Invited paper presented at the 6th African Conference of Agricultural Economists, September 23-26, 2019, Abuja, Nigeria

Impacts of rural-urban migration of youths on household's welfare in Nigeria

By

Oginni, Oluwaseun Clement*

Federal University of Technology Akure,

Department of Agricultural and Resource Economics

PMB 704, Akure, Ondo State, Nigeria

seunogn@gmail.com

and

Tahirou Abdoulaye

International Institute of Tropical Agriculture (IITA) Ibadan

PMB 5320, Oyo Road Ibadan, Oyo State, Nigeria

t.abdoulaye@cgiar.org

*Corresponding author

Abstract
This study uses living standards measurement survey, a nationally representative longitudinal data to assess the impacts of rural-urban migration of youths on households' welfare in Nigeria. The paper employed difference-in-difference model, and propensity score matching for the impact assessment. Endogenous switching regression approach was also used to control for both observed and unobserved sources of heterogeneity between household with youth migrants and household without youth migrants. The result shows that rural-urban migration of youths causes household farm income to be reduced by $88. The finding further reveals that incidence of poverty among households with youth migrants would have been lower by 15% if the youths did not migrate. These findings underscore that the government of Nigeria and development partners must consider and embrace the creation of the conditions necessary for rural and agricultural development.

Keywords: Welfare, Migration, Rural, Youth,

1.1 Introduction

Nigeria is the most populous country in Africa with an estimated population of 198 Million (NPC, 2018). The population, like in most of Sub-Saharan Africa, is exceptionally young, and out of 100 Nigerians, 55 are under age 20, and 28 are between ages 20 and 40 (World Bank, 2016).
Nigeria has witnessed high rates of urbanization in the last two decades. Between 1990 and 2014, the urban population has grown rapidly with an average annual increase of 4.5 percent, while the rural population has grown slowly at a rate of 1.4 percent. According to the United Nations Department of Economic and Social Affairs (2014), the country is projected to have the third largest absolute increase in the size of the urban population by 2050, and this means three times more than the size of its current urban population

Rural-urban migration has been a major driver of Nigeria's rapid urbanization, and this is as a result of demographic pressure on natural resources in rural areas, and higher potential incomes and economic opportunities in urban areas (World Bank, 2016). Rural "push" factors have encouraged people to move to cities—especially declining incomes in agriculture due to an overvalued exchange rate and high levels of conflict in northern and central regions.

In spite of the oil, agriculture remains the base of the Nigerian economy, providing the main source of livelihood for most Nigerians (FAO, Food and Agriculture Organization of the United Nation 2019). The rural areas in Nigeria, like most Africa countries have been typically associated with Agriculture (Soina Bezu and Stein Holden, 2014). According to the World Bank collection of development indicators in 2015, rural population in Nigeria was reported at 52.22%, and these rural dwellers rely largely on farming for food and earnings.

Agricultural activities in the rural areas are majorly affected by rural-urban migration of youth. The youth who are supposed to remain and contribute to the development of agriculture in particular and the community in general are leaving the rural areas for the cities due to the level of poverty, lack of jobs opportunities and gross inadequacy of social infrastructures in the rural areas.

1.2 Problem Statement

Globally, the nexus between migration and development has remained an issue under vigorous academic debate (Adams, 2006). In Nigeria, one of the objectives of her economic policy is to bridge the gap between the urban areas and their rural counterpart. However, the stark reality on ground suggests that previous and present Nigerian governments have done little to actually engender a balanced socioeconomic development of the urban and rural areas.

Rural-urban migration is usually associated with remittance. Dustmann and Mestres (2010) posited that most migrants remit money regularly to their families for agricultural and rural development, thereby helping to alleviate their financial burdens. However, there is no meaningful contribution of this remittance to the farm income of the originating households in some part of Nigeria. (Ofuoku, 2015)
Due to inadequate current scientific research on impact of rural -urban migration of youths, on the welfare of the originating households in Nigeria, there is therefore a need to conduct research in order to create a better understating of this challenges.

2. Methods and Data

2.1 Study area

The study was carried out in Nigeria. Nigeria has an area of 923,768.00 sq. kilometers and lies between latitude 40° and 140° north of the equator and longitudes 30° and 140° East of the Greenwich meridian. It is bounded on the west by the Republic of Benin, on the North by the Republic of Niger and on the East by the Federal Republic of Cameroon. On the North-East border is Lake Chad while also extends into the Republic of Niger and Chad and touches the northern-most part of the Republic of Cameroon. On the south, the Nigerian coast line is bathed by the Atlantic Ocean.

