CHAPTER – 3
RESEARCH METHODOLOGY

This chapter presents the hypothesis, sampling plan, techniques of analysis and research methodology. The main characteristics of study area of this study has been presented.

3.1 INTRODUCTION

Research methodology is the blue print of the research architect. Research Methodology is a way to find out the result of a given problem on a specific matter or problem that is also referred as research problem. In Methodology, researcher uses different criteria for solving/searching the given research problem. Different sources use different type of methods for solving the problem.

Definitions:-

- According to Goddard & Melville (2004), answering unanswered questions or exploring which currently not exist is a research.
- The Advanced Learner’s Dictionary of current English lays down the meaning of research as a careful investigation or inquiry especially through search for new facts in any branch of knowledge.
- Redmen & Mory (2009), define research as a systematized effort to gain new knowledge.

3.2 Research Design:-

Research design as defined by Kerlinger (1995) is the plan and structure of investigation so conceived as to obtain answers to research questions. Expost facto
research design was followed for conducting the study. Rabinson (1976) defined expost facto research design as any systematic empirical enquiry into which the independent variable have not been directly manipulated because they have already occurred or they are inherently not manipulable. Cooper and Schindler (1992) defined expost facto as a research design in which investigator have no control over the variables in the sense of being able to manipulate them. They can only report what has happened or what is happening. Keeping this in view, the adaptability of the proposed design with respect to the type of study, variables under consideration, size of respondents and phenomenon to be studied, the expost facto was selected as an appropriate research design.

3.3 Methodology of the Study

The study is definitely having a strong empirical bias. The scientific method has been followed to design the whole content of the study. Constraints of doing scientific social research have been strictly adhered to. Both the explanatory variables having dependent and independent quality and extraneous variables having controlled and uncontrolled nature have been given due consideration for analyzing the problem of the study. Different testing methods for identifying different sets of relationship have also been executed. The study is both explanatory and experimental. Data have been collected so far through schedules and a thorough scrutiny of the so far assembled data has been made. Data have been classified properly through the process of establishment of categories. Required tools and methodologies have been chosen and applied depending on the types and nature of work.

Some tools and methods have also been needed to devise and develop to cater to the situational development and design as presented as under :-
<table>
<thead>
<tr>
<th>Items</th>
<th>Methods / Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection of local</td>
<td><em>Pre-Review Assessment through Pilot Survey, Social Mapping, Focused Respondents.</em></td>
</tr>
<tr>
<td>Study of secondary sources of information</td>
<td><em>Specimen Data collected through pilot survey, Extensive Library Research on the available literature of the field of study.</em></td>
</tr>
<tr>
<td>Selection of Respondents</td>
<td><em>Stratified random sampling, Semi- structured and structured schedule</em></td>
</tr>
<tr>
<td>Analytical Aspect</td>
<td><em>Case-studies, different statistical methods and tools as applicable.</em></td>
</tr>
</tbody>
</table>

### 3.4 Which Data / Information to Collect

If decision making is to be informed by information then clearly it is important what data is available. Not only does the availability of data enable a decision to be made, but in many circumstances data can indicate when a decision needs to be made. Although several authors have advocated deeper reflections in the performance management field, in order to move away from a “what gets measured gets done” standpoint (Chua and Degeling, 1993), it is still the case that collecting and reporting data, particularly performance measurement data, indicates that something is important and requiring of attention.
In this Hub I covered some of the basic understandings of research data, specifically targeted towards employed women. Each of the sections could also be used for research of all types.

3.5 Types of Data

There are two different types of data that we use when we are carrying our research projects. These two different types of data are called Primary and Secondary data collection.

3.5.1 Secondary Data

Secondary data is data that has already been collect and we use for reference or to gain knowledge from other peoples experiences e.g. published books, Government publications, Journals and the internet. We then used this data to add to the Primary data that we had collected and used it to combine different people’s opinions and base a theory with evidence to back this point up.

Secondary data is best used to add other existing evidence and proof to the Primary data that we had collected, we were better using Secondary data as reference and to gain the knowledge that we needed to begin our own research processes.
3.5.2 Primary Data

Primary data is data that we collect ourselves during the period of our research e.g. Questionnaires, Observations, Interviews and so on. We then use the data we have collected and noted down to begin the next stage of our research which is the theory making and the understanding of what we are researching. Primary data is best used for ever evolving research because different factors play roles in things we research and can lead to varying results depending on the factor and how much of a role it plays on the research.

