



# THE STUDY OF STREET BEGGARS MOVEMENT AND ITS EFFECTS USING MARKOV CHAIN (A CASE STUDY OF ALMAJIRIS)

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## Abstract

This paper Study the effects and the extinction state of street beggars. A sample size of two hundred and eighty nine was obtained through direct interview method of sampling (Primary Source) using three states as strata. The method of analysis was done with the use of Markov Chain (Stochastic Process) using the transition probability. In the course of the study, six states was established which are the Almajiri School(AS), Regular School(RS), House Helper(HH), Farm(FM), Beggars(BG), Freely Expose(FE). The results shows the Chance of the states going to extinction is very high for Free Exposed (Threat States) with 73% while the others including the Almajiri School very low. Other test carry out is the Test for the effect of the five states on Almajiri while it was observed that the effect are not equal and that the Regular School, House Helper and Freely Expose were ranked high.

**Keywords:** Almajiris, Beggars, Markov Chain, School, Farm, Transition

## 1.0 INTRODUCTION

In Nigeria, street begging is a social problem that has become a source of concern to her citizens. The presence of beggars on major highways in recent times often violate social, political and economic changes, resulting from heavy migration of families from rural to urban places, where they face profound deprivation. These child street beggars mostly between the ages of [3-17] years are a regular feature of most of the northern Nigeria. They regularly move about in groups of 5-20 with plates or bowls in hand soliciting for stipends, food, or anything edible from people or passersby. Some commentators have argued that this societal ill has a cultural/religious dimension to it, while others argued that it has more of the political dimension to it. As those who believe in this particular mantra have argued that the present volatile nature and persistent violence in northern Nigeria can be traced to the activities of these child street beggars.

Whichever school of thought one belongs to, it is pertinent to draw the attention of political, traditional/cultural and religious leaders in Nigeria to this untoward social behavior, on the need to put a stop to this practice. It is unfathomable that in this age and time when kids who should be in school or doing

something positive with their lives are left to roam about the streets, all in the name of whatever social/cultural/religious or political nuances. According to Lynch (2005), street begging is often regarded as an anti-social behaviour issue. Mortimer (2005) defined street begging as asking for money without an exchange of service in a public place. Wikipedia (2010) defined begging as a practice whereby a person obtains money, food, shelter or other things from people they encounter by request. Bukoye (2015) regarded alms begging as the habit of someone (a beggar) soliciting for favour from others (potential donors) for survival and enrichment. In Nigeria, perceived begging as a derogatory habit brought about by unrestricted movement of the "almajiri" children especially in the North, which is now associated with toutting. Beggars are called by other names locally, Among the Hausa people, they are called Almajiri, the Ibo people call them Onyearirio while Yoruba call them Onibara. In their own views, Adedibu and Jellili (2001) regarded begging as an income supplement necessary for survival at some levels, related to addictive behaviours or the need for food, accommodation, health, and so on.

The practice of street begging by people living



with disabilities has become an embarrassing social phenomenon across the nation. In Nigeria, people living with disabilities flood the streets seeking and soliciting for alms from passers-by, motorists, cyclists, foreigners and the general public (Adelowo 2010). Konkola (1998) explained that street begging has assumed a serious problem in Africa for two reasons. First, the attitude of society towards the people living with disabilities is that of abandonment, apathy and over-protection. Secondly, the attitude of society has created negative attitude of total dependency among people living with disabilities themselves. According to Bukoye (2015), begging behaviour among people living with disabilities could be understood in four dimensions. First, there are some disabled persons who are forced into begging by their condition that is, begging for survival. Secondly, there are persons who beg without realizing that it is abnormal to do so. not necessarily for survival, but as a permissible norm. Thirdly, some persons beg because they have learnt to do so (either from their parents, guardians, or models). Lastly, some persons beg because they are psychologically predisposed to do so (due to lower self-esteem, lower achievement and lower motivation).

It has been observed that in most parts of Nigeria, people living with disabilities that ought to be in the schools are still roaming the street begging for alms. This is a major problem that has contributed to the wrong behaviours manifested by people living with disabilities which resulted to the way the society view them as people who need to beg for alms to survive (Bukoye, 2015). Ammani (2010) observed that the populations of beggars are growing exponentially on Nigerian street. The menace of street-begging as a potential threat to Nigerian societal fabric is obvious.

