

Determinants of Land Value: A Case of Kapan in Budanilkantha Municipality

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Abstract

This paper is based on the approach to evaluate the determinants of land value and analyses certain variables affecting land value considering the approach of land valuation from Nepal government, commercial bank, land valuator, brokers, and land buyer. This paper presents the results of an empirical study of urban land values in the Kapan, a case of Budanilkantha Municipality. The urban growth rate of Kapan is 12.6 percentage. In rapidly growing areas where there is a strong pressure on serviced urban land, the distribution of population densities and land prices are expected to show basic differences. The data sets are organized at different levels of aggregation: i) the ward level comprising a total of 9 wards within the boundaries of Kapan that has been categorized into 3 clusters i/e Cluster A, Cluster B, and Cluster C according to the areas set by the government. The study focuses on the tendency toward agglomeration for consumers of each land use as measured by the impact on land values in the central business district, suburban nodes, and other employment concentrations. The results provide insight into several influences on urban land value and offer evidence that office land derives greater benefit from agglomeration than does commercial land. This paper shows the differences in land prices that can be obtained according to the width and quality of roads. Urban policy and planning may be improved by a better understanding of the determinants of urban spatial structure. Characteristics of the site such as i) location, ii) quality and width of road, iii) proximity to infrastructures, iv) proximity to the commercial and market areas v) distance from CBD, vi) the future expansion projects, were found responsible in an increase in land values. Different determinants of land values of various variables and their capacity to explain the spatial structure of a small area over a while has been shown in this paper.

Keywords

Land Value, Land Price, Determinants of land value, Valuation done by Nepal Government, Banks, Land Valuator, Real estate, and Broker's and Respondents

1. Introduction

Land value is often defined as the economic worth of land. Although the term land value and land price are often used interchangeably, there is a difference between these two terms as “Price is what you pay, value is what you get”, Buffett, Warren. Value is subjective, depending on individual tastes and preferences whereas price is objective. Although land value is influenced by land price as prevailed in the market, emotional factors also guide how an individual values land. Land is essentially a natural resource that is specified as a primary factor of production in economics. Land is fixed, indestructible, and fixed in supply. The price of land is determined by its production potential, and by the present or

future services, it incorporates. Land value is the value of the land itself as well as any improvements that have been made to it [1]. In modern times it has also become an object of speculation which is a financial activity that involves the purchase of land with the hope that the price will increase [2]. However, in the urban context of Kathmandu, its value is mostly increasing. [3][4] states that the price of land is a function of the activities that take place on it and that; the land use is determined by the rent-paying ability of different economic functions in urban areas. In a monocentric city, the land price is seen high according to the distance from the central business district. But due to urbanization of an area the distance doesn't affect much but the land price differs within an area. In the past decade the

commercial banks are investing large portions of their lending to the real-estate sector [5] and the situation is similar in the case of investment of cooperatives in the real-estate sector. Nepal is one of the highest recipients of remittances (as a percentage of GDP) in the world [6], having great significance both at micro and macro levels [7]. Its utilization and the impacts on economic growth have both positive and negative effects [8]. However, one of the criticisms of the massive inflow of remittances to unproductive sectors like housing and land [9] is that once productive land is occupied for the construction of buildings and other infrastructures financed by remittances, it will lead to further reduction of agricultural productivity and consequently increased food insecurity. Land value is determined by the economic value of the highest and best use of land which produces the highest net return over a period. The supply of land is limited, while demand is increasing along with increasing migration. Land is greatly valued for prestige purposes, and to provide a sense of security. Some landowners hold vacant land off the market in speculation [10]. Due to rapid urban growth associated with natural population growth and rural-urban migration driven by rapid socio-economic changes and insurgence in Nepal, land prices of Kathmandu valley have risen by 300 percentage since 2003. [11]. The shortage of land units, resulting in overcrowding, unmanaged settlements, land-use change, affect the livelihood of people, their living conditions, and deteriorating built environment. Land price depends on the spatial pattern of infrastructure, physical development ability of land, the willingness of current landowners to sell, and government-imposed limitations on how land may be used. Ignoring land value as a significant variable affecting the spatial change of uses resulting in the mismanaged settlements.

