Species availability, price variation and marketing channel of fish in Dhaka city

A thesis Submitted to the Department of Fisheries, University of Dhaka
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Bangladesh

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Declaration by Student

I hereby declare that the dissertation entitled "**Species availability, price variation and marketing channel of fish in Dhaka city**" submitted to the Department of Fisheries, University of Dhaka for the degree of Master of Science (MS) is based on self-investigation, carried out under the supervision of **Dr. Md. Golam Rabbane,** Associate ProfessorDepartment of Fisheries, University of Dhaka-1000, Bangladesh.

I also declare that this or any part of this work has not been submittedfor any other degree anywhere. All sources of knowledge used have been duly acknowledged.

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CERTIFICATE

This is to certify that this thesis entitled "**Species availability, price variation and marketing channel of fish in Dhaka city**" is submitted by **MD. SHAHARIAR**; Roll no. Curzon-817; Session: 2015-2016; Reg. no. 2011-912-761/2011-2012, has been carried out under my supervision.

This is further to certify that it is an original work and suitable in partial fulfillment for the degree of Masters of Science (MS) in Fisheries from the Department of Fisheries, University of Dhaka.

I wish every success in his life.

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THE AUTHOR   **FEBRUARY, 2017**

DEDICATED
TO
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PARENTS

ABSTRACT

The study was conducted on species availability, price variation and marketing channel of fish in seven markets namely Showarighat, Kawran Bazar, Jatrabari, Anondo bazaar, Polashi Bazar, Mohakhali and Mogbazar and three super shops namely Meena Bazar, Shwapno and Agora in Dhaka for six months from May 2016 to October 2016. Data were collected through questionnaire interviews and focus group discussions. In Dhaka city a large number of people were involved in the fish marketing channel as bepari, aratdar, paiker, and retailer. Paiker and bepari bought fish from producer and finally sold fish to retailer through aratdar. Retailers were the last intermediaries of fish marketing channel and they had direct contact with the consumer.The most available fish in seven markets and three super shops in Dhaka city are golda chingri (*Macrobrachium rosenbergii*), bagda chingri (*Penaeus monodon*), bele (*Glossogobiusgiuris*), poa (*Otolithoides pama*), deshi pangus (*Pangasius pangasius*), rita (*Rita rita*), rupchanda (*Pampus chinensis*), common carp(*Cyprinus carpio*), grass carp(*Ctenopharyngodon idella*),taki(*Channa punctatus*),boal(*Wallago attu*), chapila(*Gudusia chapra*), shol(*Channa striatus*), catla(*Catla catla*),Koi (*Anabas testudineus*), rui *(Labeo rohita),* shing(*Heteropneustes fossilis),* shorputi(*Puntius sarana*), silver carp(*Hypophthalmichthys molitrix),* tilapia(*Oreochromis mossambicus),* big head(*Hypophthalmichthys nobilis*)mrigal(*Cirrhina mrigala*)etc.In the study area, marketing channel which comprise of Beparies, Aratdar, Paiker, Retailer and Consumer. The market chain from farmers to consumers covers mainly primary, secondary and retail markets, involving local agents, suppliers, wholesalers and retailers. Beparies bought fish from primary producer in primary markets that are located in Soarighat. Beparies sell their fish to Paiker and Retailer through Aratdar.Retailers were the last traders of fish marketing channel. The highest price was observed of Rupchanda 1278.33$\pm$386.67 Tk/kg at Meena bazar and lowest price was pangus 97.71$\pm$4.25 Tk/kg at Soarighat among Meena bazar, shwapno, agora, Jatrabari, Soarighat, Annanda bazar, Polashi bazar, Kaoran bazar, Mogbazar, Mohakhali. The highest price was observed of Chingri 585$\pm$115 Tk/kg at Mohakhali and lowest price was Big head 128.75$\pm$4.27 Tk/kg at Soarighat among Jatrabari, Soarighat, Annanda bazar, Polashi bazar, Kaoran bazar, Mogbazar and Mohakhali.Poor transport facilities and enormous number of intermediaries in the marketing channels were the main problems of fish marketing channel.During peak seasonprice was lower than that of lean season.

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ABBREVIATON	ELABORATION
ANOVA	Analysis of Variance
BBS	Bangladesh Bureau of Statistics
%	Percentage
BFDC	Bangladesh Fisheries Development Corporation
BFRI	Bangladesh Fisheries Research Institute
CIFRI	Central Inland Fisheries Research Institute
DoF	Department of Fisheries
EEZ	Exclusive Economic Zone
FAO	Food and Agricultural Organization
Mg/l	Milligram per liter
GDP	Gross Domestic Product
GO	Government Organization
Ha	Hectare
Hrs	Hours
SEM	Standard Error of Mean

CHAPTER 1: INTRODUCTION

1.1 Background

A periodical meeting of people for buying and selling of fish or fisheries product is called a market. Fish market is neither a mechanical nor an automatic procedure. It is the process of activities involves series of action and events that place in some sequence. According to Kotler (1972), the marketing concept is a consumer orientation backed by integrated marketing aimed at generating customer's satisfaction as the key to satisfying organized goals. Marketing in general involves transfer in the ownership of goods and services, adds value or usefulness on utilities to the products in the shape of time, place or form (Kohls,1996). It may also be defined as a process of responsibly for attainment the farm product to the final consumers in the form, place and time desired by them (Shah, 1996). Marketing of aquaculture products is the performance of all business activities elaborate in the flow of agricultural product and services from the point of initial agricultural production until they are in the hands of consumers. Marketing is the name given to the management process responsible for finding out what customers need and supplying them as efficiently and profitably as possible. Marketing begins on the farm and ends with the satisfied consumer. (Curtis, M. Jolly and Howard A, Clonts, 1993).

According to Chaston (1987), a fisherman in a small rural community who lands a catch in excess of his needs and seeks to exchange the fish for another product is implicitly involved in the activity from fish marketing. Markets have become a major issue for fisheries sector, where consumer demands, international competitiveness, health and quality product are essential (Muir et al.,1996). According to Shang (1981), the reoccurrence of farm depends on production level and market prices, the price usually fluctuating seasonally due to variations in the supply and demand. The consumers' reception and price levels in the market place are two of the major factors that determine economic viability in many situations (Sadanandan et al.,1992).

 Fish marketing is not only limited to selling of fish but also includes all the events which exert considerable impacts on the exploitation, production, distribution, conservation and transportation of fish in addition to actual sale of fish by reducing middlemen (Agarwal, 1990). Bangladesh is considered one of the most suitable countries in the world for

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freshwater aquaculture, because of its favorable agro-climatic conditions. A sub-tropical climate and vast areas of shallow water provide ideal conditions for fish production. Large number of different types of water bodies both inland and marine makes Bangladesh one of the most appropriate countries of the world for freshwater aquaculture. The main production methods for freshwater aquaculture in Bangladesh are extensive and semi-intensive pond polyculture of Indian major carps and exotic carps which accounts for 80% of the total freshwater aquaculture production. The remaining 20% were mainly from catfish (Pangasianodon hypophthalmuslocally known as pangas), tilapia1small indigenous fish species and rice-fish farming (ADB, 2005).

Fisheries and aquatic resources are economically, ecologically, culturally and aesthetically significant to the nation. From the global perceptions, the main issues facing by the international fishing community generally are over fishing, overcapacity, by-catch management as well as environmental degradation. The collective effect of these factors that have made 60-70% of the major world fisheries resources are in urgent 22 need of management action to restrict the increase in fishing capacity and to rehabilitate damaged resources (FAO, 1991). At present 1.4 million people are involved full time and 12 million as part time in fisheries sector in the country for livelihood and trade. Another 3.08 million fish and shrimp farmers are cultivating fish both at subsistence and commercial level. The most significant food crops for the 160 million people of Bangladesh are rice and fish. Fish play a vital role among the population in Bangladesh for providing protein, essential vitamins, minerals and fatty acids. Fisheries resources play a dynamic role in the socio-economic development of Bangladesh. The fisheries sectors also performance an important role in food consumption, nutrition, employment and export. Fisheries contribute 4.39% of our GDP, 22.76% of agricultural sector and 2.46% to foreign exchange earnings. Fish provides about 60% of national animal protein. The average per capita fish intake is lower than the world average of 16.1 kg a year (Hishamunda et al., 2008). Total fish production of Bangladesh was 32.62 lakh MT in 2011-12 (DoF, 2013). Fish also adds to the foreign exchange incomes of the country (Ranadhir, 1984). The rapid population growth in Bangladesh and the faster rate of increase of agricultural, domestic, irrigation and industrial actions for which water is essential, frequently shifting priorities from inland fisheries development to other uses. A new factor has arisen in the last 30 years, which is frightening the fish resources of the floodplain. This is the restriction of embankment and dykes in order to control flood. The

great impact of these on fisheries has been designated extensively by (Ali, 1991). Fish production from the open water has declined due to many factors such as water quality degradation by pollution, environmental modification, fish diseases, and high fishing pressure (Ali, 1991). Environmental pollution caused by the pesticides in Bangladesh has been reviewed by (Showler, 1989). These chemical residues either directly kill the fishes or indirectly decrease the population causing diseases, retarded aquatic growth, even shifting the breeding and feeding grounds by the fishes themselves in evidence to the pollution. Growing food demand is now being placed on the aquatic resources and floodplains are now among the fastest disappearing of all ecological systems (Hoggarth, 1999). Bangladesh has some 130 deep-sea fishing trawlers, 22000 mechanized fishing boats, and 25000 non mechanized fishing boats. Currently there are 133 fish processing plants.

About 97% of the inland fish production is marketed internally for domestic intake while the remaining 3% is exported (Hasan, 2001). This sub-sector contributes about 80% to the national animal protein intakes, nearly 6% to the GDP and more than 12% to the export earning of the country (Task Force report, 1991). A large number of people, various of whom living below the poverty line, find employment in the domestic fish marketing chain in the form of farmers, processors, traders, intermediaries, day laborers and transporters (Ahmed et al., 1993; Islam, 1996). By making employment, providing livelihood support marketing is of high importance to fisheries. Economic relationships among aquaculture output prices and fishery prices are entangled and complex. In particular, it is hard to accurately determine whether the substitution or the complementary effects will be dominant in explaining the relationship between cultured and wild sea bream prices. The export market of value added products is highly economical, involving changes in type of products, forms and packaging as well as consumer behavior. Export of fish, shrimp and other fishery products were considered as nonconventional items before the independence of the country. It has improved many-folds during the last decades and the country is earning foreign exchange to minimize the trade gap. In this case the dried coastal and marine fish, the marine finfish and organism even other than fish, could be on the top of the list of export earning items (Kamal, 1994). Changes in public rule or in production conditions could stimulate production responses that may take time to settle. Usually, the change is a matter of modifying between equilibria over a period of time, with the pattern and speed of the adjustment

depending on the nature and degree of disequilibrium in the fishing system. Fisheries development depends on developed production and processing technology and also on effective marketing system.

According to Olukosi et al., (2007), marketing channel is the path of a commodity from its raw to ended form. Bangladesh is a country with higher social inequality; beside the hardcore poverty a large number of affluent consumers are found. This prosperous group of consumers is more conscious about the health and nutrition issues of the food items, and tends to make purchase from supermarkets and chains shops, which are appears to be more trustworthy.

Consumers over the world are now much concern about the risk and health issues related to food intake (Redmond and Griffith, 2005). Traditionally, people of Bangladesh like to eat fresh fish. However, chilled and dried fish are also marketed presently in large quantities in the towns and cities. Utilization and marketing distribution of fish is around 70 % fresh fish, 25% dried, and the other forms of locally processed fish include fermented products and frozen products (Islam et al., 2006). The fish consumers in the country (especially in the Capital) observed adulteration in the fishes by the traders, through the process of culturing in toxic environment and using unhealthy preservatives. However, in comparison to meat, fish is treated as a food with lower chance in chronic diseases and health hazards (Verbeke and Vackier, 2005); but adulteration and fish cultured in toxic environment could cause serious health problem. Hossain et.al 2008, found that among the respondents of their study 93.7% consumers are alert that various foods and foodstuffs contain hazardous chemicals, while 95.5% of them are aware that these adulterated foods and foodstuffs are harmful to their health. It is well treated in consumer research that consumer's risk observation may not only be a physical issue, but also deal with other aspects such as social and financial consequences (Mccarthy and Henson, 2005; Yuksel and Yuksel, 2007; Angulo and Gil, 2007, Tsiros and Heilman 2005).

Various factors that can impact consumers' fish eating behavior have been identified. Among them are product quality (Verbeke et al., 2007b), attitudes towards choosing fish for a meal (Brunsø, 2003), connection in seafood (Olsen, 2001), food choice habits (Honkanen et al., 2005), beliefs about aids and risks related to health (Verbeke et

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al.,2005), convenience (Olsen et al., 2007), age (Olsen, 2003) and health involvement (Olsen, 2003). Consumers report positive insolences towards healthier products and strong intentions to consume those (Kozup et al., 2003). It is generally acknowledged that the intrinsic sensory characteristics of a food product and the extrinsic characteristics such as health claims influence greatly eating and drinking behavior (Ko¨ster, 2009). However, the possibility that those healthier products do not end up being the last choice is a reality (Ko¨ster et al., 1987; Weijzen et al., 2008). This is a result of the understood tendency to report behavioral intentions based on past behavior and not based on deliberate descriptions of plans (Bem, 1972). Consumers remark farmed fish as being of lower quality as compared to fish captured in the wild (Kole, 2003; Verbeke et al., 2007a, b). The image of farmed fish has been suggested to be less positive than the image of wild fish. It was recently advised that despite its possibly preferable sensory properties, the image of fish from aquaculture can influence the perception of fish products negatively (Kole et al., 2009; Luten et al., 2002). A general lack of time, knowledge, skills and abilities to prepare home meals (Gofton, 1995) stimuli our global food attitudes and choices in the direction of more convenience food.

The role of convenience in explaining food attitudes, food choices and consumption has been discovered in several recent studies (Candel, 2001; Jaeger &Meiselman, 2004; Mahon, Cowan, and Mccarthy, 2006; Scholderer and Grunert, 2005). Meal convenience seems to be related to eating situations and reference groups (Verlegh and Candel, 1999). De Boer, McCarthy, Cowanand Ryan, (2004) found that convenience-related attitudes or lifestyles differ between food categories. Trust and knowledge about the quality of food fish is suggested to be of importance for consumer's attitudes and consumption when food are alleged to be risky and cause negative consequences for themselves or their family (Lobb, 2005, Lobb et. al., 2007, Frewer et. al., 1998).Consumer knowledge is another concept which has massive role in shaping consumer behaviors, particularly with regard to information search and information processing (Klerck and Sweeney, 2007), the phenomenon of knowledge is closely related with belief as well as with risk, when consumers are uncertain, trust (bout upon the information source and the outlet) is significant in purchasing decision, however, trust under certainty is synonymous to knowledge (Dierks and Hanf, 2006). In case of Bangladesh, people who are aware and have the financial means are now used to purchase fishes from super markets and chain shops, which are seems to be more trustworthy. However, knowledge about the product

is still indistinct, even though in super stores.The fish marketing system in Dhaka city is very obsolete, unsystematic and unscientific. The contribution of fisheries to procure animal protein is 58% (Sonkolon, DoF.,2011). As a result, unfair fish traders are getting chance to mix formalin with fish as well as other unethical works in fish marketing and earning more lucre. Fish are delivered in Dhaka via wholesale market. So infrastructure of fish wholesale markets to be developed is an emergency issue to contract quality fish.

Fish are accepted at wholesale market in Dhaka city from all over the country especially from the southern part of Bangladesh. Then fish are mostly bought by retailers, Beparies, local fish collectors, and fish farmers. Wholesaler also called Aratder who are the owner of wholesale market shop pay dadon to fish farmer and beparies to catch procurement of their fish arrange sale by taking percentile on sale price from beparies and fish farmers. But wholesaler has no own fish for selling. The fish price is usually fixed through auction by an aratder in wholesale market. Price variation in wholesale markets depends on retail markets.

1.2 Rationale

The fisheries sector plays a vital role in the economy of Bangladesh. The country is a densely populated land in the third world and it is very tough to meet the requirement of food for her population. Traditionally, people in the country have fish with rice for most of their meal and fish ranks as the second essential item in their diet. Within the agricultural sector, fisheries play a very imperative role in the socio-cultural and economic life of Bangladesh. No sub sector of this sector explains the development potentials more clearly than fisheries. Fisheries contribute 4.39% of total gross domestic product (GDP), 22.76% of total agricultural production and 2.46 % of foreign exchange earnings (DoF, 2013). The poor people, especially, the landless depend on a wide diversity of fish species to meet their protein requirements. Species diversity and small fishes have deep importance to the subsistence of fishermen. This is a dynamic source for nutrition of the rural people. In the rural area, small species are the sources of critical nutrients: such as calcium, minerals, fatty acid and vitamins, especially vitamin 'A' which is significant to control blindness of children. So, fish can play an important role as a good source of high quality protein and thus can create an outstanding contribution to the nutritional development in Bangladesh (Ahmed, 1983). It has been assessed that about

12 million rural people are involved in subsistence fishing. As an economic activity, fisheries classified second to agriculture, providing livelihood to an assessed 1.4 million of Bangladeshi in full time and substantial livelihood support to 12-million-part time fishermen. From the total employment in fisheries sector 55 percent are involved in freshwater fisheries and 36 percent in marine fisheries while only 6 percent engaged in coastal shrimp farming (Islam, 2000). In every year Bangladesh gets a considerable amount of foreign exchange by exporting fish and fisheries products. The position of fish and fish products is third in the list of exporting products from Bangladesh (DoF, 2008).

1.3 Objectives

The overall objective of the study was to investigate the species availability, value chain analysis and marketing channel in Dhaka city. The specific objectives were:
  i)   to compare the price variation in different markets;
  ii) to estimate marketing costs and margins of fish at different levels;
  iii) to find out fish supply channel in different markets;
  iv) to identify the problems faced by the traders in fish markets and
  v)   to estimate species diversity of fish in different markets.

