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A survey of property valuation approaches in Nigeria

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Abstract

Purpose - The emerging trends in the global real estate valuation practice has led to the development of advanced valuation approaches to replace the traditional methods. This study investigates the extent to which real estate valuers practicing in Nigeria are aware and use these advanced approaches in real estate valuation practice.

Design/methodology/approach – Both traditional and advanced approaches were identified from the literature. An online-based questionnaire survey was administered on estate surveyors and valuers to measure their level of awareness and frequency of use of the identified valuation approaches. The feedback was collated and analyzed using descriptive statistical analysis.

Findings - The professionals are mostly aware of the traditional methods and always use the 'sales comparison method' in practice. In contrast, they are not much aware of the advanced approaches and hence, only use the hedonic pricing model occasionally in practice.

Research limitation - The study only focus on the Lagos metropolis, a nationwide survey will produce more comfortable generalizable findings.

Practical implications – This is a wake-up call for the real estate regulatory bodies and indeed all the real estate professionals in Nigeria to embrace the use of the advanced valuation approaches in practice, in order to remain relevant in the international real estate practice.

Originality/value – Implementation of the recommendations of this study will help position the Nigerian real estate professionals and the industry for a global exposition.

Keywords: Valuation methods; property valuation; real estate valuers; Lagos metropolis; Nigeria.
Paper type: Research paper.

Introduction

The importance of the real estate industry to the economic development of any nation cannot be overemphasized. In 2014, the total value of the world's wealth was estimated at US$ 263 trillion (Credit Suisse, 2014), with more than half of it embedded in real estate (Yalpir, 2014). Stakeholders in the real estate industry (individuals investors, corporate investors and government organizations) do invest in real estate because of its characteristics, namely - durability, hedge against inflation, regular flow of income (all things being equal) etc. Therefore, investors usually request to know the value of their investment from time to time, in order to make sound investment and financial decisions.

The real estate professionals (valuers/appraisers henceforth) are often instructed by their clients to appraise their properties, because they are trained, knowledgeable and experienced about the real estate market that is imperfect, heterogeneous, has complex legal interest and complicated real estate laws (Shapiro et al., 2012). Thus, they are expected to report accurate value to their clients that entirely rely on their professional opinion of value to make economic and financial decisions (Taffese, 2007). A misleading figure will make a client to record a negative profit margin or even go bankrupt, if there is a large negative disparity in the valuation figure and the value the subject property eventually commands when sold or when there is a mortgage foreclosure. Jiang et al. (2013) pointed that the global economic crisis that occurred between 2007 and 2009 was triggered by the events in the real estate industry. This highlights the important place the real estate industry holds in the economy of both developed and developing countries. Hence, there is a need to ensure that real estate valuation estimates are more accurate and reliable.

In order to appraise a real estate property, valuers normally adopt various methods of valuation, which they complement with their professional experience and understanding of the subject property market. For this reason, property valuation is generally regarded as an "art and science" of estimating the value of an interest in a real estate property (Kummerow, 2003; Aluko, 2007; Azmi et al., 2013). The type of property to be appraised determines the valuation method to be adopted (Yacim and Boshoff, 2014), suggesting that the application of an inappropriate valuation method may produce a misleading valuation figure. The studies of Parker (1998); Crosby (2000); Babawale (2013) amongst others has shown that valuation inaccuracy is a global problem in the real estate industry.

In this twenty-first century, valuation report end-users expect and demand a world class professional service (Taffese, 2007; Adegoke et al., 2013). Therefore, it is imperative to evaluate if the Nigerian real estate appraisers are acclimating to the emerging trends in their valuation practice to meet the

needs of their clients. Also, the latest rebasing of Nigeria's gross domestic product (GDP), estimated at US$ 510 billion, makes the economy the largest in Africa and the 26th in the world (National Bureau of Statistics, 2014; PricewaterhouseCoopers, 2014). Hence, it is important to assess if the real estate professionals are positioned to service cross-border investors that will want to invest in Nigeria due to this development. The adoption of valuation approaches that will produce with speed, a reliable and accurate output is inevitable in this age and time (Waziri, 2010). The current paper reports a survey of valuation approaches that estate surveyors and valuers operating in Nigeria adopt in practice in order to establish the trends in real estate valuation practice in the nation. The result of this effort will give an insight into the past and present of the valuation practice in Lagos metropolis and then recommend strategies to transform the industry to meet international standards.

