

## **Chapter -6**

### **6.0 Literature Review-Valuation of Land**

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In the modern world the countries that have free economy and well-functioning legal systems have generally followed “fair market value” of the expropriated land as the standard for determining just compensation. The fair market value is defined as the “amount the land is expected to realize if sold in the open market by a willing seller to a willing buyer” (Jack L. Keesch, 1979). There is a view that the market value should not be determined considering changes in value arising from the expropriation itself. Responsibility of the State should limit to pay the market value that existed immediately prior to the announcement (Ackerman, 1994). The other view is to valuing the acquired land based on its replacement cost, so that the owner can retain the option of continuing with the same occupation even after expropriation without losing her economic wellbeing. As discussed in the earlier Chapters, the valuation may be for the highest and best use and may not be an estimation which is for the immediate earlier use. Valuation includes land, structures on land, crops, and common property resources.

#### **6.1 Valuation Methodology**

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There are three classical approaches available to estimate what the property would fetch if offered for sale - an estimate for market value.

The approaches include

- sales comparison
- cost approach
- income approach

The foundation of all the three approaches is the proper analysis of the comparable sales figures. Both the sales comparison approach and the cost approach use common economic principle of substitution. It also assumes that land is a fungible commodity and can be substituted one for another. The value of the property including land will be comparable to the property which was sold earlier or what it would cost to build a similar

property and the present value was computed after allowing for due depreciation. The Income Approach is also based on the analysis of comparable sales. This approach utilizes mathematical formula where future income is computed after allowing for discounts to get the present value. This can then be used as to estimate the value.

The property's market value can be determined by any one of the three approaches. However, there is generally a best method. Other methods can also be considered in addition, to narrow the gap in the estimation of the market value. The approach which is chosen depends on the specific types of property for estimation.

### *6.1.1 Comparable Sales Approach*

The most popular method of land valuation is the comparable sales approach. It uses market valuation of a comparable land as input to value the land. This assumes that recent sale figure of a comparable property from a willing seller to a willing buyer can best represent the true value of a similar land in the vicinity and in the context of acquisition it reflects the price of the acquired land.

However, no two land plots can be exactly same and hence the prices cannot be exactly replicated. There is a need to adjust the sales prices of the comparable lands for the differences in their characteristics, based on which adjustments are done- up or down. In case any of the characteristics are missing in the previously sold property, the estimated sale price will be adjusted upward for the acquired land. Similarly, properties with more expensive features of the neighboring lands will be discounted. The sales comparison approach is the preferred one when adequate sales data are available for statistically acceptable averaging. Average of the previously sold comparable properties is used as the base.

Important characteristics to compare are

Location- Location is probably the most important attribute of the real estate which changes the price expectations. Recently sold properties are to be compare in the same neighborhood. If the parcel of land that is to be acquired is located in a rural area,

comparable sales are also to be located in the same rural location. Locational specifics may include

- panoramic views from the property features most when there is an opportunity to use the land for pleasure location and recreational purposes. Depending on water view, hill top view, or golf course view the price changes (Slater, 2015)
- traffic density and noise pollution of adjacent roads affects the price. Similarly if the property is in a cul-de-sac, or adjacent to parks or recreational areas, price changes.
- sales prices need to be recent; in case of longer time horizon factoring of more weightage for later sales is necessary.
- for housing prices garage, pool, patios, porches, or decks need to be factored
- condition of the residential or commercial property located on the land needs to be compared and accounted for. Property price changes depending on the age and physical state of the property.
- financing terms change the effective costs to the buyers. Cash buyers can generally buy at lower prices and at the same time when sellers bears the financing charges buyers have to pay higher prices

**Size-** Land sizes are measured in either square meters or acreage. Land price varies inversely with the land size. Typically price per acre or square meter will decrease as size increases due to the law of diminishing returns. For the value of land it is necessary to find sale price of land of similar sizes. If not available, bracketing is used for comparable sales. However, in a fragmented ownership of agricultural land in the India, smaller sizes affect economy of scale and also the price.

