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Factors Affecting the Usage of Major Heuristics in Nigeria Property Investment Valuation

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Abstract. Heuristics property research has been confined to Anchoring and Adjustment at the neglect of the other three major ones, which are, availability, representative and positivity. Even when researches in anchoring and adjustment heuristics are conducted they are usually confined to its existence. This study examined factors affecting the usage of heuristics from variables drawn and conceptualized from literature review (models). This is geared towards focusing heuristics property research particularly in this country. This study is a cross- sectional research entailing a survey of 159 out of the 270 Head Offices of Estate Surveying Firms in Lagos Metropolis, the entire 29 and 30 Head Offices of Estate Surveying Firms in Abuja and Port-Harcourt respectively. The primary source of data collection was through the questionnaire in the form of conducting interview. The data collected was measured using ordinal scales and analysed using categorical regression analysis on the SPSS Software. The zero- order correlation was used as a measure of variable importance being independent of the other predictors in the model. It was observed that the most predominant factors affecting the usage of Anchoring and adjustment; Availability; Representative and Positivity Heuristics are complexity of investment method of valuation (-.234; .462) and age of the estate surveying and valuation firm (-.339; -.297) respectively. The study thereby reveals areas of principal focus in heuristics property research so as to avoid superfluity.

Keywords: Factors, Major Heuristics, Investment Method, Valuation, Nigeria

INTRODUCTION

Humans unconsciously develop simplifying shortcuts or rules of thumb in solving complex problems. Such simplifying shortcuts are known as heuristics. Heuristics which are accordingly important for addressing problem complexity in cognitive information processing, increases as complexity increases resulting to peoples' elimination of alternatives. Most times this is usually carried out with just a limited amount of information search and evaluation (Simon, 1978). In order to curb stress, Simon (op. cit.) showed that as the number of decision alternatives increase, the number of items investigated actually decreases. Similarly, Hardin (1997) noted that when properly applied, information processing heuristics reduce the search time and thus the time required in completing tasks. Hogarth (1981) though recognising the importance of heuristics as being generally functional when feedback and training are incomperated in its usage, does acknowledges the potential biasing effect of heuristics, however, concluding that experience and feedback should mitigate such bias.

Although various heuristics have emerged over time such as the affect heuristics these are being considered as lesser heuristics. Heuristics which have being regarded as major are four (Havard, 2001). Three of which were identified by Tversky and Kahnemann (1974). These are Representative Heuristics, Availability Heuristics and the Anchoring and Adjustment heuristics. The fourth, Positivity Heuristics, was added by Evans (1989).

Havard (2001) gives explanation for the major heuristics: Availability Heuristics strategically provides solution to problems when tasks are perceived as having essential components recognized from experience. This behaviour becomes very difficult to alter when learned. The collection of data is usually based on ease of retrieval, thereby making the decision maker to choose most recent or easily recalled or obtained information. Representative Heuristic is perceived as a function of stereotyping. Objects are classified with others of similar nature. This impels a decision-maker's familiarity with a given task as experience puts the assumption that subject in a task is the same as that earlier seen due to somewhat analogous

features. Anchoring and Adjustment Heuristics results from forming a-priori estimates of what the answer might be. According to Mussweiler (2002) anchoring is the assimilation of a numeric starting point towards a previously considered standard. This initial starting point which might be given, estimated, or implied is adjusted as more information is obtained until a final solution is reached.

Adjustment on the other hand occurs when the person takes this initial starting point and proceeds with fine tuning such value based on an estimate of probabilities of potential results. Positivity Heuristics was established as a result of Evans (1989) notion that humans have a fundamental tendency to seek information consistent with their current beliefs and avoid the collection of potentially falsifying evidence no matter how conceivable it appears. Humans are perceived as beings that do confirm their individual perceptions of the world. Studies on heuristics which can be traced to the works of cognitive psychologist such as Slovic and Lichtenstein, (1971); Tversky and Kahneman's (1974); and Kahneman and Tversky, 1981, 2000), have recently been infused in real estate particularly property valuation research. This is perhaps in an attempt by valuers to improve the speed and even the efficiency of their valuation task. Although such heuristics property valuation research is still in its infancy it has been confined to that of anchoring and adjustment heuristics.

