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## **HOUSING INSECURITY MEASURE, A DEVELOPMENT OF A VALIDATED SCALE USING HOUSEHOLD DATA**

### **Abstract:**

Based on the literature analysis, housing insecurity does not have a universally validated measure or scale that can be used across societies and contexts to measure housing insecurity. The literature on housing and housing insecurity is marred with individualised preferences of what individual researchers or organisations appropriate to measure housing insecurity. This paper takes the first step of proposing a scale of measuring housing insecurity that can be adopted for any context be it in developed countries or developing societies. The paper recognises the economic thinking that claims that the tools of mathematics are not always appropriate in the analysis of social reality (Lawson 2015) hence cognisance of the fact that functions and calculus are not always the best, this paper still makes use of mathematical calculations involving weights and still relies on the development of constructs that can be useful in explaining the reality of housing insecurity. We ask the question, to what extent is the ontology of housing so abstract that the numbers can be misleading? It is argued in this paper that the conception of reality and hence housing insecurity can still depend on the mathematical tools to understand the ontology of housing insecurity. Going deeper this paper does not claim to belong to the pluralism, or neoclassical thought, but as anticipated, devoid of that discourse and make use and hence benefit from both mainstream economic theory and aspects utilised by the pluralist school of thought and hence makes reference to the ontology of economics.

### **Keywords:**

housing insecurity; validated scale; household; poverty

**JEL Classification:** A10, A13, B41

## **1 Introduction**

Poverty in its broad sense incorporates a number of dimensions, which separately need to be understood if the poverty puzzle is to be solved (The World Bank, 2018). Researchers agree that the fight against poverty is being won on one side and lost on the other. While other parts of the world have realised great success in helping households cross the \$1.9 per day threshold, questions persist as to whether that is enough. In other parts of the world, sub-Saharan Africa in particular, people are crossing the poverty threshold downwards, meaning that, there are increasing numbers of people that are now below the poverty line (Alkire, 2009; Alkire & Housseini, 2014; Dunga, 2014a; The World Bank, 2018). Thus the poverty question is not answered properly decades after it became top of the global agenda (UN, 2015). One important dimension of poverty is housing insecurity. The Oxford Poverty and Human Development Initiative (OPHI) has attempted to include an aspect of housing insecurity in their multidimensional measure of poverty (Alkire, 2009; Alkire & Foster, 2013; Alkire & Housseini, 2014). However just like food insecurity, housing insecurity needs to be understood and hence properly measured if any strides are to be made in the effort to end poverty. This paper looks at housing insecurity as an important component of poverty. Housing insecurity has not received enough attention in the literature compared to food insecurity for example, whose analysis is ubiquitous in the literature, (Arene, 2010; Broton & Goldrick-Rab, 2018; Dunga & Grobler, 2017; Grobler, 2015; Institute, 2016). There has been a wide recognition of the importance of housing and how poverty can never be dealt with without simultaneously dealing with housing insecurity (Broton & Goldrick-Rab, 2018; Rauh, Landrigan, & Claudio, 2008). However, it is argued in this paper that there is a gap in measuring housing insecurity and this is also evident in the literature (Becker cutts et al., 2011; Dunga & Grobler, 2017, 2018; Insights, 2018; Ling, 2008). There is need to come up with a clear measure of housing insecurity that is unified and applicable to any context. This paper which is one in a series of papers takes the first step to presents a proposal of a basic measure of housing insecurity, based on the existing scales that have been used in similar constructs like food insecurity and life satisfaction (Ballard, Kepple, & Cafiero, 2013; Broton & Goldrick-Rab, 2018; Drimie & Casale, 2009; Weiser et al., 2015). The rest of the paper is organised as follows, section 2 will present the literature review on the different measures that have been used in measuring housing insecurity, and the studies that have indicated the need for a unified measure. Section 3 will be the methodology used in constructing a measure of housing insecurity. Section 4 will be the presentation of the proposed measure of housing insecurity and section 5 will present a conclusion and areas of further research.

