

A Search for Application Level of Heuristics In Property Valuation In Three Nigeria Cities

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Abstract

Heuristics research in property valuation had been confined to anchoring and adjustment at the neglect of the other three, Availability, Representative and Positivity Heuristics. More so, majority of previous studies have been restricted to Lagos Metropolis. Recently a study was carried out to discover the existence of major heuristics in two other prominent cities in Nigeria; namely, Abuja and Port-Harcourt. The present study is aimed at determining the level of application of heuristics in property valuation in the three cities. The study is a cross-sectional survey and entailed the distribution of questionnaires to 159 Head Offices of Estate Surveying Firms in Lagos Metropolis and 29 and 39 of such offices in Abuja and Port-Harcourt respectively. Standard deviation of the Mean of frequency in usage of heuristics in 20 property valuations carried out reveals that Availability Heuristics is mostly predominant in the three cities: Lagos Metropolis ($\bar{X}=7.93$; $\sigma=6.408$); Abuja ($\bar{X}=9.94$; $\sigma=5.651$) and Port-Harcourt ($\bar{X}=5.35$; $\sigma=4.911$). The study therefore recommends that confinement to anchoring and adjustment will result to superfluity of research and consequently focus should be on availability heuristics due to its predominance in usage.

Keywords: Heuristics, Behavioural Research, property valuation, Lagos Metropolis, Abuja, Port-Harcourt

Introduction

Heuristics is a cognitive short-cut adopted in solving knotty problems giving results that are not necessarily optimal. Early works by Newell and Simon (1972) and Simon (1978) describe the basis for such sub optimality in human problem solving involving interaction among the human information processing system, the task environment (the problem to be solved), and the problem space (the manner in which the problem solver perceives the task environment). A problem solver must accordingly understand the limitations these interactions place on problems to be solved as well as on methods for solution. Simon (1978) showed that as the number of decision alternatives increase, the number of items actually investigated decreases. Hardin (1997) noted that when properly applied, information processing heuristics reduce the search time and thus the time required in completing tasks. Hogarth (1981) emphasized that heuristics are generally functional and that feedback and training are important in its generation. However, Hogarth (op. cit.) acknowledges the potential biasing effect of heuristics, but concludes that experience and feedback should mitigate much bias.

Early works on heuristics and biases in judgements under uncertainties can be accredited to some cognitive psychologists such as (Slovic and Lichtenstein, 1971; Tversky and Kahneman's, 1974 and Kahneman and Tversky, 1981, 2000). This study of heuristics evident in behavioural sciences has in most recent time transcended its obvious dilation in cognitive psychology to other disciplines such as real estate. In real estate the adoption of behavioural research has expanded the boundaries of its traditional research hither to limited to finance and the built environment amongst others. Diaz (1993) suggested that real estate research should not be restricted to finance and other closely related boundaries alone. He argued that such a paradigm restriction placed on real estate is baseless as it limits the frontiers of its research focus. Black et al. (2003) argues that the uniting factor of all real estate disciplines (finance inclusive) is that they ultimately derive their existence from human behaviour. This infuse in contemporary times resulted to the study of heuristics amongst others.

Heuristics are of various types. Three of which are identified by Tversky and Kahnemann (1974). They are the representative heuristic; the availability heuristic and the anchoring and adjustment heuristic. Evans (1989) later added a fourth: the positivity heuristic (other heuristics which have subsequently been identified, are generally regarded as lesser heuristics). The four principal types of heuristics that exist are explained by Havard (2001) as follows: The availability heuristic is a shortcut formed based on the experience of the past. Data collection tends to be based on ease of retrieval. This can be exhibited either by choice of the most recent information or the information most easily recalled or obtained. As likewise buttressed by Finucane et al. (2000), availability heuristics is a cognitive judgment strategy that works by increasing deliberation about reasons that bias probability judgment. The representative heuristic on the other hand is similar to stereotyping. A decision-maker classifies an event or object with others of a type that they are familiar with. The anchoring and adjustment heuristic, is based on the formation of a-priori estimates of what the answer might be while solving problems. Mussweiler (2002) described anchoring as the assimilation of a numeric estimate towards a previously considered standard. This initial estimate is adjusted as more information is obtained until a final solution is reached to cater for the unique peculiarities of the problem being solved. The fourth heuristic, the positivity heuristic, was identified when Evans (1989) noted that humans have a fundamental tendency to seek information consistent with their current beliefs and avoid the collection of potentially falsifying evidence. Strategies are designed to confirm rather than refute beliefs thereby making humans look for ways of confirming their individual perceptions of the world.

