



International Journal of Arts and Science Research

Journal home page: www.ijasrjournal.com



DETERMINANTS OF VOLUME OF FISH PRODUCTION IN FISHERIES COOPERATIVES IN ABOBO DISTRICT SOUTHERN GAMBELLA REGIONAL STATE, ETHIOPIA

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ABSTRACT

This study investigated the determinants of volume of fish production in fisheries cooperatives. The specific objectives of this study are (i) to assess the performance of fisheries cooperatives, (ii) to identify the determinants of volume of fish production, (iii) to identify the challenges and opportunities of fisheries cooperatives. Data for the study were obtained from 149 members of fisheries cooperatives. To deal with the objectives of this study both qualitative and quantitative methodologies were used respectively through primary and secondary data. The primary data used structured and unstructured questionnaires interview schedule. Data analysis were used both descriptive statistic tools and multiple regression econometric models. The estimates results of ordinal least square econometric model shows that Access of gears, Extension linkage and Institution Contact, volume of fish marketed and years of Fish Farming Experience were positively relationship and significantly that affect the volume of fish production Household income and distance nearby market were positively relationship and insignificance at any level and Sex, Age, Household monthly income of fish and Credit were negatively relationship and insignificant. The result of descriptive statistic techniques and ordinal least square econometric models were recommended that there is a need of urgent to focusing on the best coping mechanisms needed based on the situation of marginalizes fisheries cooperatives otherwise the cooperatives in the study area will never be alive in the future.

KEYWORDS

Volume of Fish Production, Fisheries Cooperatives, Fish Farmers and Members.

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INTRODUCTION

Following world food day in (2012) nearly one in seven people suffer from undernourishment, yet the world has the means to eliminate hunger and fuel sustainable development. There is broad agreement that smallholders will provide much of the extra food needed to feed more than nine billion people by 2050. Numerous success stories around the world

have shown that rural institutions like producer organizations and cooperatives contribute to food security by helping small farmers, fisher folk, livestock keepers, forest holders and other producers to access the information, tools and services they need.

Millions of people depend on fisheries and aquacultures around the world directly or indirectly for the livelihoods. During the past three decades the numbers of fisheries and aquacultures have grown faster than world population and employment in the fisheries (Dawit, 2014)¹. According to the study conducted by Deacon (2012)² stated that the present's evidence numbers of cooperative in the world is 67. The estimates indicate that in 2010 there were 54.8 million people engaged in the primary sector of capture fisheries, of this, 7 million people were occasional fisheries and fish farmers (Dayanandan, 2014)³.

In Africa, marine fisheries production (4.7 million tonnes) is much larger compared to inland fisheries but in a smaller scale than at the global level (Assefa, 2014). According to the Ofuoku *et al.*, (2008)⁴, Olaoye *et al.*, (2011)⁵ elaborate that human population growth is rising at a rate of about 4 to 5% in Nigeria; livestock production is trailing behind at a rate of 2 to 3% production. This shows that there is a wide gap between supply and demand of fish production that needs to be bridged.

Tana Haik I Fishing Cooperative was the first fisheries association in Ethiopia which established before 15 years in the Southern Gulf of the Lake Georgis (a local trader cum fishing organization) and the Zege Fish for all association are recently organized and functional associations since 2006. The importance of fisheries to the Ethiopian economy, until 50 years ago, was insignificant due to abundant land based resources and a sparse population density. But, from the 1940s and 50s, the rapid population growth, which resulted in a shortage of cultivable land and depletion of land resources, forced the people to look for other occupations and sources of food from water resources at a subsistence level (Report, 2012)⁶.

In our country, Ethiopia depends on the inland waters for the supply of fish as a cheap source of

animal protein. It has a number of lakes and rivers with substantial quantity of fish stocks. The total area of the lakes and reservoirs stands at about 7000 to 8000 km² and the important rivers stretch over 7000 km in the country. In addition, minor water bodies such as crater lakes and reservoirs make up about 400 km². Most of the lakes are located in the Ethiopian Rift Valley depression, which is part of the Great East African Rift Valley system (Kelil, 2002)⁷. The capture fisheries in Ethiopia help to sustain local community directly. The total fishermen estimated at 15,000 of which about 5,000 are active and the remaining part time and occasional fishers. Of the total fulltime fisher men, 2790 (55.6%) are organized in to cooperatives that produce 30 percent of annual total fish potential (Dayanandan, 2014)³.