2.2 Data Source

This study primarily use data from two waves of the Living Standards Measurement Survey (LSMS) for Nigeria, a nationally representative longitudinal data set collected between 2012/2013 and 2015/2016. The LSMS is implemented by the Nigeria Bureau of Statistics, and is a research initiative within the Development Economics Research Group of the World Bank. The LSMS captures a rich set of information on household consumption, asset holdings, and income-generating activities, as well as detailed information on agricultural production. After the first round of data collection, the survey proceeds to track all household members that were at least 15 years old, including individuals that had split off from their original households and entire households that had relocated. It thus becomes an individual-level longitudinal survey, capturing information for the entire household of each individual who had been interviewed in an earlier round. This phenomenal tracking survey provides a unique opportunity to explore the dynamics of migration.

In addition to the LSMS survey, Focus Group Discussion (FGD) was also employed for this study in other to obtain additional information from rural households in line with rural-urban migration of youths in Nigeria.

2.3 Method of Data analysis

2.3.1 Propensity Score Matching (PMS) Endogenous Switching Regression (ESR)

PMS and ESR was used to assess the effect of rural-urban youth migration on welfare of the originating households. The model is expressed as:

Y_i^m= outcome variable for a household with a youth migrant

Y_i^{mn}= outcome variable for a household without a youth migrant

Difference between the outcome variable of households with and without a youth migrant can be represented in causal effect notation form as:

$\Delta_i = Y_i^m - Y_i^{mn}$

Average Treatment Effect (ATE):

ATE = $E\,(Y_i^m \mid T_i = 1)\; E\,(Y_i^{mn} \mid T_i = 0)$

Average effect of Treatment on the Treated (ATT):

ATT= $|T_i=1) = E\,(Y_i^m|T_i = 1) - E\,(Y_i^{mn}|T_i = 1)$

Where ATT denote the average effect of migration on households with migrants

To take unobservable characteristics into account, ESR was used.

The Conditional outcomes to be estimated are:

- *The actual expectations:*

1. That the household has a youth migrant

   $E\ (Y_{1i} \mid Ii = 1, x_{1i}) = X_{1i}\ \beta_1 + \sigma_{v1\ \varepsilon}\ \lambda_{1i}$

2. That the household has no Youth migrant
   $E\ (Y_{2i} \mid Ii = 0, x_{2i}) = X_{2i}\ \beta_2 + \sigma_{v2\ \varepsilon}\ \lambda_{2i}$

- *The counterfactual expectations:*

3. That the household that has a youth migrant, did not have a youth migrant
   $E\ (Y_{2i} \mid Ii = 1, x_{2i}) = X_{2i}\ \beta_1 + \sigma_{v2\ \varepsilon}\ \lambda_{1i}$
4. That the household that did not have a youth migrant, had a youth migrant
   $E\ (Y_{1i} \mid Ii = 0, x_{1i}) = X_{1i}\ \beta_2 + \sigma_{v1\ \varepsilon}\ \lambda_{2i}$

Hence, these outcomes will show the effect of migration on welfare of households that has youth migrants as well as effect on those that does not have youth migrants.

2.3.2 Difference-in-Difference (DID) Model

In addition to the PMS and ESR, difference-in-difference model was used to examined the impact of rural –urban migration of youth on originating household income.

The model is given as

$\Delta\Delta Y = \Delta Y_t - \Delta Y_c$

Where, $\Delta Y_t = Y_{t2} - Y_{t1}$, and

$\Delta Y_c = Y_{c2} - Y_{c1}$

Y_{t1} = household income of household with youth migrant before the migration

Y_{t2} = household income of household with youth migrant after the migration

Y_{c1} = household income of household without youth migrant before their counterpart migrated

Y_{c2} = household income of household without youth migrant after their counterpart migrated

ΔY_t = the average of the change in the income in all rural households who lost a youth to urban.

ΔY_c = the average of the change in income over the same period of time in all household where everyone stayed.

$\Delta\Delta Y$ = Difference-in-difference

2.3.3 Foster, Greer and Thorbecke (FGT) Poverty Measures

Following Foster *et al* (1984), poverty headcount ratio will be computed as an additional welfare outcome indicator, where per-capita total expenditure will be used to determine the poverty status of a household.

