THE STIGMA IMPACT ON PROPERTY VALUE: A STUDY OF SELECT CITIES IN INDIA

Ramakrishna Nallathiga, Snehil Bindal*, Ajay Chaurasia*and Mayur Talodhikar***

** Associate Professor, School of Projects, Real Estate and Infrastructure Management, National Institute of Construction Management and Research, Pune

* PGP REUIM Students, National Institute of Construction Management and Research, Pune

ABSTRACT

Real properties are frequently subject to purchase/ rent with money as consideration for such exchange. Conventionally, the monetary value of real properties is governed by physical, economic and financial factors concerning the property, while assuming ceteris paribus competitive market condition prevalent in the real estate market. However, other factors like information, belief, trust and psychological/ behavioural factors can also affect the value of property to a good extent, which is not studied much. 'Stigma' refers to one such psycho-behavioural factor attached to property that affects property value; different types of stigma may be associated with properties. This paper reports an assessment of the impact of 'stigma' on property value in terms of a 'reduction/loss' of value. Based on the primary data collected from the various parts of the sample Indian cities, the paper assesses the impact of 'stigma' on property value through regression analysis and also evaluates the value loss associated with it. The results show that the stigma associated with property does affect its value adversely by reducing its value; the stigma categories of 'Phenomenon Stigma' and 'Murder/Suicide Stigma' have statistically significant impact on the property value.

Key words: *Property value, stigma, value impact, regression analysis and Indian cities*

1. INTRODUCTION

Real properties are frequently subject to purchase/ rent with money as consideration for such exchange. However, arriving at the consideration value of property requires its valuation. Valuation of real properties is an important process that aids the real estate/ property market transactions and agents in finding the transaction price of property. Valuation has often been defined as the art and/ or science of estimating the values of real/physical assets (Datta, 2004). In technical terms, 'Valuation' means the provision of a written opinion as to capital price or value, or rental price or value, on any given basis in respect of an interest in property, with or without associated information, assumptions or qualifications (Rangwala & Dalal, 2010). However, it does not include a forecast of value. Valuation is simply a model to try to determine property price/ value. Value is the end result; it gets influenced by a variety of factors i.e., understanding of the market, property characteristics, the legal environment, the physical constraints, the planning regime, the availability of finance, the demand for product and the general condition of economy (Datta, 2004). Thus, in the property market, what is often called a 'valuation' is the best estimate of the trading or spot price of a building/ land (Lyon 2005).There are three major approaches taken towards 'valuation' which are shown in Figure 1. Not only exclusive of each other, all these three approaches involve comparisons of various legal, physical, social and economic factors in order to arrive at the value based on the framework that they adopt.

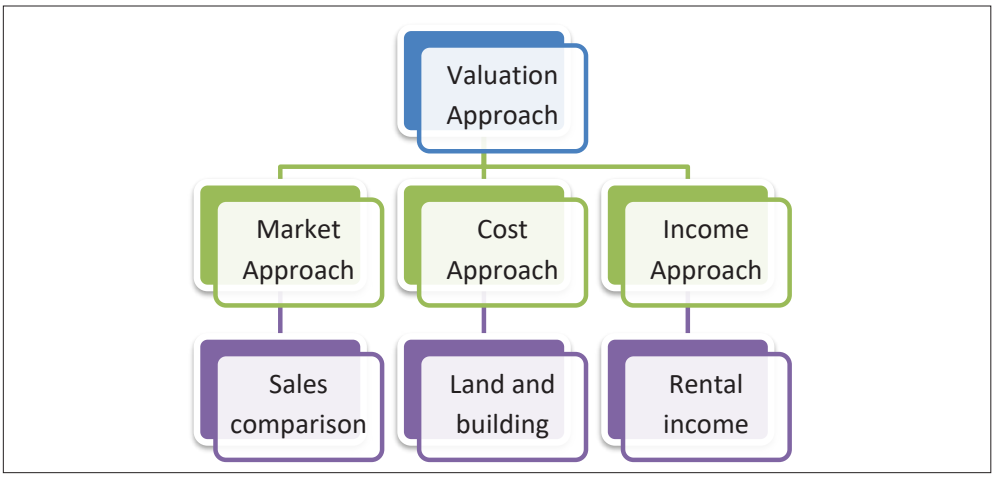

Figure 1: Approaches to the Valuation of Property
Source: Datta (2004)

Conventionally, the monetary value of real properties is governed by physical, economic and financial factors concerning the property, while assuming ceteris paribus competitive market condition prevalent in the real estate market. This formulation of property value is also known as 'Hedonic Valuation', which takes into consideration all the property characteristics into consideration of determining the property value. However, other factors like information, belief, trust and psychological/ behavioural factors can also affect the value of property to a good extent, which is not studied much. Therefore, this research is aimed at understanding and assessing the value impact of such factors on real estate/property values in Indian cities. The traditional valuation approaches – markets, cost and income approaches – cannot be fully used for eliciting the value of properties with some peculiar features like 'Stigma'.