In Gambella region fisheries cooperatives started in 2006 in Gog woreda. Following the assessment which conducted by Husein with his colleagues in (2010)⁸ off the total number of cooperatives in Gambella regional state 10 of them are fisheries cooperatives with the total members of 263 of them 200 men and 63 women.

METHODOLOGY

Description of the Study Area

The Gambella People's Regional State (GPNRS) is located south west Ethiopia between geographical coordinates 6°28'38" to 8°34' North Latitude and 33° to 35°11'11" East Longitude, which covers an area of about 34,063 km² about 3% of the nation. Gambella is the nine region among others region, which constitute Federal Democratic Republic of Ethiopia. It is at a distance of 766 km from Addis Ababa (GPNRS, 2011).

The study area was Abobo Woreda which is found in Anywaa zone. It is one among the five districts. It is located 45 Kms from south of Gambella (the capital of the region).

For this study purpose, both qualitative and quantitative data were utilized from both primary and secondary source. Primary data were generated by distributing questionnaire to respondents, interviewing members who were selected for interview. The secondary data was obtained from the available documents of different sources.

The secondary data were included information that are obtained mainly from different reports, bulletins, websites and literatures or published and unpublished book which were relevant to theme of the study and were gather from various sources to complement survey base on analysis. The primary sources of data are structured questionnaire which was used to collect data through personal interview and unstructured questionnaires interview conduct with members of AWFCs. To avoid unstructured interview bias the enumerators used to record the response of respondents and coding related error.

To gather primary data five enumerators were recruited from the study area and three day off and on the field training was given to them in order to acquaint them as to how to collect data using the personal interview. The questionnaires were pre-tested on the selected frame members with enumerator on field.

One of the super potential of fisheries cooperatives in southern Gambella region⁹ is Abobo district which is found in Anywaa Zone. Therefore Anywaa Zone was selected purposely for the study due to the very great existing potential of fisheries cooperatives in zone and Abobo district was selected purposely among five districts in the Anywaa Zone. This is, because of the number of fisheries cooperatives in the district is more than others districts in the Zone. From nine fisheries cooperatives, seven cooperatives were selected purposively because of those cooperative had more than four year since they were formed in the study area. The population of the study consist of 157 members of fisheries cooperatives. For selecting these samples of members, the researcher was used census technique by considering the non-respondents questionnaire and members who were not a round for some reason in the study area.

Method of Data Analysis and Interpretation

The data were analyzed by using descriptive statistics and multiple regressions. Descriptive statistic tools were appropriate for comparing and contrasting the different of categories of the sample respondents with respect to desired characteristics. In this study the first objectives is to assess the performances of fisheries and the second one is to identify the challenges and opportunities of

cooperative were analysed by using descriptive statistics such as mean, minimum, maximum, standard deviation, percentages and frequency were used along the econometric model and STATA was employed the objective three is the determinants of volume of fish production in fisheries cooperative was analysis by using Ordinal Least Square (OLS) by using Greeny, (2002) formula, which is planned to see the casual relationship between dependent and independent or explanatory variables. The generic form of linear regression model is expressed in the following below: $Y = f(X_1, X_2, X_3 \dots X_n)$. The dependent variable for this study is the volume of fish productions which is (Y) while explanatory variables are $X_1, X_2, X_3 \dots X_n$ and they represent the determinants that have a meaningful influence on the volume of fish production. $Y = \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 \dots \beta_k X_k + \epsilon_i$. This model specifies the linear relationship between y on $X_1 \dots X_k$. Where β_i 's are vector of coefficients, $X_1, X_2, X_3 \dots X_n$ are independent variables and ϵ_i is stochastic random term. The term ϵ_i is a random disturbance.

