CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

Analysis and Interpretation explains and justifies the research design and process of investigation. Interpretivism was deemed appropriate for both phases owing to the need for an in-depth exploration of the phenomena under investigation.

This section of the research namely data analysis and it is an integral and important part of the entire research. In this section identification of the required data analysis technique, comparison and evaluation with the other techniques and lastly justification for the selection would be included. Analytical tool which is to be used in this project also plays a very important role in selection of the right statistical technique. Structure of the entire chapter will cover following broad areas, selection of statistical system package, selection of appropriate statistical technique, objective of the analysis etc.

Since it is a exploratory research method with both primary and secondary research approaches both type of data would be collected and collectively they would answer the research question. Secondary data would be collected through literature review while primary data would be collected by human population sampling process.

Once data collection part is done for a research project then data analysis part is initiated and it is very important that right analytical techniques or data analysis methods are selected for project. In this project a lot of background research would be needed and this research would provide valuable information and data which can provide inputs in taking critical business and technological decisions (Weisberg and Krosnic, 1996).

Quantitative analysis is a business or financial analysis which is a type of technique which helps in understanding of the behaviour via using various complex mathematical as well as statistical modelling followed by measurement and research. Quantitative analysts can easily replicate the reality and that too mathematically by just assigning a varied or specific numerical value to the variables. Quantitative analysis can be easily done for a numerous number of reasons which include performance evaluation, measurement or evaluating the financial instrument. Furthermore, quantitative analysis can also be used in predicting various real world
events which include share price changes, different cost of financing, costing of a product, probability of an incident to happen etc.

Broadly, quantitative analysis is an easiest way of measuring varied things. For instance, the quantitative analysis includes almost everything ranging from simple financial ratios such as option pricing to the tough and complex perception measurement like which theory of socialism have merits over other. It is a tool which is really powerful in evaluating the business or academic decisions and furthermore, it seldom tells a full story without even taking help of the qualitative analysis, the opposite of quantitative analysis. The quantitative analysts are purposely regarded as “rocket scientists”, “quants” or “quant jockeys.” (Alexeyev, 2005). Logic behind this decision is to keep the cost of units as per the need and ability.

A quantitative variable is a number of various arithmetic operations together meaningfully which is naturally evaluated for instance, height, weight, score on exam, response time, GPA, area, salary, temperature, crop yield and many more. These are the variables which are measured on numeric scale. These variables are rarely distinguished from the categorical variables which are sometimes referred as qualitative variables, which include favorite sport, favorite colour, city of birth and many more, especially those which have no involvement of any kind of measurement or ordering (DeFusco, et al. 2001).

There are numerous types of graphs which are used in portraying the distributions of all the quantitative variables. Various types of graphs include stem and leaf displays; histograms; frequency polygons; box plots; bar charts; line graphs; scatter plots and dot plots. The graph, stem and leaf displays used in quantitative analysis is basically used in evaluating amounts of data ranging from small to moderate. Other graphs like histograms are basically used for evaluating large amounts of data; box plots are really good in depicting some varied differences between the distributions being made and scatter plots are basically used in for showing a valuable relationship between two variables (Avellaneda, 2002).

**Analysis and interpretation**

This is the head in which we make analysis and interpretation on the bases of collected data with the help of bar graph. To have proper understanding of gathered
information we do analysis. Due to bar graph the information related to facts and figures would be understood in an easy way. Finding and analysis is a main course of action of a research report because of this section the data that is gathered from relevant population would help us to know about the facts that are essential to understand about the Impact of FDI on an Indian Economy (Malhotra, 2014).

Analysis of Questionnaire 1 (For Mall Managers)

Table 12
1- Range of age of managers of mall

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Number of managers</th>
<th>Age (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-21</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>22-30</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>31-40</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>41-50</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>&gt;50</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 5
Analysis-

The above graph shows the percentage of age group of managers of mall. With the help of above graph of Age group it has been analysed that the 5% of managers working in mall are fall under age group of 18-21 (Wrigley & Lowe, 2010). 15% of managers are fall under age group of 22-30. It has been analysed that maximum number of managers such as 50% of managers are fall under the age group of 31-40 years. Talking about age group 41-50 it contains 20% of managers from all managers and in the last that contains remaining percentage of managers such as 10%. The age group 31-40 contains maximum number of managers because they have related experience with charm. 18-21 is the age group that contains less number of managers because of experience as it is being necessary for the managers to have at least 10 year experience to manage mall in efficient manner (prabakaran, 2015).

Table 13

Gender of Managers

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of managers</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>16</td>
<td>80%</td>
</tr>
<tr>
<td>Female</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 6
Analysis- it has been analysed with the help of above graph that 80% of managers of malls are Male while 20% of managers of mall are female. Out of 20 managers 16 numbers of managers are male. The number of female mall manager is 4. With the help of this it has been analysed that the male members are having perfect knowledge about the management of mall as compare to female members that’s why it has been seen that the most of the mall are having male manger. The variation among the male manger and female manger is (20-4 = 16) 16 (Vijaykumar Vyas, 2015).

Chi square Test applied (Q.2)

Null Hypothesis

\( \mu_0 = \) there male members are more & having perfect knowledge about the management of mall

\( \mu_1 = \) there female members are less having perfect knowledge about the management of mall

\[ \begin{array}{|c|c|c|c|c|c|}
\hline
\text{Gender} & \text{Observed} & \text{Expected} & (O-E) & (O-E)^2 & (O-E)^2/E \\
\hline
\text{Male} & 16 & 15 & 1 & 1 & 0.067 \\
\text{Female} & 4 & 5 & -1 & 1 & 0.2 \\
\hline
\text{Total} & 20 & 20 & 0 & 1 & 0.26 \\
\hline
\end{array} \]

\[ \text{CHI SQUARE}(X^2) = 0.26 \]

Level / degree of freedom= (2-1)*(2-1) = 1

Interpreting the result

The value of \( (X^2) =0.26 \)

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\( (X^2) =0.26< \text{critical value in upper tail} \)
(X^2)=0.26> critical value in lower tail

In order to select the null hypothesis, our chi square must be lesser than the critical value at upper tail and higher than in lower tail .therefore we can reject the null hypothesis.

3- Education level of Managers

Table 15

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Number of Managers</th>
<th>Managers (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Graduate</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Post-Graduate</td>
<td>12</td>
<td>60%</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Graph 7

Analysis- With the help of above graph it has been analysed that maximum percentage of total number of mall mangers is covered by post-graduates. 60% of mall managers are post graduate while talking about managers that have done only high school is 0%. 20% of mall managers are graduated while 20% of managers are from
other field of education. It has been observed there is hardly any manger that has done only high school in his qualification (HOODA, 2011).