According to Gallimore (2004), the incorporation of behavioural research particularly heuristics in property valuation would permit an expansion of the research focus to incorporate understanding human judgement, bias and seemingly irrational behaviour and help to improve interpretation of the way players in the market make decisions and reach conclusions. The very first behavioural research in property valuation is credited to Diaz (1990a). The researcher introduced behavioural research in the property valuation field by investigating whether the U.S. residential valuers followed the normative valuation process in their routine valuation tasks. Findings reveal that the U.S. residential valuers, who participated in the study, deviated largely from following the standard deductive valuation process, investigation beginning with a wide focus of the general market. The valuers rather adhered more to an inductive process, investigation beginning with the analysis of the subject property. Another similar study conducted in Belfast Northern Island by Adair, Berry and McGreal (1996) was geared to investigating whether the residential valuers in Belfast followed the normative process. Their findings also indicated that valuers do not adhere to a standard practice, but rather viewed critical information differently.

Diaz (1990b) studied comparable sale selection process by valuers. The findings revealed that the valuers did not follow any systematic and efficient process in selecting the comparable sales. Wolverton (1996) and Gallimore and Wolverton (1997) carried out like studies by examining the bias in comparable sales selection by valuers in the U.S and the U.K. Theses studies produced strong evidence that the knowledge of the sales price of the subject property biased comparable sale selections, as well as the assessment of the final value. The authors identified this bias as a 'confirmation bias' whereby the valuers were found to be biased towards selecting only those sales which confirmed the known price of the subject property.

Other behavioural studies in real estate have attempted to analyze investors' behaviour in property investment decision-making amongst others. Amongst which includes the works of Barkham and Ward (1999) and Gallimore and Gray (2002). Barkham and Ward (1999) examined the reasons for the discount

trading (market capitalization less than net asset value) of the U.K. property companies. Their findings indicated that overestimation of the changes in the fundamental values of the assets by the irrational noise traders was one of the significant reasons for the discount trading of the U.K. property companies. On the other hand, Gallimore and Gray (2002) examined the role of investor sentiment in property investment decision-making. The authors utilized questionnaire survey to explore the perceptions of the sentiment (whether rational or irrational), importance of sentiment and its relationship to the information used in the decision-making. Their results suggest that over half of the respondents rated sentiment as essential to their decision-making. Based on this finding, Gallimore and Gray concluded that investor sentiment is seen as an important factor in making property investment decisions.

However, under the broad study of behavioural property research, real estate research in heuristics has been confined to just one type, the anchoring and adjustment heuristics. The first anchoring and adjustment heuristics research in real estate was centred on real estate brokerage (Northcraft and Neale, 1987). Northcraft and Neale, *op. cit.* investigated the anchoring behaviour of real estate brokers on property pricing decisions. The authors found persistent anchoring to asking price in their estimates. Follow-ups to this research carried out by Black and Diaz (1996), Black (1997) and Diaz, Zhao, and Black (1999) further pursued the point showing significant anchoring to actual asking price. Some other researchers discovering asking price as a powerful anchor include (Rabianski, 1992; White et al, 1994; Blount et al. 1996). However, Diekmann et al (1996) showed that initial purchase price was another powerful anchor.

Anchoring and adjustment heuristics researches in real estate have also centred on valuation. Diaz and Hansz (2007) provided explanations for the research in real estate valuation. First, valuation processes substantially influence value formation in property markets which are characterized by a critical lack of transaction information. Second, valuers are a relatively easy target for research purposes since they are a well defined and accessible group with widely accepted normative models. Third, many early behaviourists are themselves valuers giving them important advantages, from designing experiments to interpreting results, in conducting behavioural research of valuers.

