GLOBAL FINANCIAL CRISIS AND AGRARIAN HOUSEHOLDS' INCOME, REMITTANCE AND PRICES IN RURAL NIGERIA AMID POLICY RESPONSES

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ABSTRACT

The recent global financial crisis affected almost all aspect of human life. This paper explored effects of the global financial crisis on farmers' income, remittance and prices of food staples and highlighted certain government policy responses. The study was conducted in Nigeria. Secondary data were used. Data were analyzed using descriptive statistics, equivalent variation and Shannon index analysis. Results showed the global financial crisis affected the agrarian households/sector in Nigeria. The increase in prices meant more nominal income to farmers but grossly reduced their welfare due to decrease in real income as result of high inflation trend. Recommendations include that government should continue to sustain agrarian programs aimed at helping poor farmers to increase their capacity in production to meet the growing demand and changes.

KEY WORDS

Agrarian Households; Financial Crisis; Income; Remittance; Prices; Responses; rural Nigeria.

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The world is fast consolidating on its new name 'global village'. The experiences caused by the current global financial crisis illustrated this fact beyond doubt. This current global financial crisis, which was triggered by the credit crunch within the United States (US) sub-prime mortgage market, has continued to spread and its effects deepen in several countries. The economic downturn in developed countries may thus, have significant impact on devel-oping countries through trade, net foreign direct investment (FDI) inflow and remittances as well as financial contagion and spillovers for stock can affect the volume of investable income in developing countries. Countries around the world have approached this whirlwind pragmatically, prompting emergency funding support for relevant sectors, thereby mitigating the impact of the crisis on economies as well as avoiding the entire collapse of the international financial system. In spite of such support, some countries have been officially declared as in recession, owing to a monumental decline in their wealth, manifesting itself in falling productive capacity, growth, employment and welfare (Olu Ajakaiye and 'Tayo Fakiyesi, 2009). Evidences are required to illustrate the magnitude of the transmission of the crisis to less developed countries. A number of studies such as those by Olu Ajakaiye and 'Tayo Fakiyesi, (2009) and Dirk Willem te Velde (2008) have examined the transmission at macro level. But what is happening at micro or household level? Which transmission channel has direct effect on agrarian households?

Each of the channels of transmission such as remittance, migration and so on needs to be monitored, as changes in these economic variables can have direct consequences for growth and development. Depending on policy responses, countries can mitigate the effects on downstream sectors. The impact on developing countries will vary due to their different circumstances and capacities. The actual effects in developing countries will depend on the responses in developed countries to the financial crisis and the slowdown; the economic characteristics and policy responses, in developing countries. Research is needed to examine the effects in many countries across sectors, firms and household.

The broad objective of the study was to examine effects of the global financial crisis on income and remittance of farmers as well as prices of few major food staples and highlight certain policy responses aimed at helping the agrarian household to stomach the crisis in Nigeria. Specifically, the study aimed at describing (i) sources of income to agrarian households, (ii) emerging trend on remittance, (iii) the crisis effects on food staple prices and human welfare; and (iv) examine government responses towards helping the populace including farmers to cope with the crisis.

The recent financial crisis affects developing countries in many ways. With respect to agricultural sector, financial contagion and spillovers for stock can affect the volume of fund available through micro credit to farmers. The impact of the crisis on the Nigerian economy has different ramifications for the capital market, the banking sector, foreign exchange and the balance of payments, as well as the real sector. Market capitalisation fell by 45.8% in 2008, a sharp reversal of growth from 2007, when the market grew by 74.7% (Okereke-Onyiuke, 2009). The crude oil price (Bonny Light) declined precipitously from US$147 per barrel in July 2008 to $47 per barrel in January 2009, prompting the government to seek other sources of financing for the 2009 fiscal year, as it cannot rely on earnings from crude oil exports. Eventually, there may be a huge budget cut at all tiers of government and social spending, such as on agriculture, education, health and other basics such that the level of achievement of the millennium developments goals (MDGs), will be deeply affected. The Nigerian currency, the naira, has also depreciated against the US dollar, and this has implications for foreign reserves, which dropped from $67 billion in June 2008 to $53 in December 2008. All of these have implications for the livelihood of the populace in agricultural sector.