**Chi square Test applied (Q.3)**

**Null Hypothesis**

\( \mu_0 = \) there is most of the mall managers are post graduate (educated)

\( \mu_1 = \) there is most of the mall manager are not post graduate

\[ \begin{align*}
\text{Table 16} \\
\text{Education Level} & | \text{Observed} & \text{Expected} & (O-E) & (O-E)^2 & (O-E)/E \\
\hline
\text{High school} & 0 & 0 & 0 & 0 & - \\
\text{Graduate} & 4 & 2 & 2 & 4 & 2 \\
\text{Post Graduate} & 12 & 10 & 2 & 4 & 0.4 \\
\text{Other} & 4 & 8 & -4 & 16 & 2 \\
\text{Total} & 20 & 20 & 0 & 4.4 \\
\end{align*} \]

CHI SQUARE\( (X^2) = 4.4 \)

Level / degree of freedom= \((4-1)*(4-1)\)

= 3

Interpreting the result

The value of \( (X^2) = 4.4 \)

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\( (X^2) = 4.4 \) < critical value 0.90 level 6.251 on upper tail

\( (X^2) = 4.4 \) > critical value 0.05 level 0.352 on lower tail

In order to select the null hypothesis, our chi square 4.4 must be lower than the critical value at upper tail 6.251. level of significance .& higher in lower tail level of significance .therefore we can select the null hypothesis.
### 4- Aware about impact of FDI in Indian retail sector

**Table 17**

<table>
<thead>
<tr>
<th>Aware about impact of FDI in Indian Retail sector</th>
<th>Number of managers</th>
<th>% of managers</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>NO</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Some What</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Heard About it</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

(Keerti, Ramakant, & Gururaj A, 2012)

**Graph 8**

Analysis- with the help of above analysis it is state that 35% of mall managers are fully aware about the impact of foreign direct investment on Indian retail sector while 25% of mall managers are not aware about the impact of foreign direct investment on Indian retail Sector. The percentage of managers who are somewhat aware about the impact of FDI on Indian retail sector is 20% while remaining 20% of mall managers are just heard about the impact of FDI on retail sector of India (Aggarwal, Singla, & Aggarwal, 2012).
Chi square Test applied (Q.4)

Null Hypothesis

\( \mu_0 = \) mall managers are fully aware about the impact of foreign direct investment on Indian retail sector

\( \mu_1 = \) mall managers are not aware about the impact of foreign direct investment on Indian retail sector

\[ \begin{array}{|c|c|c|c|c|} 
\hline
\text{RESPONSE} & \text{Observed} & \text{Expected} & \text{(O-E)} & \text{(O-E)}^2 & \text{(O-E)}^2/E \\
\hline
\text{Yes} & 7 & 8 & -1 & 1 & 0.125 \\
\hline
\text{No} & 5 & 4 & 1 & 1 & 0.25 \\
\text{Some What} & 4 & 4 & 0 & 0 & 0 \\
\text{Heard About} & 4 & 4 & 0 & 0 & 0 \\
\hline
\text{Total} & 20 & 20 & 0 & 0 & 0.375 \\
\hline
\end{array} \]

\[ \text{CHI SQUARE}(X^2) = 0.375 \]

Level / degree of freedom = (4-1)*(4-1) = 3

Interpreting the result

The value of \((X^2) = 0.375\)

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\((X^2) = 0.375 < \text{critical value 0.90 level 6.251 on upper tail}\)

\((X^2) = 0.375 > \text{critical value 0.05 level 0.352 on lower tail}\)
In order to select the null hypothesis, our chi square 0.375 must be lower than the critical value at upper tail 6.251 level of significance & higher in lower tail level of significance. Therefore we can select the null hypothesis.

5- **Working experience in retail sector**

- **Table 19**

<table>
<thead>
<tr>
<th>Years</th>
<th>Number of managers</th>
<th>Percentage of managers (working experience)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;1 year</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>1-3 years</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>4-6 years</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>7-10 years</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>&gt;10 years</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

- **Graph 9**

![Graph 9](image_url)
Analysis - with the help of above analysis it has been stated that 5% of mall managers are having working experience less than 1 year in retail sector. 10% of managers are having 1 to 3 years working experience in retail sector (Sumathy & Sridhar, 2014). The highest numbers of mall managers are having more than 10 years working experience in retail sector such as it contains 40% of managers. More than 10 year is the experience period in which highest number of mall managers is falling. Talking about 4 to 6 year working experience in retail sector contains only 20% of mall managers. In the last talking about the managers that are having 7 to 10 year working experience containing 25% of mall managers. It has been observed that to become a manager in retail sector a person need at least having experience more than 6 years. As with the above graph it has been analysed to attain the post mangers most of the mangers are having experience more than 6 years (Gupta & Garg, 2015).

6- Rank of limitation of Indian MNC’s in reducing the impact of FDI under difference attributes and aspects such as

a- Bad management

Table 20

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number of managers</th>
<th>Percentage of managers (bad management)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>3</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- with the help of above graph it has been analyse that 30 percent of managers provide fifth rank to bad management of MNC’s in context of reducing the impact of FDI on retail sector. 15% of managers provide fourth rank to bad management, 25% of managers provide third rank to bad management of MNC’s. 20% of mall managers provide second rank to the bad management of multinational companies of India. While the 10% of mall managers are think that bad management is the limitation in context of reducing the impact of FDI on retail sector (Ahuja, 2015).

Table 21

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number of Managers</th>
<th>Percentage of managers (Lack of technology)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- with the help of analysis it has been stated that 15% of mall managers provide fifth rank to lack of technology in Indian MNC’s as a limitation in the context of reducing the impact of FDI on retail sector. 25% of managers provide fourth rank. 30% of managers provide third rank to it and it has been observed that this rank is provided by highest number of managers. 15% of managers provide second rank to it and it has also been observed that same percentage of managers provide first rank to lack of technology (Bhattacharyya, 2012).

Table 22

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number of managers</th>
<th>Percentage of managers (lack of resources)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>35%</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- the above graph states about the percentage of managers that provide rank to lack of resource as a limitation of Indian MNC’s in reducing the impact of FDI on retail sector and it has been analyse that 10% of mangers provide fifth rank to lack of resources as a limitation. 20% of managers provide fourth rank to lack of resources as a limitation of Indian MNC’s. 35% of mangers provide third rank to lack of resources. 25% of managers provide second rank to lack of resource while talking about first rank to lack of resources with Indian MNC, this rank is provided by 10% of mangers (NANDAL, 2013).

