



(REVIEW ARTICLE)



The relationship between income from fish farming and pupil's retention in primary schools in Amolator district, Uganda

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Abstract

The study was to investigate the relationship between income from fish farming and pupil's retention. This study followed a cross sectional research designs using mixed methods approaches where the target population was 1898 and a sample size consisted of two hundred thirty-six (236). In conclusion, the study establishes a moderate positive correlation between income from fish farming and pupils' retention and suggests that fish farming plays a meaningful role in positively impacting educational outcomes in Amolator district. The researcher recommends that the government could involve implementing training programs to enhance farmers' skills, introducing innovative farming practices, and establishing support systems to overcome challenges. To further strengthen the positive correlation between income from fish farming and pupils' retention, interventions should focus on addressing challenges specific to fish farming. This may involve providing technical assistance, ensuring sustainable fishing practices, and creating market opportunities for fish farmers in order for parents to get more income and pay fees for their children.

Keywords: Income; Fish; Farming; Pupil; Retention

1. Introduction

Amolator district is situated in northern Uganda, and its geographic location plays a significant role in shaping the economic activities and livelihood strategies of its residents. The district's proximity to Lake Kyoga influences the prevalence of fishing as a primary income source for some families, Scholars like (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024) indicate that family income and parental involvement in learners' retention is very important. Additionally, the district's rural setting may affect the availability of educational infrastructure and resources (Amugo, 2020). Amugo was supported by (Asiimwe & Magunda 2017; Apiku & Asiimwe, 2023; Bundi, Asiimwe, Mungyenye & Asiimwe, 2024). The region's socioeconomic conditions, such as poverty rates, income inequality, and unemployment, have implications for family income and educational opportunities. Low-income households may face challenges in meeting education-related expenses, leading to potential impacts on pupils' retention rates (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). The cultural context of Amolator district influences family dynamics, gender roles, and attitudes towards education (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). Traditional practices and norms may shape the allocation of resources within families, including decisions related to children's education (Asiimwe & Nabitake, 2022). The availability and quality of educational facilities, such as primary schools, classrooms, teaching materials, and qualified teachers, vary across different areas of the district. Disparities in education infrastructure may impact pupils' learning experiences and retention rates (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

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Government policies, initiatives, and funding for education play a crucial role in shaping the educational landscape in the country. Programs aimed at improving access to education, providing scholarships, or addressing economic disparities can impact pupils' retention (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). Community involvement and support for education can influence pupils' retention. Collaborative efforts between schools, parents, and community leaders may create a conducive learning environment and enhance students' commitment to their education (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

Health and nutrition status can also influence pupils' retention in school. Factors such as access to healthcare, prevalence of diseases, and nutritional status may affect students' ability to attend school regularly and perform well academically (Amungo, 202; Allison, 2020; Cinner, 2021). Understanding the contextual factors provides a comprehensive framework for analyzing the complex relationship between family income and pupils' retention in primary schools in Amolatar district. Researchers can identify specific challenges and opportunities unique to the region, enabling the design of contextually relevant interventions to promote educational equity and improve pupils' retention rates (Asiimwe & Magunda 2017; Apiku & Asiimwe, 2023; Bundi, Asiimwe, Mungyenyei & Asiimwe, 2024).

In Amolatar district, farmers conduct the farming in two seasons of the year January to July and July to December (6 months) season. The remaining month depends on whether quality of crops, market accessibility storage facility. These determine the family income that a farmer can generate. These farmers are not educated to the level of educating in figures, how much they make in a year or in a month. Therefore, the researcher bases on respondents' perceptions.

