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Housing Affordability: A Review of the Diversities of Definitions and Concepts

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The issues of how to precisely define and conceptualise housing affordability have engaged the attention of scholars for decades. This paper is a general review of the literature on housing affordability definitions, concepts and standards from the 1990s with the objective of showing their diversities. The review is presented in narrative form and tables and according to regions and periods. It reveals that housing affordability is defined with respect to housing costs, household income, housing standard, affordability standard and the terms on which loan can be obtained to purchase a home. In addition, definitions are linked to either the ratio or the residual income concepts of housing affordability. Attempts to appropriately define housing affordability progressed form the early 1990s to the 2010s. Most definitions have emerged from the UK and the US. Affordability standards are defined in terms of ratio or residual income concepts of affordability and vary across countries. Furthermore, most conceptual developments in housing affordability emanated from the US. Overall, there are diverse definitions and concepts of housing affordability and the issue of defining affordability standard has been contentious. The contentions centre on which is more appropriate between the ratio and the residual income affordability standards. Despite increasing research on housing affordability, there is yet no consensus as to how it should be defined or conceptualised or the standard to measure it.

Keywords: Housing affordability; concept of housing affordability; conceptualising housing affordability; defining housing affordability; housing affordability standard

Introduction

Housing affordability has attracted persistent concern across countries in recent times. In the past three decades, it has been one of the issues at the centre of global debates on human welfare. Cox and Pavletich (2012) state that because housing represents the largest share of household budgets, housing affordability is a major determinant of both the cost of living and the standard of living. Similarly, Stone (2004) asserts that income in relation to housing cost is decisive to determining standard of living and so housing affordability is central to the dilemmas of insecurity and inequality confronting the American society. Furthermore, Cox and Pavletich (2017) note the significance of housing affordability to the achievement and maintenance of a strong middle class. Indeed, research on housing affordability has been progressing over the last three decades (For example, Aribigbola, 2011; Bramley, 1994, Chaplin & Freeman, 1999; Hulse *et al.* 2010; Li, 2014; Philipp, 2015; Saberi *et al.* 2017; Sohaimi, Abdulla, & Shuid, 2017; Stone, 2004; Whitehead, 1991).

The concern about housing affordability arises from different housing outcomes in different countries but essentially due to the declining ability of households, especially the lower-income, to afford adequate housing. In developing countries, the concern arises from rapid urbanisation which has placed severe pressure on urban housing, thus pushing up housing costs and consequently constraining affordability (Nwuba, Kalu, & Umeh, 2015). High rate of urban poverty, weak governance and inefficient public services aggravate the situation. In the UK, the concerns resulted from unprecedented housing price rises, high interest rates, and widening income inequalities (Bramley, 1992). In the US, the concern gained substantial momentum as middle-class households either started to experience difficulty in realising the 'American dream' of homeownership or were spending a disproportionately large part of their income on housing (Linneman & Megbolugbe, 1992). In Australia, the concern arose from rising housing prices, high mortgage interest rates, difficulties in mortgage repayment, and rising housing cost pressure experienced by lower-income households and first time buyers (Gabriel *et al*., 2005; Hulse *et al*., 2010).

Thus, several issues are at the centre of housing affordability debates with variations depending on the societal characteristics and problems. Fundamentally, issues of how to precisely define and conceptualise housing affordability have occupied the attention of scholars for many years but the results have been conflicting ideas. As Linneman and Megbolugbe (1992) captured it, "Talk of housing affordability is plentiful, but a precise definition … is at best ambiguous" (p. 371).

This paper reviews various definitions and concepts of housing affordability and affordability standards in the literature from the early 1990s when housing affordability research experienced considerable debate (For example, Hancock, 1993, Hulchanski, 1995; Stone, 1993). The objective is to enable a fuller appreciation of the diversities of the definitions and concepts of housing affordability and the debates on affordability standards by presenting them on a single platform through a critical review. This will enable easier assessments of the differing perceptions of housing affordability.