The pioneering anchoring study on real estate was by Northcraft and Neale (1987) who experimentally investigated the anchoring behaviour of real estate brokers on property pricing decisions. The authors found persistent anchoring to asking price in their estimates. This was also confirmed by further research carried out on this point by (Rabianski, 1992; White et al, 1994; Blount et al. 1996; Black and Diaz, 1996; Black, 1997; and Diaz, Zhao, and Black (1999). However, Diekmann, et al. (1996) showed that initial purchase price was another powerful anchor. Aycock (2000a) found that the closeness between asking price and initial purchase price determine what buyers anchor on. If close, buyers tend to ignore the initial price and anchor on asking price and vice varsa. However a later work by Aycock (2000b) was not able to establish a relationship between initial purchase price and

settlement price due to time lag as changes in elapsed time since the initial purchase appeared to have no effect on settlement price.

Others such as Gallimore (1994, 1996), Gallimore and Wolverton (1997), Gallimore, Hansz, and Gray (2000), and Gallimore and Gray (2002) revealed that valuers anchor on factors such as commentators' views, most recent information, pending sales price, and previous transaction price, respectively. Studies carried out to identify the existence of and nature of anchoring and adjustment heuristics in the valuation process include (Cho and Megbolugbe, 1996; Diaz, 1997; Diaz and Hansz, 1997, 2001; Hamilton and Clayton, 1999; Harvard, 1999, 2001; Clayton, Geltner, and Hamilton 2001; Hansz and Diaz 2001; Gallimore and Gray 2002; Cypher and Hansz, 2003; Hansz, 2004a; 2004b). These studies confirmed the existence of anchoring and adjustment heuristics (with the exception of Diaz, 1997).

In Nigeria though most recent and few has her own dole of the anchoring and adjustment property valuation research. Adegoke and Aluko (2007) studied the existence of anchoring and adjustment heuristics 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's familiarity with the location of valuation assignments. He employed a similar methodology as the earlier Adegoke and Aluko (2007) study and found that that this type of heuristic was predominant in unfamiliar location of operation. Ogunba and Ojo (2007) attributed the continous problem of non-reliability, inconsistency and irrationality in Nigerian Valuation practice to the usage of anchoring and adjustment amongst valuers. Adegoke, Aluko and Ajila (2012), in a study involving both quasi-experimental and the survey methods of One hundred and twenty two (122) estate surveying and valuation firms in Lagos Metropolis, revealed that valuers do anchor during a valuation task and that this initial judgement came from valuer's

knowledge and experience. It was showed that the initial judgement was a strong determinant of the valuation outcome in that adjustment by valuers to the initial value judgment tended to be insufficient as new evidence is presented. Although Iroham (2012) had a more robust study in identifying the three other major heuristics in property valuation, heuristics in property research has been confined to the existence and nature of these heuristics. The present study takes a further leap in heuristics property research by looking at the factors affecting the usage of the major heuristics.

THE CONCEPT OF STUDY

In examining factors affecting usage of heuristics, investigation was made on how usage intensity of the four heuristics varies according to defined variables. Variables in this regard were drawn from the literature review (models), supplemented by personal reasoning and discussions with colleagues.

For instance, (Adegoke and Aluko, 2007; Aluko, 2007; and Gallimore, 1994, 1996) amongst others discovered that unfamiliarity of terrain in valuation has an effect on the adoption of anchoring and adjustment heuristics. Reflecting on this, the research envisaged that the relationship between familiarities with the terrain of operation could potentially be related with the adoption of the various heuristic types.

As a result of findings that have attributed the use of anchoring and adjustment heuristics to valuation inaccuracy (Gallimore, 1994; Diaz and Hansz, 1997; Havard, 1999 and Hansz, 2004a) amongst others, certain factors influencing inaccuracy in valuation were also expected to influence the usage of various types of heuristics. One of these factors is the complexity of the valuation method used. The Ojo (2004)/Ogunba and Ojo (2007) model stipulated that the use of different investment valuation models (non-growth explicit and growth explicit) is a factor that causes valuation inaccuracy. Ogunba's (1997, 2003) structure-conduct performance model also states that the manner of valuer's use of investment valuation inputs such as gross income, mode of deduction for outgoings and the determination of yield

