

## Socio-Economic Correlates of Courtyard Utilisation in The Indigenous Residential Areas of Nigeria

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**Abstract:** This study examined socio-economic correlates of courtyard utilisation in the indigenous residential areas of Nigeria. Three cities: Zaria, Ibadan and Owerri, representing the three dominant ethnic groups (Hausa, Yoruba and Igbo) in Nigeria were selected by stratification. Nine Local Government Areas (Zaria 1; Ibadan 5; Owerri 3) comprising the core residential areas in the cities were randomly selected. Random sampling technique was also employed to select 730 household heads for questionnaire administration. Spearman's rho Correlation analysis was used to investigate the relationship between socioeconomic characteristics of courtyard users and courtyard utilisation in houses. Results revealed that both marital status and age had low correlation with courtyard utilisation with correlation coefficients of 0.271 and 0.253 respectively and  $p=0.000$  in both cases, implying there are low but significant positive correlation between marital status, age and courtyard utilisation. Education and courtyard utilisation had correlation coefficient ( $r$ ) of -0.234;  $p=0.000$ , implying no significant relationship between education and courtyard utilisation. It was concluded that the relevance of socio-economic characteristics cannot be out rightly ignored in courtyard utilisation in houses of the study area. Socio-economic characteristics should therefore be factored into design of courtyards for any residential building.

**Keywords:** Cities, Courtyard utilisation, Indigenous residential area, Nigeria, Socio-economic.

### I. Introduction

Socio-economics is the social science that studies how economic activity affects and is shaped by social processes as well as the ways that social and economic factors influence the economy. In general, it analyses how modern societies progress, stagnate, or regress because of their local or regional economy; or the global economy [1]. Socio-economic factors such as age, gender, marital status, employment, level of education,

income and length of stay among others, to a large extent do have strong influence on man's knowledge, attitude and perception of issues generally [2]. The importance of socio-economics is emphasized in studies such as the effect of socio-economic characteristics on housing finance [3]; the socioeconomic dimension of sexuality and reproductive behaviour of adolescents in Nigeria [4]; perception of hazards and risks in road utilisation as space for holding social ceremonies in the indigenous residential areas of Ogbomoso, Nigeria [5]. This is premised on their need to meet purposes such as religious, cultural, personal, commerce, aesthetics, and agricultural among others. Most of these human activities are performed on open spaces such as courtyards.

A courtyard is an area within the built environment, a ground space that is not roofed by an architectural structure [6]; a covered

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outside space but open to the element at its apex [7]; an open room into the heavens, a square or rectangular in sketch and bordered by a group of buildings or most important rooms [8]. Courtyard is an important aspect of building design and this explains why it is given considerable research attention in the literature [9 -14]. Such studies include origin of courtyard [11]; design requirements for human comfort in buildings [12]; benefits of courtyards [15]; courtyard usage and design requirements [11,14]; courtyard configuration [9,10]; effect of courtyard form and its impact on the eco-friendly performance in tropical region [16,17]; the effect of courtyard form (shape) on the microclimate in buildings [18,19]; and typologies of open spaces (courtyard inclusive) in the indigenous residential (core) areas of Nigerian cities [20,21]. However, there is dearth of empirical research on cross cultural dimension of socioeconomic correlates of courtyard utilisation and the possibility of influence of geopolitical and cultural factors on courtyard utilisation in the core areas is the main motivation of this study.

Courtyards in houses are put into various uses in the core area of Nigerian cities. The uses range from social needs (family meetings, visitors' reception area; social ceremonies like wedding, etc); cultural utilisation (ancestral worship/ritual activities, ancestral grave yards) to commercial needs (pretty trading, weaving, carving, tie and dye); as well as agro-based ventures (gardening, animal and birds rearing). Others include water collection and sanitation (water collection and storage, refuse dump) and recreational purposes (children play area, relaxation area, playing local games such as *ayo*, ludo, draft) among others [20]. With varied cultural backgrounds of courtyard users, there are corresponding variations in the courtyard utilisation as well as socioeconomic

characteristics of users across cities of the study area. This is exemplified in this paper.

