

**Araştırma Makalesi**  
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## Effect of Rural - Urban Migration on Arable Crops Production in Delta North Agricultural Zone, Delta State, Nigeria

Nijerya, Delta Eyaletinde, Delta Kuzey Tarım Bölgesinde Kırdan Kente Göçün Tarla Bitkileri Üretimine Etkisi

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### Key Words:

Rural-urban migration, labour, farming households, arable crops, effect

### Anahtar Sözcükler:

Kırdan-kente göç, işgücü, tarım işletmesi hanehalkı, tarla bitkileri, etki

### ABSTRACT

**T**his study examined the events of rural-urban migration on Arable crops production in the rural areas of Delta North Agricultural Zone of Delta State. Data were collected from 180 rural households' arable crops farmers. Descriptive statistics and multiple regression analysis were employed to analyze the data. Most migrants were able bodied young adults. Labour shortage was experienced in almost every household by arable crops farmers. As a result of labour shortage there were lots of uncultivated and under-cultivated arable crop lands in hectares. Net revenue foregone significantly correlated with labour shortage, reduction in arable crops production and rate of migration. The findings reveal that rural-urban migration was selective of age, marital status, and educational backgrounds while the primary reason for the movement was to better themselves economically. Also, that the massive influx of people to the cities was due to the dearth of infrastructure and economic opportunities and the neglect suffered by the agricultural sector in the rural areas. As a recommendation, a more proactive measure be adopted in the rural infrastructural development and government should adopt and enforce infrastructural priority policies that will create the enabling environment for rural transformation and agricultural development in rural areas that will bring positive effects to households of arable crops farmers who are the hub of food production in Delta North.

### ÖZET

**B**u çalışma, Delta Eyaletinin, Delta Kuzey Tarım Bölgesi'nin kırsal alanlarında kırdan kente göçün tarla bitkileri üretimi üzerinde etkisini incelemiştir. Veriler, kırsal kesimde yaşayan ve tarla bitkileri üretimi yapan 180 çiftçiden toplanmıştır. Verileri analiz etmek için tanımlayıcı istatistikler ve çoklu regresyon analizi kullanılmıştır. Çoğu göçmenler sağlıklı genç yetişkinlerdir. İşgücü kıtlığı tarla bitkileri üretimi yapan hemen hemen her hanede yaşanmaktadır. İşgücü yetersizliği sonucunda, az işlenen veya ekilmeyen çok fazla tarla bitkileri arazisi bulunmaktadır. İşgücü kıtlığı, tarla bitkileri üretimindeki azalma ve göç oranı ile net gelir kaybı arasında anlamlı bir ilişki vardır. Kırdan kente göçün başlıca nedeni kendilerine daha iyi ekonomik koşullar sağlamak iken, kırdan kente göçün yaş, medeni durum ve eğitim durumundan etkilendiği belirlenmiştir. Ayrıca, insanların kentlere yönelik büyük akınına, kırsal alanda ekonomik fırsatların ve alt yapının eksikliğinin ve tarım sektörünün ihmal edilmesinin neden olduğu anlaşılmaktadır. Bir öneri olarak, Kuzey Delta'da gıda üretiminin merkezi olan tarla bitkileri üretimi yapan üreticilerin hanehalklarına olumlu etkiler getirecek olan kırsal alanda kırsal dönüşüm ve tarımsal kalkınma için uygun ortamı yaratacak olan kırsal altyapı gelişiminde proaktif bir yöntem benimsenmeli ve hükümet alt yapı öncelikli politikaları benimsemeli ve uygulamalıdır.

### INTRODUCTION

In many countries, particularly in the third world countries, there is a noticeable dominant pattern of migration, rural – urban migration. This pattern of migration is not a new phenomenon. Generally,

migration is a regular occurrence in the life of any group of people or nation. Rural – urban migration is mostly temporary. People migrate in response to prevailing conditions or situations (Ekong, 2003, Ofuoku, 2012). The decision by people to migrate or move is always

informed by the prevailing situations which may be a selective process affecting individuals or families with certain economic, social, educational and demographic characteristics (Adewale, 2005).

