

Socio-Economic Analysis of Artisanal Fishing Operation in West and East Axes of Lagos State, Nigeria

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Abstract The fishery sector occupies a significant position in the economy of Nigeria contributing 4% to agricultural GDP. The artisanal fisheries supplies 81.9% of the total domestic fish production in Nigeria. The result of this study which relied purely on field research examined the socio-economic activities of artisanal fisher folks in the east and west axes of Lagos state comprising Ibeju-Leki and Badagry areas. Five fishing communities were selected from each axis and 200 respondents (20 from each community) were sampled. Structured questionnaire, focus group discussion and interview sessions were used to collect data on socio-economic characteristics, livelihood parameters, cost of craft, gear and other fishing inputs, fish species and productivity. T-test and descriptive statistics were used for analyses. The analysis showed that there was no significant variation in the distribution pattern of the socio-economic characteristics and other parameters between the fishers' areas of operation.

Keywords: *socio-economic analysis, artisanal fisheries, characteristics, east and west axes, Lagos state*

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1. Introduction

Fisheries play very important roles for food security livelihoods and income generation in Nigeria. The demand for fish in Nigeria has been on the increase due to increasing human population, the health benefits attributable to consumption of fish amongst others. Apart from being an income earner to many Nigerians especially people in coastal, water ways and lake areas of the country, it has a value chain in areas such as fish processing, marketing, recreation, tourism, sport, medicine, fisheries research, etcetera [1].

Nigeria has a land area of 923,768km² with a continental shelf area of 37,934km², a length of coastline of 853km and Exclusive Economic Zone (EEZ) of 210,900km² [2]. Lagos state is situated along the vast coastline which is endowed with marine, brackish and fresh waters of varying ecological zones and numerous fish species. Survey showed that Lagos state harbors 30,000 actively engaged fish farmers with manual gears and craft types. Being a marine State with over 180km coastline of the Atlantic ocean, Lagos State has a morphology comprising of about 78% water bodies of various extensive network of lagoons, lakes, streams and wetlands [3]. The state has comparative advantage over most other states in fish production and could provide a great deal of fish demand of the whole country if resources are adequately employed. The artisanal fisher folks of the East and West of Lagos State depicted by Ibeju-Lekki and Badagry areas respectively, operate capture fisheries in the Atlantic Ocean but exploit

the resources in different directions as they are separated by the commercially busy area occupied by the Kuramo and Bar Beaches (which accommodates the Eko Atlantic City), the Atlas Cove and the Apapa sea port. While the western axis is located close to "Seme" (the boundary between Nigeria and the Republic of Benin), the eastern axis is located among Nigeria's hinterland communities but closer to the Lagos City. These features, though impact on the social characteristics of the communities, they have very little or no impact on the economics of the fisheries. The Lagos State fisher folks operate from small, scattered coastal communities using the "Ghana" plank boats, traditional half dug-out canoes and traditional smaller plank canoes. The use of outboard engine and type of net depends on the type of fishery operated. While the "Eguns" and Ghanaian speaking fishers characterize the western axis, the eastern axis is characterized by the "Yorubas", "Ijebus" and "Ghanaian" speaking fishers. Though the fishers are migratory, they return to base at the end of the fishing season that warranted their movement. However, the Ghanaian fishers perpetually settle in Nigeria and visit home (Ghana) when the need arises. The study is aimed at establishing the similarities or otherwise between the fisheries socio-economic characteristics of the two axes for the purpose of determining whether the result of a study conducted in one axis could be sufficient and efficiently replicated on the other for policy formulation and implementation, especially considering time and resource availability vis-à-vis the clumsy nature of mobility logistics in Lagos state in carrying out a field research in the two axes. Therefore, the researchers seek to identify the socio-economic characteristics of artisanal

fishing in Ibeju-Lekki and Badagry axes of Lagos State as well as establish their similarities.