The literature is replete with empirical studies on the core of Nigerian cities [5,22,23]. Despite comments of professionals, academics and policy makers in respect of this section of cities that is recognised as blighted [24,25,20], the residential density is still important for the survival of the majority of urban populace. The buildings in the area are closely built and mostly constructed with mud, except where some have been demolished and re – constructed with sandcrete blocks. These buildings are generally landlocked. It is that socio-cultural and religious part of cities which hosts ceremonies of great importance, both of the permanent inhabitants and those who reside outside the area. Professionals, academics, the politicians and even the affluent in the societies still owe greater allegiance to this section of the city as their ancestral origin. Studies both in the more developed and less developed nations of the world have shown that inhabitants of the core areas have little or no preference for any locations outside the core and would therefore, hardly support any policy action of government or its agencies that would evacuate and relocate them [26,24,25,23,20]. Since the majority of the inhabitants of the core area is the indigenous people of the region where they are located, the cultural attributes of the people, including courtyard utilisation is better manifested there; hence the choice of the area for this study.

## **II. Materials and Methods**

### **A. The Study Area and Sample Sites**

The study area comprised three selected cities in Nigeria which is divided into six geo-political zones namely North West, North Central, North East, South West, South East and South-South from where the three major cities namely Zaria

in Kaduna State from the North Central; Ibadan in Oyo State from the South West; and Owerri in Imo State from the South East were purposively selected (Figure 1). The cities are traditional urban centres with phenomenal growth in population and area extent, increasing level of urbanisation and industrialisation, as well as political and socio-economic prestige. They are capable of reflecting the cultural attributes of the region in which they are located. They also represent the three dominant ethnic groups (Hausa, Yoruba and Igbo) in Nigeria, each with different perspectives on courtyard utilisation in the core residential quarters on conceptualised architecture, configuration, and utilisation. In terms of size, they are some of the most densely populated with large spatial extent. The cities have diverse and dispersed core areas, representing the core areas of the three largest ethnic groups in Nigeria.

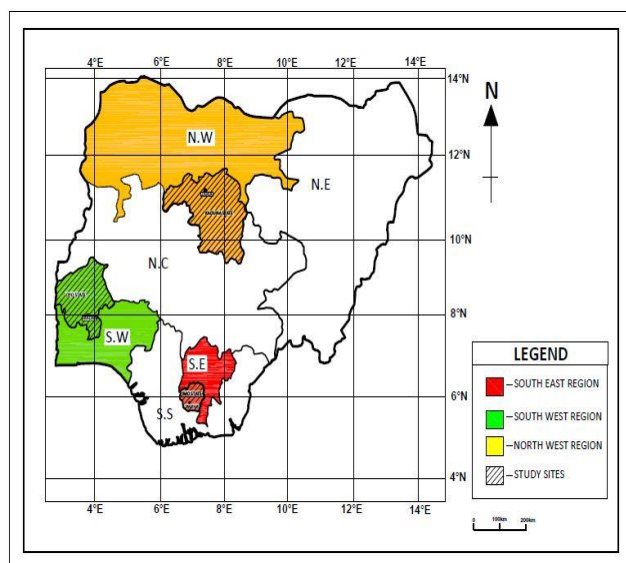


Figure 1: Sampled Geo-political Zones  
Source: GIS Laboratory, URP Department,  
LAUTECH, Ogbomoso (2017)

Each of the cities is discussed here under:

i. **Zaria:** Zaria is located between longitudes  $7^{\circ}36'01''$  E and  $7^{\circ}48'30''$  E and latitudes  $10^{\circ}56'0''$

N and  $11^{\circ}8'0''$  N at a height of about 670.5m above the sea level. Zaria has been important nodal point for both the railway and the road systems in Nigeria. The city is South-East of Sokoto, the capital of Sokoto State; South-West of Kano, the capital of Kano State; North-East of Kaduna, the capital of Kaduna State; North-West of Jos, the capital of Plateau State in the central north of Nigeria and the most southerly part of ancient Hausaland [27].

ii. **Ibadan:** Ibadan is the capital city of Oyo State in South-West Nigeria and is located between longitudes  $3^{\circ}40'E$  and  $3^{\circ}55'E$  and latitudes  $7^{\circ}05'N$  and  $7^{\circ}25'N$ . It lies approximately 150km north of Lagos, the country's commercial capital. The city's elevation ranges between 150m and 275m above sea level and is drained by Ona, Ogbere, Ogunpa and Kudeti rivers [28].