## **2 Literature review**

### **2.1 literature on definitions and measurements of housing insecurity**

Housing insecurity can be defined as a state in which a household does not have secure, stable and affordable housing. It may also be defined as a state of homelessness in its severe sense (Dunga & Grobler, 2017; Ling, 2008). Other studies

(Becker cutts *et al.*, 2011) have defined housing more broadly as to mean all aspects that threaten stability. For example, the Department of Health and Human Services has defined housing insecurity as high housing costs in proportion to the household income, poor housing quality, (of which quality may be a range of things including the material used, and the basic necessities that are expected to be in a basic house in a particular context) unstable neighbourhoods, overcrowding, or homelessness. How much space an individual need, so as to draw a line of crowding is also important in this sense. Furthermore, the U.S. Department of Housing and Urban Development defines the extreme position of housing insecurity which is homelessness as firstly an individual who has no fixed, regular and adequate night-time place or residence; or secondly an individual who has a primary night-time residence, whether public or privately operated, designed to them on a temporary basis; or thirdly an individual who is residing in an institution where they resided for 90 days or less and who resided in an emergency shelter or place not meant for human habitation immediately before entering that institution. (U.S. Department of Housing and Urban Development, 2016). Now this is a very broad and highly contextualised definition which makes assumptions that there are institutional accommodations available to such homeless people. This may apply to the US and other developed countries but not really for developing countries.

Mercado (2017) In a study on food security and housing insecurity among students acknowledged that 'there is no uniform definition. He however adopted the definition by Goldrick-Rab *et al.* (2015) which describes housing insecurity to include housing conditions along a spectrum where homelessness is the extreme point and is defined by the McKinney-Vento Homeless Assistance Act Subtitle VII-B as lacking a fixed, regular, and adequate night-time residence-represents the extreme form of housing insecurity and unaffordable housing, poor housing quality, crowding, sharing housing with others, and frequent moves are other dimensions.

The understanding of housing insecurity has been taken for granted for years, however when one attempts to measure the actual phenomenon, it is clear that not much has been done in coming up with a concise and agreeable definition and hence measure of housing insecurity. The fact that the definition is mouthful and long is an indication that a measure will be absent. In order to be able to measure a variable, it has to be clearly defined with clear demarcations of where it starts and where it ends. Numerous studies have cited the inexistence of a clear definition of housing security or insecurity (Aubry, T Klodawsky, F coulombe, 2012; Dunga & Grobler, 2017; Frederick, Chwalek, Hughes, Karabanow, & Kidd, 2014). Frederick *et al.* (2014) notes that housing stability or security remains poorly defined and conceptualised and hence in their study they opted for an in-depth qualitative approach. In their study they defined housing stability as "the extent to which an individual's customary access to housing of reasonable quality is secure." Thus, based on that definitions they would have a way of measuring the extent of housing stability. However, in their definition, there exist subjective terms such as quality and reasonable, these hence would lead to a subjective measure of housing insecurity. Frederick *et al.* (2014) makes a very big contribution in that they suggest an 8-dimension measure, they used 1. housing type, 2. recent housing history,

3. current housing tenure, 4. financial status, 5. standing in the legal system, 6. education and employment status, 7. harmful substance use, and 8. subjective assessments of housing satisfaction and stability. One would argue that these 8 dimensions whilst relevant to housing security measure a broader area other than housing security. Aubry et al. (2012) pointed out that housing security or stability is basically defined as the opposite of housing insecurity. They argued that housing insecurity should be considered as a continuum, thus not at all is it a dichotomous of the presence or absence and does not hence have a binary choice (Aubry, T Klodawsky, F coulombe, 2012; Dunga & Grobler, 2018; Frederick et al., 2014). This thus requires an understanding of where the continuum starts and end, which is reasonably possible, since homelessness is clearly the extreme point on the right and a stable housing should be the starting point on the left. Questions will however be, what is a stable housing? Thus, where the work lies in determining stability and then move from there with the risks that pushes a household through the stages to the extreme position of homelessness.

