



FINANCIAL DECISION MAKING IN REAL ESTATE MANAGEMENT



FINAL YEAR PROJECT UG 2013

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This is to certify that the
Final Year Project titled

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This thesis is dedicated to our respected and beloved parents and honorable teachers.

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ABSTRACT

Real Estate Management is commonly known as property management comprised of residential, commercial and industrial real estate (which includes houses, apartments of all sizes, administration shopping centres and units of condominium). Financial Decision making is a series of actions chosen from set of alternatives to avoid unnecessary monetary loss. Financial Decision making in real estate management is a course of actions from a number of alternatives to maximize benefits for the buyer of property. Our focus is on selecting potential decision influencers effecting real estate financial management and devising a well-designed evaluation method for land valuation in real estate sector of Pakistan.

Pakistan real estate sector is accelerating these days but the overall growth rate of real estate sector is lower than before. It shows that real estate is facing some serious problems which has to be solved timely to save Pakistan's real estate sector. The most potential problem identified in real estate sector is the financial decision making. We recorded the consultant and public responses against selected decision influencers in the form of questionnaires. Unjustified cost was calculated by using regression equation and benefit to cost analysis was used to find the best option among available choices of land. At the end the calculations are drawn and practical implications are discussed.

TABLE OF CONTENTS

CHAPTER 1	1
INTRODUCTION	1
1.1. General.....	1
1.2. Background.....	2
1.3. Scope	2
1.4. Problem Statement.....	3
1.5. Objectives	4
CHAPTER 2	5
LITERATURE REVIEW	5
2.1. Financial Decision Making.....	5
2.2. Phases of Financial Decision Making	6
2.3. Steps involved in financial decision making	6
2.4. Financial Statement	7
2.5. Financial Management	8
2.6. Real Estate Management	8
2.7. The Flow of Real Estate Transactions	9
2.8. Strategy Impact on Value of Real Estate Property	9
2.9. Empirical Model of Strategic Decision Making in Real Estate Management.....	11
2.10. The Appraisal of Real Estate	11
2.11. Role of Valuation of Land	12
2.12. Market Value of Real Estate Property	12
2.13. Valuation of Real Estate Property.....	12
2.14. Queensland Building and Construction Commission.....	14

2.15.	Dillman 2007	15
2.16.	Regression Equation	15
2.17.	Cost Benefit Analysis	16
CHAPTER 3		17
METHODOLOGY		17
3.1.	Envisaged Research Methodology	17
3.2.	Methodology Steps	17
3.2.2.	Area Selection	19
3.2.3.	Consultant Surveys	20
3.2.4.	Public survey	20
3.2.5.	Regression Equation	20
3.2.6.	Benefit to Cost Analysis	21
CHAPTER 4		22
RESULT AND ANALYSIS		22
4.1.	Sample Sizes	22
4.2.	Results	22
4.3.	Analysis	36
CHAPTER 5		39
CONCLUSIONS AND RECOMMENDATIONS		39
5.1.	Conclusions	39
5.2.	Recommendations	39
REFERENCES		41
APPENDICES		45
Appendix A		46

Parameters selected on the basis of Field Survey	46
Appendix B	47
Parameters selected on the basis of literature	47
Appendix C	49
Questionnaire to Real Estate Dealers for Financial Decision Making in Real Estate Management.....	49
Appendix D.....	52
QUESTIONNAIRE FOR FIELD SURVEY OF FINANCIAL DECISION MAKING IN REAL ESTATE MANAGEMENT	52

LIST OF FIGURES

Figure 1 Financial Decision Making Process	7
Figure 2: Financial Statement	8
Figure 3: Real Estate Transactions	10
Figure 4: Location of Selected study areas	19

LIST OF TABLES

Table 1: Selected Sample Sizes	22
Table 2: Consultant mean weightage of each facility	22
Table 3: Survey results of DHA 10 Marla	23
Table 4: Survey results of DHA 1 Kanal	24
Table 5: Survey results of Bahria 10 Marla	26
Table 6: Survey results of Bahria 1 kanal	27
Table 7: Survey results of Naval Anchorage 10 Marla.....	28
Table 8: Survey results of Naval Anchorage 1 Kanal.....	29
Table 9: Survey Results of Jinnah Gardens 10 Marla.....	30
Table 10: Survey Results of Jinnah Gardenss 1 Kannal	31
Table 11: Survey results of Zaraj 10 Marla	33
Table 12: Survey results Zaraj 1 Kanal.....	34
Table 13: Unjustified cost of all towns	35
Table 14: B/C of 10 Marla residential plots.....	36
Table 15: B/C of 1 Kanal residential plots.....	37

CHAPTER 1

INTRODUCTION

1.1. General

Financial affairs in process of tackling different issues in Real Estate management need to be brought under focus. Different aspects, directly and indirectly affecting those affairs are to be worked out. In current times, it is of extreme importance to cover all factors of Real Estate management which are setting new trends in the minds of people to not to rest themselves with orthodox land procurement method anymore. Real Estate procurement & management in itself require a lot of work to be done in different areas like laws of Real Estate management, financial problems, Knowledge management and Risk Analysis e.tc, in order to gain the trust of clients at highest possible level. How actually the services are varying in different models of Real Estate and furthermore which one is most successful in providing those services in terms of availability, spatial factor, surroundings and other dominating factors so that client can take an initiative to be a part of Real Estate. Potential problems in Real Estate Management were identified with the help of literature review and the field survey. “Financial Decision Making in Real Estate Management” is covering all above mentioned issues by analyzing them under the parameters effecting finance.

The real estate asset valuation in Pakistan is not discussed a lot. The head researcher of BMA capital says that the Pakistan real estate has highest share of 700 billion dollars in terms of assets market size. He estimated that if 1 million people live in houses built on 500 square yards areas for each house then the total assets value would be around 300 billion dollars. According to the Ministry of Commerce Government of Pakistan the real estate market needs to be explored yet in Pakistan.

1.2. Background

According to Lamudi real estate market report 2016, the real estate and construction industry constitute 2% of total GDP which is 700 billion USD. After agriculture, real estate sector is one of the biggest employer in Pakistan ranked at second number. Many issues like political instability, corruption, inept real estate agents and security issues are causing the trust deficit between buyers and sellers. There are many platforms available for property dealing, both online and offline. But none of them is able to justify the quoted prices of the land. So the gap between quoted price and the exact value of the land has to be analyzed and reduced systematically. For this purpose, comparative study would make it possible by maximizing the options for the land buyers or clients.

1.3. Scope

In our final year project, we are doing research on the topic of Financial Decision Making in Real Estate Management. The asset class real estate has become very important in past few decades. It is very difficult for a third party to understand that why a specific financing is preferred over another. The return and risk seem to be the obvious standards of financing criteria but still the decision making process is not clear.

Our main purpose is to study the factors effecting financial decisions in real estate management. Real estate management is basically management of property including acquisition of land, control of property, accountability and responsibility of holding the land, maintenance of the land, utilization and disposition of authority. Financial Decision Making is the part of acquisition phase. Two fundamental types of financial decisions are financing and investment. Our main focus is on financing.

The financial decision making done by us is limited to the residential plots of one Kanal and 10 Marla. As far as the area of study is concerned, we have limited our study to Islamabad and Rawalpindi (Twin Cities). Twin cities are the major cities of Pakistan, both are interconnected and are effecting the real estate sectors of each other. Islamabad is the federal capital of Pakistan and Rawalpindi is a hub of real

estate businesses. Both the twin cities are boasting a highly lucrative property market. CDA and RDA are the regulatory authorities of Islamabad and Rawalpindi respectively. These authorities have launched many housing schemes. Due to combine real estate market, it was a best option to choose twin cities for research. Furthermore we choose both developed and underdeveloped towns of twin cities, including DHA, Bahria, Naval Anchorage, Zaraj and Jinnah Gardens.

1.4. Problem Statement

The Ordinance-2001 amendments for income tax through the 2016 Act of Finance were introduced from 1st July of 2016 stating that the provincial governments cannot evaluate the properties and lands rather the Pakistan State Bank will be held responsible for all the land valuation and referred FBR (Federal Board of Revenue) as the department of in-land revenue. The investment in the real estate of Pakistan has decreased since this amendment because the investment is going down in real estate. An unpredictable situations in the real estate sector has been prevailed, which is impeding the inflows of overseas, that's why the inflows of remittances in the country are depressing. According to a Pakistan today article, a recent research survey has shown that sixteen thousand out of eighteen thousand potential developers of real estate have finished all their operations in Pakistan real estate market after this amendment.