The city, which was founded in the 1820s as a war camp [29,28], has witnessed tremendous spatial expansions over the years. With a spatial extent of about  $12.5\text{km}^2$  in 1934[30], Ibadan grew in size to  $38.5\text{km}^2$  in 1935 and  $46.4\text{km}^2$  in 1955 [31]. The city extended for about 55km from Asejire in the east to Agemo in the west and for about 70km from Iroko in the north to Mamu in the south as at 1963[32]. Between 1977 and 1990, Ibadan had grown from  $152.8\text{km}^2$  to about  $323\text{km}^2$  [31] and as at 2001, its spatial extent was  $348\text{km}^2$  [30] and this increases daily as the city continues to urbanise and grow in population size.

iii. **Owerri:** Owerri is a traditional Igbo city in the southeastern part of Nigeria. It is located on longitudes  $6^{\circ}53'30''$ E and  $7^{\circ}11'30''$ E with latitudes  $5^{\circ}15'30''$ N and  $5^{\circ}33'0''$ N covering  $104\text{km}^2$  (40.2 sq mi). Ekwema Arugo, the son of Uratta was the founder of 'Owere' (the proper

name for Owerri). The literal meaning of ‘Owere’ is an open place of habitation. There are several Owere in Igboland, but Owerri is the most popular. The five hamlets which constitute the city were founded by the five children of Ekwema Arugo. These are: Amaawom; Umuodu; Umuonyeche; Umuonyima and Umuororonjo [33].

## B. Method of Data Collection and Analysis

Multistage purposive and systematic random sampling techniques were used for the study. The Local Government Areas (LGAs) that are the domains of the core residential (high density) areas were purposively selected namely one (1) in Zaria; five (5) in Ibadan and three (3) in Owerri (Table 1). The LGAs were further delineated into three (3) dominant and homogeneous residential densities of high, medium, and low as adopted in the past studies [34,35,36,37,33,20]. The LGAs were delineated into Communities/Localities which were randomly selected and used for the study.

**Table 1: Selected LGAs where Indigenous Residential Areas (buildings) are Domiciled**

Town	Name of Constituting LGAs	No. of LGAs
Zaria	Zaria City	1
Ibadan	Ibadan North, Ibadan North-East, Ibadan North-West, Ibadan South-East, Ibadan South-West	5
Owerri	Owerri Municipal, Owerri North, Owerri West	3
<b>Total</b>		<b>9</b>

**Sources: Authors’ compilation (2019)**

Reconnaissance survey carried out through the use of Google earth and ground truthing shows that a total of 3,650 houses were found in the study sites. Twenty per cent (20%) of the houses in each locality was randomly selected for the study; this is because of the large population size

and it is enough to have a good and adequate representation of the population characteristics. Thus, making a total of seven hundred and thirty (730) questionnaire (92 in Zaria; 428 in Ibadan and 210 in Owerri) administered to respondents from whom information in respect of their personal characteristics and those of the courtyards were obtained, as the selected houses were those with courtyards. Descriptive and inferential statistical analyses comprising frequency counts, percentages and cross tabulation with chi square as well as correlation analysis were used for data analysis. Correlation analysis was employed to examine the relationship between socio-economic characteristics of courtyard users and courtyard utilisation in the study area.

## III. Results and Discussion

Findings from the study are discussed under various headings. Unless otherwise stated, the tables and figures in this section emanated from the survey of 2019.

### i. Age and Gender of Respondents

Majority (34.8%) of the respondents in the houses were between the ages of 46 and 55 years, (21.2%) belonged to the age range of 26 – 35 years, while those that were above 55 years accounted for 20.3%. Also, respondents that were between 36 and 45 years constituted 17.8%, 18 – 25 years were 5.6%, while less than 18 years constitute 0.1% (Figure 2). The import of this is that majority of the respondents were adults who know the benefits that are derivable from utilisation of courtyards and the implication of uses.

More than half (52.6%) of the respondents were females, while 46.7% were males. This could be due to the fact that women are always found at home, when men go to fend for their families.

For instance in Zaria, especially in the core area, women are most of the time are full-time housewives as a result of purdah which is prominent in the Moslem North. However, more than three-fifths (63.3%) of the male respondents were from Ibadan, 21.7% from Zaria, while Owerri constituted 15.0%. Majority (53.9%) of the female-headed households were also from Ibadan, next is Owerri (41.4%) and Zaria (4.7%) as illustrated in Figure 3.