### 1.1 Mobility of Almajiri

The sovereign composition of the Nigerian states is made up of thirty-six (36) recognized states. With the historical trajectory of colonial amalgamation of the Southern and Northern Protectorates by Lord Lugard. The cultural character of northern Nigeria kept pace with its customs and religious. Each of these thirty-six states has rich cultures and religious beliefs that transcend the sociological and

historical disposition within their states. Northern Nigeria comprises nineteen states with over sixty percent of the Nigerian population awarded to it. The heartland of northern Nigeria is solidly dedicated to Islamic culture. This has influenced the socio-agents in respective states in terms of education (what is taught, not necessarily formal education), economic specialization (the type of trade and commerce practiced), politics and leadership, and patterns of social relations over the years.

With a Muslim population in the north of about 80%, child education, especially knowledge of Islam, is considered core. In this region, children seek Islamic knowledge in several madrasas (Islamic schools where children are taught). The culture of nurturing children with Islamic knowledge outside the parent's homes is referred to as almajiranci. The male gender that seeks this knowledge outside his parents' home is regarded as almajiris' while female gender is regarded as almajira. Also, the plural word for almajiris is thus regarded as almajirai, Characteristically, almajiris usually a small child is expected to stay with an Islamic scholar to build knowledge and, in some cases, devote maximum servitude and apprenticeship towards the words and teachings of such a scholar. In return, the Islamic scholar (mallam-Islamic Cleric) is expected to feed and cater to all almajirai's need until he's becoming youth'.

However, recent events in northern Nigeria suggest that the system (almajiranci) is facing critical challenges, in particular, the adaptation of the welfare of the old system to a modern generation. Added to this, sociological factors, such as family collapse and bad economic governance in northern Nigeria, have worsened almajirai's welfare conditions from their mallams. Importantly, the art of street begging by almajirai due to socio-economic and political changes, have brought to the fore security concerns around their mobility and what this means for Africa's regional security architecture. This becomes a relevant security issue given the precarious history of street children and young people in Sierra Leone and Liberia, and their role in violence and crisis. Arguably, poor governance and bad economic policies, such as the structural adjustment programme of the mid-1980s, affected family structures with multilayered implications for young people whose hopes were



dashed (O'Brien, 1996). As noted by Diouf (2003), tackling the root cause of despondency through counter-actionable governance helps halt the social behaviour that is capable of unleashing further mayhem on the citizenry and state, given the non-committed parasitic elites in charge of the post-colonial states that Ake (1996) describes as no different to the colonial state. The Almajirai are an example of bad governance in the fragile northern Nigeria (Ekpon, 2017). The implications of the mobility of almajirai are even more important given what some scholars have ascribed to parasitic clivism (Hansen, 2016), especially in a society where "expendable category" and a "war machine" are prevalent. Existing studies on almajirai have mainly focused on the educational formations and terrorism within the state's failed arguments. What is missing in those studies is how the mobility of these almajirai has become a salient non-military security concern within national boundaries as well as regional security architecture.

## 1.2. Significant of the Study

The research study the movement of the Almajiris from their school to other places, this is a very important study because it will strongly help to study and understand the movement which a very important tool in curtailing crime (Insecurity) in the country. There have been several Almajiris School all over the country which government have not been watching and studying their transition from the Almajiris School to other places which have become a security threat for the country for more than three decades now. Hence, the study will assist in understanding the transition.

## 1.3 Aim and Objectives

The aim of the research work is to study the movement of the Almajiris from their School to other places and the objectives are:

- to obtain the state spaces
- obtain a transition matrix
- to obtain the chances of moving to any of the state

