Chapter 4: Research Methodology

This chapter provides the researcher a brief framework of the methodology adopted to conduct this research project. It initiates with detail explanation of the research approach along with the philosophy of research. It further includes the necessary things to understand the research in detail like design of the research, data collection methods, sampling design, analytical tools and techniques utilised and data reliability. At the end this chapter also acknowledges the limitations of the research.

Methodology of research provides the reader a detailed footprint about the entire study. Here specific to this study there are two different method of research adopted. For explanation; Trend analysis in real estate has been identified based on the secondary research. Besides this, Investment pattern analysis concluded based on the Primary research. Although there are a large number of studies in the field of real estate field, but there is a serious deficit observed in the researches related to trends analysis in Indian real estate market and very few real estate researches on investment pattern conducted at a global level. Thus, this research is an attempt to gain insight into real estate market through the assessment of trend. Along with that, study also focuses on the Investment Pattern specifically among the real estate investors of Gujarat. (One of the most prosperous state of India and popular as a Land of business and commerce). Further, this chapter gives the brief background of the methods and material utilised to carry on this research.

4.1. Research Approach

Qualitative and quantitative are the two main approaches to conduct a research.

The first form of research includes collecting data that is mostly in the words that can be expressed but not analysed numerically, and the latter research approach involves data which can be stated in figures (Easterby-Smith et al 2009). Denzin and Lincoln (2005) mentioned the quantitative method contains gathering numerical data and investigating it in a numerical manner by applying statistical tests (Hussey and Hussey, 1997). It follows
severe techniques and processes which allow simplification of the results, to measure and examine relationships between variables (Denzin and Lincoln 2000).

Qualitative method includes the analysis of the perceptions, belief, satisfaction and other verbal parameters which can be expressed but not measured in terms of numbers (Easterby-Smith et al 2009). The mentioned above discussion and considering research objectives, it can be clear that, in this research both Qualitative and Quantitative approach were adopted. Trend Analysis should be concluded on the bases of the various Indices and quantitative data and Investment Pattern should be identified based on the Structured Questions which are verbal discussions and Opinions of a typical investor/consumer of the real estate. So here in this research both research approaches are considered to conclude the research.

4.2. Research Design

A popular phenomenon to understand the crux of the research and to gain the footprint of the research is research design. A meticulous and structured methodology adopted for this study, which is based on the detailed framework and exhaustive literature review of relevant field; the objectives of the study were sketched out on the basis of the detail observation of past literature and considering the present real estate market situation. Study constructed though the detailed observation of past research of the real estate trend and investment pattern. Prevailing situation of the sector is also considered. Further to achieve the objectives the study was divided in two parts to understand the in depth research. The main purpose of the research is to identify “Trend” (Trend in Real estate Price and FDI Investment) and “Investment Pattern” (An investment Attitude of a typical real estate investor under the different market situation and other circumstances). To investigate trend of real estate market Secondary data collected. This further analysed to know the influence of several key economic indicators e.g. GDP, Inflation Rate, FDI, Per-capita Income etc. and Major financial market indices e.g. NSE indices, Gold and Silver indices. Further data tested with the HPI and FDI in real estate to conclude the linkages between the Real estate trend and Economic variables & Market indices fluctuation. Besides this, the Primary data was collected directly from the Real estate consumer and Real estate Investors through the structured questionnaire containing questions pertaining to investment pattern and buying
decision of the typical real estate investor, For which, the factors like Personal & Behavioral, Perception towards Economy, Demographic Characters of the respondents, Real estate market related variable, Basic Facility variables, Comparative investment specific variables and legal variables are ascertained from the previous literature observations and from the opinion of the real estate market participants

4.3. Data Collection

To serve the purpose of the Study structured data collected through the various sources. Primary data have been collected directly through the respondents through the structured Questionnaire by personal Approach to the Real estate buyer and the Secondary data pertaining to key economic indicators and housing price indices were drawn from the various government websites and data related to financial market indices were collected from the some reputed research agency reports and regulatory websites.

1) Source of Data Collection

Primary data were collected directly from the real estate buyers and investors through the structured questionnaire.

Secondary data were collected from the published source and from the numerous government authority websites, newspapers and also from the magazines of the Real Estate Segment. For instance, Government Authority websites, Magazines, research papers published in the area of real estate, Reports published from government and Private research institutions on real estate.