Real estate sector is contributing 2% of Pakistan's total GDP. The Federal Board of Revenue has introduced up to 8% gains tax, Capital value tax and stamp duty tax which has drastically impacted on the real estate management. From the statistics of past few years, it is concluded that the real estate management sector had growth rate of 118%. But after implementation of amendment, the growth rate of Pakistan real estate sector has reduced significantly. The buyer and seller number of property has reduced by 75%. Management of land in Real Estate and different other issues affecting the services which are being expected from a piece of land under defined laws of Real Estate needs to be reviewed after certain time periods to meet the demands of client which usually varies time. This project is going to highlight all those problems which are related to finance and moreover problems which are

offering hindrance in the development of Real Estate. These problems are related to the unexplainable costs of plots from accessibility point of view, which further break down into different parameters of accessibility like distance, spatial factors, facilities and amenities which are making that piece of land more accessible for the buyer. The process of decision making from financial point of view holds a value in improving the services of Real Estate.

The urbanization rate of Pakistan is accelerating. According to trade economics, the urbanization rate of Pakistan is 3 % which is the highest in the South Asia, This major population inflow is increasing the demand of land and the land prices. The clients are finding it difficult to choose among available options because the real estate sector of Pakistan has not devised any particular standard method for land valuation. Out of different areas of real estate industry, market is unable to explain the exact worth of real estate sector which is acting as a barrier for both national and international investment. Many real estate developers moved to abroad after July 2016. Lamudi says that sixteen thousand out of eighteen thousand real estate developers moved abroad.

1.5. Objectives

To provide a well-designed evaluation method for land valuation, we decided following objectives:

- To identify financial issues in real estate properties.
- To identify decision influencers in real estate financial decision making.
- To analyze services provided by different real estate developers.
- To suggest different areas of improvement for different real estate societies.
- To suggest an evaluation approach for land valuation.

CHAPTER 2

LITERATURE REVIEW

This chapter is showing the previous research work done in financial decision making and real estate management. It is mainly comprised of all the basic concepts behind the financial statements, land valuation methods, regression equation and cost to benefit analysis.

2.1. Financial Decision Making

The art and science of managing money is finance. Finance is very important for taking decisions in real estate management. Financial decision making is basically determination of when, how, where and how much to spend on a particular on our case (Mui et al, 1987). Sometimes, common sense may turn out to be worst possible financial decision, after application of formulas. Significant rationales are different for personal finances and government body for taking financial decisions.

CBA (cost benefit analysis) is essential to perform sound financial decision making process (Ingersoll, 1987). Benefit cost analysis is a systemic way of estimating weaknesses and strengths of all possible alternatives. In CBA, costs and benefits are expressed in terms of monetary values. Monetary terms are concerned with value of money in terms of time so that all cash flows in the project can be expressed in terms of their net present value. CBA is comprised of alternative projects/programs, stakeholders, elements of cost benefit, outcomes of both the benefits and cost over concerned period of time, application of discount rate, calculation of net present value, performing sensitivity analysis and then adoption of appropriate choice (Boadway, 2016). A critical part of cost and benefit analysis in financial decision making is the determination of time value of money. The change in amount of money over time for funds owned or owed by an individual or cooperation is the main concept of time value of money. The value of money always changes with time. It will either increase or decrease with time.

Following issues will be addressed in our financial decision making research project

- What financing type can be considered the best option?
- Which financing mix can be ideal for the available situation?
- What is meant by the best available Dividend Policy?
- How can the funds be acquired physically?

2.2. Phases of Financial Decision Making

Human data processing theorists are hypothesizing that financial decision has two main phases namely: familiarity and reasoning. Cognitive activities are the part of familiarity phase, which are basically concerned with the relevant data and information in decision maker's environment and surroundings. It is also referred as acquisition of information.

2.3. Steps involved in financial decision making

According to Bowman, financial decision making consist of four steps:

- To identify the keys item(sales or net income) by scanning the surroundings and background
- To produce financial statements for real estate organization from long term memory
- Producing more defined version of the financial templates with refined and required information
- Evaluation of the overall progress

The familiarity phase of financial decision making corresponds to the first step while the reasoning phase is concerned with the second, third and fourth step of financial decision making. Decision in real estate is classified on the basis of typical decision making process (Seiler *et al*, (2012). These decisions are to acquire knowledge of real estate, to estimate market value, to finance the transaction, to sell or buy the property, to manage the property and seek information about the lease, to acquire or transfer the property and to develop the property (Diaz, 1999.). The

familiarity phase of financial decision making corresponds to the first step while the reasoning phase is concerned with the second, third and fourth step of financial decision making.

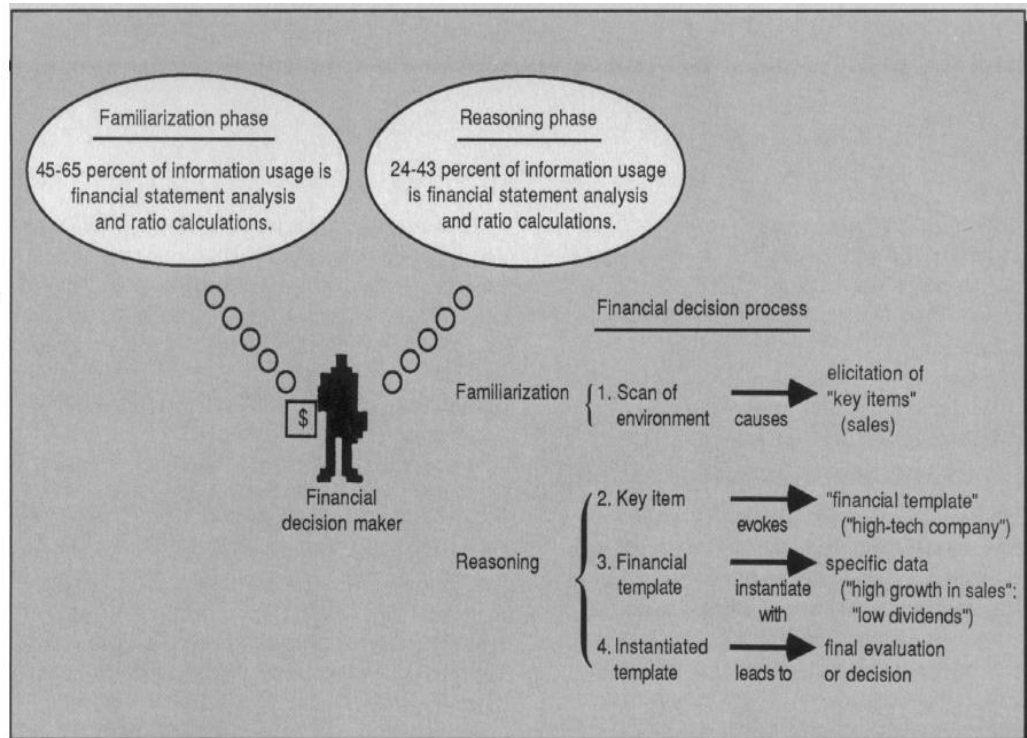


Figure 1 Financial Decision Making Process

2.4. Financial Statement

Financial statements are actually the formal record of all the financial activities involved in real estate management (in our case). Financial statements are used for businesses usually which includes balance sheets, statement of retained earnings, cash flows and income statements. Financial statements are audited by agencies of government, accountants and firms for assuring the accuracy in tax calculations and financing purposes (Kemna, 1993).