1.1 Stigma Property

'Stigma' refers to one such psycho-behavioural factor attached to a property that affects the property value; different types of stigma may be associated with properties. Stigma is a value loss to property due to the presence of risk perception-driven market resistance (Mundy 1992a). In Real Estate, Stigmatised Property is property which buyers or tenants may shun for reasons that are unrelated to its physical condition or features. Certain events may cause a property to be described as a "stigmatised property". This term is sometimes applied to a property that has had some circumstance occur in or near it, but which does not specifically affect the appearance or function of the property itself (Mundy, 1992a). Examples of these might include: (i) A death occurred in the property (ii) The property was robbed or vandalized (iii) Reports that the property is haunted. There are six major types of 'Stigma' that are associated with real properties, which are described in Table 1.

Table 1: Stigma Types and Characteristics

TYPE OF STIGMA	STIGMA CHARACTERISTICS
Public Stigma	It refers to the attitudes and beliefs of the general public towards real properties, in simple words public stigma is known by a large number of people. These attitudes tend to affect the value, as demanders do consider such stigma associated with property in their purchase offers.
Criminal Stigma	Properties known to be used for the purpose of crime are considered to have Criminal Stigma. An occurrence of such criminal activity inhibits demanders from placing their demand quantity/ price for such property.
Murder or Suicide Stigma	It is a type of stigma where death of some person has been occurred due to either murder or suicide. It leads to a dread that such property is not safe. Therefore, acquirers will avoid such property or ask steep discount.
Debtors Stigma	It is a stigma where an entity that owns a debt to another entity and is not able to repay to that entity. In other words, the owner is unable to meet the financial obligations. It is construed that it is due to/ case of property.
Phenomena or Haunting Stigma	Stigma associated with a house that is thought to be haunted or such phenomenon e.g. the existence of ghosts/ evil spirits. Though not verifiable, even the knowledge of such presence either prevents demand for it or asks for a steep discount on the property price/value.
Minimal Stigma	It is a stigma that is only known by a small group of people, and is usually only taken seriously by locals. It is only due to the local belief that such property does not give rise to auspiciousness to the occupants.

Source: Prepared by Authors

Even though the "stigmatising event" does not directly affect the appearance or use of the property, it has such a negative psychological effect on the potential buyer that they decide not to purchase the property. The property becomes known as a "stigmatised property" potentially making it much more difficult to sell and ultimately adversely affecting its market value. There is also no standard platform available for the valuation of stigma property. The framework for the contaminated properties in the case of environmental damages can be extended to stigma properties (Mundy, 1992b). Apart from affecting a contaminated or potentially contaminated

property, stigma also affects the value of properties that are not contaminated but are in close proximity to a source of contamination (Chalmers & Roehr, 1993). Assessing the impact of stigma on property values is important to understand its extent of impact on value reduction/ loss of property and thereby to inform the potential clients and those interested in the industry.

1.2 Value Impact

Market value of property is widely used to make the purchase and sale decisions on property. International Valuation Standards defines market value as "the estimated amount for which a property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently, and without compulsion. Market value of the property therefore refers to the value that it would fetch when all competitive conditions are prevalent, including complete information or the lack of information asymmetry. Market value is established by the demand and supply conditions prevalent in property market in an area/ neighbourhood and is devoid of any reference to property unit characteristics.

Actual Value of the property is the defined as that price of property at which the property or asset has been sold/ sellable price to the other party. Actual value can be more than, less than or same as that of market value, depending upon the characteristics of property and other attributes. In our case the value of property is depreciated because of stigma attached to it, therefore, the actual value of the stigmatised property will be less than that of market value. In other terms, actual value is the depreciated or appreciated value of the properties due to property characteristics, including any stigma associated. Stigma associated with property will therefore impact on it in terms of reducing the value that it can fetch, when it is put up for either sale or rent.