2. Related Literature

Human capital theory, developed by economists Gary Becker and Theodore Schultz in the 1950s and 1960s, the theory emphasized the idea that education is an investment in human resources. According to this theory, individuals acquire knowledge, skills, and abilities through education, making them more productive and increasing their earning potential (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). In the context of the study, human capital theory suggests that family income and its various sources can influence pupils' retention in primary schools (Asiimwe & Magunda 2017; Apiku & Asiimwe, 2023; Bundi, Asiimwe, Mungyenyei & Asiimwe, 2024). Higher family income may enable parents to invest more in their children's education, leading to better academic performance and increased likelihood of staying in school (Allison, 2020; Amayo, 2020; Cinner, 2021; Basing on this theory, the researcher was able to align theory with family income where parents' investment in education with better academic performance and increased likelihood.

Fishing is a crucial livelihood for many communities, particularly in coastal and riverine regions. The literature explores the socio-economic context of fishing communities, emphasizing the significance of fishing income for households' economic stability and well-being (Asiimwe & Magunda 2017; Apiku & Asiimwe, 2023; Bundi, Asiimwe, Mungyenyei & Asiimwe, 2024). Understanding the role of fishing in these communities provides a foundation for examining its impact on educational outcome (Bamanyaki, 2020; Darling, 2020; Nakiyenda, 2023).

Studies have consistently shown that family income plays a critical role in determining children's educational achievements (Asiimwe & Nabitake, 2022). Low family income is associated with various challenges, such as limited access to educational resources, reduced parental involvement, and higher dropout rates (Asiimwe & Magunda 2017; Apiku & Asiimwe, 2023; Bundi, Asiimwe, Mungyenyei & Asiimwe, 2024). It is essential to investigate how income from fishing may affect pupils' retention in primary schools and their overall educational trajectories. Children from fishing households may encounter unique challenges that affect their educational experiences. These challenges include irregular fishing seasons, migratory patterns of fishing communities, and the impact of weather on fishing activities (Bamanyaki, 2020; Darling, 2020; Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & asiimwe, 2024). Such factors can disrupt pupils' schooling and influence retention rates.

The literature also explores the presence and effectiveness of educational support systems in fishing communities. School infrastructure, access to quality education, and availability of teachers and learning materials can significantly impact pupils' retention and academic performance (Bamanyaki, 2020; Darling, 2020; Nakiyenda, 2023; Wehye & Asiimwe, 2024).

Some studies highlight successful interventions and best practices that have been implemented to improve educational outcomes in fishing communities (Bamanyaki, 2020; Darling, 2020; Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & asiimwe, 2024). These interventions may include scholarships, educational outreach programs, and community-based initiatives that aim to support pupils from fishing households (Pong, 2016). Cultural and social factors may also influence pupils' retention in fishing communities (Asiimwe & Magunda, 2017; (Asiimwe & Nabitake,

2022; Wehye & Asiimwe, 2024). The literature explores the importance of cultural norms, community values, and parental aspirations for education in shaping pupils' educational experiences (Bamanyaki, 2020; Darling, 2020; Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & Asiimwe, 2024).

Fishing communities often depend on the health of aquatic ecosystems for their livelihoods. Environmental degradation, overfishing, and pollution can threaten fish stocks and, consequently, fishing income (Cinner et al., 2021; Nakiyenda, 2023; Maila & Asiimwe, 2024; Asmaa, Sofia, Kibuuka & Asiimwe, 2024). Children from fishing households may face educational disruptions due to environmental challenges, such as changes in fish abundance or seasonal variations in fishing conditions (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). Examining the intersection of environmental sustainability, fishing income, and educational opportunities can provide insights into the resilience of fishing communities and the implications for educational retention (Allison, 2020; Bamanyaki, 2020; Darling, 2020; Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & Asiimwe, 2024; Asmaa, Sofia, Kibuuka & Asiimwe, 2024).

Gender roles and responsibilities within fishing households can influence children's educational outcomes. In many fishing communities, women play essential roles in fish processing, marketing, and household management (Allison et al., 2020; Darling, 2020; Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & Asiimwe, 2024; Asmaa, Sofia, Kibuuka & Asiimwe, 2024). Gender disparities in access to education and opportunities for girls may exist due to cultural norms or economic constraints. Exploring the gender dimensions of fishing income and educational retention can inform strategies to promote gender equity and empower girls in these communities (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

Fishing livelihoods are often associated with occupational hazards and health risks, such as accidents at sea, exposure to toxins, and mental health challenges (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). Poor health outcomes among household members, including parents, can affect family income and the ability to support children's education. Investigating the linkages between health, fishing income, and educational attainment can illuminate the broader socio-economic determinants of educational retention in fishing communities (Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & Asiimwe, 2024).

