

Factors affecting residential land values: A case study of Tando Allahyar City

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Abstract: The comparison technique has been the most acceptable method for valuation particularly for residential property. Land valuation is the way of assessing the characteristics of a given piece of land depend on experience and judgment. Valuation of properties especially residential properties commonly done manually or based on current report. Lack of training and education always remained an obstacle to the use of GIS by property professionals and appraiser that is why often problem of land valuation and management occurs and people face the problems in the form of land purchasing, land selling, original price of land etc. Tando Allahyar City's main colonies were selected for this study. This research was consisted on two objectives 1) To highlight the colonies of the study area, 2) To identify the factors impacting land values. For this two factors were used namely accessibility and physical factor. Data collection were collected in the form of questionnaires from land valuers and experts. 55% respondents were considering that accessibility factors were encouraging on residential values and 45% respondents were in the favour of physical factors. Mostly those areas where accessibility and physical facilities are in huge amount, where the value of land is high.

Keywords: Factor, Residential, Value, Accessibility, Physical

1. Introduction

Property valuation can be described as a process of estimating a property's value for a certain purpose, at a certain time based on the property's characteristics and the factors that can affect property value [1].

The estimation of the land property reflects its ability to satisfy a capacity. With respect to business property, practical characteristics may incorporate, Location impacts (availability to the commercial center, proximity to providers of raw materials and significant hubs, for example, railroad stations, vehicle stops and open spaces) Physical credits (size, shape, age and condition) Legal components (rent terms and prohibitive contracts) Planning and financial variables (arranging limitations, allowed use and potential for change of utilization) [2]. Residential, commercial and vacant land covers the real estate parameters [3]. The valuation model for revaluation has the capability to evaluate residential property values at a large scale in a limited period. The valuation trend of properties has been increased with housing market analysis [1].

Usually, land value is the economic value illustrated as a capital value [4]. As residential properties are multi-scale products specified through stability and structural inflexibility and also spatial stability. Conventionally, valuers evaluate property values by hand using valuation methods such as the comparative method, investment (or income) method, profits method, residual method, contractor's method, However, these traditional property

valuation methods are subject to relatively high inaccuracy [5]. Location of any land has a good impact on subject property values and it is considered as a very important factor. The linkages connectivity of a property asset management database makes some system of large-scale digital mapping [6]. Geographic Information System is used to study characteristics of real estate activity for the decision-making purpose [7].

Mostly open market value technique is widely used in comparative approach. This methods needs an appropriate records of transactions [8]. Location of any land has a good impact on subject property values and it is considered as a very important factor. The linkages connectivity of a property asset management database makes some system of large-scale digital mapping [9]. The integration of GIS in property decision-making process varies according to the type of properties. Maps help to show the layout of different structures, which could lead to no reporting of labelling and statistical analysis. The visualization of the site of the participating companies, the size of the collection territories and vicinities to different uses of the urban land uses helps to notify the process of decision making of the evaluation of the land [8]

Tando Allahyar city was selected as a study area. The main focus of the study was on residential property values. At that time because of over-population, it is facing problems in Planning and designing of housing and lack of proper management of resources.

