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Impact of Rural-Urban Migration on Poultry Production in the Niger Delta Region, Nigeria

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Abstract

This study was conducted to reveal the impact of rural-urban migration on broiler production in the Niger Delta Region of Nigeria. Data were collected from 795 household heads and farmers/managers/supervisors of 25 selected broiler farms in the study area. Descriptive statistics and multiple regression analysis were utilized to analyze the data. Able bodied young men constituted most of the rural-urban migrants. All the broiler farmers visited except 5 experienced labour shortage. Consequent upon labour shortage, most of the farms could not stock birds up to full capacity of their pens. This translated into foregone revenue for the poultry farms. Rural-urban migration significantly and positively correlated with shortage of labour, under stocking and foregone revenue. It was recommended that the States governments in the Niger Delta Region should embark on infrastructural development for the rural areas and encourage farmers to adopt mechanized/automated poultry farming operations in collaboration with donor agencies so as to make provision for lost labour in the broiler farming.

1. Introduction

Ekong (2003) considers migration as either permanent or temporary mobility of people from one geographical location to another. According to Ofuoku and Chukwuji (2012), it is commonly observed that rural-urban migration is the dominant pattern of internal migration. They further state that migration is a process that is a selective process which affects individuals or families that possess certain economic, social, educational and demographic characteristics. It is a common knowledge that while responding to prevailing conditions, people migrate to relatively safer locations. However, the reasons prompting migration vary from one individual to another.

During the colonial era, agriculture was booming and this sector was the mainstay of Nigerian economy. As Nigeria gained independence, another era was born as a result of oil boom. The oil boom consequently gave rise to rapid urbanization which

was prompted by the massive entry of oil exploring and servicing companies in the Niger Delta Region, the major oil bearing geographical zone of Nigeria. The influx of different Christian missionaries that established schools created very good opportunity for very many children to acquire formal education. As a consequence of the oil boom, most of the educated youth jettisoned farming to pick up job in the oil exploring and servicing companies and ministries. These educated youth started disregarding farming since they preferred the white collar jobs to farming. That was how the agricultural sector, including the poultry sub-subsector, started losing labour to other occupations, both locally and through rural-urban migration.

According to Okagbare and Akpodiete (1999), the growth of the poultry industry was very impressive form the 1960s to the 1980s. In 1986, Nigeria had the largest poultry population in black Africa and its poultry contribution to animal protein

consumption and the gross domestic product was substantial (Okunaiya, 1986). Today, the poultry industry has witnessed a sharp decline (Okagbare and Akpodiete).

The rate of rural-urban migration out weighs that of rural-rural and urban-rural migration. However, it is an onerous task to strictly pin-point the cause of migration as such, since causation connotes absoluteness whereas it is usually difficult to cite this or that factor as the absolute cause of an individual's decision to relocate (Ekong, 2003). It is therefore more scientific to refer to the correlates of migration factors that are systematically related to the phenomenon of migration without necessarily proving causation (Ekong, 2003). Most studies carried out in rural-urban migration tend to conclude that people basically migrate for economic reasons, and the need to escape from adverse social and physical conditions (Ofuoku and Chukwuji, 2012). Von Braun (2004) opines that people tend to be pushed from areas of decline and pulled to area of prosperity.

Tadaro (1976) opines that migrants do not typically represent a random sample of the overall population. Most migrants are young, formally educated, less risk-averse and more achievement oriented and they also tend to have a better network of connections in other areas than does the general population in the area of emigration. These are particularly attributes of those who embark on rural-urban migration. Rural-urban migration has negative impacts on the quality of rural lie, especially when such migrants move away to the urban areas with their needed productivity (Adewale, 2005). He further opines that rural-urban migration of young adults put a greater burden on farmers. Ofuoku and Chukwuji (2012) attribute this to the fact that farmers, including poultry farmers spend more time to cover the same farm operations than when he or she had the assistance of the migrated labour, thereby losing time for leisure and many social activities.

