AN ANALYSIS OF THE SOCIO-ECONOMIC ANTECEDENTS OF HOUSING INSECURITY

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-Abstract-

The study of poverty has remained in the forefront of both development practitioners and researchers alike; however, the number of poor people remains high throughout the world. Housing security, food security and water security can be seen as central to urban poverty alleviation, and form part of a declaration of the Habitat Conference in Vancouver Canada, in 1976. Housing insecurity is consequently one of the so many faces of poverty. This paper analyses the socio-economic antecedents associated with housing insecurity and homelessness. There are a number of definitions of housing insecurity, of which homelessness is the extreme. The impact of housing insecurity is even severe among children and becomes perpetual due to the consequences of homelessness, which include no schooling, poor health and exposure to crime. This paper presents the conceptualisation of housing insecurity and a review of the socio-economic antecedents of housing insecurity and its extreme state of hopelessness. The paper uses the general household survey data collected by STATSSA with a sample of 21 601 households. A regression model is employed in determining the household's characteristics that are associated with housing insecurity. Income food security status and material of the structure were some of the factors that significantly predicted household housing insecurity. The paper also proposes a framework to develop a succinct measure of

housing insecurity as a second step in the series of developing the literature on housing insecurity in South Africa.

Keywords: housing insecurity; households; antecedents

JEL classification: D63, H23, H41

1 Introduction

The conceptualisation of housing insecurity is relatively new and is still being shaped (Hernandez & Suglia, 2016; Mncayi & Dunga, 2017). The traditional understanding has been the use of the not so accurate narrative that perceives housing as a dichotomous issue, where one is either homeless or housed, a perspective that Hernandez and Suglia (2016) argue omits the various precarious housing situations that people, especially vulnerable populations, may experience (Hernandez & Suglia, 2016). Housing insecurity, like other dimensions of poverty, is not a binary or dichotomous phenomenon, meaning that it goes through a number of stages from being housing secure to being homeless, which we consider to be the most serious stage or level of housing insecurity. The studies of food security, for example (Drimie & Casale, 2009; Grobler, 2015), have shown that food security is not a dichotomous variable, that there are levels of food insecurity and one needs to go deeper to be able to detect early signs of a movement towards the position of severe food insecurity. A similar approach could be applied to housing insecurity, especially in the development of a succinct scale that can be useful in measuring and also proposing mitigating policies to dealing with housing insecurity. In a paper (Mncayi & Dunga, 2017) on housing insecurity, the first steps were made in developing a scale to measure housing insecurity. A smaller sample was used in that paper with a number of limitations. This paper uses a much bigger sample and attempts to overcome some of the limitations that were present in the first paper including the sample size and the absence of the income component, still making strides to developing a scale to measure housing insecurity in South Africa, which after validation can be adapted to other countries with similar characteristics to those of South Africa.

This paper examines the available literature on poverty and housing, and shows the importance of housing insecurity as a contributor to poverty in a multi-dimensional setting. The literature shows that as the population increases, housing insecurity will become more important and actually critical to dealing with overall poverty in urban areas.

This paper is divided into four sections. The first section is devoted to the literature on the multi-dimensional characteristics of poverty, which include housing insecurity. The second part of the paper discusses the methodology, data collection, and model specifications. The third part of the paper discusses the results, and the last part of the paper draws a conclusion.

2 Literature review on housing insecurity

2.1 Housing security as a human right

Housing security is enshrined in the constitution of most countries in the world, and South Africa is no exception. In the South African Constitution Section 26, it is stated “everyone has the right to have access to adequate housing” and “the state must take reasonable legislative and other measures within its available resources, to achieve the progressive realisation of the right”. Furthermore, adequate housing forms part of the sustainable development goals. Despite this focus of governments, the United Nations (2016) reported in 2016 that 881 million people across the globe live in informal settlements, and by 2030 an extra 2 billion houses in rural and urban areas will be needed to keep up with the world population growth.