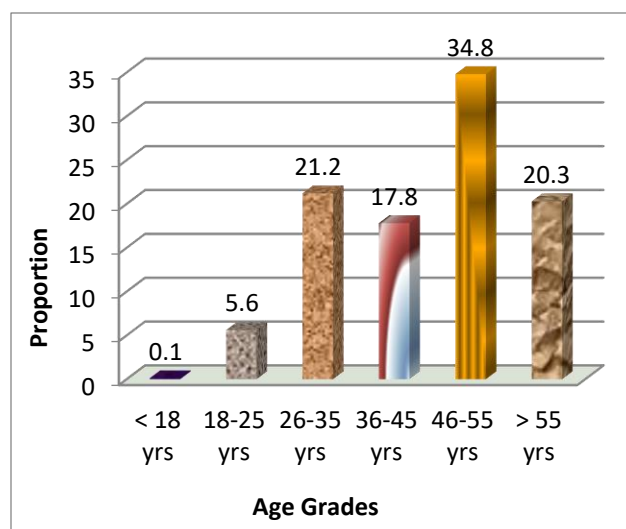
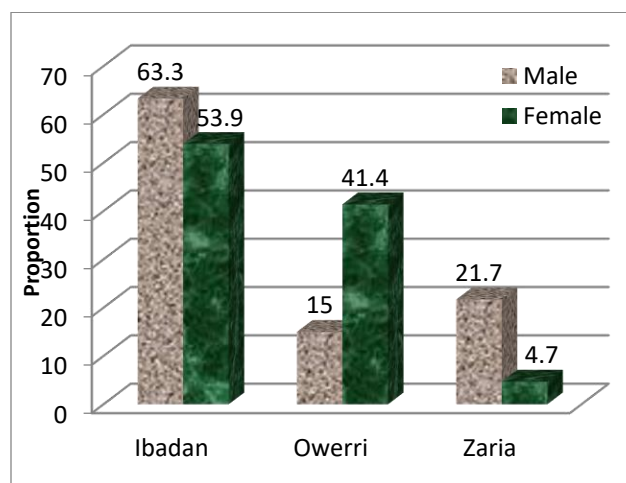


Figure 2: Ages of Respondents



$$X^2 = 87.579; p = 0.000$$

Figure 3: Gender Variation in Respondents across Cities

The variation observed in the gender of respondents was significant given  $X^2 = 87.579$  and  $p = 0.0000$ . It is observed that female respondents are more in number than their male counterparts in Ibadan. It is expected that this may have certain implication on the utilisation of courtyards in the city.

## ii. Marital Status of House Owners

As regards marital status, 80.3% of the respondents in houses were married, 12.7% were single, widow constitutes 6.7%, while separated was 0.3%. The fact that most of the respondents were married confirms the submission of [3] as well as [39] that the bulk of a set of population is married. Thus, it is expected that the married respondents will have knowledge of the different uses of courtyards in the area, benefits associated with usage, and the implications on health.

Result of analysis across cities shows that 55.4% of single respondents were from Zaria, next was Ibadan (40.2%) and Owerri (4.3%). The fact that the bulk of the single respondents (representing household heads) were from Zaria may be premised on the fact that they are unemployed as the core is noted to be inhabited in most cases by the old and the unemployed [39]. The educated and employed people usually move out to have their homes in either the medium or low-density areas.

Furthermore, among the married were those from Ibadan (57.7%), Owerri (35.3%) and Zaria (7.0%), while all (100.0%) widowed respondents were from Ibadan (Table 2). The observed variation in the marital status of households in the study area shows that it is statistically significant across cities given  $X^2 = 216.661$ ; and  $p = 0.0000$ . This implies that respondents had varied marital status in the area which could have effect on courtyard utilisation in the study area.

**Table 2: Marital Status of Respondents across Cities**

		Marital Status					Total
		Single	Married	Widowed	Separated		
<b>City</b>	Ibadan	Count	37	337	49	2	425
		%within City	8.7%	79.3%	11.5%	0.5%	100.0%
		%within marital status	40.2%	57.7%	100.0%	100.0%	58.5%
		% of Total	5.1%	46.4%	6.7%	0.3%	58.5%
	Owerri	Count	4	206	0	0	210
		%within City	1.9%	98.1%	0.0%	0.0%	100.0%
		%within marital status	4.3%	35.3%	0.0%	0.0%	28.9%
		% of Total	0.6%	28.3%	0.0%	0.0%	28.9%
	Zaria	Count	51	41	0	0	92
		%within City	55.4%	44.6%	0.0%	0.0%	100.0%
		%within marital status	55.4%	7.0%	0.0%	0.0%	12.7%
		% of Total	7.0%	5.6%	0.0%	0.0%	12.7%
<b>Total</b>	Count	92	584	49	2	727	
	%within City	12.7%	80.3%	6.7%	0.3%	100.0%	
	%within marital status	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	12.7%	80.3%	6.7%	0.3%	100.0%	