**Shape-**Land parcels come in many shapes. In planned developments most land parcels are in rectangular shapes but the same is not true for agricultural lands. Some lots can be

very long and thin, some are rectangular, some are flagpole lots and some are L-Shaped. Shape of the land plot limits its usage, especially when the opportunity for its non-agricultural use increases.

Frontage- The amount of road frontage a property has is important especially whenever there is an opportunity for use change from agriculture. Most commercial properties need proper frontage to road and the price changes depending on that. However, for a purely agricultural setting, this has a diminishing return.

Topography- Topography of land is considered when comparing land. Level land is necessary for both commercial and agriculture use.

Soil- Soil quality affects the yield and also its use for non-agricultural purposes. Other parameters remaining same the soil quality makes the price change significantly.

Transaction financing- Money has a cost. Who bears the financing cost makes the sale price to change. Sellers accept lower price if the payment is made in lump sum than in instalment. When the financing is done through bank, the terms of financing affect the sale price.

Sale Terms – Comparison can only be made when the sale terms of a comparable property are identical. Sale can only be compared when it is completed in an open market between an willing buyer and a willing seller through an arm's length negotiation. If the sales are not of arm's length nature it should not be considered for comparison. But for agricultural land in India both the buyer-seller are normally from the same locality and the sale is not an arm's length sale. Non-arm's length sale also includes sales involving courts and government entities. These cannot be taken for averaging in comparable sales.

Sale Time – Sale time here measures the time between the sale date and the date of comparison. This is also one of the principal factors used in comparable sales approach,. When the gap is shorter, it is better for comparison. In India the population has been growing with time. This adds demand for land. In a country like India there is also continuous inflationary pressure. All these have been pushing the price up. This makes the time difference as an important attribute for the price to change. However, the impact

may vary based on location and socio-economic conditions of the area where the land is located.

Once the attributes have been selected and the coefficients for adjustment are determined, comparison approach uses paired sales approach for conducting comparison. This requires that the comparable characteristics of the properties are identical in all respects excepting the characteristics for which the adjustments are sought. The comparison of other properties to make value adjustments is called paired sales analysis. Paired sales comparison may be vertical or horizontal. In vertical paired sales comparison, it is made between the two successive sales of the same property. This however, excludes the improvements made by the second seller, thus captures the change between the two sales. In the horizontal paired sales the two comparable properties may require adjustments for the other attributes in the second comparable property to make the two properties equal, excepting for time. This can give the price change between the two comparable assets for the time elapsed.

While the comparable sales approach is certainly a preferred option in land valuation, it has the following major limitations. It can be the concerned parties may have significant incentive to understate the sale price (to pay less government duty) it will be difficult to get true sales price by comparison. If the land sales market is thin and not yet matured, the number of transactions is less and it will be difficult to find appropriate comparable properties. Thinner the market, less accurate will be the results and the value determined will be less dependable..

### *6.1.2 Cost Approach*

In the cost approach the focus is to estimate the replacement cost of a product, which is determined by the cost of its components. This is based on the principle of substitution where the cost of a property cannot be more than the cost of making a comparable property. For the purpose of estimating the value of a landed property it is estimated as the cost of a vacant land plus the replacement cost of the property on the top of it.

Methods of estimating the cost to replace an item are the followings-

1. **Reproduction cost**-It considers that the product should be made in the same method which was followed in the first place in making the goods. As a result this becomes the cost of making an identical product in an identical process.
2. **Replacement cost** – In this the variation is in the consideration of manufacturing process. The manufacturing process here uses the modern methods, tools and tackles.

The second one is more commonly used. The replacement cost using modern methods and tools is naturally less costly than the reproduction cost.

The cost approach can only be used when adequate information is available about the process and the components used. In a situation where demand far outstrips the supply, there is a serious imbalance in the demand-supply equilibrium. This makes price to shoot up. But this is not the fair value of the product. In such situation cost approach is a better suited option to estimate the fair value of the product. This is also used in valuing properties which are rarely transacted such as schools, churches, parks etc. The method is also suitable for properties which do not have proper income and expenditure information.