2.2 The concept of housing insecurity

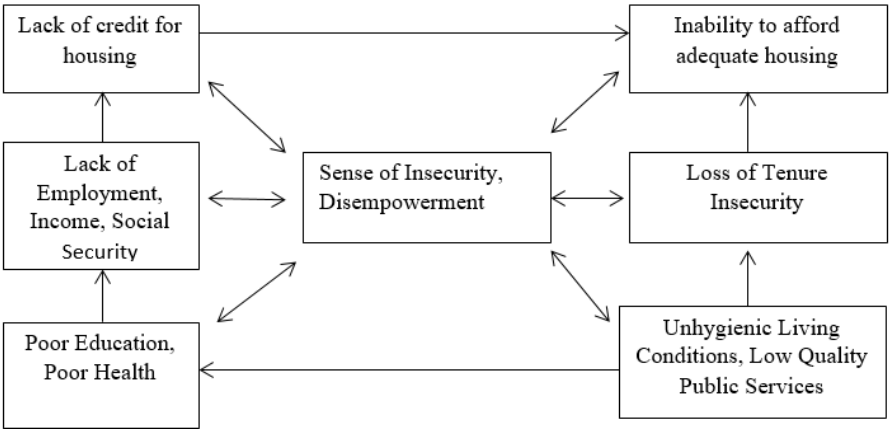
Johnson and Meckstroth (1998) define housing insecurity as a situation where household income falls short of housing costs, or households live in poor quality and unstable neighbourhoods, overcrowded houses or are homeless. Hartman (1998), in a definition on housing insecurity, points out that housing must be habitable and

affordable. Other definitions of housing insecurity refer to homelessness, overcrowded homes, and include unsafe neighbourhoods (Herbert, Morenoff &Harding, 2015). Wong, Elliot, Reed and Ross (2009) define housing insecurity as a situation of absence of settled, steady, and adequate night-time homes. In this regard, Wong et al. (2009) refer to not having a home at night time as severe housing insecurity. Against this background, research on housing insecurity is inconclusive without a proper definition and measurement scale (Tyler, Chwalek, Hughes, Karabanow & Kidd, 2010).

2.3 Housing insecurity and poverty as multidimensional

The literature on poverty clearly shows the importance of adequate housing (Nazli & Malik, 2003). Furthermore, the early indicator of poverty includes housing-related problems (Nazli & Malik, 2003). Aligned with the view of housing insecurity as an early indicator towards poverty, Nazli and Malik, based on the work of Coudouel, Hentchel and Wodon (2001), developed a framework to show how housing- and poverty-related factors interact. Figure 1 below shows the dimension of poverty contributors.

Figure 1: Dimensions of poverty contributors within the context of housing



Source: Nazli and Malik (2003)

Within this context, housing insecurity can be considered as a key indicator of poverty. Therefore, housing insecurity can be regarded as multidimensional (Bailey, Cook, De Cuba, Casey & Fran, 2016). In Figure 1, it is evident that employment, income, education and access to credit facilities play an important role in housing insecurity.

2.3.1 The link between food, housing insecurity and job insecurity

A study by Desmond and Gershenson (2016) refers to the link between housing insecurity and job insecurity. In this study, they found that housing insecurity may trigger job insecurity, and report that the odds of a worker losing his/her job is 11 to 22 percent higher for a worker who may be evicted from his or her home. Furthermore, Nazli and Malik (2003) argue that a lack of employment leads to a lack of income and eventually impacts on the ability to afford housing. King (2018) indicated that studies on the relationship between food insecurity and housing insecurity are lacking. However, several studies show that food insecurity and housing insecurity are correlated (Kushel et al., 2006; Ma et al., 2008). Other studies (Corcoran et al., 1999; Heflin, 2006; Fertig & Rengold, 2008) show that food insecure households may be at higher risk of material hardship and at risk of housing instability and homelessness. Several studies (Burghard et al., 2012; Park et al., 2011; Suglia et al., 2011) have also pointied to the negative physical and mental health consequences of housing insecurity. Studies by Bratt (2002) and Kushell et al. (2006) explain that housing is an important factor that contributes to the well-being of families, and how it facilitates healthcare, employment and education. Studies by Bailey et al. (2016) and Cutts et al. (2013) found that housing insecurity affects the wellbeing of children in the long run.

3 Research methods and data collection

In this paper, we make a deliberate attempt to discuss what is taken for granted to be common knowledge, but is not commonly known.

We distinguish between research methodology and research methods. In most papers, research methods are referred to as research methodology. Research methodology is the study of research methods, and therefore what we present in this section is research methods that are the tools and techniques and the logical and systematic process of the data collection and analysis (Walliman, 2011). The study follows a positivist approach and its epistemology of using an objective approach, where a set of hypotheses will be tested using empirical data (Aliyu, Bello, Kasim & Martin, 2014). It is the main objective of this paper to test the hypothesis that housing insecurity is a function of a set of household characteristics and also those of the household head. The paper also uses a measure of household housing insecurity that is under development in a series of papers on housing insecurity, emanating from the realisation of the absence of an accepted measure of housing insecurity that could be adopted across varied contexts (Beer et al., 2016; Broton & Goldrick-Rab, 2018).