2) Sampling Design

1. Primary Data Sampling

Population of the India as per the government of India population survey 2011 is 121, 05, 69,573 and out of which population of Gujarat is 6,04,39,692 Approx. Further it had been observed that, many primary researches in the real estate market used the weighted average method to collect the samples from the population and some taken the samples based on the
past researches and expert opinion of the field. So here in this study the weighted average method used to account the sample from that city.

\[ \text{Sample} = \frac{\text{Population of strata} \times \text{Sample size}}{\text{Total Population of Gujarat}} \]

To determine the weightage of City, Cities of study from the different region of Gujarat have assigned the weight against the entire population of Gujarat and from that weight the Entire Cluster determined for that particular region of the Gujarat. Further this research targeted every region of the Gujarat (E.g. Central Gujarat, East Gujarat, North Gujarat, South Gujarat, West Gujarat and). Approx. 1945 samples (389 samples from each region as per the sample size calculation) targeted for this study out of which total 1500 samples responded to the questionnaire for the study. Further when data extracted from the response sheet it came to notice that 149 samples are improper and inaccurate (Which includes repetition and inaccuracy) and hence removed through the standard deviation analysis of the response to make data normal and to make it worthwhile for the further Testing. Moreover, survey only did once to avoid the sampling bias and error Thus, data structured for 1351 samples. Further, while filtering the data it revealed that another 100 Samples having Similarity in response for all the factors. So they have been removed and data finalised for 1251 Samples and entire study concluded on 1251 samples. Continuing further sampling was done through the various clusters and response received as per the convenience so this research follow the Non-probability Convenience Sampling approach to draw the sample from the population. Moreover the data has been tested for the Scale reliability to have the accurate rating of that particular response and to ascertain the reliability of the scale used to collect the data.

2. Sampling Design: Secondary Data

Trend analysis in Real estate investigated based on secondary data collected to assess the trend in the Real estate prices prevails in India. HPI has been taken as a representative of the price of real estate, because housing segment in real estate market holds more than 70% portion. Further to investigate the linkages with HPI several variables identified based on the study of literature which are FDI in Real Estate Segment, Inflation Rate, Interest Rate, Growth Rate, Gold Index, Nifty Index etc. The data of the mentioned variable
collected for the 9 years (2007-2015) and converted in to the yearly time series to maintain the uniformity of period and to have the accurate result of research.

3) **Sampling Element**

1. **Primary Data Sample**

Sample unit for the primary data are the Real estate buyer, further that sample divided in to three different categories like, Real estate Investor, Real estate Consumer and Speculators in the real estate market to get the close result as per the research intent as well. This bifurcation of the sample was done based on their nature of investment, holding period of particular real asset and intent of purchase.

2. **Secondary Data Sample**

For the purpose of assessment of trend several secondary data samples taken which includes Housing price index as a representative of real estate price (As Precious Researcher found that Housing market consumes 80% real-estate market), FDI (Foreign Direct Investment) in the Real estate market, Major Economic Indicators (Gross Domestic Product, Inflation Rate, Per Capita Income, etc.), Major Financial Market Indices (National stock Index, Gold Index, Silver Index, Forex Market Index).

4) **Sampling Area**

This Study of investment pattern carried for the Gujarat state so samples were taken from the different part of the Gujarat. For the purpose of data collection, sampling area have been divided in the five parts like East Gujarat, West Gujarat, South Gujarat, North Gujarat and Central Gujarat. And from each cluster 389 samples were targeted as per the sample calculation.

4.4. **Data Reliability Analysis**

1) **Primary Data Reliability**

Another measure taken in to the consideration is to check the Reliability of data. Because Reliability also plays a crucial role to test the error of the data and to find the Outliers. Here the following Table-4.1 shows the reliability of all scale variables, for which the data were collected through the Questionnaire. The result of **Cronbach's Alpha** tested for the Reliability shows the test static 0.957 which is significant result. as value which is more than 0.7 is significant for the reliability score. So on the basis of the tested value it can be
assumed that data is reliable for the further study and further Statistical testing to have the results.

Table :-4.1- Cronbach's Alpha Stats

<table>
<thead>
<tr>
<th>Cases</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>1251</td>
<td>100</td>
</tr>
<tr>
<td>Excluded*</td>
<td>0000</td>
<td>00.00</td>
</tr>
<tr>
<td>Total</td>
<td>1251</td>
<td>100</td>
</tr>
</tbody>
</table>

* Listwise deletion based on all variables in the procedure.