Table 23

d- Lack of trained individuals

<table>
<thead>
<tr>
<th>Rank</th>
<th>Number of managers</th>
<th>Percentage of managers (lack of trained individuals)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th rank</td>
<td>9</td>
<td>45%</td>
</tr>
<tr>
<td>4th rank</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>3rd rank</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>2nd rank</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>1st rank</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Graph 13

Analysis - with the help of above analysis it has been stated that most of the managers think that lack of trained individual could not be a limitation in the context of reducing the impact of foreign direct investment on retail sector. 5% of mall managers provide first rank to the limitation lack of trained individuals. Second rank is provided to it by 10% of managers, third rank is given by 20% of managers while fourth rank is provided by 25% of managers. In the last talking about fifth rank to lack of trained individuals is given by 45% of mangers. With the help of percentage of fifth rank it has been analyse that most of the mangers think that lack of trained individual is not a limitation to Indian MNC’s in context of reducing the impact of foreign direct investment on retail sector (Chari & Raghavan, 2011).

Table 24

<table>
<thead>
<tr>
<th>Rank</th>
<th>number of mangers</th>
<th>percentage of managers (financial barriers)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5th rank</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>4th rank</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>3rd rank</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>2nd rank</td>
<td>6</td>
<td>30%</td>
</tr>
<tr>
<td>1st rank</td>
<td>10</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Graph 14

Analysis- it has been analysed with the above graph that most of the managers think that financial barrier is the limitation of Indian MNC’s in the context of reducing impact of FDI on retail sector. Only 5% of managers provide fifth rank to financial barrier as a limitation, fourth rank is also provided by only 5% managers. Third rank is given by 10% of managers to financial barriers while talking about second rank it is given by 30% of managers. In the last moving ahead to first rank it is given by maximum number of managers as 50% of managers provide this rank to financial barriers (Aggarwal, Singla, & Aggarwal, 2012).

7- Current approaches used by Indian Retails Sector are sufficient or there is a need for improvements

Table 25

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of managers</th>
<th>percentage of managers (current approaches are sufficient or there is a need of improvement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>65%</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Not Sure</td>
<td>2</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Graph 15

Analysis - the above graph is prepared in the context of making analysis related to the approaches used by Indian Retails Sector needs some improvement or not and with the help of above graph it has been analysed that 65% of managers think that there is a need of improvement in the approaches which are used by Indian Retail Sector. 25% of mall managers think that there is no need of improvement in the approaches of Indian Retail Sector while talking about remaining managers such as 10% mangers are not sure about the approaches that whether there is a need of improvement or not (HOODA, 2011).

Chi square Test applied (Q.7)

Null Hypothesis

µ0= mall managers think that there is a need of improvement in the approaches which are used by Indian Retail Sector

µ1= mall managers think that there is no need of improvement in the approaches which are used by Indian Retail Sector

µ2= mall managers are not sure about need of improvement or not in the approaches which are used by Indian Retail Sector
Table 26

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)²</th>
<th>(O-E)²/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>13</td>
<td>15</td>
<td>-2</td>
<td>4</td>
<td>0.267</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>0.25</td>
</tr>
<tr>
<td>Not say</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>1.017</td>
</tr>
</tbody>
</table>

Level / degree of freedom = (3-1) * (3-1) = 2

Interpreting the result

The value of \((X^2) = 1.017\)

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\((X^2) = 1.017 < \text{critical value 0.90 level 4.605 on upper tail}\)

\((X^2) = 1.017 > \text{critical value 0.05 level 0.103 on lower tail}\)

In order to select the null hypothesis, our chi square 1.017 must be lower than the critical value at upper tail 4.605 level of significance. & higher in lower tail level of significance .therefore we can select the null hypothesis.

8- Biggest challenge in adopting proper approaches for FDI impact management in Indian Retail Industry

Table 27

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of managers</th>
<th>% of managers (biggest challenge)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of Loan and Financial support</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Lack of Awareness and concern</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Lack of Technology and abilities</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Lack of coordination and alignment</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Lack of regulatory requirements and norms</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- the above graph is prepared to know about the responses of managers in the context of biggest challenge at the time of adopting approach for FDI impact management in Indian Retail Industry and it has been analysed that 25% of managers think that lack of loan and financial support is the biggest challenge while 15% managers think that lack of awareness and concern is the biggest challenge in the concern of adopting approach. 20% managers think that lack of technology and abilities is a biggest challenge and 15% of managers think that lack of co-ordination and alignment is a biggest challenge. 25% of managers think that lack of regulatory requirements and norm is the biggest challenge in the context of adopting proper approaches for FDI impact management in Indian Retail Industry (Vijaykumar Vyas, 2015).

9- Reason that is mainly responsible for the barriers against implementation of stronger approaches.
Table 28

<table>
<thead>
<tr>
<th>Response</th>
<th>Number of managers</th>
<th>% of managers (reason responsible for barriers against implementation of strong approaches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unavailability of Information</td>
<td>5</td>
<td>25%</td>
</tr>
<tr>
<td>Lack of sufficient human resources</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Lack of government support</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Lack of accountable department in organization structure</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 17

Analysis - with the help of above analysis it has been stated that the 25% of managers think that unavailability of information is the reason to become a barrier in the context of implementation of strong approaches. 20% of managers think that lack of sufficient human resource is the reason that is responsible for barrier. 40% of managers think that lack of government support is reason of barrier in context of strong approach while remaining 15% mall managers think that lack of accountable department in the organisation structure is a responsible reason for barrier against implementation of strong approach (NANDAL, 2013).
Measure that would be most effective in countering impact of FDI in Indian retail sector

Table 29

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of managers</th>
<th>% of managers (most effective measure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establishment of government norms and regulations</td>
<td>8</td>
<td>40%</td>
</tr>
<tr>
<td>Linking performance bonuses with the efforts</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Continuously evolving technology and new equipment’s</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>Developing long term goals and objectives on an organization wide basis</td>
<td>3</td>
<td>15%</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 18
Analysis- with the help of above analysis it has been stated that 40% of managers think that establishment of government norms and regulations is the most effective measure. 20% managers are in the favour of linking performance bonuses with the efforts. 20% of managers think that continuous evolving technology and new equipment’s is the most effective measure while 15% of managers are in the favour of developing of long term goals and objectives on an organisation wide basis while remaining 5% managers are in the favour of other effective measure in the context of countering impact of foreign direct investment in Indian retail sector (Chari & Raghavan, 2011).

