

The Segregated City of Jos and Its Resultant Residential Property Value Pattern

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Abstract

Residential segregation could be regarded as a process whereby two or more distinct communities who formerly lived together separate from one another due to many factors. Residential segregation is not only applicable to small communities but rather to a larger region. As a result of the ongoing civil unrest that engulfed the city of Jos, there has been a process of residential mobility and relocation among people of different faith. Stratified random sampling was employed in order to generate data from both Muslim's and Christian's residential neighbourhoods. A combination of self-administered questionnaires and semi-structured interview were deemed most suitable as data collection tools for this research due to the advantages obtained from both approaches. A total of 1000 questionnaires were administered to the respondents. Out of 1000 questionnaires administered to the respondents, 876 valid responses were used to analyse the information pertaining to the effect of intangible location attributes on residential property value in Jos city. Most of the data presented using simple percentage distribution tables were also complimented with discussion and narration for data that are not measurable in nature. Research findings uncovered that intangible location attributes play a major role in determining the value of residential accommodations in the study area. Land and landed property value could be ascertained through many indicators as revealed by the existing literatures. Relating this to rental values of residential properties, it was found that the rental values of such properties maintains a steady upward increase since when this conflicts started in the study area. The implication is that the intangible location attributes have direct influence on rent passing and sales value on residential properties in the study area.

Keywords: Property Value, Residential Pattern, Residential Mobility, Residential Segregation and Violence

1. INTRODUCTION

Charles (2003) asserted that sociologists and policymakers have long viewed racial residential segregation as a key aspect of racial inequality, implicated in both intergroup relations and in larger processes of individual and group social mobility. At the dawn of the twentieth century, Du Bois (1903) recognized the importance of neighborhoods (the physical proximity of home and dwelling-places, the way in which neighborhoods group themselves, and their contiguity) as primary locations for social interaction, lamenting that the "color line" separating black and white neighborhoods caused each to see the worst in the other.

Indeed, students of racial inequality, from Myrdal (1972) to Taeuber and Taeuber (1965), believed that segregation was a major barrier to equality, asserting that segregation inhibits the development of informal, neighborly relations, ensures the segregation of a variety of public and private facilities (Taeuber and Taeuber, 1965) and permits prejudice to be freely vented on Negroes without hurting whites (Myrdal 1972). Looking at Jos as the case study area, it could be said that racism or skin colour is not playing any role in terms of dividing the city into two segregated town by having an area that is predominantly Muslim and an area that is largely occupied by Christian. Despite the fact that the aforementioned researchers dwelled so much on this intangible aspect of location, the application of their findings has some limitations as a matter of fact.

Moreover, residential segregation undermines the social and economic well-being irrespective of personal characteristics (Massey and Denton, 1993). Whether voluntary or involuntary, living in racially segregated neighborhoods has serious implications for the present and future mobility opportunities of those who are excluded from desirable areas. Where someone lives eventually affects his proximity to good job opportunities, educational quality, and safety from crime (both as victim and as perpetrator), as well as the quality of his social networks (Jargowsky 1996, Wilson 1987).

By the late 1990s, unrest in urban ghettos across the city of Jos brought residential segregation and its implication is gradually being felt, leading to the now famous conclusion of Dung-Gwom and Rikko (2009) that Jos is now moving toward two societies, one Muslim, one Christian who are separated and are unequal. Massey

and Denton (1993) show, however, that without residential segregation, these structural changes would not have produced the disastrous social and economic outcomes observed in inner cities. Although rates of black poverty were driven up by the economic dislocations, Wilson (1987) identifies that it was segregation that confined the increased deprivation to a small number of densely settled, tightly packed, and geographically isolated areas.

The findings and methodological approach in this research could benefit and contribute to the implication for practice. Similar research of this kind may be replicated in other towns within the country and in other locations in other part of the world. Therefore, this research which examines the effect of intangible location attributes on the values of residential properties in Jos metropolis, Nigeria, provides the indicators to overhaul or adjust the problem as a whole in order to guard against detected shortcomings.

In other words the lesson learnt would be of considerable value for a more efficient value determining factor for residential property of similar metropolises in other areas. The findings of the research serve as a reference material for future researchers. It will also assist housing policy makers to formulate good policies on housing in the study area and other similar neighbourhoods. It is suggested that to apply this framework to other properties other than residential property, it would require further investigation, as additional research objectives and questions will emerge on the suitability of the framework to the areas. The methodological approach in this research could be adopted by practitioners or researchers for similar studies in other areas.

Based on the findings of this research, a new framework which incorporates and integrates intangible or invisible location attributes as factors that influence the values of residential properties in the study area and other similar areas with the same feature is, therefore, proposed. This alleviates the hardship and challenges that will be faced by real estate investors, property developers, valuation experts and appraisers when embarking on real estate activities.

2. THEORETICAL MOTIVATION

2.1 Influence of Violent Crimes on Property Values

According to Gibbons (2003), urban crime has a powerful influence on perceptions of area deprivation. Criminal damage to public and private property symbolises urban decay, and fear of burglary and theft promotes insecurity and anxiety. Although no place is crime-free, the fear of crime and the direct costs associated with property crime can have particularly severe consequences in urban areas, in discouraging local regeneration and catalysing a downward spiral in neighbourhood status. This tipping process has a prominent role in criminological explanations of community change and crime (Bottoms and Wiles, 1997).

Policy makers in Britain apparently share this view, arguing that neighbourhoods have been stuck in a spiral of decline. Areas with high crime and unemployment rates acquired poor reputations, so people, shops and employers left. As people moved out, high turnover and empty homes created more opportunities for crime, vandalism and drug dealing (Social Exclusion Unit, 2001). Certainly, casual observation suggests that persistently high local crime rates deters new residents and motivates those who can move out to lower-crime rate neighbourhoods. It would be expected that this demand for low crime neighbourhoods to be revealed in a property or land price gradient between residences in high and low-crime localities.

The evidence from the US based on hedonic models (Hellman and Naroff, 1979; Lynch and Rasmussen, 2001 and Thaler, 1978) suggests that crime rates do affect property values, although the effects may be small below high-crime thresholds. Lynch and Rasmussen (2001) find that a 1% increase in violent crime rates reduces prices by 0.05%, but report positive associations of property crime rates with prices. This they attribute to higher reporting rates in wealthier neighbourhoods, but higher victimisation rates may provide a better explanation (Morrison and McMurray, 1999). Properties are heavily discounted in high-crime neighbourhoods. For the UK, however, there is also existing evidence on the relationship between urban crime and property values.

Looking at the above findings by these previous researchers it could be realised that crime which is also among the intangible attributes of location only affects land and landed property values in a subtle way. Therefore their findings did not take into account other intangible locations attributes (ethnic background, violence, security, religious inclination, cultural background, indignity, native inclination, safety, socio-economic background and the likes) which have great influence on residential property values. Another problem with the existing studies is that identification relies on inclusion of an ad-hoc set of control variables at the household and neighbourhood levels. No attempt has been made to deal with the potential endogeneity of crime rates in a property value model.

A number of studies have examined the effect of crime on property values. Unsurprisingly, they concluded that crime has a negative effect on property values. For example, Thaler (1978) found an elasticity of home values with respect to crime rates of -0.07 , whereas Joel and Daryl (1979) found an elasticity of 0.05 . Most of these studies used cross-sectional data on self-reported home values from the decennial census (Burnell, 1988; Gray and Joelson, 1979; Hellman and Naroff, 1979; Naroff, Hellman and Skinner, 1980 and Rizzo 1979). A notable exception is Buck and colleagues (Buck et al. 1991 and Buck, Hakim and Spiegel, 1993) who used 15-

year panel data on towns near Atlantic City, New Jersey. Unfortunately, they based their analysis on assessed values rather than the neighbourhood level.

Although Thaler (1978) and Lynch and Rasmussen (2001) used actual home sales data, both studies are cross-section. Thaler's research is based on an extremely small sample (398 hose sales), and Lynch and Rasmussen measured crime as total crimes in a police precinct rather than per capita. A common problem with this literature is that they based their research on only one aspect of intangible attributes of location. In these existing literatures, omitted variable bias is likely to be present, given the quite limited sets of control variables (especially those measuring the quality of public services and neighbourhoods). The figure below shades more light on the influence of violent crime on property values in New York.

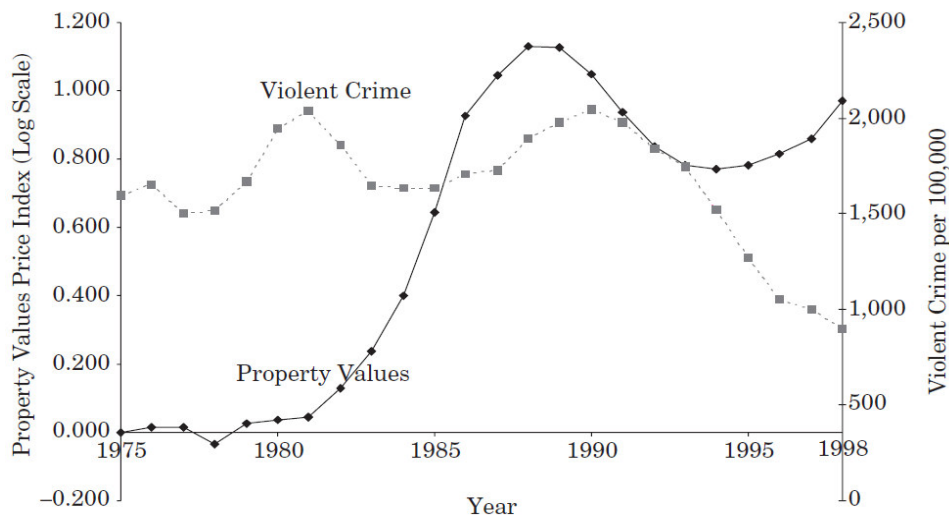


Figure 2.1: Relationship between Property Values and Violent Crime in New York,
Source: Schwartz, Susin and Voicu (2003)

Figure 2.1 displays violent rates and property values from 1975 to 1998. According to Schwartz, Susin, and Voicu (2003), after 1980, property values boomed as New York City recovered from the fiscal crisis of the mid-1970s and the national recession of 1980 to 1982. Prices peaked around 1980, falling by about 35 percent. It has been realised that violent crime fluctuated, displaying no strong pattern until 1990, after which it fell sharply. Crime fell steadily after 1990, while property values first declined and then rose.