## 2.0 LITERATURE REVIEW

The concept 'almajirai' has been studied by political scientists, sociologists, cultural and religious scholars in different ways. Despite not having a unified definition for the term, there are commonalities within the

operationalisation of what an almajiri is in social science literature. The term is derived from an Arabic word "al-Muhajirun" (Hansen 2016, p. 2). Almajirai refers to emigrants who seek Islamic knowledge outside his or her parent's home for a certain time. In this context, an almajiri (singular) is certainly well catered for in terms of where a child goes, its role in the society and what knowledge is expected from them in the society (Hoechner, 2018). The cultural interpretation of the term has mutated from the almajiranci-the system of seeking Islamic knowledge for children at such tender age outside their parents' homes. It has included modification of children seeking for qur'anic knowledge and those characteristically feeding for themselves by collecting alms on the streets. Contemporary features associated with almajiri in present Nigeria recognize the social and economic changes that are pertinent to describing who an al-majiri is in Northern Nigeria. Almajirai (plural) refers to children, often between five and fourteen, sent to a mallam, or to Islamic scholars so that they are not distracted from a quranic education and its principles. They are Islamic seekers of knowledge whose moral and qur'anic education is meant to be used in upholding societal values in Northern Nigeria (Aghedo and Eke, 2013, p. 8). Children like these are found in similar countries of West Africa such as Niger, Mali, Senegal, and Burkina Faso where a sizeable Muslim population can be found.

Street begging is the act of moving from one place to another soliciting for money, food and clothes or asking passers-by for money in public place without any exchange of service. The Nigerian constitutional law and criminal code view such act as a deviation from what is defined as right. Regardless of this, begging has turned out to become a social institution and commercial enterprise for some lazy and healthy individuals in society. The activity is not left for the pitiable, wretched, poverty-ridden and physically handicapped but able-bodied and energetic individuals have taken into it as a means of survival. The phenomenon is generally seen as a social problem and their activities have generated immense threat to the survival of the society at large. It is in this regard that this paper reviews the practices of street begging in Nigeria. This paper uses online databases such as Google search engine to identify relevant published

peer-reviewed Journal articles and grey literature focusing on street begging practices in the world and Nigeria to be specific. The theoretical stand point is based on the Marxian analysis of class structure and alienation.

### 3.0 METHODOLOGY

In studying a system that can change over time, there is need to keep track of those changes. A Markov chain is a particular model for keeping track of systems that change according to given probabilities. As it will be seen, a Markov chain allows one to predict future events, but the predictions become less useful for events fartheraway from the current into the future. It can thus be used for describing systems thatfollow a chain of linked events, where what happens next depends only on the current state of the system. Markov chains are a fairly common, and relatively simple, way to statistically model random processes. Markov chains are a fundamental part of stochastic processes.

They are used widely in many different disciplines. Markov chain is a sequence of random variables such that for any  $n$ ,  $X_{n+1}$  is conditionally independent of  $X_0, \dots, X_{n-1}$  given  $X_n$ . That is, the "next" state  $X_{n+1}$  of the process is independent of the "past" states  $X_0, \dots, X_{n-1}$  providedthat the "present" state  $X_n$  be known. It is required to possess the property that is usually characterized as being "memoryless": the probability distribution of the nextstate depends only on the current state and not on the sequence of events that precedes it.

### 3.2 BUILDING MARKOV MODEL FROM GENERATIONS

The need to construct a link structure that represents transitions and the structure isthen used to build a Markov model. Let AS=Almajiri School, RS=Regular School, HH= House Helper,, FM=Farm, BG=Beggars, FE=Freely Expose . See fig 3.1