Analysis of Questionnaire 2 (For Kirana Shop owner)

3- Gender of kirana Shop Owner

Table 30

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of kirana owners</th>
<th>Percentage of kirana owners</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>70</td>
<td>70%</td>
</tr>
<tr>
<td>Female</td>
<td>30</td>
<td>30%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 19
Analysis- the above graph is present in the context of know about the percentage of male and female who owned a kirana store and it has been analysed with the graph that 70% owners of kirana store are male members while on the other side remaining 30% owners of kirana store are female members. It has been observed with the help of this analysis that most of the owners of kirana store are male members. The ratio among male and female owner of kirana store is in 7:3 (Aggarwal, Singla, & Aggarwal, 2012).

4- Age Group

Table 31

<table>
<thead>
<tr>
<th>Age group</th>
<th>No. Of kirana owners</th>
<th>% of kirana owners (age group)</th>
</tr>
</thead>
<tbody>
<tr>
<td>under 18 years of age</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>18- 25 years of age</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>25-35 years of age</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>35-45 years of age</td>
<td>22</td>
<td>22%</td>
</tr>
<tr>
<td>Over 45 years</td>
<td>48</td>
<td>48%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 20
Analysis - above graph is presented in the context of age group of owners of kirana shop and it has been analysed that 3% of kirana owners are fall under the age group of less than 18 years of age while 12% of kirana owners are fall under age group of 18-25 years. 15% of kirana owner are come under age group of 25-35 years. 22% of kirana owners are in the age group of 35-45 years while in the last maximum number of kirana owners are over 45 years. It has been stated that maximum number of kirana owners are above 45 years as they have capability to deal with each and every type of customers (Ahuja, 2015).

5- Working Duration as Kirana shop owner

Table 32

<table>
<thead>
<tr>
<th>Duration</th>
<th>no. of kirana owner</th>
<th>% of kirana owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 6 months</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>6-12 months</td>
<td>16</td>
<td>16%</td>
</tr>
<tr>
<td>1-3 years</td>
<td>22</td>
<td>22%</td>
</tr>
<tr>
<td>Over 3 years</td>
<td>38</td>
<td>38%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 21
Analysis- above graph shows the duration of kirana owners and with the help of above graph it has been analysed that 24% owners of kirana store are having duration less than six months while the next 16% owners of kirana store are having duration of more than 6 months but less than or equal to 12 months. 22% of kirana owners are having duration of 1 to 3 years while in the last talking about maximum duration such as more than 3 years it contains 38% kirana owners with 3 year experience they are able to get competition in competitive market (prabakaran, 2015).

6- FDI makes an impact on your business if it is allowed in retail sector of India.

Table 33

<table>
<thead>
<tr>
<th>Response</th>
<th>No. Of kirana owners</th>
<th>% of kirana owners (FDI makes impact on business)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely not</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>May be not</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Cannot say</td>
<td>25</td>
<td>25%</td>
</tr>
<tr>
<td>May be</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>15%</td>
</tr>
<tr>
<td>Definitely</td>
<td>22</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 22
Analysis- the above is present to know about the responses of Kirana owners in the context of impact of FDI on their businesses and it has been analysed that 10% owners are moving ahead with response definitely not in context of impact of FDI on their businesses. 15% said that there is no impact while 5% go with response may be not in context of impact of FDI on their businesses. 25% of owners can’t say anything as they are moderate with this question. 8% of kirana owners are moving ahead with response may be as they think that maybe there is an impact of FDI on their businesses. 15% owners said yes about the impact of FDI while 22% are definite about the impact of FDI (HOODA, 2011).

Chi square Test applied (Q.6)

Null Hypothesis

μ0= There Kirana Owners definitely affect by FDI in retail sector.

μ1= There Kirana Owners definitely not affect by FDI in retail sector.

Table 34

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)^2</th>
<th>(O-E)^2/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely not</td>
<td>10</td>
<td>15</td>
<td>-5</td>
<td>25</td>
<td>1.67</td>
</tr>
<tr>
<td>No</td>
<td>15</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td>2.5</td>
</tr>
<tr>
<td>May not be</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cannot say</td>
<td>25</td>
<td>30</td>
<td>-5</td>
<td>25</td>
<td>0.833</td>
</tr>
<tr>
<td>May be</td>
<td>8</td>
<td>5</td>
<td>3</td>
<td>9</td>
<td>1.8</td>
</tr>
<tr>
<td>Yes</td>
<td>15</td>
<td>10</td>
<td>5</td>
<td>25</td>
<td>2.5</td>
</tr>
<tr>
<td>Definitely</td>
<td>22</td>
<td>25</td>
<td>3</td>
<td>9</td>
<td>0.36</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>9.663</td>
<td></td>
</tr>
</tbody>
</table>

Level / degree of freedom= (7-1)*(7-1)

= 6

Interpreting the result
CHAPTER 4 Data Analysis And Interpretation

The value of $(X^2) = 9.663$

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

$(X^2) = 9.663 < \text{critical value 0.90 level 10.645 on upper tail}$

$(X^2) = 9.663 > \text{critical value 0.05 level 1.635 on lower tail}$

In order to select the null hypothesis, our chi square 9.663 must be lower than the critical value at upper tail 10.645 level of significance. & higher in lower tail level of significance .therefore we can select the null hypothesis.

7- Notice about negative change in sales volume and revenue after large markets ware houses like Wal-Mart and Best Buy etc. opened their stores in India.

 Tables 35

<table>
<thead>
<tr>
<th>Response</th>
<th>no. of kirana owners</th>
<th>% of kirana owners (negative change in sales volume and revenue)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Hardly</td>
<td>27</td>
<td>27%</td>
</tr>
<tr>
<td>some impact</td>
<td>24</td>
<td>24%</td>
</tr>
<tr>
<td>may be</td>
<td>16</td>
<td>16%</td>
</tr>
<tr>
<td>yes</td>
<td>33</td>
<td>33%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

 Graph 23
Analysis- the above graph is the presentation of responses in the context of negative changes in sales volume and revenue of kirana owners and with the help of this graph presentation it has been analysed that 27% owners respond that there is no changes in the sales volume and revenue of their businesses while talking about next 24% owners of kirana shop they think that there is some impact on sales volume and revenue of their businesses. 16% owners of kirana shop are not sure about it as they response as maybe there is an impact on sales volume and revenue. 33% owner of kirana shop states that yes there is an impact on sales volume and revenue on their businesses (Bhattacharyya, 2012).

Chi square Test applied (Q.7)

Null Hypothesis

$\mu_0=$ There kirana shop states that yes there is an impact on sales volume and revenue on their businesses.