$$X^2 = 216.661; \text{dof} = 6; p = 0.0000$$

**Table 3: Household Size of Respondents across Cities**

		Household Size of House Owners Ranged				Total	
		1-3 persons	4-6 persons	7-9 persons	10 and above persons		
<b>City</b>	Ibadan	Count	43	147	108	124	422
		%within City	10.2%	34.8%	25.6%	29.4%	100.0%
		%within household size ranged	100.0%	66.8%	83.7%	59.9%	70.5%
		% of Total	7.2%	24.5%	18.0%	20.7%	70.5%
	Owerri	Count	0	59	14	38	111
		%within City	0.0%	53.2%	12.6%	34.2%	100.0%
		%within household size ranged	0.0%	26.8%	10.9%	18.4%	18.5%
		% of Total	0.0%	9.8%	2.3%	06.3	18.5%
	Zaria	Count	0	14	7	45	66
		%within City	0.0%	21.2%	10.6%	68.2%	100.0%
		%within household size ranged	0.0%	6.4%	5.4%	21.7%	11.0%
		% of Total	0.0%	2.3%	1.2%	7.5%	11.0%
<b>Total</b>	Count	43	220	129	207	599	
	%within City	7.2%	36.7%	21.5%	34.6%	100.0%	
	%within household size ranged	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	7.2%	36.7%	21.5%	34.6%	100.0%	

$$X^2 = 66.782; \text{dof} = 6; p = 0.0000$$



### iii. Household Size of Respondents

Analysis shows that most (36.7%) households had membership size of 4-6 persons, next are those with 10 persons and above (34.6%) and 7-8 persons (21.9%), while 1-3 persons constitute 7.2% (Table 3). It was Ibadan alone (100%) that had household size of 1-3 persons across the cities was recorded. Within household size range of 10 and above persons, Ibadan had the largest (59.9%), next are Zaria (21.7%) and Owerri (18.4%). The other two categories, 4-6 and 7-9 persons per household show the same pattern of Ibadan (66.8%; 83.7%); next are Owerri (26.8%; 10.9%) and Zaria (6.4%; 5.4%) respectively. Tendency towards large family size is indicated by the fact that some households in the area had membership of 10 persons and above. Thus, there is the possible influence that family size can affect the utilisation of courtyards in the houses, in which the activities of occupants of the house would have reduced the size of courtyard space available. The

observed variation in the household size of households in the study area shows that it is statistically significant across cities ( $\chi^2 = 66.782$ ; and  $p = 0.0000$ ), implying that there are varied household sizes across the cities; for instance both in Ibadan and Owerri, 4-6 is dominant while in Zaria, 10 and above dominates, where traditional polygamy is more prevalent in the Moslem North [40]. The intensity of use of a space, courtyard inclusive, depends on the number of users of such a space; hence, household size has a direct impact on courtyard usage.

### iv. Level of Education of Respondents

Results show that majority (36.5%) of the respondents had secondary school education. This is next to those with primary education (32.6%), tertiary education (20.0%) and no formal education (10.8%). Explicitly across cities therefore, results show that 41.0% from Owerri, 39.7% from Ibadan and 19.3% from Zaria had no formal education (Table 4).

**Table 4 Respondents' Level of Education across Cities**

		Level of Education					
		No formal education	Primary	Secondary	Tertiary	Total	
City	Ibadan	Count	31	218	159	10	418
		%within City	7.4%	52.2%	38.0%	2.4%	100.0%
		%within level of education	39.7%	92.8%	60.5%	6.9%	58.1%
		% of Total	4.3%	30.3%	22.1%	1.4%	58.1%
	Owerri	Count	32	11	76	91	210
		%within City	15.2%	5.2%	36.2%	43.3%	100.0%
		%within level of education	41.0%	4.7%	28.9%	63.2%	29.2%
		% of Total	4.4%	1.5%	10.6%	12.6%	29.2%
	Zaria	Count	15	6	28	43	92
		%within City	16.3%	6.5%	30.4%	46.7%	100.0%
		%within level of education	19.3%	2.6%	10.6%	29.9%	12.8%
		% of Total	2.1%	0.8%	3.9%	6.0%	12.8%
Total	Count	78	235	263	144	720	
	%within City	10.8%	32.6%	36.5%	20.0%	100.0%	
	%within level of education	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	10.8%	32.6%	36.5%	20.0%	100.0%	