$P_\alpha\ (y, z) = \frac{1}{n} \sum_{i=1}^{q} (\frac{z - yi}{z})$

Where:

n = total number of households in population

q = the number of poor households

Z = the poverty line for the household

yi = household income α = poverty aversion parameter and takes on value 0, 1, 2

$(\frac{z - yi}{z})$ =proportion shortfall in income below the poverty line.

i. Incidence of Poverty

When α = 0 in FGT, the expression becomes:

$P_0=\frac{q}{n}$

This is called the Incidence of poverty or headcount index, which measures the proportion of the population that is poor i.e. falls below the poverty line.

ii. Depth of Poverty

When α = 1 in FGT, the expression becomes:

$P_1=\frac{1}{n}\sum_{i=1}^{q}(\frac{z-yi}{z})$

This is called Poverty depth or Poverty gap index, which measures the extent to which individuals fall below the poverty line as a proportion of the poverty line.

iii. Poverty Severity

When α = 2 in FGT, the expression becomes:

$P_2=\frac{1}{n}\sum_{i=1}^{q}(\frac{z-yi}{z})^2$

This is called Poverty severity index measures the squares of the poverty gaps relative to the poverty line.

3. Results and Discussion

Table 1 presents the descriptive statistics for the main outcome indicators based on rural-urban youth migration status. In addition, other household-specific characteristics of rural farming household are presented in Table 1. These are household characteristics such as age, marital status, gender, household size, education, as well as wealth indicators such as land size and total assets.

Table 1 also presents the difference in means between households without youth migrants and households with youth migrants for the main control variables. A significant difference was found between the two in terms of age of the household head, gender, land size, and value of total household assets. These differences between household without youth migrants and household with youth migrant suggest that a simple comparison in terms of the main outcomes of interest without accounting for the differences in observable characteristics may bias estimated impacts of rural-urban migration. However, cost of hired labour (measured in USD) was significantly higher among household with youth migrant compared to household without youth migrant.

Table 1: Descriptive statistics of the rural farmers in Nigeria by rural-urban migration of youth status

Variables	Full Sample	Without Youth Migrant	With Youth Migrant	Mean Diff
Per capita Total Expenditure (USD)	290.38	293.39	262.25	31.13

Per Capita Expenditure (USD)	186.50	187.11	180.78	6.33
Poverty headcount ratio (1 = poor, 0 = otherwise)	0.87	0.865	0.870	-0.005
Age (years)	50.21	49.01	61.41	-12.39***
Gender (1 = male, 0 = female)	0.90	0.92	0.75	0.167***
Marital Status (1 = married, 0 = otherwise)	0.17	0.90	0.73	0.171***
Household size	7.09	7.13	6.66	0.47
Land size (ha)	0.96	1.01	0.54	0.47***
Cost of Hired labour (USD)	29.64	28.07	44.31	-16.25***
Remittance (USD)	13.31	8.77	55.77	-47.00
Amount of credit received (USD	61.92	64.66	36.38	28.27
Number of extension agent Visit	0.29	0.32	0.08	0.24
Total household asset (USD)	418.21	414.59	452.06	-37.47**
Farm income (USD)	1129.76	1160.36	843.83	316.53
Total income (USD)	1871.85	1872.84	1862.64	10.20
Good soil (1 = yes, 0 = otherwise)	0.79	0.79	0.75	0.04
Fair soil (1 = yes, 0 = otherwise)	0.19	0.192	0.189	0.00311
Poor soil (1 = yes, 0 = otherwise)	0.02	0.02	0.06	-0.04**

Note that the official exchange rate was (1 US$=200 Naira,) during the survey period

Effect of Rural-Urban Migration of youth on Farm Income

This section presents the main results. The first column in Table 2 (the selection equation) reports the determinants of rural –urban migration among youth in Nigeria. In the next two columns the determinants of farm income for household with youth migrant and household without youth migrant are shown. The selection equation suggests that educational level, marital status, land size, total assets, number of extension agent visit, and amount of credit borrowed were negatively associated with the probability of rural youths migrating to urban areas. On the other hands, age of the household head, household size, cost of hired labour and ownership of phone were positively associated with the probability of rural youths migrating to urban areas. In the selection equation, the coefficient on access to mobile phone was positive and statistically significant (at a 2% significance level). This result suggests that rural households that has mobile phone are more likely to have youths migrating to urban areas, underscoring the relevance of the selected instrument. Age of the household head was significant at 1 percent and positively related to the decision to migrate. This implies that there is more likelihood for youth members of the household to migrate as the household head advances in age. This could be a means to generate more income in form of remittances to take care of the family members since the earning capacity of the household head decreases with age. Iheke (2010) noted that as household head gets older, he becomes dependent on other people since his ability to do manual work and cope with the daily challenges of work declines with advancing age.