Some basic and main types of financial statement are shown in the figure:

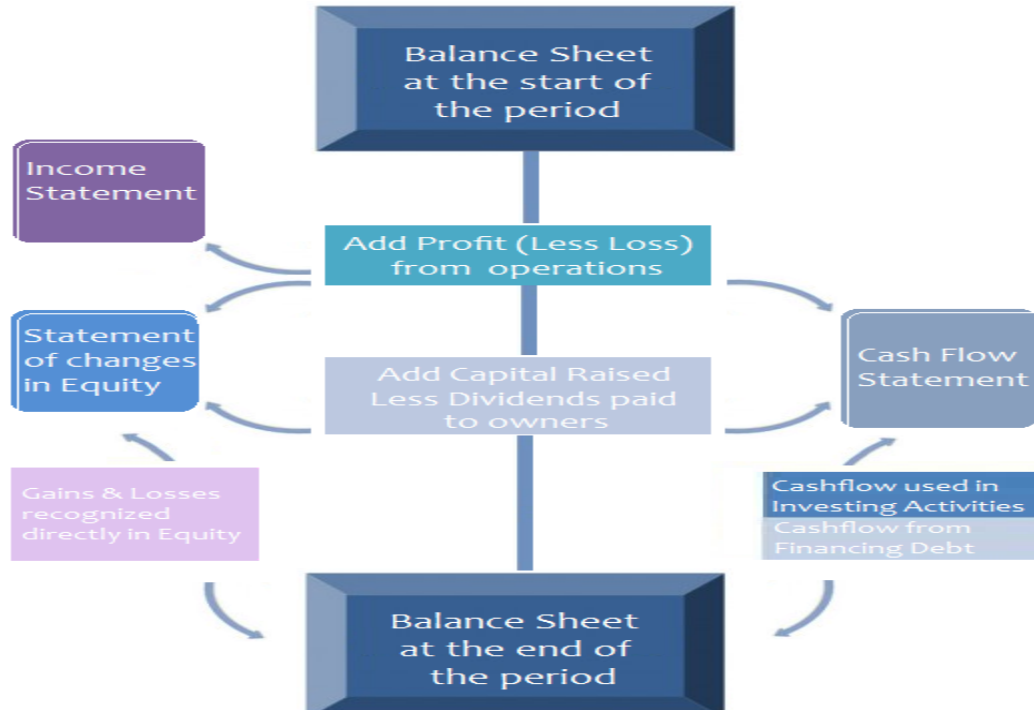


Figure 2: Financial Statement

2.5. Financial Management

The effective and efficient management of funds is basically the financial decision management, in such a way that the objective of the organization can be achieved easily. Main objective of financial management is the profit maximization which occurs when marginal revenue and marginal cost becomes equal (Higgins, R. C. & Reimers. M., 1995). Maintaining proper cash flows and minimizing the cost are the main goals of financial management. Selection of logical and affordable choices from available options is known as decision making process (Trigeorgis, L., 1993).

2.6. Real Estate Management

In the broader term, property management is basically the operations related to the land, authority over the land and the complete overview of real estate sector. Management indicates a need to be cared for, monitored and accountability that was given for its beneficial life (Palm, 2013). As far as strategic plans of a company are concerned, the industry of real estate mostly has 2 pathways to adopt strategically to consider real estate management. The main structure of the

organization is the ideal way to take care of the clients/customers (Wurtzebach & Miles, 1991). Design of strategies is of extreme importance for the real estate firm to maintain a balance between firm and the customer market has become competitive when it comes to commercial real estate property. Strategies must meet the customer need(customer oriented) and should keep in focus the demand of surrounding and time, Real estate organization not only targets the quality but also do keep in focus about the customer services (Trigeorgis, 1993). Different models of many organizations of real estate carry values and is further assessed on the basis of environmental variables and terms. Here the strategy refers to a plan for real estate property management. Traditionally it is about optimizing the capacity of real estate business entity.

2.7. The Flow of Real Estate Transactions

The real estate sector transactions are presented below in form of a flow chart (Jason Opland, 2005).

2.8. Strategy Impact on Value of Real Estate Property

Strategy is a rational of well analyzed choices aiming to maximize the organizations profits. Financial control is of prime value for strategy planning process (Ling & Archer, 2012). It works as an alignment mechanism between the real estate firm and the client. Value creation of all models actually maintains a fitness level between organization and environment. Real estate manager basically holds the responsibility for real estate property which comes under his/her organization.

Value of real estate property corresponding to any real estate organization is affected by in house system and infrastructure of that real estate organization which further involves functionality of front line personnel (those who actually interact with customers) and the process of leasing.

The Flow of Real Estate Transactions

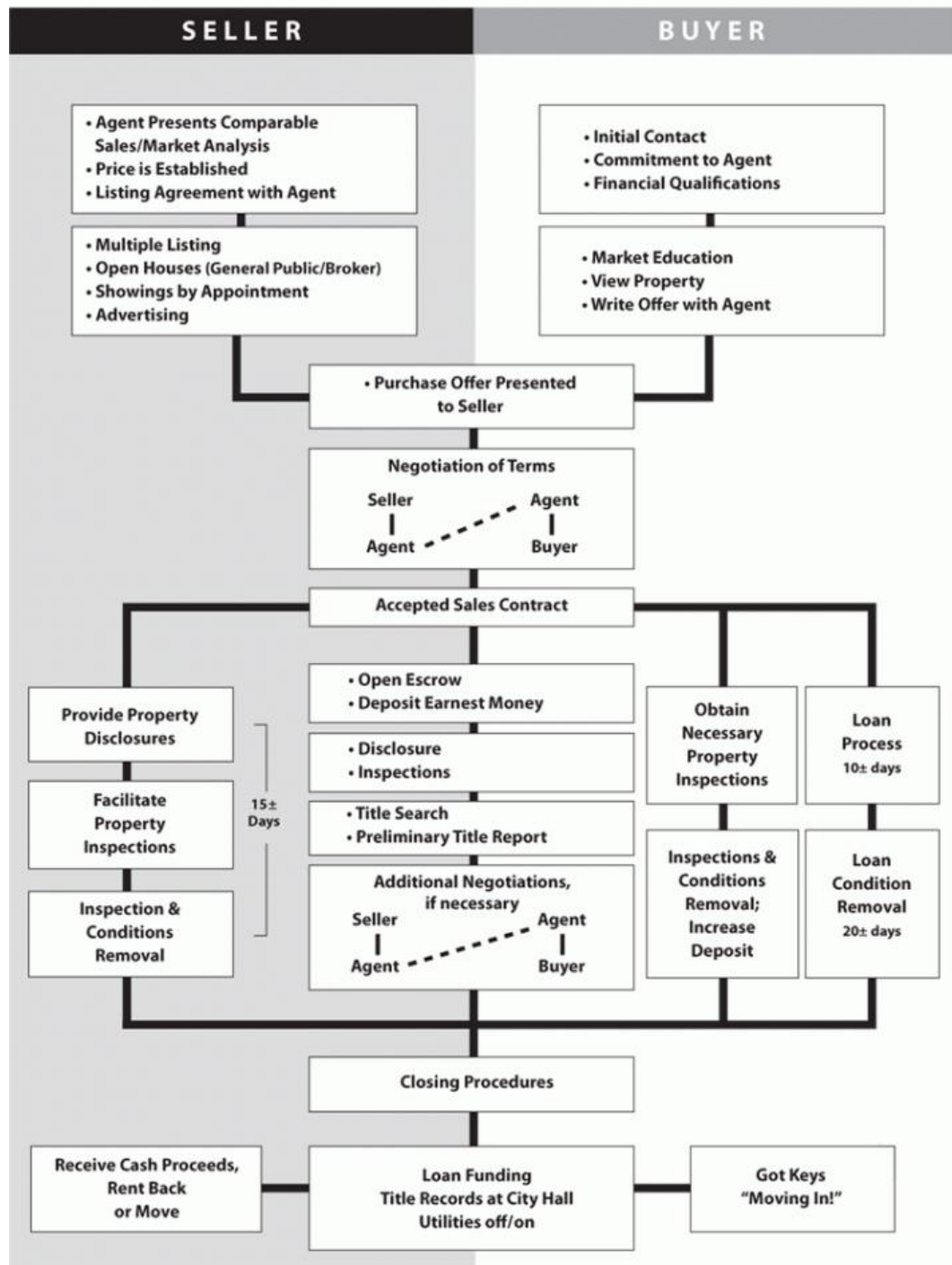


Figure 3: Real Estate Transactions

2.9. Empirical Model of Strategic Decision Making in Real Estate Management

Integrated internationalization of real estate cooperation has brought a variation in development models. Real estate industry is the main drivers of the latest financial growth. Globalization is having a great impact on real estate property and further on its management. Statistical testing of existence is strength of the relation between corporate real estate performance and its capability (Merigó & Lafuente, 2010). Real estate management and then development involves different steps to be taken in different time frames. General real estate management actually needs solutions according to the perspective of planning process. Real estate developers and investors are inclined towards the impact of performance of investment portfolios. Opportunity for the decision making in entrepreneurial skills involves focus on the market values, trends of the customers and behaviors and to explore the services on the basis of location. Furthermore, real estate development consists of five main steps namely: economic analysis, capability analysis, CRE sustainable development strategy and decision. Variation in regulations and taxation are attracting real estate managers. Different economic variables for the real estate management involve GDP, interest rate, currency exchange and aggregate employment. Purchasing power and availability of financing in demographics also affects real estate management criteria.