Research Methodology

The paper is a general review of the literature. To assemble the studies for the review, we first examined some studies on housing affordability related to definitions and concepts namely, Gabriel *et al*. (2005), Hulchanski (1995) and Stone (2006b) to get relevant papers. We then used author citations to do snowball search to assemble other relevant studies. To further expand the search we used the phrases 'conceptualising housing affordability' and 'defining housing affordability' to search for abstracts and texts on Google Scholar and Scopus to obtain other studies that are potentially relevant to the study. Our study is limited to materials from journals, books and institutional research reports and publications. We eliminated studies that do not belong to these groups. Further, we scanned through the texts of the remaining papers to select those that define and/or discuss the term 'housing affordability', 'concept of housing affordability' and 'housing affordability standard'. We also selected some studies to support the assertion of progressing trends in housing affordability research. The result was 51 studies for the review comprising 32 journals, two books and 17 institutional research reports and publications. The breakdown of the number of studies by aspect is contained in Table 1. Based on these studies, we provided a critical review of the various definitions and concepts of housing affordability and perceptions on housing affordability standards. The review is presented in narratives and tables.

Table 1: Breakdown of Number of Studies Reviewed By Aspect of Study

S/N	Aspect of Study	No of Studies
1	Definitions	17
2	Standard	22
3	Concepts	15
4	Supporting evidence of progressing trends in housing affordability studies	10
	Total	64
	Overlapping studies	13
	No of studies reviewed	51

Defining Housing Affordability

Defining housing affordability has been one of the most significant challenges in housing affordability research. Several authors have noted this challenge (Bourassa, 1996; Chen, Hao & Stephens, 2010; Stone, 2006b; Yang & Shen, 2008). Quigley and Raphael (2004) summed it when they asserted that:

> …economists are wary, even uncomfortable, with the rhetoric of "affordability," which jumbles together in a single term a number of disparate issues: the distribution of housing prices, the distribution of housing quality, the distribution of income, the ability of households to borrow … and the choices that people make about how much housing to consume relative to other goods. This mixture of issues raises difficulties in interpreting even basic facts about housing affordability (pp. 129 – 130)

Hulchanski (1995) states that housing affordability has become a common way of summarising the nature of housing difficulty in many countries. However, an important question is 'What is housing affordability?' In the simplest term, housing affordability is a measure of ability to pay for housing. The term is used to express the relationship between household income and household housing costs. It gives an indication of whether a household can meet its housing costs within its income.

However, ability to pay is difficult to define. Consequently, defining this relationship between household incomes and housing costs has been a key issue in housing affordability debates. Attempts to define housing affordability in the early 1990s came mostly from the United Kingdom. In their work on affordable housing in Britain and the US, MacLennan and Williams (1990) offered one of the widely quoted definitions: "Affordability is concerned with securing some given standard of housing (or different standard) at a price or rent which does not impose, in the eye of some third party (usually the government) an unreasonable burden on household income" (p. 9). From the UK, Bramley (1992) states that

> 'Affordability' refers to whether households can reasonably be expected to meet the consumer cost (rent or mortgage payments, plus any other items such as repairs) of housing suitable for their needs without getting into hardship or risking actual difficulty (e.g. arrears) (p. 823)

These definitions raise three important issues – housing standard ('given standard of housing' or 'housing suitable for the household's needs'), affordability of housing ('does not impose unreasonable burden' or 'without getting into hardship'*)*, and affordability standard ('the eye of some third party' or 'reasonably be expected'). The definitions indicate that defining housing affordability should not be confined to merely expressing the relationship between incomes and expenditures on housing but that in defining this relationship, the standard of housing should be included. Whitehead (1991) made a critical examination of the concepts of housing need and housing affordability in the UK context. Whitehead points out that definitions of affordability take account of the relationship between household income and housing expenditure and define a standard in terms of that income above which housing is regarded as unaffordable. This implies that the evaluation of affordability should be with reference to defined housing and affordability standards. Housing standard varies in time and across societies. This variation will affect perceptions of affordability, thus making it difficult to have a consensus as to what housing affordability is or should be.

What is the standard to measure when a household gets into hardship because of its housing costs or when the burden imposed on the household's income by the housing costs is unreasonable? Bramley (1992) measure is 'reasonably be expected'. Reasonably be expected by whom? MacLennan and Williams (1990) suggest that it is the perception of the government. Again, this perception should be on some defined basis. This basis cannot be the same for every society. Therefore, there will be differences in how affordability is perceived across countries.