CHAPTER 2: MATERIALS AND METHODS

2.1 Study area

Different of Dhaka city markets were selected as the study area. Total seven important fish retail and wholesale markets of Dhaka city were selected namely Showarighat, Karwan Bazar, Jatrabari, Anondo bazaar, Polashi Bazar, Mohakhali and Mogbazar. Also included with three important super shops namely Meena Bazar, Shwapno and Agora in Dhaka city.
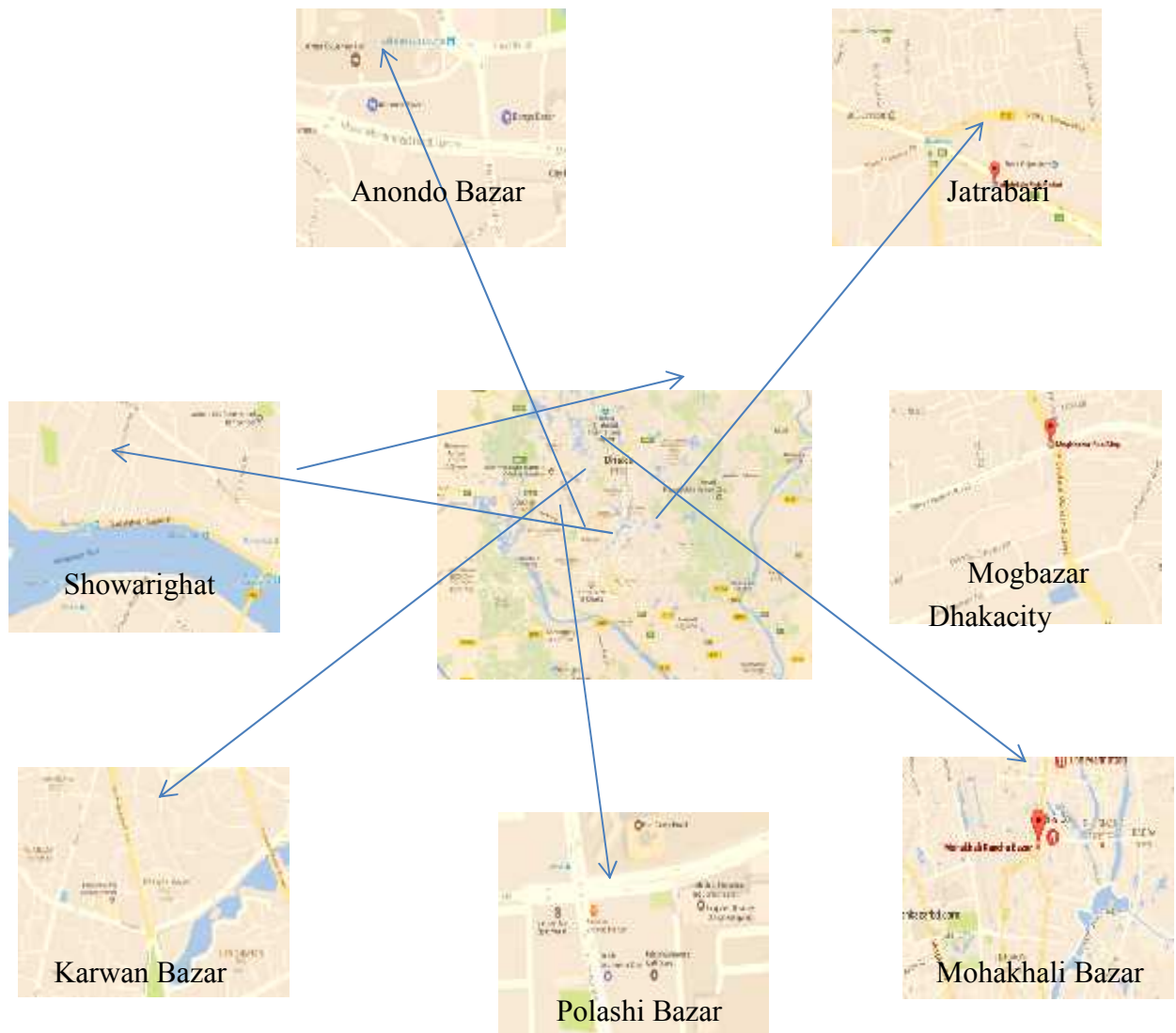
Fig. 1. Map ofdifferent markets in Dhaka city

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2.2 Selection of sample

Sampling is the vital part of a survey basis study. Proper result of the study depends on proper sampling. The seven markets have selected whose sizes were different. So the population size was also different. There have selected 20 fish traders from jatrabari, 20 fish traders from showarighat, 20 fish traders from karwan bazazr, 10 fish traders from mohakhali, 10 fish traders from mogbazar 10 fish traders from Anondo bazar, 10 fishtraders from polashi bazar and from 3 super shops taken 9 (from each 3).
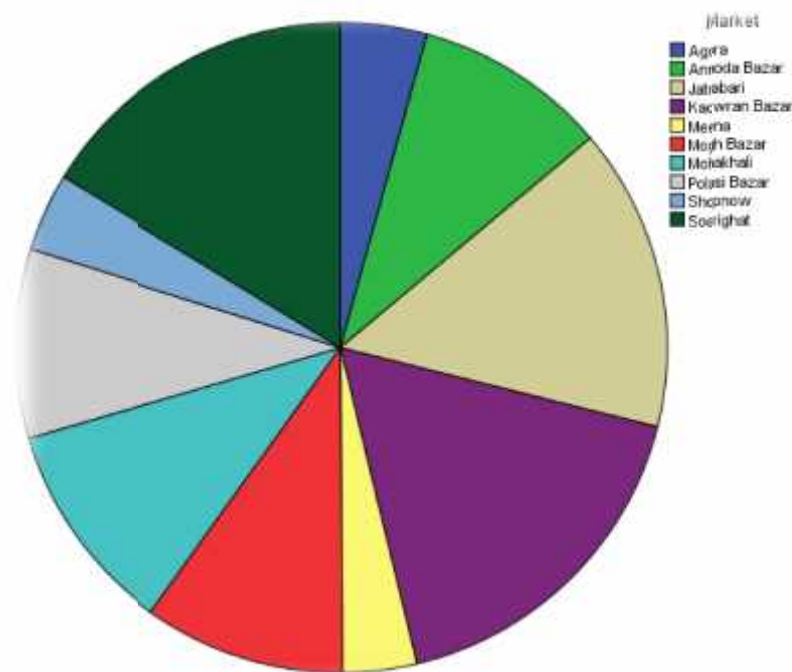
Fig. 2. Sample size of different fish markets in Dhaka city

2.3 Methodology

The study was based on both primary as well as secondary data. The data were collected for six months from May 2016 to October 2016.

2.4 Primary data collection

Primary data were composed by market survey.The key target group was Beparies, Aratdar and Retailer. Information was assembled from wholesalers by face to face conservation. This information was justified by cross-check interviews. This information was also used to verify the secondary data. Collected of information is a very hard matter in the pick hour till 9 a.m. Wholesaler were selected erratically.

2.5 Questionnaire interviews

For questionnaire interviews, 109 fish traders were selected in seven fish markets and three super shops. Questionnaire was tested before interviews in the field. Traders were interviewed at the market center. Draft final questionnaire were field tested with 10-20 people from one market in each of the seven study sites. The questionnaire was designed for basically two methods of data collection. They are direct observation and interviewing. The questionnaire was drafted to reveal information on the following issues:

- Types of the market and its operation.
- Distribution channels and sources.
- Infrastructure of the markets.
- Availability of fish and pricing policy.
- Marketing cost
- Marketing loss
- Marketing margin of the intermediaries
- Amalgamated information were classified, analyzed and coordinated to prepare the report.

2.6 Secondary data collection

Secondary data also significant for survey basis study to compare the primary data. There are no specific sources of secondary data. So, secondary data was composed from different sources. The secondary data for price difference covered the same period and collected from Department of Agricultural marketing, Khamar Bari, Farm Gate. Data about fish distribution and marketing information were collected from related

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government and non-government organizations such as Department of Fisheries (DoF), Upozilla Fisheries Officers, relevant NGO workers. For other information secondary data collected from dissimilar books, published articles, newspapers, internet etc.

2.7 Problems encountered during data collection

Some problems were met during interview such as retailers were busy in trading and unwilling to talk, they thought the researchers to be the government official of tax or other department and feared to talk, language problems or use of local terminologies, data in local units etc. The problems were solved by the researcher through giving extra attention and more discussion. Illumination of local terminologies and local units were obtained from key informants during cross-check interviews.

2.8 Data processing and analysis

After gathering of data from various sources were coded and entered into a database system using Microsoft Excel software. Initial data sheets were compared with the original coding sheets to ensure the accuracy of the data entered. Some of the collected data were in local units due to respondent's familiarity with those units. Data of local units were transformed into international units before transferring to the computer. Statistical software such as SPSS 20 versions (Statistical Package for Social Science) was used to analyze the data.

2.9 Limitation of the study

The first and imperative limitation was the shortage of time. Due to limitation of time it was not possible to collect data and information vastly. Another limitation was money. Due to limitation of money and time, the study could not cover widespread areas. Price of fish is not constant, because it depends on supply and demand of consumers. The prices differ to some extent a day or a week. The supply of fish rises in rainy season because wild fish are available in this season.

Fig. 3. Fish market of Jatrabari

Fig. 4. Fish market of Showarighat

Fig. 5. Fish market of Mogbazar

Fig. 6. Fish market of Mohakhali

Fig. 7. Fish market of Karwan bazar

Fig. 8. Fish market of Polashi bazar

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Fig. 9. Fish market of Anondo bazar

CHAPTER 3: RESULTS

The main findings of this chapter are the species availability, price variation and marketing channel of fish in seven fish markets and three super shops in Dhaka city.

3.1 Analysis of market

The performance of buying or selling fish or fisheries product, Preserving, transporting and marketing are three significant links in the chain of fish production and consumption connecting the producer, broker, wholesaler, retailer and consumer. Fish harvesting and marketing become profitable only when the fishery products are delivered in a wholesome condition and at a price suitable to the consumers.

3.1.1 Fish market structure

The structure of the market could be categorized by a situation where there are many buyers and sellers. The markets are not away from each other. The market is typically held daily in the morning and/or afternoon. Almost in each wholesale shop, a manager conducts the business on the behalf of aratdar and retailer.

3.1.2 Market infrastructure

Marketing infrastructure includes of facilities relating to functional infrastructure like drying , cleaning ,grading etc., market user common facilities like platforms for loading / unloading and auctioning of produce, parking shades etc., infrastructure for supply of production input other essential based services for the farmers and infrastructure of e-trading , market intelligence, extension and market oriented planning .Infra -structure is required to ensure free flow of the farm yield and its efficient marketing.Infra structure creation is gigantic task, requiring huge capital investment to cop up; with the demand of; the distributive system. Most of the markets were not hygiene environment for the buyers. Every market affected by different problems. Infrastructure facilities for these seven markets are still a poor shape. The facilities are generally inadequate for handling highly perishable commodity like fish. Findings from my observation are below:

Table 1. Infrastructure in different fish markets

Topics/ Issues	Jatrabari	Karwan bazar	Showarighat	Mogbazar	Mohakhali	Anondo bazar	Polashi bazar
Total fish traders	400	250	120	60	65	40	50
Total shops	400	250	120	60	65	40	50
Water supply	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient
Drainage system	Poor	Very poor	Very poor	Poor	Poor	Poor	Poor
Electricity supply	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient
Ice facilities	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient	Sufficient
Toilet	Present	Present	Present	Present	Present	Present	Present
Platform	Developed	Developed	Moderate developed	Developed	Developed	Developed	Developed
Platform height	About 6 cm	About 5 cm	About 4 cm	About 6 cm	About 5 cm	About 5 cm	About 6 cm
Floor	Cemented/ mud	Cemented/ mud	Mud	Cemented	Cemented	Cemented	Cemented

3.1.3 Season and time of fish trading

Fishes were marketed year round. But during rainy season the availability of seized fish was very high and before winter and during winter the availability of cultured fish was higher than captured fish. The time of fish trading was different from each other but the shoper shops were same.

Table 2. Time of fish trading in seven different markets of Dhaka city

Market name	Time of fish trading		
	Morning(6a.m-11 a.m)	Noon(12 p.m-4 p.m)	Evening(6 p.m-11 p.m)
Jatrabari	✓	✓	✓
Kawran bazar	✓	✓	✓
Showarighat	✓	*	*
Mogbazar	✓	✓	✓
Mohakhali	✓	✓	✓
Polashi bazar	✓	✓	✓
Anondo bazar	✓	✓	✓

3.1.4 Number of fish traders

The number of fish trader in the seven different markets namely Showarighat, Kawran Bazar, Jatrabari, Anondo bazaar, Polashi Bazar, Mohakhali and Mogbazar varied from each other. The number of fish trader was not equal from one to another market. The highest fish trader was at jatrabari fish market and Kawran bazaar, Showarighat was

moderate fish trader in Dhaka city. Another market of Dhaka city was more or less similar.
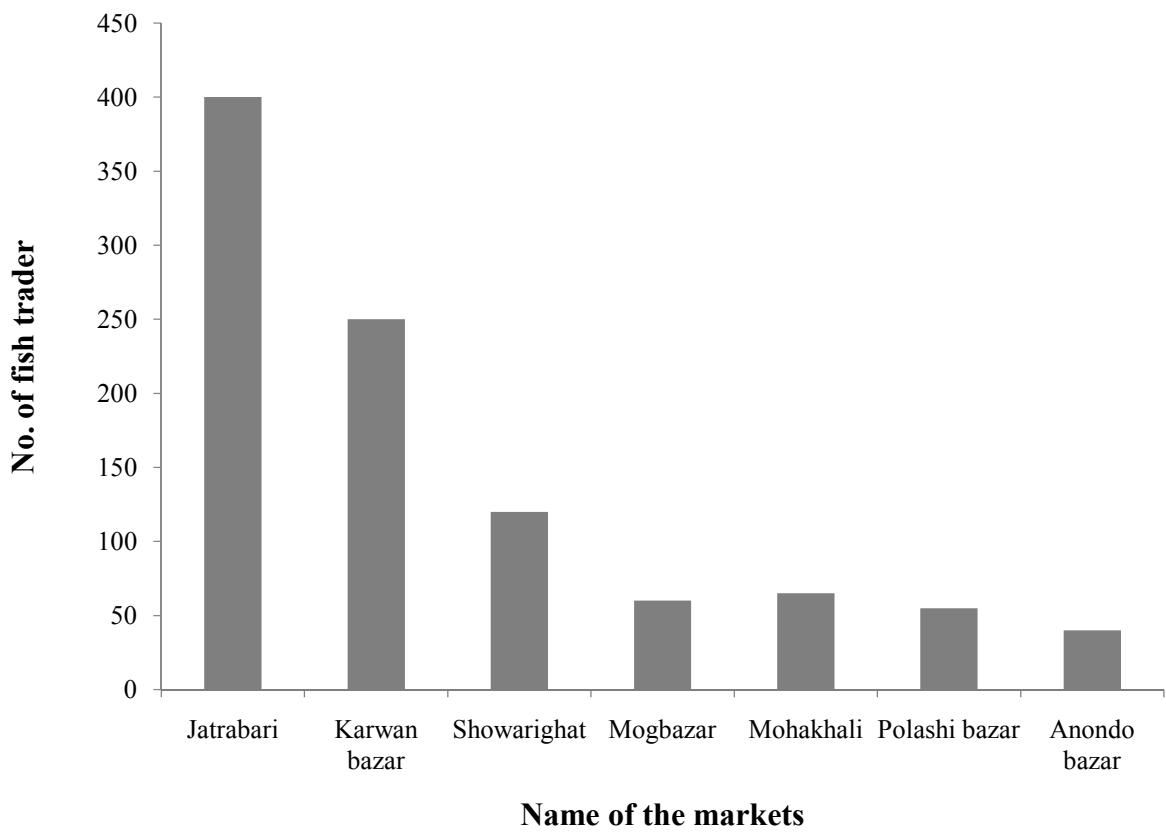
Fig. 10. Number of Fish Traders in Seven Markets in Dhaka city

3.1.5 Condition of fish

The hygienic fish is more acceptable for all consumers. But maximum fish market sold the dead fish. A few amounts of fishes were lived in different fish markets in Dhaka city.
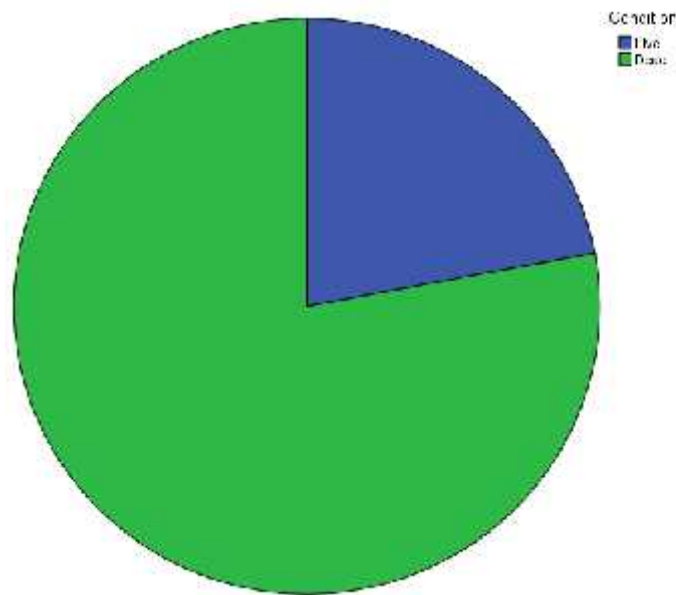
Fig. 11. Condition of fish in different fish markets in Dhaka city

3.1.6 Problems of fish marketing

The wholesale fish marketing facilities were still very unacceptable. There was neither cold storage nor adequate auction space and facilitated for ice marketing. Major problems of fish marketing in the study area were as follow:

1. Drainage problem
2. Lack of management
3. Lack of skill in handling
4. Unhygienic market condition
5. Political problem
6. Lack of proper training facilities for the fisherman's
7. Infrastructure problem.

3.2 Available of fish species

In study area, 25 species of fish have found. These were below:

Table 3. Available fish species in different fish markets in Dhaka city

Local name	Common name	Scientific name
Mrigal	Major carp	*Cirrhina mrigala*
Baim	Spiny eel	*Mastacembelus armatus*
Baila	Fresh Water Goby	*Glossogobius giuris*
Boal	Wallago	*Wallago attu*
Chapila	Indian River Shad	*Gudusia chapra*
Taki	Spotted snakehead	*Channa punctatus*
Common carp	Common carp	*Cyprinus carpio*
Rupchanda	Chinese silver pomfret	*Pumpus chinensis*
Grass carp	Grass carp	*Ctenopharyngodon idella*
Shol	Snakehead murrel	*Channa striatus*
poa	Poa	*Otolithoides pama*
Catla	Major carp	*Catla catla*
Koi	Climbing perch	*Anabas testudineus*
Magur	American catfish	*Clarias gariepinus*
Pangus	Yellowtail catfish	*Pangasius pangasius*
Rui	Ruhi	*Labeo rohita*
Shing	Stinging catfish	*Heteropneustes fossilis*
Shorputi	Olive barb	*Puntius sarana*
Silver carp	Silver carp	*Hypophthalmichthys molitrix*
Tilapia	Mozambique tilapia	*Oreochromis mossambicus*
Rita	Rita	*Rita rita*
Tengra	Tengara catfish	*Mystus tengara*
Pabda	Pabo catfish	*Ompok pabda*
Big head	Bighead Carp	*Hypophthalmichthys nobilis*
Golda	Giant Freshwater Prawn	*Macrobrachium rosenbergii*

3.3 Marketing channel

Marketing channel is that channel that comprises involvement of some middlemen through which transformation of fish take place from producer to consumer. The market chain from farmers to consumers incorporated mainly primary, secondary and retail markets, involving local agents, suppliers, wholesalers and retailers. The demand for fish was high in markets but supply was narrow, and a strong network had developed with intermediaries and traders. Communication between the suppliers and wholesalers was generally good and takes place by mobile phones. Suppliers were tangled to a limited number of wholesalers. Suppliers usually used trucks, buses, pickups and taxis to transport fish to wholesale markets in Dhaka.

Fish farmer/ Fish producer

⬇

Bepari

⬇

Aratdar

⬇

Paiker retailer

⬇
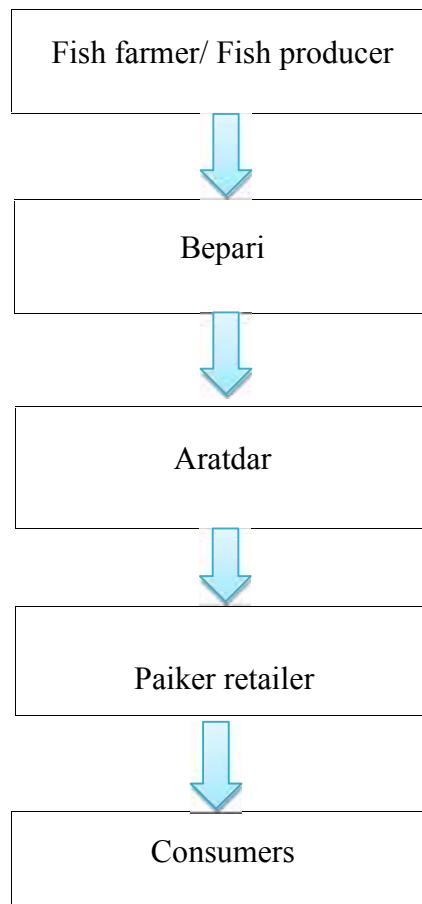
Consumers

Fig. 12. Marketing channels of Dhaka city based on different fish traders.

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┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
│  Mogbazar fish   │◄──────┤   Karwan bazar   ├───────►│ Anondo bazar fish│
│     market       │        │                  │        │     market       │
└──────────────────┘        └──────────────────┘        └──────────────────┘

┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
│  Mohakhali fish  │◄──────┤  Jatrabari fish  ├───────►│ Polashi fish     │
│     market       │        │     Market       │        │ market           │
└──────────────────┘        └──────────────────┘        └──────────────────┘
                            ┌──────────────────┐
                            │   Showarighat    │
                            │   fish Market    │
                            └──────────────────┘
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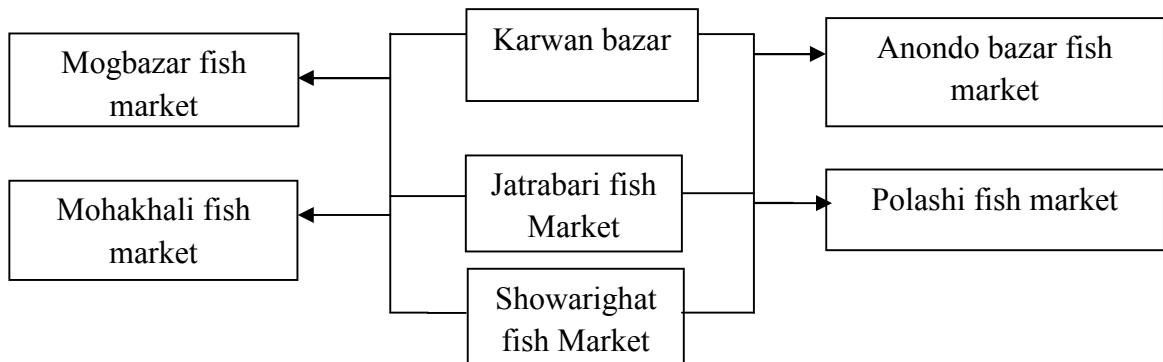
Fig. 13. Marketing channels of Dhaka city based on different fish market.