2.10. The Appraisal of Real Estate

Valuation of land simply shows the value of that land at the time of transaction. It involves the variation from point of purchase, sale, transact, assessment of tax, the expropriation, the inheritance, the investment and the financing (American Institute of Real Estate Appraisers, 1987). Traditional models comparable to cost, time, income and contractors method holds value in real estate property/land, while advanced and modern methods are hedonic pricing method, spatial analysis method, ANNS, ARIMA models and fuzzy logic (Pagourtzi et al, 2003). Real estate property is defined on the basis of all interests, benefits, rights and encumbrance inherent in the ownership of assets of real estate. Value is based on the benefits and

liabilities accruing by owning the land values are carried out by different personnel in market place named as real estate agents, real estate appraisers, real estate assessors, real estate mortgage leaders, real estate brokers, real estate property developers, and owners of shopping centers or plazas (Clayton *et al.*, 2001).

2.11. Role of Valuation of Land

Validity criteria for the value of real estate property is that it produces and accurately estimate the market value of real estate industry. Most appropriate estimate is generally termed as valuation of property. Term “price” is actual price on which property is exchanged. Market plays a central role for the ownership of property. In terms of liquidity, the idea of property worth is defined as one of the main issue to provide client information which should be clear and unambiguous.

2.12. Market Value of Real Estate Property

The Market value refers to estimated amount for the property/land. It is basically a general representation of value in exchange .Value should estimate the highest and best use before estimating the market value. Market value for any piece of land is an estimation for which the asset must be exchanged on the time of valuation between the land buyer and owner of the property.

2.13. Valuation of Real Estate Property

Because of some differences in each real estate property, the value determination can be difficult. Generally three approaches are followed for estimating the property values (Pagourtzi *et al.*, 2003). Because of the complexities appraisers follow multiple paths use these following approaches:

- Market data
- Cost
- Income

Property valuation has numerous factors involved in estimation of values that appraisers will always clarify that there estimate was only a general opinion of property’s value. There are some hidden economic bases for property valuation like

- How change effect value?
- How connections effect the profit?

Market data focus on the similarly situated property worth, Cost focus on value of the income and building focus on expected cash flows to be generated. While comparing very different properties the adjustments are made for the identified differences (Lenk *et al.*, 1997). The differences are commonly based on:

- The location
- Size of land plot
- Square footage of all the usable building space
- Quality and type of construction
- Age and financial differences
- Design
- Land Terrain
- Interior layout

Cost benefit analysis can be started with a basic estimate by using present cost of building; local builder can only provide a general per square foot cost of new construction. Construction cost indexes is a rigorous approach which breaks the cost by region and types.

Income capitalization is placing a valuation of dollar on the upcoming stream of cash flows. It mainly requires determination of amount, time for income from property and the application of an rate of capitalization for conversion of future income into the present value (Fisher *et al.*, 1994). Income capitalization is generally used for determining the net property income and the selection of rate of capitalization suited to the property type, location, quality of tenants and age. Averaging the three results of appraisals is not appropriate at all. These approaches have both negative and positive aspects.

There are generally two types of method followed for the valuation of land.

2.13.1. Traditional Valuation Method

2.13.2. Advanced Valuation Method

2.13.1. Traditional valuation methods

There are following types of traditional land valuation methods which is obsolete but still followed in Pakistan real estate sector:

- Comparable method
- Investment/income method
- Profit method
- Development/residual method
- Contractor's/cost method

2.13.1. Advanced valuation methods

Advanced land valuation methods are listed below:

- Artificial neural networks (ANNs)
- Hedonic pricing method
- Spatial Analysis Methods
- Fuzzy logic
- ARIMA

2.14. Queensland Building and Construction Commission

The focus of Queensland building and construction commission is to provide potential parameters before buying property. They have made it very clear that how we can value land in terms of cost on the basis of their parameters. Preferred Location types for the land valuation are

Urban Area: An urban area showing a settlement of humans with quiet high density of population and infrastructure.

Sub Urban Area: A suburb shows the residential area having mixed use, either exists as part of a city or as a separate community away from city.

Rural Area: A rural area shows the geographic area which is located totally outside the city or town.

Lifestyle of the community also effects the cost of land. Lifestyle includes work, schools, universities, exercise facilities, shops, health care, entertainment and public transport. Services taken in the consideration includes power, phone, internet, water supply, waste water treatment and garbage disposal. Size, orientation and slope influence the retaining wall structure and cut and fill expected on the land in future. Geology and topography is also considered to reduce the losses due to possible landslides. Site classification also effects the land price because clay sites are cheaper than rocky land commonly. Site drainage pattern and maintenance are also important for land valuation.

2.15. Dillman 2007

In order to back the consistency of data, we used “Dillman 2007” “approach to implement our questionnaire in field survey for different real estate models. Dillman (2007) is providing the formula for calculating the research sample sizes:

$$N_s = (N_p) (p) (1-p) (N_p - 1) (B/C)^2 + (p)(1-p)$$

Where:

N_s = the completed sample size needed

N_p = the population size

p = expected percentage (50% or 0.5 is most conservative)

B = sampling error acceptance level (0.05= \pm 5%; 0.03= \pm 3%)

C = the statistic associate with pre-defined confidence interval

2.16. Regression Equation

Linear regression is basically dealing with only two variables. One of the variable taken in consideration is the explanatory variable while the other is taken as the dependent variable. Before fitting a linear model to observed data, the relationship between the variables of interest has to be determined. It is not must that one

variable of interest causes the other but that there must be some significant association (Draper et al, 1996). A scatterplot is helpful in determining the relationship strength between variables. If there is no association between dependent variables and proposed explanatory variables, then regression equation cannot be used to provide a beneficial model.

The correlation coefficient is a very valuable numerical value for numerical measurement of variable association. The line of linear regression has a simpler form of equation which is

$$Y = a + b(X)$$

Here “X” is the variable of explanatory and “Y” is dependent variable. The slope of the line is denoted as ‘b’, and ‘a’ is the representation of intercept.

2.17. Cost Benefit Analysis

The cost benefit analysis is done to explain the criteria for starting the project or not. If the benefit over cost ratio is greater than one then it means that the decision we have made is giving profit and we should stick to this. Otherwise if benefit over cost ratio comes out to be less than one then there is no profit in our decision and we should change it timely to avoid future losses.

CHAPTER 3

METHODOLOGY

This chapter is thoroughly explaining the research methodology and the steps that were taken during entire project. Initiating from the literature collection of financial decision influencer in real estate management, it involves the methods of data collection employed and the data analysis. Questionnaires and interviews are the main source of gathering information.

3.1. Envisaged Research Methodology

To achieve our desired scope of the project, top to bottom approach will be followed in which we will decompose our project into different small and well defined tasks/activities which will be carried out by keeping in view the nature and time duration allocated for that particular task. Since our project is more focused towards analyzing the problems and solutions to all those problems so the most feasible method or technique followed by us will be carrying out different surveys in the field for the acquisition of data which will further enable us to know about the exact ground scenario and to convert the data into more accurate and demanding information.

3.2. Methodology Steps

The financial decision making is not a short method for real estate management. It has to be subdivided on the basis of mile stones. The steps we followed are listed below:

- 3.2.1. Parameter Selection
- 3.2.2. Area selection
- 3.2.3. Consultant surveys
- 3.2.4. Public surveys
- 3.2.5. Regression equation
- 3.2.6. Cost benefit analysis

3.2.1. Parameter Selection

To start financial decision making, first of all we choose parameters. Parameter selection is of supreme importance because all the study depends on these decision influencers. That's why we chose parameters by two ways: Literature and consultant interviews. From literature review, Queensland building and construction commission is consulted for parameter selection. The consultants were interviewed about the parameters they commonly used for land valuation. Consultant divided the properties in many categories like boulevard, corner plots and near mosque plots etc. All the categories they gave us were based on some standard decision influencers. The influencers told by them varied in number so we noted down the most common ones in our study. Queens land gave us more than 20 parameters. Keeping in view the real estate sector of Pakistan, 15 parameters selected are listed below:

- Electricity
- Gas
- Water
- Road Infrastructure
- Sewerage
- Medical Facilities
- Emergency Services
- Security System
- Educational Institutes
- Parks
- Commercial Markets
- Cleanliness
- Drainage
- Transportation
- Road Signs

Parameters taken from field survey and literature are attached as Appendix A and Appendix B respectively.