In the study area, there is a tendency whereby the pattern and trends of land and landed property value would maintained a steady upward movement as disclosed by Dung-Gwom and Rikko (2009) due to the influence of these intangible factors of location on the average sales and rent passing of land and landed properties. Goncalves (2009) carried out a hedonic study on the effect of crime rates on house prices in U.S. State Capital. He discovered that even though crime has diminished in the long run as shown in figure 2.2 below, it still does have an effect on the average home prices.

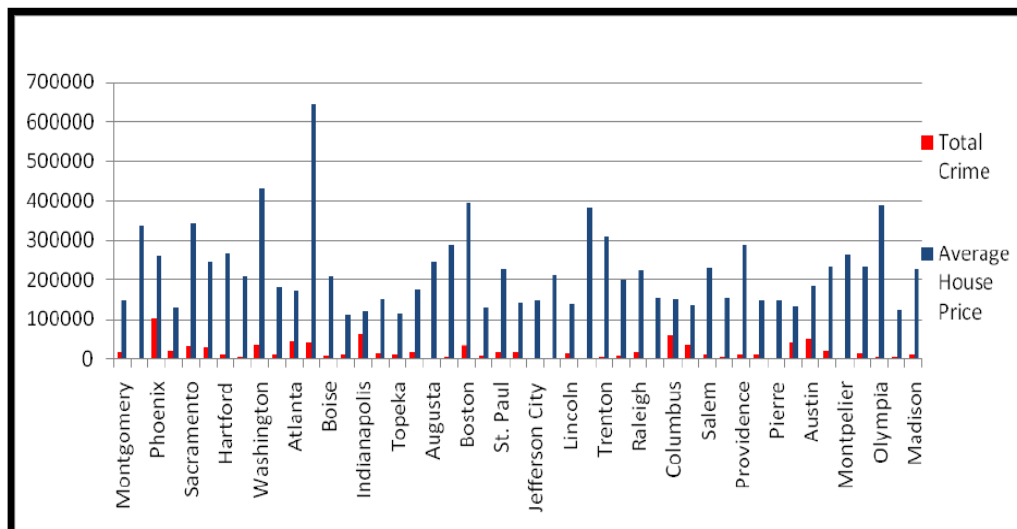


Figure 2.2: Crime and the Average Property Value of Single Family Dwellings in U.S. State Capital
Source: Goncalves (2009)

This research adds and extend the overall research findings pioneered by Allen and David (2001) and other researches by taking into cognisance other intangible location attributes when determining the worth of a property. Most hedonic modeled studies on crime and real estate property values are based on few sample data. Unfortunately most urbanised large cities (which are the most commonly used) have higher crime rates than the millions of towns in America; therefore the value found in Allen and Rasmussen's cannot be generalised to report the deterioration which crime has on property values nationwide.

2.2 Willingness of Individuals to Pay more for a Residential Property to Reduce their Exposure to Crime Areas

Understanding the relationship between property values and local crime risk is useful for measuring the willingness of individuals to pay to reduce their exposure to crime risk. This, in turn, can help to determine the appropriate level of public expenditures that reduce crime, such as police services. As noted earlier, a number of researches have documented an inverse relationship between property values and local crime rates. This eventually dictates people willingness to pay more in order to secure an accommodation that is free from crime areas. In one of the earliest studies as mentioned earlier, Thaler (1978) finds a negative relation between property crimes per capita and property values. His estimates imply that a one standard- deviation increase in the incidence of property crime reduces people's willingness and choice to buy house in crime prone areas by about three percent.

A more recent study by Gibbons (2003) as stated earlier, finds a decrease in people's willingness to purchase or rent residential accommodation by about 10 percent for a one-standard-deviation increase in property crime. These studies, however, face potential omitted variable problems in both the cross section and time series. In the cross section, crime rates are likely to co-vary with other geographic amenities for which researchers cannot adequately control. Over time, crime rates may change as the composition and characteristics of neighborhoods change. This is exactly what is happening in Jos where by violence, crisis, conflicts, upheavals, chaos, fracas guide people on where to reside or leave. Reductions in crime levels may correspond to other changes that increase the value of property located in a particular neighborhood.

2.3 Sex Offenders and Property Values of Nearby Neighbourhoods

In a research conducted by Linden and Rockoff (2008), they observed that living close to a sex offender (rape, sexual assault, and the likes) has a negative impact on property values; they discovered that prices of homes near the offender's location fall subsequent to the offender's arrival. Moreover, they concluded that a larger impact on homes closest to the offender would persist in the near future as indicated in figure 2.3 below. This research has not looked at other intangible factors of location which has great influence when ascribing value to a residential property in Jos metropolis.

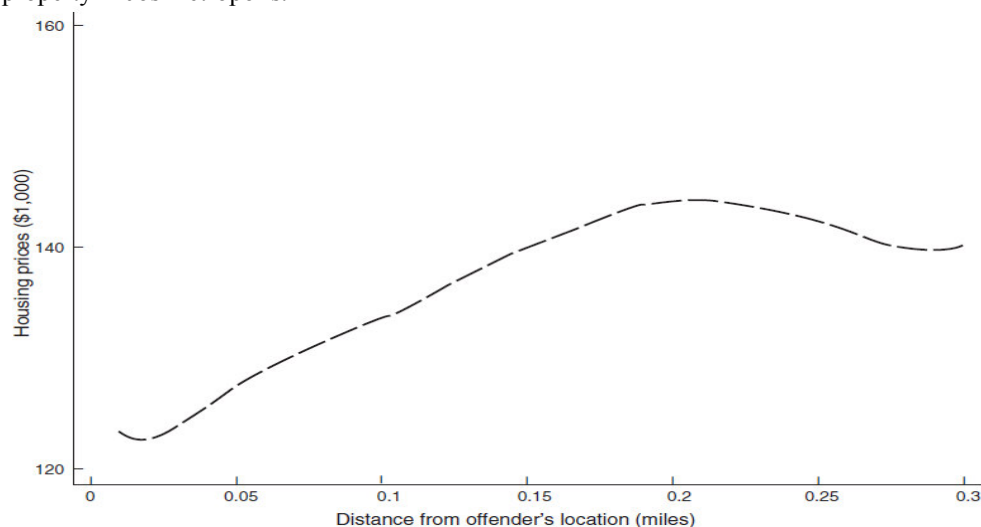


Figure 2.3: Price Gradient of Distance from Offender (Sales During Year after Arrival)

Source: Linden and Rockoff, 2008)

Figure 2.3 above shows the price gradient of distance to sex offenders' locations during the year after offenders' arrivals. Prices are lowest for homes closest to the offenders, rise with distance until reaching homes about 0.1 miles away, and then flatten out. However, Figure 2.4 illustrates price gradient of distance to sex offenders' locations during the year before and after offenders' arrivals.

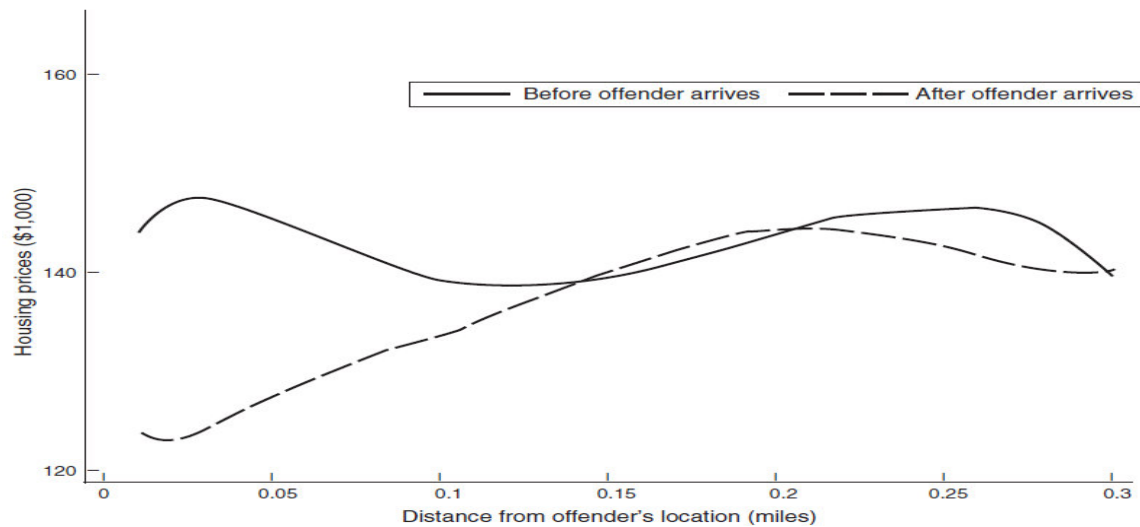


Figure 2.4: Price Gradient of Distance from Offender (Sales During Year before and after Arrival)
Source(Linden and Rockoff, 2008)

Figure 2.4 above adds the price gradient of distance to sex offenders' locations during the year before offenders' arrivals. The price gradients are quite similar between 0.1 and 0.3 miles from the offenders before and after arrivals. However, there is a clear decline with proximity to a sex offender for homes within 0.1 miles of the offender. Homes located 0.05 miles from the offender were sold for about \$145,000 on average before the offenders arrived, but sold for about \$125,000 afterward. The decline in sale price was greater for homes even closer to the offender as depicted in figure 2.4 above.