The path taken by the goods and services from producers to the consumers is devoted to as the marketing channel. The study of marketing channel is required because it has direct relationship with the availability, price variation of fish and market system. The main sources of fish supply in Dhaka city fish markets Jatrabari fish market, Showarighat fish market and Karwan Bazar fish market. Normally from this three big fish markets, fishes are transferred other fish market in Dhaka city.

3.4 Price variation (with super shop)

The difference between the actual and typical prices of one product unit multiplied by how much input was used. The price variance can be used by a business to assess the change between expected and actual input prices, since a positive price variance reflects an unfavorable cost rise, while a negative result indicates a advantageous cost decrease. At first, the price variation of fish was shown between the super shops and local fish markets in Dhaka city. There was found more significance among the super shops to local markets in Dhaka city.

3.4.1 Price variation of rui(*Labeo rohita*)

Among the markets, the mean price variation of fish was significantly different ($P<0.05$) when compared using ANOVA and tukey test. The maximum price of Rui was found 365.67 ± 83.33 Tk/Kg at Shwapno shuper shop and lowest price was 146.67 ± 83.33 Tk/kg at Showarighat fish market.There was significant difference ($p<0.05$) of price variation observed in different markets and the super shops.

In super shops, the price of rui was significantly higher than local market namely Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, and Mohakhali in Dhaka city. There was more significant of price of rui among the super shops to Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali.
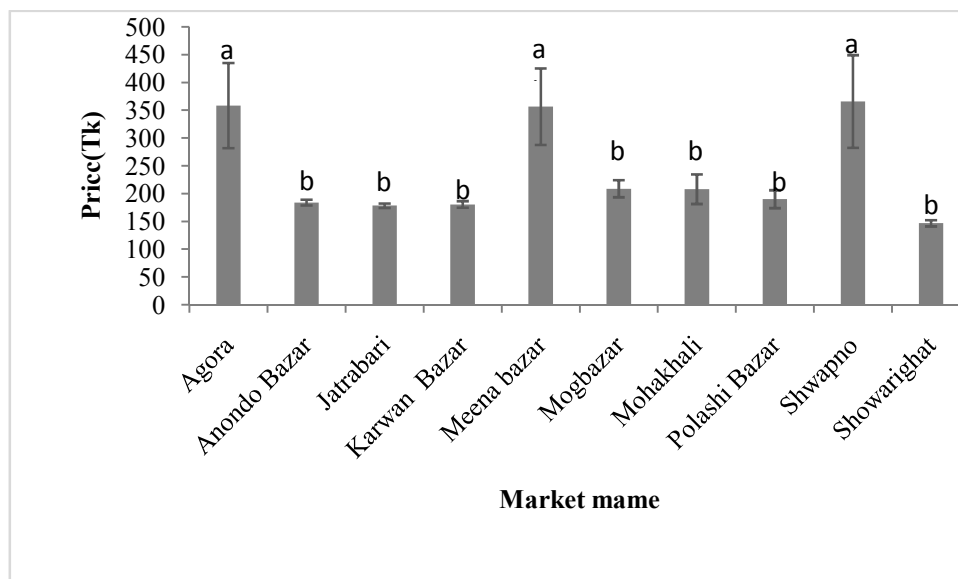
* Bars with different letter denote significant difference

Fig. 14. Price variation of rui(*Labeo rohita*)

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3.4.2 Price Variation of pangus(*Pangasius pangasius*)

Among the markets, the mean price variation of fish was not significantly different (*P*>0.05) when compared using ANOVA and tukey test. The highest value of Pangus was 139±0.00 Tk/Kg at Meena bazar and lowest value was 97.71±4.25 Tk/Kg at Showarighat.

The mean price of pangus in super shops was 119.67±13.33 Tk/kg in Agora, 119±10 Tk/kg in shawpno and 139±0.00 Tk/kg in meena bazaar. The mean price of pangus at local market in Dhaka city namely Anondo bazar, jatrabari, Kaowran bazaar, Mogbazar, Mohakhali, Polashi bazaar, Showarighat was respectively 121.67±4.94 Tk/kg, 109.17±3.74 Tk/kg,142.50±13.10 Tk/kg,121.25±2.29 Tk/kg, 120±2.87 Tk/kg, 128.75±8.75Tk/kg, 97.71±4.25Tk/kg.

There was no significant of price of pangus among the super shops to Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali.

* Bars with same letter denote not significant difference

Fig. 15.Price variation of pangus(*Pangasius pangasius*)

3.4.3 Price variation of rupchanda(*Parambassis ranga*)

Among the markets, the mean price variation of fish was significantly different ($P<0.05$) when compared using ANOVA and tukey test. The highest value of Rupchanda was 1341.67± 6.67 Tk/kg at Meena bazar and lowest value was 305±9.49 Tk/kg at Showarighat.

In super shops, the price of wasrupchanda significantly higher than local market namely Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, and Mohakhali in Dhaka city.

The mean price of rupchanda at local market in Dhaka city namely Anondo bazar, jatrabari, Kaowran bazaar, Mogbazar, Mohakhali, Polashi bazaar, Showarighat was respectively 369.67±6.03 Tk/kg, 344±4 Tk/kg,510±110.86 Tk/kg,383.33±32.83 Tk/kg, 390±45.82 Tk/kg, 386±31.08Tk/kg, 305±9.49 Tk/kg.

There was more significant of price of rupchanda among the super shops to Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali.
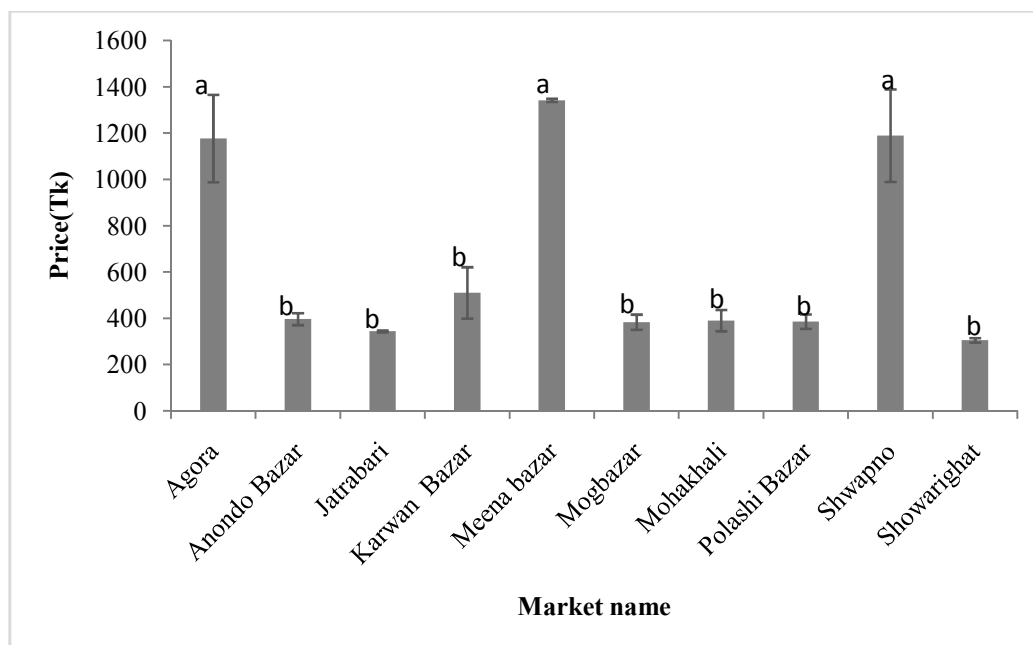
* Bars with different letter denote significant difference

Fig. 16. Price variation of rupchanda(*Parambassis ranga*)

3.4.4 Price variation of koi (*Anabas testudineus*)

Among the markets, the mean price variation of fish was significantly different ($P<0.05$) when compared using ANOVA and tukey test. The highest price of koi was 595±170 Tk/kg at shwapno and lowest price was 159±3.31 Tk/kg at Anondo bazar.

In super shops, the price of koi was significantly higher than local market namely Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, and Mohakhali in Dhaka city.

The mean price of koi at local market namely Anondo bazar, jatrabari, Kaowran bazaar, Mogbazar, Mohakhali, Polashi bazaar, Showarighat was respectively 159±3.31 Tk/kg, 178.33±25.87 Tk/kg,215.83±19.59 Tk/kg,166.67±3.33 Tk/kg, 165±2.87 Tk/kg, 163.75±3.14Tk/kg, 161±16Tk/kg. There was more significant of price of koi among the super shops to Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali.
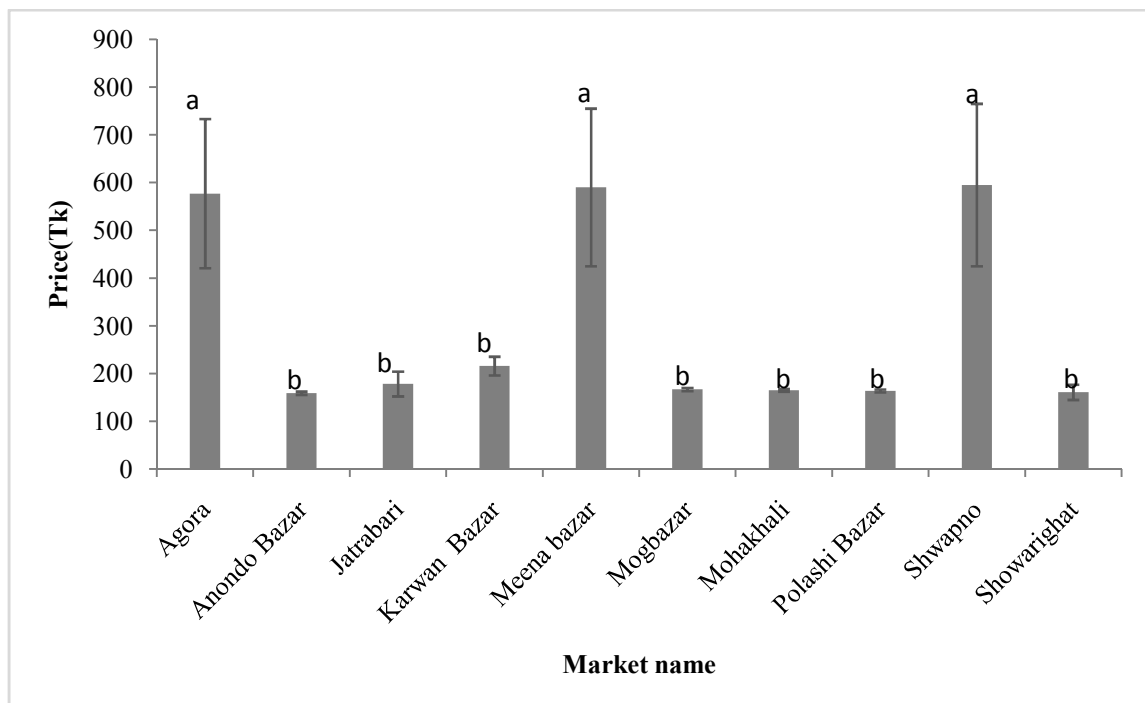
* Bars with different letter denote significant difference

Fig. 17. price variation of koi(*Anabas testudineus*)

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3.4.5 Price variation of Shing(*Heteropneustes fossilis*)

Among the markets, the mean price variation of fish was significantly different ($P<0.05$) when compared using ANOVA and tukey test. The highest price of shing was 1278.33±386.67 Tk/kg at Meena bazar and lowest price was 405±29.49 Tk/kg at Showarighat. In super shops, the price of shing was significantly higher than local market namely Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, and Mohakhali in Dhaka city.

The mean price of shing at local market in Dhaka city namely Anondo bazar, jatrabari, Kaowran bazaar, Mogbazar, Mohakhali, Polashi bazaar, Showarighat was respectly 460±23.09 Tk/kg, 484.29±18.37 Tk/kg,470.83±25.57 Tk/kg,427.5±24.96 Tk/kg, 460±26.46 Tk/kg, 457.5±18.86Tk/kg, 405±29.49Tk/kg.

There was more significant of price of shing among the super shops to Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali.
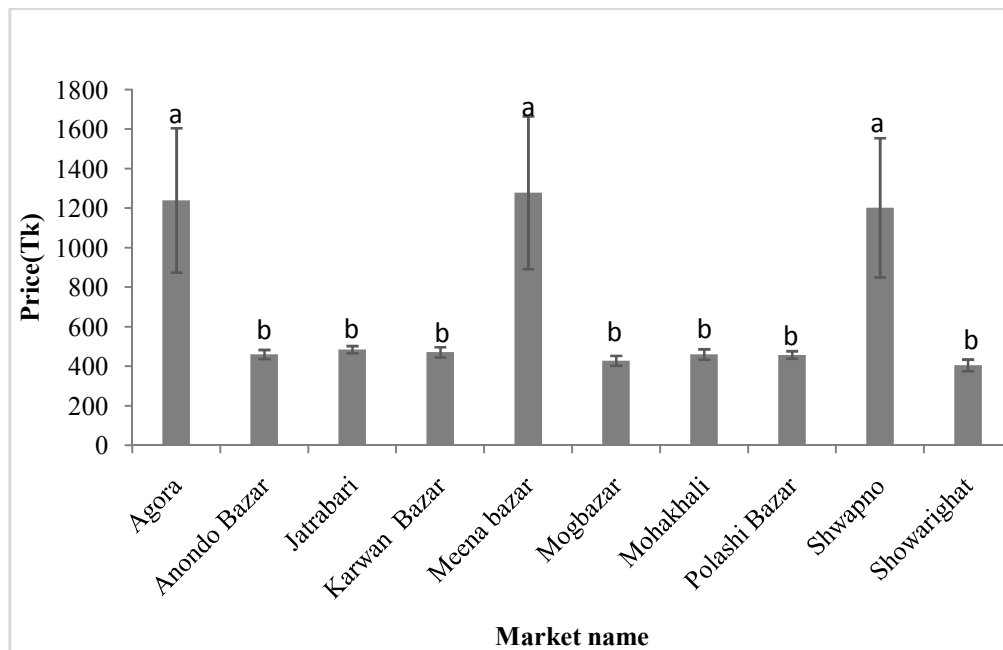
* Bars with different letter denote significant difference

Fig. 18. Price variation of Shing(*Heteropneustes fossilis*)

28

3.4.6 Price variation of tilapia(*Oreochromis mossambicus*)

Among the markets, the mean price variation of fish was significantly different ($P<0.05$) when compared using ANOVA and tukey test. The highest price of Tilapia was 176.33±.67 Tk/kg at Agora and lowest price was 115±5.16 Tk/kg at Showarighat. There was no significant of price of tilapia among the super shops to Jatrabari, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali except Showarighat.

The mean price of tilapia at local market in Dhaka city namely Anondo bazar, jatrabari, Kaowran bazaar, Mogbazar, Mohakhali, Polashi bazaar, Showarighat was respectively 145±5 Tk/kg, 163.13±7.9 Tk/kg,143.75±8.28 Tk/kg,138.75±7.18 Tk/kg, 137±10.19 Tk/kg, 142.5±8.29Tk/kg, 115±5.16Tk/kg.
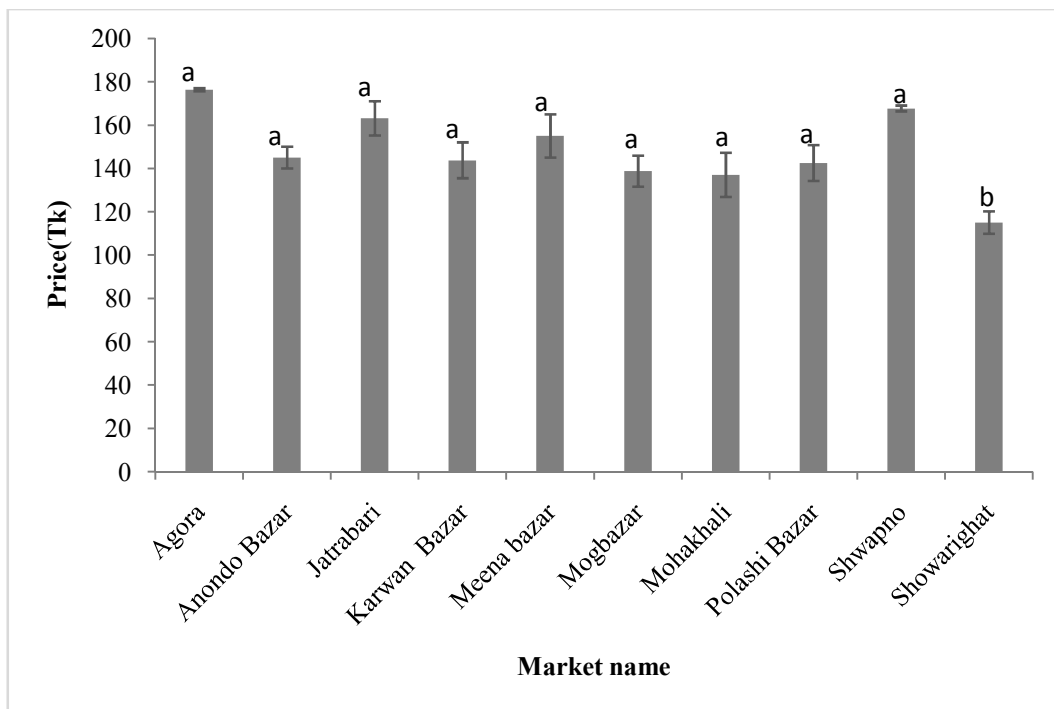
* Bars with different letter denote significant difference

Fig. 19. Price variation of tilapia(*Oreochromis mossambicus*)

Table 4. Price variation (Mean±SEM) of different fish markets with super shop

Species name	Market name									
	Agora	Anondo bazar	Jatrabari	Karwan bazar	Mogbazar	Mohakhali	Polashi bazar	Shwapno	Showarighat	Meena bazar
Rui	358.33±76.67[a]	184±5.09[b]	178.33±4.01[b]	180.56±6.03[b]	208.75±15.33[b]	208±26.67[b]	190±16.07[b]	365.67±83.33[a]	146.67±5.72[b]	356.33±68.67[a]
Rupchanda	1176.33±188.67[a]	396.67±26.03[b]	344±4[b]	510±110.86[b]	383.33±32.83[b]	390±45.82[b]	386±31.08[b]	1189.33±199.67[a]	305±9.49[b]	1341.67±6.67[a]
Tilapia	176.33±0.67[a]	145±5[a]	163.13±7.9[a]	143.75±8.28[a]	138.75±7.18[a]	137±10.19[a]	142.5±8.29[a]	167.67±1.33[a]	115±5.16[b]	155±10[a]
Koi	577±156[a]	159±3.31[b]	178.33±25.87[b]	215.83±19.59[b]	166.67±3.33[b]	165±2.87[b]	163.75±3.14[b]	595±170[a]	161±16[b]	590±165[a]
Pangus	119.67±13.33[a]	121.67±4.94[a]	109.17±3.74[a]	142.50±13.10[a]	121.25±2.39[a]	120±2.87[a]	128.75±8.75[a]	119±10[a]	97.71±4.25[a]	139±0.00[a]
Shing	1239.67 ±365.33[a]	460±23.09[b]	484.29±18.37[b]	470.83±25.96[b]	427.5±24.96[b]	460±26.46[b]	457.5±18.86[b]	1202.67±352.33[a]	405±29.49[b]	1278.33±386.67[a]

*Significant ($P<0.05$)

Mean values (mean±SEM) with different superscript letters in the same row indicate significant difference.

3.5 Price variation (without super shop)

Secondly, the price variation of fish was shown among the local markets. As the distance of local market from each other was less, there was no difference at 5% level of significance. There was main reason of more or less same marketing channels in Dhaka city.

