Structure, Conduct and Performance of Fish Market in Central Ethiopia

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ABSTRACT:
The study aimed at analyzing the structure, conduct and performance of fish market in Lake Zeway, Central part of Ethiopia. A total of 24 traders from 6 markets were selected for the study purposively. Data analysis was carried out using descriptive statistics, for Structure, Conduct and Performance (SCP) approach. According to the results, there were five kinds of fish marketing chains in the study area. The fish market was oligopolistic in nature which controlled by few large wholesalers because of capital barriers to massively enter into the fish trade. The share of margins showed that retailers got the highest margin that all of the fish market agents in the study area. The study recommended necessary government interventions to make the fish market operate efficiently.

Keywords: *Structure, Conduct, Performance, Fish Market, Lake Zeway, Ethiopia*

INTRODUCTION

Fish is an important source of protein in developing countries. However, it is highly perishable especially in the hot climate where unsanitary environment and poor handling practices worsen the situation (Ikeme, 2006). Due to their importance, fish products are highly traded and global fish trade has been increasing very rapidly in recent decades with an estimated 45% of the world catch now traded internationally (The FishSite, 2015). The rise in worldwide demand for fresh fish coupled with improvements to refrigeration and transportation have resulted in the expansion of fishing footprints to remote areas, previously non-targeted for commercial purposes (Birkeland, 2004; Swartz et al., 2010).

Small-scale fisheries supply around 50% of all global fish catches and are responsible for 90% of the employment in the fisheries sector, which represents nearly 10 million people worldwide in the harvest and post-harvest sectors (Teh et al., 2011). The benefits of small-scale fisheries may be made clearer through an investigation of how seafood moves from the sea to the final consumers (Kittinger et al., 2015).

Africa's participation in the global fish trade has been limited, providing only about 4.9% of the total value traded (Worldfish, 2015). The continent's share in global export and imports continues to be minor with Europe (70%) being the number one market for the top ten African exporters of fish products (The Fish Site, 2015).

The fish production potential is estimated for 51,500 tons per year in Ethiopia. However, only 30-38% of this potential is currently used (Mitike, 2015; Temesgen and Getahun, 2016). According to Brook Lemma (2012), although there are some

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form of fisheries practiced in most freshwater bodies in Ethiopia, commercial fishery is concentrated at Lakes Tana, Chamo, Ziway, Abaya, Koka, Langano, Hawassa and Turkana.

According to regulations, fishers have to be members of cooperatives to be considered legal operators. Individual or independent fishers are considered informal or 'illegal' fishers. Early in the 2000's, it was estimated that there were about 5,000 full-time fishers, out of which 2,790 (56 percent) were organized under 68 fishers' cooperatives or peer groups and 669 (13 percent) were registered in 19 fisher's cooperatives (FAO, 2003-2015). When including part-time fishers, the total number of fishers in Ethiopia was close to 15,000 in the early 2000's. Only partial updated information relating to some lakes is available. This number was changed to an estimated 2,300 fishers (both legal and 'illegal') operating from about 50 camping or fish landing sites on Lake Chamo and between 1,700 and 5,000 fishers (both legal and 'illegal') on Lake Zeway (Ward and Wakayo, 2013 in ACP Fish II. 2013).

The potential yield of all fish species which found in Lake Zeway were estimated between 3,000–6680 tons per year (Yohannes, 2003) and many market agents including fishers' associations, wholesalers and retailers in the area engage in fish marketing as their means of livelihood. However, previous studies conducted in the area (Kelil, 2002; Yohannes, 2003; Hellegers et al., 2008; Hailu, 2011; Wubishet, 2015) do not focus on studying the structure, conduct and efficiency of the fish market in the study area. Hence, this study aims to study the structure, conduct and efficiency of fish market in Lake Zeway, Central Ethiopia. The specific objectives of the study are: to study the market structure of fish, to investigate the fish market conduct and to evaluate the market performance of fish in lake Zeway, central Ethiopia.

RESEARCH METHOD
The Study Area
Zeway Lake is situated in the rift valley at about 160km from Addis Ababa in the south direction. It is found in the National Regional State of Oromia. The lake is bounded by three districts, in South-East direction by Zeway Dugda District, Arsi Zonal Administration, in West by Adami Tullu-Guddo-Kombolcha District and in

North–West direction by Dugda Bora District, in which the latter both districts are found in East-Shoa Zonal Administration. The lake has high economic importance for its natural resources (such as water, fish, wildlife, etc.), bio-diversity, recreational value and horticultural crops production as it is easily accessible and situated near the main asphalted highway, which is extended from the southern part of the country to Addis Ababa market outlets.