RESULTS AND DISCUSSION

Socio Economic Characteristic of Fish Farmers

Following in the above Table No.1 shows that the majority of fisheries cooperative were dominated by male while female were very less in numbers. Since female were marginalized by their husband the numbers of them was very low in cooperative but for those who were widow may able to be a members. The study is In line with Abebe *et al.*, (2015)¹⁰ female members of the fishing cooperative participate in processing and selling fish activities. This is an indication that females fear the difficulty of fishing to joint fishing cooperatives.

The above Table No.2 displayed that the result of mean, minimum; maximum and standard deviation of data were discussion in the following below.

Fish and off farm were the double sources of income per monthly and per annum. The average income of fish was 63.89 birr per monthly. The minimum average income of fish was 12 birr per monthly while maximum average was 99 birr per monthly with standard deviation of 18.98 whereas average of off farm income was 56.32 birr per monthly. The

minimum average income 10 and maximum income average was 99 per annum and their standard deviation of 22.87. This shows that the fish is the main income while off farm is second source but off farm were not considered as another source of income that is why it was too low. The implication is when the volume of fish production increased then there would be income and the probability to expand farm will be there. When farm expanded there is probability to increase fish equipment or gears that could increase volume of fish production in cooperatives. In general the average income of both fish and off farm are less but it may be lack of gear, distance to the place of fishing and cheating catch fishes that may decreased their income.

The average distance nearby market was 84.5 minutes while minimum and maximum distance 10 and 180 minutes but standard deviation was 43.95. The implication is when the minutes of distance to the market less then, the volume of kg of fish production and kg of fish marketed would be increased.

Most of the time, years of fish farming experience is important for the success of fish production. The average of household years of farming experience on fishing was 5.48 years while minimum and maximum were 1 and 15 fishing experience of years and standard deviation of 2.23. This is an indication that if members produce large kg of fish definitely members have years experience on fish farming.

Household size is the numbers of family living together in the same home. They can contribute to improve the amount of fish produce in per day, month, and years to the cooperatives. As the result presented in the table above the household size were categorise in to four ranges. The result presented in the Table No.3 over, family size of fish farming cooperative shows that 47.65% of respondents had family size in the range of 1 to 5 while the next one is followed with 46.31% of respondents had in the ranges 6 to 10 family sizes and 4.70% of respondents had in the between the range of 11 to 15 families size. Lastly 1.34% of respondents had live alone. According to study conducted by Olaoye *et al.*, (2011)⁵ and Binyam, (2011)¹¹ was in line with this study which they explained that the number of

household size may able to bridge the gap of artisanal fishing to increase the VFP kg per day that can lead members to contribute their proportion fish product to the cooperative. The implication is, the large numbers of household size the more VFP kg they produce and the better they can improve their living standard and the higher subsistence needs or the larger families' size the better VFP kg and the better members to meet their financial responsibility of cooperatives.

Education refers to formal schooling years and non-formal education of fish farmers in cooperatives. In the perspective of this study the members in territory education were in a better situation to serve their cooperatives. In term of level of education in the above Table No.4 parade that 74.49% of respondents were in grade between 5 to 12 years of schooling with 60.40% of male and 14.09% female and the followed 18.12% of respondents in the range of 1 to 4 grade or elementary school with 6.04% of male and 12.08% female while 13 to 16 ranges of school only 4.49% respondents with no female in higher education. 2.68% of respondents were response no formal education with 0.67% of male and 2.01% female. Education is importance for any development in mass. Therefore it can be generalized that female were very low in their education than male. According to the table result in the below, level of educational majority of fisheries cooperatives was in junior and secondary high school with less female members.

This study is inconsistent with study conducted by Ofuoku, (2008)⁴ in Nigeria which indicated that the popular members of fishery cooperative had territory education which 51% of respondents obtained skill and technical knowhow. But according to the result in the table above only 4.49% respondents had territory education. So it can be seen that members hadn't skill and technical knowhow in generally. Inconsistent with Binyam, (2011)¹¹ study stated that since education is not the kind of essential talent in fishing, it is not expected to be key determinant of fish production.