Figure 2.4, therefore, shows the price gradient of time with respect to sex offenders' arrivals. This gradient is measured separately for the two years before and after offenders' arrivals for homes sold within 0.10 miles of an offender's (future) location. Time is measured in days relative to the date sex offenders arrive. If the price declines as shown in figure 2.4, then it reflected a preexisting trend. It would be expected to see a gradual downward price movement over this time period. Instead, it has been realised that there is a fairly sharp decrease in prices coincident with offenders' arrivals.

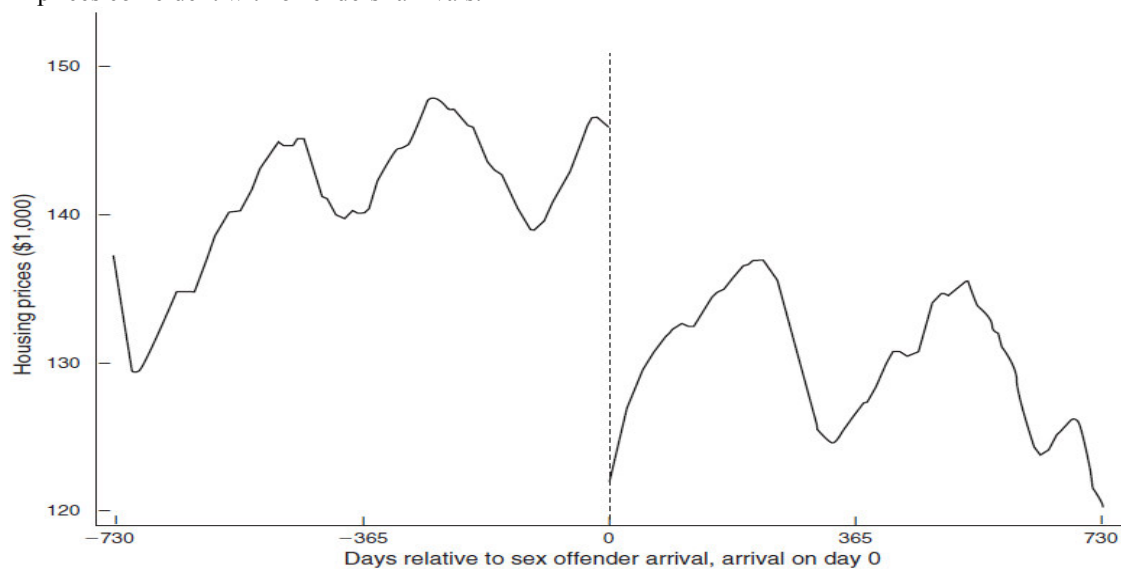


Figure 2.5: Price Trends before and after Offenders' Arrivals (Parcels within a Tenth of a Mile of Offender Location)
Source: Linden and Rockoff (2008)

Figure 2.5 above shows the price gradient with respect to offenders' arrivals for home prices within 0.1 miles and between 0.1 miles and 0.3 miles of the offender's locations. These latter homes are still quite close to the offenders' locations and (as it was seen in Figures 2.3 and 2.4) were selling at similar prices to the affected homes prior to the offenders' arrivals.

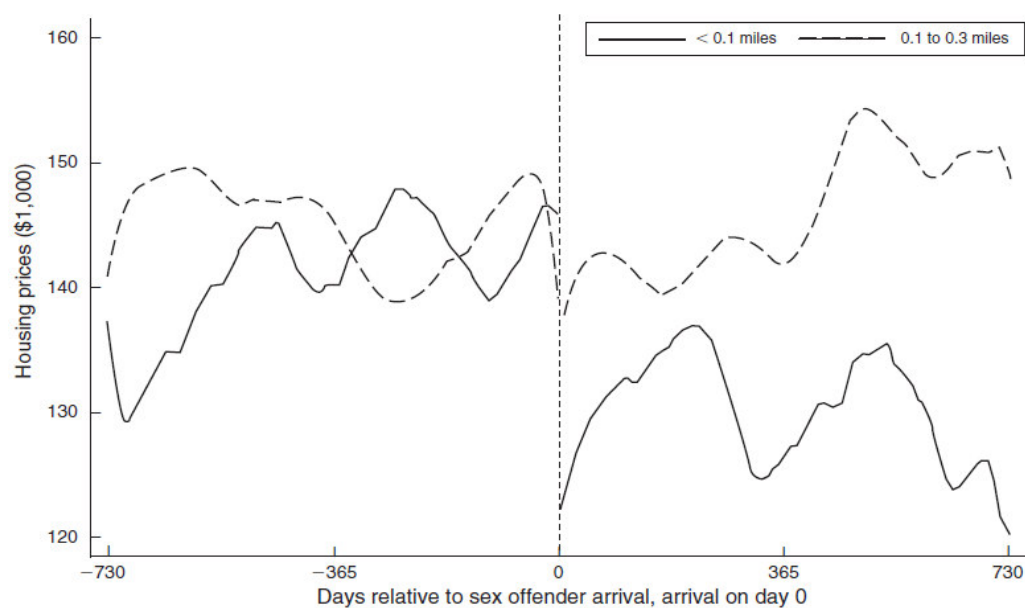


Figure 2.6: Price Trends before and after Offenders' Arrivals (Parcels within Three-tenths of a Mile of offender Location)

Source: Linden and Rockoff (2008)

In contrast to the homes closest to the offenders, prices in these proximate areas did not decline after the offenders' arrivals. It is plausible that the two groups of homes would have had the same trend in prices over time in absence of the offenders. This notion is supported by the fact that, prior to arrivals, the price of homes between 0.1 and 0.3 miles was similar to that of homes within 0.1 miles of the offenders' locations.

If so, then homes slightly farther away from offenders can be used as a control group for measuring the impact of offenders on property values. The findings of Linden and Rockoff (2008) gave an insight into the effect of other intangible attributes of location (conflicts, violence or chaos) on the values of residential properties in areas that are either prone or free from these phenomena in Jos metropolis.

2.4 The Dynamics of Residential Segregation, Relocation and Mobility

Economic inequality among neighbourhoods has grown and may be a source of widening inequality in other realms as well (Jargowsky 1996 and Robert and Elizabeth, 2003). Numerous studies have focused on the possible effects of residential neighbourhoods on a variety of social and economic outcomes (Flippen, 2001; South and Crowder, 1997 and 1998). Likewise, persistent residential segregation among racial and ethnic groups is implicated in enduring racial and ethnic inequality (Bruch, 2006; and South and Crowder, 1997). Yet scholars' understanding of the dynamics of how neighbourhoods are formed and how they change remains limited (Timberlake, 2002 and McMillen, 2006). A long tradition of research has documented trends in economic and racial segregation in American cities, relying on cross-section census data as a matter of fact (Kantrowitz, 1973; Taeuber and Taeuber, 1965).

While descriptively valuable, these studies have not revealed the causal mechanisms behind neighbourhood change. In as much as change occurs through residential and socio-economic mobility, a dynamic approach is required (Chahal, 2000; and Anas, 2006). More recently, others have examined survey data on residential preference in an effort to understand the attitudinal underpinnings of residential segregation (Taub, Garth and Jan, 1984; and White and Jennifer, 1999). The rationale for these studies is that segregation is, at root, the result of individual choices about where to live which are determined in part by individual's attitudes and preferences about the characteristics of neighbourhood (Vadali and Sohn, 2001 and Robinson 2006). Although, these studies are informative, lacking model of how individual attitudes lead to residential mobility and how mobility leads to neighbourhood change, they provide limited insight into how change occurs. As Telles (1992) observed, 24 years ago, the dynamic links between individual preference and residential segregation are by no means intuitive.

Another promising line of research has been to use panel survey data on geographic mobility to measure mobility among neighbourhoods of varying economic and racial composition (Sabatini, Caceres and Cerda, 2001). While providing valuable information on pattern of neighbourhood turnover, this work has not yet yielded plausible models of neighbourhood dynamics. Karl (2001) as well as White, Robert and Shilian (1994) revealed that the neighbourhood changes implied by the turnover rates estimated in many studies are unrealistic because they assume fixed mobility rates across neighbourhood types (Fong, 1996 and 2004 and Rosenbaum,

1996). This assumption is unsatisfactory because it ignores a crucial feature of residential mobility, namely that changes in the characteristics of neighbourhoods bring about changes in rates of movement in and out of these neighbourhoods (Van Ham and Clark, 2009). In sum, the study of residential segregation and inequality remains a lively area of research in which many of the core analytic issues are unresolved (Lopez, 1977; Van and Van, 1998).

Sampson, Raudenbush and Earls (1997) laid the conceptual groundwork for understanding the links between individual preferences and behavior on the one hand and the evolution of neighbourhoods on the others. Using rudimentary computational models applied to artificial agents, he showed how the preferences of autonomous individuals about where to live give rise to (often unanticipated) aggregate patterns of residential segregation (Rosenberg and Lake, 1976). These patterns, moreover, are often at variance with the preferences of the majority individuals. In Schelling's model, neighbourhoods change through the mobility of agents who are reacting to the composition of their own neighbourhood and of other potential neighbourhood destinations (Rouwendal and Meijer, 2001). As the agents move, they alter the neighbourhoods of other agents in the system, engendering further moves by individuals who are trying to satisfy their preferences (Fossett, 1996, 1999; and Burgess, Wilson and Lupton, 1962; and Rubinowitz and Rosenbaum, 2000).