Lake Zeway located in mid-altitude regions. The Lake gets mono-modal rain flow from Katar River (Arsi Zone) and Meki River (Gurage Zone) in which the two rivers are the main feeders in the catchment areas of the lake. The mean annual rainfall of Zeway Lake and its surroundings varied from 600-800 mm with high fluctuation. The mean annual evaporation with 1600 mm is higher than mean annual precipitation. The mean annual maximum and minimum temperatures are 27 and 13 degree Celsius respectively. The temperature is higher from November to April and lower from June to October. February and March are the hottest months of the year. There is no clear trend (increase or decrease) in rainfall characteristics in the region during the last 40 years (Alemayehu et al., 2006).

Population, Sample and Sampling Method
In addition to Zeway town, five markets (Addis Ababa, Butajira, Adama, Mojo and Shashemene) were selected purposively based on the flow of large volume of fish output. The number of wholesalers selected from Zeway and Addis Ababa were 4 and 1 respectively. The number of retailers selected from Zeway, Addis Ababa, Butajira, Adama, Mojo and Shashemene were 5, 2, 2, 2, 1 and 1 respectively. This makes the combined total of cooperatives, wholesalers, and retailers 24. Data for the study were obtained from both primary and secondary information sources. The primary data were collected by utilizing a structured questionnaire administered to 24fish sellers. Personal interview was also conducted and results of the interview were interpreted in the questionnaire. While the secondary information was obtained from textbooks, journals, past projects, internet, conference papers, etc. Descriptive statistics was employed to interpret existing conditions of fish market structure, conduct and efficiency.

Theoretical Framework
Structure of the Market

The term market structure refers to the number of buyers and sellers, their size distribution, the degree of product differentiation, and the ease of entry of new firms into an industry (Abbott and Makeham, 1981; Bain, 1968; Kohls and Uhl, 1985).

Examples of such dimensions include:

Degree of Buyers and Sellers Concentration: Number and size distribution of buyers and sellers in the market.

Barriers to Potential Entrants: Refers to the relative ease or difficulty with which new dealers may enter into market. Technological, economic, regulatory, institutional, and other factors that inhibit firms from engaging in new businesses or entering new markets, and

Degree of Product Differentiation: Refers to the extent to which competing products in a market are differentiated and it is expected to influence the competitive interrelationships of sellers in the market. Market concentration can be defined as the number and size of sellers and buyers in the market.

Concentration is believed to play a large part in the determination of market behavior within an industry because it affects the interdependence of action among firms. The relationships between concentration and market behavior and performance must not be interpreted in isolation. Other factors, such as firms' objectives, barrier to entry, economies of scale, and assumptions about rival firms' behavior, will be relevant in determining the degree of concentration and relationship between concentration and behavior and performance (Schere, 1980). Market structure can also be defined as characteristics of the organization of a market, which seem to strategically influence the nature of competition and pricing behavior within the market (Bain, 1968). Structural characteristics may be used as a basis for classifying markets. Markets may be perfectly competitive; monopolistic; or oligopolistic (Scott, 1995). The organizational features of a market should be evaluated in terms of the degree of seller concentration, entry barriers (licensing procedure, lack of capital, and policy barriers), degree of transparency and degree of product differentiation that condition or influence the conduct and strategies of competitors (Wolday, 1994).

Conduct of the Market

Market conduct refers to the behavior of firms or the strategies used by the firms, for example, in their pricing, buying, selling, etc., these activities may require the firms to engage into informal cooperation or collusion (Teka, 2009). Definition of market conduct implies analysis of human behavioral patterns that are not readily identifiable, obtainable, or quantifiable. Thus, in the absence of a theoretical framework for market analysis, there is a tendency to treat conduct variables in a descriptive manner (Thompson, 2011).

Performance of the Market

It is reflection of the impact of structure and conduct on product price, costs and the volume and quality of output (Cramers and Jensen, 1982). If the market structure in an industry resembles monopoly rather than pure competition, then one expects poor market performance.