Valuation methods

Valuation exercise is conducted to determine the value at which a real estate property interest is expected to be exchanged for in an open market (French and Byrne, 1996). The appropriate valuation approach to be adopted in appraisal depends on the amount of information available, the purpose of valuation, the use and type of the subject property (Vos and Have, 1996). Also, the socio-economic setting of a country, the cultural background and exposure of its real estate professionals will determine the level of sophistication of the real estate industry (Pagourtzi et al., 2003).

Pagourtzi et al. (2003) presented a classification of property valuation methods into traditional and advanced methods. The traditional approaches rely basically on direct capital comparison or range of observations from which the appraiser estimates the value of the subject property. Such approaches include; comparison, investment/income, profit/accounts, residual/development and cost/contractor's. On the traditional methods, the comparison (market sales), investment (income) and cost (contractor**'**s) methods are the principal and most popular approaches in the real estate appraisal domain (Jenkins, 2000; French, 2004), although, the comparison methods is widely adopted around the world (Bonissone and Cheetham, 1998; Kauko, 2002). With the simplicity attributed to the application of these traditional methods, they are marred with imprecision and inaccuracy (Ratcliff, 1972; Zurada et al., 2006) and do not emulate the thinking process of the real estate market players (Bagnoli and Smith, 1998). Although, the American Institute of Real Estate Appraisers (1987) argued that the sales comparison method is reliable provided there is sufficient market data, however, the method is still marred with valuers' subjectivity (Kauko et al., 2002; Paris, 2008), which is one of the factors militating against for valuation accuracy (Ogunba, 2004; Shapiro et al., 2012).

The advanced methods on the other hand, are models that mimic the thought process of the

stakeholders in the property market and even the property market in estimating valuation figures (French and Byrne, 1996). In addition, they produce with speed, a reliable and accurate valuation figure compared to the traditional methods (Tay and Ho, 1992; Waziri, 2010). These approaches include; artificial neural networks (ANN), autoregressive integrated moving average (ARIMA), fuzzy logic (FL), hedonic pricing method and spatial analysis method. This classification have been established and accepted in the real estate research environment. See for example Özkan et al. (2007), Lorenz and Lützkendorf (2008), Tao (2010), Babawale and Oyalowo (2011), Yacim and Boshoff (2014). Full description of these methods are presented by Pagourtzi et al. (2003).

These advanced appraisal methods have been successfully applied in different real estate markets across the world. Examples of the applications as well as the strength and weaknesses of some of these advanced approaches are presented in Table 1.

Table 1: Applications of advanced valuation methods

Approaches	Authors	Country	Strengths	Weaknesses
Autoregressive integrated moving average (ARIMA)	McGough and Tsolacos (1995) Tse (1997) Crawford and Fratantoni (2003)	United Kingdom Hong Kong United States	Helps in tracking real estate price cycle directions, its reliance on autocorrelation gives accurate results	Can only handle time-series data, short-term forecasting model
Artificial neural network (ANN)	Borst (1991) Tay and Ho (1992) Lam et al. (2008)	United States Singapore Hong Kong	User friendly and easy to use, deals with non-linear relationship in data, adaptability and generalization ability, higher precision	'Black box' nature, hidden internal structure, data hungry
Hedonic pricing model	Adair et al. (1996) Tse and Love (2000) Babawale et al. (2012)	Northern Ireland Hong Kong Nigeria	Versatile approach, can handle many variables, objective, gives contributory power of each variable, good indicator of value	Multicollinearity, heteroscedasticity, functional form misspecification, cannot handle nonlinear variable relationship and outlier data
Fuzzy logic	d'Amato and Siniak (2009) Hui et al. (2009) Kuşan et al. (2010)	Belarus Hong Kong Turkey	Ability to cope with vagueness nature of property variables, more realistic approach	Difficulty in determining fuzzy set and fuzzy rules
Spatial analysis	Basu and Thibodeau (1998) Cho et al. (2008) Li et al. (2011)	United States United States Hong Kong	Applicable where there is inadequate information on property variable, produces fair value estimates of local variables	Non-continuity, non-homogeneity and the influence of non-spatial factors, changes in prices over time can affect estimates