The problem of the research primarily focuses on identifying perception and behaviour of the working women towards different investment alternatives. Therefore first hand information is more important for achieving original result. Survey was used to collect the primary data from 900 employed women from three districts viz. Muzaffar Nagar, Meerut, and Aligarh from Western U.P.

1. MUZAFFAR NAGAR DISTRICT

There are nine blocks in district Muzaffar Nagar, in which two Blocks – Khatauli and Jansath have been selected. In Khatauli Block, I surveyed six villages namely- (1) Sathedi (2) Bhur (3) Badsu (4) Sheikh Pura (5) Bhatura (6) Incholi. And in Jansath Block surveyed in six villages namely- (1) Tisang and Tisang Khera (2) Tirola (3) Bahadurpur Manphoda (4) Sohanjani (5) Ghatayan Uttari (6) Ghatayan Dhakshni.
2. **MEERUT DISTRICT**

There are twelve blocks in district Meerut in which two Blocks – Daurala and Sardhana have been selected. In Daurala Block, I surveyed six villages namely- (1) Dulehra Chauhan (2) Loiya (3) Machchari (4) Mator (5) WaleedPur (6) Dashrathpur. And in Sardhana Block, I surveyed in six villages namely- (1) Dadri (2) Kaili (3) Karsad (4) Ruhasa (5) Sakoti (6) Kanora.

3. **ALIGARH DISTRICT**

There are twelve Blocks in district Aligarh in which two Blocks – Dhanipur and Kair have been selected. In Dhanipur Block, I surveyed six villages namely- (1) Sidholi (2) Dhanipur (3) Kamalpur (4) Nijampur Borna (5) Bonar (6) Girdhapur Gadhiyavali. And in Kair, I surveyed in six villages namely- (1) Arana (2) Anillo (3) Bajera (4) Mangola (5) Balipur (6) Taroura.

( All the photographs with respondents of 36 villages are attached herewith it)

It was collected from working place (school, farms, business women and women entrepreneurs, working as a labourer ) . 900 samples were drawn from the different research locations for the study.
<table>
<thead>
<tr>
<th>S.N.</th>
<th>Research Locations</th>
<th>Districts</th>
<th>Blocks</th>
<th>Panchayats</th>
<th>No. of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aligarh</td>
<td>2</td>
<td>6</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Meerut</td>
<td>2</td>
<td>6</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Muzaffarnagar</td>
<td>2</td>
<td>6</td>
<td>300</td>
<td></td>
</tr>
</tbody>
</table>

### 3.6 THE LOCATION FOR THE RESEARCH:

The population of India on 1 March 2011 was 121,05,69,573 (or 1,210,569,573). India added 181 million to its population since 2001, slightly lower than the population of Brazil. India with 2.4% of the world's surface area accounts for 17.5% of its population. **Uttar Pradesh is the most populous state with roughly 200 million people. A little over 5 out of 10 Indians live in the six states of Uttar Pradesh, Maharashtra, Bihar, West Bengal, Andhra Pradesh and Madhya Pradesh.**