In IVS (International Valuation Standard) cost approach is defined as a comparison method, which takes into consideration the possibility of purchasing an alternative equivalent component of the asset with the same utility. However, the time, inconvenience, risk and price which is to be paid for the assessed component of the asset cannot be higher than the cost of modern equivalent (Zrobek, 2011). American and British methodologies of valuation make different assumption about the process of land valuations. In USA estimation of land should be always based on highest and best use. But in British system the current use of land is considered. The same is also reflected in the EVS (European Valuation Standard) where it says in the cost approach “the value of the property (is) determined by a prudent assessment... taking into account of the current use” (Stasiak, 2011).

Cost approach is also used to value rural land where the cost of vegetation on the land, i.e. whether meadow or woodland are added. Topography and the soil quality are also included in the cost estimation

### *6.1.3 Income Capitalization Approach*

The income approach considers the estimated future income which a property is expected to generate over its life time. Future benefit is discounted to its present value of the future benefits. The term “capitalization” refers to the process of discounting by which the future income is converted into its present value. This assumes that the present or the potential future owner wants to use the land to generate income.

The capitalization rate is the discount rate plus the recapture rate. Discount rate is used to convert future income into present worth. Recapture rate calculates the annual amount that is required to generate the same amount of return for the same period. If the income from the land is assumed to remain constant the recapture portion becomes same and the capitalization rate becomes same as the discount rate.

The valuation of land is estimated by dividing the annual net income of similar properties by the The advantages of direct capitalization rate are its simplicity and straightforwardness. “However, it is applicable only in settings with active land market” (ADB Rural Development Institute - Compensation and Valuation in Resettlement: Cambodia, People’s Republic of China, and India, 2007).

However, the income capitalization approach is better suited than the other methods for the land markets which are less active. Even where land markets are sufficiently active to use comparable sales method, the income approach can work as a second check for confirmation of the preferred approach (ADB Rural Development Institute - Compensation and Valuation in Resettlement: Cambodia, People’s Republic of China, and India, 2007).

Information regarding the gross income of the land owner’s and the related cost is required to be calculated for the NOI (effective gross income minus annual operating expenses) in income capitalization approach. But the process of computation often faces

difficulties. Output estimates are normally more accurately available from the land. But it is difficult to get the gross income from the crop since the price varies significantly with times of the year when the crop is sold. This largely depends on the economic condition of the land owner who can use this variation to her advantage. Further accounting the value of the crop consumed in the household is also difficult to get. In some cases the payment to the agriculture labor is made in crops along with cash. Valuing the same is difficult. Estimating the cost is also difficult. Whole family of the farmers normally works in the field with varying level of inputs of the family members. Estimation of that as a cost is difficult. All these make accurate estimate of the net operating income (NOI) difficult and hence the land value in the income method.

Apart from the above, income capitalization method has a significant weakness in its methodology where it considers only the net operating income for the calculation of the market value of land. But in reality land value is not limited to its agricultural produces only. Land has a speculative value through its possible use changes. When land is acquired for development projects through eminent domain, this becomes important in the valuation, especially when replacement cost is estimated. Land does not depreciate, rather appreciates and because of this land is preferred as security to the lenders. This provides the owners an enhanced access to credit facilities. Historically land has been associated with social society either in early feudal societies or in today's industrialized societies.. Thus the income capitalization approach typically undervalues land by considering only one of the many factors that affect the value of the land. This makes the process inadequate for land valuation to pay just compensation.

Vacant land is not constructed nor is it considered as earning. Hence neither cost approach nor income approach is suited to value the land. Comparable sales approach is the only viable option.

## **6.2 Land Valuation Theories**

The above three approaches have led to development of number of pricing theory with particular references to land and real assets. Some of them are discussed below. The aim is to discuss some of the popularly used land valuation theories and to explore feasibility



of their use in paying compensation during expropriation. The primary focus in the earlier theories was to value land when alternate use of land (other than agriculture) was not significant. With time there have been changes. Demand for non-agricultural use has started competing with agriculture. Some of the demand changes have been slow and evolutionary. Some have been state sponsored and rapid. Though our current study is focused on valuing expropriated land, which are unwilling sales, we have studied different valuation theories in a free sale for building suitable compensation model for acquired land. The gap that exists in these theories vis-à-vis fair market value for just compensation is also discussed.