About the same time also in the UK, Hancock (1993) using the concept of opportunity cost lent voice to the attempt to appropriately define and explain housing affordability. Hancock analysed various usages and definitions of housing affordability including Maclennan and Williams (1990) and Bramley (1990) which she said are concerned with the concept of opportunity cost. Hancock stated that opportunity cost is the essence of the concept of affordability, 'what has to be forgone in order to obtain housing and whether that which is forgone is reasonable or excessive in some sense' (p. 129). This suggests that in evaluating the affordability of housing, one has to also assess the other needs which would have been met from a household's income but are forgone to obtain housing. If these needs forgone are reasonable, housing is affordable; if they are excessive, housing is not affordable.

A decade later, Thalmann (2003) writing from Switzerland supported this, stating that "housing is not affordable for a household if it excessively crowds out other expenditures" (p. 294). Thalmann (2003) asserts that housing expenditure always crowds out non-housing expenditures and therefore the term 'excessively' is fundamental in defining housing affordability. The author notes that from the general definition, several practical affordability conditions could be derived depending on such factors as the definition of the minimum for other expenditures and whether the household's housing comfort is considered. From Australia, Gabriel *et al.* (2005) defined affordability as a term that denotes the maximum amount of income which households are expected to pay for their housing.

These perceptions of housing affordability are attempts to appropriately explain the relationship between household income and housing costs. However, the issue is the standard to determine what is 'reasonable' or 'excessive'. The qualifying words used by these authors suggest that the appropriate relationship can be explained by the ability of a household to balance its expenditures on standard housing and non-housing necessities within its income. If the household can make the balance, housing is affordable, otherwise it is not. This question of balancing is expressed in one of the key definitions of housing affordability in the 2000s, which emerged from the US, namely Stone (2006b) which states:

> Most fundamentally, housing affordability is an expression of the social and material experiences of people, constituted as households, in relation to their individual housing situations. Affordability expresses the challenge each household faces in balancing the cost of its actual or potential housing, on the one hand, and its nonhousing expenditures on the other, within the constraints of its income (p.151).

Stone's definition points to the peculiar housing affordability situations of individual households which is important in the ability to balance housing and non-housing expenditures within the limits imposed by income. However, there is again the difficult question of how to measure the 'ability to balance'. It can be inferred from the preceding definitions that it can be measured by the consequences of housing costs on other household necessities. Thus, housing is affordable to a household only if its cost does not impose unreasonable burden on the income of the household through excessively crowding out expenditures on other necessities or putting the household into hardship in its attempt to meet these necessities. In other words, the other necessities a household forgoes to obtain adequate housing should be reasonable or should not be excessive.

Yet, such qualifying terms as reasonable and reasonably, or their converse, unreasonable, unreasonably and excessive are relative and pose conceptual challenges. Who defines what is reasonable, excessive or unreasonable and what is the standard? Without clearly defining the standard to measure them, the terms complicate rather than clarify the definitions. Hancock (1993) suggests that it is a socially desirable minimum standard of consumption. These standards differ across societies, again creating difficulties in getting a common definition or conceptualisation of housing affordability.

Stone (2006b) further explains that there are in practice a variety of approaches to defining housing affordability or lack of it. These include the relative which deals with the changes in the relationship between summary measures of house costs or prices and household incomes; the family budget which is concerned with the monetary standard based on aggregate housing expenditure patterns, and the subjective approaches which view affordability in terms of whatever individual households are willing or choose to spend on housing. The others are the ratio which defines the maximum accepatable housing cost-to-income ratios and the residual measures which specify a normative standard of a minimum income required to meet non-housing needs at a minimal level after paying housing costs. Stone argues that the appropriate indicator of the relationship between incomes and housing costs is the difference between them rather than the ratio.

Efforts to define and explain housing affordability continued in this decade in Australia with Yates *et al*. (2007) defining it as “a tenure-neutral term that denotes the relationship between household income and household expenditures on housing costs” (p4). ‘Tenure-neutral’ implies that the term is applied to housing of any tenure. The authors observe that housing affordability indicators typically rely on a ratio measure that specifies the acceptable proportion of income to be spent on housing, or on a residual measure which refers to an acceptable level of residual income after meeting housing costs. Yates *et al* (2007) further state that housing affordability problems arise when households are compelled to make decisions that adversely affect them which they would not make if they had not been in housing stress.