Ever since its inception, the Census of India has been collecting and publishing information about the religious affiliations as expressed by the people of India. In fact, population census has the rare distinction of being the only instrument that collects this diverse and important characteristic of the Indian population.
<table>
<thead>
<tr>
<th>SN</th>
<th>Union Territory/ State Name</th>
<th>Type</th>
<th>Total Population</th>
<th>Percent(%) of Total Population</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lakshadweep</td>
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<td>64,429</td>
<td>0.01</td>
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<tr>
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<td>Union Territory</td>
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<td>3</td>
<td>Dadra and Nagar Haveli</td>
<td>Union Territory</td>
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<td>0.03</td>
<td>193,178</td>
<td>149,675</td>
</tr>
<tr>
<td>4</td>
<td>Andaman and Nicobar Islands</td>
<td>Union Territory</td>
<td>379,944</td>
<td>0.03</td>
<td>202,330</td>
<td>177,614</td>
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<td>5</td>
<td>Sikkim</td>
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<tr>
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<td>Union Territory</td>
<td>1,054,686</td>
<td>0.09</td>
<td>580,282</td>
<td>474,404</td>
</tr>
<tr>
<td>7</td>
<td>Mizoram</td>
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<td>0.09</td>
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<td>538,675</td>
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<td>Union Territory</td>
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<tr>
<td>10</td>
<td>Goa</td>
<td>State</td>
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<td>740,711</td>
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<tr>
<td>11</td>
<td>Nagaland</td>
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<td>1,025,707</td>
<td>954,895</td>
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<td>1,369,764</td>
<td>1,351,992</td>
</tr>
<tr>
<td>SN</td>
<td>Union Territory/State Name</td>
<td>Type</td>
<td>Total Population</td>
<td>Percent(%) of Total Population</td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>-----</td>
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<td>-------------</td>
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</tr>
<tr>
<td>13</td>
<td>Meghalaya</td>
<td>State</td>
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<td>0.24</td>
<td>1,492,668</td>
<td>1,471,339</td>
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<tr>
<td>14</td>
<td>Tripura</td>
<td>State</td>
<td>3,671,032</td>
<td>0.30</td>
<td>1,871,867</td>
<td>1,799,165</td>
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<tr>
<td>15</td>
<td>Himachal Pradesh</td>
<td>State</td>
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<td>0.57</td>
<td>3,473,892</td>
<td>3,382,617</td>
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<tr>
<td>16</td>
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<td>State</td>
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<td>0.84</td>
<td>5,154,178</td>
<td>4,962,574</td>
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<tr>
<td>17</td>
<td>Jammu and Kashmir</td>
<td>State</td>
<td>12,548,926</td>
<td>1.04</td>
<td>6,665,561</td>
<td>5,883,365</td>
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<tr>
<td>18</td>
<td>Delhi</td>
<td>Union Territory</td>
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<td>1.38</td>
<td>8,976,410</td>
<td>7,776,900</td>
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<td>19</td>
<td>Haryana</td>
<td>State</td>
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<td>2.09</td>
<td>13,505,130</td>
<td>11,847,951</td>
</tr>
<tr>
<td>20</td>
<td>Chhattisgarh</td>
<td>State</td>
<td>25,540,196</td>
<td>2.11</td>
<td>12,827,915</td>
<td>12,712,281</td>
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<tr>
<td>21</td>
<td>Punjab</td>
<td>State</td>
<td>27,704,236</td>
<td>2.29</td>
<td>14,634,819</td>
<td>13,069,417</td>
</tr>
<tr>
<td>22</td>
<td>Assam</td>
<td>State</td>
<td>31,169,272</td>
<td>2.68</td>
<td>15,954,927</td>
<td>15,214,345</td>
</tr>
<tr>
<td>23</td>
<td>Jharkhand</td>
<td>State</td>
<td>31,169,272</td>
<td>2.72</td>
<td>15,954,927</td>
<td>15,214,345</td>
</tr>
<tr>
<td>24</td>
<td>Kerala</td>
<td>State</td>
<td>33,387,677</td>
<td>2.76</td>
<td>16,021,290</td>
<td>17,366,387</td>
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<tr>
<td>25</td>
<td>Orissa</td>
<td>State</td>
<td>41,947,358</td>
<td>3.47</td>
<td>21,201,678</td>
<td>20,745,680</td>
</tr>
<tr>
<td>26</td>
<td>Gujarat</td>
<td>State</td>
<td>60,383,628</td>
<td>4.99</td>
<td>31,482,282</td>
<td>28,901,346</td>
</tr>
</tbody>
</table>
### Table of Population and Gender Distribution