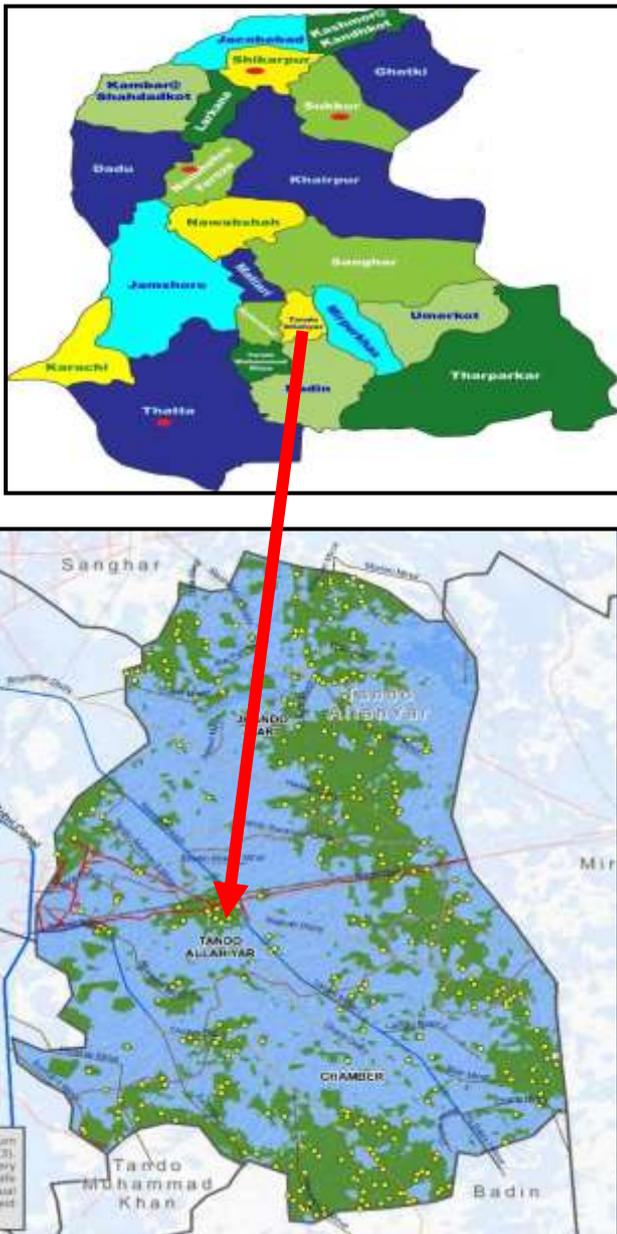


Figure. 1. Study Area Tando Allahyar City

2. Problem Statement

Lack of training and education always remained an obstacle to the use of GIS by property professionals and appraisers [9] that is why often problem of land valuation and management occurs. Variation, incorrectness, tiredness, and a lot of time spending are main issues in the property valuation, these all problems occur because of unavailability of data and when the data relating to real estate and land is unavailable and people face problems in the form of land purchasing, land selling, original price of land, etc. On-site property valuation takes time, cost, money and depend on subjective judgement and sometimes can even be negotiated. Therefore, in study area people want to purchase residential property, but they don't know the different locations of study area as well property values.

3. Research Objectives:

The aim of the study is to know the major factors influence the residential property values. In order to achieve the aim, precise objectives are:

- To highlight the colonies of the study area
- To identify the factors impacting land values

4. Related Work

Numerous studies are using Geographic Information System (GIS) for land management and land valuation issues. Sufficient estimation can be obtained by analyzing several land features for study purposes. The land valuation factor is variable, so the exact value for a unit of land cannot easily be determined. In determining the importance of these factors for a piece of land, it is necessary to mathematically be shown to be able to determine the effect of the valuation factor for a complete land plot. Determining the exact value of the land is almost impossible. But estimating the property's value can be done. In the estimation, some of the land valuation factors affecting the total perceived value of the land were selected and spatially examined with the developed model. Each land valuation factor did not affect the total value [10]. Residential real estate prices can be bigoted by the number of features. Such aspects have been classified differently by researchers. For instance, the factors have been classified as physical, neighborhood and locational characteristics. Internal physical like house and plot specific, structural and external location structural, locational and market attributes ([11]. Residential property value is determined by several local factors like access to employment opportunities, shopping areas, and the availability of public facilities. Environmental concerns (Such as noise, pollution and danger); Nearby amenities; and recognize the level of safety in the neighborhood.