Related studies

Previous studies have been conducted in different real estate markets to investigate the use of valuation approaches in practices. Boyd (1995) examined the valuation practice in Australia. The study revealed a general preference for the use of the traditional cash flow technique and further found that the level of educational qualification of the professionals determines the approaches adopted in practice. Valuers with higher academic qualification tend to adopt the net present value (NPV) approach. The non-uniformity in valuation methods adopted by the valuers was attributed to how to

deal with irregular cash flows and how to interpret the discount rate, suggesting lack of proficiency in the advanced techniques.

An international comparison of valuation practice in the US, UK and New Zealand was explored by Kinnard et al. (2002). The study aimed to establish the valuation approaches for appraising contaminated properties. The authors reported that the valuers in the US adopt the sales comparison method and this is attributed to the availability of property market information in the country. The case in the UK is that none of the professionals adopt this method, while 29% of the respondents indicated the use of comparison method in New Zealand. More than half of all the professionals sampled indicated that they adopt more than one valuation method in practice and also supplement the comparison method with information from real estate market stakeholders (buyers and lenders). This affirms the fact that valuation is undoubtedly an 'art' and 'science' of determining the value of an interest in a real estate property.

In the African context, South Africa is considered a foremost economy within the continent (Chuhan-Pole et al., 2013), leading stakeholders to have interest in the country's real estate market. Mooya (2015) therefore, evaluated the real estate education and professional practice of all the members of the South African Council of the Property Valuation Profession (SACPVP) in South Africa. Mooya (2015) discovered that most of the valuers operating in the country adopt the sales comparison method of valuation in practice, while the profit/accounts method is the least adopted in the country. Surprisingly, considering the development in the country compared to other economies in the subregion, it was revealed that there is low usage of computer packages for valuation exercise Mooya (2015). The author reported that 1%, 3.4% and 100% of the valuers had the knowledge of using Argus valuation computer software, Cougar software (Investment management solution software) and Microsoft Excel, respectively.

In Nigeria, researchers have examined the professional practice in their respective professions. Waziri (2013) examined the awareness of construction industry professionals in Nigeria in terms of the adoption of artificial intelligence (AI) approaches - ANN and FL in cost estimating. The study concluded that the traditional methods are still widely used for cost estimation by professionals in practice as most of the professionals are not aware and do not employ the AI approaches in cost estimation. The author advocated for a paradigm change to the AI techniques in the industry.

In the real estate industry, Bello and Bello (2009) evaluated the valuation methods used by valuers in Nigeria. The authors reported that majority of the experts surveyed were familiar and understood very

well the traditional methods of valuation, while none of the professionals have heard or used the advanced methods. Conclusively, it was found that valuers are not familiar with advanced property valuation models. The study of Babawale and Oyalowo (2011) revealed that 100% of the valuers indicated that ANN is the most appropriate advanced valuation method and the discounted cash flow method is the best traditional method that can be adopted to incorporate sustainability into Nigeria's valuation practice. Conversely, a large percentage of the valuers indicated willingness to acquire additional training on the advanced methods of valuation- fuzzy logic, spatial analysis, ANN etc.

A recent study by Babawale (2012) substantiates the findings of Bello and Bello (2009), valuers generally adopt the income, comparison and cost methods of valuation. Also, 100% of the valuers use Microsoft word, while 38% use internet surfing in valuation practice in Nigeria. In fact, very little (9%) have understanding of data analysis packages (SPSS), while only 3% use valuation/investment analysis software in practice, which is almost the case in South Africa as reported by Mooya (2015).

Considering the globalization being experienced around the world, this research is embarked on to study the level of growth in the appraisal practice in Nigeria after the studies of Bello and Bello (2009) and Babawale and Oyalowo (2011), in terms of the appraisal methods employed by valuers in this age in discharging professional services to their clients, which will eventually translate into the perception and confidence the stakeholders have in the profession as well as the professionals.