The economic downturn in developed countries may also have significant impact on devel¬oping countries through trade, net FDI inflows and remittances. The developed countries are markets for a number of agricultural outputs from Africa. Changes in trade and associated prices could affect agriculture. The volume of Remittances from developed to developing countries declined as probably lower volumes of remittances per migrant may exist. Trend of migration could be affected. Many firms in developing countries which major source of income and nature of business depended on developed countries may down size by reducing work force or wages which will affect migration trends and reduce remittance. There will be fewer economic migrants coming to developed countries when they are in a recession.

Possible policy responses can include a better understanding of what can provide financial stability, how cross-border cooperation can help to provide the public good of international financial rules and systems, and what the most appropriate rules are with respect to development; an understanding of whether and how developing countries can minimise financial contagion. It may involve developing countries to manage the implications of the current economic slowdown by increasing expenditure to improve human welfare. Countries should maximize room to use fiscal and monetary policies. It requires developing countries to understand the social outcomes and provide appropriate social protection schemes. There may be limits to financial solutions as the problems appear to lie in the real economy, but develop-ment finance institutions may be able to take some risks and support investment flows to developing countries, counteracting reductions in other financial flows. Above all the current macro economic and social challenges posed by the global financial crisis require a much bet-ter understanding of appropriate policy responses (Dirk Willem te Velde, 2008).

METHOD AND MATERIALS

Study area: Nigerian Economy, Agriculture and Rural Sector. Nigeria lies on the coast of West Africa and occupies a land area of 924,000 km^2. According to the provisional results of the 2006 census, it has a population of 140 million (NPC 2007), making it one of the largest and politically a very important nation in Africa. The country has a decentralized federal system of government comprising a federal capital territory (FCT), 36 states and 774 LGAs. All three tiers of government- federal, state and LGA- are democratically elected. The federal capital is Abuja. Nigeria is divided into six ecological zones, ranging from the semi-arid north-west to the savannah of the centre and south-west, and the high rainfall/rainforest areas of the south-south and south-east regions. The dominant ethnic groups are the Hausa/Fulani in the north, the Yoruba in the west and the Igbos in the east.

Given that agriculture is a major source of Nigeria's economic growth, accounting for about 45 per cent of the increase in GDP during the period 1990-2005, the country is classified as agriculture based by the World Bank (World Bank, 2008). Seventy-eight per cent of Nigeria's poor – those living below the poverty line on less than a dollar a day – live in rural areas and derive their livelihoods primarily from agriculture and rural development. However, since 1973, the economy has become highly dependent on the oil sector, in which Nigeria is the twelfth largest world producer. By 2006, depending on international oil prices, oil and gas accounted for 70 to 80 per cent of government revenue, over 90 per cent of export earnings and 25 per cent of GDP. The non-oil sector – particularly communications, construction, manufacturing and services – is becoming increasingly significant, currently accounting for a further 42 per cent of GDP and growing by nearly ten per cent each year. GDP increased fivefold from US$28 billion in 1990 to an estimated US$140 billion in 2007 and is expected to continue to grow at a rate of five to seven per cent per year, yielding current account surpluses of ten per cent of GDP. GDP per capita at purchasing power parity was calculated at about US$1,000 at the end of 2003 and is estimated to have risen to US$1,256 in 2007 (CBN, 2008).

However, higher revenues from oil and gas have not led to a reduction in poverty. The Government is committed to a liberal economy, with a market-determined exchange rate, fiscal prudence, decentralization, privatization and progressive reform of the financial sector. Inflation is on a downward trend and was estimated at 7.2 per cent at the end of 2007. The Government received debt relief in 2005/2006 and by May 2007 had paid off its accumulated debt in full. Agriculture contributes to development in several ways. For instance, as an economic activity, agriculture is a source of growth for the national economy, a provider of investment opportunities for the private sector and a prime driver of agriculture-related activities and industries and the rural non-farm economy. Agricultural production is important for food security because it is a source of income for most of the rural poor. Between 1990 and 2005, agricultural value added rose by an average of four per cent each year; for the period from 2003 to 2005, agriculture value added (AVA) represents US $16.46 billion and accounts for 22.1 per cent of GDP. Agriculture is the source of livelihood for the majority of rural people, providing jobs for smallholders and landless laborers and a foundation for viable rural communities (WDR 2008; IFAD, 2009).