$\mu_1=$ There kirana shop states that no there is an impact on sales volume and revenue on their businesses

Table 36

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)2</th>
<th>(O-E)2/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>No hardly</td>
<td>27</td>
<td>30</td>
<td>-3</td>
<td>9</td>
<td>0.3</td>
</tr>
<tr>
<td>Some Impact</td>
<td>24</td>
<td>25</td>
<td>-1</td>
<td>1</td>
<td>0.04</td>
</tr>
<tr>
<td>May be</td>
<td>16</td>
<td>10</td>
<td>6</td>
<td>36</td>
<td>3.6</td>
</tr>
<tr>
<td>yes</td>
<td>33</td>
<td>35</td>
<td>-2</td>
<td>4</td>
<td>0.114</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>4.054</td>
<td></td>
</tr>
</tbody>
</table>

Level / degree of freedom= $(4-1)*(4-1)$

= 3

Interpreting the result

The value of $X^2$ = 4.054
Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\[(X^2) = 4.054 < \text{critical value 0.90 level 6.251 on upper tail}\]

\[(X^2) = 4.054 > \text{critical value 0.05 level 0.352 on lower tail}\]

In order to select the null hypothesis, our chi square 4.054 must be lower than the critical value at upper tail 6.251 level of significance. & higher in lower tail level of significance. Therefore we can select the null hypothesis.

8- You think that you are not fully prepared to tackle FDI funded retail stores in India

Table 37

<table>
<thead>
<tr>
<th>Response</th>
<th>no. of kirana owners</th>
<th>% of Kirana owners (prepared to tackle FDI funded retail stores in India)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely not</td>
<td>11</td>
<td>11%</td>
</tr>
<tr>
<td>No</td>
<td>19</td>
<td>19%</td>
</tr>
<tr>
<td>May be not</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Cannot say</td>
<td>25</td>
<td>25%</td>
</tr>
<tr>
<td>May be</td>
<td>12</td>
<td>12%</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>5%</td>
</tr>
<tr>
<td>Definitely</td>
<td>10</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 24
Analysis - this graph sows the responses of kirana owners in the context of how much they are prepared to tackle foreign direct investment funded retail stores in India and it has been analysed that 11% owners response that they are definitely not prepared to tackle foreign direct investment as it shows that they are sure that they are not prepared. 19% owners respond that they are not prepared. 18% owners move ahead with the option may be not while 25% of owners cannot say anything about this statement as they don’t even know whether they are prepared or not. 12% owners’ states that may be they are prepared. 5% of kirana owners think that yes they are prepared to tackle foreign direct investment while 10% of owners are definitely sure that they can tackle FDI (Chari & Raghavan, 2011).

Chi square Test applied (Q.8)

Null Hypothesis

\[ \mu_0 = \text{There kirana shop not fully prepared to tackle FDI funded retail stores in India} \]
\[ \mu_1 = \text{There kirana shop fully prepared to tackle FDI funded retail stores in India.} \]

\[ \text{Table 38} \]

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)^2</th>
<th>(O-E)^2/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Definitely not</td>
<td>11</td>
<td>12</td>
<td>-1</td>
<td>1</td>
<td>0.083</td>
</tr>
<tr>
<td>Not</td>
<td>19</td>
<td>20</td>
<td>-1</td>
<td>1</td>
<td>0.05</td>
</tr>
<tr>
<td>May not be</td>
<td>18</td>
<td>20</td>
<td>-2</td>
<td>4</td>
<td>0.2</td>
</tr>
<tr>
<td>Can not say</td>
<td>25</td>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>May be</td>
<td>12</td>
<td>8</td>
<td>04</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Yes</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>1.33</td>
</tr>
<tr>
<td>Definitely</td>
<td>10</td>
<td>12</td>
<td>-2</td>
<td>4</td>
<td>0.33</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td></td>
<td>3.813</td>
<td></td>
</tr>
</tbody>
</table>

Level / degree of freedom = (7-1)*(7-1)

= 6
Interpreting the result

The value of \( (X^2) = 3.813 \)

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\( (X^2) = 3.813 < \text{critical value 0.90 level 10.645 on upper tail} \)

\( (X^2) = 3.813 > \text{critical value 0.05 level 1.635 on lower tail} \)

In order to select the null hypothesis, our chi square 3.813 must be lower than the critical value at upper tail 10.645 level of significance. & higher in lower tail level of significance .therefore we can select the null hypothesis.

9- If yes, preferred competitive advantage over FDI funded supermarkets

Table 39

<table>
<thead>
<tr>
<th>Preferred competitive advantage</th>
<th>no. of kirana owners</th>
<th>% of owners (preferred competitive advantage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Better services</td>
<td>36</td>
<td>36%</td>
</tr>
<tr>
<td>Higher Quality</td>
<td>22</td>
<td>22%</td>
</tr>
<tr>
<td>Customization and personalized services</td>
<td>18</td>
<td>18%</td>
</tr>
<tr>
<td>Customer relationship</td>
<td>14</td>
<td>14%</td>
</tr>
<tr>
<td>Convenience</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis - this analysis is done if all the respondent are sure about giving competition to FDI’s the above graph shows preferred competitive strategies or advantage that are to be taken in use by kirana owners and with the help of this graph presentation it has been analysed that 36% of kirana owners are moving ahead with the advantage of better services to their customers. 22% of kirana owners are moving ahead with the higher quality competitive advantage in the market against FDI. 18% owners are moving ahead with customization and personalised services competitive advantage against FDI. 14% of kirana owners are moving ahead with customer relationship. 7% of kirana owners are moving ahead with the strategy of convenience in the market against foreign direct investment in Indian retail store while remaining 3% of owners are move ahead with some other preferred competitive advantage (Vijaykumar Vyas, 2015).

**Questionnaire 3 (For customers of super markets/ Grocery Stores)**

2- Using service of a particular shop/grocery store or a super market since last 1 or more years

**Table 40**

<table>
<thead>
<tr>
<th>Response</th>
<th>no. of customers</th>
<th>% of customers (whether using services or not)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>180</td>
<td>60%</td>
</tr>
<tr>
<td>No</td>
<td>120</td>
<td>40%</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>
Graph 26

Analysis- above graph is the presentation of percentage of customers related with using services of a particular shop/grocery store or a super market since last 1 or more years and it has been analysed with this graph that 60% of customers respond that yes they are using the services of shop/grocery store or a super market since last 1 or more years while remaining 40% respond that they are not using the service of shop/grocery store or a super market. As with the help of it we are able to know about the customers’ perception toward using services (prabakaran, 2015).