Research methodology

In literature, it has been pointed out that quantitative research approach is adequate for addressing problems which involve a large population and wide spread of participants over a geographical area (Easterbrook et al., 2008). In addition, this method ensures that comparative analysis and generalization of results can be inferred from findings (Phua, 2013). Therefore, this study adopted quantitative research approach to retrieve data from real estate professionals practicing in the Lagos metropolis. The data was collected with the use of an online-based questionnaire. Mooya (2015) adopted the same research approach to investigate the real estate education and professional practice in South Africa. The questionnaire was structured into three sections. The first was designed to capture the professionals' profile. The second section presents the various valuation approaches that have been established in the literature (see for instance Pagourtzi et al., 2003; Lorenz and Lützkendorf, 2008; Yacim and Boshoff, 2014) and the respondents were instructed to indicate their level of awareness of these approaches. The last section was designed to capture how often the professionals employ these approaches in practice, that is they are to indicate if they use them always, regularly, occasionally or not at all. The respondents of this study are professional members of the

body that is empowered by the Laws of the Federal Republic of Nigeria (Decree No. 24 of 1975), to regulate the activities real estate professionals in the country- Nigerian Institution of Estate Surveyors and Valuers (NIESV).

The 2014 membership directory of NIESV (Nigerian Institution of Estate Surveyors and Valuers, 2014) shows that 548 valuers are domiciled in the Lagos metropolis. However, a total 350 of those valuers have their email addresses documented in the directory. Eventually, the questionnaire was sent to the email addresses of 150 stratified randomly sampled valuers practicing in the Lagos metropolis property market. A professional valuer is an individual that has attained the prescribed minimum educational qualification, cognitive professional experience and expertise as set by NIESV. This sample size was carefully selected by considering the sample size obtainable in previous studies. For example, 50 professionals were sampled by Finlay and Tyler (1991), Kennedy (1998) surveyed 100 professionals, Bello and Bello (2009) elicited information from 107 experts, while Ibiyemi and Tella (2013) examined 110 valuers. The respondents were expected to respond to the survey within three months, while a reminder was sent to them at the end of the second month.

At the end of the cut-off date, a total of 60 responses were received which represent 40% response rate, out of which five of the responses were incomplete, in all a total of 55 responses were valid for analysis. This response rate exceeds the acceptable margin of 30% as posited by Akintoye and Fitzgerald (2000). It is assumed that the busy nature of the study area may be responsible for the average response rate. The situation in Lagos metropolis is that most valuers spends much of their time on the road due to the jostle and bustle in the megacity. The Statistical Package for Social Sciences (SPSS) version 20.0 was employed in the analysis of the data and the data were presented using descriptive statistical analysis tool in terms of percentiles. This was the same approach Boyd (1995), Waziri (2013) and Mooya (2015) adopted in their studies. In addition, the χ^2 (Chi-Square) test was conducted in order to establish the statistical relationship between the research variables. That is the relationship between valuers' level of education and years of experience and their awareness of these valuation methods.

In order to measure the internal consistency of the data used for the study, the Cronbach's alpha test was performed so as to establish the reliability and internal consistency of the data collected. The purview of the Cronbach's alpha value lies between 0 and 1. Conversely, a Cronbach's alpha value of between 0.50 and 0.60 depicts a valid and reliable agreement amongst the subjects (Nunnally and Bernstein, 1978). Whereas, Hair et al. (2010) point out that a value of 0.70 and above signifies an acceptable reliability. For this study, the Cronbach's alpha value of 0.74 was achieved. This value is

above the acceptable threshold of 0.70, which shows that there is high internal consistency amongst the respondents. This means that from the data collected, valid conclusions can be made.

The case study area chosen for this research is the Lagos metropolis. This choice stems from the fact that the Lagos property market is the most vibrant and has highest average property value in Nigeria (Dugeri, 2011), this translates into the high sophistication of the players and stakeholders in the property market (Oni, 2010). The United Nations has adjudged Lagos as a megacity, the most populous city in West Africa and even projected that the city will be the third largest in the world by 2015 after Tokyo and Bombay (Lagos State Government, 2015). The megacity houses the head offices of about 95% of commercial banks and 90% of insurance companies operating in the country (Babawale and Oyalowo, 2011; Central Bank of Nigeria, 2015) and most multinational companies in the Nigeria operate in Lagos. Also, the head offices of more than half of the registered real estate companies in Nigeria are located in Lagos, while more than 50% of registered valuers in Nigeria, practice in the Lagos metropolis (Ibiyemi and Tella, 2013).