(capitalization rate) are amongst the factors responsible for inaccuracy in valuation. Investment valuation models are of different levels of complexity. The most direct and simple are the traditional models (Term and Reversion, Layer/Hard Core, Equivalent Yield Model). The most complex models are the Equated Yield, Rational Valuation Model and Real Value Models (in increasing order of complexity), according to Trott (1986). On reflection, the research envisaged that the higher the level of complexity of the investment valuation model adopted, the more likely the valuer is to increase the usage of the various heuristic types. Other factors identified by Ogunba's (1997, 2003) structure-conduct performance model responsible for valuation inaccuracy include:

- academic and professional qualifications and experience; On reflection, the research envisaged that the greater the level of post qualification experience of the valuer, the more he would potentially depend on such experience (using heuristic short cuts) rather than on thorough market surveys
- organizational type of valuation firm and location of the valuation firm/organization; This study considered that such attributes of valuation firms (such as the age of the firm; location of the firm) and also the size of the firm - including the number of branches and the number of estate surveyors in the employ of such firms – could potentially influence the usage of the various heuristic types.

Another potential factor influencing usage of heuristics was gleaned from Aluko's (1998 and 2000) model of factors responsible for inaccurate valuations. This factor is that of inaccurate data. The research envisaged, on reflection, that the availability of easily obtained rule of thumb data is a potential factor affecting the increased use of heuristics. Apart from inaccurate data another other factor conjured from Aluko's model is unrealistic valuation assumption made by valuers. Specifically, it was envisaged that the greater the level of assumptions made by the valuer (in place of actually verifying issues), the more he would depend on heuristics.

The figures below are the models adopted for the concept of this study:

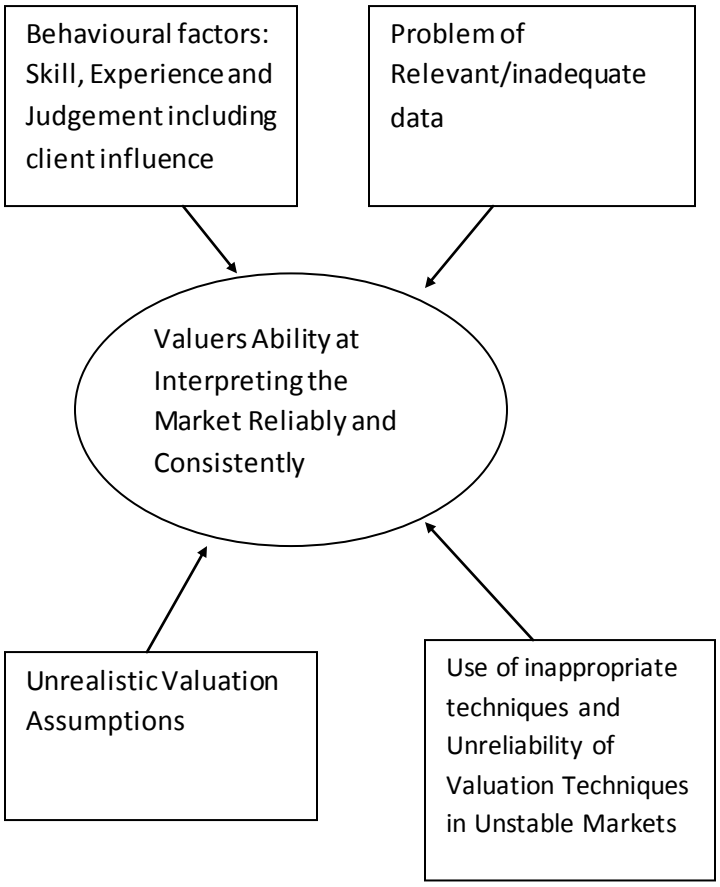

Fig 1: Aluko's (1998 and 2000) Model of Factors Responsible for Inaccurate Valuations.