A broader classification was given by Mohamad (2012) as micro and macro factors that affect house price, these factors as legal/regulatory, physical/environmental, economic and social forces that influence real property values. While the first group of categorizations is based on the micro factors which are somewhat house-specific, the other classifications widened the scope to include some macroeconomic variables that affect the wider economy. The historical valuation contains all valuations made for the purpose of stamp duty, property gains tax, compensation, rating and while subsequently all valuations made for buying, selling, leasing, mortgages and fire insurance [12]. As the revaluation process often takes too much time and money as well, valuation is done after 10 to 20 years in England and Wales. The valuation process is a personal-oriented approach to the nature of a person's opinion on the value of a property varies from one person to another as there are objections in the analytical approach regarding the

properties of any property among people. It means that the value of a particular property as appraised by multiple appraisers is subject to change and change [2].

The scope of geographic information systems is not limited to organizational facilitation and management of geographic information, but GIS, is also the basis for researchers to make the most of the locations and information available in the GIS database in support of the application of spatial statistics and spatial econometric tools. GIS is always available for planners and assessors to manage. With various mine owners and provide easy-to-understand explanations of their assets and how their assets are worth. The functionality of the property is reflected by its value. Usage features for commercial properties may include; location effect (access to market, distance to raw material suppliers and key points, i.e. railway stations, parking lots and open space), economic and planning factors, planning constraints, allowed uses and uses Impact of potential work change [9].

Table 1: Factors Affecting land values

Accessibility Factor	Physical Factor
Accessibility to market Place	Position of Plot
Accessibility to Education Center	Shape of Plot
Accessibility to Health Facilities	Infrastructure facilities
Accessibility to Religious Places	Utility services
Accessibility to Bus Station	Category of Landuse

5. Material and Methods

The research was conducted based on primary and secondary data; it was collected from different sources. To carry out research, primary data were collected in order to know the factors impacting the residential property values and digitize the specific colonies of Tando Allahyar City. To achieve the first objective GIS software was used to digitize and objective 2 was achieved using Likert-scale type questionnaire were distributed among the experts and land valuers. Accessibility and Physical factors were used in the study area to find out the factors impacting residential property values. Accessibility factor was consisting on Accessibility to market Place, Accessibility to Education Center, Accessibility to Health Facilities, Accessibility to Religious Places and Accessibility to Bus Station. And physical factor was consisting on Position of Plot, Shape of Plot, Infra-structure facilities, Utilities services and Category of Landuse.

Quota sampling is used in this research. The reason of using quota sampling is to acquire get data from the targeted community. As this research target were the real estate land valuers.

Data Analysis

Factors impacting residential property values were analyzed in the Statistical package for social sciences (SPSS) using the frequency technique. As twenty open-ended questionnaires were filled for achieving the objective. Spatial data were also prepared and analyzed in ArcGIS software. Study used the graphs, tables and charts for clear presentation and description of the data.