### *6.2.1 Early Rent Theories*

The concept of rent as surplus that is earned after meeting any necessary payment to the land owner dates back quite early. Adam Smith's work is considered as one of the pioneering work on rent where he considered rent as surplus. Rent here is the selling price minus the cost of production. If the sales price is higher than the cost of production, surplus is generated from the land. The surplus is rent. "Land in almost in any situation produces a greater quantity of food than what is sufficient to pay for the cost of labor which is necessary to bring the produce to market in the most liberal way. The surplus is always more than sufficient to replace the stock which has employed the labor, together with its profits. Something, therefore, always remains as rent for the landlord." (Smith,

. Adam Smith asserts that the value of land would continue to rise in line with the one which is yielding rent even if its produce may not be able to yield rent. Labor engaged in the land is an input. Any increase in the productivity of labor reduces the cost of input and in turn increases the rent from the land. With higher labor productivity landlord is able to produce more manufactured goods at the lower price with the same amount of money as before. Rent may be calculated as a proportion to the absolute fertility of land. More a land can produce, higher the rent it will yield. Smith enumerates the agricultural capital which includes "The stock from which he furnishes the seeds (the raw material), pays the labor, and purchases and maintains the cattle and other instruments of husbandry (Marx, 2017)..

Thomas Robert Malthus has defined rent as that portion of the total production which remains with the owner of the land after paying for cost of cultivation the profits of the capital employed. This amounts to surplus – an excess of price over cost of production. Malthus also explains that rent would commence on most fertile land when inferior land are taken for cultivation. Progressively more and more inferior lands will be taken under cultivation and at every step the price of produce has to fall; otherwise the rents of land will rise. (Lackman, 1976).

### *6.2.2 Ricardian Theory:*

In Ricardo's theory of rent, the rent is 'differential' because it depends on the relative fertility of the landowner's plot to the marginal plot of land". In his argument the marginal plot of land is the plot from where there is no rent, i.e. there is no profit. With more demands more lands would be taken up. But Ricardo argues that the increased output is actually used up in paying the increasing rents. But Ricardo also puts forward the argument that at the end the profit rates will stabilize and equals across the plots as the competition creeps in (Ballvé, 2011). Ricardo has assumed that there is only one use of land, i.e. to grow grains and is in continuous use. This further assumes that there is no transfer payment is necessary since the land does not have any other use. Finally, in a situation where land supply cannot be increased the price of land will change when the demand changes. This makes it a function of the price of grain. (RICARDO: ECONOMIC RENT and OPPORTUNITY COST, (accessed on 19-03-2017)). In Ricardian theory there is an implicit assumption of the existence of perfect competition in the market. (Kumar, (accessed on 19-03-2017)). The amount of rent is determined by the degree of the differences existing in the productiveness of different soils under cultivation at the time (Chand, Ricardo's and Modern Theory of Rent , (accessed on 19-03-2017)). The theory has ignored the alternative uses of land to determine the rent. (Guru, (accessed on 19-03-2017)).

Gap- (i) Ricardian economic theory posits that the land has only one use- i.e. to grow grain. But most land has other alternative uses. (ii) Ricardian economic theory of rent limits itself to the fertility of the land. But the price of land in most cases differs based on

their potentiality in alternate uses rather than the fertility of the land alone. (ii) It assumes that land is cultivated in order of its fertility which ignores the importance of transportation facilities. In reality people cultivate that grade of land first which is nearer the human habitation, with developed means of transportation. The crop also varies. Study reveals that vegetables and many cash crops are cultivated primarily in the peri-urban areas for the convenience of accessing the market. Ricardian theory of rent has ignored the effect of market access on the price of land.

### *6.2.3 Von Thünen's land use model*

Johann Heinrich von Thunen, attempted to construct a theoretical model of land use pattern. In his view the agricultural land use varies depending on the distance of the land from the market. He had developed two models to explain this :

1. The intensity of production of a particular crop declines with the distance from the market. Intensity of production can be measured with the amount of inputs per unit area of land, which includes capital (the amount of money), labor and fertilizers. Higher the inputs, greater is the intensity of agricultural production.
2. The type of land use will vary with the distance from the market.