Next, the determinants of farm income for households with youth migrants were examined. Land size, and remittance had positive and statistically significant effects on the farm income. This implies that the larger the farm size of the households, the higher the farm income of the households. Likewise, amount of credit received had negative and statistically significant effects on the farm income of households. This is contrary to the *a priori* expectation. This could be as a result of using the credit for non-agricultural purposes.

The determinants of farm income for households without youth migrants were also examined. Total assets, land size and household size had positive and statistically significant effects on the farm income. Family labour is considered as a function of household size, and it is therefore

expected to have a positive impact on farm income. The implication of this that households without youth migrants have access to more family labour as result of the presence of the youths in the households. Educational status had negative and statistical significant with farm income. The number of extension agent visit had negative relationship with the farm income of household without youth migrants. This might be because the information given to the farmers have not been sufficient to improve their farming activities and earnings.

Table 2: Determinants of farm income in Nigeria, from results of endogenous switching regressions

Variables	Selection Equation		Household with youth migrant		Household without youth migrant	
	Coefficient	Z-Value	Coefficient	Z-Value	Coefficient	Z-Value
Age	0.1631***	3.86	62.8096	0.53	0.2772	0.01
Age^2	0.0361***	-3.23	-0.6443	-0.69	-0.0636	-0.22
Education	-0.0107	-0.76	-28.550	-1.02	-36.268**	-2.98
Gender	0.2162	0.60	93.647	0.12	356.59	0.86
Marital Status	-0.4475	-1.29	422.46	0.53	56.685	0.15
Land size (ha)	-0.0996	-1.52	1106.9***	6.28	262.41***	6.19
Household size	0.0362*	1.83	3.6386	0.09	68.6831***	3.20
Total Assets (USD)	-0.0001	-1.30	0.1166	0.76	0.2442***	3.49
Extension agent visit	-0.0097	-0.14	323.01	1.16	-24.563	-0.58
Amount of credit (USD)	-0.0002	-0.87	-1.7296*	-1.84	-0.0063	-0.03
Cost of hired labour (USD)	0.0022**	2.48	-0.0669	-0.04	-0.3010	-0.25
Remittance (USD)	0.0002	1.02	1.4597***	5.51	-0.48510	-0.80
Good soil	-0.6263*	-1.87	1171.8*	1.92	1412.6	3.03
Fair soil	-0.6423	-1.78	1232.3	1.81*	1398.5	2.89
North-central	-0.6158**	-2.29	-916.77*	-1.76	-3558.0***	-10.42
North-east	-0.6629	-2.40	-2194.6***	-3.71	-3682.2***	-10.72
North-west	-1.4622***	-4.53	-71.387	-0.09	-3788.8***	-10.93
South-east	-0.2225	-0.89	-713.83*	-1.68	-3738.4***	-10.40
South-south	-0.166	-0.64	63.3386	0.15	-3708.6***	-10.11
Access to mobile phone	0.3519**	2.41				
Access to internet	-0.2435	-1.13				
lnσ1			7.0501***	90.04		
ρ1μ			-0.18324	-0.61		
Lnσ0					7.58872***	352.93
P0μ					0.0555	0.75
Wald X^2	128.14					
Log Likelihood	-11032.7					

Inference: *** p<0.01; ** p<0.05; * p<0.1

Effect of Rural-Urban Migration of Youths on Welfare Outcomes

In this section, the welfare effect of rural-urban migration of youth is examined, with the results in Table 3. Rural-urban migration of youth is associated with lesser food expenditures and total expenditures. In addition, the incidence of poverty appears to have increased as a result of rural-urban migration of youth. Per-capita total expenditure decreased by 27.94%. Likewise,

per-capita food expenditure decreased by 24.62%. The results further show that, without rural-urban migration of youth, the poverty headcount ratio would have been lower by 15%. This suggests that the 27.94% decrease in per-capita total expenditure is translated into a 15% increment in poverty headcount ratio. Taken together, the results clearly emphasize that rural-urban migration of youth is associated with reduced productivity and consumption-based welfare outcomes of rural households with youth migrants.

