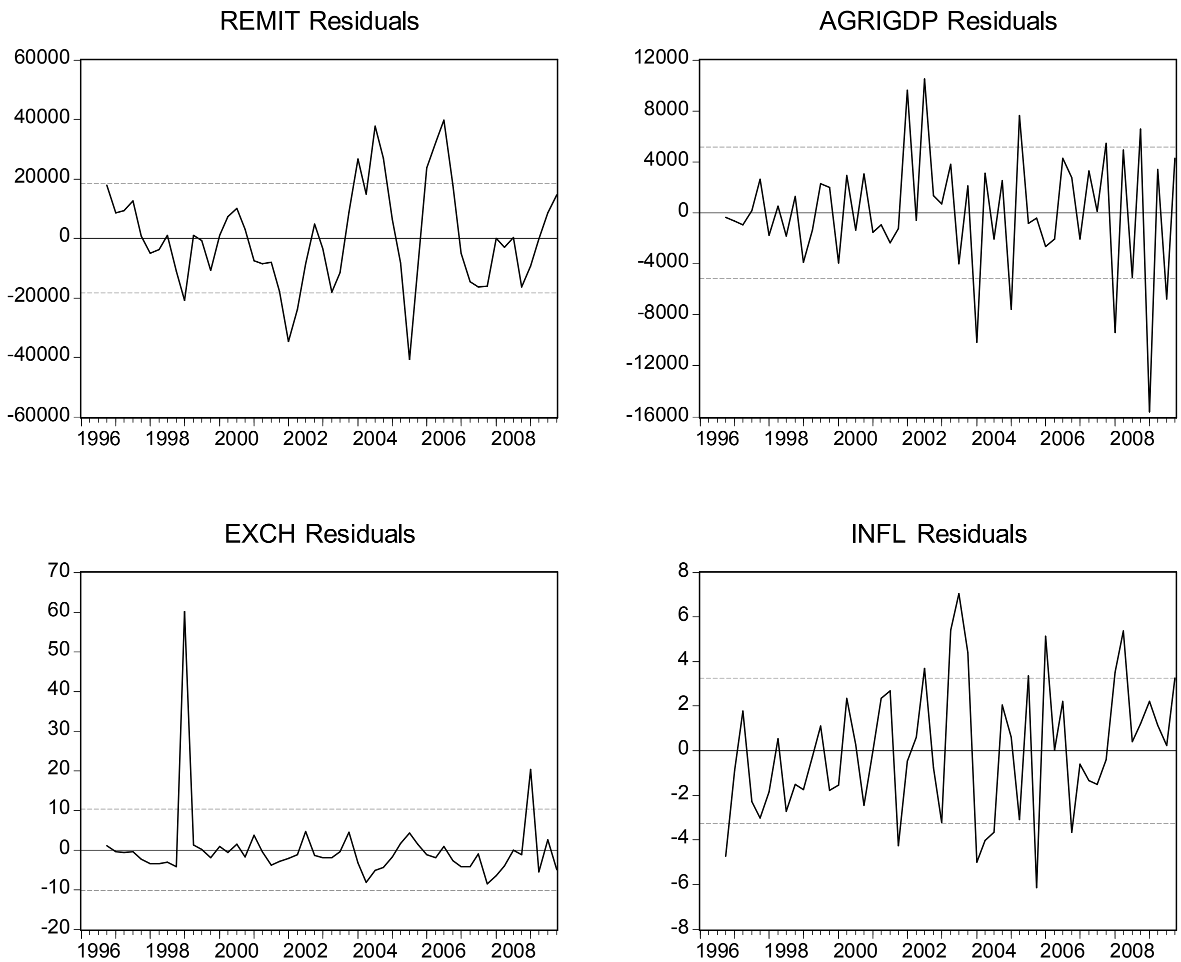

Table 2.2: No of branches in each state of some randomly selected banks

States	Access bank	Skye bank	Wema Bank	Fedelity bank	First bank	GTB bank	Bank PHB	Union bank	Unity bank	Inter-continetal	No of LGA/State
Abia	2	2	1	5	18	3	5	13	4	8	18
Adamawa	1	1	1	1	13	3	3	9	5	1	19
Akwa-ibom	1	3	2	2	13	2	4	12	2	5	30
Anambra	3	5	1	16	27	3	9	15	5	31	21
Bauchi	1	1	1	1	11	2	2	8	4	3	19
Bayelsa	1	2	1	2	3	1	2	2	1	2	8
Benue	1	1	1	1	9	2	3	9	7	4	23
Borno	1	2	1	1	8	3	2	9	6	4	27
Cross-river	2	1	1	1	16	3	1	5	1	4	18
Delta	2	3	2	8	18	3	11	12	11	8	25
Ebonyi	1	-	-	2	5	1	2	3	-	1	12
Edo	4	1	4	6	24	7	9	8	8	11	14
Ekiti	1	2	8	1	9	1	1	4	2	4	16
Enugu	2	2	1	3	18	4	4	8	1	11	16
Gombe	2	1	1	1	4	1	1	5	4	3	10
Imo	1	1	1	4	12	4	5	7	1	7	27
Jigawa	1	2	-	1	2	1	2	2	11	3	26
Kaduna	1	4	4	4	13	6	14	14	17	8	23
Kano	2	4	-	4	12	6	7	13	24	15	14
Katsina	1	1	1	1	5	1	7	5	7	3	34
Kebbi	1	1	-	1	5	1	2	5	5	3	21
Kogi	2	2	1	2	18	3	3	8	6	4	21
Kwara	1	3	2	-	7	4	2	11	3	4	16
Lagos	38	66	15	61	110	61	59	73	35	102	55
Nassarawa	1	1	-	1	1	2	4	3	5	1	13
Niger	2	1	1	1	10	2	7	7	8	4	25
Ogun	2	9	15	2	12	6	4	9	1	14	20
Ondo	1	10	10	1	10	1	2	9	4	5	18
Osun	1	10	15	1	13	3	2	7	2	7	30
Oyo	3	16	15	4	6	8	6	13	4	19	33
Plateau	1	2	1	1	-	2	2	8	6	3	17
Rivers	7	12	4	13	14	8	11	8	9	18	22
Sokoto	1	2	1	1	5	1	1	3	8	5	23
Taraba	1	1	-	1	6	2	1	6	3	1	16
Yobe	-	1	-	1	4	1	2	3	3	2	17
Zamfara	1	1	-	1	7	1	1	1	3	4	14
FCT	8	17	7	10	22	12	18	10	15	23	6

Source: Authors compilation from individual bank website and waado.org/NigerDelta/Nigeria.../States_LocalGovtAreas