The Research Question is as follows:

- How does land value differ even within a relatively small area in a city and what are the factors that influence land value?

This research question is addressed by taking the case of former Kapan VDC (now restructured as ward 10, 11, and 12), currently part of the Budanilkantha Municipality.

The Research Objective is as follows:

- To identify key factors that define and influence land values and to analyze the change in land

values (expressed in terms of land prices) across location and time using different sources including survey, the valuation process of Land Revenue Office, and commercial banks.

The impact of evolution has led to pressure on available land. This study attempts to examine the parameters of land value changes and to know how the land price affects the development of any area. This research provides information for the basis fixing of land values that helps land revenue office for evaluating the minimum land value of any area.

1.1 Study Area

The study area is focused on Kapan VDC (ward 1-9 previously), currently located in Budanilkantha municipality ward 10, 11, and 12. For this study's purpose, the study area is divided into three clusters according to government minimum land valuation i.e Cluster A (Kapan Ward 1,3 -Budanilkantha Municipality ward 10, 12) and Cluster B and C (Kapan 2,6,8 and 4,5,7,9) -Budanilkantha Municipality- ward 11).The urban growth rate of Kathmandu valley is 3.38 percentage per annum but Kathmandu Valley VDC's have experienced more than 6 percentage growth rate.The annual growth rate of the Kapan VDC area is 12.19 percentage[12]

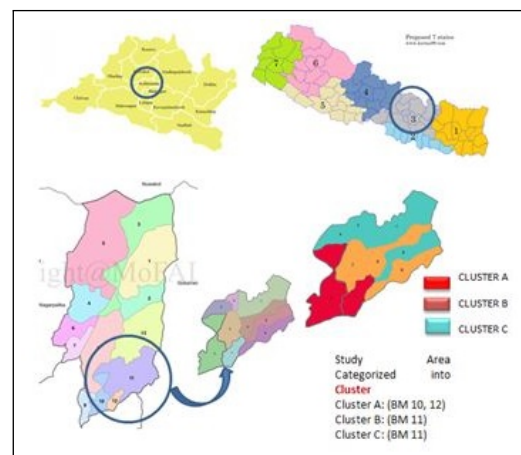


Figure 1: Study area

2. Research Methods

The research focuses on finding the determinants of land value. This research is based on empirical study of quantitative methods of Positivist paradigm. It is also an empirical inquiry that investigates a contemporary phenomenon within its real-life context;

when the boundaries between phenomenon and context are the evident. This research is also somehow the qualitative research where the respondents were asked certain questions like the choice of location of site, physical, social, economic reasons for selecting the site. This research falls under the post-positivist paradigm where multiple truths can be generated. The theme of the research is based the probabilistic idea of truth because there are multiple externalities affecting the price of a particular land. The most probable determinant is assumed to be the distance of the land plot with respect to accessible road. But, it is not the only cause. The research is based on post positivist paradigm because the price determination is dependent on multiple factors such as the distance from the CBD or major road, physical reasons; availability of road, water supply, drainage, public transportation, economic reasons; affordability, future high speculation of land, rental opportunity, social reasons; safety/ security, open spaces, proximity to educational facility, proximity to health facility. Hence, the research is to be done considering those multiple dimensions.

The one truth is that the “factors affecting the land price “can be generated. The different valuation criteria done in Nepal for the price valuation are addressed and final output with the basis for land valuation is being carried out. It also involves studying different ways for land price valuation i. e government minimum valuation, bank valuation, land valuator, broker, real estate estimation, and landowner.

Data obtained during the study is carried out from various primary and secondary sources. Data for government minimum valuation of land price is obtained from Land revenue office, Chabahil, Nepal. The valuation criteria carried out by banks are obtained by Agricultural Development Bank mortgage security valuation guidelines 2011. The land valuation done by land valuers has been studied through various reports and key informants interview whereas the valuation done by brokers is also done through key informant’s interview and to know the perspective of landowners is being carried out by household survey. This study specifically made use of a questionnaire form to gather the necessary information. On the whole, the first set of questionnaires was segmented into four parts with a total of twenty-four questions that contains four sections. The first section of the questionnaire survey contains information on socioeconomic

characteristics, the second section tries to provide information on previous and present land price, third captures information on reasons for selecting land (the physical, social, economic and religious) While the fourth sought to provide information on risk-sensitive land areas for land price and means for investing on land. All of the questions are close-ended. The household survey was carried out directly on-site through personal interviews and direct observations. The target study was done only with landowners.