3.5.1 Price variation of mrigal(*Cirrhina mrigala*)

Among the markets, the mean price variation of fish was not significantly different ($P>0.05$) when compared using ANOVA and tukey test. The highest price of mrigal was 176.67$\pm$29.06 Tk/kg at Mohakhali and lowest price was 128.75$\pm$6.88Tk/kg at Showarighat. There was significant difference ($p<0.05$) of price variation observed in different markets.

The mean price of mrigal was 155$\pm$13.38Tk/kg at Anondo bazaar, 170$\pm$10 Tk/kg at jatrabari, 169.17$\pm$22.48 Tk/kg at Karwan bazar, 160$\pm$17.56 Tk/kg at Mogbazar, 176.67$\pm$29.06 Tk/kg at Mohakhali, 167.50$\pm$22.50 Tk/kg at Polashi bazar, 128.75$\pm$6.88 Tk/kg at Soarigha.

There was no significant of price of mrigal among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali.
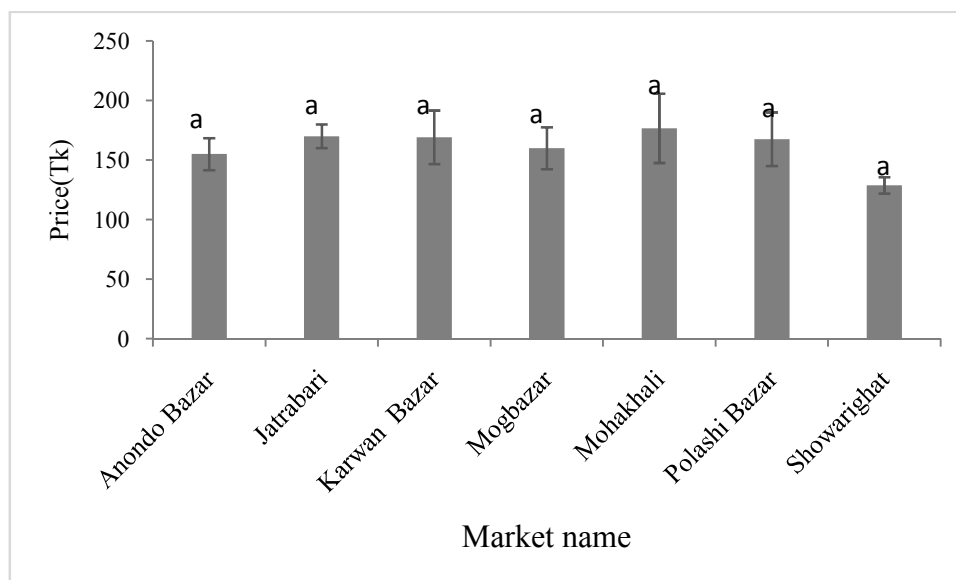
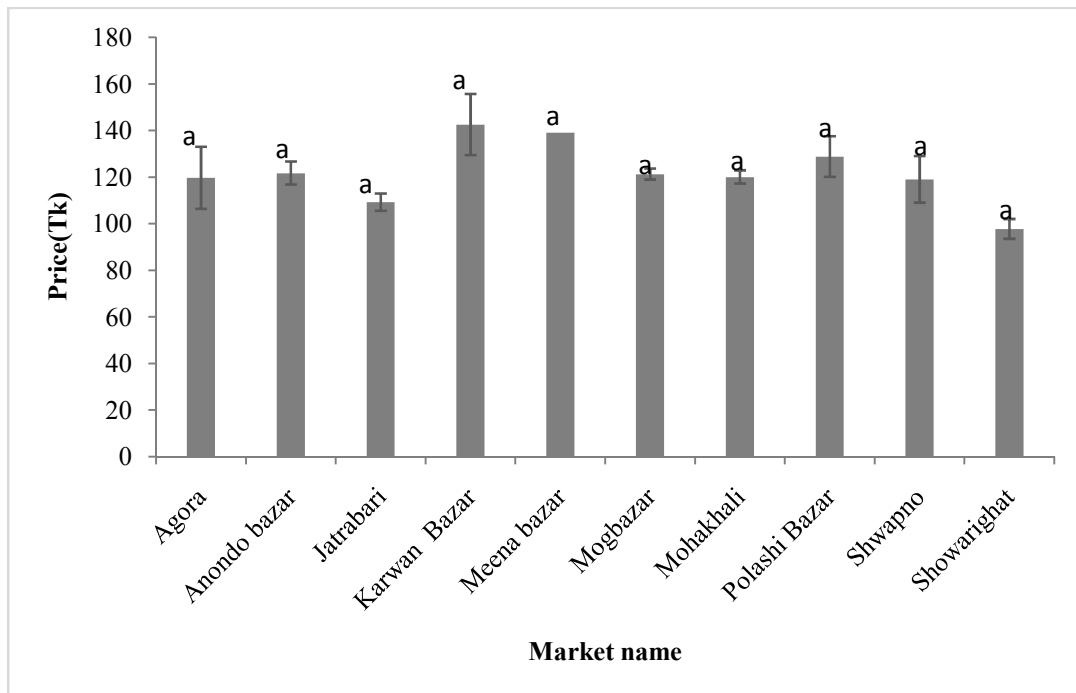***** Bars with same letter denote not significant difference

Fig. 20. Price variation of mrigal(*Cirrhina mrigala*)

3.5.2 Price variation of chingri (*Macrobrachium rosenbergii*)

Among the markets, the mean price variation of fish was not significantly different (*P*>0.05) when compared using ANOVA and tukey test.The highest price of Chingri was 585±115 Tk/kg at Mohakhali and lowest price was 435±10.95 Tk/kg at Showarighat.

The mean price of chingri was 503.33±21.86Tk/kg at Anondo bazaar, 502.50±25.49 Tk/kg at jatrabari, 460±49.42 Tk/kg at Karwan bazar, 575±105 Tk/kg at Mogbazar, 585±115 Tk/kg at Mohakhali, 492.50±20.97 Tk/kg at Polashi bazar, 435±10.95 Tk/kg at Soarigha.

There was no significant of price of chingri among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali.
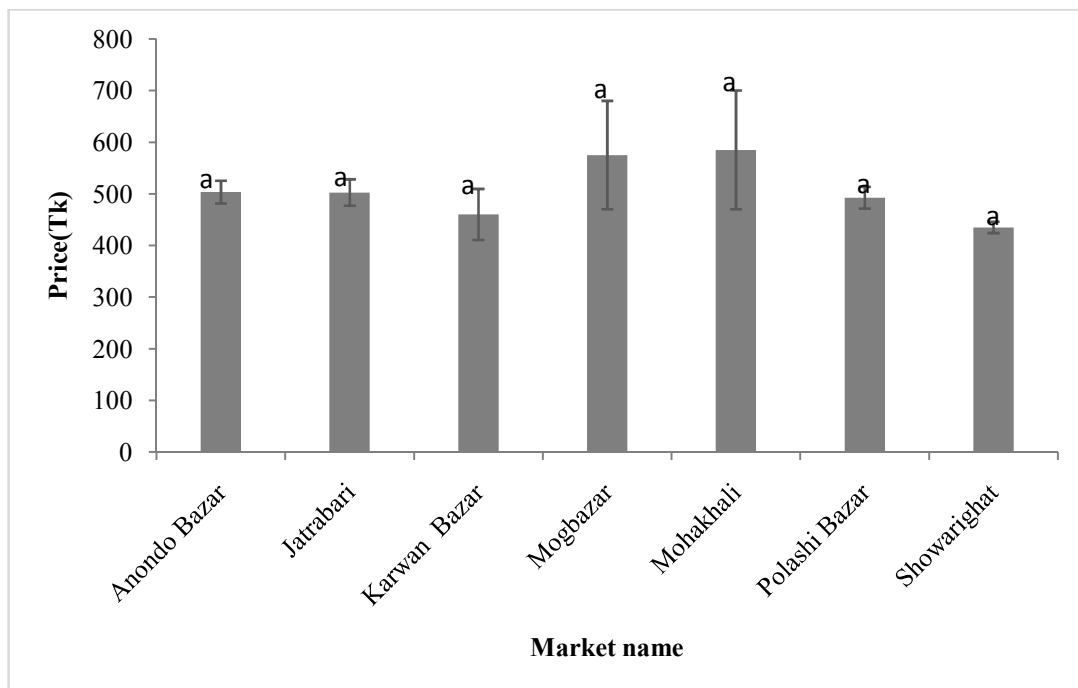
   * Bars with same letter denote not significant difference

Fig. 21. Price variation of chingri(*Macrobrachium rosenbergii*)

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3.5.3 Price variation of big head(*Hypophthalmichthys nobilis*)

Among the markets, the mean price variation of fish was significantly different ($P<0.05$) when compared using ANOVA and tukey test.The highest price of big head was 157.50±7.50 Tk/kg at Anondo bazar and lowest price was 128.75±4.27 Tk/kg at Showarighat.

There was no significant of price of big head among Jatrabari, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali except Showarighat.

The mean price of big head was 157.50±7.50Tk/kg at Anondo bazaar, 157±2 Tk/kg at jatrabari, 143±4.35 Tk/kg at Karwan bazar, 151.67±7.26 Tk/kg at Mogbazar, 150±10 Tk/kg at Mohakhali, 147.50±2.50 Tk/kg at Polashi bazar, 128.75±4.27 Tk/kg at Soarigha.
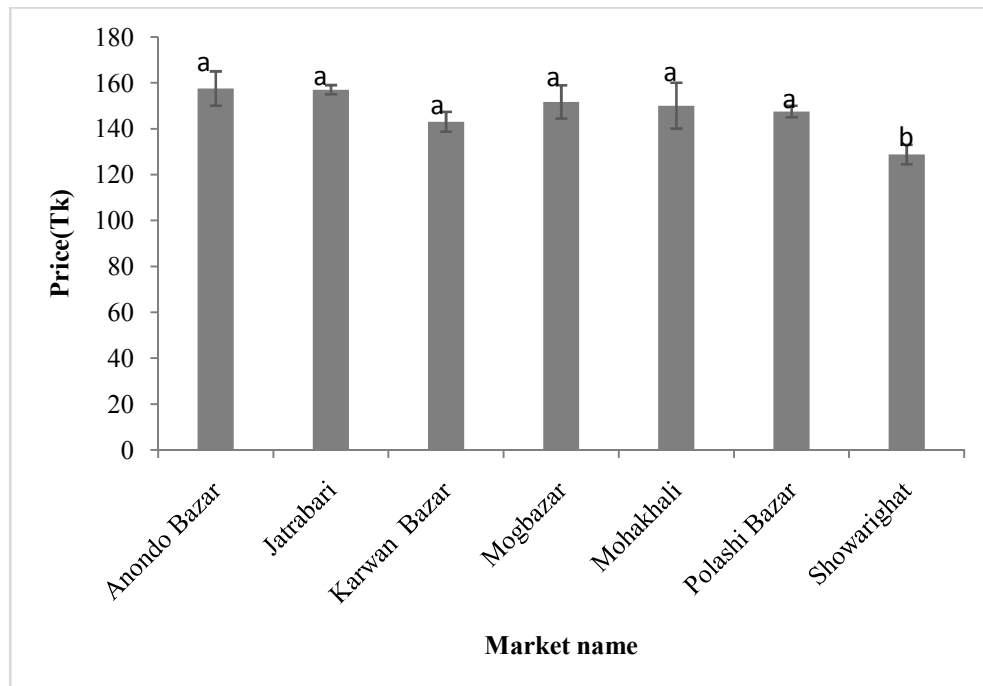
* Bars with different letter denote significant difference

Fig. 22. Price variation of big head(*Hypophthalmichthys nobilis*)

3.5.4 Price variation of common carp(*Cyprinus carpio*)

Among the markets, the mean price variation of fish was not significantly different (*P*>0.05) when compared using ANOVA and tukey test. The highest price of Common carp was 236.67±96.83 Tk/kg at Karwan bazar and lowest price was 125±5.70 Tk/kg at Showarighat.

There was no significant of price of common carp among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali.

The mean price of common carp was 146.67±9.28Tk/kg at Anondo bazaar, 160±12.91 Tk/kg at jatrabari, 236.67±96.83 Tk/kg at Karwan bazar, 145±5 Tk/kg at Mogbazar, 140±10 Tk/kg at Mohakhali, 143.75±6.25 Tk/kg at Polashi bazar, 125±5.70 Tk/kg at Soarigha.
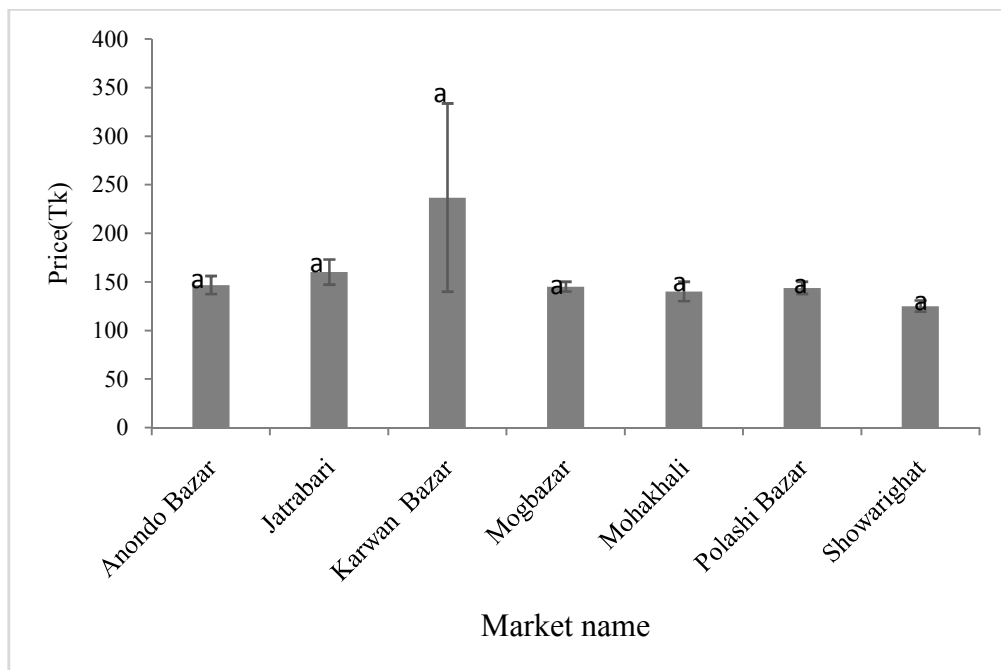
* Bars with same letter denote not significant difference

Fig. 23. Price variation of common carp(*Cyprinus carpio*)

3.5.5 Price variation of grass carp(*Ctenopharyngodon idella*)

Among the markets, the mean price variation of fish was not significantly different (*P*>0.05) when compared using ANOVA and tukey test. The highest price of Grass carp was 195±27.54 Tk/kg at Mohakhali and lowest price was 140±3.54 Tk/kg at Showarighat.

There was no significant of price of grass carp among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali.

The mean price of grass carp was 183.33±8.82 Tk/kg at Anondo bazaar, 162.50±7.50 Tk/kg at jatrabari, 173.33±9.63 Tk/kg at Karwan bazaar, 177.50±12.50 Tk/kg at Mogbazar, 195±27.54 Tk/kg at Mohakhali, 175±5 Tk/kg at Polashi bazar, 140±3.54 Tk/kg at Soarigha.
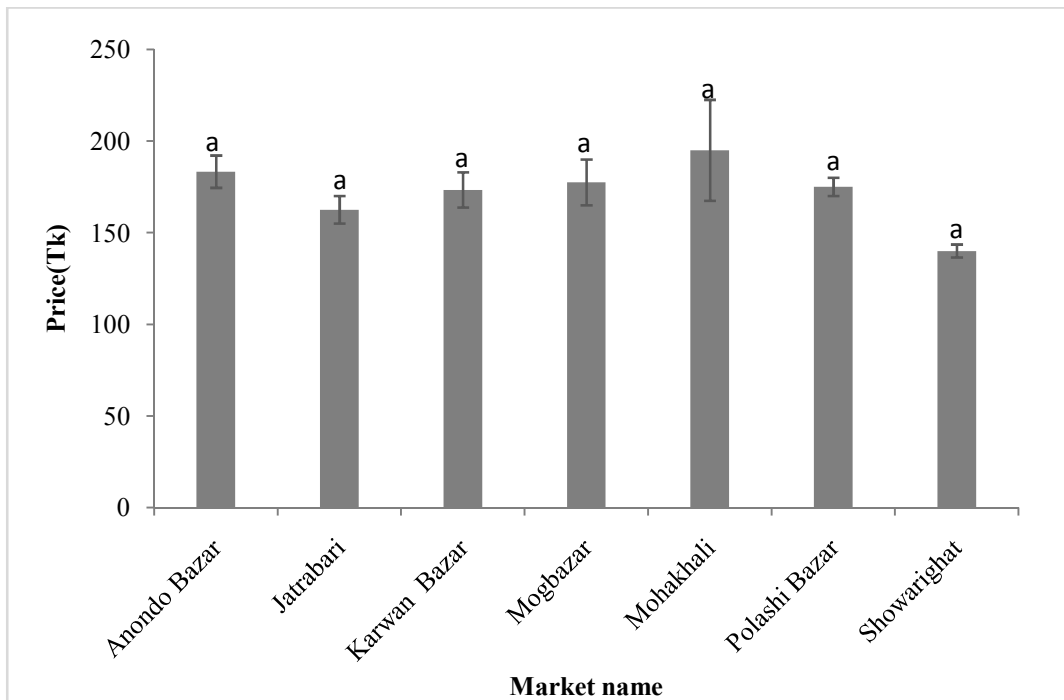
* Bars with same letter denote not significant difference

Fig. 24. Price variation of grass carp(*Ctenopharyngodon idella*)

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3.5.6 Price variation of Catla(*Catla catla*)

Among the markets, the mean price variation of fish was not significantly different (*P*>0.05) when compared using ANOVA and tukey test. The highest price of Catla was 215±32.53Tk/kg at Mohakhali and lowest price was 159.29±16.70 Tk/kg at Jatrabari.

There was no significant of price of catla among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali.

The mean price of catla was 190±10Tk/kg at Anondo bazaar, 159.29±16.70 Tk/kg at jatrabari, 175.71±18.34 Tk/kg at Karwan bazaar, 172.50±12.50 Tk/kg at Mogbazar, 215±32.53 Tk/kg at Mohakhali, 177.50±12.50 Tk/kg at Polashi bazar, 171.67±22.71 Tk/kgat Soarigha.
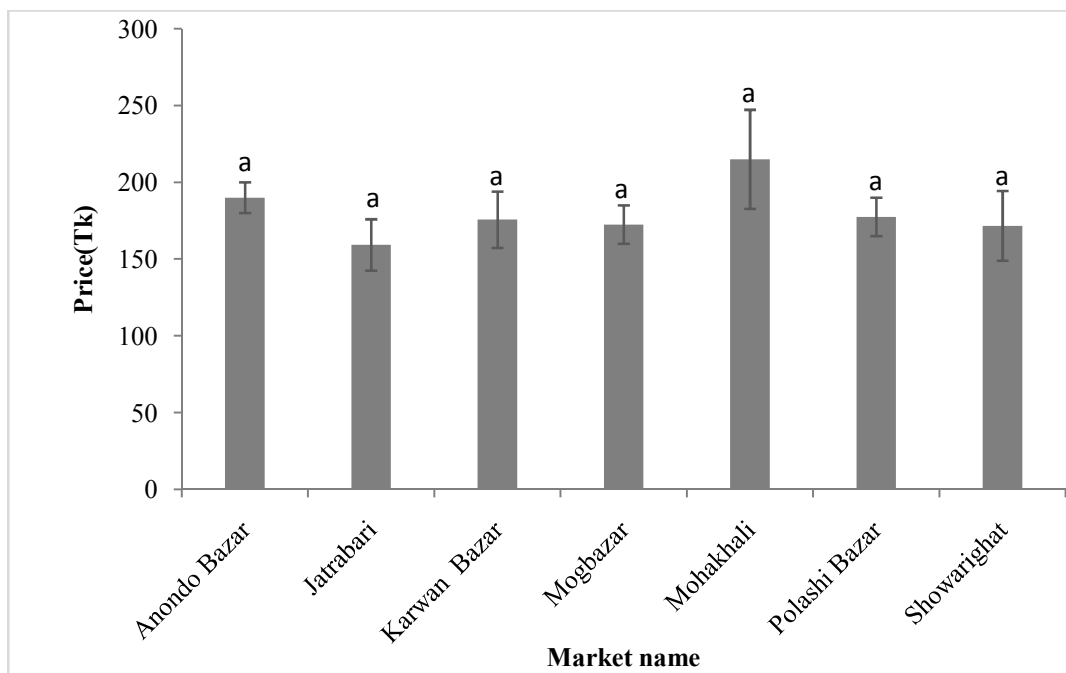
* Bars with same letter denote not significant difference

Fig. 25. Price variation of catla(*Catla catla*).