3.2.2. Area Selection

For the selection of different real estate societies, after studying the literature, following societies were selected by keeping in mind the following points of utility of services, quality of facilities, common sizes of plots and ease of transferability:

- DHA
- Bahria
- Zaraj
- Naval Anchorage
- Jinnah Gardens

The Five real estate towns we considered are on rise in real estate sector of Pakistan, especially DHA and Bahria. Our study area is mainly focused on the famous real estate sector developers, both national and international. The location of these towns is very important due to twin cities interconnected real estate market. The figure shown below is showing location every real estate developing authority we considered for our comparative study.



Figure 4: Location of Selected study areas

3.2.3. Consultant Surveys

The consultant survey was conducted to record their responses against our chosen parameters. The consultants gave their responses in form of percentages. Consultants of twin cities gave 40 – 50 % weightage to the facilities claimed by the real estate developers in the cost of land. While the rest of the cost is the actual price of land. Surveys of a number of real estate consultants were performed. Base price was determined by consultant survey. Base price is the minimum land price quoted by the real estate consultants. Data regarding the selected parameters was acquired. Data collected was in the form of percentage of the base price of land. The consultant survey questionnaire is attached as Appendix C.

3.2.4. Public survey

The public response recorded was based on 1 – 5 scale. The response of public was basically showing the public satisfaction factor for the respective facilities. Questionnaires were filled by the public. The survey indicated the public satisfaction level. Sample size for every locality was determined by Dillman 2007. A regression equation was formed. Data from consultants helped us determining the price according to consultants while public survey determined the price according to public. The questionnaire for the public survey is attached as Appendix D.

3.2.5. Regression Equation

The regression equation used was developed keeping in mind the variable and non-variable factors. Our regression equation is a linear relationship of base price with the public satisfaction factor and the percentage increase of each facility. The regression equation is basically helpful in finding the exact amount of unjustified cost. Following regression equation has been used to calculate the effective cost of the area, cost that has been explained in terms of benefits

$$\mathbf{P \text{ (Cost Factor)} = \sum (N \times n)}$$

N= Mean percentage increase of each facility

n = a/5 = Public Satisfaction factor of each facility

a= weightage of facility by public on 1-5 scale

$$\text{Price according to public} = \text{Base price} (1 + P)$$

$$\text{Price according to consultant} = \text{Base price} (1 + \sum N)$$

$$\text{Unjustified cost} = \text{Price according to consultant} - \text{Price according to public}$$

3.2.6. Benefit to Cost Analysis

The benefit to cost analysis was performed to choose the best option among available property options. Cost to benefit analysis was performed against all parameters. On the comparative scale each facility was evaluated according to their weightages assigned by the real estate consultants. The facility with the highest comparative value was selected as the best feature of that society.

$$\text{Benefit} = \{(n \times N) \times \text{Base Price}\}$$

$$\text{Cost} = (N \times \text{Base Price})$$

n= weightage of facility by public on 1-5 scale

N= Mean weightage of facility taken from real estate consultants

CHAPTER 4

RESULT AND ANALYSIS

This chapter will be showing all the results obtained from public and real estate consultant surveys and their complete comparative analysis with the help of regression equation and benefit to cost analysis.

4.1. Sample Sizes

All the sample sizes were calculated using Dillman 2007 and shown below in the table:

Table 1: Selected Sample Sizes

Sr No.	Real Estate Developers	Sample Sizes	
		10 Marla	1 Kanal
1.	DHA	230	211
2.	Naval Anchorage	135	124
3.	Bahria	227	197
4.	Jinnah Gardens	95	72
5.	Zaraj	93	71

4.2. Results

It is done on the data collected from both real estate consultants and the public in the form of questionnaires. The survey results of DHA (10 Marla & 1 Kanal), Bahria (10 Marla & 1 Kanal), Jinnah Gardens (10 Marla & 1 Kanal), Zaraj (10 Marla & 1 Kanal) and Naval Anchorage (10 Marla & 1 Kanal) are shown below in form of tables along with the calculation of unjustified costs of land using our own regression equation discussed in methodology in detail.

The weightages against each facility was taken from consultants in terms of percentage of land price as shown in table below:

Table 2: Consultant mean weightage of each facility

FACILITY	SOCIETIES				
	DHA	BAHARIA	NAVAL ANCHORAGE	JINNAH GARDENS	ZARAJ

Electricity	3.50%	5%	6%	5%	3.50%
Gas	3.80%	4.80%	6%	5%	4%
Water	8%	8.70%	7.50%	6%	8.30%
Road Infrastructure	1.50%	1.50%	4.50%	4.50%	1.30%
Sewerage	3.50%	2.70%	1.50%	1.50%	3.50%
Medical Facilities	2.30%	2.10%	3.50%	3.50%	2.30%
Emergency Services	2.50%	2.50%	2.50%	2.50%	2.50%
Security System	3%	2.20%	6%	2.50%	3.50%
Educational Institutes	2.50%	2%	1.50%	1.50%	2.50%
Parks	2.50%	2.50%	2.50%	1.50%	2.50%
Commercial Markets	1%	8.80%	6%	6%	1%
Cleanliness	2.30%	2.50%	1.50%	1.50%	2.50%
Drainage	2.50%	2.40%	1.50%	2.50%	2.50%
Transportation	2.50%	2.50%	1.50%	1.50%	2.50%
Road Signs	2.60%	2.50%	1.50%	1.50%	2.50%

4.2.1. DHA 10 Marla

Table 3: Survey results of DHA 10 Marla

Base Price = 85 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	3.83	0.766	0.035	0.02681
2	Gas	4.5	0.9	0.04	0.03600
3	Water	4.5	0.9	0.083	0.07470

4	Road Infrastructure	4	0.8	0.13	0.10400
5	Sewerage	4.5	0.9	0.035	0.03150
6	Medical Facility	4	0.8	0.023	0.01840
7	Emergency Services	3.83	0.766	0.025	0.01915
8	Security System	3.83	0.766	0.035	0.02681
9	Education Institute	4.67	0.934	0.025	0.02335
10	Parks	3.33	0.666	0.025	0.01665
11	Commercial Markets	4.33	0.866	0.01	0.00866
12	Cleanliness	4	0.8	0.025	0.02000
13	Drainage	4	0.8	0.025	0.02000
14	Transportation	4.5	0.9	0.025	0.02250
15	Road signs	4	0.8	0.025	0.02000
Total Sum				0.566	0.46853

- Price according to consultant = Base price + Base price($\sum b$)
 $= 85 + 85(0.566)$
 $= \mathbf{133.11 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 85 + 85(0.46853)$
 $= \mathbf{124.83 \text{ lacks}}$
- Unjustified cost = $133.11 - 124.83 = \mathbf{8.28 \text{ lacks}}$

4.2.2. DHA 1 Kanal

Table 4: Survey results of DHA 1 Kanal

Base Price = 125 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)

		a	a/5	b (%)	a/5 * b
1	Electricity	3.07	0.614	0.035	0.02149
2	Gas	4.13	0.826	0.04	0.03304
3	Water	4.27	0.854	0.083	0.07088
4	Road Infrastructure	3.67	0.734	0.13	0.09542
5	Sewerage	3.47	0.694	0.035	0.02429
6	Medical Facility	2.53	0.506	0.023	0.01164
7	Emergency Services	3.07	0.614	0.025	0.01535
8	Security System	3.2	0.64	0.035	0.02240
9	Education Institute	3.47	0.694	0.025	0.01735
10	Parks	3.27	0.654	0.025	0.01635
11	Commercial Markets	3.73	0.746	0.01	0.00746
12	Cleanliness	3.8	0.76	0.025	0.01900
13	Drainage	3.6	0.72	0.025	0.01800
14	Transportation	3.13	0.626	0.025	0.01565
15	Road signs	3.47	0.694	0.025	0.01735
Total Sum				0.566	0.40567