Sources of data and data collection. Sources of data were data base of Community Based Monitoring System (CBMS) Nigeria, library materials from University of Nigeria Nsukka (UNN) and Enugu State Agricultural Development Project as well as National Breau of Statistics and Central Bank of Nigeria. The CBMS data base which house variables of about 5,000 rural households of Edem Nsukka, Enugu State, Nigeria; provided important variables on agrarian households. Only households whose crops income was at least five thousand naira were judged by the author as deriving their income from agrarian practices and hence were used for the study.

Data analysis. Descriptive statistics were used in achieving all the objectives except objective (iv) which was achieved with equivalent variation (EV); while the second part of objective (i) was achieved using Shannon index. The equivalent variation (EV)/compensatory variation (CV) are also used to measure social welfare, by comparing the utility of households at price and income in a reference situation to the utility in the new situation. In this study we use equivalent variation (EV) defined as:

$$EV = \left[\frac{P_1^0}{P_1^1}\right]^y \left[\frac{P_2^0}{P_2^1}\right]^{1-y} YM_1 - YM_0 \qquad (1)$$

Where:

P_1^0 = price of good 1 (beans) at base year (before the crisis); P_1^1 = price of good 1 at year 1 (after the crisis); P_2^0 = price of good 2 (maize) at base year (before the crisis); P_2^1 = price of good 2 at year 1 (after the crisis); YM_0 = household income at base year (before the crisis) = ₦ 283999.10 tines 2; YM_1 = household income at year 1 (after the crisis) = ₦ 159734.00 tines 2; *y*= percentage increase in price by the crisis (an average price increase of 78% was deduced); If: *EV>0* = increase in household welfare; while EV<*0* = decrease in household welfare.

The Shannon index used to examine variations in the sources of income before and after the crisis. Shannon index measures overall diversity of income from a set of income sources. It is presented as:

$$Shannon\ \ incme\ index = \sum_{i=1}^{S} \left|(income\ \ share).(\ln(income\ share\ )\right| \qquad (2)$$

Stata 10 was used to sort CBMS data base with respect to appropriate variables of interest to the author. Microsoft Office Excel and statistical package for social sciences (SPSS) 16.0 were used in further data analysis.

RESULTS AND DISCUSSIONS

Sources of Income and Value of Decline in Remittance. Table 1 showed the distribution of households' income and value of decline in remittance. Three thousand and nine households were judged by the author as deriving their income from agrarian practices. It is important to note that all the 3009 households did not gain income from all available sources of income but must gain income from crop farming in order to qualify to be enlisted for this study. This accounts for the reason why other sources of income had lesser number of households than crop which had 3009 households.

Table 1 – Sources of Income and Magnitude of Decline in Remittance in 2009/2010

Income Range (~~N~~)	Crops income	Livestock income	Income from Marking	Income from artisanship	Services/ Labour Income	Remittance	Decline in remittance amount
< 5000	***	144(11.4)	78(9.8)	93(52.0)	22(15.1)	37(2.9)	64(11.7)
5000-10000	840(27.9)	694(55.0)	238(30.0)	30(16.8)	29(19.9)	680(53.3)	441(80.9)
10001-20000	416(13.8)	242(19.2)	163(20.6)	25(14.0)	29(19.9)	268(21.0)	24(4.4)
20001-30000	440(14.6)	59(4.7)	97(12.2)	9(5.0)	16(11.0)	131(10.3)	5(0.9)
30001-40000	441(14.7)	51(4.0)	48(6.1)	9(5.0)	13(9.0)	48(3.8)	2(0.4)
40001-50000	377(12.5)	28(2.2)	77(9.7)	4(2.2)	11(7.5)	46(3.6)	4(0.7)
50001-60000	152 (5.1)	17 91.3)	36(4.5)	5(2.8)	4(2.7)	21(1.6)	2(0.4)
60001-70000	90(3.0)	6(0.5)	7(0.9)	1(0.56)	7(4.8)	15(1.2)	0(0.0)
70001-80000	64(2.0)	0(0.0)	8(1.0)	1(0.56)	8(5.5)	7(0.5)	0(0.0)
80001-90000	26(0.7)	4(0.32)	1(0.1)	2(1.1)	1(0.7)	1(0.08)	1(0.2)
90001-100,000	49(1.6)	6(0.45)	9(1.1)	0(0.0)	2(1.4)	4(0.2)	2(0.4)
>100,000	114(3.8)	10(0.8)	31(3.9)	0(0.0)	4(2.7)	17(1.3)	0(0.0)
Total	3009 (100)	1117(100)	793(100)	179(100)	146(100)	1275(100)	545(100)