Most people dwell in the rural areas. In fact, according to Ekong (2003), in Nigeria, over Seventy percent of the population live and derive their livelihood from the rural areas. Agriculture is the major driving force for rural growth and development. Unfortunately, agricultural productivity is very low in Nigeria. The obvious impact of poor agricultural productivity on rural communities is impoverishment of rural dwellers. This is exacerbated by poor rural infrastructure, which constitutes the major reasons for rural-urban migration.

Both urban and rural infrastructures have witnessed monumental decay in Nigeria (Popoola, 2006). Several rural communities have been cut off due to poor and inaccessible roads, electricity and good water are now luxuries. Until these are addressed we will continue to witness rural – urban migration unabated and we cannot hope to realize the full potentiality of the rural landscape endowment (Popoola; 2006).

The exodus of rural families to urban zones also causes a deterioration of the environment in terms of more contamination of garbage and human waste. The massive number of the poor in urban areas decreases the ability to protect the environment and places tremendous pressure on existing resources available to cope with deteriorating conditions. It is therefore imperative to improve quickly the conditions and situations of people in rural areas quickly that so they can meet their basic needs first and then work to protect and preserve natural resources.

Another concern is that the current population of farmers in many countries is becoming smaller and is growing older, The older ones are not being replaced by younger generations of farmers at the same rate, as in the past. Adequate solution to the urban invasion problem is not only a concern for rural youths; the area of policy making should include incentives like training in agricultural production, creation of access to agricultural credit facilities with low interest rate. Moreover, employment opportunities, leadership training, health care programmes and a stronger non – formal education in which content is adapted to the unique needs of the clientele should be a part of any effort to bring about positive change. Unfortunately, what has been mentioned above are seen as future solutions for government to achieve, especially now that the neo – liberal approach is being adapted where resources for rural development are very limited and coupled with high level of corruption?

Fadoyomi (1998), Ekong (2003) and Afolabi (2007) maintain that rural – urban migration has negative effect on agricultural productivity in all ramifications especially through loss of productive members of the rural families or communities. It is expected that a reversal in the trend in migration will help to assuage the adverse effects on all agricultural productivity as suggested by. The consistent production of arable crops annually will engender food availability for the growing teaming population and help to stabilize food security.

The discovery of petroleum in the Niger – Delta Regions of Nigeria has greatly fuelled rural – urban migration to the detriment of the agricultural sector of the economy of the region. A lot of people in the rural areas were prompted by the petroleum industry to migrate from rural to urban areas in search of white-collar jobs. This resulted in deficit in agricultural productivity in Delta State (Ofuoku, 2006).

In the circumstance, improved performance of the rural economy in forms of food production and other enterprises depend largely on the state of rural infrastructures and the types of social safety nets available to safeguard rural livelihoods. To achieve sustained rural development, these should be properly articulated and sustainable interventions in rural communities in terms of infrastructural development, motivations and education by governments, non-government organization, institutions, groups and individuals.

The efforts of the Nigerian government in agricultural development over the past three decades have failed to improve the economy. A review of the sector depicts a gloomy active picture. Performance is reflected in environmental degradation, mounting food deficits and decline in both gross domestic product and export earnings; while retail prices of food and import bill have been increasing. These effect have further impoverished the small holder farmers, thereby placing them in the poverty web (Iruonagbe, 2009).

Government concern with this situation in the past gave rise to various plans and projects aimed at checking the inflow of migrants from the rural to urban areas. Most of the schemes established by the federal government failed, to a large extent due, to the inadequate specification of the problems and the target population of the “migration- influencing” programmes. Iruonagbe (2009) argued that this is an aggravating factor due to the corrupt practices surrounding governmental programmes and the non- continuity on government policies and programmes by successive administrations. The Directorate of Food, Roads and Rural Infrastructure (DIFFRI) was established to provide the Nigerian rural populace with infrastructural facilities

(roads, electricity, water boreholes and pumps, agricultural inputs) to enhance food production, processing and evaluation of their produce to urban markets and to stem rural urban migration.