2. APPROACHES TO STIGMA IMPACT ASSESSMENT

The 'stigma' associated with property can affect its price/value is implicit in the way such properties are transacted. However, the impact of such stigma is not explicitly known to the property assessors/ valuers using conventional valuation approaches. Two major approaches are found towards valuation of stigmatized properties depending upon the particular situation: (i) where data are available (ii) where data are not available. When the data are available, market approach is taken towards valuing the stigmatized property, whereas when there is no such data available it is approached by constructing markets through questionnaire surveys.

2.1 Market Data Approach

When market data of all properties are available, the 'value differential' approach can be used for the assessment of stigma in money terms while considering the stigmatized property as a 'contaminated property'. In a survey in 1998, it was found that the majority of Australian valuers had used the impaired value approach to value contaminated land. The impaired value approach can be represented by equation below (Chan 2000):

Vc = Vu – L – Cr – S .....
where:

Vc = contaminated value,
Vu = uncontaminated value,
L = loss due to reduced income/productivity and/or legal liabilities,
Cr = investigation, remediation and monitoring costs,
S = stigma impacts

Figure 2 shows the approach graphically. The impaired value approach outlined earlier is a logical model for valuing contaminated land (Guntermann, 1995). However, it requires valuers to explicitly consider the stigma impact. It is this requirement that causes problem.

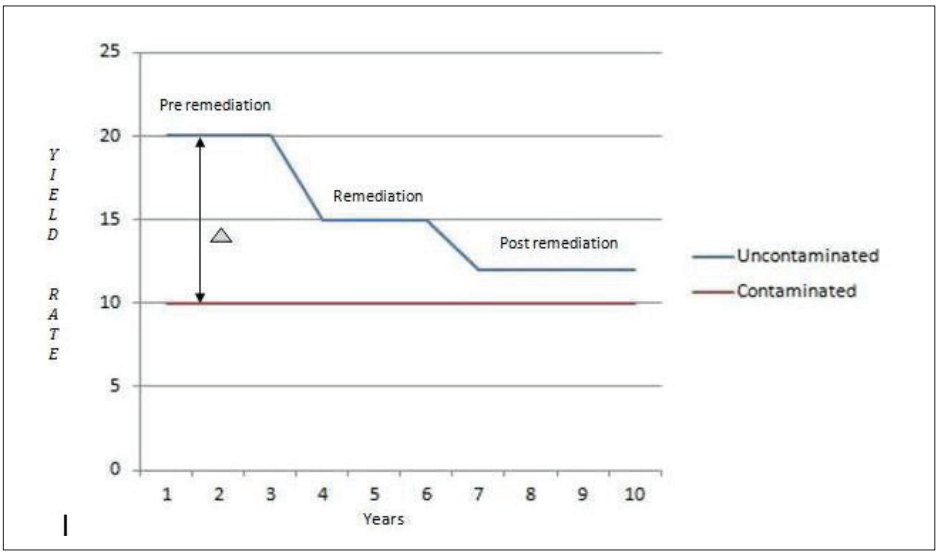

Figure 2: Stigma Property Valuation Using Market Data
Source: Rodderweigg (1998)

Patchin (1994) also shows that stigma may be assessed with the direct comparison method. He suggested that the unimpaired and impaired values of the property are to be assessed using the direct capital/ sales comparison method. The indicated stigma was estimated by subtracting the impaired value from the unimpaired value. He also suggested estimating the indicated stigma by subtracting the actual selling price from the unimpaired value. This value differential offers insight of value loss/ reduction attributable to stigma. Man & Wong (2012) apply this framework to estimate the value loss due to stigmatized properties.

2.2. Constructed Market Approach

An alternate method when data not readily available is the 'survey method', in which such data is generated from questionnaire survey for the purpose of valuation of stigma properties. Using experimental method consisting of trial (stigmatised) properties and control group of properties without any such, the value differentials offer an insight of property value impact associated with

stigmatised properties. For example, Chan (2000) found, in a survey of Australian valuers on their attitude towards stigma, that a large number of respondents claimed they had considered stigma when performing valuation of contaminated property. Of the sample, 48% of the less experienced respondents claimed that their clients had concern for this value impact, with 56% of the experienced respondents shared the same view. It appears that stigma has already caused a significant concern, if not an alarm, among clients in the three states where the survey was done. Likewise, a survey of realtors or real estate brokers is also done to distinguish between stigmatised and non-stigmatised properties and they can also be questioned on the 'market value' that a non-stigmatised property can/does fetch and the 'actual value' a stigmatised property will fetch.