In term of land size in the above Table No.5 parade that 128 respondents had a farm size between 0.5 to 2 hectare with their 85.91% members of fisheries

cooperatives and following with 44 respondents which were between the ranges of 2 to 4 hectare with 12.08% respondents while 2.01% of respondents had 4 hectare and above. This result in the table in the above indicates that the popular of the respondents have small land size but the rise 13.09% respondent members had 2 hectare and above. Having small land size will lead members to lack finance. This result is not in line with Edoge (2014) which land size of fish farming was 82% members with range of 0.25-1.77 hectare. This study also disagree with the study conducted by Hussien *et al.*, (2010)⁸ that the average land holding in the region does not exceed 0.5 - 0.7 hectare rendering the small holder farming system a host of considerable disguised unemployment. This is an indication that if the kg of fish production decreased then land size also will decreased since fish production is the main source of income for members of fisheries cooperatives that would make every function smoothly in cooperatives.

This investigation was aligning with (Laura, 2010)¹² as he explained that cooperatives are interested in diversification activities. Based on land, these new activities make economics of fisheries cooperatives more visible in their local community. So members of fisheries cooperative need to diversify their activities to improve their volume of fish production.

Fish Production and Marketing

The average fish marketed in 2006/2014 in the above Table No.6 were 2540.7 kg while the minimum fish marketed were 1000kg and maximum fish marketed were 9670 kg. The standard deviation was 1554.1. This is an indication that if the VFP increased then there is probability to increase the volume of fish to be marketed. This study is in line with Olaoye, *et al.*, (2011)⁵, Ofuoku, (2008)⁴ explained that there is still demand-supply gap which needed to be filled by the cooperatives fish producers in the study area.

Extension Linkage and Institutions

The tools of descriptive statistic were employing for training, credit and it source which were explained detail in the notes below:

Extension linkage and institutions is one of the important for fish farmers. Without extension contact, fish farmers like business man who

admitting failure before the end of their goals. The Table No.7 in the above revealed that 26.85% of respondents had chance of extension contact while 73.15% respondents were not able to get advantage of extension linkage and institution contact. The result exposed that majority were complaining about non-availability of extension agent linkage and institutions but others even though they got linkage, still they need more extension contact agents for more improvement.

This is an indication that the government give less emphases to the artisan fisheries cooperative and it role was not know than others artisan organization. This results shows that the extension agent has been really felt in the study area.

This investigation was not align with Agbebi, (2012)¹³ in Nigeria, described that access to extension services had 52.2% of respondents which have no access of extension services and 47.8% respondents were access of extension services. Laura, (2010)¹² as he expressed that Government need to involve supporting cooperatives with training courses for the development of cooperatives economics.

Fish Equipments

Fishing equipments is refers to a gear which used to catch fishes in reverie, lake and dam. These equipments were analyzed through descriptive statistic a technique which includes the variables of numbers of gears and length of mesh/net.

The numbers of fish gears have influence on VFP to the members of cooperatives. Following the Table No.8 in the above, the average of fish farmer's gears was 3.53 gears and the minimum number was 1 gear while the maximum were 5 gears with their standard deviation of 1.09. This is an indicated that 62.42% part of respondents had found that they have from 3 - 4 gears while 18.79% of respondents had less than 2 gears while 18.79% members had more than 5 gears. The implication is the more numbers of gears member have, the more kg fish production to the cooperatives.

Mesh length is one of the parts of gears that can impact VFP. As presented in the above table the average net was 126 lengths. The minimum and

maximum were 13 and 200 length of nets but their standard deviation was 47.39.

The table of respondent indicate that 61.8% large proportion had a length of net from 114 and above while the less proportion 38.26% respondents had less than 113 length of mesh this would shows that their VFP would be also different in amount. Therefore, size of mesh is one of the factors that can affect VFP, if net size not considered for fish even though the length of net is long it would lead to decline the VFP because fish would pass through it if the net size is large. Thus members of cooperatives need to be trained about the size of net to use it.

Distances of Home to Place of Fishing and Market

Minutes takes from home to the dam and fishing place to the nearest market were analyzed with tools of descriptive techniques.