The effort to get an appropriate definition of housing affordability was also made in China in the 2010s. After reviewing the term in the literature, Chen *et al*. (2010) combined the various concepts to take ‘a rounded view of affordability’. They then stated that affordability implies the ability to access housing; that the burden of housing and non-housing expenditures should be balanced; and that housing expenditure should not push household income below a level necessary for an acceptable standard of non-housing consumption. Back in Europe, Heylen and Haffner (2013) compared the ratio and budget benchmarks as indicators for comparing housing affordability across countries. In the analysis, they considered housing affordability as the ongoing commitment to housing costs in which the cash flow spent on (the financing of) housing consumption is a key concept. Citing Hancock (1993), Heylen and Hafner referred to this view as the affordability of housing in the short run as against affordability in the long run which results when the user-cost is applied to housing and is about the cost of housing which might be different from the financing of housing in the short-term approach.

To most American households, housing “affordability” refers to the terms on which dwellings can be purchased and loans to purchase them can be amortised (Quigley & Raphael, 2004). To potential homeowners, affordability considers whether a household is able to borrow sufficient funds to purchase a home (Gan & Hill, 2009). Therefore, housing affordability is defined in terms of the rules applied by financial institutions for granting of conventional mortgages (Bramley, 1992). In fact, most affordability indices define affordability as the ability of a household to qualify for conventional mortgage financing, and for most households, affordability depends on obtaining this financing (Linneman & Megbolugbe, 1992). In all these, affordability is conceived in relation to Western housing market practices of households purchasing homes with mortgages. In many developing countries such as Nigeria, the practice is different. Households generally build their homes with their incomes and savings. Conceiving affordability in terms of ability to access the mortgage market will not provide any useful indication of whether households are actually affording housing. As Nwuba *et al.* (2015) point out; affordability is commonly linked to households' own resources. Nwuba *et al.* (2015) therefore, conceive affordability (to potential urban homeowners) within this context as a household being able to gradually build a home out of its savings and incomes while maintaining its current rental housing and non-housing needs.

Table 2 contains a summary of the key definitions from the review arranged in chronological order. The differences in housing standards across societies and in the perception of what the indicator for affordability should be make it difficult to have a common definition of housing affordability. Moreover, the different housing tenures necessitate differences in definition. Affordability may refer to on-going cost of housing or cost of accessing housing. Nevertheless, it can be deduced from the literature that a clear definition of housing affordability should contain the following elements - household income, housing costs, housing standard and affordability standard. Thus, we define housing affordability as the ability of a household to maintain the costs of standard housing appropriate to its size and structure within its income without sacrificing its non-housing necessities based on socially set standards. Affordability should take cognisance of the standard of housing and the minimum standard of non-housing necessity appropriate to a household as set by the government. Standards differ across societies and so the basis for determining affordability will differ. What may be considered standard or adequate housing in one society may be substandard in another. Nevertheless, the elements of affordability should not be different.

Table 2: Summary of Definitions and Views of the Term 'Housing Affordability' in the Literature

Author	**Year**	**Research Context**	**Definition**
Maclennan and William	1990	UK and USA	Affordability is concerned with securing some given standard of housing (or different standard) at a price or rent which does not impose, in the eye of some third party (usually the government) an unreasonable burden on household income" (p. 9)
Bramley	1992	UK	'Affordability' refers to whether households can reasonably be expected to meet the consumer cost (rent or mortgage payments, plus any other items such as repairs) of housing suitable for their needs without getting into hardship or risking actual difficulty (e.g. arrears) (p. 823)
Hancock	1993	UK	Opportunity cost is the essence of the concept affordability, 'what has to be forgone in order to obtain housing and whether that which is forgone is reasonable or excessive in some sense' (p. 129)
Thalman	2003	Europe	Housing is not affordable for a household if it excessively crowds out other expenditure. Obviously, housing expenditure always crowds out non-housing expenditure. The term 'excessively' is key (p. 294).
Quigley and Raphael	2004	USA	Affordability refers to the terms on which dwellings can be purchased and loans to purchase them can be amortised.