Gallimore (1994, 1996) conducted some experimental work into valuation processes, among valuers in the UK. The study conducted series of experiments to examine the effect of anchoring and confirmation bias on valuations. It was discovered that there is sufficient evidence of such bias especially in unfamiliar locations. Havard (1999) conducted similar experiments on valuers in the UK and also found that an anchoring and adjustments heuristic strategy is adopted by valuers in unfamiliar locations. The researcher suggested that such a strategy is prone to greater risk of valuation variance or inaccuracy due to the chances of adopting an inappropriate initial anchor as well as insufficient subsequent adjustments. Other range of studies does exist. They were however carried out to identify the existence of and nature of anchoring and adjustment heuristics in property valuation process. Such studies include, Cho and Megbolugbe, (1996); Diaz, (1997); Diaz and Hansz, (1997, 2001); Hamilton and Clayton, (1999); Havard, (2001); Clayton, Geltner, and Hamilton (2001); Hansz and Diaz (2001); Gallimore and Gray (2002); Cypher and Hansz, (2003); Hansz, (2004a; 2004b); Wong, (2006); etc. These studies confirmed the existence of anchoring and adjustment heuristics (with the exception of Diaz, (1997).

Research on the existence of anchoring and adjustment in property valuation in Nigeria is sparse. However, credit has to be given to pioneering efforts to that effect. Adegoke and Aluko (2007) studied the occurrence of anchoring and adjustment in the valuation of commercial properties. Their study surveyed one hundred and twenty-two (122) Estate Surveying and Valuation firms in Lagos metropolis. The findings revealed that Estate Surveyors and Valuers used anchoring and adjustment heuristic behavior in forming initial judgements about valuation tasks. A latter work in Nigeria by Adegoke (2008) sought to examine whether the use of anchoring and adjustment heuristics varied according to valuer familiarity with the location of valuation assignments. The researcher employed a similar methodology as the earlier Adegoke and Aluko (2007) study and discovered that that this type of heuristic was predominant in unfamiliar location of operation.

Although in Nigeria, Iroham (2012) carried out a research and identified the existence of the other types of heuristics, representative, availability and positivity heuristics, abundant research exists in the area of anchoring and adjustment to the neglect of the other types of heuristics. This work intends to explore all these various types of heuristics with a view of determining their level of application in three major valuation

cities in the country. This will enable focus of research amongst the various heuristics so as to avoid superfluity.

Research Methodology

This is a cross-sectional survey research that entailed the study of 159 Head Offices of Estate Surveying Firms in Lagos Metropolis. Out of 270 of such Estate Surveying Firms in Lagos Metropolis as evident from the Directory of the Nigerian Institution of Estate Surveyors and Valuers (2009), a demographic formula as propounded by Otte (2006) for the adoption of sample sizes was utilized to arrive at the sample size. This work also studied the entire 29 and 39 Head Offices of Estate Surveying firms located in Abuja and Port-Harcourt respectively. In this regard, the researcher reflected on the observations of Denscombe (2003) that for a population of less than 30 people, a total enumeration survey (census) rather than a sample should be considered. Accordingly, and upon reflection, the decision was that a total enumeration survey of all the head offices of estate surveying firms in both Abuja and Port Harcourt would be carried out. However, for Lagos Metropolis the researchers adopted random sampling techniques so as to avoid any form of sampling prejudice that could potentially ruin the objectivity and conclusive findings of the research.

It was decided that questionnaires administered in the form of conducting interviews would be the most effective method of primary data collection to tackle the objective of study. This is as a result of the wide coverage which questionnaire distribution permits and the relative speed it affords. This was coupled with a study of respondents through interviews so as to detect certain mannerisms in attitudes not consistent with written responses. Hence, data obtained were measured using ratio scales, that is, measuring how often out of 20 valuations each heuristic was used. Such data was analyzed first using frequency distributions/means and the data so analyzed was further analyzed using maximum and minimum values, means/standard deviations and ultimately ranking of such means.

Data Analysis and Discussion

Out of the one hundred and fifty-nine (159) questionnaires administered to the head offices of estate surveying firms in Lagos Metropolis, one hundred and nineteen (119) were retrieved, representing a response rate of 74.84%. For head offices of estate surveying firms in Abuja and Port-Harcourt, the respective response rates are 86.21% and 76.67%. These figures represent a total response of 25 out of the 29 distributed questionnaires and 23 out of the 30 distributed questionnaires in Abuja and Port-Harcourt respectively. Accordingly, an overall mean response rate of 76.61% was recorded for the entire study areas in the country. To address the objective of this study in the various study areas, respondents were asked to rate how many of every typical 20 valuations they have carried out: access to previously conducted valuations for the same or a very similar property that they adjusted to derive the value for the present valuation (in other words the frequency of use of anchoring and adjustment); valued stereotype buildings ignoring differences in building features of comparable stereotype buildings in arriving at value (that is, the frequency of their use of representative heuristics); use of easily available rules of thumb rates for outgoings, rental evidence and yield, etc rather than freshly determined market rates (that is to say the frequency of use of availability heuristics); justified and adopted preconceived ideas of what the property value was, ignoring later market based market evidence and calculations (that is, use of positivity heuristics).