<table>
<thead>
<tr>
<th>SN</th>
<th>Union Territory/State Name</th>
<th>Type</th>
<th>Total Population</th>
<th>Percent(%) of Total Population</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>Karnataka</td>
<td>State</td>
<td>61,130,704</td>
<td>5.05</td>
<td>31,057,742</td>
<td>30,072,962</td>
</tr>
<tr>
<td>28</td>
<td>Rajasthan</td>
<td>State</td>
<td>68,621,012</td>
<td>5.67</td>
<td>35,620,086</td>
<td>33,000,926</td>
</tr>
<tr>
<td>29</td>
<td>Tamil Nadu</td>
<td>State</td>
<td>72,138,958</td>
<td>5.96</td>
<td>36,158,871</td>
<td>35,980,087</td>
</tr>
<tr>
<td>30</td>
<td>Madhya Pradesh</td>
<td>State</td>
<td>72,597,565</td>
<td>6.00</td>
<td>37,612,920</td>
<td>34,984,645</td>
</tr>
<tr>
<td>31</td>
<td>Andhra Pradesh</td>
<td>State</td>
<td>84,665,533</td>
<td>7.00</td>
<td>42,509,881</td>
<td>42,155,652</td>
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<tr>
<td>32</td>
<td>West Bengal</td>
<td>State</td>
<td>91,347,736</td>
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<td>46,927,389</td>
<td>44,420,347</td>
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<tr>
<td>33</td>
<td>Bihar</td>
<td>State</td>
<td>103,804,637</td>
<td>8.48</td>
<td>54,185,347</td>
<td>49,619,290</td>
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<tr>
<td>34</td>
<td>Maharashtra</td>
<td>State</td>
<td>112,372,972</td>
<td>9.29</td>
<td>58,361,397</td>
<td>54,011,575</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>1,210,569,573</td>
<td>100</td>
<td>623,724,248</td>
<td>585,649,569</td>
</tr>
</tbody>
</table>

#### 3.6.1 History of Western U.P.

Uttar Pradesh is a large state, and "the cultural divide between the east and the west is considerable, with the purabiyas (easterners) often being clubbed with Biharis in the perception of the westerners." At the village level, some commentators have observed that Western Uttar Pradesh resembles Haryana.
and Rajasthan more than it does Eastern Uttar Pradesh, and the eastern region resembles Bihar more than it does Western Uttar Pradesh. Also, due to the successes of the Green Revolution, Western Uttar Pradesh has experienced both economic and social development, in a fashion similar to Haryana and Punjab. Eastern Uttar Pradesh, like Bihar, has not benefited to the same extent. The resulting disparity is believed to be partially responsible for the demand for separate statehood in Western Uttar Pradesh.

**Western Uttar Pradesh**, sometimes simply referred to as **West U.P.**, is a region in India that comprises the western districts of Uttar Pradesh state, including the areas of Rohilkhand and Braj. The region has some demographic, economic and cultural patterns that are distinct from other parts of Uttar Pradesh, and more closely resemble those of Haryana and Rajasthan states. Western Uttar Pradesh has experienced rapid economic growth, in a fashion similar to Haryana and Punjab, due to the successes of the Green Revolution.
3.6.2 Geography

The proposed state would include 22 districts in six divisions:

1. Agra division
2. Aligarh division
3. Bareilly division
4. Meerut division
5. Moradabad division
6. Saharanpur division

3.6.3 Advantage of Uttar Pradesh

• New policy initiatives creating favourable policy environment. These include the New Infrastructure & Industrial Investment Policy 2012. In addition, new policies such as Biotech Policy, Food Processing Policy, Solar Policy and Sugar Policy are expected to be announced shortly.

• Robust industrial infrastructure including theme parks, export parks & SEZs.

• 57 percent of eastern Dedicated Freight Corridor and 7 percent of Delhi-Mumbai Industrial Corridor will pass through the state.

• Focus on improving connectivity further through mega road projects, in PPP, such as Yamuna Expressway, connecting Noida with Agra.

• Abundant agro resource base. Leading producer of wheat, sugarcane and potato, ranks second in vegetable production and third in fruit production, amongst all Indian states.
- Longest network of rivers and canals measuring 31,200 km fostering the agriculture sector.

- Huge market potential owning to a large domestic consumer base.

<table>
<thead>
<tr>
<th>Division</th>
<th>Headquarters</th>
<th>Districts</th>
<th>Map</th>
</tr>
</thead>
</table>
| Agra division    | Agra         | • Agra  
• Firozabad  
• Mainpuri  
• Mathura |
| Aligarh division | Aligarh      | • Aligarh  
• Etah  
• Hathras  
• Kasganj |
| Bareilly division| Bareilly     | • Badaun  
• Bareilly  
• Pilibhit  
• Shahjahanpur |
| Meerut division | Meerut | • Baqpat  
• Bulandshahr  
• Gautam Buddha Nagar  
• Ghaziabad  
• Meerut |
|-----------------|--------|----------------------------------------------------|
| Moradabad division | Moradabad | • Bijnor  
• Jyotiba Phule Nagar  
• Moradabad  
• Rampur  
• Bhimnagar |
| Saharanpur division | Saharanpur | • Muzaffarnagar  
• Saharanpur  
• Shamli |

.6.4 INTRODUCTION OF STUDY AREA
Muzaffarnagar District

Muzaffarnagar District is one among 71 Districts of Uttar Pradesh State, India. Muzaffarnagar District Administrative head quarter is Muzaffarnagar. It is Located 504 KM East towards State capital Lucknow. Muzaffarnagar District population is 4138605. It is 12th Largest District in the State by population.