Stone	2006	USA	Most fundamentally, housing affordability is an expression of the social and material experiences of people, constituted as households, in relation to their individual housing situations. Affordability expresses the challenge each household faces in balancing the cost of its actual or potential housing, on the one hand, and its nonhousing expenditures on the other, within the constraints of its income (p. 151).
Yates *et al*	2007	Australia	"a tenure-neutral term that denotes the relationship between household income and housing expenditures on housing costs" (p. 4)
Chen *et al*	2010	China	Affordability implies the ability to access housing; that the burden of housing and non-housing expenditures should be balanced; and that housing expenditure should not push household income below a level necessary for an acceptable standard of non-housing consumption.
Heylen and Haffner	2013	Belgium and the Netherlands	The ongoing commitment to housing costs in which the cash flow spent on (the financing) of housing consumption is a central concept (p. 549)

Defining Affordability Standard

The diverse perceptions of the concept of housing affordability raise difficulties in defining a benchmark to determine what is affordable. Bramley (2012) asserts that there is absence of consensus on what the normative ratio standards for affordability are, whatever approach to affordability is adopted. Similarly, Haffner and Boumeester (2010) observe that it is difficult to design a norm especially with the ratio measures of affordability.

Whitehead (1991) states that affordability standard may be defined in terms of the absolute amount of residual income after housing has been purchased in which the standard is set at a level which allows the household to pay for housing and still purchase a socially acceptable bundle of other goods. This is the residual income standard. In the alternative, she states, it is set in terms of a relative measure which specifies the acceptable proportion of income to be spent on housing (the ratio standard). Whitehead points out that the definition of affordability may accept the level of expenditure which households actually incurred, relate it to the households' income and regard all those who spend more than the defined levels as having an affordability problem which would require policy attention.

In another of the most cited housing affordability studies, Hulchanski (1995), a Canadian author reviewed the use of the housing expenditure-to-income ratio in North America. Hulchanski states that in most formulations of the term housing affordability, a household is considered to have a housing affordability problem when it pays more than a certain percentage of its income to obtain appropriate and adequate housing.

The application of the ratio standard involves methodical question as to the choice of ratio; that is, the appropriate housing expenditure-to-income ratio which should be the benchmark for affordability. Defining this benchmark for affordability is one of the most important challenges of the ratio standard. There is actually no universal percentage or ratio. For on-going housing costs such as rents or mortgage payments, the US standard of 30% of income for housing expenditures though not universally accepted, is widely adopted in research and policy. Stone (2006b) explains that in the United States, the ratio of housing cost to income is widely accepted as the appropriate indicator of housing affordability and the simple 'rule of thumb' ratio standard of 30% (25% until the early 1980s) for assessing housing affordability problems. Above this standard threshold of 30%, a household is designated as being 'housing cost burdened', and households paying more than 50% as seriously or severely cost burdened (Belsky, Goodman, & Drew, 2005). The UK uses the lower quartile ratio as the standard affordability indicator (National Housing and Planning Advice Unit [NHPAU], 2010). Although the UK has no official definition of housing affordability, the National Housing Federation and the Department of Communities and Local Government define affordable rents as those below 25% of household income for new tenants (Tang, 2009). Australia applies the '30/40 rule' which measures affordability for households in the lowest two quintiles of the 'equivalised' disposable income distribution with a benchmark of 30% of income for housing costs (Yates & Gabriel, 2006). Equivalised disposable income is household income after tax and other deductions divided by the number of household members converted into equalised adults.

The Demographia International in its yearly housing affordability survey based on the Median Multiple classifies affordability standard into four, ranging from affordable to severely unaffordable (Table 3).

Table 3: Housing Affordability Ratings

Housing Affordability Rating	Median Multiple
Affordable	3.0 & under
Moderately unaffordable	3.1 to 4.0
Seriously unaffordable	4.1 to 5.0
Severely unaffordable	5.1 & over

Source: 13th Annual Demographia International Housing Affordability Survey: 2017

The Median Multiple is house price-to-income ratio at median level. It is the ratio of median house price to the gross annual median household income (median house price divided by the gross annual median household income). It measures the affordability of accessing homeownership in broad terms. The rating indicates that if the ratio of median house price to the gross annual median household income is 3.0 or less for any housing market, the market is considered affordable. Above 3.0, the market is considered unaffordable to varying degrees. The standard implies that housing is affordable to a household earning the median income in an area where the Median Multiple is 3.0 or less. Conversely, housing is severely unaffordable to a household earning the median income if the Median Multiple in that area is 5.1 or more. The Median Multiple is widely used for evaluating the affordability of urban housing markets. It is recommended by the World Bank as one of the key housing indicators (Mayo & Stephens, 1992) and by the United Nations Department for Policy Coordination and Sustainable Development as a key measure of housing affordability (United Nations, n.d.). Both organisations define it as the ratio of the median free-market price of a housing unit and the median annual household income.