Although Sampson, Raudenbush and Earls's ideas are well known to students of residential mobility and segregation (Clark 1986, 1991 and 1992; and Fearon, and David, 2000, 2003), they are seldom used to analyse neighbourhood change in real population. Instead, most of our understanding of changes in residential segregation derives from careful description of segregation in successive census cross section without adequate attention to the underlying behavioural dynamics (Van Ommeren, Rietveld and Nijkamp, 1999). Residential segregation has been the subject of extensive research in social sciences for many years. It is a multi-factorial phenomenon mainly determined by socio-economic factors like race and income distribution, as well as factors associated to the structure of the urban space (Charles, 2000, 2001, 2002, 2003; Bruch, and Mare, 2001, 2005).

2.5 The Triggers of Residential Segregation

Clark (1986) and Zubrinsky (2001) reiterated that residential segregation is a complex phenomenon with several dimensions of analysis, whose governing mechanisms are hard to identify. In a first approximation, it can however be assumed that the phenomenon is governed by a set of structural and behavioral rules which determine the possibility of one individual to get a particular kind of house in a specific location of the city (Rivkin, 1994; Fossett, 2002). Since those rules are not evident, simplifying hypotheses are required (Mare and Elizabeth, 2003; and Krivo and Peterson, 1996). One point of view based on human ecology, postulates that residential segregation occurs because individuals in a city are in mutual competition for the space and its resources (Bruch, 2006 and Apgar and Kain, 1972). According to this approach, competition is the main force driving the residential segregation (Mare, 2000; Bayer, Robert, Kim, 2001 and Zubrinsky, 2001). The outcome of this competition is determined by the ability of individuals to struggle for advantageous locations in the urban space, that is, their dominant capacity, which is constrained by socio-cultural and socioeconomic rules. (Clark, 1992; Grauwin, Goffette-Nagot and Jensen, 2009)

Farley (2010); Krysan and Farley (2002) noted that there are three main hypotheses about the socio-cultural rules governing the residential segregation. The first one concerns the class-selective emigration from poor regions. In a region where both poor and less poor people coexist, the latter tend to immigrate to a wealthier region (Mare and Elizabeth, 2003). This mechanism tends to isolate and concentrate poor people, increasing in this way the poverty rate of the region (Harris, 1999 2001; and Rosenbaum, 1996). The second hypothesis establishes that neighborhood concentration of poor people reflects the general poverty of the urban area. When the average shows a downward trend neighborhood poverty rates increase.

Finally, the third is related to the racial segregation experienced by poor people (Flippen, 2001). Racial bias causes racial segmentation of the urban housing markets, which concurs with high rates of poverty in specific ethnic groups to concentrate poverty geographically (Clark, 1991). These hypotheses are complementary, and were developed to explain segregation in North-American cities, where they have been tested (Fossett, 1996, 1999, 2002). Perhaps in the Latino-American case, racial and socio-cultural factors have a less relevant role, making it possible to build an explicative model over socio-economic considerations only (Bruch and Mare, 2005 and Farley, 2010).

Taking into account that markets are not mere meetings between producers and consumers, whose relations are ordered by the interpersonal laws of supply and demand, socio-economic rules as market mechanisms can be formulated (Harris, 2001; and South and Crowder, 1998). The housing market is formed by two kinds of agents: residents which are interested in the social and individual value or use of the land commodity, and the entrepreneurs which are interested in the exchange value of the land. There is a natural conflict between these two when it comes to valuations of land (Clark, 1991; Collins and Margo, 2003).

3. RESEARCH METHODOLOGY

3.1 Sampling Technique

In order to arrive at a reliable sample and data collection instrument, there is a need to investigate the purpose of undertaken a research (Creswell, 1994 and Crotty, 1998)). Stratified random sampling was employed in order to generate data from both Muslim's and Christian's residential neighbourhoods as it could be seen in table 3.1. In a broader perspective, data were collected through field survey, interviews, self-administered surveys by means of questionnaire and direct observation. Data on property value were obtained from consultancy firms because records of sales and rents transactions are kept in their archives.

3.2 Data Collection Instruments

A combination of both self-administered questionnaires and semi-structured interview were deemed most suitable as data collection tools for this research due to the advantages obtained from both approaches. The questionnaire make certain that all questions directed to the respondents are consistently phrased, therefore allowing objective judgement of outcome while interviews allow the respondents chance to convey views more lengthily than would be achievable with a closed-ended questionnaire. Furthermore, the interviews allowed elucidation of matters in the questionnaire by the investigator in areas where some respondents may not be totally conversant.

Two types of questionnaires (Questionnaires I and II) were administered. Questionnaire I was addressed to the respondents or occupiers of residential properties, while Questionnaire II was administered to consultancy firms. Out of the questionnaires administered to the respondents, 88% were retrieved back. On the part of the consultancy firms, 92% responses were gotten from the survey. Details could be found in table 3.1.

3.2.1 Questionnaire Administration

A total of 1000 questionnaires were administered to the respondents. Out of 1000 questionnaires administered to the respondents, 876 valid responses were used to analyse the information pertaining to the effect of intangible location attributes on residential property value in Jos city. Out of 30 firms in Jos, 10 were chosen and 120 questionnaires were administered to them, that is, 12 for each firm. However, out of 120 questionnaires administered to the professional firms, only 110 were retrieved back. This is necessary to achieve a reasonable spread in the location of interviews and questionnaires to be able to obtain a cross-section of data regarding the impact of intangible location attributes on residential property value in the study area. This is also imperative because of local variations in the metropolis.

Table 3.1: Questionnaires Administered to Respondents

S/N	Type	Respondents	Number of questionnaires administered	Number of questionnaires returned	Response rate (%)
1	Questionnaire I	Occupiers of residential properties	1000	876	88
2	Questionnaire II	Estate surveyors and valuers	120	110	92

Source: Field Survey (2011)

3.3 Method of Data Analysis

Data were analysed by means of Statistical Package for Social Sciences (SPSS). In fact, frequency tables were employed to present the findings of the research. In other words, descriptive statistic form the basis for analyzing the data obtained in the course of carrying out the research. In essence, most of the data presented using simple percentage distribution tables were also complimented by means of a complete theoretical analysis for some data that are not numerical in nature.

4. RESULTS AND DISCUSSION

4.1 Investigation before Purchasing or Renting Residential Accommodation

In a normal setting, an investor, developer or purchaser when developing or buying residential accommodation is only interested in knowing the location, accessibility, community facilities, utilities, and services, transportation and components or elements that form a building structure and the likes. He has nothing in mind apart from this attributes.

However, in the study area, the story is entirely different. Purchasers or developers have to carry out thorough investigation before buying or developing residential accommodation. This is to make sure that the area is not prone to crisis, violence or upheavals. Table 4.1 below highlights the respondents' view on whether they carry out investigation before buying or renting residential accommodation in the study area as presented in table 4.1 below.

Table 4.1: Investigation before Purchasing or Renting Residential Accommodation

Nature of Investigation	Number of Respondents	Percentage (%)
Thorough Investigation	492	56.2
Partial Investigation	269	30.7
No Investigation	76	8.7
Others (Specify)	39	4.4
Total	876	100

Source: Field Survey (2011)

Looking at table 4.1 above, it is convincing that in Jos today, people do not just take accommodation in any part of the town of their fancy. They have to do extensive research to find out whether the area is safe. For instance, majority of the respondents (about 57%) in the study area reveal that they conduct extensive investigation before purchasing or developing residential accommodation. Only about 31% of the respondents stated that they carry out partial investigation.

Other findings reveal that those respondents that conduct partial investigation are already aware that the area is safe for their habitation because their religion or native background prevails or because of their trust in that area. Only very few (that is, about 9%) of the respondents disclosed that they do not carry out investigation when buying or developing residential accommodation. It can, therefore, be concluded that no any person in his right senses in the study area could take residential accommodation of his choice until he thoroughly investigates the area in order to have assurance that his life and property are safe.

4.2 Reasons for not Starting Development or Completing Residential Accommodation

There are many reasons why a developer could not start erecting or completing a residential property. To some, lack of finance or fund, low level of income, insufficient loan, inflation, economic recession or poor saving are the main reasons why they could not start or complete their plots or uncompleted buildings respectively. However, in Jos metropolis, all these indicators are not taking into consideration. The main reasons given by the respondents for not starting or completing their houses are insecurity or fear of destroying or demolishing it again. Table 4.2 below presents the finding as follows:

Table 4.2: Reasons for not Starting Development or Completing Residential Accommodation

Reasons for not Developing or Completing the House	Number of Respondents	Percentage (%)
Lack of Support from the Government	21	2.3
Poor Saving	47	5.4
Insufficient Fund	12	1.4
Lack of Credit	31	3.5
Low level of Income	16	1.8
Fear of Destroying it Again	391	44.6
Intangible location attributes	327	37.3
Inflation	19	2.2
Economic Recession	11	1.4
Others (Specify)	1	0.1
Total	876	100

Source: Field Survey (2011)

The finding in table 4.2 above depicts that majority of the respondents in the study area could not start or complete their residential property development because of either fear of destroying it again or intangible location attributes. For instance, about 82% of the respondents claim that they could not continue with the construction or redevelopment of their houses because of lack of security and fear of destruction. These two reasons are almost the same. That is why in this write up they are regarded as almost similar.

It could also be seen that only few (about 18%) respondents administered with the questionnaire reveal that insecurity or fear of destroying it again are not the main reasons for their lack of completion. Based on the above finding, it can be concluded that unlike in other areas where lack of fund, poor savings, inflation, lack of credit, low level of income and the likes are the main obstacles for development, in the study area all these factors are not taken into consideration as equally confessed by the respondents interviewed.

People in the study area could not start or complete their development because of fear of demolition or destroying it again and because of insecurity. It has been documented through this research that most of the respondents have intention of developing their plots or dilapidated structures. However, based on the interview conducted with the respondents, it has been realised that most of them are planning to dispose their landed property so as to buy another one in safe zones. Some of them are waiting for the time when peace will reign in Jos before starting or completing their residential properties.