3. CURRENT STUDY METHODOLOGY AND APPROACH

3.1 Methodology

Broadly, we use the 'market and constructed approaches' towards the valuation of properties, while adopting both the approaches outlined above – existing market data and data generated from formatted questionnaires. Since the topic Valuation and Negotiation of Stigma property is very nascent in India and there is no standard platform available, so we have considered property from all over India so that we can have a standard model which can be used by everyone. The methodology that we adopted for the current study is shown in Figure 3.

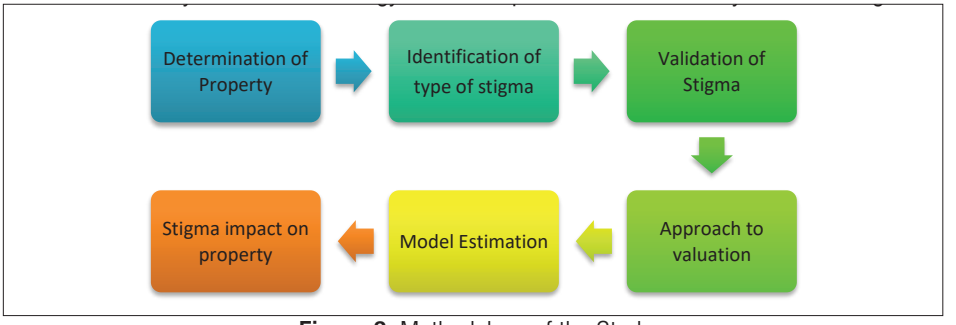

Figure 3: Methodology of the Study

Property values at the area/ jurisdictional level are influenced by the demand and supply factors prevalent. Once property values are established at the area/jurisdictional levels, the property values of individual properties in an area/ jurisdiction are governed by the local factors. These local factors can be broadly divided into – (i) internal factors/ attributes concerning the subject property (also, termed as property characteristics) (ii) external factors/ attributes that are related to the neighbourhood (also termed as neighbourhood characteristics). Table 2 shows some of the internal and external factors/ attributes that can affect property value. Different parameters/ attributes will have different impact on the property value. Conventionally, studies attempt to establish the link between the market value of a real estate/ property and the property attributes through parametric modelling. We also use the same framework using the data on market value of properties and property characteristics data. However, we also include 'stigma attributes of the property' in to the parametric modelling in order to assess the impact of the stigma on the property values.

Table 2: Internal and External Factors/ Attributes of Properties

INTERNAL ATTRIBUTES	EXTERNAL ATTRIBUTES
Size of the property	Distance from bus stop
Orientation of the property	Distance from railway station
Age of building	Distance from CBD
Units of service available	Distance from school
Parking facility	Distance from healthcare unit
Recreation club	Distance from main road
Swimming pool	Distance from mall/ entertainment area
Interiors/ exteriors	Distance from employment centre
Escalator/ elevator	Social class/ mix of population

3.2 Study Approach

The approach taken to the current study is shown in Figure 4. The identification of stigma types was already shown in Table 1. The presence of different types of stigma in different identified properties has been done with the help of real estate brokers and other network in their network. The subsequent steps are explained in the following sub-sections.

