

This study presents the empirical analysis of the effects of oil exploitation on the efficiency of artisanal fishing households in the Niger Delta region, Nigeria. The selection of respondents was multi-staged and involved purposive sampling as well as random sampling methods. A structured questionnaire and interview schedule were used to elicit information from a randomly selected sample of 160 artisanal households from Delta and Bayelsa States, Nigeria. Descriptive statistics, stochastic frontier production and cost function models, inefficiency effects model and multiple regression analysis were used in analyzing the data. Among the major findings were that 84% of the respondents were male-headed households. Fifty percent were between 41-50 years. Sixtythree percent were illiterates while 87% were married. The average household size was 7 persons. About 49% of the respondents had fishing experience of above 16 years with a mean experience of approximately 15 years. The average annual income per household was N96, 386.00. About 85%, 6%, 6% and 4% used different fishing gears such as nets, trap, longline and hooks, and fence fishing, respectively. The mean technical efficiency was 73%. The Cobb-Douglas stochastic frontier model showed that labour, quantity of bait used and capital inputs had positive signs and were highly significant at 1% level of probability. Age, access to credit and gender had significant inverse relationship with technical inefficiency while fishing distance, membership of co-operative society, fishing experience, number of trips and oil spill had significant positive relationship with technical inefficiency. Model showed that wage rate, price of baits and output adjusted for statistical noise had direct relationship with the total cost of production and were significant at 1% level of probability. The mean economic efficiency was 68%. The factors influencing economic efficiency showed that Age and household size had a negative relationship with economic inefficiency while access to credit, membership of co-operative society, number of trips and oil spill had significant positive relationship with economic inefficiency. Ninety seven percent of the households confirmed that oil exploitation activities had serious effect on their socio-economic life. Variables such as fishing equipment, non-fishing income and household size were significant at 1%, fishing experience was significant at 5% while micro-credit and compensation received were significant at 10% probability levels. The overall regression result was statistically significant at 5% level of probability as 86% of the total variation was explained by the socio-economic variables. Therefore, the study calls for policies that could reduce the level of oil pollution and increase their technical and economic efficiency.

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**CHAPTER ONE
INTRODUCTION**

1.1 BACKGROUND OF THE STUDY

The search for oil in Nigeria started in 1906 when the Nigerian Bitumen Corporation (NBC)

drilled fourteen wells in Lagos area (Pearson, 1970). This move was however called off due to the outbreak of World War I. Pearson (1970) stated that Shell made Nigeria's first commercial oil discovery in 1956 at Oloibiri located in Bayelsa State. This according to Pearson (1970) and Ozobia (1998) led to the discovery of numerous other oil fields and subsequently to the development of various terminals. Oil spillage and pollution are some of the negative by-products of the petroleum industry and its effect on socio-economic life of the artisanal households is a source of major concern. The exploration and exploitation have had impacts on the environment through frequent spills, pipe explosions, pollution, sabotage, gas flaring and effluent emission. Other sources of oil pollution to the environment include transportation, effluent water from oil refineries, lubrication oils and other wastes in the form of sludge, bitumen, slops and oil sand/sediment present in large amount within oil flow stations, storage terminals and tanks (Ogri, 2001; Nwilo & Badejo, 2005). Oil production and consumption has probably brought both the best and worst of modern civilization in Nigeria. It has contributed enormously to the country's economic growth and on the other hand, has left profound adverse impact on the natural environment. Nigeria is currently the largest producer of crude petroleum in Africa and sixth largest in the World. Estimates of Nigeria's oil reserve range from 16 billion to 22 billion barrels, mostly found in small fields in the coastal areas of the Niger Delta (Chindah & Braide, 2000). Agriculture is however the major economic activity in the Niger Delta region. The Federal Office of Statistics (F.O.S, 1995) stated that crop farming and fishing account for about 90% of all forms of activities in the areas. However, the level of agricultural production in the Niger Delta is somewhat low given the abundant resource endowment. In the 1960s, Nigeria relied heavily on the agricultural sector for economic development, contributing over 70% of the Gross Domestic Product (GDP). Nevertheless, with the oil boom of the 1970s, the contribution of agricultural sector fell drastically to the extent that the nation became an importer of fish for instance.

Fish production makes immense contribution to agricultural development as recognized in Bada (2005); Bene and Heck (2005). In terms of Gross Domestic product (GDP), the fishery sub-sector has recorded the fastest growth rate in agriculture. The contribution of the fishery sub-sector to GDP at 2001 factor cost rose from N76.76 billion to N162.61 billion in 2005 (CBN 2006). Fish is an important source of protein to a large number of fishing households in Nigeria. It is consumed in a variety of forms, including smoked, dried, fried or steamed. Fish provides 40-50% of the dietary intake of animal protein of the average household in Nigeria (FDF, 2007). According to Adekoya and Miller (2004), fish and fish products constitute more than 60% of the total protein intake in adults especially in rural areas of Nigeria. Amiengheme (2005) enumerated the importance of fish in households Nutrition as follows.

- a. Fish has a nutrient profile superior to all terrestrial meats (beef, pork and chicken, etc) being an excellent source of high quality animal protein and highly digestible energy;
- b. Fish is a good source of sulphur and essential amino acids such as lysine, leucine, valine and arginine. It is therefore suitable for supplementing diets of high carbohydrates contents,
- c. Fish is also a good source of thiamine as well as an extremely rich source of omega-3 polyunsaturated fatty acids, fat soluble vitamins (A, D and E) and water soluble vitamins (B complex) and minerals (calcium, phosphorus, iron, iodine and selenium);
- d. It has a high content of polyunsaturated (Omega III) fatty acids, which are important in lowering blood cholesterol level and high blood pressure. It is able to mitigate or alleviate platelet (cholesterol) aggregation and various arteriosclerosis conditions in adult populations; Nigerians are large consumers of fish with demand estimated at 1.4 million metric tonnes per annum. Moreover, the recent concern is that the demand is out-stripping the supply as explained in Kapadia (2002). The annual state of economic report by sector published by Central Bank of Nigeria shows that, Nigeria imports over US\$ 200 million worth of frozen fish per annum to offset the gap in the domestic demand in the country (CBN, 2006). Food and Agricultural Organization (FAO) categorized fishing types as artisanal fishing, aquaculture and

industrial fishing (FAO, 2004). It is worthy of note that the artisanal fishing households supply the greatest percentage of Nigeria's annual fish output as shown in Table 1.1. The table shows that the relative contribution of artisanal households to domestic fish production ranged between 83.0% in 1985 to 81.7% in 2007 with an annual average of 86.1% (FDF, 2007).

EFFECTS OF OIL EXPLOITATION ON THE EFFICIENCY OF ARTISANAL FISHING HOUSEHOLDS IN THE NIGER DELTA REGION NIGERIA

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