Statistics of Reliability of Scale Variables

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.957</td>
<td>60</td>
</tr>
</tbody>
</table>

More over to that, **Cronbach's Alpha** also calculated for the each factor of the study to know the accuracy level of each factor scale the following Table-4.2 Shows the Result of Reliability of each item scales

Table-4.2- Cronbach’s Alpha for Each Factor Scale

<table>
<thead>
<tr>
<th>Factor</th>
<th>Personal Factors</th>
<th>Market Factors</th>
<th>Economic Factors</th>
<th>Behavioral Factors</th>
<th>Comparative Factors</th>
<th>Legal Factors</th>
<th>Basic Facility Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>cronbach's Alpha</td>
<td>0.866</td>
<td>0.788</td>
<td>0.867</td>
<td>0.927</td>
<td>0.884</td>
<td>0.842</td>
<td>0.788</td>
</tr>
</tbody>
</table>

The result shown in Table-4.2 indicate that, not only overall reliability but the separate factor wise reliability of scale also indicate the value greater than 0.7 so, it can be concluded that scale of each item was reliable

2) **Secondary Data Reliability:-**

Secondary data were collected from reputed government websites and report released by the major government organizations so that researcher assumed that data is accurate and reliable as it has been pulled from the reliable sources like government websites and other reputed research organizations.
4.5. Data Analysis Tools & Techniques

The data gathered through the survey was analysed with the SPSS and Gretl Software. Descriptive frequency analysis, chi square Analysis, factor analysis, correlation analysis, Analysis of Variance, Regression tests are performed in order to examine the relationship between constructs and test the hypotheses on the primary data. More over secondary data was analysed by the use of Time series techniques, regression analysis, cointegrating regression analysis and correlation analysis. The detail explanation of techniques used in analysis are described under.

1. Descriptive analysis of frequency

Descriptive frequency statistics is used to present quantitative data in a convenient form. That helps to represent large number of data in a simple and sensible way. It is basically used to assess the trend of demographic data (Mean, median, mode, standard deviation and percentage). Descriptive statistics include the numbers, tables, chart and Figures to describe, organise and summarise the data. Descriptive statistics help to summarise and support assertion of facts.

2. Chi square analysis

A technique of analysis used when dealing with a categorical variable to describe the independence of a particular variable. Widely used analytical tool for the nominal variable analysis to draw the outcome on the basis of respondent demographic data.

3. Analysis of variance (ANOVA)

A technique of analysis used when dealing with a continuous or integral dependent variable and one or more categorical or nominal variables used to analyse the variation in the research variables

4. Correlation analysis

Correlation is one the most important statistical analysis tool. It helps to describe the degree of relationship between two variables. Correlation determines the extent to which changes in the value of an attribute are associated with changes in another attribute. The Researcher will use correlation analysis technique to measure the
relationship between different attributes of celebrities and purchase intention and testing the hypotheses.

5. **Regression analysis**

Regression analysis is used for modelling and analysing several variables. It is used to examine the relationship between a dependent variable and one or more independent variables. In this research dependent variable is purchase intention and independent variables are the various attributes of celebrity endorsers. Correlation analysis will help the Researcher to examine and understand how the value of dependent variable changes when any one of the independent variable changes, while other variables are constant. For this research the Researcher will use simple linear regression analysis.

6. **Econometrics**

Econometrics includes the Time series forecasting and modelling. For the purpose of identifying trend in real estate few techniques of econometrics like OLS regression modelling, correlation analysis, ADF Unit Root Test, Engel-granger test of causality and cointegrating relationship adopted to analyse the data pretending to analyse time series of data.
4.6. Limitation of Study

As everyone knows that every study has certain constraints and assumptions, therefore it is essential to admit them before moving further to generalisations of findings. There are certain problems being faced by the Researcher while accompanying this research. The following are the few restraints faced by the Researcher while conducting this study.

1. The Secondary data collected for the research is for the 7 Years (From 2007 to 2015). So result might shows the variation if the different period data analysed

2. Trend Prediction is based on only Real-estate price and FDI in Real-estate Segment for the Selected Period 7 Years (From 2007 to 2015). A longer period analysis may show variation in results.

3. Study only considered Major economic indicators only not all economic indicators covered for the study. So other economic indicator comparison might reflect the change in the trend in real estate prices

4. For the Real estate price Housing Price Index has been considered as a Representative of the Real Estate Prices. Because Real Estate Price index in India not available through the reliable source.

5. Primary study to know the investment pattern carried on the 1251 Respondents, variation can be there is sample size varies

6. For the Primary Study Respondents divided in the 3 category e.g. Real estate Consumer, Speculator and Real estate Long term Investors. Categorization might be subjective to the individual researcher

7. Primary Study carried in the different Region of the Gujarat. Change in area of study might bring the difference in the result

All tools and Techniques applied in this study are subject to knowledge and expertise of the researcher. The research carried out by the different tools and techniques by the other researcher, might bring the variation in result