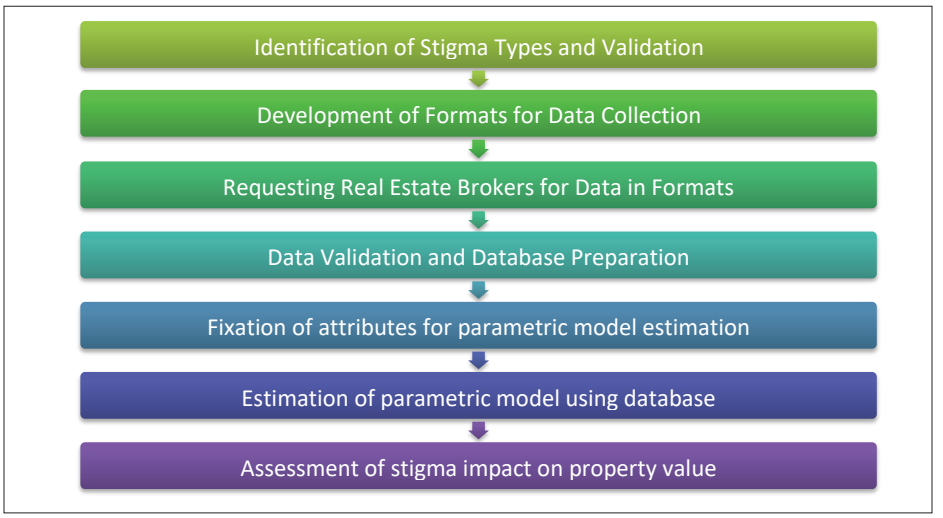

Figure 4: Approach to the Study

3.2.1 Data Collection

Most of the data on property values available with property web portals/ research units is average area/ jurisdictional property prices, which cannot be used in the current analysis. As there is not much of market data available on property values in a centralised manner, it wasa tough task to collect data from all over India. Travelling to various cities all over India to get data was practically impossible for us; therefore, in order to get data from

the properties in sample cities, we contacted the local brokers of those particular cities. Local brokers were clearly explained about our research and were encouraged to give genuine responses.

In order to get the information we required for our analysis, we prepared a data sheet in which all the details were mentioned to our requirement. This data sheet was sent to various brokers located in the study cities country; with their help, we were able to collect the data on property details from study cities of India. The local brokers were thus the source of getting properties details as well as values. In our research study, we confine to residential properties.

3.2.2 Validation of Data

Validation means cross checking the information provided. This is one of the most important aspects of data collection, in which the authenticity of the data provided by the brokers is verified, as there could have been chances of incorrect information provided by them. Validation of property is one of the most cumbersome and time consuming process.

In order to validate property details and its value, multiple strategies were used e.g., contacting more than one broker of a particular city, obtaining responses in standard data formats, getting information about stigma affected areas and stigmatised property with details, contacting other local brokers of that city and asking to give information about a particular area, finally, cross checking the information provided by them with known people i.e., friends and relatives. These led to more authentic data from the property brokers.

3.2.3 Spatial Spread of Data

As India is a diversified country with different cultures and religions and every culture, religion or people have different perspective on particular type of stigma, so in order to get overall impact of stigma at national level we have collected data from all over the India i.e. North, South, East, West and Central parts of India. In order to have a standard platform, we focused on properties located in three major types/ categories of cities i.e,

- Tier-I cities such as Mumbai, Delhi, Kolkata etc,
- Tier-II cities like Bhopal, Lucknow etc.,
- Tier-III cities like Ratlam, Jabalpur, Patna etc.

Getting information from brokers was most time consuming. But, persistent follow-up and request has led to data on a sizeable number of properties. In total brokers provided us 113 properties from all over India, the distribution of which is shown in Figure 5. All these properties are located in the various city classes/ tiers mentioned above.