It is Located at Latitude-29.4, Longitude-77.6. Muzaffarnagar District is sharing border with Karnal District to the west, Panipat District to the west, Baghpat District to the South, Bijnor District to the East, Meerut District to the South, Saharanpur District to the North, Haridwar District to the North. It is sharing Border with Haryana State to the west, Uttarakhand State to the East. Muzaffarnagar District occupies an area of approximately 4008 square kilometres. Its in the 251 meters to 236 meters elevation range. This District belongs to Hindi Belt India.

It is not Hot in summer. Muzaffarnagar District summer highest day temperature is in between 25 ° C to 44° C. Average temperatures of January is 14 ° C, February is 15 ° C, March is 22 ° C, April is 28 ° C, May is 32 ° C.

Demographics of Muzaffarnagar District

Hindi is the Local Language here. Also People Speaks Urdu, Punjabi. Muzaffarnagar District is divided into 14 Tehsils, Panchayats, 1123 Villages.

Muzaffarnagar district Total population is 4138605 according to census 2011. Males are 2194382 and Females are 1944223. Literate people are 2738101 among total. Its total area is 4008 km². It is the 12th largest district in the state by Population. But 26th Largest District in the state By Area. 49th Largest District in the Country by Population. 38th
highest District in the State By literacy rate. 391st highest District in the Country By-literacy rate. its literacy Rate is 70.11.

Economy

Muzaffarnagar lies in what is called the Sugar Belt of Western Uttar Pradesh. The region is one of the important sugarcane producing regions in the world. Sugar and jiggery production are important industries in the Muzaffarnagar District. As a result of the farming activities around, the city is an important hub of trading business. Naveen Mandi Sthal situated in the eastern outskirts of the city is the trading hub for Jaggery and other agriculture produce.

More than 40% of the region's population is engaged in agriculture. According to Economic Research firm Indicus Analytics, Muzaffarnagar has the highest agricultural GDP in Uttar Pradesh. It has the largest granary in UP. Despite of this much of economic power, the city has been absent from the map of the foreign and modern business establishments. The town presents challenges, not to say law and order, decaying infrastructure and communalism. However due to the efforts of the governments, the area remains poised on the verge of growth.
MEERUT DISTRICT

Meerut District is one among 71 Districts of Uttar Pradesh State, India. Meerut District Administrative headquarter is Meerut. It is located 465 KM East towards State capital Lucknow. Meerut District population is 3447405. It is 25th Largest District in the State by population.

It is located at Latitude-28.9, Longitude-77.6. Meerut District is sharing border with Baghpat District to the west, Ghaziabad District to the South, Muzaffarnagar District to the North. Meerut District occupies an area of approximately 2522 square kilometres. Its in the 237 meters to 217 meters elevation range. This District belongs to Hindi Belt India.

It is Hot in summer. Meerut District summer highest day temperature is in between 23° C to 45° C. Average temperatures of January is 14° C, February is 17° C, March is 23° C, April is 30° C, May is 34° C.

Demographics of Meerut District

Hindi is the Local Language here. Also People Speaks Urdu. Meerut District is divided into 12 Tehsils, Panchayats, 806 Villages.

Census 2011 of Meerut District

Meerut district Total population is 3447405 according to census 2011. Males are 1828862 and Females are 1618543. Literate people are 2280803 among total. Its total area is 2522 km². It is the 25th largest district in the state by Population. But 47th Largest District in the state By Area. 94th Largest District in the Country By Population. 12th highest District in the State By literacy rate. 262nd highest District in the Country By literacy rate. Its literacy Rate is 74.8.
**Aligarh District**

Aligarh District is one among 71 Districts of Uttar Pradesh State, India. Aligarh District Administrative head quarter is Aligarh. It is Located 358 KM East towards State capital Lucknow. Aligarh District population is 3673849. It is 19th Largest District in the State by population.