The other commonly used standard, the residual income, is defined in monetary amount. It considers whether the income remaining after paying housing costs, referred to as residual income will be sufficient to meet the household's non-housing needs at some minimal level of adequacy. The rationale for the standard is that the indicator for housing affordability should be ability to afford a minimum standard of living rather than ability to pay a prescribed percentage of income for housing. The residual income approach results from the recognition that housing costs tend to be inflexible and make the first claim on the disposable income of most households (Stone, 2006a). The standard assesses the cost for non-housing goods based on the composition of the household and takes it off from the household's income. Whatever is left is what is affordable to the household for housing (Stone, Burke, & Ralston, 2011). If the household pays housing cost higher than this amount, then the residual income will not be sufficient for non-housing goods. That means the housing is not affordable to the household. Conversely, if the amount covers the housing costs, the housing is affordable to the household. In either case, it is immaterial what percentage of the household income the housing cost constitutes. Housing affordability problems therefore arise when a household's income is inadequate to meet the household's costs of non-housing needs after paying for a dwelling of reasonable standard, appropriate to the size and structure of the household (Berry, 2006). Thus, affordability depends not only on rents and incomes but also on housing standards and the benefit system (Marshall *et al*. 2000).

However, setting the minimum standard for expenditure on non-housing necessities is necessary to operationalise the residual income as affordability indicator. Stone *et al*. (2011) assert that there are practical issues involved in operationalising the residual income as affordability measures. These are: how to specify the monetary level of minimum standard of adequacy for non-shelter items; how to scale this standard for various households; and how to deal with personal taxes and benefits to create disposable income appropriate to each household. The poverty line and the budget standard are commonly used for the operationalisation. These standards vary considerably across countries, thus eliminating the possibility of a universal affordability standard.

The ratio standard defines the normative level in relative terms as a percentage of income whereas the residual income standard defines it in absolute terms as a monetary amount independent of the income. Critics of the ratio standard argue that its normative standard of percentage of income for housing costs is arbitrary as it is not based on any clear rationale (Hancock, 1993; Stone, 1993, 2006b). Hancock (1993) criticises the ratio standard, arguing that "from economic first principles" it is more logical to define housing affordability with some form of residual income than a prescribed ratio of housing cost to income. Hancock states that the rent-to-income ratios provide very misleading information for economic policy. Within the same period, Bramley (1994) stated that:

> The most coherent normative concept of affordability is one that links normative judgements about housing needs/standards with judgement about minimum income requirements for non-housing consumption. This implies that housing affordability is closely bound up with the definition of poverty line and that the key ratios are likely to be expressed in terms of residual income (after housing costs) relative to that line (p. 104).

Hulchanski (1995) follows in the criticisms. Hulchanski (1995) states that the benchmark percentage of income for housing have been based on nothing more than grossly generalised assumptions of what average households tended to or should pay for housing and over time, the observations about what some households tended to spend on housing translated into assumptions about what they ought to be spending. Hulchanski argues that housing expenditure-to-income ratio is invalid and unreliable as a housing affordability measure. The criticisms advanced to the following decade with Stone (2006b) arguing that the ratio standard has no theoretical or rational basis and that the rationale for the standard and its benchmarks has been built on empirical interpretations of actual housing expenditures of households. He contends that what many households pay for housing is not what they can realistically afford to pay; some pay more while some pay less. Paying more means that after paying for housing, the households cannot adequately meet their non-housing needs (Stone, 2004). Stone (2004) argues that in working out what a household can realistically afford to pay, taking the difference between the household's disposable income and the cost of meeting their non-housing needs at a basic level of adequacy is a better way than taking some arbitrary percentage of income.

The referencing of housing affordability to a socially-defined standard which defines a minimum standard for non-housing necessities is meaningful in the more advanced economies in which there are minimum standards defined by the welfare system such that households' well-being can readily be measured against these standards. In these countries, especially those with pronounced social welfare system, basic housing needs are provided by the state for those who cannot afford them, and so affordability depends so much on the definition of a threshold above which the financial burden is considered unbearable and state support will be granted (Bentzien, Rottke, & Zietz, 2012). In many developing countries like Nigeria, such a definition of a threshold has little or no practical significance as there is no welfare system to support it.