In order to fast track the gains of the 2001, New Agricultural Policy, there came the Presidential Initiatives in Agriculture (PIA) 2004, the National Special Food Security Programme (NSFSP) and FADAMA II 2005. In 2006, the National Agricultural Development Fund (NADF) was established with a takeoff capital of (Fifty billion naira) with a view to address the problem of inadequate funding of agriculture on a sustainable basis. The above policies lend support to the New Economic Partnership for Africans Development (NEPAD) as well as the Lagos Plan for Action (LPA); acknowledgement that agricultural mechanization and environmental stability are *sine qua non* for increased food production and food security (Faborede 2005).

All of these programmes no matter how laudable they have been or may be, have to a large extent failed to address the issue of migration as are expected to reduce the high migration of the active population from the rural to urban areas. Of serious note, these programmes were strangled and eventually killed by corrupt officials that were saddled to executing these programmes.

Rural-urban migrants are mainly youths (Onuekwusi, 2005) that constitute the bulk of every society, in fact the development of agriculture in every society is dependent on its active youth population who are regarded in every society as its "backbone". Every nation that wants to achieve rapid development in any sphere must mobilize, harness and develop optimally the potentials of its youth. The fact that the bulk of Nigeria's agricultural production is still in the hands of subsistent farmers dominantly residing in rural areas, is an advantage for the youths who dominate the rural areas to engage on and contribute to its development.

Ofuoku and Chukwuji (2012) found that rural urban migration impacted negatively on plantation agriculture in the Niger Delta Region of Delta State, Nigeria. It was suspected that this same trend is extant with respect to arable crops farming.

### Objectives of the study

The objective of this study was to present some empirical evidence of the effects of rural – urban migration on arable crops production in Delta North Agricultural Zone of Delta State. The specific objectives were to;

- i. Determine the socio-economic characteristics of migrants household heads.
- ii. Ascertain the rate of rural – urban migration by age of migrants in selected rural communities.

- iii. identify the causes for their migration to urban areas
- iv. determine the impact of rural – urban migration on labour availability for arable crops production, size of land farmed and farm revenue.

### Hypothesis

There is no significant relationship between net farm income (revenue) foregone, rate of rural-urban migration, labour shortage and size of foregone farmland.

### MATERIAL and METHOD

Delta North Agricultural Zone is one of the three agricultural zones in Delta State and is made up of Nine (9) Local Government Areas (extension blocks) and seventy-two (72) cells. The zone has a projected population of 1,229,371 people (Federal Bureau of Statistics, 2007). The zone is bounded in the East by Anambra State, North by Edo State, South by Delta Central Agricultural Zone and Edo Benin. Delta North Agricultural Zone has tropical climate marked by two distinctive seasons. The dry and rainy seasons. The dry season occur between November and March, while the rainy season, which encourages the growth of Arable crops and other vegetables in the zone, begins in April and last till October. A brief dry "spell" occurs in August "August break" while from December to February, usher in the dry harmattan wind that blows over the area.

Primary data were utilized for this study. Data were obtained through the use of well structured questionnaire. The questionnaires were pre-tested to remove any ambiguity. Primary data were collected with the assistance of Delta State Agricultural Development Programmes (ADPs) Extension staff (agents) assigned to various Blocks and Cells.

A purposive sampling technique was adopted to select household heads of migrants who emigrated for the past five (5) years. Rural household heads of migrants were identified with the help of Community leaders and Extension staff (agents) attached to various blocks, cells. Twenty (20) household heads of migrants were randomly selected from the identified household heads of each of the Nine (9) Local Government Areas of the Delta North Agricultural Zone, totaling one hundred and eighty (180) household heads of migrants. These household heads were served with questionnaire and some were interviewed and data obtained on the number and ages of migrants to urban areas.