Two conclusions that are contradictory emanate from the impact of rural-urban migration on rural development of which agricultural development, inclusive of the poultry sub-sector, forms a part and parcel. Some scholars are of the view that positive consequences in terms of labour scarcity, which results from migration and productivity outcome and wage increases in the rural areas (Nocholls, 1964). Berge (1966) is of the view that rural-urban migration leads to a better reallocation of labour, particularly in countries that experience regional resources disparities, which promotes the efficiency of resource use. While differing from this, Tadaro and Harris (1971) opine that a fall in agricultural (including poultry) out put is likely to emerge from rural-urban migration, given the extant positive marginal product of labour in agriculture. In the United States of America, Hathaway (1964) found that emigration of young workers from rural to urban areas leads to a higher level of the labour force in the source rural area.

To Hathaway (1964) this is an important variable that prevents the adjustment process, which largely results to low productivity and stagnation in the affected rural communities. Rural-urban migration leads to chronic poverty and food insecurity (Mini, 2000).

It can be observed from the above discussion on the resultant effects of rural-urban migration on the rural sector that there are two conflicting conclusions, as a result of the distinct assumptions underlying the discussion and the variation in the process of economic growth, population density, social organization of various communities and their economic characters and resource endowment (Ofuoku and Chukwuji, 2012). They further state that in a situation where rural-urban migration takes place a settlement characterized by gross diminishing returns due to population pressure and uneconomic land holdings, the consequent decrease in agricultural population can hypothetically reduce the tendency to diminishing returns and so raise the productivity of the agricultural labour. On the contrary, if the density of the population is low, rural-urban migration may result to a reduction in agricultural output unless compensating output-increasing technologies are introduced or the vacuum created by rural-urban migrants is filled by rural-rural migrants (Udo, 1970). The level of dependence on larbour, by rural communities may also influence the degree to which output and income will be affected. In the study area, poultry farm operations are mostly done by male labour. This may result to shortage of labour and output reduction attributed to rural-urban migration.

The predominant poultry enterprises in the Niger Delta Region are broiler production, though many combined poultry enterprises abound. However, this study concentrated on broiler production enterprise. Individuals are more involved in broiler production alone than corporate bodies and compared to the world standard, they operate on small-scale. Most of the poultry (broiler) production operated are male dominated and are labour intensive as most of them are carried out manually.

This is very easily observed from the above earlier discussion that definite inference can be drawn on whether rural-urban migration is beneficial or detrimental to poultry production, especially broiler production. It is therefore worthwhile to conduct a study to determine the impact of rural-urban

migration on broil production in the Niger Delta Region of Nigeria.

The main objective of this study was present to some empirical evidence of the impact of rural-urban migration broil farm productivity in the Niger Delta Region of Nigeria. Specially the study sought to:

Ascertain the rate of rural-urban migration by age of migrants in selected rural communities,

(ii)Determine the impact of rural-urban migration on labour in broiler farms,

(iii)Ascertain the impact of rural-urban migration on broiler farms,

(iv)Estimate the foregone revenue as a result of foregone number of birds.

Hypothesis:

Rural-urban migration does not influence labour shortage, foregone number of birds, and foregone net farm revenue.

2. Materials and Methods

This study was conducted in the Niger Delta Region of Nigeria. It is made up of the States surrounding the River Niger Delta in Southern Nigeria. These States include Edo, Delta, Bayelsa, Rivers, Akwa-Ibom and Cross River State. Poultry farming is the major animal rearing activity in the study area, which is mostly carried out for commercial reason, though on small-scale by world standard. These States boast of a lot of urban settlements apart from their capital cities with rural communities surrounding them.

At the first stage, purposive sampling technique was adopted to select households from which migration has taken place for the study. At the second stage, 10% of the poultry (broiler) farms registered with the respective States, Agricultural Development Programmes were randomly selected and this gave a total of 25 sample size farms.