Table 3: Effect of rural-urban migration of youth on household welfare indicators in Nigeria, in a counterfactual analysis

Outcome Variable	Farm Household type and treatment effect	Treatment type		Treatment effects	Change
		Household with youth migrant	Household without youth migrant		
Per capita total expenditure (USD)	With youth Migrant (ATT)	262.25	363.94	-101.69***	-27.94%
Per capita food expenditure (USD)	With youth Migrant (ATT)	180.78	239.83	-59.04***	-24.62%
Poverty headcount ratio	With youth Migrant (ATT)	0.87	0.72	0.15***	20.83%

Impact of rural-urban migration of youth on household income in Nigeria

Table 4 shows the result of the difference-in difference estimation. The model took into consideration the farm income before and after for both households' category. After youth migration, there was a significant difference in the farm income of the two set of households. The difference-in-difference result shows that rural-urban migration of youths causes household farm income to be reduced by $88. This could be as a result of decrease in family labour, and thereby increase the cost of hired labour.

Table 4: Difference-in-Differences Estimation Results

Outcome Variables	Farm Income(USD)	Standard Error	|t|	P>|t|

BEFORE **C**ontrol (household with youth migrant)	1098.255			
Treated (household without youth Migrant)	870.478			
Diff (T-C)	-227.777	186.468	-1.22	0.222
AFTER **C**ontrol (household with youth migrant)	1160.357			
Treated (household without youth Migrant)	843.828			
Diff (T-C)	-316.529	186.468	1.70	0.090*
Difference-in-Difference	-88.752	263.706	0.34	0.736

Inference: *** p<0.01; ** p<0.05; * p<0.1

4. Conclusion and Recommendation

This paper provides an empirical estimate of the impacts of rural-urban migration of youths on households' welfare in Nigeria. The difference-in-difference model used revealed that rural-urban migration of youths causes reduction in household farm income. The results of the propensity matching scores also show that rural-urban migration of youth is associated with lesser food expenditures, total expenditures, and increase in the incidence of poverty.

The endogenous switching regression model also showed that amount of credit received had negative and statistically significant effects on the farm income, and this could be as a result of using the credit obtained for non-agricultural purposes. The model also revealed that household size had positive and significant effect on the farm income of household without youth migrants, while remittance also have the same effect on the farm income of household with youth migrants.

The overall recommendation is that the government of Nigeria and development partners must consider and embrace the creation of the conditions necessary for rural and agricultural development. This can be achieved by:

- Creating awareness on professionalization of agriculture activities. Many youths are leaving the rural areas because, they see agriculture as a poor man's job.
- Providing access to services and resources such as improved varieties and new technologies to increase productivity and efficiency respectively.
- Creating infrastructures that are directly related to Agricultural and Private Sector Development, such as building roads to facilitate market access.

Acknowledgement
This study was sponsored by IITA-CARE Program (Enhancing Capacity to Apply Research Evidence in Policy for Youth Engagement in Agribusiness and Rural Economic Activities in Africa)

Reference

Adams, R. H. (2006) Remittance and poverty in Ghana," Working Paper 3838, World Bank Policy Research, 2006.

Dustmann, C., Mestres, J. (2010): Remittances and temporary migration. *Journal of Development Economics*. 92(2):62-70.

FAO, Food and Agriculture Organization of the United Nation (2019) : Nigeria at glance; http://www.fao.org/nigeria/fao-in-nigeria/nigeria-at-a-glance/en/. Accessed on 30th April, 2019. 1: 20PM

Foster, J. Greer, J. and Thorbecke, E. "A class of decomposable poverty measures." Econometrica. 52, No. 3, Pp. 761-766. 1984

Iheke, O. R. (2010) "Impact of Migrant Remittances on Efficiency and Welfare of Rural Smallholder Arable Crop Households in South Eastern Nigeria", Ph.D. Dissertation, Michael Okpara University of Agriculture, Umudike, Nigeria,

National Population Commission (NPC) (2018): http://population.gov.ng/. Accessed on September 10, 2018, 4:20PM

Ofuoku, Albert U. (2015): Effect of Rural-Urban Migrants' Remittances on Arable Crop Production in Delta State, Nigeria. *Journal of Agricultural Sciences* Vol. 60, No. 1, 2015 Pp 49-59. http://joas.agrif.bg.ac.rs/archive/article/395

Soina Bezu and Stein Holden, (2014): Are rural youth in Ethiopia abandoning Agriculture? World Development, Volume 64, pp 259-272 https://doi.org/10.1016/j.worlddev.2014.06.013

United Nations Department of Economic and Social Affairs/Population Division.*World Urbanization Prospects: The 2014 Revision*

World Bank Report (2016): https://elibrary.worldbank.org/doi/pdf/10.1596/978-1-4648-0792-3

World Bank. 2016. From Oil to Cities: Nigeria's Next Transformation. Directions in Development. Washington, DC: World Bank. doi:10.1596/ 978-1-4648-0792-3.