*** People whose crops income fall below ~~N~~ 5000 were not considered as deriving their major income from agrarian practices and thus were excluded for this analysis. Source: computed from CBMS Nigeria 2009/2010; values in parenthesis are percentages.

In Nigeria, rural communities or agrarian households were associated with poverty. This fact is evidence even from the range and frequency of their income distribution. Only about 4 percent could make above N 100,000.00 from crop income while 28 percent were able to make about N10,000.00. The trend also existed in livestock income where the majority (55%) was able to generate about N 10,000.00. while only about one percent could make above N 100,000.00. However, table 1 showed that the major source of income for rural households were crop and livestock farming while marketing, artisanship, services and remittance ancillary sources of income. With reference to Global financial crisis, the volume of remittance decreased. It decreased from less than N 5,000 to about N 90,000. The value of remittance was very low. Remittance decline appeared to follow the pattern of its receipt. For instance the majority (53%) received remittance within the range of N 5,000 to N10,000. The majority (81%) experienced decline in remittance value within the range of N 5,000 to N10,000. Thus, the little remittance reaching the agrarian sector also experienced drastic decline.

Shannon index was used to measures overall income diversification of the agrarian households. The result was presented in Table 2. It showed that crop farming has continued to be a major source of income for the agrarian households after remittance.

The Shannon index of crop income for farmers increased while that of livestock was fairly constant. With respect to non farm income, the Shannon index for remittance increased while others such as marketing, artisanship and services decreased. The indexes for remittance were the highest both before and after the crisis. The implication was enormous for agrarian sector. It buttressed the fact that the rural sector were dominated by aged people who relied on remittance probably from their offspring who migrated to cities in search of greener pasture. The implication was that as the food prices increased farmers' income from it increased while that of other sources excluding remittance declined. It was possible for the price increase to result in higher nominal income for farmers but real income diminished due to inflation.

Table 2 – Average six months' income and Shannon index of rural farmers in Enugu State before and after the crisis*

Sources	Average income 2002	Natural Share	Shannon index (2002)	Average income 2009	Natural Share	Shannon index (2009)
Crops	29012.89	0.102158	1.049728	33272.8	0.208301	2.168936
Livestock	21418.39	0.075417	0.75206	12322.51	0.077144	0.726633
Marketing/trading	57488.51	0.202425	2.218444	28198.23	0.176532	1.80893
Artisanship	26326.51	0.092699	0.943524	10051.91	0.062929	0.579924
Services	63935.82	0.225127	2.491171	19073.03	0.119405	1.176859
Unclassified income/ Remittance	83815.02	0.295124	3.345637	54806.52	0.343111	3.74388
Total	283999.10	0.992951	10.80056	159734.00	0.987423	10.20516

* Source: computed from Echebiri, 2002 and CBMS Nigeria 2009/2010.

Analysis of the overall welfare of rural populace before and after the crisis showed that rural sector lost. In fact the value of equivalent variation (EV) was <0. It implied that apparent increase crops income has no positive effect on the households' welfare due to inflation that reduced the value of their real income. It may not be a surprise that the average nominal income of agrarian households in six months decreased from N 283999.10 in 2002 to N 159734.00 in 2009 because Arene and Mkpado (2002) noted that the average man-days of labour for agrarian households per hectare increased from 65 in 1996 to 86 in 2000; the output of major crops like cassava decreased from 9700kg/ha in 1996 to 9376kg/ha in 2000, while the gross margin decreased from N 23, 520 in 1996 to N 21,339 in 2000, besides the drastic decrease in remittance due to the global financial crunch.