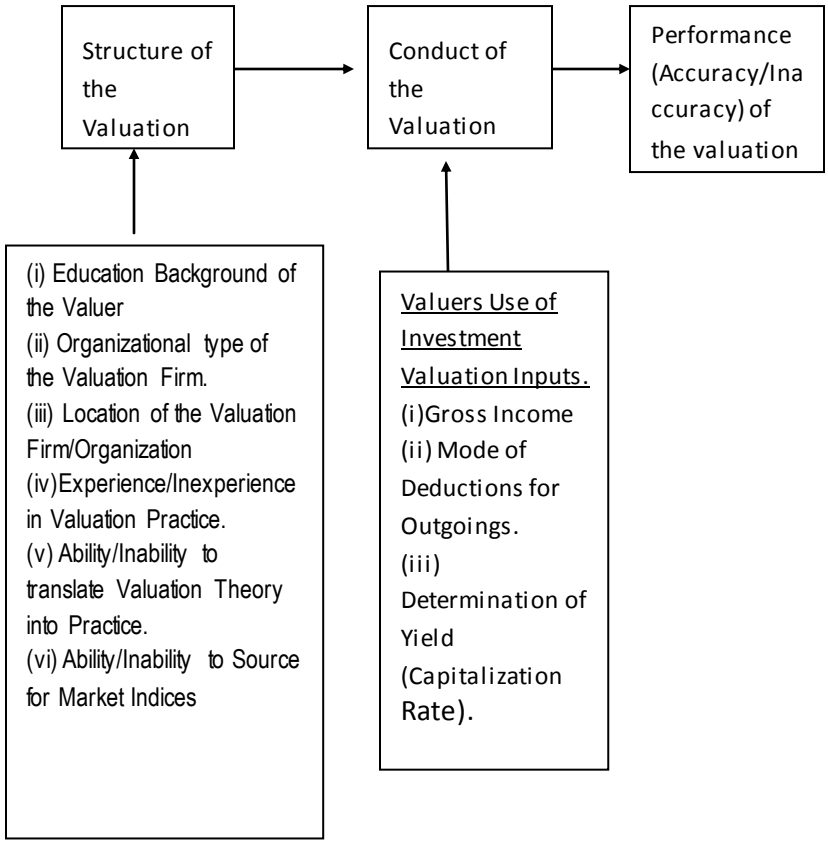

Fig 2. Ogunba's (1997, 2003) Structure-Conduct-Performance Model

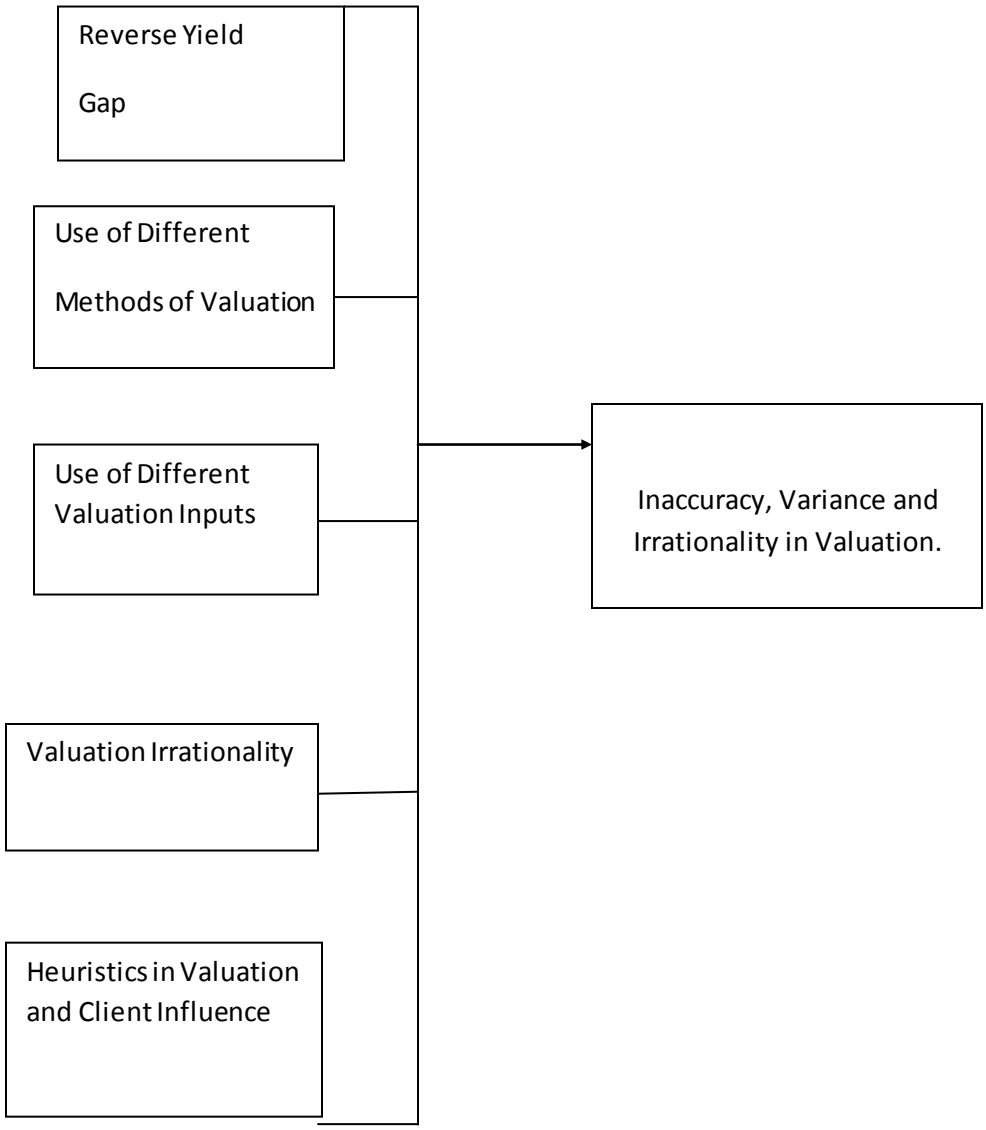

Figure 3: Ojo (2004) Ogunba and Ojo (2007) Model of Factors Affecting Valuation Accuracy

METHODOLOGY

This study is a cross- sectional research entailing a survey of 159 out of the 270 Head Offices of Estate Surveying Firms in Lagos Metropolis, the entire 29 and 30 Head Offices of Estate Surveying Firms in Abuja and Port-Harcourt respectively. The choice of the three towns in Nigeria is due to its major and active valuation operations being carried. The researcher considered it useful to adopt random sampling for Lagos Metropolis so as to avoid any form of sampling prejudice that could potentially mar the objectivity and conclusive findings of the research. However, the random selections were undertaken within a stratified sampling framework, namely: Lagos Island, Victoria Island, Ikoyi Island, Apapa Island, Surulere and Ikeja business districts. The number of firms randomly selected within each stratum was in proportion to the number in the total population. Questionnaire administered in the form of conducting interview was adopted as the primary data collection technique. The data collected was measured using ordinal scales**.** Each point on the scale was assigned a weight and a form of weighted frequency ranking technique was required. Accordingly, the techniques considered appropriate for the analysis categorical regression analysis.

FINDINGS AND DISCUSSION

The survey was undertaken personally with the aid of about eight field assistants. The various responses were subsequently coded and analyzed by means of the Statistical Package for Social Scientists (SPSS Version 17). Out of the 159 questionnaires administered to the head offices of Estate Surveying firms in Lagos Metropolis, a response rate of 74.84% was achieved, representing 119 questionnaires duly filled and returned. In Abuja a response rate of 86.21% was achieved representing 25 duly filled and returned out of the 29 distributed. Port-Harcourt had a response rate of 76.67% as 23 of the 30 questionaires distributed were valid. Accordingly, the overall mean response rate of 76.61% was derived in the three study areas hence, the researchers' concented to having a figure

conclusive enough for analysis.

The preliminary questions in the questionnaire sought information on the socio-economic profile of the respondents and the firms from which they carry out Estate Surveying and Valuation. In the three study areas, Lagos, Abuja and Port-Harcourt, it was observed that majority of the respondents fall within the age bracket of 31-40 years. This is perhaps due to the fact that the age bracket can be regarded as the most active in business. The highest academic qualification for most respondents in the three towns of study is the Bachelor of Science (B.Sc) degree. This perhaps suggests practitioner disinclination to acquiring higher degrees.