The Table No.9 in below, presented that about 95.3% of respondents were taking 1-50 minutes from their home to fishing place while the ranges between 51-100 minutes was 3.3% respondents moving from home to fishing places to harvest fishes and 101 and above ranges of minutes only 1.4% of respondents were used to move along distance with average of 15.94 minutes and standard deviation of 26.06 whereas fishing place to the market taken 84.52 minutes respectively

The minimum, maximum and standard deviation of distance of both home to the fishing place and fishing place to the market were different according to the minutes or hours its take. This is shows that when the distance of home to the fishing place is few minutes then the VFP would incline or if the distance of fishing place to the market increase there is probability to demote the interest of fish farmers that would hold back members to produce fish production.

CHALLENGES AND OPPORTUNITIES OF MEMBERS

Problems Related to Police and Legal Framework

Administrator is a manager in the organization or somebody whose job is to control the whole affair of business that referred to him during unfit and communicate with members or employees to identify

the problems in order to know what is going on among the employees or members.

Actually according to the principle of cooperative, cooperative is an autonomous and independent of self-ruling which is free from politic but government can play some role in cooperative such as provide technical support, provide audit and legal services, Facilitate linkage with external sources, ensure that the cooperative by laws are enforced etc.

Problems Perceived by Management Committees

A management committee is responsible for running the business to achieve the goal of cooperative. As the business, management committees needs to spend more time to think about how to accomplish goal, what is the gap, what is the need to close the gap and when to close, how to close it, etc must be considered by members of management committees. The Table No.10 in the above, displayed ranks based on problems that management committee's perceived, the result was 91.95% of respondents response to shortage of boats or vessels and was the main problem that causes to members activities during fish production and second one to this was 82.55% respondents put the status of insufficient of fish gears next to shortage of boats while 79.19% respondents were gave third rank to sale fish to private traders and the lastly cheating gears or fish catch. This is an indication that without boat/ vessel the fish harvesting will become difficult to produce and if there is no adequate gears the numbers of fish production also will never be increase to what members need.

Therefore, based on members ideas, they suggested that the vessels that was given by agency for cooperation in research and development (ACORD) to all fishermen is very hold and the numbers of user of it increased through time and couldn't be enough for all cooperative and fishermen to used it. So there is need to add more than five vessels or boats which need to be divided to two.

According to members suggestion they said that Zionist Organizations America (ZOA) provided gears to them so far but know the gears which donated to them is become very hold, so we need additional, since the gears we have known is insufficient for production of fish. Members should

better to sale fish to us than private trader as suggested by others fisheries cooperatives buyers.

Determinants of Fish Production in Fisheries Cooperatives

Multiple regressions analytical tools were employed to determine the significance level of volume of fish production and to shows the causal relationship between dependent and independent variables. The study has identified volume of fish production per month kg and annual fish marketed of kg. In Table No.11 in the above ordinal least square results indicates that the multiple coefficient determination ($R^2 = 39.51\%$) was significance at 1% and 5% confidence level.

Age of Households (AHH)

It is a continuous variable which measure in term of numbers of years and become negatively relationship with volume of fish production. Therefore the reason may be because when the age of household increased there is a probability to decrease power or getting hold and the members wouldn't be able to stay on fishing. This implied that the holder member, the less fish production. This study agree with Binyam, (2011)¹¹ suggested that the cooperatives sector is working with old aged members as opposed to the labour intensive nature of the business which demands young people who are more efficient and physically strong. As members getting older, performance deteriorated.

Access to Credit (AC)

The absent of credit received will decreased the amount of volume of fish kg production to the cooperatives. This is implied that when the credit decline by -32.78 then fish kg production will be decreased by this negative number.

Consistent with Binyam, (2011)¹² said that members were faced capital constrictions to employ adequate quantities of fishing inputs. Therefore there is need to reflect to the problem in order to improve the amount of volume of fish production by members. Accessibility to credit source could likely to determine the use of better fishing technology.

Years of Fishing (YF)

According to OLS estimates results in the above table YF was positively relationship with VFP and significantly at 1% level of confidence interval. This is an indication that experience lead members to prefect production. The sign of this variable is consistent with Osondu and Ijioma, (2014)¹⁴, Uwem *et al.*, (2010)¹⁵ described that as the numbers of years of members increase in fish farming then the members experience would increase and experience in primary occupation improves the wellbeing of the members in cooperatives.