It is Located at Latitude-27.8, Longitude-78.0. Aligarh District is sharing border with Budaun District to the East, Bulandshahr District to the North, Gautam Buddha Nagar District to the west, Mahamaya Nagar District to the South. Aligarh District occupies an area of approximately 3747 square kilometres. Its in the 201 meters to 176 meters elevation range. This District belongs to Hindi Belt India.

It is Hot in summer. Aligarh District summer highest day temperature is in between 26°C to 47°C. Average temperatures of January is 14°C, February is 16°C, March is 24°C, April is 32°C, May is 37°C.

**Demographics of Aligarh District**

Hindi is the Local Language here. Also People Speaks Urdu. Aligarh District is divided into 13 Tehsils, Panchayats, 2106 Villages.

**Census of Aligarh District**

Aligarh district Total population is 3673849 according to census 2011. Males are 1958342 and Females are 1715507. Literate people are 2430618 among total. Its total area is 3747 km². It is the 19th largest district in the state by Population. But 29th Largest District in the state By Area. 76th Largest District in the Country By Population. 40th highest District in the State By literacy rate. 398th highest District in the Country By literacy rate, its literacy Rate is 69.61.
.7 SAMPLING PLAN

We adopted the following procedure of Sampling:-

.7.1 Selection of the population

We took 50% Divisions of Western U.P. and selected Meerut, Saharanpur and Aligah divisions. After this we randomly selected one district from each divisions. Applying Cluster sampling technique we adopted two Blocks then after randomly selected six villages from very blocks. A total of 900 respondents who are working women are selected for the study. 00 respondents from Meerut, 300 respondents from Muzaffarnagar and 300 from Aligarh districts are purposively selected.

.7.2 Selection of Appropriate Sampling Technique

The combination of probability and non-probability sampling is used to select the samples from the universe. The Quota sampling has been used to select the working women. Cluster sampling has been used because the samples selected from the selected locations only. Stratified Random sampling has been used to select samples from different demographic profiles viz. Age, Occupation, Income etc.

.7.3 Instruments For Data Collection

The data in line with the objectives were collected with the help of interview schedule. The procedure followed for developing and administering the interview schedule are explained below.
3.7.4 Development of interview schedule

An interview schedule was developed in consultation with the experts in the field and referring the relevant literature on the subject. The schedule was divided into 3 parts. First part was designed to study the socio-personal characteristics of the respondents. Second part was to know the decision making pattern of respondents in home activities and the third part was framed to identify the constraints faced by the respondents in home activities.

3.7.5 Administration of interview schedule

Required data was collected by personal interview method using the final interview schedule. The respondents were contacted individually at their residence and work place as per their convenience. The filled interview schedules were checked immediately after the interview for their completion in all aspects.

3.8 Quantification Of Variables

It may be divide into 2 parts as Dependent Variable and Independent Variables.

3.8.1 Dependent variable

Considering the objectives of the study decision making pattern was considered as dependent variable.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Variable</th>
<th>Empirical measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Decision Making Pattern</td>
<td>Procedure followed by Devi et al. (2002) and Swarnaot et al. (2004)</td>
</tr>
</tbody>
</table>
Decision making pattern of working and non-working women was analyzed in respect of home related activities. Each area of decision-making includes a series of sub-decisions pertaining to varied tasks associated with that area. The decision making pattern was measured in terms of independent female decision, joint decision and independent male decision.

3.8. 2 Independent variables

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Variable</th>
<th>Empirical measurements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Age</td>
<td>Procedure followed by Devalatha (2005)</td>
</tr>
<tr>
<td>2</td>
<td>Education</td>
<td>Procedure followed by Devalatha (2005)</td>
</tr>
<tr>
<td>3</td>
<td>Marital status</td>
<td>Procedure followed by Bharathi (2005)</td>
</tr>
<tr>
<td>4</td>
<td>Family type</td>
<td>Procedure followed by Sulthana (2001) and Bharathi (2005)</td>
</tr>
<tr>
<td>5</td>
<td>Family size</td>
<td>Procedure followed by Sulthana (2001)</td>
</tr>
<tr>
<td>6</td>
<td>Annual family</td>
<td>Procedure followed by Bharathi (2005)</td>
</tr>
<tr>
<td></td>
<td>income</td>
<td></td>
</tr>
</tbody>
</table>
Decision Making Pattern

- Age
- Annual Family Income
- Education
- Family Size
- Marital Status
- Family Type
Relation between Dependent and Independent Variables
3.9 TECHNIQUES OF ANALYSIS

Tools and techniques used for analysis are given below.