According to Abbott and Makeham (1981), market performance is how successfully the firm's aims are accomplished, which shows the assessment of how well the process of marketing is carried out.

Marketing Costs

These are incurred to perform various marketing activities in the transportation of goods from producer to consumers. Marketing costs includes handling cost (packing and unpacking), costs of searching for a partner with whom to exchange, screening potential trading partners to ascertain their trustworthiness, bargaining with potential trading partners (officials) to reach an agreement, transferring the product, monitoring the agreement to see that its conditions are fulfilled, and enforcing the exchange agreement (Holloway and Ehui, 2002).

Marketing Margin

It is a commonly used measure of the performance of a marketing system (Abbott and Makeham, 1981). It is defined as the difference between the price the consumer pays and the price that is obtained by producers, or as the price of a collection of marketing services, which is the outcome of the demand for and supply of such services (Cramer's and Jensen, 1982). A big margin may result in little or no profit or even a loss for the seller involved depending upon the

marketing costs as well as on the selling and buying prices (Mendoza, 1995). Hence marketing margin is the difference between buying and selling prices. In competitive markets, the margin achieved should be commensurate with the cost of services rendered.

RESULTS AND DISCUSSION
Demographic Characteristics of Sampled Traders

The data on these demographic characteristics highlighted that, of the total traders sampled in the area only two retailers (8.3%) were female. This may be due to women traders tend to face more obstacles than men due to discriminatory social and cultural practices which results in limited access to financial resources (Ben-Ari 2014). Concerning age of traders, about 55% of the sample respondents are in the age range of 30-64 while the 35% of respondents' age ranges from 18-29 years. Only 10% of them are more than 64 years of age. The result of this demographic character indicates that near to all of the sampled traders are in their productive age.

Regarding Experience, 75% of the sampled traders have an experience of more than a year in fish trading by which 35% of them experience fish trading for more than Five years. The rest 25% of the total sampled respondents have a fish trading experience of less than one year. The data reveals that most of the traders are experienced by which they are well aware of the price and other important situations in the fish market. This lets them know when the price of fish becomes higher and lower and directs them from whom to buy.

Education is a very crucial factor for skill development and enhancing marketing decisions. Traders who are better educated are generally more open to innovative ideas and new technologies that promote technical change (Lapar and Ehui, 2003). In this regard, the assessment shows that most of the traders are literate by which 50% and 5% of them completed primary and secondary school respectively. 20% of the traders reach education level of certificate and above. As educational level of traders increases, they are more exposed to different accesses to know the market situation.

Analysis of Structure and Conduct of Fish Marketing

Production of perishable produces like fish requires efficient marketing system. This research revealed that the marketing system of fish in the lake was organized with different marketing channels. This calls for participation of market intermediaries to perform specific marketing functions as the product moves from fishermen to the final consumers. Considering the fact that knowledge of marketing functions and Institutions provides an insight on the structure, conduct and performance of markets (Wolday, 1994); this research used the descriptive approach to assess the marketing arrangement of fishery in the study area.

Market Structure

Market structure refers to a set of market characteristics that determine the economic environment in which a firm operates (Thomas and Maurice, 2011). Market structure is analyzed based on the numbers and sizes of enterprises within the system, and the potential access of additional participants to it (licensing procedure, lack of capital, and policy barriers) and the degree of transparency (Pender, et al., 2004). Hence, based on the data available and gathered the following measurements of market structures were analyzed.

Measure of Market Concentration Ratio

Market concentration refers to the number and relative size distribution of buyers and sellers in the market (Schere, 1980). For an efficient market, there should be sufficient number of firms (buyers and sellers); firms of appropriate size are needed to fully capture economies of size; there should be no barriers to entry into and exit from the market and should have full market information. As shown in the table below, applying the market structure criteria suggested by Kohls and Uhl (1985), concentration ratio was measured by the percentage share of volume of fish handled by the largest four traders in the market. Thus, the fish market shows oligopoly market. This suggests that there was market concentration by few firms. The result is different with Ekine et al., (2018) that found no person or group of persons controls the market signifying competition among fresh fish sellers in Bayelsa State, Nigeria (table 1).