From the data collected, the rate of household member(s) (labour) shortage was derived as the difference between household member(s) (labour) required and the actual household member(s) (labour) available in 2010 to 2014, expressed the percentage of household member(s) (labour) required. This method

was adapted from Essang and Mabawonku (1974). The percentage of total cultivable hectares (farm size) uncultivated and the percentage of cultivated hectares in 2010 to 2014, due to the surge of migration were also computed from the data. The loss of output (revenue) suspected due largely to uncultivated hectares orchestrated by migration was estimated in (aggregate) physical and in revenue terms as foregone revenue.

Firstly, the price per hectare yield (farm size) was multiplied by the total number of hectares uncultivated to obtain the foregone revenue in physical units. Using the 2010-2014 tentative average price per hectare on cassava, yam and maize, the amount of revenue foregone was duly computed. Secondly, the additional revenue which would have been incurred in an effort to fully cultivate available farm size was estimated by multiplying the revenue per hectare by the number of hectare uncultivated. The difference between gross revenue and this additional outlay is the net revenue foregone by the failure to cultivate the available hectareage of the Arable crops land due to urban drift syndrome. Moreover, the researcher is perfectly aware that there these exist other theoretically satisfactory approaches to determining output loss due to incomplete cultivation of available farm size area (hectares) earmarked for arable crops production.

The hypothesis was tested with the use of multiple regression models. Three forms of model – semi-log, double log and linear forms were tested and the one with the best of fit- the one with the highest  $R^2$  value and the largest number of significant variables was adopted. The model is implicitly stated as follows:

$$Y = f(x_1 + x_2 + x_3 + x_n \dots \dots \mathcal{E})$$

Where:

$Y$  = Foregone net revenue (N)

$x_1$  = Labour shortage (difference between required and available labour)

$x_2$  = Size of uncultivated area of farmland (ha)

$x_3$  = Rate of rural-urban migration rate (No. of migrants from)

$\mathcal{E}$  = Error term

## RESULTS and DISCUSSION

### Socio-economic characteristics of household heads

Result in Table 1 shows that most respondents were in age bracket of 41-60 years constituting 95% indicating an ageing farming population, which is consonant with the assertion of Ekong (2003) that farming in the rural areas of Nigeria is dominated by older farmers because of outright migration of youths to urban centres in search of white-collar jobs.

**Table 1.** Socio-Economic Characteristics of Migrant Household Heads  
*Çizelge 1. Göçmen Hanehalkı Reisinin Sosyo-Ekonomik Özellikleri*

Characteristics	Frequency (n = 180)	Percentage %
<b>Gender</b>		
Male	138	76.70
Female	42	23.30
<b>Household Heads Age</b>		
20-30	-	-
31-40	9	5
41-50	72	40
51-60	81	45
60 above	18	10
<b>Material Status</b>		
Married	135	75
Single	45	25
<b>Level of Education</b>		
Non Formal Education	30	16.7
Primary Education	75	43.3
Secondary Education	52	28.9
Tertiary Education	20	11.1
<b>Household Size</b>		
1-5	72	40
6-10	99	55
11-15	9	5
15 Above	-	-
<b>Farming Experience</b>		
1-10	7	3.9
11-20	36	20
21-30	81	45
31-40	54	30
41 above	2	1.1
<b>Farm Size (HA)</b>		
Bellow 1	105	58.3
1-4	45	25
5-8	27	15
9 and above	3	1.7
<b>Major Arable Crops Cultivated</b>		
Cassava	99	55
Yam	54	30
Maize	18	10
Melon	9	5.9

About 76.7% were female however, and this result does not agree with the findings of Jabil (2009), who reported that men are more into agricultural production, while it agrees with Uzokwe and Ofuoku (2006) who found out that women have taken over arable crop farming. Only 23.3% were male. A total of 75% are married, this finding is in line with the report of Adamu (2005) who stated that 95% of the peasant farmers in Nigeria arte married and 69% had non-formal education. In the area of education, about 83.3% of the respondents had one form of formal education or the other which also implies that they are largely literate farmers who could adopt any form of improved innovation on agricultural production and development. Most (55%) of the respondents had a household size of between 6-10,