3.9.1 Tools used

The test is carried out using excel spreadsheet and SPSS tool where the variables that are to be tested for independence is entered and results are identified. The various tests are done by using SPSS as-

- Percentage Analysis
- Arithmetic Mean
- Chi-Square
- Coefficient of Standard Deviation
- Garret Ranking
- Cross Tabulation

**Percentage analysis**

Percentage method refers to a specified kind which is used in making comparison between two or more series of data. Percentages are based on descriptive relationship. It compares the relative items. Since the percentage reduces everything to a common base and thereby allow meaning comparison.

\[
\text{Percentage} = \frac{\text{Number of respondents}}{\text{Total no of respondents}} \times 100
\]
ARITHMETIC MEAN

To get a single value that indicates the characteristics of the entire data and to facilitate comparisons. Measures of central tendency enable us to compare two or more distributions pertaining to the same time period or within the same distribution over time.

\[
\text{Arithmetic Mean} = \frac{\sum x}{N}
\]

Chi- Square

Karl Pearson in 1900 developed a non-parametric test for testing the significance of the discrepancy between experimental (observed) frequencies and the theoretical frequencies (expected) obtained under some theory or hypothesis. This test is known as Chi-Square Test (\(\chi^2\)-test) of goodness of fit, and is used to test whether the discrepancy between expected and observed values may be attributed the chance (fluctuations of sampling) or whether the deviation is really because of the inadequacy of the theory to fit the observed data.

In order to apply the Chi-square test either as a test of goodness of fit or as a test to judge the significance of association between attributes, it is necessary that the observed as well as theoretical or expected frequencies must be grouped in the same way and the theoretical distribution must be adjusted to give the same total frequency as we find in case of observed distribution.
χ² is then calculated as follows:

\[
\sum (O_{ij} - E_{ij})^2
\]

\[
\chi^2 = \frac{\sum (O_{ij} - E_{ij})^2}{E_{ij}}
\]

Where

\(O_{ij}\) = observed frequency of the cell in ith row and jth column

\(E_{ij}\) = expected frequency of the cell in ith and jth column.

**Chi-Square Test Requirements**

1. Quantitative data.
2. One or more categories.
3. Independent observations.
4. Adequate sample size (at least 10).
5. Simple random sample.
6. Data in frequency form.
7. All observations must be used.

**Conditions characterizing the χ² test**

The chi-square test can be validly applied if the following conditions are satisfied:

(i) The observations recorded are collected on a random basis.

(ii) The sample observations should be independent, i.e., no individual item should be included twice or more in the samples.
(iii) The total number of observations should be reasonably large, say $N > 50$.

(iv) The data should be expressed in original units for convenience of comparison and the given distribution should never replaced by relative frequencies or proportions.

(v) Small theoretical frequencies should be avoided while calculating $\chi^2$. Small is a relative term. Preferably, each theoretical frequency should be larger than 10, but in any case not less than 5. Since, chi-square distribution is a continuous distribution; it can not maintain its characteristic of continuity, if cell frequency is below less than 5. In that case, we adopt pooling techniques, which consists of adding the frequencies which are less than 5 with the preceding or succeeding frequency (frequencies) to enable the resulting sum to exceed 5 and adjust accordingly for the degree of freedom is adopted.

**Coefficient of Standard Deviation and Variation**

It is defined as the positive square-root of the arithmetic mean of the Square of the deviations of the given observation from their arithmetic mean. The standard deviation is denoted by $s$ in case of sample and Greek letter $\sigma$ (sigma) in case of population. The formula for calculating standard deviation is as follows

$$S = \sqrt{\frac{\sum x^2 - (\sum x)^2}{n-1}}$$

for raw data

And for grouped data the formulas are

$$S = \sqrt{\frac{\sum f x^2}{N} - \left(\frac{\sum f x}{N}\right)^2}$$

for discrete data
\[ S = C \times \left( \frac{\sum fd^2}{N} - \left( \frac{\sum fd}{N} \right)^2 \right)^{\frac{1}{2}} \]

for continuous data

where,

\[ d = \frac{x - A}{C} \]