Volume of Fish Marketed (VFM)

The kilo gram (KG) VFM was significance at 1% level of confidence and had positively relationship with VFP. This is an indication that if the VFP increases, the probability to increase kilo gram of marketed fish is obvious and when the demand of fish is high then fish farmers will enable to participate in fish production. When the members marketed more fish it mean that member's experience, and extension linkage and institution contact and gears were played in expansion production. Following the study conducted by Abebe, *et al.*, (2015)¹⁰ in Tigray regional state in line with this study as they described that fish catching could be done throughout the year if they had sufficient market for their produce.

Access of Fish Gears (AFGs)

The result in above Table No.11 was displayed that the coefficient is 19.66 and positively significance at 5% level of confidence on VFP. This is an indication that the members had access of gears. The implication is when the numbers of fish gears increase by 19.66 then definitely there is no mistrust at this moment that the members could harvest more fish product. Gears have influence on VFP since, if numbers of gears come up, fish production also would come up^{16,17}.

Table No.1: Sample distribution based on sex

S.No	Sex	Frequency	Percentage
1	Male = 1	107	71.81
2	Female =0	42	28.19
3	Total	149	100.00

Source: field survey, 2015

Table No.2: Sample distribution based on socio economic characteristic

S.No	Household feature	N	Mean	Min	Max	Std. deviation
1	Monthly Income of Fish	149	33.91	19	60	9.57
2	Monthly Off farm Income	149	63.89	12	99br	18.98
3	Distance Nearby Market	149	56.32	10	99br	22.87
4	Years of Fishing	149	84.5	10	180	43.95
5		149	5.48	1	15	2.23

Source: Field survey, 2015

Table No.3: Member's distribution based on family sizes

S.No	Family size	Frequency	Percentage (%)
1	Living Alone	2	1.34
2	1 to 5	71	47.65
3	6 to 10	69	46.31
4	11 to 15	7	4.70
5	Total	149	100.00

Source: Field survey, 2015

Table No.4: Sample distribution based on level of education

S.No	Education status	Male (%)	Female (%)	Total (%)
1	No Formal Education	1(0.67)	3 (2.01)	4 (2.68)
2	Elementary (1 to 4) Years of Education	9(6.04)	18(12.08)	27 (18.12)
3	Junior and Secondary (5 to 12) Years of Education	90 (60.40)	21 (14.09)	111 (74.49)
4	Higher Education (13 to 16) Years of Education	7 (4.49)	-	7 (4.49)
5	Total	118 (32.88)	42 (28.19)	149 (100)

Source: Field survey, 2015

Table No.5: Respondent's distribution based on farm size

S.No	Hectare of Land	Frequency	Percentage (%)
1	0.5 to 2	128	85.91
2	2 to 4	18	12.08
3	4 and above	3	2.01
4	Total	149	100.00

Source: Field survey, 2015

Table No.6: Sample distribution based on fish production and marketing

S.No	Feature of production and marketing	N	Mean	Min	Max	Std. deviation
1	Volume of Fish Marketed	149	2540.7	1000	9670	1554.1

Source: Field survey, 2015

Table No.7: Distribution of respondents based on extension contact

S.No	Extension	Frequency	Percentage (%)
1	Yes	40	26.85
2	No	109	73.15
3	Total	149	100.00

Source: Field survey, 2015

Table No.8: Sample distribution based on fishing equipment

S.No	Necessary equipments	N	Mean	Min	Max	Std. deviation
1	No of Gears	149	3.53	1	5	1.09
2	Length of Fish Net/Mesh	149	152.34	13	200	185.68

Source: Field survey, 2015

Table No.9: Sample distribution based on distance from home to fishing place

S.No	Distance	N	Mean	Min	Max	Standard deviation
	Home to fishing place	149	15.9396	1	240	26.06676
	Fishing place to market	149	84.51678	10	180	43.94662

Source: Field survey, 2015

Table No.10: Problems perceived by cooperatives management committees

S.No	Problems	Ranks				
		1	2	3	4	Total
Dearth of boats /vessels						
1	Frequency	137	5	4	3	149
2	Percentage (%)	91.95	3.36	2.68	3.36	100.00
Sale fish to private traders						
3	Frequency	118	14	11	6	149
4	Percentage (%)	79.19	9.39	7.40	4.02	100.00
Cheating gears/fish catch						
5	Frequency	112	22	9	5	149
6	Percentage (%)	75.84	14.76	6.04	3.36	100.00
Insufficient fish gears						
7	Frequency	123	11	8	7	149
8	Percentage (%)	82.55	7.38	5.37	4.70	100.00