- Price according to consultant = Base price + Base price($\sum b$)
 $= 125 + 125(0.566)$
 $= \mathbf{195.75 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 125 + 125(0.40567)$
 $= \mathbf{175.71 \text{ lacks}}$
- Unjustified cost = $195.75 - 175.71 = \mathbf{20.04 \text{ lacks}}$

4.2.3. Bahria 10 Marla

Table 5: Survey results of Bahria 10 Marla

Base Price = 35 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	4.45	0.89	0.05	0.04450
2	Gas	4.55	0.91	0.048	0.04368
3	Water	4.45	0.89	0.0875	0.07788
4	Road Infrastructure	4.55	0.91	0.15	0.13650
5	Sewerage	4.45	0.89	0.027	0.02403
6	Medical Facility	3.09	0.618	0.021	0.01298
7	Emergency Services	3.82	0.764	0.025	0.01910
8	Security System	4.09	0.818	0.022	0.01800
9	Education Institute	2.82	0.564	0.02	0.01128
10	Parks	3.45	0.69	0.025	0.01725
11	Commercial Markets	4.27	0.854	0.088	0.07515
12	Cleanliness	4.36	0.872	0.025	0.02180
13	Drainage	3.91	0.782	0.024	0.01877
14	Transportation	3.45	0.69	0.025	0.01725
15	Road signs	3.75	0.75	0.025	0.01875
Total Sum				0.6625	0.55691

- Price according to consultant = Base price + Base price($\sum b$)
 $= 35 + 35(0.6625)$
 $= \mathbf{58.19 \text{ lacks}}$

- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 35 + 35(0.55691)$
 $= 54.49$ lacks
- Unjustified cost = 58.19-54.49 = **3.7 lacks**

4.2.4. Bahria 1 Kanal

Table 6: Survey results of Bahria 1 kanal

Base Price = 65 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	4.85	0.97	0.05	0.04850
2	Gas	3.28	0.656	0.048	0.03149
3	Water	4.71	0.942	0.0875	0.08243
4	Road Infrastructure	4.71	0.942	0.15	0.14130
5	Sewerage	4.28	0.856	0.027	0.02311
6	Medical Facility	4.71	0.942	0.021	0.01978
7	Emergency Services	4.28	0.856	0.025	0.02140
8	Security System	4.28	0.856	0.022	0.01883
9	Education Institute	4.14	0.828	0.02	0.01656
10	Parks	3.14	0.628	0.025	0.01570
11	Commercial Markets	4	0.8	0.088	0.07040
12	Cleanliness	4.28	0.856	0.025	0.02140
13	Drainage	4.28	0.856	0.024	0.02054
14	Transportation	3.57	0.714	0.025	0.01785
15	Road signs	4.14	0.828	0.025	0.02070

Total Sum	0.6625	0.56999
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- Price according to consultant = Base price + Base price($\sum b$)
 $= 65 + 65(0.6625)$
 $= \mathbf{108.06 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 65 + 65(0.56999)$
 $= \mathbf{102.05 \text{ lacks}}$
- Unjustified cost = $108.06 - 102.05 = \mathbf{6.01 \text{ lacks}}$

4.2.5. Naval Anchorage 10 Marla

Table 7: Survey results of Naval Anchorage 10 Marla

Base Price = 50 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	4.5	0.9	0.06	0.05400
2	Gas	3.62	0.724	0.06	0.04344
3	Water	3.5	0.7	0.075	0.05250
4	Road Infrastructure	4	0.8	0.045	0.03600
5	Sewerage	3.75	0.75	0.015	0.01125
6	Medical Facility	3.25	0.65	0.035	0.02275
7	Emergency Services	3.625	0.725	0.025	0.01813
8	Security System	4	0.8	0.06	0.04800
9	Education Institute	3.75	0.75	0.015	0.01125

10	Parks	3.75	0.75	0.025	0.01875
11	Commercial Markets	3.375	0.675	0.06	0.04050
12	Cleanliness	3.25	0.65	0.015	0.00975
13	Drainage	3.5	0.7	0.015	0.01050
14	Transportation	3.625	0.725	0.015	0.01088
15	Road signs	4.5	0.9	0.015	0.01350
Total Sum				0.535	0.40119

- Price according to consultant = Base price + Base price($\sum b$)
 $= 50 + 50(0.535)$
 $= \mathbf{76.75 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 50 + 50(0.40119)$
 $= \mathbf{70.06 \text{ lacks}}$
- Unjustified cost = $76.75 - 70.06 = \mathbf{6.69 \text{ lacks}}$

4.2.6. Naval Anchorage 1 Kanal

Table 8: Survey results of Naval Anchorage 1 Kanal

Base Price = 70 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	3.09	0.618	0.06	0.03708
2	Gas	3.73	0.746	0.06	0.04476
3	Water	2.45	0.49	0.075	0.03675
4	Road Infrastructure	4	0.8	0.045	0.03600
5	Sewerage	4	0.8	0.015	0.01200

6	Medical Facility	2.09	0.418	0.035	0.01463
7	Emergency Services	3.09	0.618	0.025	0.01545
8	Security System	4.09	0.818	0.06	0.04908
9	Education Institute	3.82	0.764	0.015	0.01146
10	Parks	4.09	0.818	0.025	0.02045
11	Commercial Markets	3.09	0.618	0.06	0.03708
12	Cleanliness	3.81	0.762	0.015	0.01143
13	Drainage	4.18	0.836	0.015	0.01254
14	Transportation	2.91	0.582	0.015	0.00873
15	Road signs	3.73	0.746	0.015	0.01119
Total Sum				0.535	0.35863

- Price according to consultant = Base price + Base price($\sum b$)
 $= 70 + 70(0.535)$
 $= \mathbf{107.45 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 70 + 70(0.35863)$
 $= \mathbf{95.10 \text{ lacks}}$
- Unjustified cost = $107.45 - 95.10 = \mathbf{12.35 \text{ lacks}}$

4.2.7. Jinnah Gardens 10 Marla

Table 9: Survey results of Jinnah Gardens 10 Marla

Base Price = 50 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)

		a	a/5	b (%)	a/5 * b
1	Electricity	3.27	0.654	0.05	0.03270
2	Gas	3	0.6	0.05	0.03000
3	Water	2.82	0.564	0.06	0.03384
4	Road Infrastructure	3.82	0.764	0.045	0.03438
5	Sewerage	3.54	0.708	0.015	0.01062
6	Medical Facility	1.91	0.382	0.035	0.01337
7	Emergency Services	2.73	0.546	0.025	0.01365
8	Security System	3.64	0.728	0.025	0.01820
9	Education Institute	3.09	0.618	0.015	0.00927
10	Parks	2.36	0.472	0.015	0.00708
11	Commercial Markets	3.18	0.636	0.06	0.03816
12	Cleanliness	2.82	0.564	0.015	0.00846
13	Drainage	3.09	0.618	0.025	0.01545
14	Transportation	3	0.6	0.015	0.00900
15	Road signs	3.45	0.69	0.015	0.01035
Total Sum				0.465	0.28453

- Price according to consultant = Base price + Base price($\sum b$)
 $= 50 + 50(0.465)$
 $= \mathbf{73.25 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 50 + 50(0.28453)$
 $= \mathbf{64.23 \text{ lacks}}$
- Unjustified cost = $73.25 - 64.23 = \mathbf{9.02 \text{ lack}}$

4.2.8. Jinnah Gardens 1 Kanal

Table 10: Survey results of Jinnah Gardens 1 Kanal

Base Price = 80 Lakh

Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	3.33	0.666	0.05	0.03330
2	Gas	2.89	0.578	0.05	0.02890
3	Water	3.33	0.666	0.06	0.03996
4	Road Infrastructure	2.78	0.556	0.045	0.02502
5	Sewerage	3.11	0.622	0.015	0.00933
6	Medical Facility	2	0.4	0.035	0.01400
7	Emergency Services	2.56	0.512	0.025	0.01280
8	Security System	3.67	0.734	0.025	0.01835
9	Education Institute	2.44	0.488	0.015	0.00732
10	Parks	2.11	0.422	0.015	0.00633
11	Commercial Markets	3.56	0.712	0.06	0.04272
12	Cleanliness	3	0.6	0.015	0.00900
13	Drainage	3	0.6	0.025	0.01500
14	Transportation	3.11	0.622	0.015	0.00933
15	Road signs	3.89	0.778	0.015	0.01167
Total Sum				0.465	0.28303