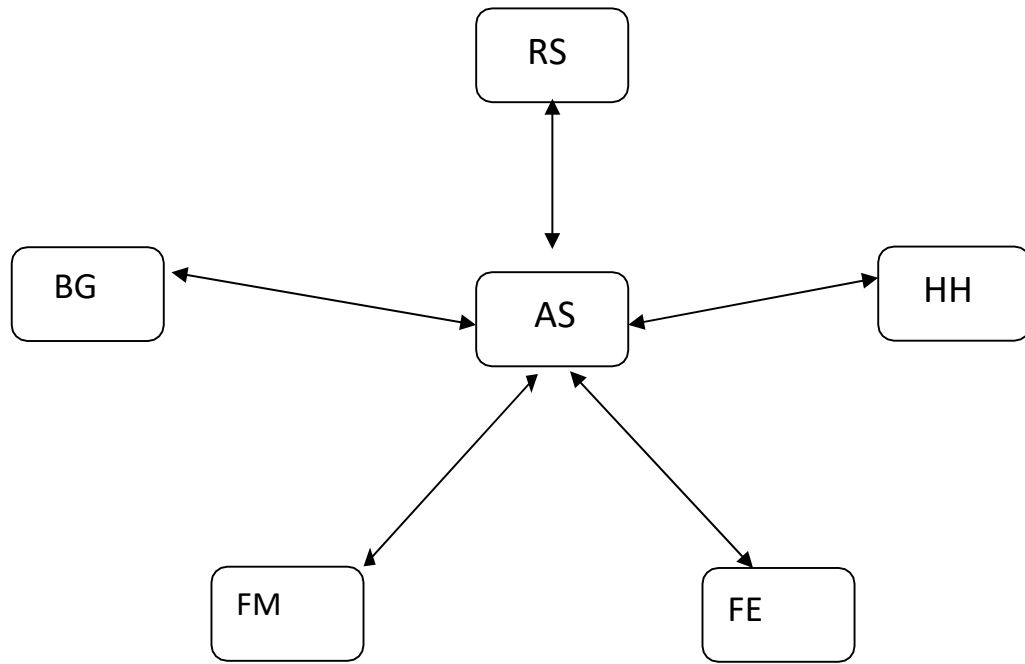


Figure 1. The Chain at the first year (origin)

Each link line is viewed as a transition and with the likely states, where the state space containing all the rows likely states,  $P_{ij}$  is the probability transition matrix containing one-step transition probability between rows. The link in the states can be seen as a

stochastic process  $[X_n]$ , which has  $S$  as the collection state space. If the conditional probability of linking generation  $j$  together in the next step is dependent only on the last generation  $\{m\}$ , is called a  $m$ -order Markov chain.

$$p_{ij} = p(x_{n+1} = j | x_0 = i_0, \dots, x_n = i) = p(x_{n+1} = j | x_n = i) \quad 3.1$$

$$P_{ij}^m = P[X_{n+m} = j | X_n = i] \quad 3.2$$

When  $m=1$ ,  $X_{n+1}$  is dependent only on the current state  $X_n$  and is a one-order Markov chain, where  $P_{ij}$  is the probability that transition is made from  $i$  to state  $j$  in one

step. Let  $n_{ij}$  be the observation matrix. The initial state  $X_0$  has an arbitrary probability distribution.

Let  $n_{ij}$  be the observation starting from state  $i$  and move to  $j$ , where  $P_{ij} = \frac{n_{ij}}{n_i}$

$$n_i = \sum_j n_{ij}$$

$$n_{CXC} = \begin{bmatrix} n_{1,1} & n_{1,2} & - & - & - & n_{1,c} \\ n_{2,1} & n_{2,2} & - & - & - & n_{2,c} \\ - & - & - & - & - & - \\ n_{c,1} & n_{c,2} & - & n_{c,3} & - & - \\ - & - & - & - & - & - \\ n_{c,1} & n_{c,2} & - & - & - & n_{c,c} \end{bmatrix} \quad 3.3$$

AS=Almajiri School, RS=Regular School,

HH= House Helper, FM=Farm, BG=Beggars, FE=Freely Expose

where

$n_{11}$ = number in Almajiri School before and they are still at the Almajiri School

$n_{12}$ = number in Almajiri School before but now in Regular School

$n_{13}$ = number in Almajiri School before but now in House Help

$n_{14}$ = number in Almajiri School before but now Farming

$n_{15}$ = number in Almajiri School before but now a Beggars

$n_{16}$ = number in Almajiri School before but now Freely Expose

$n_{66}$ =number in freely exposed before and still in freely exposed

$$P_{ij} = \begin{pmatrix} p_{11} & p_{12} & - & - & - & p_{1e} \\ p_{21} & p_{22} & - & - & - & p_{2e} \\ - & - & - & - & - & - \\ p_{e1} & p_{e2} & - & - & - & p_{ee} \end{pmatrix} \quad 3.4$$

From Figure 3.1, let  $P_{ij}$  be the transition probability matrix of moving from one state to another.

## Extinction Problem

The ultimate extinction probability is given

$$\lim_{n \rightarrow \infty} \Pr(Z_n = 0) \quad 3.5$$

The process can be analyzed using the method of probability generating function.