Household with own house: 5028:40 percentage of total Households [12].

Average Household Size in 2011:3.25 Firstly, the population was projected to 2020, and then using the sample size formula, the sample size was determined.

The total population of Cluster A, B, and C are 40034, 6032, and 2397(CBS 2011) whereas the projected population for year 2020 is as 123323, 18952, 3373.

2.1 Sample determination of Cluster A, B, C

The projected population for 2020 of different clusters is Cluster A: 123323, Cluster B: 18952, and Cluster C: 3373.

The household size according to [12] was 3.25. Similarly, the total number of households is calculated by dividing the total projected population with household size and the results of different clusters are: Cluster A is 123323/3.25: 37946, Cluster B is 18952/3.25: 5831, and Cluster C is 3373/3.25: 1038 number of households.

Total number of owned house: 40 percentage of 37946: 15178, 40 percentage of 5831: 2333, 40 percentage of 1038: 415.

Assume that number of owned houses = Number of plots with houses = 15178, 2333, 415.

Formula For Sample Size Determination=

$$Nz^2px(1 - p)/e^2 / N - 1 + (z^x px(1 - p)/e^2)$$

Assume that there is only one house in a plot= N=15178, 2333 and 415. The total samples were 88.

Particular	Value(A)	Value(B)	Value(C)
Population Size (N)-	15178	2333	415
Critical Value (90% confidence level) (Z)	1.65	1.65	1.65
Margin of Error (e)	0.15	0.15	0.15
Sample Proportion (p)	0.5	0.5	0.5
Sample Size(n)	30	30	28

3. Description and Analysis

3.1 Land owner(Respondents)

The household survey of total sample 88 was carried out in the clusters to know the land value. The below figure shows the previous land value (2004-2019) and Present land value (2020) in different clusters. From the map we can see that the average land value of Kapan is 18 lakhs per aana. The land price differs according to the surface type of road where the blacktopped area has a significantly higher price than the area without any road.