Most respondents, irrespective of the city in focus have the basic professional qualification of Associate membership of the Nigerian Institution of Estate Surveyors and Valuers (NIESV). The crave for foreign affiliation with the parent body is slim perhaps due to the fact that such qualification is not an essential requirement for practice in Nigeria. The research also reveals that majority of the respondents have years of professional experience spanning between 1-5 years. The analysis of questionnaire also reveals that most estate surveying firms do not have other branches of practice and moreover are of small size (most comprise of between 1-5 estate surveyors).

For the crux of study the adopted concept formed the basis, factors used, for analysis. These factors are those potentially influcing the occurrence of the various types of heuristics in property valuation. The factors to be tested were informed as derived from literature and conceptualised (see section on the concept). They range from familiarity of locality; complexity of investment method of valuation; availability of data; level of post qualification experience; level of assumptions made; attributes subscribed to a firm.

The dependent variable for each of these a-priori expectations was the occurrence of heuristics. The independent variables were the respective potential factors. The intention was to establish both the direction of relationship between the dependent

and independent variables – that is, whether as one variable is increasing, the other is increasing or decreasing - and as well the strength or significance of the relationship. To establish the direction of the relationship, the study employed the Spearman's rank correlation coefficient. The significance/strength of the relationship was addressed with regression analysis.

The analysis was done in four different segments representing each of the heuristics. This is in a bid to discovering germane factors in order of priority while likewise looking out for any disparity or simitudes in results. Both the independent and dependent variables were first measured on an ordinal scale. Data on the dependent or predicted variable was gotten from respondents' response on frequency of usage of heuristics ranging from 1 representing no usage; 2 representing rare usage; 3 representing occasional usage; 4 representing frequent usage; and 5 representing all time usage. The independent or predictor variables representing the tested factors such as unfamiliarity of terrain; complexity of valuation method used; academic and professional qualification/experience of valuers; inaccurate data; assumption made; nature of firm (location, size, age, number of branches; and number of employed valuers) were likewise ranked appropriately.

(a) Anchoring and Adjustment Heuristics

In order to discover the most prominent factor(s) affecting the usage of Anchoring and Adjustment Heuristics in the country, the use of Categorical Regression Analysis was adopted since all data gotten were ordinal. The use of SPSS reveals the following germane result:

Table 1 Correlations and Tolerance

	Correlations				Tolerance	
	Zero-Order	Partial	Part	Importance	After Transformation	Before Transformation
Complexity of Investment Method of valuation	-.234	-.309	-.278	.257	.897	.870
Educational Qualification	-.100	-.074	-.063	.025	.947	.944
Professional Qualification	-.094	-.049	-.042	.015	.920	.937
Age.of.firm	-.180	-.358	-.329	.261	.723	.649
Location of firm	-.193	-.257	-.228	.173	.907	.894
Number.of.Branches in firm	.094	.255	.226	.093	.740	.666
Number of .Surveyors in firm	.186	.194	.169	.123	.918	.757
Availability of Data	-.063	-.055	-.047	.012	.916	.876
Level of Assumptions Made	-.073	-.138	-.119	.034	.923	.936
Valuation in Unfamiliar Terrain	.066	.034	.029	.007	.950	.932

Dependent Variable: Anchoring

The zero- order correlation was used as a measure of variable importance being independent of the other predictors in the model. From the result in Table 1 it is observed that the use of complex investment method has the highest correlation (though negative, -.234) with the usage of Anchoring and Adjustment Heuristics in Nigeria. Thus, the more complex investment method of valuation used the less the usage of anchoring and adjustment heuristics. The high Importance of .257 gotten reveals the variable as a suppressor, hence, not being suppressed by other variables. However, the variable with the least correlation is availability of data (-.063)

signifying that the more data available the lesser the recourse to anchoring and adjustment heuristics.