Results and discussion

5.1. The professionals' profile

The profile of the respondents in a survey research determines the reliability of the information elicited from the survey. The profile of the respondents for this study is presented in Table 2. The least academic qualification required to become a member of NIESV is high school certificate, although this membership route is very unpopular, because of the lengthy membership route. Since anyone who aspires to become a professional in a field will acquire a higher education, so it is not surprising that none of the professionals possess high school certificate as the highest educational qualification. About 32.73% of the respondents possess Higher National Diploma which is the minimum higher educational qualification required to become a professional member of NIESV. A total of 21.82% of the professionals have acquired a Bachelor of Science degree, while virtually half (45.45%) of the respondents have acquired postgraduate degrees and Masters of Science degree, which implies that the professionals are developing themselves academically. Whereas, none of the valuers possess a PhD degree, probably because of the general notion that a PhD degree is only necessary for individuals that wants to build academic or research career.

Table 2: Estate surveyors and valuers' profile

Variables	Frequency (n)	Percentage (%)
Educational qualification		
High school	0	0.00
Associate degree/Higher Diploma	18	32.73
Bachelor of Science	12	21.82
Postgraduate/Masters of Science	25	45.45
PhD	0	0.00
Total	**55**	**100.00**
Years of industry experience		
0-5 years	18	32.73
6-10 years	24	43.63
11-15 years	10	18.18
16-20 years	2	3.64
Above 20 years	1	1.82
Total	**55**	**100.00**
Area of specialization		
Valuation	14	25.45
Property management	15	27.27
Agency	3	5.46
Property investment consulting	2	3.64
General practice	21	38.18
Total	**55**	**100.00**

In terms of years of professional experience which suggests good knowledge and understanding of the property market, a total of 61.81% of the professional have been practicing in the industry for between 6-15 years, 32.73% of the respondents can be said to be new in the practice, because they have below five years of real estate industry experience. The remaining 5.46% has over 15 years of practice experience. Since majority of the professionals have between 6-15 years working experience, it may be reasonable to assume that most of them are of the middle-age class and thus, are expected to be well informed of the current development in their profession globally, because of the likelihood of an affinity for the trending information technology.

The area of specialization of the valuers indicates their specialization at the time of the survey. It is worth nothing that it is common for real estate professionals to switch from one area of the profession to another or even be involved in general practice, making them to be experienced in all the areas. As such, Mooya (2015) posited that the experience real estate professionals gather from general practice - property management, agency, investment analysis, valuation etc. is essential and helpful to the valuation practice. About 38.18% of the respondents that specializes in the general practice area of the profession indicate that those proportions are conversant with property valuation practice, their knowledge of the Lagos metropolis property market is noteworthy for this study, coupled with 25.45% of the professionals that major in property valuation. However, 27.27% of the valuers are into property management, while the remaining three and two valuers specialize in real estate agency and property investment consulting, respectively.

5.2. Level of awareness of the valuation methods

The valuers' level of awareness of various valuation methods which forms part of the fulcrum of this study was examined and presented in Table 3. Their response shows that the professionals are very much aware of the traditional methods of valuation. This is deduced from the information that reveals that all the respondent (100%) are aware of investment, comparison and cost methods of valuation, while, 98.18% and 94.54% of the valuers are aware of the profit and residual methods, respectively. This conforms to the findings of Bello and Bello (2009) and also corroborates the position of some researchers (Bagnoli and Smith, 1998; McGreal et al., 1998; Yacim and Boshoff, 2014) that the traditional methods of valuation are simple in approach, because they are dependent on the availability of market information and the valuers' subjective judgement and thus, are generally common amongst real estate professionals.