Table 5. Price variation (Mean±SEM) of different fish markets without super shop

Species name	Market name						
	Anondo bazar	jatrabari	Karwan bazar	Mogbazar	Mohakhali	Polashi bazar	Showarighat
Catla	190±10[a]	159.29±16.70[a]	175.71±18.34[a]	172.50±12.50[a]	215±32.53[a]	177.50±12.50[a]	171.67±22.71[a]
Common carp	146.67±9.28[a]	160±12.91[a]	236.67±96.83[a]	145±5[a]	140±10[a]	143.75±6.25[a]	125±5.70[a]
Mrigal	155±13.38[a]	170±10[a]	169.17±22.48[a]	160±17.56[a]	176.67±29.06[a]	167.50±22.50[a]	128.75±6.88[a]
Grass carp	183.33±8.82[a]	162.50±7.50[a]	173.33±9.63[a]	177.50±12.50[a]	195±27.54[a]	175±5[a]	140±3.54[a]
Chingri	503.33±21.86[a]	502.50±25.49[a]	460±49.42[a]	575±105[a]	585±115[a]	492.50±20.97[a]	435±10.95[a]
Big head	157.50±7.50[a]	157±2[a]	143±4.35[a]	151.67±7.26[a]	150±10[a]	147.50±2.50[a]	128.75±4.27[b]

*Significant (P<0.05)

Mean values (mean±SEM) with different superscript letters in the same row indicate significant difference.

CHAPTER 4: DISCUSSION

Fish marketing plays a significant role in the economy of Bangladesh. Fish and fishery products deliver a very important sub-sector, especially as a source of animal protein. Fisheries subsector contributes 60 percent of animal protein in the daily diet of the people of Bangladesh. A large number of people are involved in the production and marketing of fish. It is generally estimated that 1.2 million people directly and about 12 million people indirectly i.e. About 10 per cent people of the country directly or indirectly depend on fisheries sub-sector for their livelihood (DoF, 2003). A large number of people are convoluted in the production and marketing of fish. The aim of my thesis was to determine species availability, marketing channel as well as the price variation of fish in different fish market in Dhaka city.

The most available fish in seven markets namelyShowarighat, Karwan Bazar, Jatrabari, Anondo bazaar, Polashi Bazar, Mohakhali and Mogbazar and three super shops namely namely Meena Bazar, Shwapno and Agora in Dhaka city were golda chingri (*Macrobrachium rosenbergii*), bagda chingri (*Penaeus monodon*), bele (*Glossogobius giuris*), poa (*Otolithoides pama*), deshi pangus (*Pangasius pangasius*), rita (*Rita rita*), rupchanda (*Pampus chinensis*), common carp(*Cyprinus carpio*), grass carp(*Ctenopharyngodon idella*),taki(*Channa punctatus*), boal(*Wallago attu*), chapila(*Gudusia chapra)*, shol *(Channa striatus*), catla(*Catla catla*), *koi (Anabas testudineus*),rui(*Labeo rohita*)*,* shing(*Heteropneustes fossilis*)*,* shorputi(*Puntius sarana*), silver carp(*Hypophthalmichthys molitrix*), tilapia(*Oreochromis mossambicus*), big head(*Hypophthalmichthys nobilis*)etc. Rahman (2003) found the daily supply of fish in Gazipur Sadar and Sripur markets as 2-3 tons and 1-2 tons respectively. A significant amount of carps imported from outside the country mainly from India and Myanmar. Siddique (2001) also found that in Mymensingh markets, fish are imported from Myanmar and India especially large sized Indian major carps.

In the study area, marketing channel which was comprised of Beparies, Aratdar, Paiker, Retailer and Consumer. The market chain from farmers to consumers covers mainly primary, secondary and retail markets, involving local agents, suppliers, wholesalers and retailers. Beparies bought fish from primary producer in primary markets that are located in Showarighat. Beparies sell their fish to Paiker and Retailer through Aratdar. The Aratdar is a commission agent who helps the Beparies to sell their products and usually burdens a fixed commission from Beparies. Sometime Farmer sells directly to Paiker and

Retailer by the help of Aratdar. They mark cash payment to Beparies and supply fish to retailers. Paiker amass fish from Arat and some cases from farmers. They passage their fish to others markets and sold to retailer. Retailers were the last traders of fish marketing channel. Sarker (1999) mentioned that profit of bepari was the highest in Chandpur. Fish farmers' share on the consumers' money was found to be inversely related with the length of the channel, the shorter the channel the higher was the share. However, Mia (1996) mentioned that profit of *aratdars* was the highest (12.34%) and followed by retailers (9.70%) and *beparies* (6.63%) in Mymensingh.

The price of fish differs with the types of species, sizes, freshness, market demands as well as seasons. Fish plunder quickly due to its high perishability. Generally, fish go through rapid spoilage if not disposed of in due time. Fish spoil quickly during the summer and rainy season than the winter season.

In Dhaka city fish price varies from one market to another market even fish price varies in the same market in different shops. Due to the lower supply fish price generally become higher. The highest price was observed of Rupchanda 1278.33$\pm$386.67 Tk/kg at Meena bazar and lowest price was pangus 97.71$\pm$4.25 Tk/kg at Showarighat among Meena bazar, shopnow, agora, Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali. There was significant among super shops to Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali. Because of highest price of super shop, there shops were well decorated and freshness of fish. But except shoper shop the other fish market was moderate value of fish because of low class decorated of shop and also responsible for channel. Another main cause of price variation among the market for illegal.

The highest price was observed of Chingri 585$\pm$115 Tk/kg at Mohakhali and lowest price was Big head 128.75$\pm$4.27 Tk/kg at Showarighat among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali. There was no significant except Showarighat. Becuase there was less distance among the markets. It is the main cause of no significant. Another cause of marketing channel and auction system of fish.

Usually the prices of the fishes are higher in April to July when the fish are in short supply. On the contrary, prices remain lower during November to January which seemed to be related with the increased availability of both captured and cultured fishes during this period (Quddus, 1991). It has been found that the price of Indian major carps always remained higher than the exotic carp. This difference in the prices of fishes might be related with the flesh texture and taste of the local fishes (Rahman 2003). According to Ranadhir (1995) rohu, catla and mrigal are the highly priced fish in India. According to Quddus (1991) concluded that fish price is influenced by seasonably, abundance, market structure and origin of fish. Fish imported from India and Myanmar was sold at much lower price than our native fish.

According to Ali et al., (2004) it was noted that the availability of fish in the winter season is comparatively in higher. In winter season fish supply generally higher than summer season due to more supply of fish and provides low price of fish. Whereas in the summer season fish supply is generally lower and provides more prices of fish compare to winter season.

Hasan and Middendrop (1999) reported that rohu was the most expensive followed by catla, mrigal, common carp and grass carp in the southwest Bangladesh.

This study agreed with the above reports except Hasan and Middendrop (1999). The findings of the study were that the Rupchanda was the most expensive followed by the rohu, mrigal, common carp and grass carp in Dhaka city fish markets.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

The fisheries sector is very significant in the economy of Bangladesh. The study was based on market survey, attaining information through a sample survey among fish retailers. The study area was seven markets and three super shops. A total of 100 fish retailers were selected for questionnaire interview in three different markets. There were selected 20 fish traders from jatrabari, 20 fish traders from swarighat, 20 fish traders from kawran bazazr, 10 fish traders from mohakhali, 10 fish traders from mogbazar 10 fish traders from Ananda bazar, 10 fishtraders from polashi bazar and from 3 super shops taken 9 (from each 3). The available fish were golda chingri (*Macrobrachium rosenbergii*), bagda chingri (*Penaeus monodon*), bele (*Glossogobius giuris*), poa (*Otolithoides pama*), deshi pangus (*Pangasius pangasius*), rita (*Rita rita*), rupchanda (*Pampus chinensis*), common carp (*Cyprinus carpio*), grass carp (*Ctenopharyngodon idella*), taki (*Channa punctatus*), boal (*Wallago attu*), chapila (*Gudusia chapra*), shol (*Channa striatus*), catla(*Catla catla*), koi (*Anabas testudineus*), rui *(Labeo rohita)*, shing(*Heteropneustes fossilis*), shorputi(*Puntius sarana*), silver carp(*Hypophthalmichthys molitrix*), tilapia(*Oreochromis mossambicus*), big head(*Hypophthalmichthys nobilis*) etc.

The marketing chain from farmers to consumers passes through a number of intermediaries i.e, *mahajan*, *aratdar*/local *paikers*, wholesalers and retailers. Local *paiker*/*aratdar*/*mahajan* transfers fish from fishermen to the wholesalers in market and typically earns 10-12% commission for their services. In the study area, the producer and intermediaries used different modes of transportation such as van, train, truck etc. to transfer products from the producing areas to fish market in Dhaka city.

The price fluctuates from one market to another market even fish price varies in the same market in different shops. The price of fish varies with the types of species, sizes, freshness, market demands as well as seasons. The highest price was observed of Rupchanda 1278.33 ± 386.67 Tk/kg at Meena bazar and lowest price was pangus 97.71 ± 4.25 Tk/kg at Showarighat among Meena bazar, Shwapno, Agora, Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar, Mohakhali. The highest price was observed of Chingri 585 ± 115 Tk/kg at Mohakhali and lowest price

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was Big head 128.75±4.27 Tk/kg at Showarighat among Jatrabari, Showarighat, Anondo bazar, Polashi bazar, Karwan bazar, Mogbazar and Mohakhali.

A number of restraints for fish marketing were reported by retailer, including lack of storage facilities, poor supply of ice, mistreatment by middlemen, lack of money and lack of infrastructure. According to the retailers, political disturbances also affect fish transportation as well as marketing

On the basis of findings of the study area the following recommendations have been made for the development of existing marketing of fishes:

- Cold storage should be built so that the fishermen/fish farmer, *Aratdar* and wholesaler can preserve their fish.

- Construction of ice factories for sufficient supply for fish preservation.

- Enhancement of fish transport, handling and shipment facilities.

- Modern communication system and availability of sufficient market information should be introduced to remove unreliable price information.

- Water and electricity supply as well as drainage facilities should be developed at the market place to keep a healthy atmosphere for fish trading.

- Institutional credit can be delivered on easy term for the retailers at their crisis moment.

- Government may fix the commission of *Aratdars* so that they cannot charge arbitrary commission for their service.

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APPENDICES

Appendix A: Price variation

1. Price variation of common carp

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anondo Bazar	3	146.67	16.073	9.280	106.74	186.59	135	165
Jatrabari	7	160.00	34.157	12.910	128.41	191.59	115	195
Karwan Bazar	3	236.67	167.730	96.839	-180.00	653.33	130	430
Mogbazar	2	145.00	7.071	5.000	81.47	208.53	140	150
Mohakhali	2	140.00	14.142	10.000	12.94	267.06	130	150
Polashi Bazar	4	143.75	12.500	6.250	123.86	163.64	130	160
Showarighat	5	125.00	12.748	5.701	109.17	140.83	110	140
Total	26	155.38	60.397	11.845	130.99	179.78	110	430

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	26044.071	6	4340.678	1.266	.319
Within Groups	65152.083	19	3429.057		
Total	91196.154	25			

Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anondo Bazar	Jatrabari	-13.333	40.409	1.000	-146.06	119.39
	Karwan Bazar	-90.000	47.813	.514	-247.04	67.04
	Mogbazar	1.667	53.456	1.000	-173.91	177.24
	Mohakhali	6.667	53.456	1.000	-168.91	182.24
	Polashi Bazar	2.917	44.725	1.000	-143.98	149.82
	Showarighat	21.667	42.765	.998	-118.80	162.13
Jatrabari	Anondo Bazar	13.333	40.409	1.000	-119.39	146.06
	Karwan Bazar	-76.667	40.409	.505	-209.39	56.06
	Mogbazar	15.000	46.951	1.000	-139.21	169.21
	Mohakhali	20.000	46.951	.999	-134.21	174.21
	Polashi Bazar	16.250	36.703	.999	-104.30	136.80
	Showarighat	35.000	34.288	.943	-77.62	147.62
Karwan Bazar	Anondo Bazar	90.000	47.813	.514	-67.04	247.04
	Jatrabari	76.667	40.409	.505	-56.06	209.39
	Mogbazar	91.667	53.456	.615	-83.91	267.24
	Mohakhali	96.667	53.456	.558	-78.91	272.24
	Polashi Bazar	92.917	44.725	.403	-53.98	239.82
	Showarighat	111.667	42.765	.177	-28.80	252.13
Mogbazar	Anondo Bazar	-1.667	53.456	1.000	-177.24	173.91
	Jatrabari	-15.000	46.951	1.000	-169.21	139.21
	Karwan Bazar	-91.667	53.456	.615	-267.24	83.91
	Mohakhali	5.000	58.558	1.000	-187.34	197.34
	Polashi Bazar	1.250	50.713	1.000	-165.32	167.82
	Showarighat	20.000	48.993	1.000	-140.92	180.92
Mohakhali	Anondo Bazar	-6.667	53.456	1.000	-182.24	168.91
	Jatrabari	-20.000	46.951	.999	-174.21	134.21
	Karwan Bazar	-96.667	53.456	.558	-272.24	78.91
	Mogbazar	-5.000	58.558	1.000	-197.34	187.34
	Polashi Bazar	-3.750	50.713	1.000	-170.32	162.82
	Showarighat	15.000	48.993	1.000	-145.92	175.92
Polashi Bazar	Anondo Bazar	-2.917	44.725	1.000	-149.82	143.98
	Jatrabari	-16.250	36.703	.999	-136.80	104.30
	Karwan Bazar	-92.917	44.725	.403	-239.82	53.98
	Mogbazar	-1.250	50.713	1.000	-167.82	165.32
	Mohakhali	3.750	50.713	1.000	-162.82	170.32
	Showarighat	18.750	39.282	.999	-110.27	147.77

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Showarighat	Anondo Bazar	-21.667	42.765	.998	-162.13	118.80
	Jatrabari	-35.000	34.288	.943	-147.62	77.62
	Karwan Bazar	-111.667	42.765	.177	-252.13	28.80
	Mogbazar	-20.000	48.993	1.000	-180.92	140.92
	Mohakhali	-15.000	48.993	1.000	-175.92	145.92
	Polashi Bazar	-18.750	39.282	.999	-147.77	110.27

2. Price variation of catla

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anondo Bazar	2	190.00	14.142	10.000	62.94	317.06	180	200
Jatrabari	7	159.29	44.199	16.706	118.41	200.16	120	250
Karwan Bazar	7	175.71	22.066	8.340	155.31	196.12	150	210
Mogbazar	2	172.50	17.678	12.500	13.67	331.33	160	185
Mohakhali	3	215.00	56.347	32.532	75.03	354.97	180	280
Polashi Bazar	2	177.50	17.678	12.500	18.67	336.33	165	190
Showarighat	6	171.67	55.648	22.718	113.27	230.07	120	250
Total	29	175.86	39.800	7.391	160.72	191.00	120	280

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7052.258	6	1175.376	.693	.658
Within Groups	37301.190	22	1695.509		
Total	44353.448	28			

Multiple Comparisons

Dependent Variable: Sellin gprice

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anondo Bazar	Jatrabari	30.714	33.015	.963	-76.13	137.56
	Karwan Bazar	14.286	33.015	.999	-92.56	121.13
	Mogbazar	17.500	41.177	.999	-115.76	150.76
	Mohakhali	-25.000	37.589	.993	-146.65	96.65
	Polashi Bazar	12.500	41.177	1.000	-120.76	145.76
	Showarighat	18.333	33.621	.998	-90.47	127.14
Jatrabari	Anondo Bazar	-30.714	33.015	.963	-137.56	76.13
	Karwan Bazar	-16.429	22.010	.988	-87.66	54.80
	Mogbazar	-13.214	33.015	1.000	-120.06	93.63
	Mohakhali	-55.714	28.415	.465	-147.67	36.24
	Polashi Bazar	-18.214	33.015	.998	-125.06	88.63
	Showarighat	-12.381	22.909	.998	-86.52	61.76
Karwan Bazar	Anondo Bazar	-14.286	33.015	.999	-121.13	92.56
	Jatrabari	16.429	22.010	.988	-54.80	87.66
	Mogbazar	3.214	33.015	1.000	-103.63	110.06
	Mohakhali	-39.286	28.415	.805	-131.24	52.67
	Polashi Bazar	-1.786	33.015	1.000	-108.63	105.06
	Showarighat	4.048	22.909	1.000	-70.09	78.19
Mogbazar	Anondo Bazar	-17.500	41.177	.999	-150.76	115.76
	Jatrabari	13.214	33.015	1.000	-93.63	120.06
	Karwan Bazar	-3.214	33.015	1.000	-110.06	103.63
	Mohakhali	-42.500	37.589	.912	-164.15	79.15
	Polashi Bazar	-5.000	41.177	1.000	-138.26	128.26
	Showarighat	.833	33.621	1.000	-107.97	109.64
Mohakhali	Anondo Bazar	25.000	37.589	.993	-96.65	146.65
	Jatrabari	55.714	28.415	.465	-36.24	147.67
	Karwan Bazar	39.286	28.415	.805	-52.67	131.24
	Mogbazar	42.500	37.589	.912	-79.15	164.15
	Polashi Bazar	37.500	37.589	.949	-84.15	159.15
	Showarighat	43.333	29.116	.748	-50.90	137.56
Polashi Bazar	Anondo Bazar	-12.500	41.177	1.000	-145.76	120.76
	Jatrabari	18.214	33.015	.998	-88.63	125.06
	Karwan Bazar	1.786	33.015	1.000	-105.06	108.63
	Mogbazar	5.000	41.177	1.000	-128.26	138.26

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	Mohakhali	-37.500	37.589	.949	-159.15	84.15
	Showarighat	5.833	33.621	1.000	-102.97	114.64
Showarighat	Anondo Bazar	-18.333	33.621	.998	-127.14	90.47
	Jatrabari	12.381	22.909	.998	-61.76	86.52
	Karwan Bazar	-4.048	22.909	1.000	-78.19	70.09
	Mogbazar	-.833	33.621	1.000	-109.64	107.97
	Mohakhali	-43.333	29.116	.748	-137.56	50.90
	Polashi Bazar	-5.833	33.621	1.000	-114.64	102.97

3.Price variation of shing

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agora	3	1239.67	632.776	365.333	-332.24	2811.57	509	1605
Anondo Bazar	3	460.00	40.000	23.094	360.63	559.37	420	500
Jatrabari	7	484.29	48.599	18.369	439.34	529.23	410	530
Karwan Bazar	6	470.83	62.643	25.574	405.09	536.57	375	530
Meena	3	1278.33	669.726	386.667	-385.36	2942.03	505	1665
Mogbazar	4	427.50	49.917	24.958	348.07	506.93	380	480
Mohakhali	3	460.00	45.826	26.458	346.16	573.84	410	500
Polashi Bazar	4	457.50	37.749	18.875	397.43	517.57	410	500
Shopnow	3	1202.67	610.259	352.333	-313.30	2718.63	498	1555
Showarighat	5	405.00	65.955	29.496	323.11	486.89	320	470
Total	41	626.88	414.813	64.783	495.95	757.81	320	1665

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ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4369738.128	9	485526.459	5.989	.000
Within Groups	2513052.262	31	81066.202		
Total	6882790.390	40			

Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Agora	Anondo Bazar	779.667	232.474	.056	-11.43	1570.76
	Jatrabari	755.381[*]	196.476	.017	86.78	1423.98
	Karwan Bazar	768.833[*]	201.328	.018	83.72	1453.94
	Meena	-38.667	232.474	1.000	-829.76	752.43
	Mogbazar	812.167[*]	217.459	.023	72.16	1552.17
	Mohakhali	779.667	232.474	.056	-11.43	1570.76
	Polashi Bazar	782.167[*]	217.459	.032	42.16	1522.17
	Shopnow	37.000	232.474	1.000	-754.10	828.10
	Showarighat	834.667[*]	207.931	.011	127.09	1542.24
Anondo Bazar	Agora	-779.667	232.474	.056	-1570.76	11.43
	Jatrabari	-24.286	196.476	1.000	-692.88	644.31
	Karwan Bazar	-10.833	201.328	1.000	-695.94	674.28
	Meena	-818.333[*]	232.474	.038	-1609.43	-27.24
	Mogbazar	32.500	217.459	1.000	-707.50	772.50
	Mohakhali	.000	232.474	1.000	-791.10	791.10
	Polashi Bazar	2.500	217.459	1.000	-737.50	742.50
	Shopnow	-742.667	232.474	.080	-1533.76	48.43
	Showarighat	55.000	207.931	1.000	-652.58	762.58
Jatrabari	Agora	-755.381[*]	196.476	.017	-1423.98	-86.78
	Anondo Bazar	24.286	196.476	1.000	-644.31	692.88
	Karwan Bazar	13.452	158.404	1.000	-525.59	552.49
	Meena	-794.048[*]	196.476	.010	-1462.65	-125.45
	Mogbazar	56.786	178.459	1.000	-550.50	664.07
	Mohakhali	24.286	196.476	1.000	-644.31	692.88
	Polashi Bazar	26.786	178.459	1.000	-580.50	634.07
	Shopnow	-718.381[*]	196.476	.027	-1386.98	-49.78
	Showarighat	79.286	166.716	1.000	-488.04	646.61

Karwan Bazar	Agora	-768.833[*]	201.328	.018	-1453.94	-83.72
	Anondo Bazar	10.833	201.328	1.000	-674.28	695.94
	Jatrabari	-13.452	158.404	1.000	-552.49	525.59
	Meena	-807.500[*]	201.328	.011	-1492.61	-122.39
	Mogbazar	43.333	183.787	1.000	-582.08	668.75
	Mohakhali	10.833	201.328	1.000	-674.28	695.94
	Polashi Bazar	13.333	183.787	1.000	-612.08	638.75
	Shopnow	-731.833[*]	201.328	.029	-1416.94	-46.72
	Showarighat	65.833	172.407	1.000	-520.86	652.53
Meena	Agora	38.667	232.474	1.000	-752.43	829.76
	Anondo Bazar	818.333[*]	232.474	.038	27.24	1609.43
	Jatrabari	794.048[*]	196.476	.010	125.45	1462.65
	Karwan Bazar	807.500[*]	201.328	.011	122.39	1492.61
	Mogbazar	850.833[*]	217.459	.014	110.83	1590.84
	Mohakhali	818.333[*]	232.474	.038	27.24	1609.43
	Polashi Bazar	820.833[*]	217.459	.020	80.83	1560.84
	Shopnow	75.667	232.474	1.000	-715.43	866.76
	Showarighat	873.333[*]	207.931	.007	165.76	1580.91
Mogbazar	Agora	-812.167[*]	217.459	.023	-1552.17	-72.16
	Anondo Bazar	-32.500	217.459	1.000	-772.50	707.50
	Jatrabari	-56.786	178.459	1.000	-664.07	550.50
	Karwan Bazar	-43.333	183.787	1.000	-668.75	582.08
	Meena	-850.833[*]	217.459	.014	-1590.84	-110.83
	Mohakhali	-32.500	217.459	1.000	-772.50	707.50
	Polashi Bazar	-30.000	201.328	1.000	-715.11	655.11
	Shopnow	-775.167[*]	217.459	.034	-1515.17	-35.16
	Showarighat	22.500	190.997	1.000	-627.45	672.45
Mohakhali	Agora	-779.667	232.474	.056	-1570.76	11.43
	Anondo Bazar	.000	232.474	1.000	-791.10	791.10
	Jatrabari	-24.286	196.476	1.000	-692.88	644.31
	Karwan Bazar	-10.833	201.328	1.000	-695.94	674.28
	Meena	-818.333[*]	232.474	.038	-1609.43	-27.24
	Mogbazar	32.500	217.459	1.000	-707.50	772.50
	Polashi Bazar	2.500	217.459	1.000	-737.50	742.50
	Shopnow	-742.667	232.474	.080	-1533.76	48.43
	Showarighat	55.000	207.931	1.000	-652.58	762.58
Polashi Bazar	Agora	-782.167[*]	217.459	.032	-1522.17	-42.16
	Anondo Bazar	-2.500	217.459	1.000	-742.50	737.50
	Jatrabari	-26.786	178.459	1.000	-634.07	580.50
	Karwan Bazar	-13.333	183.787	1.000	-638.75	612.08
	Meena	-820.833[*]	217.459	.020	-1560.84	-80.83
	Mogbazar	30.000	201.328	1.000	-655.11	715.11
	Mohakhali	-2.500	217.459	1.000	-742.50	737.50

	Shopnow	-745.167[*]	217.459	.047	-1485.17	-5.16
	Showarighat	52.500	190.997	1.000	-597.45	702.45
Shopnow	Agora	-37.000	232.474	1.000	-828.10	754.10
	Anondo Bazar	742.667	232.474	.050	-48.43	1533.76
	Jatrabari	718.381[*]	196.476	.027	49.78	1386.98
	Karwan Bazar	731.833[*]	201.328	.029	46.72	1416.94
	Meena	-75.667	232.474	1.000	-866.76	715.43
	Mogbazar	775.167[*]	217.459	.034	35.16	1515.17
	Mohakhali	742.667	232.474	.020	-48.43	1533.76
	Polashi Bazar	745.167[*]	217.459	.047	5.16	1485.17
	Showarighat	797.667[*]	207.931	.018	90.09	1505.24
Showarighat	Agora	-834.667[*]	207.931	.011	-1542.24	-127.09
	Anondo Bazar	-55.000	207.931	1.000	-762.58	652.58
	Jatrabari	-79.286	166.716	1.000	-646.61	488.04
	Karwan Bazar	-65.833	172.407	1.000	-652.53	520.86
	Meena	-873.333[*]	207.931	.007	-1580.91	-165.76
	Mogbazar	-22.500	190.997	1.000	-672.45	627.45
	Mohakhali	-55.000	207.931	1.000	-762.58	652.58
	Polashi Bazar	-52.500	190.997	1.000	-702.45	597.45
	Shopnow	-797.667[*]	207.931	.018	-1505.24	-90.09

*. The mean difference is significant at the .05 level.

4. Price variation of rupchanda

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agora	3	1176.33	326.780	188.667	364.57	1988.10	799	1365
Anondo Bazar	3	396.67	45.092	26.034	284.65	508.68	350	440
Jatrabari	5	344.00	8.944	4.000	332.89	355.11	330	350
Karwan Bazar	5	510.00	247.891	110.860	202.20	817.80	300	790
Meena	3	1341.67	11.547	6.667	1312.98	1370.35	1335	1355

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Mogbazar	3	383.33	56.862	32.830	242.08	524.59	320	430
Mohakhali	3	390.00	79.373	45.826	192.83	587.17	300	450
Polashi Bazar	5	386.00	69.498	31.081	299.71	472.29	330	500
Shopnow	3	1189.33	345.833	199.667	330.24	2048.43	790	1389
Showarighat	5	305.00	21.213	9.487	278.66	331.34	280	335
Total	38	588.34	397.843	64.539	457.57	719.11	280	1389

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5112917.219	9	568101.913	21.397	.000
Within Groups	743411.333	28	26550.405		
Total	5856328.553	37			

Multiple Comparisons

Dependent Variable: Selling price
Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Agora	Anondo Bazar	779.667*	133.042	.000	323.40	1235.93
	Jatrabari	832.333*	118.997	.000	424.24	1240.43
	Karwan Bazar	666.333*	118.997	.000	258.24	1074.43
	Meena	-165.333	133.042	.958	-621.60	290.93
	Mogbazar	793.000*	133.042	.000	336.73	1249.27
	Mohakhali	786.333*	133.042	.000	330.07	1242.60
	Polashi Bazar	790.333*	118.997	.000	382.24	1198.43
	Shopnow	-13.000	133.042	1.000	-469.27	443.27

	Showarighat	871.333*	118.997	.000	463.24	1279.43
Anondo Bazar	Agora	-779.667*	133.042	.000	-1235.93	-323.40
	Jatrabari	52.667	118.997	1.000	-355.43	460.76
	Karwan Bazar	-113.333	118.997	.993	-521.43	294.76
	Meena	-945.000*	133.042	.000	-1401.27	-488.73
	Mogbazar	13.333	133.042	1.000	-442.93	469.60
	Mohakhali	6.667	133.042	1.000	-449.60	462.93
	Polashi Bazar	10.667	118.997	1.000	-397.43	418.76
	Shopnow	-792.667*	133.042	.000	-1248.93	-336.40
	Showarighat	91.667	118.997	.999	-316.43	499.76
Jatrabari	Agora	-832.333*	118.997	.000	-1240.43	-424.24
	Anondo Bazar	-52.667	118.997	1.000	-460.76	355.43
	Karwan Bazar	-166.000	103.054	.832	-519.42	187.42
	Meena	-997.667*	118.997	.000	-1405.76	-589.57
	Mogbazar	-39.333	118.997	1.000	-447.43	368.76
	Mohakhali	-46.000	118.997	1.000	-454.10	362.10
	Polashi Bazar	-42.000	103.054	1.000	-395.42	311.42
	Shopnow	-845.333*	118.997	.000	-1253.43	-437.24
	Showarighat	39.000	103.054	1.000	-314.42	392.42
Karwan Bazar	Agora	-666.333*	118.997	.000	-1074.43	-258.24
	Anondo Bazar	113.333	118.997	.993	-294.76	521.43
	Jatrabari	166.000	103.054	.832	-187.42	519.42
	Meena	-831.667*	118.997	.000	-1239.76	-423.57
	Mogbazar	126.667	118.997	.984	-281.43	534.76
	Mohakhali	120.000	118.997	.989	-288.10	528.10
	Polashi Bazar	124.000	103.054	.966	-229.42	477.42
	Shopnow	-679.333*	118.997	.000	-1087.43	-271.24
	Showarighat	205.000	103.054	.613	-148.42	558.42
Meena	Agora	165.333	133.042	.958	-290.93	621.60
	Anondo Bazar	945.000*	133.042	.000	488.73	1401.27
	Jatrabari	997.667*	118.997	.000	589.57	1405.76

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	Karwan Bazar	831.667*	118.997	.000	423.57	1239.76
	Mogbazar	958.333*	133.042	.000	502.07	1414.60
	Mohakhali	951.667*	133.042	.000	495.40	1407.93
	Polashi Bazar	955.667*	118.997	.000	547.57	1363.76
	Shopnow	152.333	133.042	.975	-303.93	608.60
	Showaright	1036.667*	118.997	.000	628.57	1444.76
Mogbazar	Agora	-793.000*	133.042	.000	-1249.27	-336.73
	Anondo Bazar	-13.333	133.042	1.000	-469.60	442.93
	Jatrabari	39.333	118.997	1.000	-368.76	447.43
	Karwan Bazar	-126.667	118.997	.984	-534.76	281.43
	Meena	-958.333*	133.042	.000	-1414.60	-502.07
	Mohakhali	-6.667	133.042	1.000	-462.93	449.60
	Polashi Bazar	-2.667	118.997	1.000	-410.76	405.43
	Shopnow	-806.000*	133.042	.000	-1262.27	-349.73
	Showaright	78.333	118.997	1.000	-329.76	486.43
Mohakhali	Agora	-786.333*	133.042	.000	-1242.60	-330.07
	Anondo Bazar	-6.667	133.042	1.000	-462.93	449.60
	Jatrabari	46.000	118.997	1.000	-362.10	454.10
	Karwan Bazar	-120.000	118.997	.989	-528.10	288.10
	Meena	-951.667*	133.042	.000	-1407.93	-495.40
	Mogbazar	6.667	133.042	1.000	-449.60	462.93
	Polashi Bazar	4.000	118.997	1.000	-404.10	412.10
	Shopnow	-799.333*	133.042	.000	-1255.60	-343.07
	Showaright	85.000	118.997	.999	-323.10	493.10
Polashi Bazar	Agora	-790.333*	118.997	.000	-1198.43	-382.24
	Anondo Bazar	-10.667	118.997	1.000	-418.76	397.43
	Jatrabari	42.000	103.054	1.000	-311.42	395.42
	Karwan Bazar	-124.000	103.054	.966	-477.42	229.42
	Meena	-955.667*	118.997	.000	-1363.76	-547.57
	Mogbazar	2.667	118.997	1.000	-405.43	410.76

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	Mohakhali	-4.000	118.997	1.000	-412.10	404.10
	Shopnow	-803.333*	118.997	.000	-1211.43	-395.24
	Showarighat	81.000	103.054	.998	-272.42	434.42
Shopnow	Agora	13.000	133.042	1.000	-443.27	469.27
	Anondo Bazar	792.667*	133.042	.000	336.40	1248.93
	Jatrabari	845.333*	118.997	.000	437.24	1253.43
	Karwan Bazar	679.333*	118.997	.000	271.24	1087.43
	Meena	-152.333	133.042	.975	-608.60	303.93
	Mogbazar	806.000*	133.042	.000	349.73	1262.27
	Mohakhali	799.333*	133.042	.000	343.07	1255.60
	Polashi Bazar	803.333*	118.997	.000	395.24	1211.43
	Showarighat	884.333*	118.997	.000	476.24	1292.43
Showarighat	Agora	-871.333*	118.997	.000	-1279.43	-463.24
	Anondo Bazar	-91.667	118.997	.999	-499.76	316.43
	Jatrabari	-39.000	103.054	1.000	-392.42	314.42
	Karwan Bazar	-205.000	103.054	.613	-558.42	148.42
	Meena	-1036.667*	118.997	.000	-1444.76	-628.57
	Mogbazar	-78.333	118.997	1.000	-486.43	329.76
	Mohakhali	-85.000	118.997	.999	-493.10	323.10
	Polashi Bazar	-81.000	103.054	.998	-434.42	272.42
	Shopnow	-884.333*	118.997	.000	-1292.43	-476.24

*. The mean difference is significant at the .05 level.

5. Price variation of mrigal

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anondo Bazar	4	155.00	26.771	13.385	112.40	197.60	140	195
Jatrabari	2	170.00	14.142	10.000	42.94	297.06	160	180
Karwan Bazar	6	169.17	55.083	22.488	111.36	226.97	130	280
Mogbazar	3	160.00	30.414	17.559	84.45	235.55	140	195
Mohakhali	3	176.67	50.332	29.059	51.63	301.70	130	230
Polashi Bazar	2	167.50	31.820	22.500	-118.39	453.39	145	190
Showarighat	4	128.75	13.769	6.884	106.84	150.66	115	145
Total	24	159.79	37.110	7.575	144.12	175.46	115	280

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5655.208	6	942.535	.616	.715
Within Groups	26018.750	17	1530.515		
Total	31673.958	23			

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Multiple Comparisons

Dependent Variable: Selling price
Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anondo Bazar	Jatrabari	-15.000	33.880	.999	-127.71	97.71
	Karwan Bazar	-14.167	25.253	.997	-98.18	69.84
	Mogbazar	-5.000	29.880	1.000	-104.40	94.40
	Mohakhali	-21.667	29.880	.989	-121.07	77.74
	Polashi Bazar	-12.500	33.880	1.000	-125.21	100.21
	Showarighat	26.250	27.663	.958	-65.78	118.28
Jatrabari	Anondo Bazar	15.000	33.880	.999	-97.71	127.71
	Karwan Bazar	.833	31.943	1.000	-105.43	107.10
	Mogbazar	10.000	35.713	1.000	-108.81	128.81
	Mohakhali	-6.667	35.713	1.000	-125.48	112.14
	Polashi Bazar	2.500	39.122	1.000	-127.65	132.65
	Showarighat	41.250	33.880	.878	-71.46	153.96
Karwan Bazar	Anondo Bazar	14.167	25.253	.997	-69.84	98.18
	Jatrabari	-.833	31.943	1.000	-107.10	105.43
	Mogbazar	9.167	27.663	1.000	-82.86	101.20
	Mohakhali	-7.500	27.663	1.000	-99.53	84.53
	Polashi Bazar	1.667	31.943	1.000	-104.60	107.93
	Showarighat	40.417	25.253	.684	-43.59	124.43
Mogbazar	Anondo Bazar	5.000	29.880	1.000	-94.40	104.40
	Jatrabari	-10.000	35.713	1.000	-128.81	108.81
	Karwan Bazar	-9.167	27.663	1.000	-101.20	82.86
	Mohakhali	-16.667	31.943	.998	-122.93	89.60
	Polashi Bazar	-7.500	35.713	1.000	-126.31	111.31
	Showarighat	31.250	29.880	.935	-68.15	130.65
Mohakhali	Anondo Bazar	21.667	29.880	.989	-77.74	121.07
	Jatrabari	6.667	35.713	1.000	-112.14	125.48
	Karwan Bazar	7.500	27.663	1.000	-84.53	99.53
	Mogbazar	16.667	31.943	.998	-89.60	122.93
	Polashi Bazar	9.167	35.713	1.000	-109.64	127.98
	Showarighat	47.917	29.880	.682	-51.49	147.32
Polashi Bazar	Anondo Bazar	12.500	33.880	1.000	-100.21	125.21
	Jatrabari	-2.500	39.122	1.000	-132.65	127.65
	Karwan Bazar	-1.667	31.943	1.000	-107.93	104.60
	Mogbazar	7.500	35.713	1.000	-111.31	126.31

	Mohakhali	-9.167	35.713	1.000	-127.98	109.64
	Showarighat	38.750	33.880	.905	-73.96	151.46
Showarighat	Anondo Bazar	-26.250	27.663	.958	-118.28	65.78
	Jatrabari	-41.250	33.880	.878	-153.96	71.46
	Karwan Bazar	-40.417	25.253	.684	-124.43	43.59
	Mogbazar	-31.250	29.880	.935	-130.65	68.15
	Mohakhali	-47.917	29.880	.682	-147.32	51.49
	Polashi Bazar	-38.750	33.880	.905	-151.46	73.96

6. Price variation of rui

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agora	3	358.33	132.791	76.667	28.46	688.20	205	435
Anondo Bazar	5	184.00	11.402	5.099	169.84	198.16	170	200
Jatrabari	6	178.33	9.832	4.014	168.02	188.65	160	185
Karwan Bazar	9	180.56	18.105	6.035	166.64	194.47	160	220
Meena	3	356.33	118.934	68.667	60.88	651.78	219	425
Mogbazar	4	208.75	30.653	15.326	159.97	257.53	180	240
Mohakhali	5	208.00	59.645	26.674	133.94	282.06	145	300
Polashi Bazar	3	190.00	27.839	16.073	120.84	259.16	160	215
Shopnow	3	365.67	144.338	83.333	7.11	724.22	199	449
Showarighat	6	146.67	14.024	5.725	131.95	161.38	130	165
Total	47	216.62	89.905	13.114	190.22	243.01	130	449

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	243379.467	9	27042.163	7.791	.000
Within Groups	128431.639	37	3471.125		
Total	371811.106	46			

Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Agora	Anondo Bazar	174.333*	43.026	.008	29.63	319.04
	Jatrabari	180.000*	41.660	.004	39.89	320.11
	Karwan Bazar	177.778*	39.278	.002	45.68	309.87
	Meena	2.000	48.105	1.000	-159.78	163.78
	Mogbazar	149.583	44.998	.055	-1.75	300.92
	Mohakhali	150.333*	43.026	.036	5.63	295.04
	Polashi Bazar	168.333*	48.105	.036	6.55	330.12
	Shopnow	-7.333	48.105	1.000	-169.12	154.45
	Showarighat	211.667*	41.660	.000	71.56	351.77
Anondo Bazar	Agora	-174.333*	43.026	.008	-319.04	-29.63
	Jatrabari	5.667	35.676	1.000	-114.31	125.65
	Karwan Bazar	3.444	32.862	1.000	-107.07	113.96
	Meena	-172.333*	43.026	.009	-317.04	-27.63
	Mogbazar	-24.750	39.522	1.000	-157.67	108.17
	Mohakhali	-24.000	37.262	1.000	-149.32	101.32
	Polashi Bazar	-6.000	43.026	1.000	-150.70	138.70
	Shopnow	-181.667*	43.026	.005	-326.37	-36.96
	Showarighat	37.333	35.676	.987	-82.65	157.31
Jatrabari	Agora	-180.000*	41.660	.004	-320.11	-39.89
	Anondo Bazar	-5.667	35.676	1.000	-125.65	114.31
	Karwan Bazar	-2.222	31.052	1.000	-106.65	102.21
	Meena	-178.000*	41.660	.005	-318.11	-37.89
	Mogbazar	-30.417	38.030	.998	-158.32	97.48
	Mohakhali	-29.667	35.676	.998	-149.65	90.31