4.3 Whether Occupying or Renting after Completion of the Building Structure

Residential property developers have different opinion regarding their completed structures. Those that are investors are mostly constructing houses for profit. Thus, they either sale it or let it out depending upon the circumstances at the moment. However, others are owner occupiers. They are developing residential accommodations for the purpose of habitation. In the study area, all these categories of developers are found. Table 4.3 below highlights the respondents' view regarding occupying or renting after completion of their structures.

Table 4.3: Whether Occupying or Renting after Completion of the Building

Occupation or Renting	Number of Respondents	Percentage (%)
Occupying it your self	147	16.8
Occupying Part and Rent out Part	212	24.2
Renting out all of it	506	57.8
Others (Specify)	11	1.2
Total	876	100

Source: Field Survey (2011)

The result presented in table 4.3 above reveals that most of the respondents administered with the questionnaires state that they either want to occupy part and rent out part or rent out the whole building after completion. For instance, about 58% disclosed that they are not going to occupy the residential accommodation after completion. Other findings from the interview reveal that these respondents have no trust in that area. They will either sale or rent it out to the people of that area. Only few respondents (about 18%) stated that they will occupy all or give other reasons apart from the above. This is because of the level of trust these respondents have in that area.

4.4 The Main Factors that Brought About Residential Segregation in the Study Area

Residential segregation is the degree to which two or more groups live separately from one another, in different parts of the urban environment. The term segregation is an adjective describing the characteristics of a region. Segregation does not necessarily apply to individual neighbourhoods, but to larger region of neighbourhoods. The residential geographic patterns of households in Jos metropolis are similar to those typically found in Bauchi, Kaduna, Kano and the likes where the Hausa and Fulani Muslims are living in the core area of the central city, while more affluent, predominately Christians live in the suburbs.

The centralised geographic concentration of Hausa and Fulani Muslims and the Christians in and immediately around the city of Jos can be readily seen when census tract level data is mapped. Table 4.4 below highlights the main factors that brought about residential segregation in Jos metropolis. The factors range from frequent violent ethno-religious conflicts, educational background, difference in social class, indigene ship to economic condition as presented in table 4.4 below.

Table 4.4: Main Factors that brought about Residential Segregation, Mobility and Relocation in the Study Area

Factors	Number of Respondents	Percentage (%)
Intangible Location Attributes	579	66.1
Educational Background	81	9.2
Difference in Social Class	167	19.1
Indigene ship	31	3.5
Economic Condition	18	2.1
Total	876	100

Source: Field Survey (2011)

It could be seen from table 4.4 above that residential segregation in Jos was mainly brought about by incessant fracas that devastated the metropolis. People feel at ease whenever they are living in the midst of those that share the same religion, culture, ethnic background and native inclination. For example out of the total respondents administered with the questionnaires, about 66% disclosed that violence is the only indicator that usher them to relocate from their former place of abode and it led to a great demarcation between the different faiths in the metropolis as it could be seen from the above table.

Only about 32% of the respondents disclosed that other reasons beside the above were the main triggers of residential demarcation in the study area. Other findings from field survey and interview held with the respondents show that the respondents that said that violence is not the main factor that brought about residential segregation in Jos were living in violent free area, such as the G.R.As. Based on the above findings, it is sufficed to conclude that the main factors that led to residential segregation in Jos are intangible location attributes.

The racial and ethnic composition of a neighbourhood may change over time. The same ethnic ghetto might be occupied by a succession of different groups over several generations. Alternatively, a neighbourhood

may experience more rapid transition from predominantly Muslims to predominantly Christians (a process sometimes colloquially called ‘Religion Flight’ or the reverse (as in the *gentrification* of urban neighbourhoods).

Ethnic residential segregation in cities has attracted much attention from geographers and sociologists. Researchers have explored, mapped, described and analysed the degree to which various ethnic-racial groups are spatially separated in their residential milieu both from each other and from the dominant group within their society. Only recently, however, has this body of literature become more rigorously analytical, through attempts to explain why patterns vary, not only within individual countries but also internationally.

4.5 Frequency of Occurrence of Sectarian Violence and Civil Unrest in the Study Area

Ethno-religious fracas takes different dimension and scope in the study area. Some areas that are prone to violence experience frequent crises. On the other hand, other neighbourhoods in Jos are not witnessing religious riots due to their unique nature. It could be because the areas are designated as Government Reserve Areas (G.R.A) or because the people in that area share many features in common. Table 4.5 below shades more light on how frequent the crisis takes place in the study area.

4.5: Frequency of Occurrence of Sectarian Violence and Civil Unrest in the Study Area

Number of Times	Number of Respondents	Percentage (%)
Monthly	51	5.8
Every Quarter of the Year	73	8.3
Twice in a Year	261	29.8
Yearly	491	56.1
Total	876	100

Source: Field Survey (2011)

Looking at table 4.5 above, it can be clearly understood that violence mainly takes place yearly. For example, majority of the respondents (that is, about 57%) stated that the crisis usually takes place every year. This is followed by those respondents who claim that the violence normally erupts twice in a year (about 30%). Only very few respondents representing about 14% confess that the conflicts occur either monthly or every quarter of the year.

It can be deduced through the findings of this research that, in the study area, there is high level of intolerance among the respondents as crisis erupts either annually or after every six months. Another thing worthy of mentioning here is that, based on the findings above, it is certain that people will continue opting to stay where they are sure that their lives and properties would be safe because the crisis is becoming severe and tense. It can also be perceived that the government both at the state and federal level are not doing positive move to ensure that the crises are being stopped.

4.6 Most Occurring Type of Sectarian Violence in the Study Area

Violence is of different types and nature. In other words, there are many types of conflicts and it could be political, social, economical, institutional, religious, ethnic, tribal or cultural. As it could be seen from table 4.6 below, Jos is bedeviled with ethno-religious conflicts and the study area has eventually transformed into a war and dead zone where wanton destruction of lives and properties had been witnessed. The most occurring type of violence in Jos metropolis has, therefore, been presented in table 4.6 below.

Table 4.6: Most Occurring type of Violence in the Study Area

Commonest Nature of Conflicts	Number of Respondents	Percentage (%)
Religious and cultural	463	52.9
Ethnic and native	307	35.0
Political	69	7.9
Others (Specify)	37	4.2
Total	876	100

Source: Field Survey (2011)

Table 4.6 above revealed that the conflict in the study area is purely ethno-religious in nature as about 88% of the respondents in the study area pointed out that the conflict in Jos metropolis is ethnic and religious based. Only about 12% of the respondents disclosed that the genesis of the conflict is political, social, economic, institutional or legal in nature.

Based on the above analysis, it is essential to assert that in Jos metropolis all the crises that have been taken place are ethno-religious in nature. This finding of this research will enable one to quickly conclude that people feel relax when they are living in the midst of their tribe or religious members.

4.7 Duration of Time before Purchasing or Renting Residential Accommodation

In a free market situation, the forces of demand and supply determine the price of a commodity if all things

being equal. However, this is not applicable to the study area as people rate intangible location attributes (safety, religious inclination, security, socio-economic background, native inclination, ethnic background, cultural identity and indigeneity) as the main indicators that determine the price of land and landed property.

People undermine the exorbitance of price of a parcel of land and landed property as their main concern is security of life and property. People may wait for many years as indicated by the respondents just to buy or rent house in safe zones. Table 4.7 below demonstrates clearly the time taken by the respondents to purchase or rent residential accommodation in the study area.

Table 4.7: Duration of Time before Buying or Renting Residential Accommodation

Duration of Time	Number of Respondents	Percentage (%)
Between One to Three Months	52	5.9
Between Four to Six Months	103	11.8
Between Seven to One Year	228	26.0
After One Year	493	56.3
Total	876	100

Source: Field Survey (2011)

Looking at table 4.7 above, it could be established that the duration of time taken for the respondents to buy or rent a house is mostly between seven months and one year and above. For example, about 82% of the respondents disclosed that it takes them about seven months to one year and above before they could purchase or rent residential accommodation. Only about 17% of the total respondents administered with the questionnaires revealed that the duration of time taken before they purchase or rent residential properties falls within one to six months.

It can be deduced, therefore, that due to the incessant conflict that is persisting in the study area, purchasing or renting residential accommodation become cumbersome and difficult. People take their time searching for a house in an area that is not prone to violence no matter how long it will take them before they could finally get.

From the findings above, it is evident that in the study area, the respondents could not finally document their housing acquisition formalities until after about one year (37%). This period is indeed frustrating to so many people wishing to acquire land for residential purposes. The duration that is considered by many respondents as reasonable is the period between one and three months. However, as it can be seen from the table, this is represented by a small percentage (14%). Greater portion of the respondents in the study area were not able to register their land between three and six months and between six months and one year of application. Other findings revealed that those plot owners that were able to register their titles between 1-3 months had either used the influence of their position or wealth.

Observations have shown that because of the individual interest, sentiments and values attached to land and landed property in the study area, acquisition for public and private purposes has always been difficult, protracted and frustrating affair which is worth mentioning here. It is because of this, in addition to other reasons that land and landed property transaction in the study area become problematic and cumbersome. Furthermore it is because of these reasons that land and landed property transaction has to vary considerably from place to place. The attractive quality of a place where plot is situated could also influence the speed of registering such titles.

4.8 Assessment of the Procedure for Purchasing or Renting Residential Accommodation

Though there is no official guidelines as regard how long purchasing or renting residential property should take; it is expected that a minimum delay is associated with the transaction, especially for a person that is capable of buying or renting. This is because acquisition of a house is the basis upon which all other needs rest. Table 4.8 below highlights the duration experienced by respondents before they could purchase or rent accommodation in the study area.