Table 3: Awareness of traditional valuation methods

Valuation methods	Aware		Not aware	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Investment method	55	100.00	0	0.00
Direct comparison method	55	100.00	0	0.00
Cost method	55	100.00	0	0.00
Profit method	54	98.18	1	1.82
Residual method	52	94.54	3	5.46

The information in Table 4 shows the relationship between valuers' educational level and level of experience and their awareness of the valuation methods. For the traditional methods, the valuers'

level of educational qualification has a significant statistical relationship with the investment, comparison and cost methods of valuation with a ρ-value of 0.000, respectively. This means that the awareness of these three methods can be attributed to valuers' educational qualification. And for the profit and residual methods, their ρ-values of 0.161 and 0.867, respectively, which are greater than 0.05 depicts a non-statistical significant relationship between valuers' level of education and awareness of both valuation methods. In the same vein, the valuers' awareness of the investment, comparison and cost approaches can be ascribed to their years of professional experience, this is because for the three methods, a ρ-value of 0.000 was recorded for each. Whereas, valuers' level of professional experience does not have a statistical significant relationship with their level of awareness of profit and residual methods as in the case of educational qualification. This suggests that as a graduate valuer continues to acquire cognitive professional experience, the more s/he acquires more skill in the application of the three most widely adopted traditional methods of valuation.

Table 4:Chi-Square test for awareness of traditional methods and educational and level of experience

Method	χ^2 value	Degree of freedom (df)	ρ-value
Educational level			
Investment method	**0.00[a]**	**4**	**0.00[a]**
Direct comparison method	**0.00[a]**	**4**	**0.00[a]**
Cost method	**0.00[a]**	**4**	**0.00[a]**
Profit method	**3.650**	**4**	**0.161**
Residual method	**0.296**	**4**	**0.867**
Level of professional experience			
Investment method	**0.00[a]**	**4**	**0.00[a]**
Direct comparison method	**0.00[a]**	**4**	**0.00[a]**
Cost method	**0.00[a]**	**4**	**0.00[a]**
Profit method	**1.316**	**4**	**0.859**
Residual method	**5.391**	**4**	**0.249**

Note: [a] – No statistics are computed because the method is a constant. χ^2 means Chi-Square.

On the other hand, the professionals are not generally aware of any of the advanced approaches as shown in Table 5. Although, there is a higher level of awareness of the hedonic pricing method (32.73%) in this category, this may be attributed to the fact that the hedonic pricing model is popular

and widely used in the housing market research as posited by researchers (Adair et al., 1996; Bender et al., 2000; Tse and Love, 2000; Kauko, 2003; Selim, 2011). The high level of awareness indicted for hedonic pricing model by the valuers can be substantiated by the adoption of the approach in the property market research in Nigeria by researchers (Olayiwola et al., 2005; Aluko, 2011; Babawale et al., 2012; Famuyiwa and Babawale, 2014 etc.).

Table 5: Awareness of advanced valuation methods

Valuation methods	Aware		Not aware	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
Hedonic pricing method	18	32.73	37	67.27
Spatial analysis method	6	10.91	49	89.09
Autoregressive integrated moving average	5	9.09	50	90.91
Artificial neural networks	4	7.27	51	92.73
Fuzzy logic method	2	3.64	53	96.36

For other advanced artificial intelligence (AI) approaches, the level of awareness has not improved considerably after the study of Bello and Bello (2009). Despite the findings of Babawale and Oyalowo (2011) where 100%, 90.70% and 80.40% of the valuers sampled indicated willingness to acquire more training on the ANN, ARIMA and FL, respectively. This enthusiasm has not materialized up to date, as 92.73%, 90.91% and 96.36% of professionals surveyed in this study are not aware of these aforementioned approaches. In addition, 89.09% are not aware of spatial analysis method. This result suggests that the valuation practice in the metropolis has not transformed over time. It seems the professionals have not developed themselves by acquiring the know-how to apply the advanced property valuation techniques. This is substantiated with the information in Table 6 that shows that valuers' educational achievements do not have a statistical significant relationship with their awareness of all the advanced valuation approaches. This is because the ρ-values for each of the methods was less than 0.05. Also, their levels of professional experience do not translate into the awareness of the advanced valuation approaches. With all the methods having a ρ-value of less than 0.05, this depicts that with most of the valuers possessing years of experience of between 6-15 years, they have not gotten a glimpse of the advanced valuation methods. It is therefore, reasonable to suggest that the professionals are not updated in terms of the paradigm shift going on in other real estate markets around the world.