Table 1: Concentration ratio for market agent

Market	Product	Marketing agent	Concentration ratio top four firms (Percent)
Zeway	Fish	Wholesaler	53.47%

Barriers to Entry and Exit

Capital: About 65% of the sample traders used less than 100,000 ETB initially to participate in fish trading while, 35% of the traders mostly whole sellers and cooperatives start with financial resources greater than ETB 100,000. Thus, since fish trading requires moderate investment, need more initial working capital. However, there was 36% credit access for fish trading in the sample markets; working capital was found as a barrier to participate in fish trading. The results agree with those of Lewu and Assefa (2009) who reported that lack of access to credit was most common in African small-scale farming and trading.

Licensing: Based on the results of the study majority the traders undertake fish marketing without having license. Based on the survey result, about 61 % of the respondents are not licensed in fish trading. The assessment implied that, absence of trading license for fish trading activities had not restricted traders to enter and exit in fish trading businesses.

Degree of Market Transparency

Access to timely market information on prices and quantities plays a crucial role in reducing the risk of losing money on a market transaction. In a transparent market, participants have adequate information about their competitors regarding their source of supply and buying prices for better decisions. According to the survey result, 33.3, 37.5 and 33.3 percent of the traders respectively have reported as they have reliable, adequate, timely information in the study area. The research result has implied that, the market of the study area is well characterized by lack of transparency in timeliness, adequacy and reliability. The result is in line with studies conducted previously (Ruttoh et al., 2018; Abbah et al., 2015; Haruna et al., 2012; Tiku et al., 2012; and Mauyo et al., 2003) who discovered that most market information was received informally through market intermediaries.

Market Conduct

Market conduct refers to the patterns of behavior of firms. This implies analysis of human behavioral patterns that are not readily identifiable, obtainable, or quantifiable (Pomeroy and Trinidad, 1995). There are no agreed upon procedures for analyzing the elements of market conduct. Rather, some points are put to detect unfair price setting practices and the conditions under which such practices prevail. In this study conduct of the fish market is analyzed in terms of the traders' price setting, price information and selling strategies.

Price Information: Market information plays a great role for traders because it affects the volume of the product to be purchased, price of purchasing and selling, and time of sales. The market information was not transparent between some different categories of traders that created price variability and difference among traders. About 74% of the sampled traders are informed about the market information and purchase fish from fishermen's associations directly. The result is in reverse with that of Omar (2015) that found a fish market which is significantly integrated to all regional markets due to having the facility of information technology, which closely connected the markets to each other in Dhaka, Indonesia.

Buying and Selling Strategy: The survey result indicated that the transactions made on fish marketing of the study area takes place with direct contact between sellers and buyers. There were no observed operational brokers in the fish marketing channel during the survey period. The fish retailers were found to purchase fish either directly from fisherman or from wholesalers or from fishery cooperatives.

The method of price setting is crucial importance in fish trading activity. About 33 percent of the sample traders reported that their purchase price was set by themselves and 50% was replied the price for fish marketing is set by the interaction of supply and demand fish markets

and 17 percent of the traders respond that purchase price was set by negotiation with suppliers.

Performance of Fish Market

Market performance refers to the impact of structure and conduct as measured in terms of variables such as prices, costs, and volume of output (Pomeroy and Trinidad, 1995). Market performance as described by Giroh et al. (2010) is the strategic end result of market adjustments engaged in by buyers and sellers. The main features used in assessing market performance are the level of profit, scale and utilization of plants and firms, scale and promotion costs and character of the product and progressiveness. The methods employed for analysis of performance were channel comparison and marketing margin. The analysis of marketing channels was intended to provide a systematic knowledge of the flow of goods and services from its origin production to final destination (ultimate consumers).

Marketing Channels

According to Mendoza (1995), marketing channel is the sequence through which the whole of fish passes from fishers to consumers. The analysis of marketing channel is intended to provide a systematic knowledge of the flow of the goods and services from their origin (produce) to the final destination (consumer). Hence during the survey, the following major fish marketing channels were identified and a total of 4850 Quintal of fish was transacted in the survey period.