$$\chi^2 = 283.165; \text{dof} = 6; p = 0.0000$$

The bulk (92.8%) of respondents in Ibadan, Owerri (4.7%) and Zaria (2.6%) had primary education; it was only 60.5% respondents in Ibadan, Owerri (28.9%) and Zaria (10.6%) that had secondary education. Some (63.2%) respondents from Owerri, Zaria (29.9%) and Ibadan (6.9%) had up to tertiary education (Table 4). This is contrary to the expectation and general opinion that literacy level is highest in the south west as compared to other parts of Nigeria as one would have expected Ibadan to have the highest level of educated respondents [39]. It is also contrary to the observation of [39] that most respondents were literate because primary education had been tuition –free in Public primary schools since 1955 and in Secondary schools since 1979. The observed variation in the level of education of respondents in the study area shows that it is statistically significant across cities ( $X^2 = 283.165$ ; and  $p = 0.0000$ ), implying that there are varied level of education respondents across the cities; for instance in Ibadan, primary school education dominates; Owerri, secondary is dominant while in Zaria, tertiary dominates, to buttress the earlier submission. Therefore, educational status of courtyard users determines the type of treatment and finishes such courtyards will receive; whether it will be more of rearing animals or used for relaxation area.

#### v. Occupation of Respondents

Analysis of findings on occupational status of respondents shows that majority (64.0%) were self-employed. Next are those who were apprentices (11.0%), students (7.0%), civil servants (6.0%), retirees (5.0%), unemployed (3.0%), farmers (2.0%) and those who worked with the private sector (2.0%) as illustrated in Table 5.

Across cities, results show that majority (66.7%) of the sampled unemployed was from Ibadan, while same proportion (16.7%) each were recorded for Owerri and Zaria. In Zaria, majority of respondents was represented by students (94.1%) as well as Ibadan (5.9%). All apprentices sampled were from Ibadan (100.0%) while majority (66.6%) of the self-employed was also from Ibadan, next is Owerri (29.4%) and Zaria (4.0%). Among farmers were those from Ibadan (46.7%), and Owerri (26.7%) and Zaria (26.7%) whereas, workers in the private sector include those from Ibadan (72.7%) and Zaria (27.3%). Among the civil servants, it was observed that majority (73.8%) were from Owerri, next is Zaria (19.0%) and Ibadan (7.1%), while the retirees were from Owerri (86.5%) and Ibadan (13.5%) as shown in Table 5. It is likely that farmers would use courtyards more for rearing animals than relaxation area; while civil servants are likely to use courtyards more for relaxation area.

#### vi. Monthly Income of Respondents

The monthly income of respondents is illustrated in table 6. The findings show that almost half (48.9%) of the respondents earned less than N18, 000 per month which was the national minimum wage as at the time of field work; 17.7% earned between N18,000 and N30,000 while 8.2% earned above N60,000. The result attested to the general level of poverty among respondents in the study area. By implication, this might likely contribute to the utilisation of courtyards for activities other than aesthetic and leisure in the area in terms of utilisation for cooking among others. Across cities, the bulk (47.7%) of those that earned less than N18, 000 per month were from Ibadan, next are Owerri (33.2%) and Zaria (19.1%). Majority (67.6%) of those earning N18,000 – N30,000 was also from Ibadan, next is Owerri (32.4%).



**Table 5: Occupational Status of Respondents across Cities**

City			Occupation							Total	
			Unempl oyed	Student	Apprenti ce	SE*	F*	Private Sector	CS*		Retiree
City	Ibadan	Count	10	3	75	299	7	8	3	5	410
		% within City	3.8%	0.7%	18.0%	71.9%	1.7%	1.9%	0.7%	1.2%	100.0%
		% within Occupation	66.7%	5.9%	100.0%	66.6%	46.7%	72.7%	7.1%	13.5%	59.1%
	Owerri	% of Total	2.3%	0.4%	10.7%	42.5%	1.0%	1.1%	0.4%	0.7%	59.1%
		Count	4	0	0	132	4	0	31	32	203
		% within City	2.0%	0.0%	0.0%	65.0%	2.0%	0.0%	15.3%	15.8%	100.0%
	Zaria	% within Occupation	16.7%	0.0%	0.0%	29.4%	26.7%	0.0%	73.8%	86.5%	28.8%
		% of Total	0.6%	0.0%	0.0%	18.8%	0.6%	0.0%	4.4%	4.5%	28.8%
		Count	4	48	0	18	4	3	8	0	85
	Total	% within City	4.7%	56.5%	0.0%	21.2%	4.7%	3.5%	9.4%	0.0%	100%
		% within Occupation	16.7%	94.1%	0.0%	4.0%	26.7%	27.3%	19.0%	0.0%	12.1%
		% of Total	0.6%	6.8%	0.0%	2.6%	0.6%	0.4%	1.1%	0.0%	12.1%
Count		24	51	75	449	15	11	42	37	704	
% within City		3.4%	7.2%	10.7%	63.8%	2.1%	1.6%	6.0%	5.3%	100.0%	
% within Occupation		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
% of Total	3.4%	7.2%	10.7%	63.8%	2.1%	1.6%	6.0%	5.3%	100.0%		