40% had 1-5, while 5% had 11-15. With respect to experience, household heads of migrants had farming experience of 21-30 years (45%); 31-40 years (30%), 11-20 years (20%), 1-10 years (3.5%) while 1% had above 41 years. The implication of these results is that, with these years of experience, the farmers will be able to manage the productivity of their crops more efficiently and effectively. Hence, Hatrimelar (2009), opine that farmers, overtime have developed indigenous knowledge (IK) on how to manipulate their environment for agricultural productivity. On the major arable crops cultivated by the respondents, 55% cultivated cassava followed by 30% for yam, 18% for maize while 5% cultivated melon. The respondent's farm size indicated that most (58.3%) had below 1 hectare of farm land, followed by between 1-4 hectares (25%), 15% had 5-8 hectares and above 1.7% had 9 and above hectares. This result indicates that majority of respondents are still in subsistence farming level on fragmented farm holdings.

#### Rate of rural-urban migration by age in the selected rural communities

The trend of rural-urban migration is age selective (Table 2) as most 83.3% of the migrants for the past five (5) years were in the age bracket of 21-30 years. Similarly, 10% of those in the age range of 10-20 years migrated to urban cities. The data indicated that most (93.3%) of those who migrated from rural areas to urban areas were in the age bracket of 10-30 years. This confirmed the observation of Essand and Mabawonku (1974) that the incidence of migration is highest among the most productive age group (15-30 years) than any other. This leads to a heavy drain on the supply of rural family labour and in addition, pulls out the individuals, the essential elements of agricultural development programmes. In contrast, a small percentage of those in the age brackets of 41-50 years (1.1%), 31-40 years (5.6%) and 51 years and above (0%) had migrated to urban areas. This also is congruent with Ekong (2003) who stated that most migrants tend to be disproportionately young.

**Table 2.** Rate of Rural-Urban Migration by Age in Selected Rural Communities

**Çizelge 2.** Ele Alınan Kırsal Topluluklarda Yaşa Göre Kırdan-Kente Göç Oranı

Age (Years)	Frequency	Migrants Rate (%)
10-20	18	10
21-30	150	83.3
31-40	10	5.6
41-50	2	1.1
51 above	0	0

#### Why household members embarked on rural-urban migration

Table 3 shows that 25% of the migrants primarily migrated to the urban areas with the desire for education, 35% for employment, 21% for skill acquisition (apprenticeship) training, 16.1% desiring social amenities and 2.2% for marriage settlement.

**Table 3.** Why Household Members Embark on Rural-Urban Migration (n = 180)

**Çizelge 3.** Hane halkı Üyelerinin Kırdan-Kente Göç Nedenleri (n = 180)

Reasons	Frequency	Percentage (%)
Employment	63	35
Education	46	25.6
Social amenities	29	16.1
Skill acquisition/apprenticeship	38	21.1
Marriage	4	2.2

#### Effects of rural-urban migration on labour required in arable crops farms among household heads

Table 4 reveals that many medium/ small scale Arable crops farms in Delta North Agricultural Zone, LG<sub>1</sub> to LG<sub>9</sub>, have similar challenge of household members labour shortfalls between 35% and 58.3% of expected labour required. This finding confirmed those of Tuan, Somwaru and Diao (2000), Ekong (2003), and Adewale (2005) Ofuoku and Chukwuji who founded that migration from rural to urban areas tends to deplete the agricultural labour force as it is the able-bodied young men who usually move.