Channel I: Fishermen ⟶ consumer = **244.45 Quintals (5%)**

Channel II: Fishermen ⟶ Retailer ⟶ consumer = **733.35 Quintals (15%)**

Channel III: Fishermen ⟶ fishery Cooperative ⟶ consumer = **205.34 Quintals (4.2%)**

Channel V: Fishermen ⟶ fishery Cooperative ⟶ wholesaler ⟶ Retailer ⟶ consumer = **2248.94 Quintals (46%)**

Channel IV: Fishermen ⟶ fishery Cooperative ⟶ Retailer ⟶ consumer = **1417.81 Quintals (29%)**

Marketing Costs and Margins of Fish Market
Marketing Costs and Profit

The marketing costs in the transaction of fish by the different marketing agents (cooperatives, wholesalers, retailers and producers) are presented in Table below. Price per quintal for fish was used for the marketing margin calculations. Results of analysis of marketing costs and margins were used to determine whether there were excess profits and serious inefficiencies. Margin and cost calculation was carried only for key fish marketing channels. The share of producers is generally depends on the length of the marketing channel or the number of intermediaries involved in the marketing process (Krishnan, 2010).

Based on the result retailers get the highest profit, which is 1452.4 ETB per quintal followed by fishery cooperatives taking 1432.8 ETB per quintal. This profit made by retailers was possible because the majority of retailers were found to purchase fish directly from fisherman and fishery cooperative and direct sale to consumers. The reason for having (1432.8 ETB) amount of profit for cooperatives was because of cooperatives have incurred cost less than the other intermediaries and were free from any corporate tax. Hence, marketing operating cost of cooperatives was the lowest from all intermediaries or agents in the study area i.e. 567.2 birr per quintal (table 2).

Table 2: Marketing cost for different marketing agents (Birr/qt) (Average)

Cost of marketing	Intermediary/Chain Actors			
	fisherman	Wholesaler	Retailer	Cooperative
Load/unload	-	50	65	-
Transportation: Vehicle	-	420	670	-
Tax	-	150	171	-
Storage cost/warehouse	-	130	160	20
Telephone expense	-	45	145	45
Electric/power charge	-	156	123.6	120
Water charge	-	-	-	3.2
Oil for trucks /Generator	-	-	-	210
Package plastic, hygiene detergents/take away home	-	5.5	7	34
Salary for Guards	-	30	14	43
Salary for permanent employees in transfer of fish	-	225	192	92
Total marketing cost/qt		**1211.5**	**1547.6**	**567.2**
Selling price/qt	**35**			
Average purchasing price/qt	-	**5500**	**5500**	**3500**
Total cost/qt		**6711.5**	**7047.6**	**4067.2**
Average selling price/qt		**7500**	**8500**	**5500**
Gross profit	-	**788.5**	**1452.4**	**1432.8**

CONCLUSION

The structure of the market in the study area was found to be dominated by few wholesalers and it was characterized by oligopolistic type of market. Capital was a barrier to enter into the fish market and but most of the traders were not licensed and it is concluded that licensing was not a barrier to enter to the fish market. In the study area traders use to set prices by negotiation, taking also the price that the market provide them or the price resulted through the interaction of demand and supply and there is time also they themselves set price when demand is greater than supply.

Regarding to performance of fish markets, major channels in the study area fish markets are efficient though there is difference in market margin in the channels, intermediaries and profits. Hence, fish markets through channels II, IV and V had the highest market margin and the fishermen's share on the customers buying price would be higher if they could sell directly to customers.

The survey result revealed that business experience, financial capital or working capital and market transparency hindered fish market entry. Hence the market of the study area is well characterized by lack of transparency in timeliness, adequacy and reliability and since fish trading requires moderate investment need more initial working capital and there was only 25% credit access for fish trading in the sample markets.

In view of the findings of the study, we make the following recommendations about fish marketing in Central Ethiopia 1) The market imperfection was prevailed due to the control of wholesalers and the concentrated market place in the market. It should, therefore, be the focus of the government and other organizations working in fish sector in the area to increase the centers of wholesale distribution to decrease the

concentration of the fish market. 2) The regional government authorities should intervene in controlling the illegal traders and legalize them and impose them a tax to make the fish market operate fairly. 3) The District office of Agriculture in collaboration with other stakeholders should establish and run an institution that can convey reliable and timely market information required by all stakeholders in the fish market. This would make the marketing system to operate efficiently.

REFERENCES

Abah, D. A., Anjeinu, A. G. and Iorhon, A. P. (2015). Analysis of the Structure and Conduct of Paddy Rice Marketing in Benue State, Nigeria. *American Journal of Marketing Research*, 1 (2), 70-78.

Abbot, J. C. and Makeham, J. P. (1981). *Agricultural Economics and Marketing in the Tropics*, Wing Tai Cheung Printing Co. Ltd, Rome.