Rural households of migrants were identified with the help of rural community leaders (key informants). Fifty-three (53) household heads were selected from the identified households in the poultry farm communities in each State, resulting to a total of 795 household heads. It was observed that coincidentally, some of the selected household heads were owners of some of the farms selected for the study. Some of the rural household heads were orally interviewed while those who had reasonable level of formal education were given questionnaire to fill to obtain data on the number and ages of household members who migrated to urban areas. The second stage of data collection was from farm record and questionnaire administered to the farmers, farm manager and farm supervisors. The data collected

from their farm records were on farm size (population of birds), total number of birds reared, total number of birds reared in 2012, size and pattern of labour used, regularity of available labour and usage rate.

The labour shortage rate was derived as the difference between labour required and actual number of persons employed in 2012 expressed in percentage of labour required. This method was a adapted from Essang and Mabawonku (1974). The percentage of total bird carriage capacity not utilized were computed from the data. The loss of output due to under utilization of capacity, was then estimated in physical and revenue terms after making allowances for potential cost of utilizing the capacity not utilized.

The hypothesis was tested with the application of a regression model stated as follows:

$$Y = f(X_1, X_2, X_3, \mu)$$

Where:

Y=Rural-urban migration rate (no. of migrants from poultry communities)

X_1 = Labour shortage (no. of persons)

X_2 = Foregone output of birds (Kg)

X_3 = Foregone revenue (₦)

μ = Error term.

Three functional forms of the model-linear, semi-log and doubt-log were tried and they one with the highest R^2 value and highest number of significant variables was adopted.

First, the output per ton of each poultry was multiplied by the total number of birds not reared to obtain the foregone potential output in physical units. Using the 2011/2012 weighted average producer price of broiler, the amount of potential gross revenue foregone was computed. Second, the additional expenditure which would have been incurred in an effort to rearing full capacity was estimated by multiplying the expenditure per bird by the number of birds not reared. The difference between gross revenue and additional outlay is the net revenue foregone by the failure to rear full capacity. It is worthy of note that several assumptions underlie the computational exercise described. This has been made clear in the limitation section. The authors are aware of the existence of other theoretically satisfactory methods to determining output loss due to under utilization of carriage capacity. However, the aforementioned approach is adopted since it is mostly utilized by the poultry farm managers. Project appraisal studies, according to Essang and Mabawonku (1981), also use this approach, with appropriate discounting to determine the profitability of agricultural projects.

The main limitation emerges from the assumption of constant yield and constant per kilogram (kg.) expenditure underlying the computations. One other limitation is that because

farm managers and accountant use broadly distinctive methods of computing depreciation of buildings and equipment, there is the likelihood to inflate production costs in some of the poultry farms much higher than others. This affects the estimate of the potential additional outlay and therefore, the estimate of net revenue foregone.

3. Results and Discussion

Table 1 indicates an age selective trend of rural-urban migration since most (52.96%) of the migrants were in the age range of 21 – 30 years for the past decade. Likewise, those in the age bracket of 11 – 20 years constitute 30.21% of rural-urban migrants. However, using some of them as farm labour, especially those below the age of 18 years, would have amounted to use of child labour. Child labour amounts to all forms of work performed by children under the age of 18 years (International Labour Office (ILO and Cornell University ILR School, 2005). The results show that most (83.17%) of the rural-urban migrants were in the age brackets of 11 – 30 years. At variance with the afore mentioned result, very few of the rural-urban migrants were in the age brackets of 0 – 10 years (2.52%), 31 – 40 (9.56%), 41 – 50 years (4.78%). Similar trend was found by Ofuoku and Chukwuji (2012) in a similar study on the impact of rural-urban migration on plantation agriculture in this same study area. This is also congruent with Ekong (2003) who observed that most migrants to be disproportionately young.

Table 1. Rate of rural-urban migration by age of the rural family members in selected households for the last 10 years as at 2012.