Table 6: Chi-Square test for awareness of advanced methods and educational and level of experience

Method	χ^2 value	Degree of freedom (df)	ρ-value
Educational Level			
Hedonic pricing method	**1.505**	**4**	**0.471**
Spatial analysis method	**3.680**	**4**	**0.159**
Autoregressive integrated moving average	**1.444**	**4**	**0.486**
Artificial Neural Networks	**3.694**	**4**	**0.158**
Fuzzy logic method	**0.651**	**4**	**0.722**
Level of professional experience			
Hedonic pricing method	**4.419**	**4**	**0.352**
Spatial analysis method	**1.811**	**4**	**0.770**
Autoregressive integrated moving average	**1.198**	**4**	**0.878**
Artificial Neural Networks	**2.071**	**4**	**0.723**
Fuzzy logic method	**1.967**	**4**	**0.742**

Note: [a] – No statistics are computed because the method is a constant. χ^2 means Chi-Square.

5.3. Level of usage of the valuation methods

It may be misleading to conclude that the level of awareness of these valuation methods will automatically translate into the level of usage of the methods and moreover the level of usage will reveal the most adopted approach in practice. Thus, the frequency of use of the methods is presented in this section.

Table 7: Adoption of traditional valuation methods

Valuation methods	Always		Regularly		Occasionally		Not at all	
	n	%	n	%	n	%	n	%
Investment method	17	30.90	30	54.55	8	14.55	0	0.00
Direct Comparison	35	63.64	19	34.54	1	1.82	0	0.00
Cost method	14	25.45	30	54.55	11	20.00	0	0.00
Profit method	6	10.91	11	20.00	33	60.00	5	9.09
Residual method	3	5.46	10	18.18	39	70.90	3	5.46

The response of the professionals shown in Table 7 depicts that majority (63.64%) always employ the comparison method in valuation practice. This conforms to the case in other real estate markets around the world, where the comparison method is the most widely applied method in this traditional category (Pagourtzi et al., 2003; Yacim and Boshoff, 2014). The investment and cost methods are used regularly as 54.55% of the valuers indicated this for both methods. This conforms to the trend revealed by Babawale (2012) that the real estate professionals widely adopt these three methods in practice. The profit and residual methods are the least adopted, because 60% and 70.90%, respectively, employ these approaches occasionally. This finding is similar to that of Bello and Bello (2009), this is probably because the purpose for which most valuation reports are requested and the types of properties being valued in the metropolis cannot be appraised with these valuation methods. The less adoption of these two methods is in line with what is obtainable in South Africa according to Mooya (2015), this similarity may be attributed to the fact that both countries are in the same continent – Africa.

Table 8: Adoption of advanced valuation methods

Valuation methods	Always		Regularly		Occasionally		Not at all	
	n	%	n	%	n	%	n	%
Hedonic pricing method	0	0.00	4	7.27	10	18.18	41	74.55
Spatial analysis method	0	0.00	2	3.64	1	1.82	52	94.54
Autoregressive integrated moving average	0	0.00	1	1.82	2	3.64	52	94.54
Artificial Neural Networks	0	0.00	2	3.64	0	0.00	53	96.36
Fuzzy logic method	0	0.00	2	3.64	0	0.00	53	96.36

On the use of the advanced methods, it is obvious that the professionals do not always adopt any of the advanced methods in practice as shown in Table 8. A minuscule proportion of the professionals do use these approaches regularly and occasionally, while a larger percentage (more than 90% in almost all cases) does not use these approaches at all. In this category, it is only the hedonic pricing method that is used occasionally and regularly by18.20% and 7.30% valuers, respectively. The low adoption of these advanced methods may be ascribed to the fact that most of the professionals are not aware of these advanced approaches and even the few that are aware lacks the proficiency to apply them in practice. This seems to be the true picture of the professionals, as the findings of Waziri

(2013) in the related profession- construction industry in Nigeria, indicated that construction industry experts do not employ AI approaches in cost estimation. Mooya (2015) reported the same of real estate valuers in South Africa. It appears that built environment professionals in this continental region are not embracing the advanced approaches in practice- approaches that will reflect the thought process of their clients that demands sophisticated services.