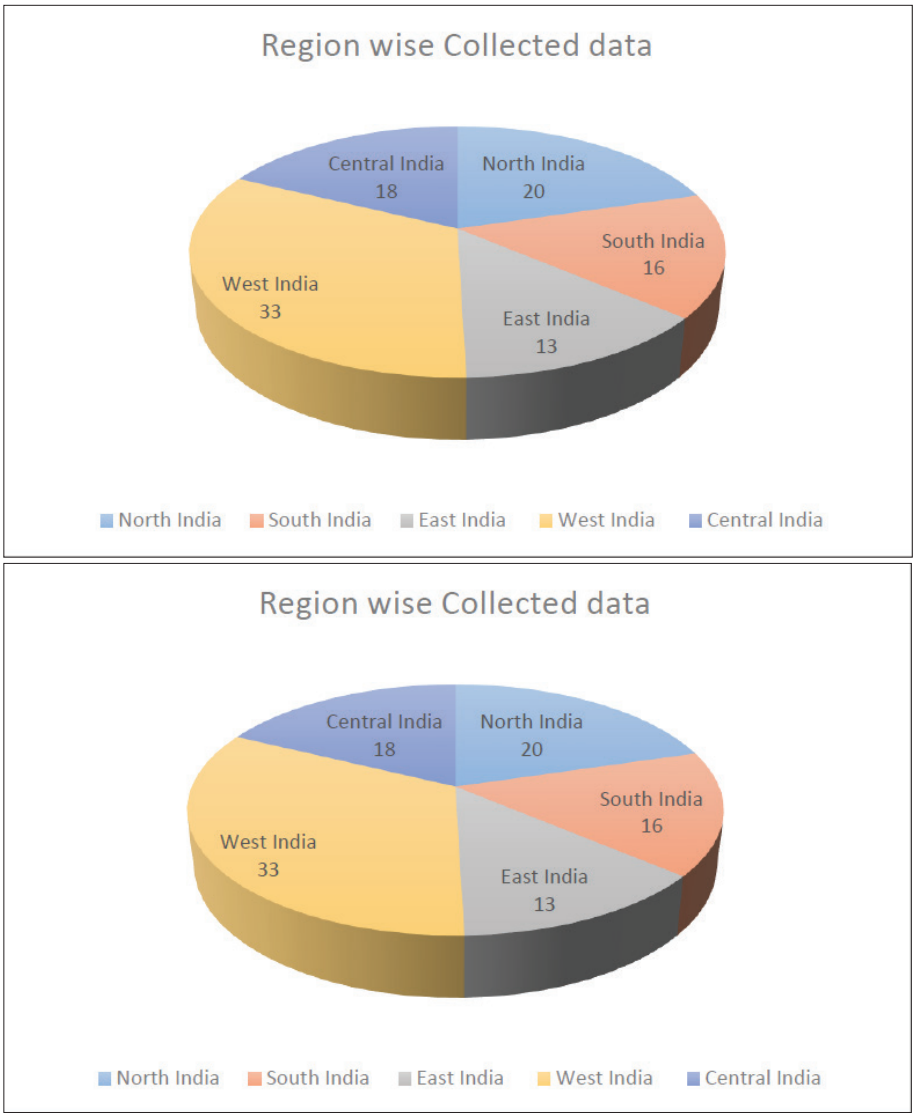

Figure 5: Regional Distribution of Sample Data

4. DATA ANALYSIS AND RESULTS

4.1 Stigma Impact Assessment

Following the market approach to property value, we use the parametric model estimation for assessing the impact of stigma on property values, while following the 'Hedonic Valuation Approach'. Hedonic valuation approach considers both explicit and implicit factors/ attributes of property that can affect the property value into the valuation model. We use the conventional model of value of properties attributable to the internal and external factors by extending it to include the stigma attributes that can affect property value. Therefore, like in any hedonic valuation model, the property value can be a function of these attributes, or

V = f (IA, EA, SA).

where,

IA refers to Internal Attributes
EA refers to External Attributes
SA refers to Stigma Attributes

Table 3 shows the factor parameters/ attributes in the broad category of factor groups – internal, external and stigma attributes. The measurement units of these variables and their nature are also shown in the table. While quantitative variables can be measured in terms of the measurement units provided, the qualitative variables are measured in terms of their presence or not (or, as dummy variable). Dummy variable takes the value of 1 when the stigma type is present and 0 when it is not present for the observation units i.e., sample properties. These parameters/ attributes enter the linear model described as under:

$$V = \alpha + \sum \beta i * IAi + \sum \beta j * EAj + \sum \beta k * SAk$$

wherein,

V is the value of real property measured in Rs Lakhs

IA_i is the set of internal attributes of property with i= 1..5

EA_j is the set of external attributes of property with j = 1..5

SA_k is the set of stigma attributes of property with k = 1..4

α is the constant of the model to be estimated

β_i, β_j and β_k are co-efficients of model parameters respectively to be estimated.

Table 3: Factor Parameters/ Attributes and Measures

Factor/ Attribute Group	Factor Variable/Parameter	Measurement unit	Nature of Variable/ Parameter
Internal Attributes	Size of property	Sq ft	Quantitative
	Age of building	Years	Quantitative
	Units of service	No. of rooms	Quantitative
	Parking	Available or not	Qualitative (dummy)
	Recreation club	Available or not	Qualitative (dummy)
External Attributes	Distance from bus stop	Km	Quantitative
	Distance from CBD	Km	Quantitative
	Distance from school	Km	Quantitative
	Distance from healthcare unit	Km	Quantitative
	Distance from mall/ entertainment unit	Km	Quantitative