3.1 Data

The study uses data collected by Statistics South Africa in the latest (2016-2017) general household survey (GHS). More than 21 000 households were included in the data and this presents the paper with an opportunity to reapply the measure of household that the authors of this paper have been developing in the series of these papers on housing insecurity. The econometric model used in the data analysis was a multinomial logistic regression with different categories of housing insecurity used as the dependent variable. The household social economic characteristics were used as independent variables in the model. Other antecedents that were included emanating from a thorough investigation in the literature include head of household variables, such as gender, education level and employment status (Nazli & Malik, 2003)

3.2 Model specification

Firstly, the paper presents the calculation of the housing insecurity scale. As pointed to already, there is an absence of a clear measure of housing insecurity. Mncayi and Dunga (2017) proposed the use of the three main pointers of the probability of housing insecurity with justifiable weighting to form a composite measure of housing insecurity. These are: number of people in a household to proxy overcrowding in a house that is a signal of housing insecurity; secondly, the material used in the building of the housing structure; this is important especially in South Africa where shacks can be identified based on the material used; and thirdly, the percentage of income that goes to housing, whether paying a bond or rent (Mncayi & Dunga, 2017). The dependent variable is therefore a composite of these three dimensions of housing insecurity. An index is calculated by assigning values to the different categories as calculated based on these three components.

3.3 Calculation of the housing insecurity index

The housing insecurity index is based on the addition of the scores that the household attained in the three dimensions of housing insecurity. As mentioned already, these dimensions are, overcrowding, which is calculated from the household size. The smaller the number of people in the house, the lower the score and the higher the number of people in the household, the higher the score. This contributes to the overall index that will also be based on the scale interpreted as the higher the score, the higher the probability of the household to be housing insecure, and the lower the score the lower the probability of the household to be housing insecure. House hold size is categorised into three categories namely 1 to 3 members, 4 to 6 members and 7 and above. Where the first category is considered secure in terms of crowding, the second id moderate and the third is overcrowded, hence insecure in the overcrowded sense. When categorised into three categories of housing insecurity based on the household size alone, the frequency distribution is presented in

Table 1. The table shows that, based on the household size, a majority of households, accounting for 58.4% of the sample, is housing secure.

Table 1: Housing insecurity based on household size

Category	Frequency	Percentage	Cumulative percentage
Housing secure	12620	58.4	58.4
Moderately housing insecure	5435	25.2	83.6
Housing insecure	3546	16.4	100.0
Total	21601	100.0	

Source: Calculation of the GHS date by author (2018)

The second component of the housing insecurity measure is the percentage of income that is paid or expended on housing. This could be mortgage payments or rentals. The income component is also categorised into three categories; those that spend 0 to 10% of their income on housing are considered secure, then moderate in 11% to 30% of total household income and insecure is those that spend more than 30% of their total household income on housing. The results are presented in Table 2. The picture coming out is that a big percentage of the sampled households were in informal housing.

Table 2: Percentage of income spent on housing

Category	Frequency	Percentage	Cumulative percentage
Housing secure	19978	92.5	92.5
Moderately housing insecure	642	3.0	95.4
Housing insecure	981	4.5	100.0
Total	21601	100.0	

Source: Calculation of the GHS date by author (2018)

A cross-tabulation of housing material used to build the house, which is the third component, shows that the majority of these households that indicated to spend zero on housing, were in houses built from corrugated iron/zinc, and are basically shacks. The third component which is material used for the structure was categorised into three. The first category was houses made of bricks and concrete which was

considered secure, second was houses build with asbestos and tiles, which was considered moderate, and the third category was houses built by corrugated iron sheets and zinc, which was considered insecure, because in the South African setting these are informal houses. Table 3 shows the frequency of housing security based on material used for construction.

For the purposes of this study, it helps with the identification of informal houses. The literature also shows that the structure of the house and the material used are one indicator of whether the house is structurally secure.

Table 3: Housing insecurity based on material used for construction of house

Category	Frequency	Percentage	Cumulative percentage
Housing secure	71	0.3	0.3
Moderately housing insecure	421	1.9	2.3
Housing insecure	21109	97.7	100.0
Total	21601		

Source: Calculation of the GHS date by author (2018)

These three dimensions are used by assigning weight to each category and adding the score to calculate a multidimensional housing insecurity index.

The index is not categorised, but it is a scale with a higher score representing higher probability of housing insecurity and lower scores representing lower probability of housing insecurity. This measure is different from the categorised measure from Mncayi and Dunga (2017); however, they complement each other in the sense that they both build the calculation on the three dimensions of housing insecurity as postulated in the literature.