- Price according to consultant = Base price + Base price($\sum b$)
 $= 80 + 80(0.465)$
 $= \mathbf{117.20 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 80 + 80(0.28303)$
 $= \mathbf{102.64 \text{ lacks}}$

- Unjustified cost = 117.20-102.64 = **14.56 lacks**

4.2.9. Zaraj 10 Marla

Table 11: Survey results of Zaraj 10 Marla

Base Price = 45 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	3.385	0.677	0.035	0.02370
2	Gas	4.46	0.892	0.04	0.03568
3	Water	4.69	0.938	0.083	0.07785
4	Road Infrastructure	3.92	0.784	0.13	0.10192
5	Sewerage	4.15	0.83	0.035	0.02905
6	Medical Facility	1.54	0.308	0.023	0.00708
7	Emergency Services	1.92	0.384	0.025	0.00960
8	Security System	4.23	0.846	0.035	0.02961
9	Education Institute	2.77	0.554	0.025	0.01385
10	Parks	2.62	0.524	0.025	0.01310
11	Commercial Markets	2.23	0.446	0.01	0.00446
12	Cleanliness	3.92	0.784	0.025	0.01960
13	Drainage	3.92	0.784	0.025	0.01960
14	Transportation	2.23	0.446	0.025	0.01115
15	Road signs	3.62	0.724	0.025	0.01810
Total Sum				0.566	0.41435

- Price according to consultant = Base price + Base price($\sum b$)
 $= 45 + 45(0.566)$
 $= \mathbf{70.47 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 45 + 45(0.41435)$
 $= \mathbf{63.65 \text{ lacks}}$
- Unjustified cost = $70.47 - 63.65 = \mathbf{6.82 \text{ lacks}}$

4.2.10. Zaraj 1 Kanal

Table 12: Survey results Zaraj 1 Kanal

Base Price = 85 Lakh					
Sr No.	Facility name	Weightage given by Public (on 1- 5 Scale)		Weightage given by Consultants	Cost Factor(P)
		a	a/5	b (%)	a/5 * b
1	Electricity	3.83	0.766	0.035	0.02681
2	Gas	3.83	0.766	0.04	0.03064
3	Water	4.33	0.866	0.083	0.07188
4	Road Infrastructure	3	0.6	0.13	0.07800
5	Sewerage	4.17	0.834	0.035	0.02919
6	Medical Facility	1.67	0.334	0.023	0.00768
7	Emergency Services	2.33	0.466	0.025	0.01165
8	Security System	4.17	0.834	0.035	0.02919
9	Education Institute	2.83	0.566	0.025	0.01415
10	Parks	2.33	0.466	0.025	0.01165
11	Commercial Markets	2.83	0.566	0.01	0.00566
12	Cleanliness	3.5	0.7	0.025	0.01750
13	Drainage	3.17	0.634	0.025	0.01585

14	Transportation	2.167	0.4334	0.025	0.01084
15	Road signs	3.5	0.7	0.025	0.01750
Total Sum				0.566	0.37819

- Price according to consultant = Base price + Base price($\sum b$)
 $= 85 + 85(0.566)$
 $= \mathbf{133.11 \text{ lacks}}$
- Price according to the public = Base price + Base price $\{\sum(b*a/5)\}$
 $= 85 + 85(0.37819)$
 $= \mathbf{117.15 \text{ lacks}}$
- Unjustified cost = $133.11 - 117.15 = \mathbf{15.96 \text{ lacks}}$

Table 13: Unjustified cost of all towns

Sr No.	Real Estate Developers	Base Price (Lakhs)	Consultant Price (Lakhs)	Public Price (Lakhs)	Unjustified Cost (Lakhs)
1.	DHA	10 Marla	85	140.76	9.39
		1 Kanal	125	207	23
2.	Bahria	10 Marla	35	58.17	3.68
		1 Kanal	65	108.03	6
3.	Naval Anchorage	10 Marla	50	76.75	6.7
		1 Kanal	70	107.45	12.35
4.	Jinnah Gardens	10 Marla	50	73	8
		1 Kanal	80	117.2	13.84
5.	Zaraj	10 Marla	45	70.47	6.83
		1 Kanal	85	133.11	15.57

4.3. Analysis

The benefit to cost analysis performed on both consultant and public gave us B/C ratio against each parameter for both 10 Marla and 1 Kanal.

4.3.1. B/C of 10 Marla Residential Plots

All the bold figures in each row shows the maximum B/C ratio.

Table 14: B/C of 10 Marla residential plots

FACILITY	SOCIETIES(10 Marla)				
	DHA	BAHARIA	NAVAL ANCHORAGE	JINNAH GARDENS	ZARAJ
Electricity	0.77	0.89	0.9	0.65	0.68
Gas	0.9	0.91	0.72	0.6	0.89
Water	0.9	0.89	0.7	0.56	0.94
Road Infrastructure	0.8	0.91	0.8	0.76	0.78
Sewerage	0.9	0.89	0.75	0.71	0.83
Medical Facilities	0.8	0.62	0.65	0.38	0.31
Emergency Services	0.77	0.76	0.73	0.55	0.38
Security System	0.77	0.82	0.8	0.73	0.85
Educational Institutes	0.93	0.56	0.75	0.62	0.55
Parks	0.67	0.69	0.75	0.47	0.52
Commercial Markets	0.87	0.85	0.68	0.64	0.45
Cleanliness	0.8	0.87	0.65	0.56	0.78
Drainage	0.8	0.78	0.7	0.62	0.78
Transportation	0.9	0.69	0.73	0.6	0.45
Road Signs	0.8	0.75	0.9	0.69	0.72

The above table is showing that the DHA 10 Marla is providing better sewerage system, Medical facility, emergency services, educational institutes, commercial

markets, drainage system and transportation system as compared to the rest four real estate developers. The Bahria is providing better road infrastructure, gas facility and clean environment as compared to the rest. Naval anchorage is providing best electricity services, parks and road signs facility among all. The security system and the water availability of Jinnah Gardens are best among all five options. As far as the Zaraj is concerned, they are not good enough as compared to other four real estate developers especially for 10 Marla residential plots.

4.3.2. B/C of 1 Kanal Residential Plots

All the bold figures in each row shows the maximum B/C ratio.

Table15: B/C of 1 Kanal residential plots

FACILITY	SOCIETIES(1 Kanal)				
	DHA	BAHARIA	NAVAL ANCHORAGE	JINNAH GARDENS	ZARAJ
Electricity	0.61	0.97	0.62	0.67	0.77
Gas	0.83	0.66	0.75	0.58	0.77
Water	0.85	0.94	0.49	0.67	0.87
Road Infrastructure	0.73	0.94	0.8	0.76	0.6
Sewerage	0.69	0.86	0.8	0.62	0.83
Medical Facilities	0.51	0.94	0.42	0.4	0.33
Emergency Services	0.61	0.86	0.62	0.51	0.47
Security System	0.64	0.86	0.82	0.73	0.83
Educational Institutes	0.69	0.83	0.76	0.49	0.57
Parks	0.65	0.63	0.82	0.42	0.47
Commercial Markets	0.75	0.8	0.62	0.71	0.57
Cleanliness	0.76	0.86	0.76	0.6	0.7
Drainage	0.72	0.86	0.84	0.6	0.63
Transportation	0.63	0.71	0.58	0.62	0.43
Road Signs	0.69	0.83	0.75	0.78	0.7

The above table is showing that the DHA 10 Marla is providing better gas facility as compared to the rest four real estate developers. The Bahria is providing better electricity facility, water, road infrastructure, sewerage system, Medical facility, emergency services, educational institutes, commercial markets, clean environment, drainage system and transportation system and road signs as compared to the rest. Naval anchorage is providing best parks among all. As far as the Zaraj and Jinnah Gardens are concerned, they are not good enough as compared to other four real estate developers especially for 1 Kanal residential plots.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

The conclusion deduced from all the results analyzed before are:

- Unjustified cost in the major towns {DHA (10 Marla & 1 Kanal), Bahria (10 Marla & 1 Kanal), Jinnah Gardens (10 Marla & 1 Kanal), Zaraj (10 Marla & 1 Kanal) and Naval Anchorage (10 Marla & 1 Kanal)} of Rawalpindi and Islamabad is observed.
- General valuation method for DHA (10 Marla & 1 Kanal), Bahria (10 Marla & 1 Kanal), Jinnah Gardens (10 Marla & 1 Kanal), Zaraj (10 Marla & 1 Kanal) and Naval Anchorage (10 Marla & 1 Kanal) is proposed which will help clients to evaluate land in terms of cost more accurately.
- The results of the research and the valuation model acts as a decision support now. Our land valuation technique has made property cost more relatable.
- Facilities in terms of monetary values are more explainable for DHA 10 Marla and BAHRIA 1 Kanal.
- Zaraj and Jinnah Gardens need to improve their services for the better justification of cost charged for these services.