The Von Thunen's location theory assumes the followings:

1. Farm will produce those products that can fetch highest profit, keeping all other environmental variables constant. (Chand, Theories of Agriculture: Locational Theories of Agriculture, 2017).
2. Throughout the plain the soil will have the same fertility and capable of producing the same.
3. There is only one central town as the market place for providing all the provisions required by the surrounding country side.

4. Crop production is arranged in a concentric fashion around the central business center.
5. Lands closer to the market will have lower cost of transportation. This increases the rent and makes the land more desirable than the lands which are further away from the center. (Morton O'Kelly, 1996).
6. He has developed two themes in his model of agricultural production: (a) the theme of cropping intensity and (b) crop land use. However, the latter reflects upon the intensity of cultivation itself.

Research reveals that the cost of labor as inputs is a negative function of distance from market, since the cost of migration to longer distance from the urban centers normally comes higher. This assumes that the input cost increases with increasing distance from the market resulting in decrease in economic rent (A Theory of Agriculture Location , (accessed on 19-03-2017)) In an equilibrium situation the earnings in an urban center should be equal to the earnings from agriculture in the surrounding rural area plus the cost of migration. (Vissar, 2010). Uniform fertility and uniform yield per unit of land assumption is crucial when von Thunen's major notion of proximity to the market as a major determinant of rent is compared with Ricardo's rent theory on differences in land fertility as the major cause for rent. Though the two theories are different, it should be emphasized that there is no conceptual barrier against the introduction of several levels of fertility of land into the Thunian system. Fertility of land is, after all, another variable which was originally assumed constant, but actually varies from one location to the other (Kellerman, 1989). The price decay appears to look as an inverted cone. Land values decline with the distance from the market center.

**Gap:** Modern day's long-haul economies encourage a greater volume of long distance movement. It makes sales and purchases possible at a greater distance and, therefore, extend market and supply areas of all types of products. The tapering freight charges transform the rent lines from a linear to a curvilinear shape, with the result of increasing spatial extent of market areas, also permitting to invade the market area of a competitor

resulting in the larger market and supply areas with highly irregular boundaries which often overlap each other. Labor cost reduces from the market centers and not constant as is assumed here. In von Thünen's theory agricultural products compete with each other for the optimal location which becomes a function of production-transportation cost matrix. The competitive power becomes indirectly measurable over locational rent, assuming all lands are equally productive- soil fertility as a production input factor ignored. This makes the proposition incomplete to explain the factors affecting demand for a land and its value.

#### 6.2.4 *Bid Rent Theory*

Von Thunen's assumptions of a flat plane with no topographical variations and a central city allowed for remarkable advancements in economic geography, and also provided a pivotal framework for Alonso's bid-rent theory. Alonso also assumes a city with a central business districts exist on a flat, featureless plane. The theory assumes that employment opportunities are concentrated in the central business district (CBD) of the city. This also assumes that

- 1) transportation is seamlessly available throughout the city, with transport costs calculated as a direct function of distance between places, and
- 2) the city is habituated by rational persons in an implied state of perfect competition.

Under these guidelines, Alonso has proposed his bid rent theory for urban land market. The theory assumes that the residents living close to the city center have to travel less to get to work or entertainment centers. This decreases disutility. Cost of transportation included the opportunity cost of commuting. The model assumes CBD contains the vast majority of employment and all other employments are distributed. But that was probably valid when transportation was slow and expensive. This all changed with progress and innovation in transportation technology. These changes had the effect of complicating and moderating the bid rent gradient (Trussel, 2010). Bid rent theory may be used to show what various land-users (classified among Commerce and Offices, Industry and Residential) are prepared to pay to decrease the disutility as the opportunity cost. (Central

Place and Bid Rent Theories, (accessed on 20-03-2017)). . Plotting bid-rent curves in relation to employment zones help planners to ponder the equitable distribution of rental housing (Bochnovic, 2014). An historical interpretation shows that there is hardly any correlation between the today's society and their values for disutility vis-à-vis what has been the assumptions in the origins of rent theory in the seventeenth century. For all practical purposes this hardly bears any relevance to the modern market economy of our day (Deak, 1985).