**Table 4.** Aggregated Labour Shortage in Various Household Farms of Migrants (2010 – 2014)

**Çizelge 4.** Çeşitli Hanehalkı İşletme Gruplarına Göre Göç Edenlerin Toplam İşgücü Kıtlığı (2010 – 2014)

Local Govt. Area Code	Expected Labour	Available Labour	Unavailable Labour	Percentage (%)
LLG <sub>1</sub>	40	19	21	52.5
LLG <sub>2</sub>	30	14	16	53.3
LLG <sub>3</sub>	35	16	19	54.3
LLG <sub>4</sub>	70	30	40	57.1
LLG <sub>5</sub>	60	25	35	58.3
LLG <sub>6</sub>	30	14	16	53.3
LLG <sub>7</sub>	35	20	15	43
LLG <sub>8</sub>	25	10	15	44
LLG <sub>9</sub>	20	13	7	35

Source: Migrants' household heads

Arable crops production will continue to dwindle from labour shortage problems due to rural-urban migration because young men are no longer committed to agriculture and there is the irresistible attraction to urban life and its amenities, which is characterized with the dullness and secluded life in the rural Communities due to under social amenities and infrastructure (Ofuoku and Chukwuji, 2012).

#### **Estimated Arable Crops Farm Land Size (hectare) uncultivated due to Rural-Urban Migration from 2010-2014.**

Table 5 shows that in the Nine (9) Local Government Areas LG<sub>1</sub> – LG<sub>9</sub>, there were lots of uncultivated hectares of Arable crops farm land ranging from 54.3% to 64.3%

of the total cultivable hectares for Arable crops production. These lapses in form of short-falls in cultivating cultivable hectares of land meant for arable crops productivity was as a result of rural-urban migration which has reduced drastically the manpower needed by various household heads for arable crops production. These results confirm the observation of Kandel (2003), Ekong (2003), Adewale (2005) and Ofuoku and Chukwuji (2012) that with no commensurate substitution of the displaced labour, agricultural productivity tends to fall. Uncultivated Arable crops land is expected to have serious economic implications in terms of food security, stable food and foregone revenue.

**Table 5.** Average Foregone Arable Crops Farm Land (Ha) Area due to Rural-Urban Migration from 2010-2014

**Çizelge 5.** Kırdan-Kente Göç Nedeniyle Ortalama Vazgeçilen Tarla Bitkileri Üretim Alanı (Ha) (2010-2014)

Local Govt.	2010			2011			2012		
	Available	Cultivated	Uncultivated farm	Available	Cultivated	Uncultivated farm	Available	Cultivated	Uncultivated farm
FSLG <sub>1</sub>	29.8	15.8	14 <sup>47</sup>	29.8	13	16.8 <sup>56.4</sup>	29.8	12	17.8 <sup>59.7</sup>
FSLG <sub>2</sub>	24.5	11	13.5 <sup>43</sup>	24.5	10.5	14.0 <sup>38.8</sup>	24.5	12	12.5 <sup>46</sup>
FSLG <sub>3</sub>	27.5	12.5	15.0 <sup>34.5</sup>	27.5	11.3	16.2 <sup>41.8</sup>	27.5	12.5	15.0 <sup>45.5</sup>
FSLG <sub>4</sub>	57.5	24.3	33.2 <sup>25.2</sup>	57.5	21.8	35.7 <sup>28.7</sup>	57.5	26.0	31.5 <sup>29.7</sup>
FSLG <sub>5</sub>	46.5	19.1	27.4 <sup>31.2</sup>	46.5	21.3	25.2 <sup>33.3</sup>	46.5	22.0	24.5 <sup>36.3</sup>
FSLG <sub>6</sub>	22	9	13 <sup>59.1</sup>	22	8.2	13.8 <sup>62.7</sup>	22	7.9	14.1 <sup>64.1</sup>
FSLG <sub>7</sub>	26.5	11.9	14.6 <sup>13.2</sup>	726.5	12.2	14.3 <sup>19.2</sup>	726.5	10.4	16.1 <sup>23.4</sup>
FSLG <sub>8</sub>	18	9	9 <sup>50</sup>	18	8.1	9.4 <sup>52.2</sup>	18	7.2	10.8 <sup>60</sup>
FSLG <sub>9</sub>	15.8	6.0	9.8 <sup>24.1</sup>	15.8	6.8	9.0 <sup>25.3</sup>	15.8	6.4	9.4 <sup>34.2</sup>
Local Govt.	2013			2014					
	Available	Cultivated	Uncultivated farm	Available	Cultivated	Uncultivated farm			
FSLG <sub>1</sub>	29.8	8.6	21.2 <sup>71.1</sup>	29.8	7.4	22.4 <sup>71.2</sup>			
FSLG <sub>2</sub>	24.5	9.0	15.5 <sup>50.6</sup>	24.5	11.5	13.0 <sup>56</sup>			
FSLG <sub>3</sub>	27.5	13.4	14.1 <sup>50</sup>	27.5	12.9	14.6 <sup>52.7</sup>			
FSLG <sub>4</sub>	57.5	28.3	29.2 <sup>23.3</sup>	57.5	18.5	39.0 <sup>44.3</sup>			
FSLG <sub>5</sub>	46.5	20.8	25.7 <sup>39.4</sup>	46.5	16.4	30.1 <sup>40.6</sup>			
FSLG <sub>6</sub>	22	7.2	13 <sup>59.1</sup>	22	7	15 <sup>68.1</sup>			
FSLG <sub>7</sub>	726.5	8.5	18.0 <sup>24.5</sup>	726.5	11.0	15.5 <sup>31.1</sup>			
FSLG <sub>8</sub>	18	6.8	11.2 <sup>62.2</sup>	18	5	13 <sup>72.2</sup>			
FSLG <sub>9</sub>	15.8	4.8	11.0 <sup>41.1</sup>	15.8	5.4	10.4 <sup>49.4</sup>			