Government policies and institutional frameworks play a crucial role in shaping educational opportunities for children in fishing communities (Mullick, 2018). Policies related to fisheries management, social protection, and education infrastructure can directly impact household income and children's access to schooling (Bamanyaki, 2020; Darling, 2020; Nakiyenda, 2023; Wehye & Asiimwe, 2024). Assessing the alignment and effectiveness of policy interventions in addressing educational challenges in fishing communities can guide future policy formulation and implementation efforts (Cinner, 2021; Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

Given the complex interplay of economic, environmental, social, and cultural factors influencing educational retention in fishing communities, interdisciplinary approaches are essential for comprehensive understanding and effective intervention design (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024). Collaboration between researchers, policymakers, educators, and community stakeholders can facilitate holistic assessments of the challenges and opportunities faced by children from fishing households and promote sustainable solutions that address their diverse needs (Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

3. Methodology

This study followed a cross-sectional research design which used both qualitative and quantitative research approaches to show the relationship between study variables. This involved both statistical data and oral statements from interviews for in-depth analysis (Creswell, 2018). Qualitative and quantitative research approaches were used to gain insight into variables; Family Income and Pupils Retention in Amolatar District. Further, descriptive surveys were used to discover causal relationships (descriptive correlational). Therefore, the descriptive correlation design enabled the researcher to determine the relationship between Family Income on Pupils Retention in Primary Schools in Amolatar District.

4. Discussion

The income from fish farming is sufficient to meet our basic needs: This statement received a mean score of 2.94 and is interpreted as "Very Good." It is ranked 1st, indicating that respondents perceive their income from fish farming as sufficient to meet basic needs. This suggests a positive correlation between income from fish farming and financial

stability within households. We face challenges in generating a stable income from fish farming: With a mean score of 2.42 and an interpretation of "Good," this statement is ranked 2nd. It suggests that respondents acknowledge challenges in generating a stable income from fish farming. Addressing these challenges could potentially improve household financial stability and, consequently, pupils' retention in school (Bamanyaki, 2020; Darling, 2020; Nakiyenda, 2023; Wehye & Asiimwe, 2024).

Income from fish farming significantly contributes to our family's overall income: This statement received a mean score of 2.63 and is interpreted as "Good." It is ranked 3rd, indicating that respondents perceive income from fish farming as a significant contributor to their overall income. This highlights the importance of fish farming as a livelihood activity in the community (Cinner, 2021; Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

Many pupils in our community drop out of primary school due to financial constraints: With a mean score of 2.53 and an interpretation of "Good," this statement is ranked 4th. It suggests that respondents recognize financial constraints as a significant factor contributing to primary school dropout rates in the community, although the perception may not be as strong as other aspects related to income from fish farming (Cinner, 2021; Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

Financial stability positively influences pupils' likelihood to complete primary school: This statement received a mean score of 2.69 and is interpreted as "Good." It is ranked 5th, indicating that respondents perceive financial stability as having a positive influence on pupils' likelihood to complete primary school. This underscores the importance of economic factors in educational outcomes (Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & Asiimwe, 2024).

The availability of scholarships or subsidies significantly impacts pupils' retention: This statement received a mean score of 2.57 and is interpreted as "Good." It is ranked 6th, suggesting that respondents believe the availability of scholarships or subsidies has a significant impact on pupils' retention in school. This highlights the importance of external support mechanisms in enhancing educational opportunities.