For Lagos Metropolis, Table 1 gives a summary of the findings:

Table 1 Application level of various heuristics in Lagos Metropolis

Heuristics (a)	N (b)	Minimum (c)	Maximum (d)	Mean (e)	Std. Deviation (f)	Relative level of occurrence (g)	Rank (h)
Anchoring	83	0	18	4.78	5.222	16.67%	2
Availability	80	0	20	7.93	6.408	26.66%	1
Representative	82	0	18	4.43	4.568	15.26%	3
Positivity	78	0	18	2.94	3.998	9.94%	4

Source: Authors' field survey 2013

It is observed that out of the 119 responses from Lagos Metropolis 83 of the estate surveying firms responded to the question on anchoring and adjustment. On the average it was revealed that out of the application of 20 heuristics 18 was attributed to anchoring and adjustment heuristics as the maximum occurrence while none application was also feasible in least occurrence of such heuristics. The result from the raw data reveals a mean application of 4.78. Hence, the relative level of application of heuristics deduced in Lagos Metropolis as revealed in Table 1 is as follows: Availability heuristics (26.66%) followed by Anchoring and Adjustment heuristics (16.67%); then Representative heuristics (15.26%); and last, positivity heuristics (9.94%).

Table 2 Application level of various heuristics in Abuja

Heuristics (a)	N (b)	Minimum (c)	Maximum (d)	Mean (e)	Std. Deviation (f)	Relative level of occurrence (g)	Rank (h)
Anchoring	17	0	15	5.88	4.328	19.99%	2
Availability	17	0	18	9.94	5.651	33.80%	1
Representative	17	0	15	5.88	4.328	19.99%	2
Positivity	16	0	7	2.25	2.266	7.2%	4

Source: Authors' field survey 2013

It is also observed that the application level of the heuristics is largely the same in Abuja. The pattern of heuristics usage was as follows: Availability heuristics (33.80%), Anchoring and Adjustment heuristics (19.99%), Representative heuristics (19.99%), and then finally positivity heuristics (7.2%).

Table 3 Application level of various heuristics in Port-Harcourt

Heuristics (a)	N (b)	Minimum (c)	Maximum (d)	Mean (e)	Std. Deviation (f)	Relative level of occurrence (g)	Rank (h)
Anchoring	20	0	10	2.95	2.645	12.83%	3
Availability	17	0	18	5.35	4.911	19.77%	1
Representative	20	0	10	2.95	2.645	12.83%	3
Positivity	20	0	20	4.20	4.742	18.26%	2

Source: Authors' field survey 2013

Again, observation has revealed that in Port-Harcourt, Availability Heuristics is still mostly applied. However unlike in the two other cities were Anchoring and Adjustment Heuristics took the second place in application, positivity heuristics is seen as the second most applied heuristics in Port-Harcourt. The pattern of heuristics usage was as follows: Availability heuristics (19.77%), positivity heuristics (18.26%), Anchoring and Adjustment heuristics (12.83%), and Representative heuristics (12.83%).

From results derived from the survey it is obvious that Availability Heuristics is mostly applied in the country. The Tables above also revealed that this particular heuristics least deviation from the mean unlike other heuristics in the three study areas will still gives a positive figure. This invariably implies that if any heuristics in being applied at any time it will perhaps be the Availability Heuristics.

Conclusion

Availability heuristics was seen to be the most often used heuristic, followed by anchoring and adjustment heuristics and then representative heuristics and last, positivity heuristics in both Lagos Metropolis and Abuja. In Port-Harcourt, though Availability Heuristics is still the most applicable, Positivity Heuristics is the next applicable while Anchoring and Adjustment together with representative Heuristics are least used. This result was considered important due to bias generated by heuristics application that could invariably result to errors in valuation (Gallimore 1994, 1996), thereby pointing to where the majority of corrective action should be devoted. It also demonstrated that the 100 per cent focus devoted by previous heuristic research to anchoring and adjustment was majoring on the minor. The implication seen in this regard was that future research would need to give more emphasis on availability heuristics as the most frequently occurring heuristic.

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