$X^2 = 524.928$ ;  $df=14$ ;  $p=0.000$ , SE\*-self-employed, F\*- farming and CS\*-Civil servant

**Table 6: Monthly Income of Respondents**

City			Income Ranged (N)					Total	
			18,000 & below	18,001- 30,000	30,001- 40,000	40,001- 50,000	50,001- 60,000		Above 60,000
City	Ibadan	Count	142	73	26	51	12	29	333
		%within City	42.6%	21.9%	7.8%	15.3%	3.6%	8.7%	100.0%
		%within Income ranged	47.7%	67.6%	76.5%	56.0%	42.9%	58.0%	54.7%
		% of Total	23.3%	12.0%	4.3%	8.4%	2.0%	4.8%	54.7%
	Owerri	Count	99	35	5	36	13	7	195
		%within City	50.8%	17.9%	2.6%	18.5%	6.7%	3.6%	100.0%
		%within Income ranged	33.2%	32.4%	14.7%	39.6%	46.4%	14.0%	32.0%
		% of Total	16.3%	5.7%	0.8%	5.9%	2.1%	1.1%	32.0%
	Zaria	Count	57	0	3	4	3	14	81
		%within City	70.4%	0.0%	3.7%	4.9%	3.7%	17.3%	100.0%
		%within Income ranged	19.1%	0.0%	8.8%	4.4%	10.7%	28.0%	13.3%
		% of Total	9.4%	0.0%	0.5%	0.7%	0.5%	2.3%	13.3%
Total	Count	298	108	34	91	28	50	609	
	%within City	48.9%	17.7%	5.6%	14.9%	4.6%	8.2%	100.0%	
	%within Income ranged	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	% of Total	48.9%	17.7%	5.6%	14.9%	4.6%	8.2%	100.0%	

$X^2 = 57.784$ ;  $dof = 10$ ;  $p = 0.0000$

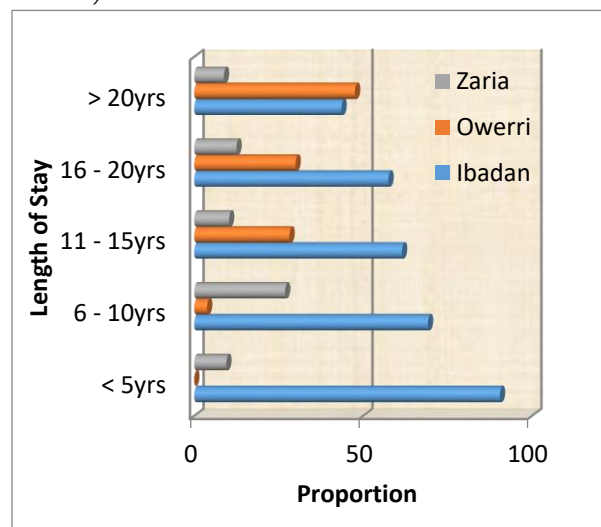
From Ibadan, 76.5% and 56.0% earned between N30,001 – N40,000 and N40,001 – N50,000 respectively just as 14.7% and 39.6% from Owerri and 8.8% and 4.4% from Zaria earned same monthly income categories respectively. However, majority of respondents from Owerri (46.4%) and Ibadan (42.9%) as well as Zaria (10.7%) earned N50,001 – N60,000; whereas, 58.0%, 28.0% and 14.0% from Ibadan, Zaria and Owerri respectively earned above N60,000 monthly (Table 6).