Understanding that housing insecurity lies on a continuum is fairly easy compared to agreeing on the definition of the starting point. A number of studies have shown that the definition of the starting point nor the cut-off point are not applied uniformly across different contexts or studies (Brown, Ridgway, Antony, & Rogers, 1991; Frederick et al., 2014). Thus, definitions are not the same then the measures are not likely going to be the same. A number of papers that have used housing insecurity are not in economics or around poverty, but are prominently in psychology and health sciences especially where concern is on the relationship between housing or homelessness and health (Aubry, T Klodawsky, F coulombe, 2012; Brown et al., 1991; Frederick et al., 2014). Those in economics and poverty studies that have used housing insecurity have agreed as to the absence of a unified measure and have also resorted to using different proxies that are nowhere similar one to another (Orwin, Scott, & Arieira, 2003; Stephens & Leishman, 2017).

There are studies that have used a single measure to determine housing security or stability which was suitable to the availability of data for the particular study or basically for lack of a better measure. Some have used income spent on housing or stability of the house, or material of floor even material used in the construction of the walls (Brown et al., 1991; Dunga & Grobler, 2018; Frederick et al., 2014; Orwin et al., 2003)

Housing type has also been used as a this single measure where the type of housing for example single roomed apartment, living in a shelter, jail or group home also foster care or a friend's house are all considered as different categories that signal housing insecurity or level of instability (Frederick et al., 2014:966). However, it is easy to note that this kind of categorisation has limitations in that it cannot be applicable in developing countries where some of indication of insecurity especially for city dwellers who may have high-end apartments that are single roomed but costly.

Becker cutts *et al.*,(2011) in their study applied the definition of housing insecurity by the US department of health and human services and they divided their sample into 3

mutually exclusive groups according to their housing insecurity status. Where families with no more than 1 move in the previous year and no indication of crowding were the referent securely housed group. Thus in this measure, only crowding and stability were considered the main determining factors of housing insecurity. They defined the 2 insecurely housed groups on the basis of crowding and multiple moves in the previous year (Becker cutts et al., 2011:1510)

### **3 Research methodology**

The nature of housing insecurity may be similar to food security in the sense that it is usually considered at household level as a unit of measurement. The literature of housing insecurity has mostly relied on the income aspects where household income is considered the main determinant. However, there are unique aspects in housing measurements that are not common in other measurements. Housing insecurity needs to be considered as a continuum as opposed to a dichotomous phenomenon. The epistemology of housing is therefore supposed to be grounded in the appropriate unit of foundational measurement. Whereas poverty maybe at individual level and then household level, and even at group level like gender and race, housing insecurity starts at household level. It would not make a logical sense to think of intra household housing insecurity. Thus, household as a unit of measurement should be a good starting point. However, studies have been done of housing insecurity of university students for example, where the emphasis was on affordability of university accommodation (Tsui et al., 2011) Thus in the case of students, a household cannot be a unit of measurement, as these may leave in a hostel, students accommodation, or a shared house. There is therefore need to distinguish a household housing insecurity measure and an individual housing insecurity measure. At this point in the literature where a unified measure does not exist, pursuing this multiple goal would be unwise. Thus a household housing insecurity takes priority, since individuals exist in a household and that university accommodation is only temporary and can also be understood in the context for the broader household from where the student comes from. Thus data on the housing insecurity would be valid when considered on a household level as a unit of measurement.

### **4 Development of the Index**

The development of a housing insecurity index needs to recognise the fact that housing is not a house in it is a multifaceted construct that goes beyond having a structure on not having one. Although it is manifested a physical structure its insecurity requires considering a number of factors. In this paper we propose a range of components that needs to be considered and how much they should weigh in the index calculation.

#### **4.1 Household income**

Income of a household is important in determine the housing insecurity of a household. The fact that different households may require different sizes and quality of housing makes income important as it shows the vulnerability of the household by showing the

households ability of inability to afford the housing they choose to occupy. Thus, the percentage of income spent on housing could be considered. Basically, anything above 30% of the household total income should start to indicate vulnerability. We propose a core of 1 to 10 where 1 is someone owning and not paying anything, and a 10 for a household that spends more than 50% of their income on a mortgage or rent. The scores between 2 and 9 will be mathematically determined to represent the percentage between 1 and 50.