Age years	N	Migrant rate (%)
0 –10	20	2.52
11 – 20	240	30.21
21 – 30	421	52.96
31 – 40	76	9.56
41 – 50	38	4.78

This implies that the labour force (most productive age group) for poultry production has been relocated by rural-urban migration. These people are those who are energetic enough to carry out poultry operations like the laborious daily feeding and supply of water, as most poultry farms in the study area are manually operated. They also carry out cleaning of litters and droppings in the pens at regular intervals.

As indicated earlier, the use of those below 18 years in the age bracket of 11 – 20 years would have amounted to used of child labour, but ILO (2014) argues that use of labour in farm operations have positive result because it encourages inter-generational transfer of technical and social skills and children's food security. This is true, but it may interfere with their schooling and the clearing of litters to clean up the pens may cause respiratory problem to them as most of these children may not care to wear nose mask.

3.1 Impact of rural-urban migration on labour for poultry farms in the Niger Delta Region of Nigeria.

Table 2 shows that many poultry farms (broiler production) in the Niger Delta Region experienced the constraint of labour inadequacy of between 25% and 60% of the required labour. However some of them such as PF_3, PF_4, PF_6, PF_{11}, and PF_{18}, did not experience such labour shortage. This finding is congruent with Tuan, Somwaru, and Diao (2000), Ekong (2003), Adewale (2005), Ofuoku and Chukwji (2012) who opine and found that rural-urban migration tends to deplete agricultural labour force since migrants are mostly able bodied young men. As Ofuoku and Chukwuji (2012) suggest, agriculture will continue to suffer from shortage of labour because of rural-urban migration prompted by lack of commitment to agriculture among young men. This implies that young men are also no more committed to poultry farming as life in the urban areas is attractive to them because of the ammenities and facilities that exist there and the monotonous life in the rural areas. However, livelihood in the rural areas is cheaper than livelihood in the urban areas. This is so because food and house rent are cheaper in the rural areas and they will be able to save more money in the rural areas than in the urban areas. This is why the afore mentioned reason for migration is convincing.

3.2 Impact of rural-urban migration on stocking rate of birds

Table 3 indicates that twenty out of the twenty five poultry farms recorded below capacity stocking rate ranging from 7.50% to 55.79% of the total stocking capacity of the pens. Below capacity stocking rates reported were recorded in poultry farms with above 4000 bird capacity. Those that recorded '0' were very small capacity poultry farms that could easily recruit the very few farm hands of between 1 and 2 persons. This confirms the obsevation of Ofuoku and Chukwuji (20120, Adewale (2005), Kandel (2002) and Ekong (2003) that in the absence of commensurate substitution of migrated labour, agricultural productivity tends to decline in the push region. Under stocking is expected to have economic implicatrions with respect to foregone revenue.

Table 2. Labour shortage in selected broiler farms

Poultry Farm Code#	Labour Acquired (persons)	Labour Employed (Persons)	Labour Shortage (Persons)	% Shortage of Labour Required
PF_1	7	4	5	55.55
PF_2	4	3	1	25.0
PF_3	4	4	0	0.0
PF_4	3	3	0	0.0
PF_5	10	6	4	40.0
PF_6	2	2	0	0.0
PF_7	5	2	3	6.0
PF_8	6	4	2	33.33
PF_9	5	3	2	40.0
PF_{10}	6	4	2	33.33
PF_{11}	2	2	0	0.0
PF_{12}	10	5	5	50.0
PF_{13}	7	3	4	57.14
PF_{14}	8	6	2	25.0
PF_{15}	7	5	2	28.57
PF_{16}	9	6	3	33.33
PF_{17}	13	9	4	30.77
PF_{18}	10	10	0	0.0
PF_{19}	11	10	1	9.09
PF_{20}	10	8	2	20.0
PF_{21}	7	6	1	14.29
PF_{22}	10	9	1	10.0
PF_{23}	12	10	2	16.67
PF_{24}	8	6	2	25.0
PF_{25}	10	7	3	30.0