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	Polashi Bazar	-11.667	41.660	1.000	-151.77	128.44
	Shopnow	-187.333[*]	41.660	.002	-327.44	-47.23
	Showarighat	31.667	34.015	.994	-82.73	146.06
Karwan Bazar	Agora	-177.778[*]	39.278	.002	-309.87	-45.68
	Anondo Bazar	-3.444	32.862	1.000	-113.96	107.07
	Jatrabari	2.222	31.052	1.000	-102.21	106.65
	Meena	-175.778[*]	39.278	.003	-307.87	-43.68
	Mogbazar	-28.194	35.404	.998	-147.26	90.87
	Mohakhali	-27.444	32.862	.997	-137.96	83.07
	Polashi Bazar	-9.444	39.278	1.000	-141.54	122.65
	Shopnow	-185.111[*]	39.278	.001	-317.21	-53.02
	Showarighat	33.889	31.052	.983	-70.54	138.32
Meena	Agora	-2.000	48.105	1.000	-163.78	159.78
	Anondo Bazar	172.333[*]	43.026	.009	27.63	317.04
	Jatrabari	178.000[*]	41.660	.005	37.89	318.11
	Karwan Bazar	175.778[*]	39.278	.003	43.68	307.87
	Mogbazar	147.583	44.998	.051	-3.75	298.92
	Mohakhali	148.333[*]	43.026	.041	3.63	293.04
	Polashi Bazar	166.333[*]	48.105	.040	4.55	328.12
	Shopnow	-9.333	48.105	1.000	-171.12	152.45
	Showarighat	209.667[*]	41.660	.000	69.56	349.77
Mogbazar	Agora	-149.583	44.998	.055	-300.92	1.75
	Anondo Bazar	24.750	39.522	1.000	-108.17	157.67
	Jatrabari	30.417	38.030	.998	-97.48	158.32
	Karwan Bazar	28.194	35.404	.998	-90.87	147.26
	Meena	-147.583	44.998	.051	-298.92	3.75
	Mohakhali	.750	39.522	1.000	-132.17	133.67
	Polashi Bazar	18.750	44.998	1.000	-132.58	170.08
	Shopnow	-156.917[*]	44.998	.037	-308.25	-5.58
	Showarighat	62.083	38.030	.824	-65.82	189.98
Mohakhali	Agora	-150.333[*]	43.026	.036	-295.04	-5.63
	Anondo Bazar	24.000	37.262	1.000	-101.32	149.32
	Jatrabari	29.667	35.676	.998	-90.31	149.65
	Karwan Bazar	27.444	32.862	.997	-83.07	137.96
	Meena	-148.333[*]	43.026	.041	-293.04	-3.63
	Mogbazar	-.750	39.522	1.000	-133.67	132.17
	Polashi Bazar	18.000	43.026	1.000	-126.70	162.70
	Shopnow	-157.667[*]	43.026	.024	-302.37	-12.96
	Showarighat	61.333	35.676	.778	-58.65	181.31
Polashi Bazar	Agora	-168.333[*]	48.105	.036	-330.12	-6.55
	Anondo Bazar	6.000	43.026	1.000	-138.70	150.70
	Jatrabari	11.667	41.660	1.000	-128.44	151.77

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	Karwan Bazar	9.444	39.278	1.000	-122.65	141.54
	Meena	-166.333[*]	48.105	.040	-328.12	-4.55
	Mogbazar	-18.750	44.998	1.000	-170.08	132.58
	Mohakhali	-18.000	43.026	1.000	-162.70	126.70
	Shopnow	-175.667[*]	48.105	.024	-337.45	-13.88
	Showarighat	43.333	41.660	.987	-96.77	183.44
Shopnow	Agora	7.333	48.105	1.000	-154.45	169.12
	Anondo Bazar	181.667[*]	43.026	.005	36.96	326.37
	Jatrabari	187.333[*]	41.660	.002	47.23	327.44
	Karwan Bazar	185.111[*]	39.278	.001	53.02	317.21
	Meena	9.333	48.105	1.000	-152.45	171.12
	Mogbazar	156.917[*]	44.998	.037	5.58	308.25
	Mohakhali	157.667[*]	43.026	.024	12.96	302.37
	Polashi Bazar	175.667[*]	48.105	.024	13.88	337.45
	Showarighat	219.000[*]	41.660	.000	78.89	359.11
Showarighat	Agora	-211.667[*]	41.660	.000	-351.77	-71.56
	Anondo Bazar	-37.333	35.676	.987	-157.31	82.65
	Jatrabari	-31.667	34.015	.994	-146.06	82.73
	Karwan Bazar	-33.889	31.052	.983	-138.32	70.54
	Meena	-209.667[*]	41.660	.000	-349.77	-69.56
	Mogbazar	-62.083	38.030	.824	-189.98	65.82
	Mohakhali	-61.333	35.676	.778	-181.31	58.65
	Polashi Bazar	-43.333	41.660	.987	-183.44	96.77
	Shopnow	-219.000[*]	41.660	.000	-359.11	-78.89

*. The mean difference is significant at the .05 level.

7. Price variation of pangus

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agora	3	119.67	23.094	13.333	62.30	177.04	93	133
Anondo Bazar	6	121.67	12.111	4.944	108.96	134.38	110	145
Jatrabari	6	109.17	9.174	3.745	99.54	118.79	100	120
Karwan Bazar	10	142.50	41.449	13.107	112.85	172.15	110	220
Meena	3	139.00	.000	.000	139.00	139.00	139	139
Mogbazar	4	121.25	4.787	2.394	113.63	128.87	115	125
Mohakhali	3	120.00	5.000	2.887	107.58	132.42	115	125
Polashi Bazar	4	128.75	17.500	8.750	100.90	156.60	120	155
Shopnow	3	119.00	17.321	10.000	75.97	162.03	99	129
Showarighat	7	97.71	11.250	4.252	87.31	108.12	89	120
Total	49	122.18	25.210	3.601	114.94	129.42	89	220

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10425.085	9	1158.343	2.250	.039
Within Groups	20080.262	39	514.879		
Total	30505.347	48			

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Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Agora	Anondo Bazar	-2.000	16.045	1.000	-55.79	51.79
	Jatrabari	10.500	16.045	1.000	-43.29	64.29
	Karwan Bazar	-22.833	14.937	.872	-72.91	27.25
	Meena	-19.333	18.527	.987	-81.45	42.78
	Mogbazar	-1.583	17.330	1.000	-59.69	56.52
	Mohakhali	-.333	18.527	1.000	-62.45	61.78
	Polashi Bazar	-9.083	17.330	1.000	-67.19	49.02
	Shopnow	.667	18.527	1.000	-61.45	62.78
	Showarighat	21.952	15.658	.919	-30.54	74.45
Anondo Bazar	Agora	2.000	16.045	1.000	-51.79	55.79
	Jatrabari	12.500	13.101	.993	-31.42	56.42
	Karwan Bazar	-20.833	11.718	.744	-60.12	18.45
	Meena	-17.333	16.045	.984	-71.13	36.46
	Mogbazar	.417	14.647	1.000	-48.69	49.52
	Mohakhali	1.667	16.045	1.000	-52.13	55.46
	Polashi Bazar	-7.083	14.647	1.000	-56.19	42.02
	Shopnow	2.667	16.045	1.000	-51.13	56.46
	Showarighat	23.952	12.624	.671	-18.37	66.28
Jatrabari	Agora	-10.500	16.045	1.000	-64.29	43.29
	Anondo Bazar	-12.500	13.101	.993	-56.42	31.42
	Karwan Bazar	-33.333	11.718	.157	-72.62	5.95
	Meena	-29.833	16.045	.695	-83.63	23.96
	Mogbazar	-12.083	14.647	.998	-61.19	37.02
	Mohakhali	-10.833	16.045	1.000	-64.63	42.96
	Polashi Bazar	-19.583	14.647	.938	-68.69	29.52
	Shopnow	-9.833	16.045	1.000	-63.63	43.96
	Showarighat	11.452	12.624	.995	-30.87	53.78
Karwan Bazar	Agora	22.833	14.937	.872	-27.25	72.91
	Anondo Bazar	20.833	11.718	.744	-18.45	60.12
	Jatrabari	33.333	11.718	.157	-5.95	72.62
	Meena	3.500	14.937	1.000	-46.58	53.58
	Mogbazar	21.250	13.424	.848	-23.76	66.26
	Mohakhali	22.500	14.937	.882	-27.58	72.58
	Polashi Bazar	13.750	13.424	.989	-31.26	58.76

	Shopnow	23.500	14.937	.853	-26.58	73.58
	Showarighat	44.786*	11.182	.099	7.30	82.28
Meena	Agora	19.333	18.527	.987	-42.78	81.45
	Anondo Bazar	17.333	16.045	.984	-36.46	71.13
	Jatrabari	29.833	16.045	.695	-23.96	83.63
	Karwan Bazar	-3.500	14.937	1.000	-53.58	46.58
	Mogbazar	17.750	17.330	.989	-40.35	75.85
	Mohakhali	19.000	18.527	.989	-43.11	81.11
	Polashi Bazar	10.250	17.330	1.000	-47.85	68.35
	Shopnow	20.000	18.527	.984	-42.11	82.11
	Showarighat	41.286	15.658	.235	-11.21	93.78
Mogbazar	Agora	1.583	17.330	1.000	-56.52	59.69
	Anondo Bazar	-.417	14.647	1.000	-49.52	48.69
	Jatrabari	12.083	14.647	.998	-37.02	61.19
	Karwan Bazar	-21.250	13.424	.848	-66.26	23.76
	Meena	-17.750	17.330	.989	-75.85	40.35
	Mohakhali	1.250	17.330	1.000	-56.85	59.35
	Polashi Bazar	-7.500	16.045	1.000	-61.29	46.29
	Shopnow	2.250	17.330	1.000	-55.85	60.35
	Showarighat	23.536	14.222	.813	-24.15	71.22
Mohakhali	Agora	.333	18.527	1.000	-61.78	62.45
	Anondo Bazar	-1.667	16.045	1.000	-55.46	52.13
	Jatrabari	10.833	16.045	1.000	-42.96	64.63
	Karwan Bazar	-22.500	14.937	.882	-72.58	27.58
	Meena	-19.000	18.527	.989	-81.11	43.11
	Mogbazar	-1.250	17.330	1.000	-59.35	56.85
	Polashi Bazar	-8.750	17.330	1.000	-66.85	49.35
	Shopnow	1.000	18.527	1.000	-61.11	63.11
	Showarighat	22.286	15.658	.912	-30.21	74.78
Polashi Bazar	Agora	9.083	17.330	1.000	-49.02	67.19
	Anondo Bazar	7.083	14.647	1.000	-42.02	56.19
	Jatrabari	19.583	14.647	.938	-29.52	68.69
	Karwan Bazar	-13.750	13.424	.989	-58.76	31.26
	Meena	-10.250	17.330	1.000	-68.35	47.85
	Mogbazar	7.500	16.045	1.000	-46.29	61.29
	Mohakhali	8.750	17.330	1.000	-49.35	66.85
	Shopnow	9.750	17.330	1.000	-48.35	67.85
	Showarighat	31.036	14.222	.485	-16.65	78.72
Shopnow	Agora	-.667	18.527	1.000	-62.78	61.45
	Anondo Bazar	-2.667	16.045	1.000	-56.46	51.13
	Jatrabari	9.833	16.045	1.000	-43.96	63.63
	Karwan Bazar	-23.500	14.937	.853	-73.58	26.58
	Meena	-20.000	18.527	.984	-82.11	42.11

	Mogbazar	-2.250	17.330	1.000	-60.35	55.85
	Mohakhali	-1.000	18.527	1.000	-63.11	61.11
	Polashi Bazar	-9.750	17.330	1.000	-67.85	48.35
	Showarighat	21.286	15.658	.932	-31.21	73.78
Showarighat	Agora	-21.952	15.658	.919	-74.45	30.54
	Anondo Bazar	-23.952	12.624	.671	-66.28	18.37
	Jatrabari	-11.452	12.624	.995	-53.78	30.87
	Karwan Bazar	-44.786*	11.182	.099	-82.28	-7.30
	Meena	-41.286	15.658	.235	-93.78	11.21
	Mogbazar	-23.536	14.222	.813	-71.22	24.15
	Mohakhali	-22.286	15.658	.912	-74.78	30.21
	Polashi Bazar	-31.036	14.222	.485	-78.72	16.65
	Shopnow	-21.286	15.658	.932	-73.78	31.21

*. The mean difference is significant at the .05 level.

8. Price variation of big head

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anondo Bazar	2	157.50	10.607	7.500	62.20	252.80	150	165
Jatrabari	5	157.00	4.472	2.000	151.45	162.55	150	160
Karwan Bazar	5	143.00	9.747	4.359	130.90	155.10	130	150
Mogbazar	3	151.67	12.583	7.265	120.41	182.92	140	165
Mohakhali	2	150.00	14.142	10.000	22.94	277.06	140	160
Polashi Bazar	2	147.50	3.536	2.500	115.73	179.27	145	150
Showarighat	4	128.75	8.539	4.270	115.16	142.34	120	140
Total	23	146.96	12.680	2.644	141.47	152.44	120	165

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2216.540	6	369.423	4.476	.008
Within Groups	1320.417	16	82.526		
Total	3536.957	22			

Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anondo Bazar	Jatrabari	.500	7.601	1.000	-24.98	25.98
	Karwan Bazar	14.500	7.601	.503	-10.98	39.98
	Mogbazar	5.833	8.293	.990	-21.97	33.63
	Mohakhali	7.500	9.084	.978	-22.95	37.95
	Polashi Bazar	10.000	9.084	.919	-20.45	40.45
	Showarighat	28.750*	7.867	.028	2.38	55.12
Jatrabari	Anondo Bazar	-.500	7.601	1.000	-25.98	24.98
	Karwan Bazar	14.000	5.745	.246	-5.26	33.26
	Mogbazar	5.333	6.634	.981	-16.91	27.57
	Mohakhali	7.000	7.601	.964	-18.48	32.48
	Polashi Bazar	9.500	7.601	.864	-15.98	34.98
	Showarighat	28.250*	6.094	.004	7.82	48.68
Karwan Bazar	Anondo Bazar	-14.500	7.601	.503	-39.98	10.98
	Jatrabari	-14.000	5.745	.246	-33.26	5.26
	Mogbazar	-8.667	6.634	.839	-30.91	13.57
	Mohakhali	-7.000	7.601	.964	-32.48	18.48
	Polashi Bazar	-4.500	7.601	.996	-29.98	20.98
	Showarighat	14.250	6.094	.004	-6.18	34.68
Mogbazar	Anondo Bazar	-5.833	8.293	.990	-33.63	21.97
	Jatrabari	-5.333	6.634	.981	-27.57	16.91
	Karwan Bazar	8.667	6.634	.839	-13.57	30.91
	Mohakhali	1.667	8.293	1.000	-26.13	29.47
	Polashi Bazar	4.167	8.293	.998	-23.63	31.97

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	Showarighat	22.917	6.938	.055	-.34	46.17
Mohakhali	Anondo Bazar	-7.500	9.084	.978	-37.95	22.95
	Jatrabari	-7.000	7.601	.964	-32.48	18.48
	Karwan Bazar	7.000	7.601	.964	-18.48	32.48
	Mogbazar	-1.667	8.293	1.000	-29.47	26.13
	Polashi Bazar	2.500	9.084	1.000	-27.95	32.95
	Showarighat	21.250	7.867	.051	-5.12	47.62
Polashi Bazar	Anondo Bazar	-10.000	9.084	.919	-40.45	20.45
	Jatrabari	-9.500	7.601	.864	-34.98	15.98
	Karwan Bazar	4.500	7.601	.996	-20.98	29.98
	Mogbazar	-4.167	8.293	.998	-31.97	23.63
	Mohakhali	-2.500	9.084	1.000	-32.95	27.95
	Showarighat	18.750	7.867	.021	-7.62	45.12
Showarighat	Anondo Bazar	-28.750*	7.867	.028	-55.12	-2.38
	Jatrabari	-28.250*	6.094	.004	-48.68	-7.82
	Karwan Bazar	-14.250	6.094	.004	-34.68	6.18
	Mogbazar	-22.917	6.938	.055	-46.17	.34
	Mohakhali	-21.250	7.867	.051	-47.62	5.12
	Polashi Bazar	-18.750	7.867	.021	-45.12	7.62

*. The mean difference is significant at the .05 level.

9. Price variation of grass carp

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anondo Bazar	3	183.33	15.275	8.819	145.39	221.28	170	200
Jatrabari	4	162.50	15.000	7.500	138.63	186.37	155	185
Karwan Bazar	6	173.33	23.594	9.632	148.57	198.09	150	205
Mogbazar	2	177.50	17.678	12.500	18.67	336.33	165	190
Mohakhali	3	195.00	47.697	27.538	76.51	313.49	165	250
Polashi Bazar	2	175.00	7.071	5.000	111.47	238.53	170	180
Showarighat	4	140.00	7.071	3.536	128.75	151.25	130	145
Total	24	170.42	25.914	5.290	159.47	181.36	130	250

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6458.333	6	1076.389	2.036	.116
Within Groups	8987.500	17	528.676		
Total	15445.833	23			

Multiple Comparisons

Dependent Variable: Sellingprice

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anondo Bazar	Jatrabari	20.833	17.561	.890	-37.59	79.26
	Karwan Bazar	10.000	16.258	.995	-44.09	64.09
	Mogbazar	5.833	20.990	1.000	-63.99	75.66
	Mohakhali	-11.667	18.774	.995	-74.12	50.79
	Polashi Bazar	8.333	20.990	1.000	-61.49	78.16
	Showarighat	43.333	17.561	.231	-15.09	101.76
Jatrabari	Anondo Bazar	-20.833	17.561	.890	-79.26	37.59
	Karwan Bazar	-10.833	14.842	.989	-60.21	38.54
	Mogbazar	-15.000	19.912	.987	-81.24	51.24
	Mohakhali	-32.500	17.561	.535	-90.92	25.92
	Polashi Bazar	-12.500	19.912	.995	-78.74	53.74
	Showarighat	22.500	16.258	.803	-31.59	76.59
Karwan Bazar	Anondo Bazar	-10.000	16.258	.995	-64.09	44.09
	Jatrabari	10.833	14.842	.989	-38.54	60.21
	Mogbazar	-4.167	18.774	1.000	-66.62	58.29
	Mohakhali	-21.667	16.258	.828	-75.75	32.42
	Polashi Bazar	-1.667	18.774	1.000	-64.12	60.79
	Showarighat	33.333	14.842	.323	-16.04	82.71
Mogbazar	Anondo Bazar	-5.833	20.990	1.000	-75.66	63.99
	Jatrabari	15.000	19.912	.987	-51.24	81.24
	Karwan Bazar	4.167	18.774	1.000	-58.29	66.62
	Mohakhali	-17.500	20.990	.978	-87.33	52.33
	Polashi Bazar	2.500	22.993	1.000	-73.99	78.99

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	Showarighat	37.500	19.912	.516	-28.74	103.74
Mohakhali	Anondo Bazar	11.667	18.774	.995	-50.79	74.12
	Jatrabari	32.500	17.561	.535	-25.92	90.92
	Karwan Bazar	21.667	16.258	.828	-32.42	75.75
	Mogbazar	17.500	20.990	.978	-52.33	87.33
	Polashi Bazar	20.000	20.990	.958	-49.83	89.83
	Showarighat	55.000	17.561	.072	-3.42	113.42
Polashi Bazar	Anondo Bazar	-8.333	20.990	1.000	-78.16	61.49
	Jatrabari	12.500	19.912	.995	-53.74	78.74
	Karwan Bazar	1.667	18.774	1.000	-60.79	64.12
	Mogbazar	-2.500	22.993	1.000	-78.99	73.99
	Mohakhali	-20.000	20.990	.958	-89.83	49.83
	Showarighat	35.000	19.912	.590	-31.24	101.24
Showarighat	Anondo Bazar	-43.333	17.561	.231	-101.76	15.09
	Jatrabari	-22.500	16.258	.803	-76.59	31.59
	Karwan Bazar	-33.333	14.842	.323	-82.71	16.04
	Mogbazar	-37.500	19.912	.516	-103.74	28.74
	Mohakhali	-55.000	17.561	.072	-113.42	3.42
	Polashi Bazar	-35.000	19.912	.590	-101.24	31.24

10. Price variation of chingri

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Anondo Bazar	3	503.33	37.859	21.858	409.29	597.38	460	530
Jatrabari	6	502.50	62.430	25.487	436.98	568.02	410	570
Karwan Bazar	7	460.00	130.767	49.425	339.06	580.94	170	560
Mogbazar	2	575.00	148.492	105.000	-759.15	1909.15	470	680
Mohakhali	2	585.00	162.635	115.000	-876.21	2046.21	470	700
Polashi Bazar	4	492.50	41.932	20.966	425.78	559.22	430	520