Gap: Theory assumes high cost of transportation, which with faster mode of transportations being available in automobile, metro-rails etc. have changed. This also ignores the rent seeking behavior of the property owners who build low income housing by building dense and compact housing when the theory assumes that all individuals choose to consume the same amount of housing at every distance. This also does not take into account of zoning and other government restrictions on land use.

#### *6.2.5 Hedonic Demand Theory*

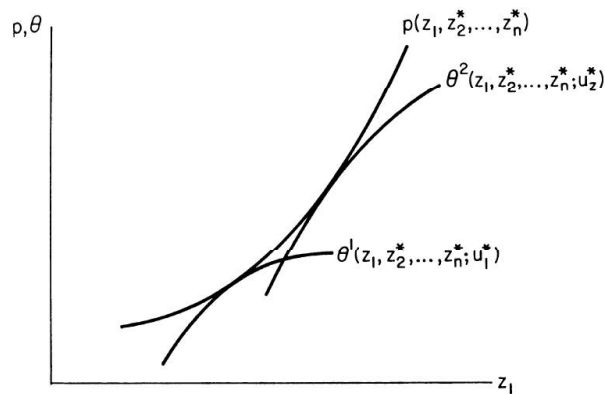
Hedonic demand theory is a revealed preference method which is used to estimate demand and in turn the value of an item. The theory assumes that every product can be broken down to its constituent qualitative and quantitative complements, each of which has the contributory value. Their summative value can be used to estimate the value of the item. Apart from the internal characteristics the external environments also affect the value of the product, either independently as an attribute or in combination through other internal and external elements. Two main approaches that have contributed greatly towards the development of the theoretical premises on hedonic demand theory includes

1. Consumer theory derived from Lancaster's (1966) and
2. Model suggested by Rosen (1974).

Both of these approaches assign prices of each of the attributes which is computed taking into consideration of the observed prices of horizontal and vertical differentiation of the product values. This also considers the number of attributes that impacts the price of the products. Lancaster has introduced the concept that goods may be considered as objects

of utility. The utilities so perceived are the properties or characteristics of the goods. Thus a product can be defined as a collection of characteristics (Lancaster, 1966). Rosen incorporated budgetary limitations in the financial decision making of the customer, when income increases. He has brought the concept of consumer's marginal willingness. In a budgetary limitation consumers decide to pay for a certain attribute in exchange as an additional parameter. (CHIN, 2002). Hedonic prices thus defines the prices of the attributes. The prices are revealed for the differentiated products as an economic agent. Vector of coordinates  $Z = (Z_1 + Z_2 + \dots + Z_n)$  with  $Z_i$  measuring the  $i^{\text{th}}$  characteristics are used as attributes. Total cost in an establishment are  $C(M, z; \beta)$ .  $\beta$  is the shift parameter. This reflects underlying variables in the factor prices and production function parameters. Buyer and seller are perfectly matched in an economic equilibrium. At this the respective value and their offer functions "kiss" each other. (Rosen, Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition, 1974).

**Figures 6.1: Consumer Equilibrium**



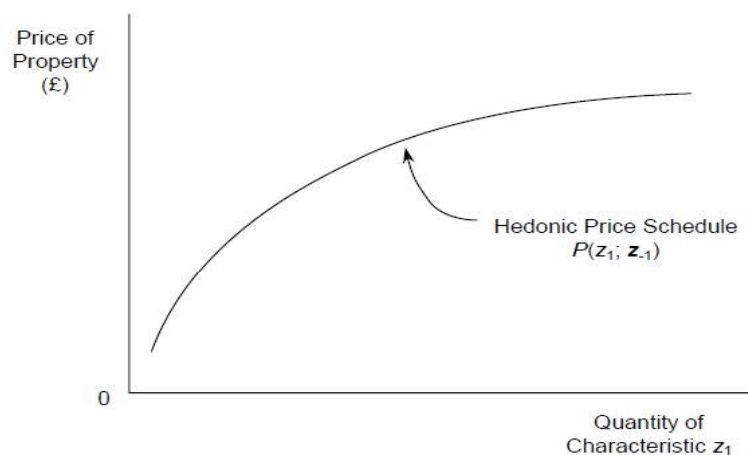
Source: (Rosen, Hedonic prices and Implicit Markets: Product Differentiation in Pure Competition, 1974).