Given  $X^2 = 57.784$  and  $p = 0.0000$ , the observed variation in monthly income of respondents is significant across the cities. This implies that respondents earned varied incomes in the study area. It appeared that households thrive better in Ibadan than the other cities in terms of economic activities as well as the proceed emanating from such engagement. Hence, higher income earners who are likely to be civil servants would use courtyards more for landscape plants to improve the aesthetics of the area than using it for animal rearing.

#### vii. Length of Stay of Respondents

The length of time respondents stayed in a particular geographical area could be influenced by such functions as: origin and heritage, land, trade and commerce, investment in real estate and properties as well as religion and culture to mention a few. For respondents sampled, majority from Ibadan (90.5%) and 9.5% from Zaria had lived in the localities for less than 5 years. Among those that had lived in their localities for 6 – 10 years were those from Ibadan (69.2%), Zaria (26.9%) and Owerri (3.8%). From Ibadan, more than three-fifths (61.5%) households had lived in the area for 11-15 years, Owerri had 28.2% for this category and Zaria was 10.3%. For the respondents that have lived in their localities for 16-20 years, Ibadan had

57.5%, Owerri constitute 30.0%, while Zaria account for 12.5%. These and others are as presented in Figure 5. The variation in length of stay of households in their localities shows its significance across cities ( $X^2 = 148.906$  and  $p = 0.0000$ ).



$$X^2 = 148.906; \text{dof} = 8; p = 0.0000$$

Figure 5: Respondents' Length of Stay in Cities

#### viii. Relationship between Socioeconomic Characteristics of Users and Courtyards' Utilisation in Houses

Table 7 summarises the relationship between socio-economic characteristics of courtyard users and courtyard utilisation in houses. Three variables of socio-economic characteristics were used for the study. These are age, marital status and gender. The analysis shows that marital status and courtyard utilisation as well as age had correlation coefficients of 0.271 and 0.253 respectively with  $p=0.000$  in both cases. This implies that there are low positive correlations as well as significant relationship between marital status and courtyard utilisation as well as Age and courtyard utilisation. The implication of this is that, marital status of courtyard users influences the continuous use of courtyard in the study area

**Table 7: Correlation Analysis of Socioeconomic Characteristics of Users and Courtyard Utilisation in Houses**

Open Space Type	Socioeconomic Characteristics									
	Gender	Age	Religion	Marital Status	Education	Work	Monthly Income	Household Size	Length of Stay in the Building	
Courtyard	R	0.112**	0.253**	0.007	0.271**	-0.234**	0.190**	0.127*	0.016	0.094*
	p-value	0.003	0.000	0.864	0.000	0.000	0.000	0.013	0.700	0.015
	N	687	657	689	689	682	666	387	565	676

**R = Spearman's rho Correlation; N = number; p-value = Sig. (2-tailed)**

This also means that utilisation of courtyard increases with increase in age of users. Furthermore, it is observed that education and courtyard utilisation had correlation coefficient ( $r$ ) of -0.234;  $p=0.000$ . This implies that there is a significant but low negative relationship between education and courtyard utilisation. This means that as the variable of education increases, the utilisation of courtyard decreases; hence, the utilisation of courtyard increases with decrease in educational level. The dearth of empirical study on the relationship between courtyard utilisation and the socio-economic characteristics of courtyard users should be noted.

It can therefore be inferred that although socio-economic characteristics of courtyard users have low correlation with courtyard utilisation, the significant relationships have indeed explained how important they are in influencing the courtyard utilisation across the cities of the study area. Therefore, the relevance of socio-economic characteristics cannot be out rightly ignored when it comes to courtyard utilisation in the study area. This study has thus brought to lime light, the effects of socio-economic background of courtyard users on courtyard utilisation in the core areas of Nigerian cities as there is dearth of empirical study in literature on the effects of socio-economic characteristics of courtyard users on courtyard utilisation.

#### IV. Conclusion

This study has analysed the relationship between socio-economic characteristics of courtyard users and courtyard utilisation in houses across selected cities in Nigeria. Courtyards users' attributes have been seen to have influence on the utilisation of courtyards in houses. Therefore, it is pertinent that architects, urban designers and city planners pay adequate attention to this so as to avoid city degradation. This attitude if left uncurbed, may lead to unsustainable development at the core of cities. Though, the core is the origin of settlements of people, at the same time, efforts must be put into motion towards ensuring that the core complies with planning standards as much as possible.

The study therefore recommends that the socio-economic characteristics of courtyard users be factored into design of courtyards for any residential building that requires it so as to help in identifying the uses that such courtyards will be subjected to.

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