3- If yes, reason for preferring a particular Shop/store or Super Market

Table 1

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number of customers</th>
<th>% of customers (reason for preferring)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>36</td>
<td>20%</td>
</tr>
<tr>
<td>Brand Image/Value</td>
<td>54</td>
<td>30%</td>
</tr>
<tr>
<td>Prices</td>
<td>36</td>
<td>20%</td>
</tr>
<tr>
<td>Social Acceptance and Peer Pressure</td>
<td>18</td>
<td>10%</td>
</tr>
<tr>
<td>Family preference</td>
<td>18</td>
<td>10%</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- with the above graphical presentation we would be able to know about the reason of customers in context of using services of particular shop/store or supermarket. It has been analysed from graph that 20% of customers respond that they are using the services of shop/store or supermarket because of quality. 30% of customers respond that they are using services because of brand image/value. 20% customers respond that because of prices they are using the services of a particular shop/store or supermarket. 10% customers states that they use particular service because of social acceptance and peer pressure. 10% of total customers having family preference as a reason to use service of shop/store or supermarket while remaining 10% having some other reason to use service (Malhotra, 2014).

4- Do you ever find that whenever there is a need of daily household product you think of only one shop/store or supermarket?

Table 42

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of customers</th>
<th>% of customers (think about particular shop/store or super market)</th>
</tr>
</thead>
<tbody>
<tr>
<td>yes</td>
<td>150</td>
<td>50%</td>
</tr>
<tr>
<td>No</td>
<td>150</td>
<td>50%</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- the graph that is presented above states about the percentage of customers related with thinking about particular shop/store or super market when there is a need of any kind of product and it is analysed that 50% of customers are moving ahead towards a particular shop/store or super market when there is a need of product while talking about remaining 50% customers they are not moving ahead for a particular shop/store or supermarkets (HOODA, 2011).

5- If yes, associate preferred brand in mind

Table 43

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of customers</th>
<th>% of customers (associate preferred brand in mind )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly positive</td>
<td>24</td>
<td>16%</td>
</tr>
<tr>
<td>positive</td>
<td>42</td>
<td>28%</td>
</tr>
<tr>
<td>Neutral</td>
<td>30</td>
<td>20%</td>
</tr>
<tr>
<td>Negative</td>
<td>33</td>
<td>22%</td>
</tr>
<tr>
<td>Highly Negative</td>
<td>21</td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>150</td>
<td>100%</td>
</tr>
</tbody>
</table>
**Graph 29**

Analysis- In above graph there are five responses that are related with the perception of customers which is associated with their preferred brand in mind and with this graphical presentation it is being analysed that 16% of customers are respond towards highly positive. 28% of customers are having positive response in context of the statement (associate preferred brand in mind). 20% customers are moving ahead with the response neutral as they are not on positive side neither on negative side. 22% of customers are having negative response related to the statement and remaining 14% customers are having highly negative response (prabakaran, 2015).

6- since you are using a particular Shop/ Store for more than 1 years then do you think after these many years it has become an integral part of your life and now you cannot use any other if they offers the same value. (Analysis of this question is based on question no. 2)

**Table 44**

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of customers</th>
<th>% of customers (particular shop/store or supermarket become an internal part)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Agree</td>
<td>54</td>
<td>30%</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>20%</td>
</tr>
<tr>
<td>Neutral</td>
<td>27</td>
<td>15%</td>
</tr>
<tr>
<td>Slightly Disagree</td>
<td>27</td>
<td>15%</td>
</tr>
<tr>
<td>Fully disagree</td>
<td>36</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>100%</td>
</tr>
</tbody>
</table>
Analysis- it has been analysed with the help of above graph that 30% of customers are highly agreed on the statement that particular shop/store or super market become an internal part of life while 20% customers are just agree with the statement. 15% of customers are neutral on this statement as they don’t want to comment on this statement neither towards agree nor towards disagree. 15% of customers are slightly disagree with the statement and remaining 20% customers are fully disagree with the statement that using services of a particular shop/store or super market since 1 or more than 1 year become an internal part of life.

Chi square Test applied (Q.6)

Null Hypothesis

\( \mu_0 = \) there customers are highly agreed on the statement that particular shop/store or super market become an internal part of life.

\( \mu_1 = \) there customers are fully disagree with the statement that using services of a particular shop/store or super market become an internal part of life.
Table 45

<table>
<thead>
<tr>
<th>Response</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)²</th>
<th>(O-E)² / E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly agree</td>
<td>54</td>
<td>60</td>
<td>-6</td>
<td>36</td>
<td>0.6</td>
</tr>
<tr>
<td>Agree</td>
<td>36</td>
<td>40</td>
<td>-4</td>
<td>16</td>
<td>0.4</td>
</tr>
<tr>
<td>Neutral</td>
<td>27</td>
<td>30</td>
<td>-3</td>
<td>9</td>
<td>0.3</td>
</tr>
<tr>
<td>Slightly Disagree</td>
<td>27</td>
<td>20</td>
<td>7</td>
<td>49</td>
<td>2.45</td>
</tr>
<tr>
<td>Fully Disagree</td>
<td>36</td>
<td>30</td>
<td>6</td>
<td>36</td>
<td>1.2</td>
</tr>
<tr>
<td>Total</td>
<td>180</td>
<td>180</td>
<td></td>
<td>4.95</td>
<td></td>
</tr>
</tbody>
</table>

CHI SQUARE\( (X^2) \) = 4.95

Level / degree of freedom= \((5-1) \times (5-1)\)

= 4

Interpreting the result

The value of \( (X^2) = 4.95 \)

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\( (X^2) = 4.95 < \text{critical value 0.05 level 9.49} \)

In order to select the null hypothesis, our chi square must be lower than the critical value at level 0.05 of significance. Our value of 4.95 is smaller than the level of significance value 9.49. Therefore we can select the null hypothesis.

7- On a scale of 1 to 5 with 1 being highly agree to 5 being highly disagree please state that how much you think that you are biased towards a particular Shop / Super Market
Table no 46

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of customers</th>
<th>% of customer (biased toward particular shop/store or supermarket)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Biased</td>
<td>75</td>
<td>25%</td>
</tr>
<tr>
<td>Biased</td>
<td>45</td>
<td>15%</td>
</tr>
<tr>
<td>neutral</td>
<td>75</td>
<td>25%</td>
</tr>
<tr>
<td>Slightly Unbiased</td>
<td>60</td>
<td>20%</td>
</tr>
<tr>
<td>Fully Unbiased</td>
<td>45</td>
<td>15%</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 31

Analysis- with the help of above graph we are able to analysed the collected that which is relevant with responses of customers related with their biased toward particular shop/store or supermarket. For this it has been observed that 25% customers states that they are highly biased towards particular shop/store or super market. 15% customers are moving ahead with the response biased as they think that they are biased toward particular shop/store or supermarket. 25% customers are those who are moving ahead with the response neutral. 20% customers are giving response that they
are unbiased toward particular shop/store or super market while remaining 15% customers are fully unbiased toward particular shop/store or super market (Chari & Raghavan, 2011).