Rosen examined how to estimate a consumer marginal bid function for characteristics of a commodity which can be used to estimate the commodity's hedonic price function. This function provides the information about the consumer since in equilibrium a consumer's marginal bid for a particular characteristic (attributes) equals the marginal price for the attributes for the consumer's chosen commodity type.

Different varieties of products command different prices. Market forces determine these prices. Furthermore there are multiple sets of prices that are active in the market which defines the competitive equilibrium among the products. The competitive equilibrium prices in the market on a set of differentiated goods will settle so that supply with demand will reconcile and clear the market.

The cost of property with the same characteristics  $z$  differs across landlords. Locational, neighborhood and environmental attributes are important factors apart from the process inputs for a manufactured product. Public policy also impacts the cost. (The Theory of Hedonic Markets- Chapter 1, (accessed on 03-03-2017). To estimate the product attributes, marginal willingness cost for each of the attribute forms the hedonic price function and the estimate made can provide the price most accurately. There are situations when certain variables are not observed or when a variable is replaced by a proxy. In both cases a linear hedonic price function consistently outperforms others (Maureen L. Cropper, 1988). Hedonic price function is shown in the chart below. In the chart the price variations are shown in the Y-axis whereas the quantity of a particular quality characteristic is shown in the X-axis. The chart below indicates that when the other characteristics has remained constant, the changes in the focus characteristic and its impact on the price changes can be mapped.

**Figures 6.2: The Hedonic Price Schedule for Characteristic  $Z_1$ .**



Source- ([www.cserge.ucl.ac.uk/Hedonics\\_\\_Chapter\\_1\\_.pdf](http://www.cserge.ucl.ac.uk/Hedonics__Chapter_1_.pdf), 2017)



The above diagram is indicative of the fact that marginal prices may not be constant as the extra price paid for a particular characteristics with additional units is not constant. The study further reveals that the price of additional unit of any one characteristic is not independent , rather it depends on the presence of its own or some other attributes.

Gap : Neighborhood parameters are considered as external environment that affects the land value. But land acquired for development projects trigger changes in the neighborhood and affects its value. Non-agricultural investments increases demand for land, attracts job seekers, influx adds more demand for residential and commercial needs. All these have significant impacts on land price. Thus it is not only the attributes of product that changes demand and affects price but there are neighborhood parameters whose change makes bigger impacts on the product price. This needs to be considered in the computation of compensation for the land acquired. There is a need to identify such parameters in a thin land market of India and to estimate its impact on agricultural land price.

#### *6.2.6 Compensation theory-*

The chief difficulty in ensuring that “just” compensation equals “full” compensation in an economic sense comes from the fact that the affected person’s economic and social future should be at least as favorable with the government taking as without that. The compensation should be equal to owner’s loss and not the acquirer’s gain. This brings the subjective value of the loss which is unobservable and hence can be misrepresented. Economists have devised various mechanisms that could theoretically induce truthful revelation but none is really a practical solution.

##### *6.2.6.1 Pareto optimal*

In Pareto-optimal welfare of one person can be enhanced only at the expense of the other. However, in Pareto-superior an alternative allocation is made when no one is made worse off by the distribution and at least one person is better off.

#### *6.2.6.2 Kaldor-Hicks efficient*

Kaldor-Hicks variant of Pareto criteria does not demand that all losers be compensated. A reallocation of resources is Kaldor-Hicks efficient if it enables the gainer to compensate the losers, whether or not they actually do so. The problem with wealth maximization in Kaldor – Hicks approach considers aggregative phenomenon; namely redistribution of goods or rights to those who are most productive or can use them better while allowing gross uncompensated injuries to fall on the unlucky losers. Economists don't deal in justice but efficiency". (Paul E. F., Property Rights and Eminent Domain, 1986).

Gap – The Pareto or Kaldor-Hicks improvement is applicable to a specific population who are independent of the decisions under consideration. This leads to further imperfections in achieving the economic efficiency, aimed for.