ACP Fish II. (2013). Final Technical Report: Provision of Technical Assistance to Review and Improve the Catch and Effort Data Recording System (CEDRS) and Deliver Basic Training in Stock Assessment in Ethiopia.

Alemayehu, T., Ayenew, T. and Kebede, S. (2006). Hydrogeochemical and Lake Level Changes in the Ethiopian Rift Valley. *Journal of Hydrology*, 316, 290-300.

Bain, K. and Howells, P. (1988). *Understanding Markets: An Introduction and Practice of Marketing*, Harvester Wheat Sheaf, London.

Birkeland, C. (2004). Ratcheting Down the Coral Reefs. Bioscience 54, 1021–1027. Available at: http://dx.doi.org/10.1641/00063568(2004)054[1021:RDTCR]2.0.CO;2.

Brook, L. (2012). Report on the Value Chain Assessment of the Fishery Sector in Ethiopia. Food and Agriculture Organization Sub-Regional Office for Eastern Africa Addis Ababa., 131.

Cramer, G. L. and Jensen, W. (1982). *Agricultural Economics and Agribusiness*, 2nd Edition. McGraw Hill Book Company, USA.

Ekine, D. I. and Binaebi, E. (2018). Structure and Performance of Fresh Fish Marketing in Yenagoa Local Government Area of Bayelsa State, Nigeria. *Journal of Agriculture and Veterinary Science*, 11 (6) 63-68.

Giroh, D. Y., Umar, H. Y. and Yakub, W. (2010). Structure, Conduct and Performance of Farm Gate Marketing of Natural Rubber in Edo and Delta States, Nigeria. *African Journal of Agricultural Research*, 5 (14), 1780-1783.

Hailu, M., (2011). Ecosystem Structure, Trophic Link and Functioning of a Shallow Rift Valley Lake: The Case of Lake Ziway (Ethiopia). Addis Ababa University.

Haruna, I., Nkegbe, P. and Ustarz, Y. (2012). Structure, Conduct and Performance of Tomato. *Journal of Economics and Sustainable Development*, 3 (10).

Hellegers, I. P. (2008). Preconditions for a Payment for Environmental Services Establishment at Central Rift Valley, Ethiopia. Wageningen University.

Holloway, G. and Ehui, S. (2002). Expanding Market Participation among Smallholder Livestock Producers: A Collection of Studies Employing Gibbs Sampling and Data from the Ethiopian Highlands. Socio-economic and Policy Research Working Paper 48. ILRI, Nairobi, Kenya.

Ikeme, A. I. (2006). Cooperative Research Programs on Fish Technology in Africa. Nsukka: Food and Technology Department, University of Nigeria, 154.

Kelil, A. (2002). Users' Attitudes toward Fisheries Management on Lake Zeway, Ethiopia. University of Tromsø.

Kittinger, J. N. (2015). From Reef to Table: Social and Ecological Factors Affecting Coral Reef Fisheries, Artisanal Seafood Supply Chains, and Seafood Security. Plos One 10 (8), Available at: https://doi.org/10.1371/journal.pone.0123856.

Kohls, R. L. and Uhl, J. N. (1985). Marketing of Agricultural Product. Fifth Edition. McMillan Publishing Company, NewYork, USA.

Krishnan, M. and Narayanakumar, R. (2010). Structure, Conduct and Performance of Value Chain in Seaweed Farming in India. *Agricultural Economics Research Review*, 23, 505-514.

Lapar, A. and Ehui, S. (2003). Policy Options Promoting Market Participation among Smallholder Livestock Producers: A Case Study from Philippines, *Food Policy*, 28 (3), 187-221.

Lewu, F. and Assefa, Y. (2009). Farmers Knowledge in the Cropping Systems of Northern KwaZulu-Natal, South Africa: Current Challenges and Solution for Sustainable Future Food Production. *African Journal of Agricultural Research*, 4 (11), 1148-1153.

Mauyo, L. W., Kosgei, D. K., Okalebo, J. R., Irkbyr, A. K., Kimani, P., Ugen, M. M. and Maritim, H. K. (2003). Structure and Conduct of Cross-border Bean (Phaseolus vulgaris) Marketing in East Africa: The Case of Western Kenya and Eastern Uganda. African Crop Science Conference Proceedings, 6, 642-648.