Table 4.8: Assessment of the Procedure for Purchasing or Renting Residential Accommodation

Assessment of the Procedure	Number of Respondents	Number of Respondents
Fast and Cheap	69	7.9
Slow and Costly	397	45.3
Fast but not Cheap	185	21.1
Costly but not Slow	225	25.7
Total	876	100

Source: Field Survey (2011)

Looking at table 4.8 above, it could be seen that majority of the respondents (about 46%) described the procedure for purchasing or renting of residential property as being slow and costly. This is followed by those respondents that see the procedure as costly but not slow (about 26%). According to some respondents (about 22%), the procedure for purchasing or renting a house in the study area is fast but not cheap. Only very few

among the respondents (about 8%) revealed that the procedure is fast and cheap.

Other findings from the interview held with the respondents showed that those respondents that opted for “fast but not cheap” are residing in violent free areas and therefore could not witness the difficulty encountered during purchasing or renting residential accommodation. Hence, they only revealed what they experienced in their neighbourhoods. Those respondents that described the procedure as being costly but not slow are mostly rich who are ready to spend any huge amount of money just to secure a house of their taste.

4.9 Nature of the Procedure for Purchasing or Renting Residential Accommodation

To assess a phenomenon of this kind, there is bound to be varying opinion since it is not possible to have the same acquisition experience. Parameters of simple, very simple, fair, difficult and very difficult is therefore adopted for easy reference point of assessment. Table 4.9 below shades more light on the nature of the procedure for purchasing or renting residential accommodation in the study area.

Table 4.9: Nature of the Procedure for Purchasing or Renting of Residential Accommodation

Nature of the Procedure	Number of Respondents	Percentage (%)
Very Simple	39	4.5
Simple	96	10.9
Difficult	294	33.6
Very Difficult	447	51.0
Total	876	100

Source: Field Survey (2011)

From the above findings, almost half of the respondents in the study area assessed the general process to be very difficult (about 52%). This is followed by those respondents who assessed the process as difficult (about 34%). Putting these together, there are many respondents in the study area whose experience in purchasing or renting a house is unfavourable. On the whole, therefore, majority of the respondents in the study area had assessed the procedure for purchasing or renting residential accommodation to be either difficult or very difficult. This is a great obstacle to residential property development in the study area.

Due to urbanisation, many people are moving from the rural to the urban areas where modern facilities are available; population pressure in cities and towns had made residential accommodation in particular a problem. Furthermore, the congested urban places are in need of expansion, but land where this expansion is to be made is scarce. Land has become of great marketable value and no longer the ordinary land known to African tradition as a gift of nature to mankind. This observation has probably acted as a catalyst to the promulgation of the 1978 Land Use Decree to have a unified system of land acquisition and most importantly to reduce the activities of land speculators. This, from policy view, should have taken care of all or at least some of the irregularities in urban land acquisition.

4.10 Ways of Resolving Conflict in the Study Area

Conflict or violence is something unavoidable. It happens in every community, society, neighbourhood and in any human settlement. Conflicts can be settled by various bodies within a community. However, the fracas that has been taken place in Jos metropolis has different connotation and dimension. The court is the supreme authority that intervenes and settles dispute in the study area.

But at the end of the day, the court could not give a final verdict regarding who is innocent and who is guilty. This eventually increases the conflict that has been witnessing in the study area. As it can be seen from Table 4.10 below, the court is the main authority that settles disputes in the study area. The question is how effective and reliable the court is in settling disputes in the study area?

Table 4.10: Ways of Resolving Conflicts in the Study Area

Ways of Resolving Conflicts	Number of Respondents	Percentage (%)
By Court	471	53.8
By Ward Heads	99	11.3
By Land Officers	281	32.1
Others (Specify)	25	2.8
Total	876	100

Source: Field Survey (2011)

From the above findings, it becomes obvious that court is the last resort for conflict resolution in the study area. For example, about 54% of the respondents administered with the questionnaires revealed that the court resolves most of the ethno-religious fracas. Other respondents (about 32%) disclosed that land officers settle most of the disputes by looking at each individual’s land and landed property transaction. It is therefore, established through the findings of this study that the government play a vital role in triggering the conflicts in the study area.

It was also discovered from the interview held with many respondents that the government is so biased and one sided to an extent that the Hausa and Fulani Muslims were excluded from participating or holding any position in the state. Whenever there is a conflict, the government sends security personnel to protect the Christians and attack the Muslims. Table 4.10 presents the estimated rental values of residential properties in the study area.

4.11 Estimated Rental Values of Residential Properties in the Study Area

A critical look at the estimated rental values of residential properties as presented in table 4.11 below necessitates mix feelings. The current and estimated rental values were presented per square metre. The variation and percentage variation were also highlighted.

Table 4.11: Estimated Rental Values of Residential Properties in the Study Area

Buildings	Current Rent Per Square Metre (₦)	Estimated Rental Values Per Square Metre (₦)	Variations (₦)	Percentages Variation (₦)
1	CR	CR1	CR1-CR	PV
1	3,000.00	4,106.50	1,106.50	36.88333
2	4,000.00	7,168.49	3,168.49	79.21225
3	3,500.00	(641.13)	(4,141.13)	-118.31800
4	1,000.00	295.00	195.00	19.50000
5	3,000.00	4,806.49	1,806.49	60.21633
6	5,000.00	6,894.18	1,894.18	37.88360
7	4,500.00	6,632.94	2,132.94	47.39867
8	1,000.00	1,701.18	701.18	70.11800
9	3,000.00	4,521.99	1,521.99	50.73300
10	1,000.00	2,563.77	1,563.77	156.37700
11	6,000.00	6,455.97	455.97	7.59950
12	7,000.00	8,256.04	1,256.04	17.94343
13	8,000.00	9,761.84	1,761.84	22.02300
14	6,500.00	7,479.69	979.69	15.07215
15	1,500.00	2,887.05	1,387.05	92.47000
16	6,000.00	6,717.10	717.10	11.95167
17	6,000.00	7,874.12	1,874.12	31.23533
18	6,500.00	7,817.44	1,317.44	20.26831
19	2,000.00	4,608.95	2,608.95	130.44750
20	6,000.00	4,693.30	(1,306.57)	-21.77617
21	4,000.00	4,258.48	258.48	6.46200
22	3,000.00	7,027.37	4,027.37	134.24567
23	1,000.00	3,079.12	2,079.12	207.91200
24	4,000.00	6,894.81	2,894.81	72.37025
25	3,500.00	6,390.31	2,890.31	82.58029

Source: Field Survey (2011)

As it could be seen in the above findings, the rental values of residential properties have increased tremendously due to the influence of intangible location attributes on the values of residential properties in the study area. This is a clear indication that intangible location attributes in the study area determine the rental value of residential properties in areas that are prone to violence as well as those areas that are classified as violent free neighbourhoods. This incessant increase is as a result of high demand which people express in searching for accommodation that are located in violent free areas.

4.12 Residential Accommodation Preference in Jos

Findings from interview with the respondents revealed that intangible location attributes play a major role in determining the value of residential accommodations in the study area. Land and landed property value could be ascertained through many indicators as revealed by the existing literatures. However, these indicators could be either tangible or intangible in nature. Tangible or visible indicators of land and real estate values include: accessibility, transportation, household preference, and closeness to central business district, nearness to community facilities, utilities and services, closeness to central business district, demand and supply.

Others are closeness to waste dump sites, elements or components that form part of a building structure, population of a given area, subdivision regulation, building codes, planning restrictions, zoning regulations and

the likes. On the other hand, the value of land and landed property could also be arrived at by taken into consideration the intangible or invisible location attributes. These intangible location attributes include: ethnic background, safety, religious inclination, security of life and property, native inclination, cultural identity, violent free areas, violent prone areas, race, skin colour, socio-economic background and others not mentioned in this regard. It has been established through the findings of this research that; intangible location factors are the main indicator of land and landed property value in the study area.

Relating this to rental values of residential properties, it was found that the rental values of such properties maintains a steady upward increase since when this conflicts started in the study area. Same goes to sales value of the residential properties which also increase persistently in the areas that are not prone to violence (Dung-Gwom and Rikko, 2009). The implication is that the intangible location attributes have direct influence on rent passing and sales value on residential properties in the study area. The analysis showed that all the residential properties in the study area have rental increased.

In other words, the rental and sales value are always increasing in areas that enjoy relative peace and security. This is the commonest in the study area with indication that high price and rental values are associated with how secured the area is in terms of safety or security of life and properties. This incidence is corroborated by concentration of large number of people that have been competing for space within the highly secured and peace living neighbourhoods. This has partly accounted for high price and rental incomes in such locations (Dung-Gwom and Rikko, 2009).

Based on the findings, it sufficed to conclude that sectarian violence and civil unrest in the study area leads to the destruction, demolition and degeneration of the neighbourhood facilities. It can also be deduced that lack of provision and maintenance of these facilities was as a result of this frequent violence that devastate the city of Jos. Fear of destroying residential properties and neighbourhood facilities again makes the government to abandon many of these neighbourhood facilities. It can be deduced from the findings that neighbourhood facilities, utilities and services in the areas that enjoy relative security are still in their good condition. It can also be concluded that, incessant sectarian violence and civil unrest affect the provision, availability and maintenance of the existing neighbourhood facilities, utilities and services in the study area as disclosed by many respondents interviewed.

It has equally been established through the findings of this research that majority of the respondents interviewed could not easily purchased residential accommodation in the areas that are safe. This is because of the high price charged by the owners. Apart from this, other problems encountered by the respondents when buying residential accommodation include the activities of middle men (estate agents), ward head, fraud people and the likes. According to one estate surveyor and valuer interviewed, all these problems were as a result of increase in residential property value in safe zones to the detriment of the violent prone areas.