Summarized Research Gap in the theoretical premises of land valuation is shown in Annexure 2.

### **6.3 Fair Market Value**

The above discussion has deliberated upon various approaches of land valuations and different theoretical premises which has helped in the development of different land valuation models. The objective is to determine the fair market value of agricultural land to pay just compensation. However, the extant literatures dealing with building of land valuation models considers nature of market as important variant. The models are all being developed in a free market sale between a willing buyer and a willing seller, both are in no obligation to buy or sell. The land market is active with large number of buyers and sellers. Sales are arm's length sales. But India's agricultural land market is from meeting those criteria. The market is thin. To build the land valuation model in the Indian context it is necessary to understand the gap before using the inputs from active land market of the western world. In the subsequent discussions the behavior of the two markets with distinctly different market behaviors and the approach to compute their fair market value are elaborated.

#### **6.4 Thick Market**

In a thick market there are many participants who are willing to buy or sell. Here trades are made frequently. During transactions seller's offers are matched by the buyer. Prices are normally concluded when equilibrium is reached in a market. When there are large numbers of operators, there are existence of equilibrium sets of prices. Here equilibrium set of prices means that if supply exceeds demand, excess supply leads to the fall in price of the item. The fall continues until it finally goes to zero. This happens when the demand and supply balance is not attained at any positive price (Shiozawa, 2017). In a thick market or a classical market there is existence of open competition. In an open competition it is only the price that brings equilibrium between the demand and supply. Thus people's transaction is governed by price mechanism. In this market individual buyer and seller cannot have any significant influence on the market prices (Buitelaar, 2007).

Thick market also bears the characteristics of arm's length sale. In arm's length sale there is no room for continuing relationship to be built to influence the sale. Price only governs. In a typical pure market form personal contacts, identity and contacts do not exist. But this is very rare in land sales (Granovetter, 1985). In most cases of land sales the actions of individuals are governed by the cultural peculiarities of the locality. This makes pure markets almost non-existent in a sale of land plot. In a commodity sales goods are clearly defined with its attributes and are interchangeable. But this is not true for a land sale. Every piece of land is unique and immobile. This makes it unique and virtually irreplaceable by any other land plots in the same locality.

#### **6.5 Thin market**

In a thin market there are few numbers of buyers and sellers. Transactions are also less. Since only a few transactions take place in a thin market, the data becomes inadequate for averaging. The mean as average is less reliable. In a thin market with few transactions there are often variations in prices. This at times is also due to erroneous sample use or may be because of collusive agreement between the buyers and sellers. Tomek remarked "a major concern about thin markets is that the number of transactions (per unit of time) is so small

that ‘unwarranted’ price behavior occurs” (Tomek, 1980). Tomek and Robinson describes the condition that exists in a thin market when the number of sales transactions is small and such markets “cannot fully reflect aggregate supply and demand condition; furthermore they are more susceptible to manipulation” (W.G.Tomek, 1990). Such prices cannot be representative as a true market price. Use of such data for estimating market value in free sales cannot be defended (R.L. Kohls, 1990). Nelson et al commented “All markets evolve with time. As new market institutions develop, old ones decline. Thin markets may thus be viewed simply as transitional anomalies in the evolution of market. Whether the transition has adverse welfare impacts depends on the speed at which the new institution evolves.” (Robert G. Nelson, 1995).

India lives in villages. Agricultural lands are also rural. Rural population in India is less mobile. Rural to rural migration other than female migration due to marriages is low (Kalkoti, 2014). This makes buyers generally from the same village or nearby locality with many common interests. This makes arm’s length sale almost rare. A large portion of land is held by tribal and hill people where the land transactions are legally limited within the same community. This depresses the price and the sale values do not represent the free market price.

The discussions above consider free market sales and not the estimate for fair market value in eminent domain. Free market sales consider evolutionary changes in the socio-economic conditions that affect land price, but the same is not true when state acquires land for developments. Development brings changes faster. Changes in the socio-economic cauldron make rapid increase in land prices. This brings additional dimensions in the valuation model. The gap needs to be mapped for a suitable model building.