Mendoza, G. (1995). *A Primer on Marketing Channels and Margins*, G. J. Scott (ends). Prices, Products, and People; Analyzing Agricultural Markets in Developing Countries, Lynne Rienner Publishers, Boulder, London.

Mitike A. (2015). Fishermen's Willingness to Pay for Fisheries Management the Case of Lake Ziway, Ethiopia. MSc. Thesis Submitted to the School of

Agricultural Economics and Agribusiness. Haramaya University.

Omar, M. I., Janifa, U. A., Sabur, S. A., Moniruzzaman, M. and S. Haque, S. (2015). Analysis of Marketing Efficiency and Spatial Co-Integration of Rohu (Labeo Rohita) Fish in Some Selected Areas of Bangladesh. *Journal of Marketing and Consumer Research*, 8 (2015).

Nirit, B. A. (2014). Raw Deal for African Women Traders, African Renewal, United Nations.

Pender, J., Ruben, R., Jabbar, M. and Gebre-Medhin, (2004). Policies for Improved land management and Agricultural Land Management and Agricultural Market Development in the Ethiopian Highlands. Summary of Papers and Proceedings of a Workshop Held at the Ghion Hotel, Addis Ababa, Ethiopia. February 19 -20, 2004, IFPRI.

Raymon, V. A. (2003). Vertical Cooperation and Marketing Efficiency in the Aquaculture Products Marketing Chain: A National Perspective from Vietnam. FAO, Rome, Italy.

Ruttoh, K. J., Bett, K. E. and Nyairo, N. (2018). Empirical Analysis of Structure and Conduct of Tomato Marketing in Loitoktok, Kajiado County, Kenya. *International Journal of Agricultural Extension and Rural Development*, 6 (4), 628-638,

Schere, F. M. (1980). *Industrial Market Structure and Economic Performance*, 2nd Edition. Rand McNally College Publishing Agency, USA.

Scott, G. J. (1995). *Prices, Products and People: Analyzing Agricultural Markets in Developing Countries*, Lynne Reinner Publishers, Boulder, London.

Swartz, W., Sala, E., Tracey, S., Watson, R. and Pauly, D., (2010). The Spatial Expansion and Ecological Footprint of Fisheries (1950 to present). PLoS One 5 3–8, Available at: http://dx.doi.org/10.1371/journal.pone.0015143.

Teh, L. S. L., Teh, L. C. L. and Sumaila, U. R. (2011). Quantifying the Overlooked Socio-economic Contribution of Small-Scale Fisheries in Sabah, *Malaysia. Fish. Res.*, 110 (3), 450–458.Available at: https://doi.org/10.1016/j.fishres.2011.06.001.

Teka, S. G. (2009). Analysis of Fruit and Vegetables Market Chains in Alamata Southern Zone of Tigray: The Case of Onion, Tomato, and Papaya, Unpublished MSc. Thesis, Haramaya University, Haramaya, Ethiopia.

Temesgen, M. and Getahun, A. (2016). Fishery Management Problems in Ethiopia. Natural and Human Induced Impacts and the Conservation Challenges. *Reviews in Fisheries Science and Aquaculture*, 24 (4), 305-313.

The Fish Site. (2015). Fish Trade in Africa: An Update, The Fish Site Article .

Thomas, C. R. and Maurice, S. C. (2011). *Managerial Economics: Foundations of Business Analysis and Strategy*,10th ed., John Wiley and Sons, New York.

Thompson, C. F. (2011). *Swaziland Business Year Book. Christina Forsyth Thompson*, Mbabane-Swaziland.

Tiku, N. E., Olukosi, J. O., Omolehin, R. A. and Oniah, M. O. (2012). *The Structure, Conduct and Performance of Palm Oil*.

Wolday A. (1994). Food Grain Marketing Development in Ethiopia after Reform 1990. A Case Study of Alaba Siraro. The PhD Dissertation Presented to Verlag Koster University, Berlin.

Wubeshet, B. (2015). *Determinants of Fish Production in Lake Ziway*, Ethiopia. St. Mary's University Repository, Ethiopia.

WorldFish (2015). Pan-Africa Project to Focus on Potential of Fish Trade for Increased Nutrition and Income. World Fish Press Release, Available at: worldfishcenter.org

Yohannes, F. (2003). *Management of Lake Ziway Fisheries in Ethiopia*, University of Tromsø.