There is a direct positive correlation between our family's income from fish farming and the likelihood of pupils in our community completing primary school: This statement received a mean score of 2.72 and is interpreted as "Good." It is ranked 7th, indicating that respondents perceive a positive correlation between income from fish farming and pupils' likelihood to complete primary school. This was supported by (Funke, Sofia, Kibuuka & Asiimwe, 2023; Nakiyenda, 2023; Maila & Asiimwe, 2024).

It is believed that using income from fish farming to support education expenses can help improve pupils' retention rates in primary school: With a mean score of 2.45 and an interpretation of "Good," this statement is ranked 8th. It suggests that respondents believe using income from fish farming to support education expenses can positively impact pupils' retention rates. This statement was in support of (Cinner, 2021; Nakiyenda, 2019; Asiimwe & Nabitake, 2022; Wehye & Asiimwe, 2024).

Table 1 The relationship between family income from fish farming and pupils' retention in Amolatar district, Uganda

Variable	Level	Sig value (r)	R value	Decision
Fish Farming	2.54	0.020	0.736	Accepted
Pupil's retention	2.54			

Primary data, 2024

The decision rule is that if $P \geq 0.05$ the null hypothesis is accepted and if $P \leq 0.05$ the null hypothesis is rejected. Based on Pearson linear correlation analysis on the information provided in the table above, there is a positive relationship between income from fish farming and pupils' retention in Amolatar district of Uganda. The correlation coefficient (r) value of 0.736 suggests a moderate positive correlation between these two variables.

The significance value (sig value) of 0.020 is also provided, indicating that the relationship between income from fish farming and pupils' retention is statistically significant. This means that the observed correlation is unlikely to occur by chance.

Based on these findings, it can be concluded that income from fish farming is positively associated with pupils' retention in Amolatar district. This implies that households that derive their income primarily from fish farming are more likely to have better pupil retention rates compared to those not involved in fish farming.

Table 2 Pupils Retention in Amolatar district

Descriptive Statistics		
	Mean	Std. Dev
The teaching methods used in this course effectively helped me retain information.	2.75	1.298
I feel confident in my ability to remember and apply what I have learned in this class.	2.45	1.190
The feedback provided by the teacher has been instrumental in enhancing my retention of course material.	2.75	1.298
I actively engage in review activities to reinforce my understanding and retention of key concepts.	2.45	1.190
The organization of the course content has facilitated my retention of information.	2.75	1.298
I believe that regular assessments have contributed to my retention of knowledge in this subject.	2.64	1.207
Peer discussions and group activities have positively impacted my retention of course material.	2.94	1.334
I am motivated to continue learning and retaining knowledge beyond the requirements of this course.	2.42	1.188
Average	2.64	
Valid N (listwise)		

The mean represents the average score given by the respondents for each statement. In this case, the mean score ranges from 2.42 to 2.94. A higher mean score indicates a more positive perception or agreement with the statement.

The standard deviation measures the dispersion or variability of the responses around the mean. A higher standard deviation suggests a greater diversity of opinions or responses. Looking at the average value of 2.64, it can be interpreted as the overall average level of agreement or perception of pupils' retention across all the statements. This value represents the midpoint between the lowest and highest scores.

Based on the provided information, it appears that the statements related to the teaching methods, feedback from teachers, organization of course content, and peer discussions/group activities have relatively higher mean scores, ranging from 2.75 to 2.94. This suggests that pupils perceive these factors as positively influencing their retention of course material.

On the other hand, statements regarding confidence in remembering and applying what has been learned, active engagement in review activities, motivation for continued learning, and the contribution of regular assessments have slightly lower mean scores, ranging from 2.42 to 2.64. This indicates that pupils may have a relatively lower agreement or perception regarding these factors' impact on their retention of knowledge.

5. Conclusions and recommendations

The moderate positive correlation between income from fish farming and pupils' retention suggests that fish farming plays a meaningful role in positively impacting educational outcomes.

To further strengthen the positive correlation between income from fish farming and pupils' retention, interventions should focus on addressing challenges specific to fish farming. This may involve providing technical assistance, ensuring sustainable fishing practices, and creating market opportunities for fish farmers.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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