2. Materials and Methods



Figure 1. Map of Lagos State, Nigeria Showing the Study Areas (Source: Savana-Style-Simple-Map-of-Lagos)

The study was carried out in ten (10) “purposively” selected fishing communities in the Lagos coastal area. From the eastern axis (Ibeju-Lekki), marked in red to the right hand side of the map, five communities were selected and they include Folu, Idasho, Olomowewe, Origanrigan and Oshoroko. And five communities selected from the western axis (Badagry), also marked in red to the left hand side of the map, were Asakpo, Ogorogbo, Gbethromey, Gberefun and Seishi. The selection of the communities was “purposive” based on fishing intensity and communities’ acceptance for the research to be conducted. Some fishing communities have been very hostile in recent times and refuse the conduct of field research. Structured questionnaires were administered among twenty (20) “randomly” selected fishers from each community and in total, 200 questionnaires were administered and retrieved. The 100% retrieval rate was made possible because the questionnaires were administered directly by the researchers who also assisted in completing them for the purpose of speed and accuracy. Focus group discussion, beach observation and direct interviews were conducted for further confirmation of some issues raised in the questionnaire as well as confirming the number of active fishing canoes. Physical observation of fish landing, counting and identification of types of fishing canoes at the beaches were made possible through this process.

Information gathered from the study was analyzed using descriptive statistics (percentages and means). At $\alpha=0.5$, T-test of independent samples was used to test for variation in the samples.

3. Results and Discussion

T-test: Ho: socio-economic characteristics of Lagos east are same with Lagos west.

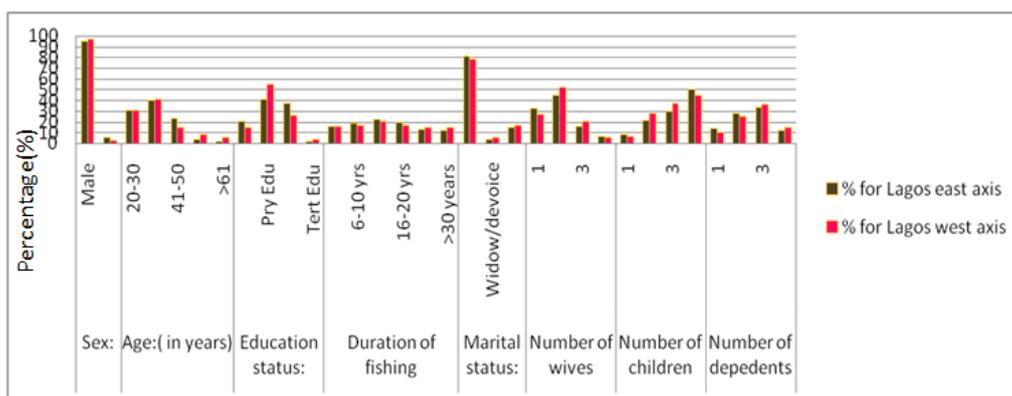
At $\alpha=0.05$, $P_1=0.475$ and $P_2=0.948$ we cannot reject Ho (no significant difference in the distribution of the socio-economic characteristics among the fisher folks in Lagos east and west).

Table 1 shows the tendency of marriage and co-habiting status among fisher folks in the two areas. 81% and 78% of the respondents from east and west axes respectively were married while 19% and 22% showed the combination of single, divorced, separated and widowed respondents.

Majority of families in the community visited were polygamous with a greater percentage having two wives, 45% for Lagos east and 52% for Lagos west. 51% and 45% of respondents from the east and west respectively had more than three children. These are pointers to the prevalence of large households among fisher folks.

Chart 1 is a representation of the variables in table 1. They depict that fishing was predominantly a male profession in the communities studied. 95% and 97% of respondents from Lagos east and west respectively were males while only 5% and 3% were females. Respondents within age bracket 31- 40 years dominated fishing activities. Lagos east had 40% in this category and Lagos west had 41%. The least active age group fell in ages above 61years. 2% and 5% of respondents from Lagos east and west respectively belonged to this group.

The result also showed that most respondents had primary education with 41% and 55% of sampled population with primary education for the east and west axes respectively. Respondents with secondary education were 37% and 26% for the east and west axes respectively.



Socio-economic characteristics

Chart 1. Family Characteristics of Fishers in East and West Axes of Lagos State (Source: Field Survey 2014)

Categories of fishers' experience span from 1-5 years to over 35 years. Chart 1 show that the peak of interest in fishing among fishermen from both axes was 11-15 years on the job. The distribution of years of fishing experience among fisher folks is parabola with its peak at 11-15 years. 22% and 20% of respondents from Lagos east and west respectively fell into this category. The study also revealed that there was no much disparity between each category of fishing experience which implied that the possibility of smooth transition of the trade from one generation to another was high.