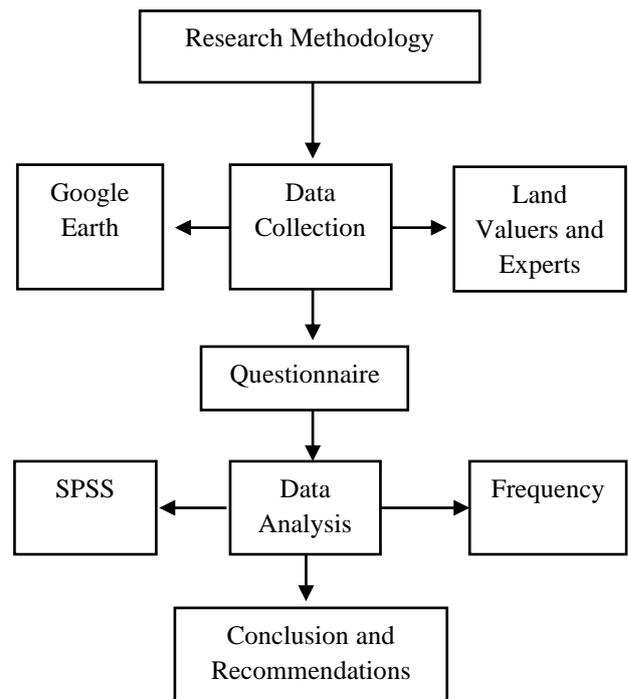


Figure. 2. General Research Methodology Flow Chart

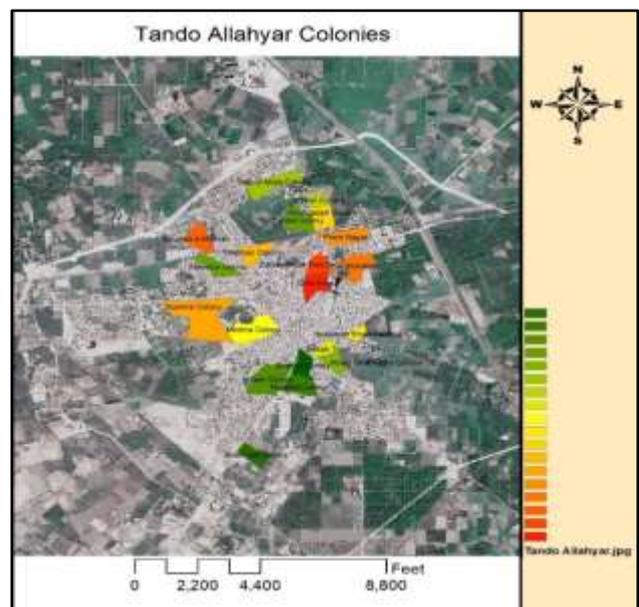


Figure. 3. Digitized Selected Colonies of Tando Allahyar City

6. Results and Discussion

Collected data through questionnaire from property valuers descriptive statistics was used in converting the raw data into a shape that can be easily understood and interpreted. Frequency technique was applied using SPSS. In addition, spatial data were also digitized in ArcGIS software. For objective 2) identify the factors that impact residential property values was analyzed in SPSS. For data interpretation, the study used the use of graphs, tables, and charts for clear presentation and description of the data.

Table 2: Accessibility factor impacts residential property

Accessibility (Components)	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Accessibility to market Place	1	1	2	11	5
Accessibility to Education Center	1	1	3	7	8
Accessibility to Health Facilities	1	1	1	7	10
Accessibility to Religious Places	1	3	5	5	6
Accessibility to Bus Station	1	2	1	7	8

Figure. 4. illustrates the respondents’ responses regarding accessibility factor; 20 questionnaires distributed among land valuers and experts for individual factor. For accessibility to market place 11 respondents responded that accessibility to market place is the main cause of increasing residential property values, 10 respondents were strongly agreed with accessibility to health facilities, 08 respondents were in the favour of accessibility to Education center, 06 respondents were agreed w.r.t accessibility to a religious place and 08 respondents were strongly agreed to accessibility to the bus station. Overall results reveal that accessibility to market place and accessibility to health facilities are the main factors which are factors responsible for property values.

Table 3: Physical factor impacts residential property

Physical (Components)	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Position of Plot	1	1	4	2	10
Shape of Plot	1	2	2	7	8
Infra-structure facilities	2	3	4	5	6
Utility services	1	1	1	7	10
Category of Land-use	1	1	1	10	7