## **4.2 Crowding**

The number of people per square metre can be used to determine if the house is overcrowded or not. Other studies have used the number of people in a household to proxy overcrowding ((Dunga & Grobler, 2017) however the weakness in that proxy is that a 10 membered household may appear overcrowded, but if the size of the household is not included then it is not possible to determine. Thus an estimated number of people per square meter using the housing floor area could be more accurate. But for simplification, households could be asked to score themselves on a scale of 1 to 10 where 1 means there is enough space for everyone, and 10 means the house is overcrowded. This will be a subjective score and hence it may vary based on people's affluence however it would simplify requirement of knowing floor measurements which may not be easy for everyone.

## **4.3 Ownership of the structure**

The ownership of the structure and the land it stands on may be take for granted in countries where property ownership laws are clear. Countries where there are high numbers of people in informal settlements may have serious implications in scoring the ownership component of the index. In South Africa example, there is currently a debate on land ownership and there are cases where people build houses on plots that have no proper title deeds. This may also signal insecurity since the owners of the structures are not have a guarantee of not being pushed out by 'red ants' at some point. Thus a score for ownership needs to be developed where a high score indicates high risk and a 1 indicates ownership with title deeds. This is very relevant for countries like South Africa, Kenya and other developing countries with high levels of informal settlements.

## **4.4 Material of the structure**

The material used in the construction of the house is relevant especially for houses in informal settlements where there are no structural requirements nor certification. This will also be scored on a 1 to 10 scale where 1 indicates that the structure meets are the certified structural requirements and a 10 indicates a shack. In a study conducted using general household survey data in South Africa (Dunga & Grobler, 2017; Mncayi & Dunga, 2017) we considered material used in the construction of the structure and it was important in classifying the different categories of houses, where cardboards, corrugated iron sheets when used in the wall were an indication that it was an informal housing opposed to brick and concrete.

#### **4.5 Stability of the housing**

The stability of the household housing status is captured by how many times a household has moved houses within 24 months. A study by Becker cutts et al., (2011) used number of movements and overcrowding as the only measures of housing insecurity. We consider the movement to indicate instability. This could be due to evictions or failure to afford the rentals or mortgage. In the case where a household has moved once in the past 2 years, it may not indicate a serious vulnerability, however anything above 3 movements within a period of 2 years is a sign of vulnerability to insecurity. And hence this will be score on a scale of 0 to 5, where the actual count will be entered as a score.

#### **4.6 Security and neighbourhood**

Households will also be required to score the security of the neighbourhood on a scale of 1 to 10, where 1 indicates high level of safety and security from crime, noise and break ins, and 10 indicates a high risk of noise, crime and break ins. The households can also include pollution score, especially for households in industrial areas and cities.

#### **4.7 Facilities and Quality**

The quality of the house and the facilities like plumbing and electricity will also be included in the index. A score of 0 to 10 where a 0 means the household lacks nothing, and a 1 means they lack one thing and a 10 means they lack more than 10 basic things. The questionnaire will list the items or facilities that will be considered in the scoring. Some example may include, electricity, indoor plumbing, floor, geyser, built in kitchen facilities like a stove or cooker, etc. the rationale behind these is that a house that does not have electricity for example, is like going to use other sources of lighting at night and these pose all sorts or risks

#### **4.8 Family demographics and dependency ratio**

The other aspect which is crucial is the dependency ratio, or the likelihood of having extended family living in the household. This is a likelihood, they may not necessarily be present but due to the existing family structure one should be able to provide a subjective score and how that may easily affect

### **5 Conclusion and recommendation**

The development of the scale will take several steps. In this series of papers, we start with this proposal which will therefore be improved overtime through more review of the literature and focus group discussions with key informants in the area of housing insecurity. The second step will be to develop a questionnaire with items that will capture and quantify these facets of housing. The third step will be a pilot study where the questions will be tested in the field and go through the process of reliability and validity, before a bigger sample is used to test the measurement.

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