Table 2 shows that half dug-out OBE canoes were mainly used by fisher folks in the communities sampled. 65% and 89% of the respondents from Lagos east and west respectively had half dug-out OBE, while the least

used were dug-out paddle canoes which constitutes 9% and 20% of respondents from Lagos east and west respectively. This preference was structured along cost and type of fishery (purpose). OBEs and fishing net materials were basically imported and fisher folks in Lagos State patronize the same market for the products. This may be the reason for uniformity in the prices of inputs obtained from respondents as depicted in Table 3. The cost of "Ghana boats" was also uniform in the two axes because they are products from Ghana. Local plank and dug-out fishing canoes were locally constructed using locally fabricated materials, therefore, prices also rallied around the same range. Other (running) costs such as fueling and feeding varied between the areas due to differences in the products' markets patronized.

Table 1. Socio-economic Variables of Fishers

Socio-economic characteristics		Frequency	Percentage % for Lagos east axis	Frequency	Percentage % for Lagos west axis
Sex	Male	95	95	97	97
	Female	5	5	3	3
Age	20-30	31	31	31	31
	31-40	40	40	41	41
	41-50	23	23	15	15
	51-60	4	4	8	8
	>61	2	2	5	5
Education Status	No Formal Education	20	20	15	15
	Primary Education	41	41	55	55
	Secondary Education	37	37	26	26
	Tertiary Education	2	2	4	4
Duration of Fishing	1-5	16	16	16	16
	6-10	18	18	17	17
	11-15	22	22	20	20
	16-20	19	19	17	17
	21-25	13	13	15	15
	>30	12	12	15	15
Marital Status	Married	81	81	78	78
	Widowed/Divorced	4	4	5	5
	Single	15	15	17	17
Number of Wives	1	25	33	20	27
	2	34	45	39	52
	3	12	16	15	20
	>3	5	7	4	5
Number of Children	1	25	33	20	27
	2	34	45	39	52
	3	12	16	15	20
	3	12	16	15	20
	>3	5	7	4	5
Number of Children	1	7	8	5	6
	2	18	21	22	28
	3	25	29	30	38
	>3	43	51	36	45
Number of Dependants	1	14	14	10	10
	2	28	28	25	25
	3	33	33	37	37
	>3	12	12	15	15

Source: Field Data 2014.

Table 2. Type of Crafts

Canoe type	Frequency	Percentage % for Lagos east axis	Frequency	Percentage % for Lagos west axis
No Canoe	8	8	11	11
Half dug-out canoe/OBE	65	65	89	89
Half dug-out/Paddle	9	9	20	20
Plank/OBE	97	97	82	82
Plank/Paddle	30	30	51	51

Source: Field Data 2014.

Table 3. Average Cost of Fishing Input

Items	Amount (=N=)	
	Lagos East Axis	Lagos West Axis
Ghana boat	600,000-700,000	600,000-700,000
Local Canoe	60,000-80,000	60,000-80,000
Out Board Engine (OBE)	350,000-600,000	350,000-600,000
Fishing Net	200,000-250,000	200,000-250,000
Fuel	4000-8200	3800-6200
Feeding	900-1200	700-2000
Volume of sales/trip (kg)	5,886.60	6,417.48
Average selling price/kg	604.00	594.11
Revenue	3,555,506.40	3,812,689.04

Source: Field Survey 2014.

Table 3 shows that in both axes, "Ghana boats which constituted the largest in size cost between =N=600,000 and =N=700,000; the local canoes which are half dugout was between =N=60,000 and =N=80,000; OBE was between =N=350,000 and =N=600,000 and net cost between =N=200,000 and =N=250,000. The cost of fueling and feeding were high at the Ibeju-Lekki than the Badagry axis. Even though the average volume of fish sales per trip and average revenue from fish sales are higher at Badagry axis (=N=6,417.48 kg and =N=3,812,689.04 respectively), average selling price is higher at Ibeju-Lekki axis (=N=604.00 per kg).

Table 4 is the compilation of types of fishes encountered through observation of landing operations at the sandy beaches of communities studied. The researchers adopted fishes' family names as the species identified were inexhaustible. Fishers targeted

commercially important species for the purpose of recruiting their costs, depending on the prevalent species during the season. At the time of this study, Croakers were the main targeted species which attracted majority of the fishers. Chart 2 explicitly displays the percentage of fishers' contribution to the landings of the different species in the two axes.

