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Evaluating the Nutritional Quality of Fish Farming Households in Ghana

Akua S. Akuffo
Department of Agricultural Economics,
Purdue University
aakuffo@purdue.edu

Kwamena Quagraine
Department of Agricultural Economics,
Purdue University
kquagrai@purdue.edu

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EVALUATING THE NUTRITIONAL QUALITY OF FISH FARMING HOUSEHOLDS IN GHANA

Akua S. Akuffo¹, Kwamena Quagraine¹
¹Department of Agricultural Economics

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BACKGROUND

Fish is the cheapest source of animal protein and contributes about 60% of animal protein in a Ghanaian diet. About 80% of local supply is from marine sources. Fish farming has become an important part of the economic development plan for Ghana. In 2013, the Government of Ghana created a Ministry of Fisheries and Aquaculture Development (MOFAD). Aside creating a separate ministry, financial support and capacity building trainings from the World Bank, USAID, FAO, DFID, RW and GAWE have improved especially cage culture on the Volta Lake. Cage culture production increased from 4,9012 tons to 44,515 tons between 2009 and 2015. Cage culture contributes about 90% of the total production from inland sources (MOFAD, 2016).

OBJECTIVE

With all the attention and support the fisheries sector has received, an assessment of its impact on the welfare of beneficiary households in terms of their food security is necessary. Hence the objective of this study is:

- To evaluate the direction of impact fish farming has in household nutritional quality.

DATA

- Round 6 of the Ghana Living Standards Survey (GSS, 2014).
- Survey data collected in 2014 from 157 households in two fish farming regions in Ghana.
- Outcome variable : Household nutritional quality proxied by the Food Consumption Score (FCS)
- Decision variable: Fish farming participation
- Explanatory Variables: Wealth index, Age, peri-urban, agro-ecological zone, education, married, employed, sex, household income/capita



Reference: Ministry of Fisheries and Aquaculture Development (MOFAD). 2016. "Fish Production Percentage Contribution by Sector ,2015.
www.mofad.gov.gh

METHODOLOGY

The Propensity score matching (PSM) approach was used to deal with the bias from self selection. Fish farmers self select in this profession because of their location, availability of extension services and knowledge. In estimating the impact of fish farming participation on household nutritional quality, the following steps were used;

- Estimated the adoption decision (fish farming) as a function of explanatory variables.
- Generated propensity scores using the predicted results from the logit regression.
- Used nearest neighbor (NNM) and kernel based (KBM) matching algorithms to pair up treated (fish farming, FFHH) and control (non-fish farming, NFFHH) households.
- Determined the impact of the participation decision on household nutritional quality by estimating the average treatment effect on the treated (ATT).
- The quality of the matching procedure was tested using the covariate balancing test.
- Sensitivity of the estimates to unobserved covariates was tested using the Rosenbaum Sensitivity Analysis.

RESULTS

- Factors that increase the propensity of a household to participate in fish farming are wealth index, located in a peri-urban area, the ecology of their location and the size of the household.
- Our estimation passed the over-lap/common support, the covariate balancing and sensitivity analysis tests.
- Table 1.0 shows the ATT using the nearest neighbor and kernel matching algorithms.
- The results imply that on the average, a fish farming household consumes between 13.9 to 15.5 points more food than a non-fish farming household.

Table 1.0: Impact of Fish Farming Participation on Household Nutritional Quality

Variables	Algorithm	FFHH	NFFHH	ATT	BSE	T-ratio
FCS	NNM (1)	69.77	54.23	15.54	1.71	9.11
	NNM (5)	69.77	54.28	15.54	1.44	10.78
	KBM (0.03)	69.77	55.30	13.86	1.38	10.31
	KBM (0.06)	69.50	55.64	13.86	1.34	10.35

- This translates into consuming fish at least twice a week, roots & tubers or cereals, pulses & legumes, vegetables & fruits once a week respectively.
- Results from some post estimation analysis showed that fish farming will benefit households in the rural-savannah areas (Northern Ghana) where food security is low (FCS = 17.3) and poverty rates are high. A simulation of a fish farming household with a female head, located in the rural-savannah area had a 0.1% ($p < 0.00$) probability of being food insecure.

CONCLUSIONS & POLICY IMPLICATIONS

- Relatively wealthy households located in the peri-urban area are more likely to adopt fish farming
- Fish farming households have higher nutritional quality due to higher dietary diversity than the non-fish farming households.
- Households in Northern Ghana have the lowest levels of nutritional quality and diversity.
- Government and donor agencies should focus more of the financial contributions and capacity building trainings in fish farming in the three Northern of Ghana.