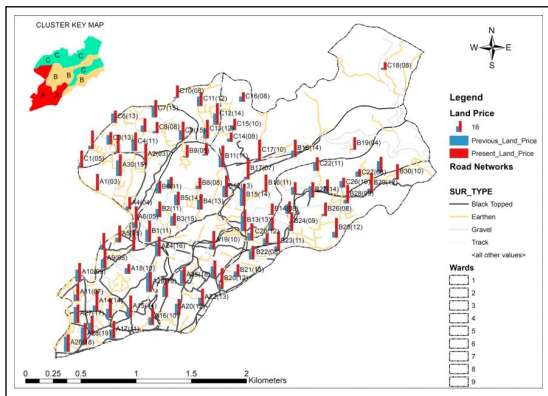


Figure 2: Gps point of previous and present land price of different clusters

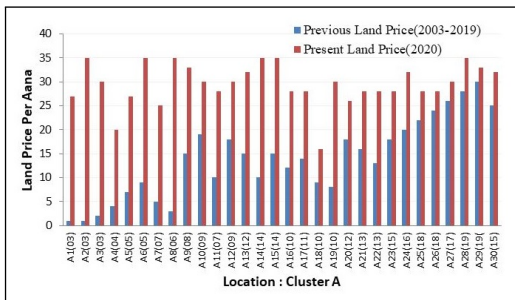


Figure 3: Previous and present land price of Cluster A

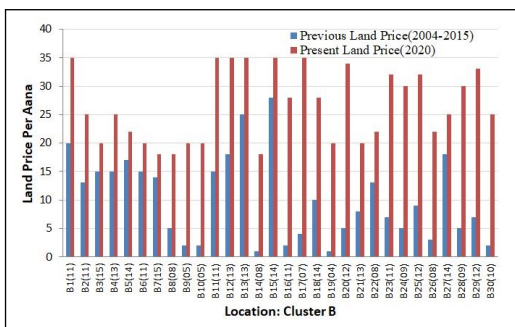


Figure 4: Previous and present land price of Cluster B

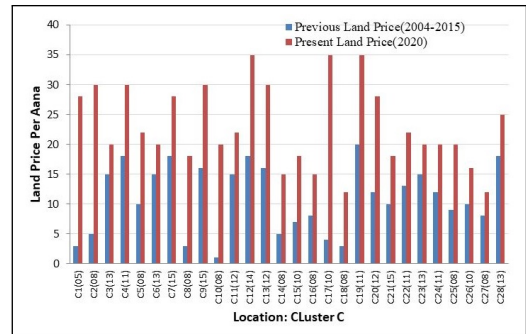


Figure 5: Previous and present land price of Cluster C

There is an increase in land prices from 2004 to the present time. The increase in land price varies accordingly year wise and the surface and width of the road. The above graphs show the variation in land prices. In the same year, we can see the fluctuation of the land price which can be said that there are certain determinants affecting land values. Location, infrastructures are the factors for the increase in land value. The average land value is found to be 18 lakh per aana. The other factor for the increase in land price according to the respondents is as follows:

S.No	Factors	Cluster A	Cluster B	Cluster C
1.	Location, Accessibility	1 km from the ring road	1-1.5km from ring road	<2km from ring road
2.	Topography	Less slope	High	Moderate
3.	Infrastructures	<p>Physical</p> <p>Road, electricity, drainage and sanitation and public transport (33%)</p> <p>Neighborhood (26%)</p> <p>Social</p> <p>Availability of temples (50%)</p> <p>Cultural</p>	<p>Road, electricity, water supply, and public transport (40%)</p> <p>Neighborhood and presence of relatives (29%)</p> <p>Availability of Gumbas (43%)</p>	<p>Road, electricity, drainage and sanitation, easy access to public transport (36%)</p> <p>Neighborhood (33%)</p> <p>Availability of Gumbas (54%)</p>
4.	Economic Activities	<p>Market center, rental and business opportunities (47%)</p> <p>Rental Value: 41-50/sq ft (54%)</p>	<p>Affordability (40%)</p> <p>Rental value: 41-50 rs/sq ft (47%)</p> <p>31-40 rs/sq ft (37%)</p>	<p>Market Centre, business opportunities (39%)</p> <p>Rental Value 41-50 rs/sq ft (43%)</p>
4.	Population	High	Low	Low
5.	Land use	Commercial cum residential (50%)	Commercial cum residential (40%)	Agriculture (32%)
6.	Risk sensitive land use plans	Flood and liquefaction risk	Landslide	Landslide

3.2 Government Minimum Land Valuation

The data is analyzed from the fiscal year 2015/2016 to fiscal year 2019/2020.

3.2.1 Minimum land price of different wards in FY 2015/16, 16/17 and 17/18

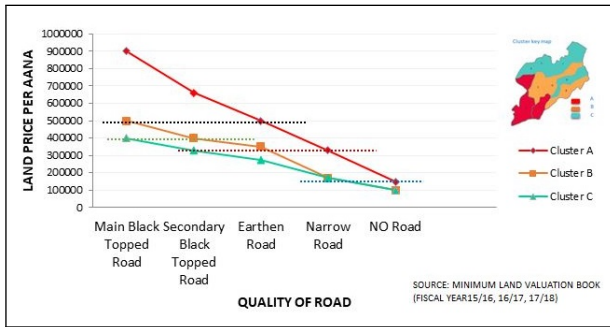


Figure 6: Minimum land price of different cluster in FY 15/16, 16/17, 17/18

From the figure 6, we can see the price of Cluster C; the main blacktopped road is equal to the price of Cluster B; secondary blacktopped road whereas the price of Cluster B; the main blacktopped road is equal to the price of Cluster A; earthen road. The price of Cluster C; secondary blacktopped road is equal to the price of Cluster A; narrow road and is nearly equal to Cluster B; earthen road. The price of Cluster B, C; the narrow road is nearly equal to the price of Cluster A; no road. The line that has the higher slope, the more is the price. Cluster A has a higher slope line so the price increment is seen higher in secondary blacktopped road. Cluster B and C have a higher slope line in the narrow road so the price is seen higher in the graph. Therefore, land valuation in such an area is seen high.