Housing Affordability Concepts

The concept of housing affordability has three key dimensions, namely, affordability for renters, affordability for existing homeowners, and affordability for would-be homeowners (DTZ Research, 2004). Affordability for renters otherwise referred to as rental housing affordability deals with rental housing costs. Affordability for existing homeowners deals with the on-going cost of homeownership such as mortgage payments while affordability for would-be homeowners deals with the requirement for accessing homeownership such as qualifying for the terms on which lenders grant mortgages. However, the measurement of housing affordability is based on the two main affordability concepts - the ratio concept which measures housing affordability in terms of the ratio or percentage of housing costs to household income and the residual income concept which addresses the subject as the difference between household income and housing costs to ascertain whether this difference is sufficient to meet the household's non-housing needs. These concepts are applicable to the three key dimensions of affordability.

One of the most significant conceptual developments in housing affordability literature is Stone's 'shelter poverty' concept. The concept which Stone detailed in his book, *Shelter Poverty*, published in 1993 is based on the residual income concept of housing affordability with research context in the US. In the concept, Stone (1993) states that many households pay more for housing than they can realistically afford, which means that after paying for their housing they are unable to meet their non-shelter needs at a minimum level of adequacy. Such households are considered to be experiencing housing affordability problem, otherwise referred to as shelter poverty. The concept recognises that to achieve an equivalent material quality of life, a larger household would need a greater proportion of its disposable income for non-shelter necessities than a smaller household of comparable disposable income would. Similarly, a lower-income household would require a higher proportion of its disposable income for non-shelter needs than a higher-income household of comparable size would. Therefore, as against the fixed percentage affordability standard of the ratio concept, the shelter poverty concept advocates a sliding scale standard which takes into account the costs of minimum standards for non-shelter necessities, with household size and income as the main parameters. Households whose housing costs are more than they can afford under this standard are experiencing a squeeze between their incomes and housing costs which leaves them unable to meet their non-shelter needs at the minimum level of adequacy. Stone referred to them as 'shelter poor'. Thus, a household is 'shelter poor' if it cannot meet its non-housing necessities at some minimum level of adequacy after paying for housing (Stone, 2006a). Accordingly, "shelter poverty is a form of poverty that results from the burden of housing costs rather than just limited resources" (Stone, 1993, p. 34).

Over a decade later, Kutty (2005) also in the US developed the concept of housing-induced poverty, a variant of Stone's shelter poverty concept, to describe the situation in which a household after paying for housing cannot afford the 'poverty basket of non-housing goods'. Such a household is designated as being in 'housing-induced poverty'. The affordability measure developed from the concept focuses on households deprived of their necessities because of their housing expenditures. The concept, like Stone's shelter poverty, focuses on the standard of living but it is linked to the US official poverty line whereas shelter poverty is linked to the US

Bureau of Statistics Lower Budget Standard.

Earlier, also in the US, Glaeser and Gyourko (2003) developed a contrasting concept of housing affordability. This concept does not consider income or ability to pay for housing. The researchers conceive housing affordability as a relationship between housing prices and the physical construction costs. They argue that in conceptualising housing affordability the role of housing costs should be separated from the role of poverty which they say, is not a housing issue. To them, a housing affordability crisis means that housing is expensive relative to its fundamental cost of production. They further contend that the relevant benchmark for measuring housing affordability should be the physical construction cost of housing rather than the ability to pay a certain proportion of income. Accordingly, their measure of affordability is the gap between housing prices and the physical construction costs in contrast to the ratio of housing expenditure to income of the ratio concept and the gap between household income and housing costs of the residual income-based concepts.

The 'ability to pay' is fundamental in housing affordability. If households were to obtain adequate housing within their incomes without entering into financial difficulties, housing affordability would probably not have been such an important policy concern. Affordability conceptualisation should relate housing costs to the financial ability of housing consumers because affordability is a relationship between housing and housing consumers. House prices may not be appreciably higher than the construction costs but yet unaffordable to some people but by Glaeser and Gyourko (2003) concept, such houses are affordable.

Withn the same decade other US reseachers, Gan and Hill (2009) came up with three different dimensions of affordability, distinguishing between the concepts of purchase affordability, repayment affordability and income affordability. Purchase affordability considers whether a household is able to borrow sufficient funds to purchase a home. On the other hand, repayment affordability is concerned with the burden of mortgage repayment imposed on a household. Income affordability measures the ratio of house prices to income.