C = class interval

**Coefficient of Variation**

The Standard deviation is an absolute measure of dispersion. It is expressed in terms of units in which the original figures are collected and stated. The standard deviation of heights of plants cannot be compared with the standard deviation of weights of the grains, as both are expressed in different units, i.e., heights in centimeter and weights in kilograms. Therefore, the standard deviation must be converted into a relative measure of dispersion for the purpose of comparison. The relative measure is known as the coefficient of variation. The coefficient of variation is obtained by dividing the standard deviation by the mean and expressed in percentage. Symbolically, Coefficient of variation (C.V)

\[ CV = \frac{SD}{\text{mean}} \times 100 \]

If we want to compare the variability of two or more series, we can use C.V. The series or groups of data for which the C.V. is greater indicate that the group is more variable, less stable, less uniform, less consistent or less homogeneous. If the C.V. is less, it indicates that the group is less variable or more stable or more uniform or more consistent or more homogeneous.
Merits

1. It is rigidly defined and its value is always definite and based on all the observations and the actual signs of deviations are used.

2. As it is based on arithmetic mean, it has all the merits of arithmetic mean.

3. It is the most important and widely used measure of dispersion.

4. It is possible for further algebraic treatment.

5. It is less affected by the fluctuations of sampling and hence stable.

6. It is the basis for measuring the coefficient of correlation and sampling.

Garrett’s Ranking Technique

To find out the most significant factor which influences the respondent. Garrett’s ranking technique was used. As per this method, respondents have been asked to assign the rank for all factors and the outcome of such ranking have been converted into score value with the help of the following formula:-

\[
\frac{100 \times (R_{ij} - 0.5)}{N_j}
\]

Percent position = \frac{100 \times (R_{ij} - 0.5)}{N_j}

Where,

\( R_{ij} \) = Rank given for the i th variable by j th respondents

\( N_j \) = Number of variable ranked by j th respondents
With the help of Garrett’s Table, the percent position estimated is converted into scores. Then for each factor, the scores of each individual are added and then total value of scores and mean values of score is calculated. The factors having highest mean value is considered to be the most important factor.

**Cross Tabulation**

Cross tabulation tables (contingency tables) display the relationship between two or more categorical (nominal or ordinal) variables. The Cross tabs procedure forms two-way and multi-way tables and provides a variety of tests and measures of association for two-way tables. The structure of the table and whether categories are ordered determine what test or measure to use.

**3.9.2 Tables and charts**

Various kinds of tables and charts are used to represent the survey findings and result. Charts like pie diagram, bar diagram are used.

**Bar diagram**

This diagram consists of a series of rectangular bars standing on a common base. The length of the bars is proportional to their magnitude. The comparison among the basis based on lengths. **There are three types of bar diagram.**

1. Simple bar diagram
2. Multiple bar diagram
3. Component bar diagrams.

**3.10. LIMITATIONS OF THE STUDY**

The study may have following constraints / limitations:-
1. Since the population of the study has been confined to employed women representatives who are investing, how they take the investment decision? Survey area are three Districts, viz., Aligarh, Meerut and Muzaffarnagar, the generalization of the findings shall be limited to the area / region specific only.

2. The study has been conducted in a short span of time, which was a limitation to the Pd.D.

3. The sample size was restricted to 900 keeping into account the various constraints such as time and cost.

4. The finding of the study are based on the qualitative and quantifiable data collected from the study area. Hence the objectivity of this study is limited to the abilities of the respondents (Decision making process by Employed women in THREE Districts) to express and also to their honesty in furnishing the required information.

5. Due to lack of data qualitative analysis could not always be associated with the quantitative measurements.

6. Lack of cooperation from the respondents as they were afraid of the information given by them would be passed on to the management.
REFERENCES


- Pragmatism and development: the prospect for pluralist transformation in the Third World, Greenwood Publishing Group, 1998, ISBN 0-89789-573-8, "... Village organization and district administration in western Uttar Pradesh is generally much more like the neighboring states of Rajasthan and Haryana than like eastern Uttar Pradesh. Eastern Uttar Pradesh is more like Western Bihar than western Uttar Pradesh ... Of all these regions, western Uttar Pradesh is generally regarded as having the best administration, the most productive agriculture, and the best managed canals ..."