Table 4. Observed Fish Species

Common Name	Scientific (family) Name
Barracuda	<i>Sphyraenidae</i>
Blood cockle	<i>Anadara granosa</i>
Cat fish	<i>Ariidae</i>
Crab	<i>Callinectes amnicola</i>
Crayfish/Shrimps	<i>Parapenaeopsis atlantica</i>
Croaker	<i>Sciaenidae</i>
Grouper	<i>Serranidae</i>
Mangrove Oyster	<i>Grassotea</i>
Periwinkle	<i>Littorina littorea</i>
Prawn	<i>Crustacea</i>
Ray fish	<i>Rajidae, Dasyatidae</i>
Sardine	<i>Clupidae</i>
Shinny nose	<i>Polynemidae</i>
Shark	<i>Carcharhinidae</i>
Spade fish	<i>Ephippidae</i>
Thread fin	<i>Polynemidae</i>
Tilapia	<i>Tilapia marine</i>
Tongue sole	<i>Cynoglossidae</i>

Source: Field Survey 2014.

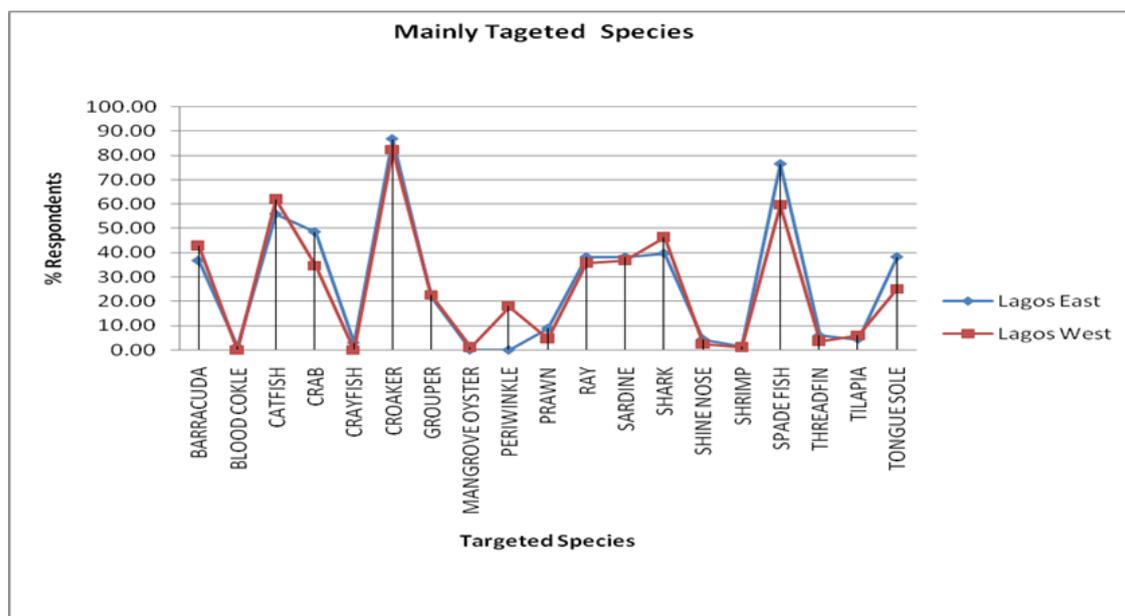
**Chart 2.** Targeted Fish Species (Source: Field Data 2014)

Chart 2 shows that croaker was the most targeted fish species. Besides periwinkle which showed a deviation, that is, more fishers landed it in Lagos west than the east; there was a general similarity in the distribution pattern for landed species among fisher folks in both axes. Croaker was mainly targeted because of its economic value. Spade fish, cat fish and sharks were also of interest as they were second, third and fourth landed species respectively. Barracuda is also commercially important species and was targeted. The chart 2 confirms that fisher folks in both axes responded in the same manner to

catching of fish species as the lines depict very close similarities.

4. Conclusion

The distribution pattern of socio-economic activities and other characteristics among fisher folks in the investigated areas are similar. The study reveals uniformity in average cost of crafts, gears and OBE. Average cost of fuel and selling price of fish per kilogramme were slightly

higher in the eastern axis even though the volume of fish sales per trip is higher in the western axis. The study reveals that though the areas are located apart on either side of Lagos metropolis with each conducting its fisheries in different directions, the results of a fisheries socio-economic study carried out at Ibeju-Lekki axis could be applicable to the conditions obtainable at the Badagry axis and vice versa. Therefore, the fisher folks' operations could be managed under uniform fisheries development policy.

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