3.2.2 Minimum land price of different wards in FY 2018/19, and 19/20

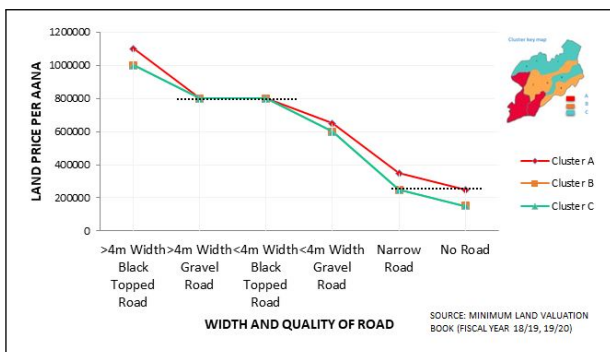


Figure 7: Minimum land price of different cluster in FY 18/19, 19/20

From the figure 7, we can see the price of Cluster A, B, C; greater than 4m width Gravel road and less than 4m width blacktopped road is equal. Due to urbanization, the cluster B and Cluster C have the same land price. The price of Cluster B, C; narrow road is equal to the price of Cluster A; no road. The higher the slope line, the more is the price. Cluster A has a higher slope so the price increment is seen higher in greater than 4m width gravel road and narrow road. Cluster B and C have a higher slope in the narrow road so the price is seen higher in the graph.

Analysis: The minimum valuation of land carried out by the government depends on the location (Cluster A vs. Cluster B vs. Cluster C) and the quality of the road (= accessibility). The above graph and tables describe the variation in land prices in different fiscal's years. Land price is not only governed by location as in changing course of time we can see that the gap between the Cluster B and C are same and is nearly equal to cluster A. But in recent years, location does not matter much but accessibility does (Cluster B and C have overlapped; the difference with A has decreased) which is as expected. As land area is more urbanized, differences in land prices across locations tend to decrease. In other words, bid rent theory still works but the slope gets flattened as urbanization increases.

3.3 Review of land valuation by banks

Bank follows certain guidelines for land evaluation and they are shown below:

Metropolitan City, Sub-Metropolitan City and Municipality[13]

1. The main road along with major economic activities (major commercial areas) and road width more than 8m has a market value of 70 percentage and government value 30 percentage where we can say that the market value is 5 times of government value.
2. The commercial areas (road, electricity and telecommunication, shopping market) with road width more than 6m has a market value of 65 percentage and government value of 35 percentage where we can say that the market value is 4 times of government value.
3. The Commercial cum residential areas (road, electricity and telecommunication, shopping

market) and road width more than 4m, has a market value of 60 percentage, and government value of 40 percentage where we can say that market value is 3 times of government value.

4. Old urban residential area with gravel, earthen road, or no motor access road less than 4 feet(less than 60 feet length of the road) has a market value 50 percentage and government value 50 percentage where we can say that market value is 2 times government value.
5. Agricultural area with no road access with market value 40 percentage and government value 60 percentage where we can say that market value is nearly equal to government value.

Analysis: Banks use minimum valuation as a basis for calculating the market land price. This is considered a risk-minimizing strategy for banks. However, it is interesting to note that banks use different multiplication factors as location, width of a road, or the use of land. This is different from the minimum valuation of land set by the government. This means, there are certain factors that the government considers, and some additional factors are considered by the banks.