Source: Field Survey, 2015

**Table 4.5.** Uncultivated Aggregated Hectare(S) of Arable Crops Farm Land Foregone Among Household Farmers Due to Rural-Urban Migration 2010 – 2014

**Çizelge 4.5.** Kırdan Kente Göç Nedeniyle, Hanehalkı Üreticileri Arasında Vazgeçilen Tarım Arazilerinde Ekilmeyen Toplam Tarla Bitkileri Üretim Alanı (hektar) (2010-2014)

Local Govt. Area Code	Available farm size	Cultivated farm size	Uncultivated farm size	Uncultivated % of hectares
FSLG <sub>1</sub>	149	56	92.2	63
FSLG <sub>2</sub>	122.5	55.5	67	54.7
FSLG <sub>3</sub>	137.5	62.6	74.9	54.5
FSLG <sub>4</sub>	287.5	120.2	167.3	58.2
FSLG <sub>5</sub>	232.5	100.5	132	56.8
FSLG <sub>6</sub>	110	39.3	70.7	64.3
FSLG <sub>7</sub>	132.5	60.5	72	54.3
FSLG <sub>8</sub>	90	36.1	53.9	60
FSLG <sub>9</sub>	79	34.8	44.2	56
TOTAL	1,340.5	565.5	774.2	

### Effects of rural-urban migration on farm revenue foregone

Table 6 indicates woeful substantial aggregate amount of foregone revenue ranging from N6, 606, 920 to N12, 257, 330 (64%) in 2010 to 2014. This amount of money would have been added revenue to various arable crops farming household heads if the expected household members (labour) were available to cultivate the available farm size. This trends stand to confirm an earlier observation that the shortage of labour would have serious economic implications in terms of food security, stable food and foregone revenue. This is in consonance with Ofuoku and Chukwuji (2012) who

found that there was revenue foregone as a result of rural-urban migration. This agrees with the observation of Afolabi (2007) who stated that rural-urban migration negatively affects agricultural productivity through loss of productive members of the rural communities and goes further to say that rural-urban migration correlated with productivity of four crops in Nigeria. Accordingly, Fadayomi (1998) recalls that internal migration has a negative impact on the quality of rural life because it reduces the population of individuals in the rural areas and this contribute to a labour deficit in the rural areas which invariably affects agricultural productivity.