(b) Availability Heuristics

Table 2 Correlations and Tolerance

	Correlations				Tolerance	
	Zero-Order	Partial	Part	Importance	After Transformation	Before Transformation
Complexity of Investment Method of valuation	.462	.508	.467	.583	.978	.870
Educational Qualification	-.027	-.097	-.077	.006	.969	.944
Professional Qualification	.028	.031	.024	.002	.977	.937
Age.of.firm	-.163	-.263	-.216	.108	.757	.649
Location of firm	.025	-.016	-.013	.000	.870	.894
Number.of.Branches in firm	.078	.166	.133	.034	.663	.666
Number of .Surveyors in firm	.170	.179	.144	.072	.815	.757
Availability of Data	-.061	-.050	-.040	.007	.940	.876
Level of Assumptions Made	.247	.312	.260	.178	.931	.936
Valuation in Unfamiliar Terrain	-.056	-.069	-.054	.008	.963	.932

Dependent Variable: Availability

From Table 2 it is also observed just like in the usage of Anchoring and Adjustment heuristics that the most predictive factor determining the usage of availability heuristics in Nigeria is the complexity of investment method of valuation used. However, unlike the previous heuristics considered, the correlation is positive (.462)

meaning that the more the complexity of valuation method adopted the more the usage of availability heuristics. The location of firm recorded the least predictive factor (.025) as locations where valuations are majorly carried out determine the usage of availability heuristics.

(c) Representative Heuristics

Table 3 Correlations and Tolerance

	Correlations				Tolerance	
	Zero-Order	Partial	Part	Importance	After Transformation	Before Transformation
Complexity of Investment Method of valuation	.048	.095	.079	.012	.970	.870
Educational Qualification	-.134	-.156	-.130	.056	.981	.944
Professional Qualification	.092	.070	.058	.017	.988	.937
Age.of.firm	-.339	-.420	-.382	.472	.752	.649
Location of firm	-.270	-.352	-.310	.276	.915	.894
Number.of.Branches in firm	.023	.278	.239	.020	.746	.666
Number of .Surveyors in firm	-.130	-.032	-.026	.012	.862	.757
Availability of Data	-.025	-.043	-.035	.003	.932	.876
Level of Assumptions Made	-.066	-.051	-.042	.009	.946	.936
Valuation in Unfamiliar Terrain	-.178	-.252	-.215	.123	.950	.932

Dependent Variable: Representative

Unlike the previous two tables that partainning to representative heuristics gave a diffent variable as the most predictive. Although, negative, the age of the estate surveying and valuation firm is seen as the predominant factor with the highest

corelation (-.339). This implies that younger firms tend to make use of availability huristics as against their counterparts who are older. The number of branches a firm has, which is invariably a function of its size, recorded the least predictive variable. Having the least correlation of (.023), hence the larger the number of branches a firm opertaes, the more recourse is made to the useage of representative heuristics.

(d) Positivity Heuristics

Table 4 Correlations and Tolerance

	Correlations				Tolerance	
	Zero-Order	Partial	Part	Importance	After Transformation	Before Transformation
Complexity of Investment Method of valuation	.023	-.088	-.076	-.007	.917	.870
Educational Qualification	-.175	-.189	-.165	.108	.980	.944
Professional Qualification	.076	.072	.062	.018	.986	.937
Age.of.firm	-.297	-.375	-.346	.466	.681	.649
Location of firm	-.159	-.196	-.171	.105	.943	.894
Number.of.Branches in firm	.029	.226	.199	.028	.612	.666
Number of .Surveyors in firm	.008	.026	.022	.001	.770	.757
Availability of Data	.134	.150	.130	.067	.947	.876
Level of Assumptions Made	-.257	-.243	-.215	.215	.926	.936
Valuation in Unfamiliar Terrain	.078	.000	.000	.000	.942	.932

Dependent Variable: Positivity

Result of positivity heuristics as revealed in Table 4 showcased similarity with that of representative heuristics that the age of firm is the most predictive variable with a corrolation of (-.297). This indicates that the younger firms are most likely pone to adopt the positivity heuristics. The number of estate surveyors and valuers in the employ of estate surveying firm (being a function of its size) recorded the least predictive factor (.008) indicating that firms with large number of core emplyees readily adopt the uasage of positivity heuristics.

CONCLUSION

From the findings of this study, the focus of heuristic property research will be well defined on a more comprehensive outlook. The hitherto confirnment to anchoring and adjustment heuristics had negated certain salient factors this research had been able to depict. Amongst which are the prominent factors such as methods of investment valuation and the age of firms. However, further research can still be carried out such as determining effect the usage of these factors will have on property valuation.

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