Factor/ Attribute Group	Factor Variable/Parameter	Measurement unit	Nature of Variable/ Parameter
Stigma Attributes	Phenomenon Stigma	Existing or not	Qualitative (dummy)
	Criminal Stigma	Existing or not	Qualitative (dummy)
	Murder/ Suicide Stigma	Existing or not	Qualitative (dummy)
	Minimal Stigma	Existing or not	Qualitative (dummy)
	Debtor Stigma	Existing or not	Qualitative (dummy)
	Public Stigma	Existing or not	Qualitative (dummy)

We first perform the correlation analysis to remove the independent variables/ parameters with significant amount of correlation in order to avoid multi-collinearity issues. We then perform regression analysis using Ordinary Least Squares (OLS) method in order to estimate the above specified model using the SPSS software. Table 4 shows the results of estimated model of property values and their determinant attributes/ parameters. The regression analysis implies that the value of property is not only affected by internal and external attributes that are present but also by the stigma attributes. The presence of stigma reduces the property value as implied by the negative coefficients of stigma attributes/ parameters. It can be seen in the results that only the phenomenon stigma and murder/ suicide stigma are statistically significant in their impact on property value. Further, the model also implies that the size of property affects the value significantly; also, distance away from school, entertainment centre and CBD or SBD also reduces the property value. The model has a reasonable degree of fit, as implied by the R-square value of 62.4%.

Table 4: Results of Model Estimation

Factor/ Variable	Coefficient (B)	Standard Error	t-ratio	Significance of t
Constant	56.571	38.418	1.473	0.150
Size of the property	0.047**	0.011	4.159	0.000
Age of the building	-0.388	0.311	-1.249	0.220
Unit of services	-4.392	8.219	-0.534	0.596
Parking available	6.110	12.037	0.506	0.615
Recreational club facility	6.627	11.079	0.598	0.553
Distance from bus stop	-5.655	7.233	-0.720	0.439
Distance from CBD and SBD	0.187	2.209	0.092	0.927
Distance from school	-7.779	11.854	-0.656	0.516
Distance from health care	1.244	17.236	0.072	0.943

Factor/ Variable	Coefficient (B)	Standard Error	t-ratio	Significance of t
Distance from entertainment	-5.063	4.452	-1.137	0.263
Phenomena Stigma	-33.743*	17.374	-1.942	0.060
Public Stigma	-33.291	23.071	-1.470	0.150
Criminal Stigma	-22.770	18.634	-1.222	0.230
Murder or Suicide Stigma	-26.306*	15.610	-1.685	0.101
Minimal Stigma	-7.068	16.857	-0.419	0.677
R Square of Model Fit	0.624	Adjusted R Square		0.467
S.E. of the Estimate	35.504			

N = 113 * significant at 10% significance level** significant at below 5% significance level

4.2 Stigma Impact Evaluation

Stigma associated with the property will be reflected in the differential of 'market' and 'actual value' of the property. The market value and actual value play very important role in the analysis, which is dependent on these two aspects of the property. Hence almost care has to been taken while considering or collecting data for market and actual value of property. The market value of the subject property was identified using online portals such as www.magicbricks.com, www.99acres.com etc. It was easy to get market value using online portals, but the difficulty comes with collection of actual value of the contaminated property. So, the actual value of property was obtained by contacting valuers and asking potential buyers on what price they would place to buy the property.

We took the average of the responses we got from the potential buyers. In some cases where we were not able to make communication with potential buyers, we got the market value from a Renowned Valuers. The output of stigma impact evaluation in terms of property value depreciation/ loss is shown in Figure 7.The presence of different types of stigma affects the property value loss/ depreciation differently. It is clear from it that the phenomena stigma has the highest impact on property value in terms of depreciation (27%) while minimal stigma has lower impact of value depreciation (12%).