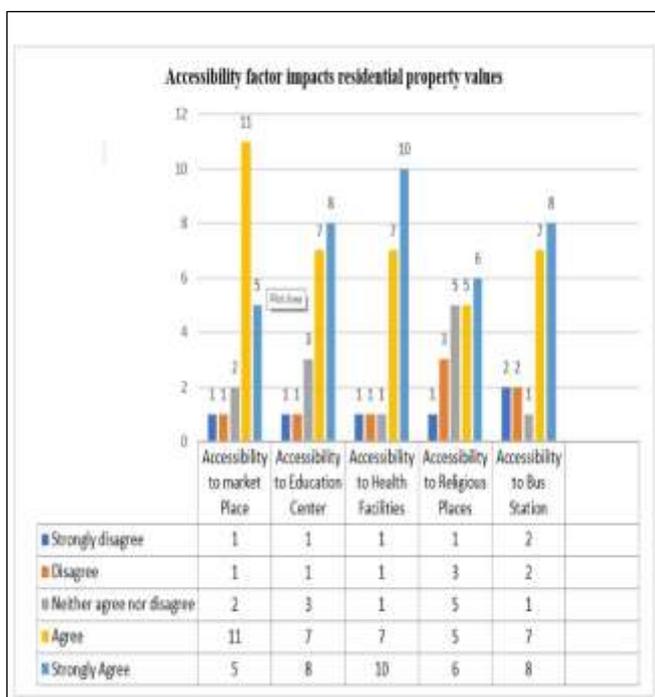


Figure. 4. Accessibility factor impacts residential property values

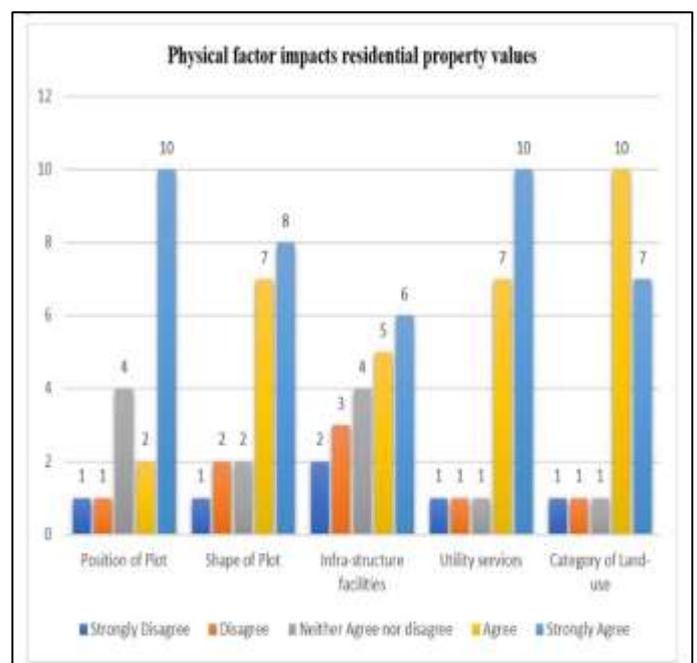


Figure. 5. Physical factor impacts residential property values

Fig. 5: indicates the respondents' responses regarding physical factors; 20 questionnaires were distributed among the land valuers and experts for individual components. Regarding, the position of the plot, 10 respondents results show that position of plot plays vital role in increasing residential property values, 08 respondents were strongly agreed in shape of plot, 06 respondents were in the favour of infra-structure facilities, 08 respondents were agreed w.r.t to utility services and 07 respondents were strongly agreed to category of landuse. Overall results reveal that position of the plot, and utility services were the main components causing the increase in residential property values.

7. Conclusion

The comparison technique has been the most adequate strategy for valuation, especially for private property. Land valuation is the way toward evaluating the qualities of a given real estate parcel dependent on experience and judgment. Valuation of properties particularly residential properties ordinarily done physically or dependent on the current report and site investigation and generally, it was recorded in a paper structure and printed copies.

Real estate evaluation is a very important profession that is applied for public needs such as tax calculations, expropriation, privatization, nationalization, land arrangements, as well as private sector requirements. The availability of the GIS technology in different disciplines provides updatable, accessible and analyzable solution opportunities based on a fast, accurate and efficient decision-making process in determining the values of real estates

Evaluating current property valuation models called attention to that spatial factors are underrepresented in the information base. 55% of respondents were considering that accessibility factors were encouraging impacting on residential values, 45% of respondents were in the favour of physical factors. Most people showed their intention towards accessibility and physical factors' components. For evaluated valuations, just primary factors are required. An evaluation of the spatial factors would advance the information base for surveyed valuations and improve the effectiveness of information assortment for real estate agents.

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