It can be summed that after the studies of Bello and Bello (2009) and Babawale and Oyalowo (2011), there has not been substantial transformation in the property valuation practice in Nigeria when compared to what is obtainable in other parts of the world. The valuers still adopt traditional methods in practice. It seems the professionals are not being educated about these methods because with about 67.27% possessing at least a B.Sc. degree, it means they were not being introduced to these methods in the classroom and neither has the regulatory professional bodies organized workshops or conferences centered on these advanced trends in real estate valuation.

Conclusion and policy implications

The property valuation practice in the Lagos metropolis was examined by surveying valuers practicing in the property market. Their level of awareness and use of both the traditional and advanced valuation methods established in literature was assessed and presented in this study. The findings reveals that majority of the professionals are aware and familiar with the traditional methods of valuation especially the comparison, cost and investment methods. In contrast, the valuers are not much aware of the advanced methods of valuation, although, with an exemption of the hedonic pricing model which is being adopted in real estate research in the study area. It was also found that valuers' level of education as well as years of professional experience do not have a statistically significant relationship with their awareness of the advanced valuation methods and for the traditional method a statistical significant relationship only exist for the investment, comparison and cost methods. In terms of the frequency of use of all the approaches, the valuers always and regularly make use of the traditional valuation methods – comparison, cost and investment methods. The little awareness of the advanced approaches results into their low adoption in practice. This study is restricted to Lagos metropolis, Nigeria and only tens of valuers were surveyed. A survey of all the valuers practicing in Nigeria can be explored. The findings of such holistic study can be comfortably generalized for the Nigerian real estate property market.

The professional bodies - NIESV and the Estate Surveyors and Valuers Registration Board of Nigeria (ESVARBON), that are backed up by law to regulate the real estate professionals and real estate practice, respectively, in Nigeria, should urgently formulate massive national campaign strategies to

promote the enlightenment, training and eventual enforcement of the adoption of the advanced valuation methods by their professional members. This can be achieved by organizing seminars, workshops and conferences that will address this goal. They should also speedily facilitate the affiliation with the Royal Institution of Chartered Surveyors (RICS), this revolutionary achievement that has been achieved in Ghana, Kenya and South Africa (RICS, 2015), when replicated in Nigeria will transform the real estate practice industry. This partnership will allow the exchange of ideas with other real estate professionals practicing in other parts of world and eventually result in a global exposition of the local real estate industry. In order to increase the level of awareness and application of these advanced methods, ESVARBON should ensure that the property valuation curriculum in all higher institutions of learning offering estate management courses are updated to include these advanced valuation approaches at both undergraduate and postgraduate level. It has been established that research is vital for a sustainable professional practice in any field of study (Hemsley-Brown and Sharp, 2003), therefore, the gap identified in the present study in real estate appraisal practice can be filled by real estate academics in Nigeria. The need to improve the accuracy of real estate valuation estimates necessitates a paradigm shift towards the application of AI modeling. Because an interrelationship exist between research and practice, the success recorded in the application of AI techniques in developed real estate markets and even other fields provides a justification for its exploration by real estate researchers in Nigeria. This will serve as a springboard for the adopting of such techniques in practice.

This paper is a preliminary study of a larger-scope research aimed at establishing the predictive accuracy of valuation models in Lagos, Nigeria. The need to urgently embark on the research is justified by the findings of this study that suggests that valuation practice in the country is still at the traditional level. Therefore, the applicability and predictive accuracy ability of hedonic pricing model and the ANN will be conducted in the metropolis. The hedonic pricing model that is marred with some limitations has been applied in the Lagos metropolis property market research. So, the ANN approach that has proven to be widely used successfully in developed nations for property appraisal and as well produced accurate valuation figures (Mora-Esperanza, 2004), has not received much attention in the real estate research in Nigeria and thus, will be introduced to the metropolis property market. The comparison of the output of both approaches will establish if the ANN fits into the Lagos real estate property market. The findings of the research will be used as a campaign tool for the introduction and adoption of the advanced valuation methods in the Nigerian real estate valuation practice.

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