5.2. Recommendations

There are still some areas which needs to be explored and worked on in financial decision making of Pakistan real estate. Some of them are listed below:

- Our study area was restricted to DHA (10 Marla & 1 Kanal), Bahria (10 Marla & 1 Kanal), Jinnah Gardens (10 Marla & 1 Kanal), Zaraj (10 Marla & 1 Kanal) and Naval Anchorage (10 Marla & 1 Kanal) only, It has to be expended to all the property of Rawalpindi and Islamabad.
- Furthermore, study area can be expanded to national level.

- The causes of unjustified cost are still unknown to us. A lot of research can be done in this field.
- GIS can be incorporated in the financial decision making of real estate management to make our study more representable and convenient to understand on maps.
- Our study is limited to residential plots only. It has to be extended to all plots like commercial and industrial real estate including apartments, detached houses, condominium units and shopping centre's administration.

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APPENDICES

Appendix A

Parameters selected on the basis of Field Survey

On the basis of field surveys carried out in the first phase of methodology, we verbally interviewed the real estate dealers and the head offices of real estate societies like Jinnah Gardens, Zaraj, Naval Anchorage, Bahria and DHA.

Parameters Identified:

Following are the factors which have been filtered out and further treated as benefits for the real estate property and its valuation:

1. Spatial Value i.e. Location.
2. Distance to services like medical and educational.
3. Availability of Facilities like electricity, water and gas.
4. Quality of above mentioned facilities.
5. Quality of amenities like commercial markets and availability of desired products.
6. Road Infrastructure.
7. Security System of the Society.

Appendix B

Parameters selected on the basis of literature

According to Queensland Building and Construction Commission, the main focus for finding potential parameters is on the steps to buying a block of land. We should find out what a consumer/client needs to consider when choosing the location and the type of block and what to be aware of before paying the deposit. Where you build influences the ability to meet current and future needs.

Preferred Location type

- Urban Area
- Sub Urban Area
- Rural Area

Preferred Lifestyle

- Work
- Schools
- Universities
- Exercise Facilities
- Shops
- Health Care
- Entertainment
- Public Transport

Services

- Power
- Phone
- Internet
- Water Supply
- Waste Water Treatment

- Garbage Disposal

Size, Orientation and Slope Influence

- Retaining walls
- Cut and Fill.

Geology and Topography

- Possibilities of Landslides

Site Classification

Clay sites

Site Drainage Pattern and maintenance requirements

Appendix C

Questionnaire to Real Estate Dealers for Financial Decision Making in Real Estate Management

This survey form will be further used to carry out analysis to ease the process of financial decision making for client (land buyers). Kindly, read the questions carefully and fill it according to your best knowledge. If you are dealing the land of more than one real estate society, then kindly fill the form for each society. General Details will be filled once. All the answers must be in percentage of total land price effected by facilities.

General Details:

Name: _____

Dealing the land of _____ (Bahria, DHA, Jinnah Gardens, Naval Anchorage and Zaraj)

Working for : _____ (years or months)

Office Address: _____

Questions for Assessment:

- **What is the normal range of price for different sizes of plots in this society? (Consider 10 Marla & 1 Kanal).**

Answer:

- **What is the charging rate of electricity facility for this society?**

Answer:

- **What is the charging rate of gas facility for this society?**

Answer:

- **What is the charging rate of water facility for this society?**

Answer:

- **In which range the road infrastructure plays its part to increase the land value?**

Answer:

- **In which range the sewerage system plays its part to increase the land value?**

Answer:

- **What is the charging rate of medical facilities for this society?**

Answer:

- **In which range the security system plays its part to increase the land value?**

Answer:

- **In which range emergency services play their part in increasing the land value?**

Answer:

- **How much do the educational institutes charge on average?**

Answer:

- **In which range the drainage system plays its part to increase the land value?**

Answer:

- **In which range the commercial markets play their part to increase the land value?**

Answer:

- **How much the park facility is playing its part to increment in the value of land from its normal range?**

Answer:

- **How costly the part of transportation facility is in the part of price of the land?**

Answer:

- **How costly the part of road sign are in the part of price of the land?**

Answer:

- **How costly the part of cleanliness are in the price of land?**

Answer:

Appendix D

QUESTIONNAIRE FOR FIELD SURVEY OF FINANCIAL DECISION MAKING IN REAL ESTATE MANAGEMENT

This questionnaire is dealing with the aspects which directly and indirectly affect the financial decision making process in Real Estate Management. Below are some parameters, addressed in the form of questions, which are basic elements of Real Estate Industry.

Note: Each question will be graded on 1-5scale. Kindly, scale each parameter by keeping in mind the original price you paid for your plot. General details won't be entertained against any scale.

Scale Values	Qualitative meanings
1.	Poor (You are completely not satisfied in terms of cost you paid for the plot).
2.	Mild Satisfaction (Facility is available but not meeting its standards).
3.	Average. (Facility is comparatively better in terms of availability and quality).
4.	Satisfied (You are completely satisfied with the facility).
5.	Strongly Satisfied (Facility availability and its quality is close to ideal scenario by all means).

General Details:

Name: _____

Plot Location: _____

Size of your plot: _____

Cost of the plot (You paid): _____

Duration of owning the plot: _____

Questions for Assessment:

- **How much you are contented with the electricity facility of your area?**

1. Poorly satisfied 2. Mild satisfaction 3. Average satisfaction 4. Satisfied 5. Strongly satisfied

- **How much are you satisfied with the gas facility of your area?**

1. Poorly satisfied 2. Mild satisfaction 3. Average satisfaction 4. Satisfied 5. Strongly satisfied

- **How much are you satisfied with the water facility of your area?**

1. Poorly satisfied 2. Mild satisfaction 3. Average satisfied 4. Satisfied 5. Strong satisfaction

- **How good you think the road infrastructure is of your area?**

1. Poor 2. Below Average 3. Average Performance 4. Good 5. Excellent

- **How good is the sewerage system of your area?**

1. Poor 2. Below Average 3. Average Performance 4. Good 5. Excellent

- **How much you are satisfied with the medical facilities of you area?**

1. Poorly satisfied 2. Mild satisfaction 3. Average satisfaction 4. Satisfied 5. Strongly satisfied

- **How good you think are the emergency services of you area?**

1. Poor 2. Below Average 3. Average Performance 4. Good 5. Excellent

- **How effective is the security system of your society?**

1. Poor 2. Below Average 3. Average Performance 4. Good 5. Excellent

- **How much you are satisfied with the educational institutes available in your area?**

1. Poorly satisfied 2. Mild satisfaction 3. Average satisfaction 4. Satisfied 5. Strongly satisfied

- **How much you are satisfied with the facilities of the park?**

1. Poorly satisfied 2. Mild satisfaction 3. Average satisfaction 4. Satisfied 5. Strongly satisfied

- **How good are the facilities available in the commercial markets of you area?**

1. Poor
2. Below Average
3. Average Performance
4. Good
5. Excellent

- **How much you are satisfied with the cleanliness of you area?**

1. Poorly satisfied
2. Mild satisfaction
3. Average satisfaction
4. Satisfied
5. Strongly Satisfied

- **How much affective is the drainage system of your area?**

1. Poor
2. Below Average
3. Average Performance
4. Good
5. Excellent

- **How much affective are the transportation facility in your area?**

1. Poor
2. Below Average
3. Average Performance
4. Good
5. Excellent

- **How affective is the signage system for guiding purposes in your area?**

1. Poor
2. Below Average
3. Average Performance
4. Good
5. Excellent