Source: Field survey, 2015

Table No.11: Linear regression model estimates the determinants of VFP

S.No	Variables	Coefficient	Std. error	t. value
1	Age of Members	-1.544433	.9670506	-1.60
2	Household Monthly Income of Fish	-.6013402	.4320948	-1.39
3	Household off Farm Income	.3293825	.3633369	0.91
4	Years of Fish Farming Experience	11.38637	4.092415	2.78**
5	Volume of Fish Marketed	.0423184	.0053562	7.90***
6	Extension Linkage and Institutions	-59.16873	23.49442	-2.52**
7	Access of Credit	-32.78105	23.0671	-1.42
8	Access of Gears	19.66447	7.68149	2.56**
9	Distance Nearby Market	.1344608	.1942738	0.69
10	Cons.	27.62471	53.17125	0.52

Source: Field survey, 2015, R-squared = 39.51%, F = 9.01, *** significance at 1%, ** significance at 5%

CONCLUSION AND RECOMMENDATION

However, the numbers of fisheries cooperatives still very limited in numbers in our country Ethiopia this is because of government was not considering fisheries cooperatives as a way of economic development of the country while the demand of fish consumption increasing even though fishermen produce fish for sale, they couldn't be able bridge the gap among consumers. Descriptive statistic analysis and multiple regression models were used to process all the data. In the results of survey for socio economic characteristics of the fish farmers, indicate that land size was 81.88% in the size of 0.5 - 2 hectare even though land available. In extension linkage and institutions 73.15% members were not getting any training with regard of fish and 69.13% of members had no source of credit. In term of equipment of fish 85.23% of fish farmers walking from fishing place to market while they used to carried fish by head. The OLS model analysis revealed that FFEXP, VFM, and AG were positively relationship while ELIC is negatively to the volume of fish production and significantly at 1% and 5% level of confidence interval. HHOFI and DNM were found positively and Sex, Age, HHMIF and Credit become negatively relationship with VFP but both variables were insignificant at any level. The challenges and opportunities of the members of fisheries cooperatives policy and legal framework were not implemented according to member's response in table. In problems which related to infrastructure facilities were not accessible. The problems perceived by members were not able to across members to well development.

There are problems perceived by management committees that challenges members activities were not solved to lead members work feely.

Therefore there is need for supporting mechanisms to the fisheries cooperatives such as special policies and strategies that can strengthen them. These measures should include capacity development to build strong leadership, fortify member's business skills, and improve the knowledge and expertise of members and leaders.

Government agencies, through enabling legislation and policy framework, can create strategies to

encourage cooperatives as a way of promoting better and fairer options for members and that would separate fisheries cooperatives members with unorganized fishermen that would alleviate cheating gears or catch fish and conflict between members and fishermen. Policies for alternative markets, credit, training and extension contact with members can help empower fisheries cooperatives. There is urgent need to Provide roads that would made owner of transportation to hire their vehicle with members, and minimize the perish-ability of fish and distance of fishing place (distance of home) to the market (the fishing place) that would made fish farmers to boost their volume of fish production.

Non-governmental organizations (NGOs) should be better to provide lessons learned and exchange programmes with other cooperatives, supporting fisheries cooperatives based on their needs that can't be able to fulfill by the cooperatives easily. Urgent focusing on the best coping mechanisms needed based on the situation of marginalizes fisheries cooperatives otherwise the cooperatives in the study area will never be alive in the future.

ACKNOWLEDGEMENT

The author which to express their sincere gratitude to Department of Cooperative Business Management, Collage of Business and Economics, Gambella University, Ethiopia for providing necessary facilities to carry out this research work.

CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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Please cite this article in press as: Ojulu Cham Gilo. Determinants of volume of fish production in fisheries cooperatives in abobo district southern gambella regional state, Ethiopia, *International Journal of Arts and Science Research*, 4(1), 2017, 18-28.