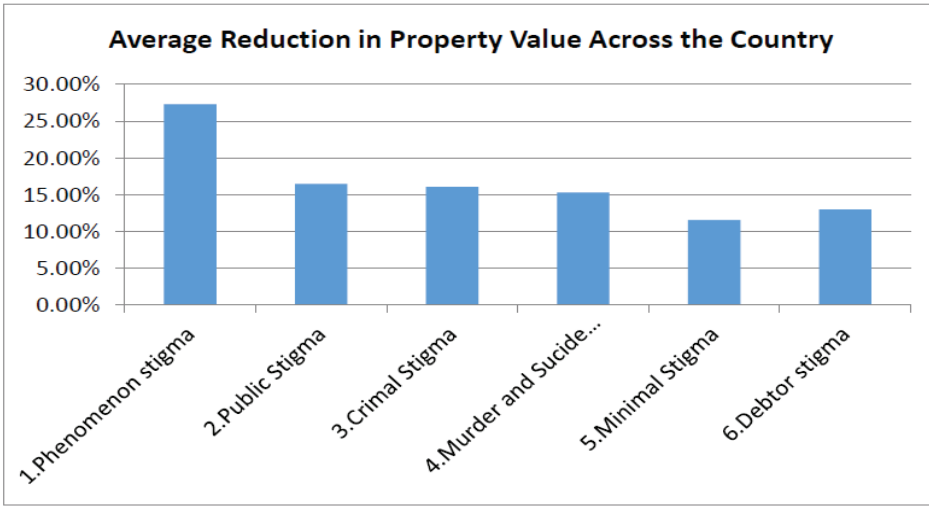

Figure 7: Stigma-wise Depreciation of Property Value

Further, the reduction in the value of the property is highly impacted due to the association of phenomena or haunting stigma with the subject property. The impact of any stigma is dependent on the area covered by the news of the event occurred in that particular property. So, in the cases of public stigma, criminal stigma and murder and suicide stigma, the information of the event occurred in the subject property is widely spread and, hence, the value affected is more in such cases. In the cases of minimal stigma and debtor stigma, the information is generally with the owner or seller of the property and third party (i.e. channel partner) may or may not know the occurrence of the event and hence the change in property value resides with the knowledge of the owner or seller and buyer as well as channel partner.

5. CONCLUSION

The results from the study on the impact of stigma on real properties clearly show that the stigma has a good amount of impact in terms of depreciation of value. The model estimation of property values also implied that the stigma attributes have a statistically significant impact on property value in terms of reducing it due to their presence. The results would be more robust, if there are more number of samples from all type of cities and similar number of sample from each category. The results also imply that the stigma impact can be minimised when the property owners are made aware of the following actions:

- Change of Property use/ activity can reduce the stigma associated with property
- Neighbourhood development also can reduce the stigma due to proximate properties
- Education/ awareness also reduces impact, as some of it is only due to wrong beliefs
- Longer tenure of lease/ rent can also lead to tenant occupation and reduces stigma risk

Coming to negotiation aspects we conclude that the impact of stigma will reduce to great extent if the stigma of subjected property is reduced which we saw in case studies i.e. the value of surrounding property is also affected by the property available in close proximity to the stigmatised property. Hence

if those stigmatised property are used effectively and efficiently as we saw in case study the impact of stigma can be reduced. Stigma clauses such as the one shown below can also reduce the impact of stigma due to indemnity offered by it.

STIGMA CLAUSE

"The Seller warrants that, to the best of their knowledge, belief and understanding that this property has not been stigmatized by any act or occurrence which would be considered traumatic or horrific to the buyer."

"The Seller warrants to the Buyer that to the best of their knowledge, this property has not been stigmatized by the following acts or occurrences _____ that the buyer considers traumatic or horrific. The Buyer must indicate a specific act or occurrence, or this clause will be considered deleted.

REFERENCES

Chalmers, J.A. & Roehr, S.A. (1993).'Issues in the Valuation of Contaminated Property', *The Appraisal Journal, LXI (1):* pp. 28 – 41.

Chan, N. (2000). 'How Australian Appraisal assess Contaminated Land'. *The Appraisal Journal LXVIII:* pp. 432-440

Datta, S. (2004). Valuation of Real Properties. *Kolkata: Eastern Law House Publishing.*

Lyon, Susanne (2005). An Introduction to Valuations. *Real Estate Salesman Notes.*

Man, K. F. & Wong, V. (2012). 'Haunted flats: Quantifying the value of stigmatisation in an apartment market'. *Appraisal Journal LXX:* pp. 44-58

Mundy, B. (1992a). 'Stigma and Value'. *The Appraisal Journal: LX (2),* pp 7-13

Mundy, B. (1992b). 'The Impact of Hazardous Materials on Property Value'. *The Appraisal Journal: LX (2)*, pp 155-162

Patchin, P.J. (1994). 'Contaminated Property and the Sales Comparison Approach'. *The Appraisal Journal LXII,* pp 402-409

Rangwala, S.C. & Dalal, K.B. (2010). Valuation of Real Properties. *Anand: Charotar Publishing House Pvt Ltd.*