Let  $p_0, p_1, p_2, \dots$  are the probabilities of producing 0, 1, 2, .....offspring by each individual in each generation. Let  $d_m$  be the extinction probability by  $m$ th - generation, Obviously  $d_m = 0$ , since the probabilities for all paths that lead to 0 by the  $m$ th generation must be added up, the extinction probability is non-decreasing in generation. That is

$$0 = d_0 \leq d_1 \leq d_2 \leq \dots \leq 1$$

Therefore  $d_m$  converges to limit  $d$ , and  $d$  is the ultimate extinction probability. If there are  $J$  offspring in the first generation, then to die out by the  $m$ th-generation, each of these lines must die out in  $m-1$  generation, since they proceed independently, the probability is  $(d_{m-1})^J$ , thus

$$dm = P_0 + P_1(dm-1) + P_2(dm-1)^2 + P_3(dm-1)^3 + \dots$$

which is a probability generation function.

## Methods and formulas for Kruskal-Wallis Test

Average rank

Calculates the average ranks as follows:

1. Ranks the combined samples, assigns the smallest observation a rank of 1, the second smallest observation a rank of 2, and so on.
2. If two or more observations are tied, Minitab assigns the average rank to both observations.
3. Calculates the average of the ranks of each sample.

Z-value

Formula

Minitab calculates the z-value for each group as follows:

$$z_j = \frac{\bar{R}_j - \bar{R}}{\sqrt{\frac{(N+1)(\frac{N}{n_j} - 1)}{12}}} \quad 3.14$$

## Notation

Term	Description
$\bar{R}_j$	average rank for group $j$
$\bar{R}$	average rank for all observations
$N$	number of observations
$n_j$	number of observations for the $j^{\text{th}}$ group

## Ranking tied values

Tied values occur when two or more observations are equal. If your data has tied values, Minitab ranks the data as follows:

1. Sort the observations in ascending order.

2. Assign ranks to each observation as if there were no ties.
3. For a tied set, take the average of the corresponding ranks and assign this value as the new rank to each tied value in that set.

#### 4.0 DATA ANALYSIS

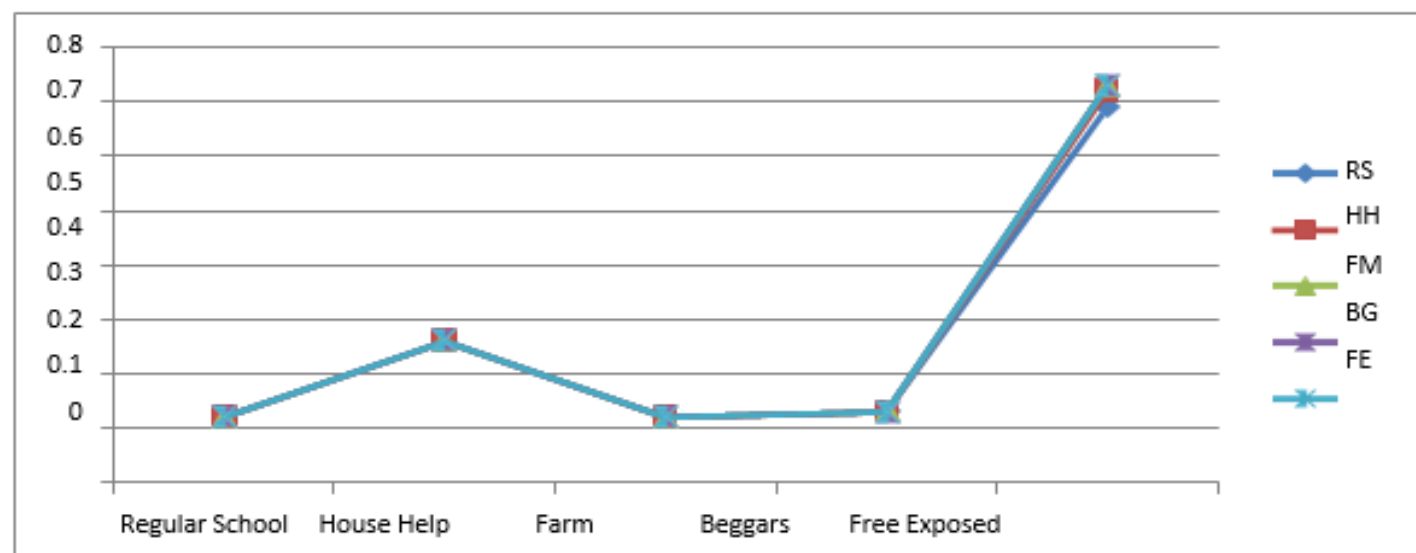
The chapter present the analysis employed on the research work, the analysis was done using the stochastic methods and procedures these includes the application of Markov Chains on the six transitional state with interest on first state which is the Almajiri School. An observation matrix of 6 x6 (nij)6x6 dimension was obtained from the data collected which was transformed to