Price of residential accommodation in Jos metropolis maintains a steady and an upward increase since 2001. This is as a result of incessant violence, crises and conflicts that are taking place in the study area. Prior to the sectarian violence and civil unrest, residential accommodations were being sold at a reasonable amount. However, all of a sudden, the price inflated to a stage that is beyond imagination. This finding is also compatible with the findings of Dung-Gwom and Rikko (2009) in which they discovered that price of residential property increases from 2001 to 2009 and to an alarming rate.

This allows the research to conclude that alongside other factors that are responsible for establishing property prices, there has been a continuous increase in demand for tenement, flat, duplex, semi-detached house and four bedroom bungalow from 2001 through 2011 by people displaced from the inner city areas after 2001 and 2008 sectarian violence and civil unrest (Dung-Gwom and Rikko, 2009). Other findings from field survey and personal interview with professionals and respondents in the study area revealed that in the medium density areas, there has been a gradual appreciation in the sales value of flats, tenement houses, duplex, four bedroom bungalow and semi-detached houses as also confirmed by the work of Dung-Gwom and Rikko.

The high density areas have witnessed a very slower appreciation in the sales values of such class of properties. Most of the crises that ethno-religious violence have occurred in Jos over time often start from the high density areas which are mostly in the inner city of Jos. People have been compelled to sale their houses in order to relocate to peri-urban areas that are considered more safe by them. Sale values of property in areas affected by crises are not often established through arms length transactions as indicated in the work of Dung-Gwom and Rikko (2009). As such, values arrived at are usually forced sale values and not open market values (Dung-Gwom and Rikko, 2009). Many of the respondents disclosed that, this explains why the sales of tenement house, flats, duplex, semi-detached house and four bedroom bungalow have not reasonably appreciated in high and medium density areas in Jos as buttressed by Dung-Gwom and Rikko (2009).

However, this is a huge amount compare to what is being witnessed in violent free areas in the metropolis. As disclosed by professional estate surveyors and valuers, the cost of land is higher in the low density peri-urban areas compared to medium and high density areas. While the low and medium density peri-urban areas have maintained a steady rise in the cost of land, the cost of land in the high density peri-urban areas

has continually fluctuated (Dung-Gwom and Rikko (2009). As a matter of fact, the demand for land in Jos has been sustained across all locations despite the reoccurrence of urban violence. While the practice of transacting fragmented plots of land is gaining currency in the inner city areas, the cost of land has continually appreciated across the peri-urban areas as documented by Dung-Gwom and Rikko (2009)

5. CONCLUSION AND RECOMMENDATIONS

This research is absolutely a pioneering research into the effect of intangible location attributes on the values of residential properties in Jos metropolis, Nigeria. Further research efforts need to be carried out in other cities of Nigeria, to ascertain the general application of present findings. In addition, there are other modes of violent conflicts, which definitely would have various impacts on commercial property values, industrial property value, and agricultural property value and the likes. It is therefore important to further ascertain the influences of the phenomena (intangible location attributes) on other categories of property values in Nigerian cities. Similar research exercise may be carried out on the impact of intangible location attributes on commercial and industrial development to ensure a robust professional advice on property values in all part of the city and the country in general.

From this research, opportunity for further research also exists in using other techniques to analyse the extent and impact of intangible attributes of location on property values jointly with professionals in the fields of real estate management. This will reduce the laborious steps involved in graph theoretic analysis and simplify the technique for determining residential and other property value indices for the use of estate surveyors and valuers and development appraisers in Nigeria (Oni, 2009). This will become handy in feasibility and viability appraisal and site selection process for development projects in areas that are not vulnerable to violence.

REFERENCES

- Aliyu, A. A. (2012). Impact of Intangible Location Attributes on Residential Property Value in Nigeria, Unpublished PhD Dissertation, Department of Real Estate, University Tun Hussein Onn Malaysia.
- Allen, L. & David, R. (2001). Measuring the Impact of Crime on House Prices, *Applied Economics*, 33(9), pp 1981-1989.
- Anas, A. (2006). A Model of Residential Change and Neighbourhood Tipping. *Journal of Urban Economics*, 7(5), pp. 358-370.
- Apgar, Jr. W. C. & Kain, J. F. (1972). Neighborhood Attributes and the Residential Price: Geography of Urban Areas. *Proceedings of the Winter Meetings of the Econometric Society, Toronto, Ontario, Canada: Ontario Printing Press.* pp. 28-30.
- Bayer, P., Robert, M., & Kim, R. (2001). *Household Sorting and Residential Segregation: Evidence from the San Francisco Bay Area*. Mimeo: Yale University.
- Bottoms, A. E. & Wiles, P. (1997). Environmental Criminology. In Maguire, M., Morgan, R. & Reiner, R. (eds.). *The Oxford Handbook of Criminology*. Oxford: Oxford University Press.
- Bruch, E. E. (2006). Residential Mobility, Income Inequality, and Race/Ethnic Segregation in Los Angeles, *Population Association of America (PAA) 2006 Annual Meeting Program*, Los Angeles, CA, Available at <http://paa2006.princeton.edu/download.aspx?submissionId=60143>.
- Bruch, E. E. & Mare, R. D. (2001). *Understanding the Relationships Among Preferences, Population, and Residential Segregation: A Computational Approach*. Presented to Population Association of America, Washington, D.C.
- Bruch, E. E. & Mare, R. D. (2005). *Neighbourhood Choice and Neighbourhood Change*, Los Angeles, CA. California Centre for Population Research University of California.
- Buck, A. J., Deutsch, J., Hakim, J., Spiegel, U. & Weinblatt, J. (1991). A Von Thunen Model of Crime, Casinos and Property Values in New Jersey, *Urban Studies*, 28(5), pp. 673-86.
- Buck, A. J., Hakim, S. & Spiegel, U. (1993). Endogenous Crime Victimization, Taxes and Property Values. *Socila Science Quaeterly*, 74(2), pp. 334-348.
- Burgess, S., Wilson, D., & Lupton., R. (1962). *Parallel Lives? Ethnic Segregation in schools and Neighbourhoods*, Centre for Analysis of Social Exclusion, London School of Economics.
- Burnell, J. M. (1988) Crime and Racial Composition in Contiguous Communities as Negative Externalities: Prejudiced Household Evaluation of Crime Rate and Segregation Nearby Reduces Housing Values and Tax Revenues. *American Journal of Economics and Sociology*, 47(2), pp. 177-193.
- Chahal, K. (2000). *Ethnic Diversity, Neighbourhoods and Housing*, London: JRF Foundation.
- Charles, C. Z. (2000). Neighbourhood Racial Composition Preferences: Evidence from a Multiethnic Metropolis. *Soc. Probl.* 47(3), pp. 379-407.
- Charles, C. Z. (2001). Processes of Racial Residential Segregation. In *Urban Inequality: Evidence from Four Cities*, edited by O'Connor, A., Tilly, C. & Bobo, L. D., pp. 217-271. New York: Russell Sage Foundation.

- Charles, C. Z. (2002). *Comfort Zones: Immigration, Assimilation, and the Neighborhood Racial-composition Preferences of Latinos and Asians*. Paper presented at Annu. Meet. Amer. Soc. Assoc., Chicago.
- Charles, C. Z. (2003). The Dynamics of Racial Residential Segregation. *Annu. Rev. Sociol.* 29(4), pp. 167–207. Doi: 10.1146/Annurev.Soc.29.010202.100002
- Clark, W. A. V. (1986). Residential Segregation in American Cities: A Review and Interpretation. *Population Research and Policy Review*, 5(1), pp. 95-127.
- Clark, W.A.V. (1991). Residential Preferences and Neighbourhood Racial Segregation: A Test of the Schelling Segregation Model. *Demography*, 28(1), pp. 1-19.
- Clark, W. A.V. (1992). Residential Preferences and Residential Choices in a Multi-Ethnic Context. *Demography*, 29(3), pp. 451-66.
- Collins, W. J. & Margo, R. A. (2003). Race and the Value of Owner-Occupied Housing, 1940-1990. *Regional Science and Urban Economics*, 33(1), pp. 255-286.
- Creswell, J. W. (1994). *Research Design: Qualitative and Quantitative Approaches*, Thousand Oaks, CA: Sage.
- Crotty, M. (1998). *The Foundations of Social Research: Meaning and Perspective in the Research Process*. London: SAGE Publications Ltd.
- Du B.(1903). *The Souls of Black Folk: Essays and Sketches*. New York: Vintage Books.
- Dung-Gwom, J. Y. & Rikko, L. S. (2009). *Urban Violence and Emerging Land and Housing Markets in Jos, Nigeria*. Paper Presented for the ISA Housing Conference, Glasgow, 1-4 September 2009, .pp. 291-311.
- Farley, K. L. (2010). Patterns and Trends in Ethnic Residential Segregation in England, 1991-2001: A Quantitative and Qualitative Investigation. Durham University, Unpublished PhD Thesis, Available at Durham E-Theses Online: <http://etheses.dur.ac.uk/493/>
- Fearon, J. D. & David, L. (2000). Violence and the Social Construction of Ethnic Identity, *International Organization*, 54(4), pp. 845-877.
- Fearon, J. D. & David, L. (2003). Ethnicity, Insurgency, and Civil War. *American Political Science Review*, 97(1), pp. 75-90.
- Flippen, C. A. (2001). Residential Segregation and Minority Home Ownership. *Social Science Research*, 30(1), pp. 337-362.
- Fong, E. (1996). A Comparative Perspective on Racial Residential Segregation: American and Canadian Experiences. *The Sociological Quarterly*, 37(6), pp. 199-226.
- Fong, E. (2004). Racial and Ethnic Residential Patterns in Canada. *Sociological Forum*, 18(1), pp. 577-602.
- Fossett, M. (1996). Racial Preferences and Racial Residential Segregation. Paper presented at the *Annual Meetings of the Population Association of America in New Orleans, Louisiana*. pp. 17-27.
- Fossett, M. (1999). Ethnic Preferences, Social Distance Dynamics, and Residential Segregation: Evidence from Simulation Analysis. Paper presented at the *Annual Meetings of the American Sociological Association*, Chicago: Chicago University Press. pp. 1-13.
- Fossett, M. (2002). Weak Preferences and Residential Segregation: What Goes Up Does Not Necessarily Come Down; At Least Not Rapidly. Paper Presented at the *Annual Meetings of the American Sociological Association in Anaheim, California*. pp. 18-29.
- Gibbons, S. (2003). *The Costs of Urban Property Crime*. London: Centre for Economic Performance.
- Goncalves, J. P. (2009). The Effect of Crime Rates on Home Prices: A Hedonic Study. *Bryant Economic Research Paper 2(4)*, pp. 125-145.
- Grauwin, S., Goffette-Nagot, F., & Jensen, P. (2009). *Dynamic Models of Residential Segregation: Brief Review, Analytical Resolution and Study of the Introduction of Coordination*. GATE Working Paper, 0914. (available at <ftp://ftp.gate.cnrs.fr/RePEc/2009/0914.pdf>).
- Gray, C. M., & Joelson, M. (1979). Neighbourhood Crime and the Demand for Central City Housing. In Gray, C. M. (ed). *The Costs of Crime*, Beverly Hills: CA: Sage.
- Harris, D. R. (1999). Property Values Drop When Blacks Move in, Because . . . : Racial and Socioeconomic Determinants of Neighbourhood Desirability. *American Sociological Review* 64(1), pp. 461–79.
- Harris, D. R. (2001). Why are Whites and Blacks Averse to Black Neighbours? *Social Science. Research*, 30(1), pp. 100–116.
- Hellman, D. A. & Naroff, J. L. (1979). The Impact of Crime on Urban Residential Property Values. *Urban Studies*, 16(1), pp. 105-112.
- Jargowsky, P. A. (1996). *Poverty and Place: Ghettos, Barrios, and the American City*. New York: Russell Sage.
- Joel, N. & Daryl, H. (1979). The Impact of Crime on Urban Residential Property Values. *Urban Studies*, 16(1), pp. 105-112.
- Kantrowitz, N. (1973). *Ethnic and Racial Segregation in the New York Metropolis: Residential Patterns among White Ethnic Groups, Blacks and Puerto Ricans*. New York: Praeger Publishers.
- Karl, T. (2001). The Effect of Income Redistribution on Racial Residential Segregation. *Journal of Urban*