Chi square Test applied (Q.7) 

Null Hypothesis

μ₀ = there customers highly biased toward particular shop/store

μ₁ = there customers biased toward particular shop/store

μ₂ = there customers neutral toward particular shop/store

μ₃ = there customers slightly unbiased toward particular shop/store

μ₄ = there customers highly unbiased toward particular shop/store

**Table 47**

<table>
<thead>
<tr>
<th>Response</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)²</th>
<th>(O-E)² / E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly agree</td>
<td>75</td>
<td>80</td>
<td>-5</td>
<td>25</td>
<td>0.31</td>
</tr>
<tr>
<td>Agree</td>
<td>45</td>
<td>40</td>
<td>5</td>
<td>25</td>
<td>0.625</td>
</tr>
<tr>
<td>Neutral</td>
<td>75</td>
<td>80</td>
<td>-5</td>
<td>25</td>
<td>0.312</td>
</tr>
<tr>
<td>Slightly Disagree</td>
<td>60</td>
<td>50</td>
<td>10</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>Fully Disagree</td>
<td>45</td>
<td>50</td>
<td>-5</td>
<td>25</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>300</td>
<td></td>
<td>3.747</td>
<td></td>
</tr>
</tbody>
</table>

CHI SQUARE($X^2$) = 3.747

Level / degree of freedom = (5-1)*(5-1)

= 4

Interpreting the result

The value of ($X^2$) =3.747
Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

\[(X^2) = 3.747 < \text{critical value 0.05 level 9.49}\]

In order to select the null hypothesis, our chi square must be lower than the critical value at level 0.05 of significance our value of 3.747 is smaller than the level of significance value 9.49 .therefore we can select the null hypothesis.

8- If yes, state reason behind biased behaviour

Table 48

<table>
<thead>
<tr>
<th>Reason</th>
<th>No. Of customers</th>
<th>% of customers (reason behind biased behaviour)</th>
</tr>
</thead>
<tbody>
<tr>
<td>It gives me image</td>
<td>18</td>
<td>15%</td>
</tr>
<tr>
<td>it gives me comfort</td>
<td>30</td>
<td>25%</td>
</tr>
<tr>
<td>it gives me social recognition</td>
<td>18</td>
<td>15%</td>
</tr>
<tr>
<td>it gives me quality assurance</td>
<td>24</td>
<td>20%</td>
</tr>
<tr>
<td>previous experience were good</td>
<td>18</td>
<td>15%</td>
</tr>
<tr>
<td>friends recommendation</td>
<td>12</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
<td>100%</td>
</tr>
</tbody>
</table>

Graph 32

![Graph 32]
Analysis- the above graph is a presentation of reasons of customers behind biased behaviour toward particular shop/store or super market and it has been analysed that different customers are having different reasons such as 15% customers are moving ahead with the reason it gives me image. 25% customers are moving ahead with the reason that it gives me comfort. 15% customers are moving ahead with the reason that it gives me social recognition (Karmani, 2013). 20% customers are having a reason that it gives me quality assurance. 15% customers are moving ahead with the reason previous experiences were good and in the last remaining 10% customers are moving ahead with reason friends’ recommendation (Malhotra, 2014).

9- Do you think there has been some changes in the preferences of Store/ Super Market in last few years in your daily usage And if yes why

Yes, some of the customers think that there are some changes in the preference of store/super market in last few years in their daily usage. This is all happened because of following reasons such as changes in the quality of product provided by particular shop/store or super market, changes in the comfort; friend recommendation is also one of the reason, family preference, brand image or value of the product, price of product and some other reasons. Satisfaction also becomes one of the reasons behind changes in preference (Ahuja, 2015).

10-Does this store/ Super Market satisfy all your needs?

Table 49

<table>
<thead>
<tr>
<th>Response</th>
<th>No. of customers</th>
<th>% of customers (Store/ super market satisfy needs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>234</td>
<td>78%</td>
</tr>
<tr>
<td>No</td>
<td>66</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>100%</td>
</tr>
</tbody>
</table>

(SHASHIDHAR RAO . & PRASHANTH, 2012)
Analysis- It is being necessary to know the perception of customers towards store/super market. With the help of above graphical presentation it has been analysed that 78% of customers are satisfied with the services of store/super market as they respond that yes store/super market are able to satisfy their needs while talking about remaining 22% customers they are not agreed with the statement that store/super market satisfied their needs and they respond no in context of this statement (SHAHA & SHINDE, 2013).

Chi square Test applied (Q.10)

Null Hypothesis

μ0= there is Super Market satisfy all needs customers

μ1= there is Super Market not satisfy all needs customers

Table 50

<table>
<thead>
<tr>
<th>Category</th>
<th>Observed</th>
<th>Expected</th>
<th>(O-E)</th>
<th>(O-E)^2</th>
<th>(O-E)^2/E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>200</td>
<td>234</td>
<td>-34</td>
<td>1156</td>
<td>4.94</td>
</tr>
<tr>
<td>No</td>
<td>100</td>
<td>66</td>
<td>34</td>
<td>1156</td>
<td>17.51</td>
</tr>
<tr>
<td>Series</td>
<td>300</td>
<td>300</td>
<td>0</td>
<td>22.456</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Series 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Graph 33
CHI SQUARE($X^2$) = 22.46

Level / degree of freedom = (2-1)*(2-1)
= 1

Interpreting the result

The value of ($X^2$) = 22.46

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

($X^2$) = 22.46 > critical value 10.828

In order to reject the null hypothesis, our chi square must be higher than the critical value at 0.999 level of significance in upper tail critical value. Our value of 22.46 is smaller than the 0.999 level of significance value of 10.828. Therefore we can reject the null hypothesis.

If ‘No’, then changes are needed to be done

It has been analysed that store/ super market is not able to satisfied the needs of 22% of customers for which the store/super market needs to make some changes which may be related with the customers demand. For this the demand of customers are need to be identify. It is necessary to know about the taste and preferences of customers and it is also required that twice in a year there must be a survey regarding satisfaction of customers so that deviations that are occurred in between providing satisfaction could be recognized. Some of the changes that are required may be related with the place, price, product and promotion. May be dissatisfaction of customer is related with the price that are charged by store/ super market. The place is quite far that the customers are not able to reach (Patibandla, 2012).