The Crisis Effects on Food Staple Prices and Welfare. The global financial crisis impacts on inflation depend on the degree of changes of commodity prices and the accompanying changes in the terms of trade. Owing to the commodity price boom, inflation rates rose strongly. Officially, Nigeria started experiencing a two-digit inflation rate from the third quarter of 2008. It is expected that with falling commodity prices, inflationary pressures should subside to some extent as well. A strong and extended downward movement of the exchange rates will keep inflation levels high, most especially since Nigeria is import dependent and has no little foreign earnings to maintain this flair. On the side of the real sector, with little investment in infrastructure by the government, especially the firms that source their raw material from abroad might suffer greatly. Impacts and their extent would depend on the depth and duration of the crisis: the likely liquidity squeeze emanating from the withdrawal of foreign portfolio investors from Nigeria, the extent to which remittances will decline and, more importantly, investors' confidence in the economy. The actual price trends of food staples which gives insight into the level of inflation is in figure 1 (source; NBS 2007, Enugu State ADP, 2010).

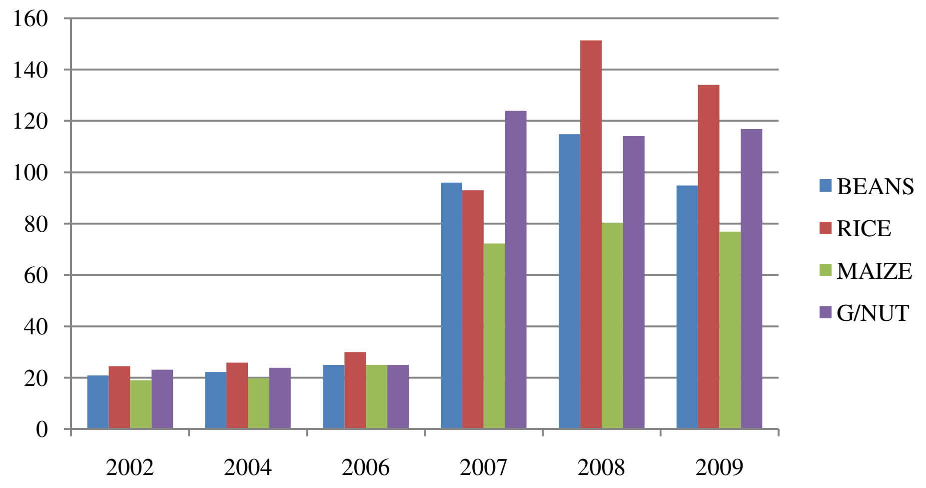

Figure 1 – Food Prices per Kilogram Before and After the Financial Crisis

The soaring prices of food crops in 2008 have triggered several responses in the economy. One of the implications is that food price increase in Nigeria has sent inflation rates up from 5.4 percent to 5.8 percent. The level of the composite food index was higher than the corresponding level a year ago by 12.4 percent (National Bureau of Statistics (NBS), 2008). The NBS attributed the rise to the sharp increase in the prices of rice and other staple foods and vegetables. Reactions from various farm families indicate that the percentage share of income spent on food crops has tripled over the last three months, as the poverty gap seems to be widening in other sectors of the economy (IFAD 2009). Figure 1 illustrates trends in prices of staples. In some cases, prices have more than doubled, and in a few countries there have been absolute scarcities of foods available on local markets. In Nigeria producer prices for staples (e.g. millet, maize, and sorghum) have increased by about 100 to 200 per cent over the past year (IFAD 2008).

The Global Financial Crisis and Agriculture Sector policy responses. Government supply of micro credit has been one way to help the agrarian households cope with the global financial crisis. The Agricultural Credit Guarantee Scheme Fund (ACGSF) has been the major source of micro credit from federal government to farmers.

Taking a base in 2002, table 3 showed that the number of beneficiaries of the ACGSF has been on the increase. A similar pattern followed the average volume of fund allocated only that the 1st quarter of 2009 experienced a decrease. The efforts of the government here is commendable because even as the foreign reserve drastically decreased, efforts was made to sustain domestic micro credit supply (Olu Ajakaiye and 'Tayo Fakiyesi 2009).