Showarighat	5	435.00	24.495	10.954	404.59	465.41	400	465
Total	29	490.00	91.914	17.068	455.04	524.96	170	700

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	55420.833	6	9236.806	1.122	.382
Within Groups	181129.167	22	8233.144		
Total	236550.000	28			

Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Anondo Bazar	Jatrabari	.833	64.161	1.000	-206.81	208.48
	Karwan Bazar	43.333	62.614	.992	-159.31	245.97
	Mogbazar	-71.667	82.831	.974	-339.73	196.40
	Mohakhali	-81.667	82.831	.952	-349.73	186.40
	Polashi Bazar	10.833	69.301	1.000	-213.45	235.11
	Showarighat	68.333	66.265	.941	-146.12	282.79
Jatrabari	Anondo Bazar	-.833	64.161	1.000	-208.48	206.81
	Karwan Bazar	42.500	50.481	.977	-120.87	205.87
	Mogbazar	-72.500	74.086	.954	-312.27	167.27
	Mohakhali	-82.500	74.086	.917	-322.27	157.27
	Polashi Bazar	10.000	58.570	1.000	-179.55	199.55
	Showarighat	67.500	54.944	.875	-110.32	245.32
Karwan Bazar	Anondo Bazar	-43.333	62.614	.992	-245.97	159.31
	Jatrabari	-42.500	50.481	.977	-205.87	120.87
	Mogbazar	-115.000	72.751	.695	-350.45	120.45
	Mohakhali	-125.000	72.751	.612	-360.45	110.45
	Polashi Bazar	-32.500	56.872	.997	-216.56	151.56
	Showarighat	25.000	53.130	.999	-146.95	196.95
Mogbazar	Anondo Bazar	71.667	82.831	.974	-196.40	339.73
	Jatrabari	72.500	74.086	.954	-167.27	312.27
	Karwan Bazar	115.000	72.751	.695	-120.45	350.45
	Mohakhali	-10.000	90.737	1.000	-303.65	283.65

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	Polashi Bazar	82.500	78.580	.936	-171.81	336.81
	Showarighat	140.000	75.916	.535	-105.69	385.69
Mohakhali	Anondo Bazar	81.667	82.831	.952	-186.40	349.73
	Jatrabari	82.500	74.086	.917	-157.27	322.27
	Karwan Bazar	125.000	72.751	.612	-110.45	360.45
	Mogbazar	10.000	90.737	1.000	-283.65	303.65
	Polashi Bazar	92.500	78.580	.895	-161.81	346.81
	Showarighat	150.000	75.916	.456	-95.69	395.69
Polashi Bazar	Anondo Bazar	-10.833	69.301	1.000	-235.11	213.45
	Jatrabari	-10.000	58.570	1.000	-199.55	179.55
	Karwan Bazar	32.500	56.872	.997	-151.56	216.56
	Mogbazar	-82.500	78.580	.936	-336.81	171.81
	Mohakhali	-92.500	78.580	.895	-346.81	161.81
	Showarighat	57.500	60.868	.961	-139.49	254.49
Showarighat	Anondo Bazar	-68.333	66.265	.941	-282.79	146.12
	Jatrabari	-67.500	54.944	.875	-245.32	110.32
	Karwan Bazar	-25.000	53.130	.999	-196.95	146.95
	Mogbazar	-140.000	75.916	.535	-385.69	105.69
	Mohakhali	-150.000	75.916	.456	-395.69	95.69
	Polashi Bazar	-57.500	60.868	.961	-254.49	139.49

11. Price variation of koi

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agora	3	577.00	270.200	156.000	-94.21	1248.21	265	733
Anondo Bazar	5	159.00	7.416	3.317	149.79	168.21	150	170
Jatrabari	3	178.33	44.814	25.874	67.01	289.66	150	230
Karwan Bazar	6	215.83	48.002	19.597	165.46	266.21	150	260
Meena	3	590.00	285.788	165.000	-119.94	1299.94	260	755

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Mogbazar	3	166.67	5.774	3.333	152.32	181.01	160	170
Mohakhali	3	165.00	5.000	2.887	152.58	177.42	160	170
Polashi Bazar	4	163.75	6.292	3.146	153.74	173.76	155	170
Shopnow	3	595.00	294.449	170.000	-136.45	1326.45	255	765
Showarighat	5	161.00	35.777	16.000	116.58	205.42	130	200
Total	38	272.79	213.370	34.613	202.66	342.92	130	765

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1180613.399	9	131179.267	7.289	.000
Within Groups	503878.917	28	17995.676		
Total	1684492.316	37			

Multiple Comparisons

Dependent Variable: Selling price
Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Agora	Anondo Bazar	418.000*	97.968	.007	82.02	753.98
	Jatrabari	398.667*	109.531	.031	23.03	774.30
	Karwan Bazar	361.167*	94.857	.021	35.86	686.48
	Meena	-13.000	109.531	1.000	-388.64	362.64
	Mogbazar	410.333*	109.531	.024	34.70	785.97
	Mohakhali	412.000*	109.531	.023	36.36	787.64
	Polashi Bazar	413.250*	102.457	.012	61.87	764.63
	Shopnow	-18.000	109.531	1.000	-393.64	357.64
	Showarighat	416.000*	97.968	.007	80.02	751.98
Anondo Bazar	Agora	-418.000*	97.968	.007	-753.98	-82.02
	Jatrabari	-19.333	97.968	1.000	-355.31	316.65
	Karwan Bazar	-56.833	81.231	.999	-335.41	221.75
	Meena	-431.000*	97.968	.005	-766.98	-95.02
	Mogbazar	-7.667	97.968	1.000	-343.65	328.31
	Mohakhali	-6.000	97.968	1.000	-341.98	329.98

	Polashi Bazar	-4.750	89.989	1.000	-313.37	303.87
	Shopnow	-436.000*	97.968	.004	-771.98	-100.02
	Showarighat	-2.000	84.843	1.000	-292.97	288.97
Jatrabari	Agora	-398.667*	109.531	.031	-774.30	-23.03
	Anondo Bazar	19.333	97.968	1.000	-316.65	355.31
	Karwan Bazar	-37.500	94.857	1.000	-362.81	287.81
	Meena	-411.667*	109.531	.023	-787.30	-36.03
	Mogbazar	11.667	109.531	1.000	-363.97	387.30
	Mohakhali	13.333	109.531	1.000	-362.30	388.97
	Polashi Bazar	14.583	102.457	1.000	-336.79	365.96
	Shopnow	-416.667*	109.531	.021	-792.30	-41.03
	Showarighat	17.333	97.968	1.000	-318.65	353.31
Karwan Bazar	Agora	-361.167*	94.857	.021	-686.48	-35.86
	Anondo Bazar	56.833	81.231	.999	-221.75	335.41
	Jatrabari	37.500	94.857	1.000	-287.81	362.81
	Meena	-374.167*	94.857	.015	-699.48	-48.86
	Mogbazar	49.167	94.857	1.000	-276.14	374.48
	Mohakhali	50.833	94.857	1.000	-274.48	376.14
	Polashi Bazar	52.083	86.592	1.000	-244.88	349.05
	Shopnow	-379.167*	94.857	.013	-704.48	-53.86
	Showarighat	54.833	81.231	.999	-223.75	333.41
Meena	Agora	13.000	109.531	1.000	-362.64	388.64
	Anondo Bazar	431.000*	97.968	.005	95.02	766.98
	Jatrabari	411.667*	109.531	.023	36.03	787.30
	Karwan Bazar	374.167*	94.857	.015	48.86	699.48
	Mogbazar	423.333*	109.531	.018	47.70	798.97
	Mohakhali	425.000*	109.531	.017	49.36	800.64
	Polashi Bazar	426.250*	102.457	.009	74.87	777.63
	Shopnow	-5.000	109.531	1.000	-380.64	370.64
	Showarighat	429.000*	97.968	.005	93.02	764.98
Mogbazar	Agora	-410.333*	109.531	.024	-785.97	-34.70
	Anondo Bazar	7.667	97.968	1.000	-328.31	343.65
	Jatrabari	-11.667	109.531	1.000	-387.30	363.97
	Karwan Bazar	-49.167	94.857	1.000	-374.48	276.14
	Meena	-423.333*	109.531	.018	-798.97	-47.70
	Mohakhali	1.667	109.531	1.000	-373.97	377.30
	Polashi Bazar	2.917	102.457	1.000	-348.46	354.29
	Shopnow	-428.333*	109.531	.016	-803.97	-52.70
	Showarighat	5.667	97.968	1.000	-330.31	341.65
Mohakhali	Agora	-412.000*	109.531	.023	-787.64	-36.36
	Anondo Bazar	6.000	97.968	1.000	-329.98	341.98
	Jatrabari	-13.333	109.531	1.000	-388.97	362.30
	Karwan Bazar	-50.833	94.857	1.000	-376.14	274.48

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	Meena	-425.000[*]	109.531	.017	-800.64	-49.36
	Mogbazar	-1.667	109.531	1.000	-377.30	373.97
	Polashi Bazar	1.250	102.457	1.000	-350.13	352.63
	Shopnow	-430.000[*]	109.531	.015	-805.64	-54.36
	Showarighat	4.000	97.968	1.000	-331.98	339.98
Polashi Bazar	Agora	-413.250[*]	102.457	.012	-764.63	-61.87
	Anondo Bazar	4.750	89.989	1.000	-303.87	313.37
	Jatrabari	-14.583	102.457	1.000	-365.96	336.79
	Karwan Bazar	-52.083	86.592	1.000	-349.05	244.88
	Meena	-426.250[*]	102.457	.009	-777.63	-74.87
	Mogbazar	-2.917	102.457	1.000	-354.29	348.46
	Mohakhali	-1.250	102.457	1.000	-352.63	350.13
	Shopnow	-431.250[*]	102.457	.008	-782.63	-79.87
	Showarighat	2.750	89.989	1.000	-305.87	311.37
Shopnow	Agora	18.000	109.531	1.000	-357.64	393.64
	Anondo Bazar	436.000[*]	97.968	.004	100.02	771.98
	Jatrabari	416.667[*]	109.531	.021	41.03	792.30
	Karwan Bazar	379.167[*]	94.857	.013	53.86	704.48
	Meena	5.000	109.531	1.000	-370.64	380.64
	Mogbazar	428.333[*]	109.531	.016	52.70	803.97
	Mohakhali	430.000[*]	109.531	.015	54.36	805.64
	Polashi Bazar	431.250[*]	102.457	.008	79.87	782.63
	Showarighat	434.000[*]	97.968	.004	98.02	769.98
Showarighat	Agora	-416.000[*]	97.968	.007	-751.98	-80.02
	Anondo Bazar	2.000	84.843	1.000	-288.97	292.97
	Jatrabari	-17.333	97.968	1.000	-353.31	318.65
	Karwan Bazar	-54.833	81.231	.00999	-333.41	223.75
	Meena	-429.000[*]	97.968	.005	-764.98	-93.02
	Mogbazar	-5.667	97.968	1.000	-341.65	330.31
	Mohakhali	-4.000	97.968	1.000	-339.98	331.98
	Polashi Bazar	-2.750	89.989	1.000	-311.37	305.87
	Shopnow	-434.000[*]	97.968	.004	-769.98	-98.02

*. The mean difference is significant at the .05 level.

12 .Price variation of tilapia

Descriptives

Selling price

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Agora	3	176.33	1.155	.667	173.46	179.20	175	177
Anondo Bazar	4	145.00	10.000	5.000	129.09	160.91	140	160
Jatrabari	8	163.13	22.351	7.902	144.44	181.81	130	180
Karwan Bazar	8	143.75	23.414	8.278	124.18	163.32	110	170
Meena	3	155.00	17.321	10.000	111.97	198.03	135	165
Mogbazar	4	138.75	14.361	7.181	115.90	161.60	120	150
Mohakhali	5	137.00	22.804	10.198	108.69	165.31	110	160
Polashi Bazar	4	142.50	16.583	8.292	116.11	168.89	120	155
Shopnow	3	167.67	2.309	1.333	161.93	173.40	165	169
Showarighat	6	115.00	12.649	5.164	101.73	128.27	100	130
Total	48	146.50	23.426	3.381	139.70	153.30	100	180

ANOVA

Selling price

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13220.542	9	1468.949	4.440	.001
Within Groups	12571.458	38	330.828		
Total	25792.000	47			

Multiple Comparisons

Dependent Variable: Selling price

Tukey HSD

(I) Market	(J) Market	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Agora	Anondo Bazar	31.333	13.892	.439	-15.31	77.98
	Jatrabari	13.208	12.314	.985	-28.14	54.55
	Karwan Bazar	32.583	12.314	.232	-8.76	73.93
	Meena	21.333	14.851	.908	-28.53	71.20
	Mogbazar	37.583	13.892	.208	-9.06	84.23
	Mohakhali	39.333	13.283	.124	-5.27	83.93
	Polashi Bazar	33.833	13.892	.335	-12.81	80.48
	Shopnow	8.667	14.851	1.000	-41.20	58.53
	Showarighat	61.333*	12.861	.001	18.15	104.52
Anondo Bazar	Agora	-31.333	13.892	.439	-77.98	15.31
	Jatrabari	-18.125	11.138	.827	-55.52	19.27
	Karwan Bazar	1.250	11.138	1.000	-36.15	38.65
	Meena	-10.000	13.892	.999	-56.65	36.65
	Mogbazar	6.250	12.861	1.000	-36.94	49.44
	Mohakhali	8.000	12.201	1.000	-32.97	48.97
	Polashi Bazar	2.500	12.861	1.000	-40.69	45.69
	Shopnow	-22.667	13.892	.824	-69.31	23.98
	Showarighat	30.000	11.741	.273	-9.42	69.42
Jatrabari	Agora	-13.208	12.314	.985	-54.55	28.14
	Anondo Bazar	18.125	11.138	.827	-19.27	55.52
	Karwan Bazar	19.375	9.094	.519	-11.16	49.91
	Meena	8.125	12.314	1.000	-33.22	49.47
	Mogbazar	24.375	11.138	.481	-13.02	61.77
	Mohakhali	26.125	10.369	.291	-8.69	60.94
	Polashi Bazar	20.625	11.138	.699	-16.77	58.02
	Shopnow	-4.542	12.314	1.000	-45.89	36.80
	Showarighat	48.125*	9.823	.001	15.14	81.11
Karwan Bazar	Agora	-32.583	12.314	.232	-73.93	8.76
	Anondo Bazar	-1.250	11.138	1.000	-38.65	36.15
	Jatrabari	-19.375	9.094	.519	-49.91	11.16
	Meena	-11.250	12.314	.995	-52.60	30.10
	Mogbazar	5.000	11.138	1.000	-32.40	42.40
	Mohakhali	6.750	10.369	1.000	-28.07	41.57
	Polashi Bazar	1.250	11.138	1.000	-36.15	38.65
	Shopnow	-23.917	12.314	.642	-65.26	17.43

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	Showarighat	28.750	9.823	.002	-4.23	61.73
Meena	Agora	-21.333	14.851	.908	-71.20	28.53
	Anondo Bazar	10.000	13.892	.999	-36.65	56.65
	Jatrabari	-8.125	12.314	1.000	-49.47	33.22
	Karwan Bazar	11.250	12.314	.995	-30.10	52.60
	Mogbazar	16.250	13.892	.973	-30.40	62.90
	Mohakhali	18.000	13.283	.933	-26.60	62.60
	Polashi Bazar	12.500	13.892	.996	-34.15	59.15
	Shopnow	-12.667	14.851	.997	-62.53	37.20
	Showarighat	40.000	12.861	.009	-3.19	83.19
Mogbazar	Agora	-37.583	13.892	.208	-84.23	9.06
	Anondo Bazar	-6.250	12.861	1.000	-49.44	36.94
	Jatrabari	-24.375	11.138	.481	-61.77	13.02
	Karwan Bazar	-5.000	11.138	1.000	-42.40	32.40
	Meena	-16.250	13.892	.973	-62.90	30.40
	Mohakhali	1.750	12.201	1.000	-39.22	42.72
	Polashi Bazar	-3.750	12.861	1.000	-46.94	39.44
	Shopnow	-28.917	13.892	.551	-75.56	17.73
	Showarighat	23.750	11.741	.051	-15.67	63.17
Mohakhali	Agora	-39.333	13.283	.124	-83.93	5.27
	Anondo Bazar	-8.000	12.201	1.000	-48.97	32.97
	Jatrabari	-26.125	10.369	.291	-60.94	8.69
	Karwan Bazar	-6.750	10.369	1.000	-41.57	28.07
	Meena	-18.000	13.283	.933	-62.60	26.60
	Mogbazar	-1.750	12.201	1.000	-42.72	39.22
	Polashi Bazar	-5.500	12.201	1.000	-46.47	35.47
	Shopnow	-30.667	13.283	.407	-75.27	13.93
	Showarighat	22.000	11.014	.011	-14.98	58.98
Polashi Bazar	Agora	-33.833	13.892	.335	-80.48	12.81
	Anondo Bazar	-2.500	12.861	1.000	-45.69	40.69
	Jatrabari	-20.625	11.138	.699	-58.02	16.77
	Karwan Bazar	-1.250	11.138	1.000	-38.65	36.15
	Meena	-12.500	13.892	.996	-59.15	34.15
	Mogbazar	3.750	12.861	1.000	-39.44	46.94
	Mohakhali	5.500	12.201	1.000	-35.47	46.47
	Shopnow	-25.167	13.892	.724	-71.81	21.48
	Showarighat	27.500	11.741	.011	-11.92	66.92
Shopnow	Agora	-8.667	14.851	1.000	-58.53	41.20
	Anondo Bazar	22.667	13.892	.824	-23.98	69.31
	Jatrabari	4.542	12.314	1.000	-36.80	45.89
	Karwan Bazar	23.917	12.314	.642	-17.43	65.26
	Meena	12.667	14.851	.997	-37.20	62.53
	Mogbazar	28.917	13.892	.551	-17.73	75.56

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	Mohakhali	30.667	13.283	.407	-13.93	75.27
	Polashi Bazar	25.167	13.892	.724	-21.48	71.81
	Showarighat	52.667[*]	12.861	.007	9.48	95.85
	Agora	-61.333[*]	12.861	.001	-104.52	-18.15
	Anondo Bazar	-30.000	11.741	.001	-69.42	9.42
	Jatrabari	-48.125[*]	9.823	.001	-81.11	-15.14
	Karwan Bazar	-28.750	9.823	.002	-61.73	4.23
Showarighat	Meena	-40.000	12.861	.009	-83.19	3.19
	Mogbazar	-23.750	11.741	.051	-63.17	15.67
	Mohakhali	-22.000	11.014	.011	-58.98	14.98
	Polashi Bazar	-27.500	11.741	.021	-66.92	11.92
	Shopnow	-52.667[*]	12.861	.007	-95.85	-9.48

*. The mean difference is significant at the .05 level.

Appendix B Questionnaire for market survey

Market Name: Date:

Address:

Name of the respondent:

Age (Year):

Religion: Muslim / Hindu/ Others

Education: Illiterate/ Primary/ Secondary/ College/Others

1) **Type of the market-**

   a) Super shop

   b) Local market

   c) Arot

   d) Others (please mention)…………………………..

2) **What type of fish species do you collect?**

   a) Culture species

   b) Capture species

3) **From whom do you receive your fish product?**

   a) Producer

   b) Whole seller

   c) Both a & b

   d) Direct catch by yourself

4) **Market description:**

Number of fish traders	Trading season	Marketing day/week	Selling time	Number of Shop

5) Data Collection

Name of species	channel	Condition (Live=L Dead=D)	Buying price(Tk)	Selling price (Tk)	Transport method and cost

6) Do you have storage facilities?

   A. Yes   B. No

If yes, please fill up the table below-

Types of storage(Icing=I,Freezing=F,Chilling=C)	Storage cost(Tk)

7) Have you ever experienced of any loss during transportation?

    A. Yes   B. No

If yes, please mention it……………………………………………………(amount)

8) Type of selling item?

    a) In a full body

    b) Fillet

    c) Both a & b

    d) Others…………………………………………………………..

9) How much do you sell per day?

    Quantity (kg):

    Value (tk):

10) What is your marketing problem?

    a) Political

    b) Infrastructure

    c) Drainage system

    d) Lack of management

    e) Others

11) Monthly income (Tk): 5000-10000/ 10000-15000/More than 15000

                                                  Signature

                         Thank you