3.4. The regression model specification

In answering the overarching objective of the paper, a regression model is employed to investigate the household variables and the head of household characteristics that are significant in predicting the probability of housing insecurity at household level. Resulting from the fact that the housing insecurity measure has been calculated as an index, a scale measure, an ordinary least squares (OLS) regression becomes the appropriate model to be used. The model is specified as follows:

$$HHII = \beta_0 + \sum_{i}^{n} \beta_i + \sum_{j}^{k} \theta_j + \varepsilon$$

where HHII is the household housing insecurity index measured as a composite of three dimensions of housing insecurity as discussed in section 3.3 above. The independent variables comprise the continuous variable represented by $\sum_i^n \beta_i$ and the categorical variables represented by $\sum_j^k \theta_j$.

The main variables to be included in the model are household size, total income of the household (which was transformed to natural log), and the gender of the head of household (which was a categorical variable defined as 0 for female head of household and 1 for male head of household). This implies that the coefficient will represent the male category, which is a standard interpretation of dummy variables. Another categorical variable that was included in the model was the food security measure. This was entered as 1 for food insecure households and 0 for food secure households, and the dummy variable principle was applied. The material for walls was also entered in the model as dummy variables. The different categories reported in Table 3 were categorised into five dummy variables, namely brick, defined as 1 for houses with brick walls, and 0 all else. The second dummy was cement block and concrete walls, the third dummy was corrugated and zinc walls (which are basically shacks),

the fourth dummy was wood, and the fifth dummy was plastic and cardboard walls. In the regression model, corrugated and zinc walls were used as the reference point.

4 Results and discussion

The ordinary least squires (OLS) model

Based on the index, an OLS regression was estimated to investigate the antecedents of housing insecurity at household level. The results are reported in Table 4. The results in Table 4 show that income is a significant predictor of housing insecurity; with a p-value of 0.000 it is significant at the 0.01 level of significance. The coefficient of log of income is negative, agreeing with the *a-priori* expectation that there is a negative relationship between housing insecurity and income; the higher the income, the lower the score on the index, which means the lower the probability of the household being housing insecure. A unit change in the log of income, which is basically a percentage change in income, will reduce the score on the HHIS by -0.355.

The importance of housing insecurity is linked to other necessities such as food. In our paper on the nexus of food security and housing security (Dunga & Grobler, 2017), it was shown how there is a trade-off between food and housing in poor households. Sometimes, a household would be food secure, but housing insecure. In this model, a food security measure was included. The results show that there is a positive relationship, being a categorical variable; the positive coefficient means that the food insecure households are more likely to be housing insecure than the food secure households. The p-value of 0.000 also indicates that food security status is a significant predictor of housing insecurity

Gender of head of household is usually included in the analysis as it picks out the usual prejudices that are prevalent in the society in terms of access to resources between males and females (Alderman & King,

1998; Dunga, 2017; Glick, 2008; Nussbaum & Sen, 1993; Zick & Smith, 1991). In the model, we included gender, and the p-value was not significant, indicating that gender was not a significant predictor of housing insecurity in the model

The results in Table 4 show that household size was a significant predictor of the probability of a household falling into housing insecurity. The negative positive coefficient indicates the positive relationship between household size and the probability of housing insecurity. The higher the number of people in the household, the higher the probability of being housing insecure. This is in agreement with the overcrowding aspect of housing insecurity (Mncayi & Dunga, 2017). Household size had a p-value of 0.000, which is less than 0.01 for the 1 percent significance level, implying that household size is a significant predictor of housing insecurity.

Table 4: Results of the OLS regression model

	B	**Standard Error**	**t**	**Sig.**
Constant	11.369	0.703	16.162	0.000
Log of income	-0.355	0.058	-6.081	0.000
Food insecurity	1.176	0.235	5.008	0.000
Gender of head of household	-0.308	0.315	-0.977	0.329
Household size	1.560	0.255	6.113	0.000
Brick wall	-2.471	2.361	-1.047	0.295
Cement block wall	-1.860	0.709	-2.622	0.009
Wood wall	0.340	3.041	0.112	0.911
Plastic cardboard wall	8.892	0.308	28.909	0.000

a. Dependent variable: HHII, adjusted R squared 16%, ANOVA p-value, 0.000

The material used in the construction of the walls of the house was used in the model as a dummy variable. Corrugated iron or zinc was the reference category. Brick and cement block and concrete had a negative coefficient implying that, compared to those in corrugated iron sheets walls, the households that were in houses made of brick walls or cement bock walls or concrete walls were all less likely to be

housing insecure. However, the coefficients for houses made of wood walls and plastic and cardboard walls had a positive coefficient meaning that these households had a higher probability of being housing insecure compared to the corrugated and zinc-walled house. This result is not surprising as these all indicate different levels of informal housing. The expectation is that households in informal housing are likely to be housing insecure as these houses are not built in a formal way and are consequently likely to suffer from numerous defects.