Table 3 – Trends of Performance of ACGSF before and after the Crisis

Year	Number of Beneficiaries	% Over 2002	Average fund	% Over 2002
2002	18,575	-	33.42566	-
2004	26,208	29.12469	44.70979	25.23861
2006	30,808	39.70722	66.75545	49.92819
2008	31,171	40.40935	98.41152	66.03481
2009	13,496	65.59166*	86.18531	61.21652

* Calculation for 2009 value was based on equivalent value for 1st quarter 2002, because only 1st quarter 2009 was available.
Source: computed from CBN Publications on ACGSF.

The federal government commenced a comprehensive review of its agricultural policy, with a focus on large-scale private sector commercial agriculture as a means of increasing production and productivity. In response to the global food crisis and the concomitant increase in prices, the federal government released 53,610 tonnes of grains (sorghum, maize and millet) between March and May 2008 from the National Strategic Grains Reserves (NSGR) to the States in Nigeria. The government also approved a tax holiday for importers of rice for the period May-October 2008. Moreover, credit facilities were provided to various farmers to ameliorate the food problem, the federal government has continued to subsidized interest on agricultural loan with effect from January 2006 so that farmers now pay about 9%, and rehabilitation of infrastructure was undertaken. The index of agricultural production increased by 4.8% in the first half of 2008, compared with 7.4% recorded in the first half of 2007. All agriculture sub-sectors contributed to this growth. The output from staples rose by 4.9% in 2008, compared with 10.7% in 2007. The output from the livestock, fishery and forestry sub-sectors rose by 5.8%, 4.1% and 1.2% in 2008, respectively, compared with 4.0%, 9.3% and 1.1% achieved in 2007. Furthermore, the composite food index rose by 0.9% in January 2009. The rise in the index which was higher than that of the previous year, was caused by increases in the price of staple foods like maize, yams, millet, meat, fruits and vegetables (Olu Ajakaiye and 'Tayo Fakiyesi 2009). Budgetary allocation to agriculture as well as other sectors has increased.

Government also encourage local growers through program's and projects; such intervention on agriculture include: Nigeria Agricultural, cooperative and rural development Bank (NACRDB) Agricultural credit guarantee scheme fund (ACGSF), National Agriculture insurance company (NAIC), Agricultural Development Programme (ADP), River Basin Development Authorities, (RBDA), special programme on food security (SPFS), Community based Natural resources Management programme, Niger Delta South-South Co-operation

Initiative, National Economic Empowerment Development strategy (NEEDS), Fadama I, II and III projects, Roots and Tuber Expansion project (RTEP), Presidential initiatives on cassava, rice vegetable oils, Tree crops, livestock, Fishery and Aquaculture and so on. For instance, Fadama III project is a follow up to the successful Fadama II project, which increased beneficiary income by about 60% and targeted the poor and vulnerable. Nigeria also implemented a community driven development (CDD) program through the Fadama II project, which targeted the poor and economically vulnerable groups. The Fadama II project was implemented in 12 states and was rolled out to all states in 2009 through the Fadama III project. Nigeria's other multi-donor country strategies have also followed a CDD approach (Binswanger-Mkhize et al 2010) In other to cover the whole country the Federal Government has increased budget for fadama iii to the turn of US$447. In fact, the the US$447 million budget for Fadama III (World Bank 2010) is approximately 2.7% of the 2007 US$16.145 billion federal budget, or 36% of the 2007 US$1.26 billion agricultural and water development budget (Bisong, 2009).

CONCLUSION

The study has examined effects of global financial crisis on income, remittance and prices in rural Nigeria as well as government responses. It has been informative to explore different the dynamics of agrarian households in the face of financial crisis. It was noted that their income declined, food prices increased and their welfare decreased. It was observed that Nigerian government made a number of efforts to reduce domestic food prices, provided micro finance services and implemented other policies to encourage agriculture. However, there may be need to continue investment with a view to improving the capacity of agrarian poor. The study recommends that:

- government can continue to sustain the supply of micro credit to the agrarian poor as well as the programmes for improving agricultural output like fadama;
- prudency should characterized activities of firms, households and governments to avoid going into economic crunch.
- farmers should try to increase their capacity in production and storage to meet the growing demand and shocks.

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