3.4 Land valuation by real estate and land brokers

Out of 15 samples, the land price of the cluster can be seen below:

Type and Width of Road	Land Price Per Aana		
	Cluster A(Lakhs)	Cluster B(Lakhs)	Cluster C(Lakhs)
Above 20' BTR	40	35	30
13-20' BTR	35	28	25
9-12' BTR	30	25	20
Above 20' Gravel road	32	25	25
13-20' Gravel road	28	22	21.5
9-12' Gravel road	24	20	19

Type and Width of Road	Land Price Per Aana		
	Cluster A(Lakhs)	Cluster B(Lakhs)	Cluster C(Lakhs)
Social Infrastructure (school)	40	35	32
above 20' BTR, 9-12' BTR	35	30	28
Religious Infrastructure (Temple, Gumba)			
>20' BTR	-	29	35
13-20' BTR/20' GRAVEL ROAD 9-12' BTR	30	25	25
Commercial Areas			
13-20' BTR	45	30	27
9-12' BTR	35	25	23
Residential Area			
9-12' BTR	28	21	18
Market Area			
9-12' BTR or 13-20' Gravel Road	32	25	25
Bus and Micro station; 13-20' Gravel Road	28	25	22

Analysis: The land valuation with the key informants i.e. broker's with the value proposition of the land, quality of the property, location, accessibility, land use, zoning and regulations, infrastructures and facilities, government announces development or expansion of projects are responsible for changes and also can be seen the fluctuation of land price due to various factors.

4. Findings and conclusion

The comparative analysis of land valuation has been carried out by various factors that involve the Nepal government, commercial banks, land valuers, brokers, and landowners. Nepal government uses minimum land valuation to determine land taxes. To determine land taxes, a low-level price done in valuation could be intentional. Similarly, the bank also doesn't want to take a risk during valuation so their intention is also to adopt a low level of land valuation. Land valuator also helps in determining the valuation with risk mitigation carried out by banks so they also adopt a low level of valuation categorizing the distress value. Broker adds a commission as their income so they value land at a high price. Land buyers always want to get land on lower prices with high income generated from that land. They always seek land nearby the market areas and a land with future expansion to commercial activities so that the price of land gets increased than the price that they pay. Findings from this study reveal a positive movement in land value over time in space, structural characteristics of land and neighborhood/location's factors are found to be responsible for the determinants observed. The result suggests the various determinants affecting land values and they are as follows:

- Physical characteristics of land: location, topography, accessibility, details of the road abutting the property, description of adjoining properties
- Planning parameters: land use, zoning, by-laws, and regulations, development controls, surrounding land use and adjoining properties in terms of usage
- Legal aspect of the property: type of land, road widening, heritage restrictions
- Economic aspects of property: rent, tax, availability of land, growth opportunities, new construction, and vacancies

- Socio-cultural aspects: social structure of areas, population, social stratification, regional origin, age group, education levels, income levels, location of slums/squatter settlements nearby
- Infrastructure availability: physical infrastructure i.e road, water supply, electricity, sanitation, sewerage, and storm water drainage, social infrastructure like hospital, offices and health centers, religious infrastructure like temples, and stupas
- Marketability of the property: location's attributes, demand, and supply
- Environment factors: Presence of environment pollution in the vicinity of the property in terms of industry, land filling sites, heavy traffic, risk-sensitive areas
- Architectural and aesthetic quality of property: neighborhoods with modern or traditional buildings, presence of landscape elements, and heritage value.

The economic effects of transportation improvements are major in determining the land value. So far, analyses have examined how transportation improvements (expansion of roads, quality upgraded) affect either the value of vacant land or total property values, providing considerable that transportation improvements lead to higher property values. However, several analyses in that transportation improvements raise the value of the property, considered separately from the value of the land on which the houses are built.

5. Recommendations

This study shows that factor affecting land values, land valuation in the study area is being done informally. The study area needs concentrating the effort on policy issues and also needs a resolute action. This would need collaborative effort from many concerned agencies and policies that are lacking in our case.

- Land use policy (density, zoning, subdivision controls, and taxation)
- Institutional setup (arrangements, planning, implementation)
- Policy documents(land use plans)

The study shows that the minimum government land prices tax has been carried out by land buyers where

it is not exactly shown the exact land price tax they pay resulting in the less tax collection of that area. For this reason, a valid source of an institution must be set out for clear evidence of the total cost of the land the buyers need to pay. Due to urbanization, vacant plots are limited in cluster A where the study suggests that the vertical development would take place. There will be fewer transactions on land but higher transaction on space. The floor space in such cases would be transacted then the land and buildings whereas, in other clusters, horizontal development with less population density would occur.

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