Furthermore, with research contexts in the UK and the Netherlands, Stephens and Steen (2011) drew a 'synthetic concept of housing poverty' in similar way to income poverty and used it to analyse the relationship between the housing system and the welfare system in England and the Netherlands. Interestingly, the findings revealed that the incidence of 'housing poverty' was predominantly among people who were not income poor and that housing poverty rates were considerably higher than income poverty rates. Again in the UK, Mulliner, Malys and Maliene (2016) viewed housing affordability from the concept of sustainabiity. They used multiple criteria decision making (MCDM) methods with 20 evaluative criteria to evaluate affordability based on the concept of sustainable housing affordability which considers the impact of social, economic and environmental issues on a household's quality of life.

Another housing affordability concept in the literature is housing stress used in Australia. Housing stress is used as an indicator of the number of households that are potentially at the risk of housing affordability problems (Yates, *et al.*, 2007). The concept is the lens through which policy makers in Australia view the need for assistance and so it is income dependent, seeing housing affordability as a challenge to only the poorest households (Beer, Kearins, & Pieters, 2007). Housing affordability measurement in Australia's housing policy is mostly confined to the bottom 40 percent of the income distribution, classified as the lower income. Thus, the most common method of measuring housing stress defines a household as being in housing stress if it spends more than 30 percent of its income on housing expenditures and belongs to the bottom 40 percent of the income distribution

(Nepal, Tanton, & Harding, 2010). Similarly, mortgage stress is defined to occur when a household in the lowest 40 percent of the income distribution has a mortgage that is in excess of 30 percent of their income (Australian Housing and Urban Research Institute [AHURI], 2012).

Due to the diverse nature of housing reflected in aspects such as tenure and market practices, it is difficult to conceptualise housing affordability in one common way. Affordability is a different issue to owner-occupied tenure from renting, and different between potential and existing owners. As Haffner and Heylen (2011) assert, affordability is not a one-dimensional concept and so a combination of more than one concept would give a more comprehensive insight into housing affordability. Moreover, differences in housing systems and housing market practices result in differences in conceptualising housing and housing affordability. As Gabriel *et al.* (2005) have stated, differences in the way housing affordability has been conceptualised and operationalised are linked to the nature of housing systems within particular countries.

Despite the difficulties in defining and conceptualising housing affordability, the literature demonstrates that housing affordability relates people's income to their housing costs albeit in various ways. The underlying philosophy is the ability to obtain adequate housing at affordable costs based on some defined standards. Housing affordability is therefore generally regarded as an issue of income and housing costs, and affordability problem as either income problem or housing cost problem, or both.

Summary of Findings and Conclusion

Housing affordability has different dimensions and the issues at the root of its concerns are divergent across countries. Accordingly, there are diverse views on how to define and conceptualise it. This paper reviewed the different definitions, standards and concepts of housing affordability in the literature from the 1990s with the objective of enabling a fuller appreciation of the diversities of the definitions and concepts of housing affordability and the debates on affordability standards by presenting them in a single platform. The review revealed that housing affordability is defined with respect to housing costs, household income, housing standard, and housing affordability standard. For access to homeownership, the terms on which loan can be obtained to purchase a home is important in defining housing affordability. In addition, definitions are linked to either the ratio or the residual income concepts of housing affordability. Most definitions have emerged from the United Kingdom and the United States.

The review also found that housing affordability standards are defined in terms of ratio or residual income concepts of affordability. There is no universally accepted standard and standards differ across countries. Furthermore, most conceptual developments of housing affordability during the period under review emanated from the US with a few from the UK. Africa lags behind in research in this area. This suggests that gaps exist in housing affordability research in African context.

Overall, the review found the existence of diverse definitions and concepts of housing affordability and the issue of defining affordability standard has been contentious. However, the affordability debates have their focus on the Western housing markets and welfare systems. They take no consideration of housing markets in developing countries which operate differently. Studies focused on these markets are therefore necessary.

This paper has provided a base for researchers and policy makers to have a better appreciation of the diversities in the definitions, standards and concepts of housing affordability and a direction for researchers to navigate to the various studies on the subjects. It has therefore made significant contribution to the housing affordability literature. Yet, the paper has limitations. It does not claim to have covered the whole literature on the subjects. It is suggested that researchers review the literature to demonstrate how the diverse concepts have been applied in measuring housing affordability.

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