Table 3. Number of birds not stocked as a proportion of total capacity of pens

Poultry Farm Code#	Poultry Pens Total Capacity	No. of Birds Stocked	Labour Shortage (Persons)
PF_1	9,500	4,200	55.79
PF_2	4,500	3,500	22.22
PF_3	4,000	4,000	0.0
PF_4	3,000	3,000	0.0
PF_5	10,500	6,250	40.48
PF_6	2,500	2,500	0.0
PF_7	5,000	2,750	45.0
PF_8	6,500	4,220	35.08
PF_9	5,500	3,250	40.91
PF_{10}	6,000	4,320	28.0
PF_{11}	2,000	2,000	0.0
PF_{12}	10,000	6,150	38.5
PF_{13}	7,000	3,625	49.64
PF_{14}	8,500	6,220	26.82
PF_{15}	7,500	5,000	33.33
PF_{16}	9,000	6,150	31.67
PF_{17}	13,000	9050	30.38
PF_{18}	10,500	10,500	0.0
PF_{19}	11,500	10,000	114.29
PF_{20}	10,000	8,150	18.50
PF_{21}	7,000	6,100	12.86
PF_{22}	10,000	9,250	7.50
PF_{23}	12,000	10,550	12.08
PF_{24}	8,500	6,050	28.82
PF_{25}	10,000	7,625	24.75

Table 4. Estimated revenue foregone due to under-stocking in the selected Poultry Farms (Broiler Enterprise)

Poultry Farm Code#	Capacity unstocked Parts of Pens (N0. Of Birds)	Expenditure Pen Per Birds (₦)(Approx)	Potential Expenditures (₦)	Potential Gross Revenue (₦)	Foregone Net Revenue (₦)
PF₁	5,300	750	3,975,000	6,360,000	2,385,500
PF₂	1,000	750	750,000	1,200,000	450,000
PF₃	0	0	0	0	0
PF₄	0	0	0	0	0
PF₅	4,250	750	3,187,500	5,100,000	1,912,500
PF₆	0	0	0	0	0
PF₇	2,250	750	1,687,500	2,700,000	1,012,500
PF₈	2,280	800	1,824,000	2,736,000	912,000
PF₉	2,250	800	1,800,000	2,700,000	900,000
PF₁₀	1,680	800	1,344,000	2,016,000	672,000
PF₁₁	0	0	0	0	0
PF₁₂	3,850	750	2,887,500	4,620,000	1,732,500
PF₁₃	3,475	800	2,780,000	4,170,000	1,390,000
PF₁₄	2,280	750	1,710,000	2,736,000	1,026,000
PF₁₅	2,500	750	1,875,000	3,000,000	1,125,000
PF₁₆	2,850	750	2,137,500	3,420,000	1,282,500
PF₁₇	3,950	750	2,962,500	4,740,000	1,777,500
PF₁₈	0	0	0	0	0
PF₁₉	1,500	750	1,125,000	1,800,000	675,000
PF₂₀	1,850	800	1,480,000	2,220,000	740,000
PF₂₁	900	800	720,000	1,080,000	360,000
PF₂₂	750	800	600,000	900,000	300,000
PF₂₃	1,450	800	1,160,000	1,740,000	580,000
PF₂₄	2,450	750	1,837,500	2,940,000	1,102,500
PF₂₅	2,475	750	1,856,250	2,970,000	1,113,750

US$1 = ₦160.00

Table 5. The estimate of relationship between migration and labour shortage, foregone output and foregone revenue.

Variables	Coefficients	Std error	T-Square
Intercept	29756.36	19.4064	0.426
Labour Shortage	4.469	0.8818	0.094**
Foregone Output (no. of birds)	6.955	0.9110	0.075**
Revenue Foregone	6.90580E^{-07}	3.6151E^{-07}	1.903*

R^2=0.897, F=29.699

Note: * = Significant at 10% level; **Significant at 5% level.