- Affairs Quarterly*, 4(6), pp. 148-162.
- Krivo, L. J. & Peterson, R. D. (1996). Extremely Disadvantaged Neighbourhoods and Urban Crime. *Social Forces*, 75(1), pp. 619-648.
- Krysan, M. & Farley, R. (2002). The Residential Preferences of Blacks: Do they Explain Persistent Segregation? *Social Forces*, 80(1), pp. 937-980.
- Linden, L. & Rockoff, J. E. (2008). Estimates of the Impact of Crime Risk on Property Values from Megan's Laws. *American Economic Review*, 98:3, 1103-1127.
<http://www.aeaweb.org/articles.php?doi=10.1257/aer.98.3.1103>
- Lopez, M. (1977). *Patterns of Residential Segregation: The Mexican American Population in the Urban Southwest, 1970*. Michigan State University, Department of Sociology. Unpublished Ph.D. Dissertation.
- Lynch, A. K. & Rasmussen, D. W. (2001). Measuring the Impact of Crime on House Prices. *Applied Economics*, 33(1), pp. 1981-1989.
- Mare, R. D. (2000). *Residential and Social Mobility and Neighbourhood Change*. Unpublished Grant Proposal.
- Mare, R. & Elizabeth, B. (2003). *Spatial Inequality, Neighbourhood Mobility, and Residential Segregation*. California Center for Population Research Working Paper no. 003-03. University of California, Los Angeles.
- Massey, D. S. & Denton, N. A. (1993). *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard Univ. Press.
- McMillen, D. P. (2006). One Hundred and Fifty Years of Land Values in Chicago: A Non-Parametric Approach. *Journal of Urban Economics*, 40(1), pp. 100-124.
- Morrison, P. S. & McMurray, S. (1999). The Inner-city Apartments versus the Suburb: Housing Sub-Markets in a New Zealand City. *Urban Studies*, 36(7), pp. 377-397.
- Myrdal G. (1972). *An American Dilemma: The Negro Problem and Modern Democracy*. New York: Random House.
- Naroff, J. L., Hellman, D. & Skinner, D. (1980). Estimates of the Impact of Crime on Property Value Values: The Boston Experience. *Growth and Change*, 22(1), pp. 24-30.
- Rivkin, S. (1994). Residential Segregation and School Integration. *Sociology of Education*, 67(3), pp. 279- 92.
- Rizzo, M. J. (1979). The Effect of Crime on Residential Rents and Property Values. *American Economist*, 23(1), pp. 16-21.
- Robert, D. M. & Elizabeth, E. B. (2003). *Spatial Inequality, Neighborhood Mobility, and Residential Segregation*. Los Angeles: University of California.
- Robinson, D. (2006). *Living Parallel Lives? Housing, Residential Segregation and Community Cohesion in England*. London: Neighbourhood Renewal and Housing Markets Press.
- Rosenbaum, E. (1996). The Influence of Race on Hispanic Housing Choices. *Urban Affairs Review*, 32(3), pp. 217-244.
- Rosenberg, T. J. & Lake, R.W. (1976). Toward a Revised Model of Residential Segregation and Succession: Puerto Ricans in New York, 1960-1970. *American Journal of Sociology*, 81(3), pp. 1142-1150.
- Rouwendal, J. & Meijer, E. (2001). Preferences for Housing, Jobs, and Commuting: A Mixed Logit Analysis. *Journal of Regional Science*, 41(4), pp. 475-505.
- Rubinowitz, L. S. & Rosenbaum, J. E. (2000). *Crossing the Class and Color Lines: From Public Housing to White Suburbia*. Chicago: Univ. Chicago Press.
- Sabatini, F., Cáceres, G. & Cerda, J. (2001). Residential Segregation Pattern Changes in Main Chilean Cities: Scale Shifts and Increasing Malignancy, Paper presented at the Lincoln Institute of Land Policy's *International Seminar on Segregation in the City, July 26-18, Cambridge, MA*. pp. 371-389.
- Sampson, R. J., Raudenbush, S. W. & Earls, F. (1997). Neighbourhoods and Violent Crime: A Multilevel Study of Collective Efficacy. *Science*, 277(5328), pp. 918-924.
- Schwartz, E. E., Susin, S. & Voicu, I. (2003). Has Fallin Crime Driven New York City's Real Estate Boom. *Journal of Housing Research*, 14(1), pp. 157-169.
- Social Exclusion Unit (2001). *A New Commitment to Neighbourhood Renewal*. London: Cabinet Office.
- South, S. J. & Crowder, K. D. (1997). Escaping Distressed Neighbourhoods: Individual, Community, and Metropolitan Influences. *American Journal of Sociology*, 102(29), pp. 1040-1084.
- South, S. J. & Crowder, K. D. (1998). Leaving the Neighbourhood: Residential Mobility between Black, White, and Integrated Neighbourhoods. *American Sociological Review*, 63(5), pp. 17-26.
- Taeuber, K. E. & Taeuber, A. F. (1965). *Negroes in Cities: Residential Segregation and Neighbourhood Change*. Chicago: Aldine Publishing Company.
- Taub, R. D., Garth, T. & Jan, D. (1984). *Paths of Neighborhood Change*. Chicago: University of Chicago Press.
- Telles, E. E. (1992). Residential Segregation by Skin Color in Brazil. *American Sociological Review*, 57(1), pp. 186-198.

- Thaler, R. (1978). A Note on the Value of Crime Control: Evidence from the Property Market. *Journal of Urban Economics*, 5(1), pp. 137-145.
- Timberlake, J. M. (2002). Separate But How Unequal? Ethnic Residential Stratification, 1980 to 1990, *City and Community*, 1(2), pp. 251-266.
- Vadali, S. R. & Sohn, C. (2001). Using a Geographic Information System to Track Changes in Spatially Segregated Location Premiums: Alternative Method for Assessing Residential Land Use Impact of Transportation Projects. *Transportation Research Record 1768*, TRB, National Research Council, Washington, D. C, pp. 180-192.
- Van Ham, M. & Clark, W. A. V. (2009). Neighbourhood Mobility in Context: Household Moves and Changing Neighbourhoods in the Netherlands, *Environment and Planning*. 41(9), pp.1442-1459.
- Van, K. R. & Van, W. J. (1998). Ethnic Residential Patterns in Dutch Cities: Backgrounds, Shifts and Consequences. *Urban Studies*, 35(7), pp. 1813-1833.
- Van Ommeren, J., Rietveld, P. & Nijkamp, P. (1999). Job Moving, Residential Moving, and Commuting: A Search Perspective. *Journal of Urban Economics*, 46(7), pp. 230-253.
- White, M. J., Robert, F. D. & Shilian, W. (1994). Ethnic Neighbours and Ethnic Myths: An Examination of Residential Segregation in 1910. pp. 175-208. In Susan, C. W. (Eds.) *After Ellis Island*. NY: Russell Sage.
- White, M. J. & Jennifer, E. G. (1999). The Impact of Immigration on Residential Segregation. pp. 345-372. In Frank, D. B. & Bell-Rose, S. (Eds.) *Immigration and Opportunity: Race, Ethnicity, and Employment in the United States*, NY: Russell Sage.
- Wilson, W. J. (1987). *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: Univ. Chicago Press.
- Zubrinsky, C. C. (2001). Processes of Residential Segregation. In Alice, O. Chris, T. & Lawrence, D. B. (Eds.). *Urban Inequality: Evidence from Four Cities..* New York: Russell Sage Foundation.