**CHI SQUARE**

Chi-square test is a statistical tool that is used to make better analysis of data in which there is a comparison of observed data with the expected data. We also called chi-square as an investigator instrument that is used to investigate whether is there any difference in between distributions of categorical variables collected from large
CHAPTER 4 Data Analysis And Interpretation

sample population. This chi square testing is always used for testing of null hypothesis (Clark & Foster, 2015). This is a statistical hypothesis test in which test sampling is to be called as true null hypothesis is selected. With the help of this chi-square test we are able to judge whether the sample that is taken is true or not and also about rejection or acceptance of null hypothesis. With the help of it independency of data would be recognised. The chi-square test is depends on contingency table as with the help of it calculation of chi-square is done. The contingency table is in a form of matrix which contains frequency distribution of variables. It provides a picture of inter-relation or dependency between two or more variables. Chi-square test is used to determine that is there any significant difference in between observed frequencies and expected frequencies. Importance of using this test is to make comparison in between observed value and expected values. The acceptance or rejection of null hypothesis is depending on the basis of outcome of results. This statistical tool is helpful in providing efficient information about the observed and expected frequencies of sample. Value of chi-square is calculate as square of difference in between observed frequency and expected frequency divide by expected frequency (Tamilselvan & Manikandan, 2015). With the help of this the Deviation in between observed frequency and expected frequency could be removed. The data that is used for the calculation of chi-square must be drawn from independent variable as well as from large sample. In this research we are using 2*2 contingency table. The result could be analysed by making use of chi-square in research report. The chi-square test is also having some limitation such as it is used only on numerical value and it can also be not properly used for experiments.

The statistical formula of chi-square is \((o - E)^2 / E\) and it is denoted by \(X^2\)

Null Hypothesis

\(\mu_0 = \) there is no impact of foreign direct investment on Indian economy

\(\mu_1 = \) there is impact of foreign direct investment on Indian economy
Table 51

<table>
<thead>
<tr>
<th>Category</th>
<th>Observed</th>
<th>Expected</th>
<th>(O – E)</th>
<th>(o – E)^2</th>
<th>(o – E)^2 / E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>240</td>
<td>230</td>
<td>10</td>
<td>100</td>
<td>0.434</td>
</tr>
<tr>
<td>No</td>
<td>180</td>
<td>190</td>
<td>-10</td>
<td>100</td>
<td>0.526</td>
</tr>
<tr>
<td>Total</td>
<td>420</td>
<td>420</td>
<td>0</td>
<td>200</td>
<td>0.960</td>
</tr>
</tbody>
</table>

CHI SQUARE(X^2) = .960

Level / degree of freedom= (2-1)*(2-1)

= 1

Interpreting the result

The value of (X^2) =0.960

Using the Degree of freedom and significance level we can decide whether we are able to select or reject our null hypothesis.

For this study the degree of freedom (n-1), where n is the number of category in the sample

(X^2) =0.960 < critical value 0.90 level 2.706 on upper tail

(X^2) =0.960 > critical value 0.05 level 0.434 on lower tail

In order to select the null hypothesis, our chi square must be smaller than the critical value, level of significance in upper tail critical value & must be higher than the critical value , level of significance in upper tail critical value .our value significance value of 10.828.there fore we can select the null hypothesis.

Analysis-With the help of above calculated value of chi-square it has been analysed that yes there would be an impact of foreign direct investment on Indian economy. It has been observed that there are 240 people who are in favour that yes there is an impact of foreign direct investment on Indian economy while remaining population 180 is not in favour. The total size of population is 420 and it has expected that 230 would be in favour and remaining 190 is not in favour. From the above value of
freedom it has been cleared that null hypothesis is selected and there is dependency in between observed value and expected value. Hence, the calculated value of chi square states that the null hypothesis is accepted (Clark & Foster, 2015).

For mall managers only

**Table 52**

<table>
<thead>
<tr>
<th>Category</th>
<th>Observed</th>
<th>Expected</th>
<th>((O - E))</th>
<th>((o - E)^2)</th>
<th>((o - E)^2 / E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>14</td>
<td>10</td>
<td>4</td>
<td>16</td>
<td>1.6</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>10</td>
<td>-4</td>
<td>16</td>
<td>1.6</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>32</td>
<td>3.2</td>
</tr>
</tbody>
</table>

CHI SQUARE\((X^2)\) = 3.2

Level / degree of freedom= \((2-1)*(2-1)\)

= 1

Analysis- With the help of above calculated value of chi-square it has been analysed that yes there would be an impact of foreign direct investment on Indian economy according to mall managers. It has been observed that there are 14 mall managers who are in favour that yes there is an impact of foreign direct investment on Indian economy while remaining population 6 is not in favour. From the above value of freedom it has been cleared that null hypothesis is selected and there is dependency in between observed value and expected value. Hence, the calculated value of chi square states that the null hypothesis is accepted (Clark & Foster, 2015).

For kirana shop owners

**Table 53**

<table>
<thead>
<tr>
<th>Category</th>
<th>Observed</th>
<th>Expected</th>
<th>((O - E))</th>
<th>((o - E)^2)</th>
<th>((o - E)^2 / E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>60</td>
<td>50</td>
<td>10</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>No</td>
<td>40</td>
<td>50</td>
<td>-10</td>
<td>100</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>0</td>
<td>200</td>
<td>4</td>
</tr>
</tbody>
</table>
CHAPTER 4 Data Analysis And Interpretation

CHI SQUARE($X^2$) = 4

Level / degree of freedom= (2-1)*(2-1)

= 1

From above calculation it has been analysed that the null hypothesis is accepted as most of the kirana owners think that yes there is an impact of foreign direct investment on Indian retail sector. As total kirana owners are 100 out of which 60 owners respond that yes there is an impact of FDI while remaining 40 owners are responds that there is no impact. The respond we expect is 50 are in favour while 50 are not in favour.

**For customers**

Table 54

<table>
<thead>
<tr>
<th>Category</th>
<th>Observed</th>
<th>Expected</th>
<th>(O – E)</th>
<th>$(O – E)^2$</th>
<th>$(O – E)^2 / E$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>175</td>
<td>150</td>
<td>25</td>
<td>625</td>
<td>4.17</td>
</tr>
<tr>
<td>No</td>
<td>125</td>
<td>150</td>
<td>-25</td>
<td>625</td>
<td>4.17</td>
</tr>
<tr>
<td>Total</td>
<td>300</td>
<td>300</td>
<td>0</td>
<td>1250</td>
<td>8.34</td>
</tr>
</tbody>
</table>

CHI SQUARE($X^2$) = 8.34

Level / degree of freedom= (2-1)*(2-1)

= 1

From the above figures and calculation it has been analysed that in case of customers again the null hypothesis is selected. It is being analysed from the chi-square test that most of the customers think that yes FDI makes impact on retail sector of India. Total number of surveyed customers 300 out of them 175 move ahead with yes while 125 move ahead with no.