$$n_{ij} = \begin{bmatrix} 27 & 10 & 24 & 11 & 14 & 16 \\ 23 & 0 & 0 & 0 & 0 & 0 \\ 13 & 5 & 7 & 3 & 5 & 3 \\ 17 & 6 & 0 & 0 & 0 & 0 \\ 29 & 5 & 0 & 0 & 0 & 0 \\ 21 & 8 & 0 & 0 & 0 & 0 \end{bmatrix}$$

$$P_{ij} = \begin{bmatrix} 0.27 & 0.1 & 0.23 & 0.11 & 0.13 & 0.16 \\ 1 & 0 & 0 & 0 & 0 & 0 \\ 0.36 & 0.14 & 0.2 & 0.08 & 0.14 & 0.08 \\ 0.74 & 0.26 & 0 & 0 & 0 & 0 \\ 0.85 & 0.15 & 0 & 0 & 0 & 0 \\ 0.72 & 0.28 & 0 & 0 & 0 & 0 \end{bmatrix}$$

**Table2:** showing the extinction probability

Gen	Regular School	House Help	Farm	Beggars	Free Exposed
1	0.12	0.26	0.12	0.13	0.69
2	0.12	0.26	0.12	0.13	0.72
3	0.12	0.26	0.12	0.13	0.73
4	0.12	0.26	0.12	0.13	0.73
5	0.12	0.26	0.12	0.13	0.73



**Figure4:** Line Chart showing the extinction Chances

transition matrix (Pij)6x6 using the axioms of probability.

#### 4.1 Observation and Transition probability matrix

The observation matrix consist of six states which are Almajiri School,( AS), Regular School(RS), House Helper(HH), Farm(FM) Beggars(BG), Freely Expose(FE)

### 4.3 Kruskal-Wallis Test

**Table 2** Ranks

state	N	Mean Rank
factors	4	13.63
1.00	4	16.13
2.00	4	5.13
3.00	4	7.75
4.00	4	9.88
5.00	4	
Total	20	

**Table 3**  
**Test Statistics<sup>a,b</sup>**

	Factors
Chi-Square	9.004
Df	4
Asymp. Sig.	.061

a. Kruskal Wallis Test

b. Grouping Variable:  
state

### 4.4 Results Interpretation

The analysis involves the Markov Chain, Branching Process and Kruskal Walli test. The Markov Chains shows the Likely states of the Transition of the Almajiris which are six states in number and their transition probabilities. The following Transition were observed :

\* Communication between exist between other states and Almajiri School in the first year Communication do not exist between the other states in the first year Absorbing states do not exit

\* The Chance of the states going to extinction is very high for Free Exposed (Threat States) with 73% while the others including the Almajiri School very low.

Other test carry out is the Test for the effect of the five states on Almajiri while it was observed that the effect are not equal and that the Regular School, House Helper and Freely Expose were ranked high.

### 4.5 Recommendations

Based on the result obtained from the analysis and findings, the following are the recommendations:

- there is the need for proper follow-up after leaving the Almajiri School
- there is the need for conducive environment for the Almajiri Pupils

- there is the need for studying Almajiri pupils movement.

### 4.6 Conclusion

The results of the analysis which shows the states, transition, the extinction probability and effect of the states, we can therefore conclude as follow:

- there are five possible states of Almajiri movement
- Almajiri Communicate(move) to the five possible states at the first year of programme while the other state communicate with each other's after first year
- the chance of extinction for the freely exposed(threat state) is very higher I,e likely to extinct in future
- Regular School, House Helper and Freely Expose were more effective in the transition state of Almajiri.

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