**Table 6.** Aggregated Forgone Revenue of All LGs in Delta North Agricultural Zone 2010-2014  
**Çizelge 6.** Delta Kuzey Tarım Bölgesinde Yerel Hükümetlere Göre Toplam Kaybedilen Gelir (2010-2014)

Local Govt. Area Code	Expected Revenue (₦)	Realized Revenue (₦)	Foregone Revenue (₦)
FRLG <sub>1</sub>	19,766,340	7,509,010	12,257,330
FRLG <sub>2</sub>	16,250,850	7,091,425	9,159,425
FRLG <sub>3</sub>	18,240,750	8,307,660	9,933,090
FRLG <sub>4</sub>	38,139,750	15,736,830	22,402,920
FRLG <sub>5</sub>	30,843,450	13,151,295	17,692,155
FRLG <sub>6</sub>	14,592,600	5,211,665	9,380,935
FRLG <sub>7</sub>	17,577,450	7,164,370	10,413,080
FRLG <sub>8</sub>	11,939,400	4,871,810	7,067,590
FRLG <sub>9</sub>	10,480,140	3,871,220	6,606,920
<b>TOTAL</b>	<b>177,830,730</b>	<b>72,917,285</b>	<b>104,913,445</b>

Source: Migrants' household heads

### Relationship between rate of rural-urban migration and labour shortage, uncultivated area of farmland and foregone revenue

It was hypothesized that there was no significant relationship between foregone revenue and migration, uncultivated farmland and labour shortage. In testing this hypothesis, three functional forms of multiple regression models – linear, double log and semi-log were fitted to determine the function with the best fit. Only the linear function was adopted as the lead equation because its equation showed goodness of fit considering the quality of its co-efficient, R-square,

adjusted R-square and the number of significant variables. R<sup>2</sup> value = 0.999 indicates that 99.9% of the parameter estimates are responsible for the result obtained. The parameters of the estimated linear regression model are shown in Table 7 rate of migration (Y), labour shortage (X<sub>1</sub>), uncultivated farmland (X<sub>2</sub>), foregone farm income (revenue) (X<sub>3</sub>). were positively and significantly correlated with rural-urban migration. This implies that the more able bodied young adults migrate from rural to urban settlements, the higher the level of labour shortage which invariably increases foregone revenue.

**Table 7.** Estimate of Relationship Between Rate of Migration and Farm Income (revenue) Forgone, Labour Shortage and Foregone Area of Farmland  
**Çizelge 7.** Kaybedilen Çiftlik Geliri, İşgücü Kıtlığı ve Vazgeçilen Tarım Arazisi ile Göç Oranı Arasındaki Tahmini İlişki

	Coefficients	Standard Error	t Stat	P-value
Intercept	-271115.413	228169.0855	-1.18822	0.288104
Labour shortage	124717.7612	42188.6733	2.956191	0.031658*
Size of uncultivated area of farmland	120273.0609	16137.2455	7.453134	0.000686*
Farm income foregone	51747.17154	63223.66787	2.734486	0.495632*
Dependent variable is rate of migration				

NOTE \* = Significant at 5% level

The higher the number of rural-urban migrants, the larger the area that is uncultivated as a result of the dearth of labour. The higher the rate of rural-urban migration the more the revenue forgone will be, because of the shortage of labour created by rural-urban migration.

This is congruent with Essang and Mabawonku (1975), Tuan *et al.* (2000), Ekong (2003), Ray (2004), Adewale (2005), Afolabi (2007) who discovered that rural-urban migration have negative consequences on agricultural production in the source area. Based on the results obtained, the hypothesis of no significant relationship between dependent variable and independent variables is therefore rejected.

### CONCLUSION and RECOMMENDATIONS

This study focused on the migration of people from rural-urban areas and how this has tremendously affected arable crops production in Delta North Agricultural Zone. It was discovered that arable crops sub-sector which is the main stay of rural areas suffers a great deal owing to the rate migration. Arable crops farmers are compelled to cultivate lesser portions of their arable crops farm land which they can handle alone, or with their little children for lack of sufficient labour from household members. It was also discovered that the motives for migration are primarily strong desire for employment, education, skill acquisition training, better conditions of living (social amenities) and marital settlement.

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