Table 4 shows that apart from the poultry farms (PF₃,PF₄,PF₆, PF₁₁ and PF₁₈) which did not suffer loss of labour, the various poultry farms lost various amounts of money ranging according to size (no. of birds) not stocked , from   ₦ 3000,000 to ₦–2,385,000 in   2012. These amounts of money would have been part of the incomes of the various poultry farms if the required number of workers (labour) were available to carry out operations commesurate to full capacity stocking. This implies shortage of labour prompted by rural-urban migration, leads to loss of revenue to the farms. This is in consonance with the observations and findings of Afolabi (2007), Ofuoku and Chukwuji (2012) respectively, that rural-urban migration has negative impacts on agricultural productivity by loss of productive rural communities' members/citizens. Rural –urban migration has therefore, caused labour deficit in the rural areas. Afolabi (2007) found that rural to urban migration had correlation with the level of production of four crops in Nigeria. This finding is congruent with Afolabi's hypothesis that the more the number of rural- urban migrants, the fewer the able bodied individuals available to work in the farm and this is expected to negatively impact on future agricultural productivity. Thus,availability of labour is a salient variable for enhancement of agricultural productivity.

3.3 Relationship between rural-urban migration and labour shortage foregone out put and forgone revenue

It was hypothesized that there was no significant relationship between rural-urban migration and labour shortage foregone output, and forgone revenue. While testing this hypothesis, three functional forms of multiple regression models-linear, double log and semi-lop, were tried to determine form that is best fit. The double-log function was adopted as the lead equation since its equation showed goodness of fit since it has the highest number of significant variables. The R^2 value of 0.897 implies that 89.7% of the parameter estimates are responsible for the result obtained. The parameters of the estimated double-log model are shown in Table 5. Labour shortage (X^1); number of birds not stocked (foregone output) (X^2) and revenue foregone (X^3) had positively and significant correlation with rural-urban migration. This means that as more able bodied young adults emigrate to urban areas, the rate of labour shortage will be high, under stocking of the pens will be higher, and the amount of revenue foregone will be increasing. The higher the population of rural-urban migrants, the more the areas of poultry pens left unstuck (no. of birds) because of the scarcity of labour. As the rate of rural-urban migration becomes higher, the higher amount of revenue foregone will be as a result of the dearth of labour created by rural-urban migration. This is in consequence with Essang and Mabawonku (1975), Tuan et. Al. (2000), Ekong (2003), Kendel (2003), Ray (2004), Adewale (2005), Afolabi (2007), Ofuoku and Chukwuji (2012) who found that rural-urban migration have adverse effects on agricultural productivity in the push area. Considering the results obtained, the hypothesis which states that there is no significant relationship between the dependent and independent variables is therefore rejected.

4. Conclusion and Recommendations

One of the challenges to the agricultural sector, especially the livestock sub-sector and the poultry sub-sub-sector in the Niger Delta Region of Nigeria is rural-urban migration. The able bodied young adults who constitute bulk of the labourers in the rural areas are the mostly of migrated from the rural areas. There were extent cases of labour shortages in the selected broiler farms. The consequence was under-shortage in most of the poultry farms which translated into foreogone revenue of different sums of money. Rural to urban migration correlated significantly and positively with shortage of labour, under-stocking and revenue forgone. Therefore, it is inferred that rural-urban migration had negative impact on broiler production. Taking cognizance of the above facts, it is recommended that the various States governments in the Niger Delta Region should embark on rural infrastructural development to elicit the non-farm sector of the rural settlements to enhance reduction in the rate of rural to urban migration to the least minimum so that young men in the rural areas will be motivated to remain in their respective rural communities. Poultry farmers need to be encouraged by government and donor agencies to adopt mechanized/automated poultry operations to make provision for lost labour force.

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