5 Conclusion and recommendations

In a bid to contribute to the literature on housing insecurity, which is not as ubiquitous in the global south as compared to the global north, this paper builds on a previous papers on housing insecurity (Dunga & Grobler, 2017; Mncayi & Dunga, 2017) and presents a more detailed calculation of housing insecurity with a bigger sample. The paper also investigated the household and head of household characteristics that would be significant predictors of housing insecurity in South Africa. The results show that household total income, household food security status, household size and the material used for the construction of the walls of the house are all significant predictors of housing insecurity in South Africa. Gender of the head of household was not significant in predicting housing insecurity.

The paper recommends the construction of a scale based on attitudes on housing insecurity that can be used to capture people's perceptions of their housing security status. The fact that the majority of the sample was in informal housing highlights the magnitude of the housing problem in South Africa and how important it is to address the housing issue as the government grapples with other equally important issues such as food security and poverty in general.

6 References

Alderman, H., & King, E. M. (1998). Gender differences in parental investment in education. *Structural Change and Economic Dynamics*, *9*(4), 453–468. https://doi.org/10.1016/S0954-349X(98)00040-X

Aliyu, A. A., Bello, M. U., Kasim, R., & Martin, D. (2014). Positivist and Non-Positivist Paradigm in Social Science Research : Conflicting Paradigms or Perfect Partners ?, *4*(3), 79–95. https://doi.org/10.5539/jms.v4n3p79

Assembly, T. G., Economic, R., & Economic, N. (2016). General Assembly, *16940*(February), 1–18.

Beer, A., Bentley, R., Baker, E., Mason, K., Mallett, S., Kavanagh, A., & Lamontagne, T. (2016). Neoliberalism , economic restructuring and policy change : Precarious housing and precarious employment in Australia, *53*(8), 1542–1558. https://doi.org/10.1177/0042098015596922

Broton, K. M., & Goldrick-Rab, S. (2018). Going Without: An Exploration of Food and Housing Insecurity Among Undergraduates. *Educational Research*, *47*(2). https://doi.org/10.3102/0013189X17741303

Bullock, E. (1999). Attributions for Poverty : A Comparison of Middle-class and Welfare Recipient Attitudes ’. *Journal of Applied Social Psychology*, *26*, 2059–2082.

Chant, S. H. (2006). LSE Research Online Working paper Female household headship and the feminisation of poverty : facts, fictions and forward strategies.

Drimie, S., & Casale, M. (2009). Multiple stressors in Southern Africa: the link between HIV/AIDS, food insecurity, poverty and children’s vulnerability now and in the future. *AIDS Care*, *21 Suppl 1*(August), 28–33. https://doi.org/10.1080/09540120902942931

Dunga, S. H. (2017). A Gender and Marital Status Analysis of Household Income in a Low-Income Township. *Studia Universitatis Babes-Bolyai Oeconomica*, *62*(1), 20–30.

https://doi.org/10.1515/subboec-2017-0002

Dunga, S. H., & Grobler, W. (2017). Thehehe nexus of food and housing insecurity in south. *International Journal of Social Sciences*, *9*(2), 95–108.

Fama, E. F., & French, K. R. (1992). The Cross-Section of Expected Stock Returns. *Journal of Finance*, *47*(2), 427–465. https://doi.org/10.2307/2329112

Glick, P. (2008). What Policies will Reduce Gender Schooling Gaps in Developing Countries: Evidence and Interpretation. *World Development*, *36*(9), 1623–1646. https://doi.org/10.1016/j.worlddev.2007.09.014

Grobler, W. C. ., & Dunga, S. . (2016). The Relationship between perceptions of the causes of poverty and household characteristics. *International Journal of Economics and Finance Studies*, *8*(2), 129–146.

Grobler, W. C. J. (2015). Socio Economic Determinants of Household Dietary Diversity in a Low Income Neighbourhood in South Africa Proceedings of 30th International Business Research Conference, (April).

Hernandez, D., & Suglia, S. (2016). *Leveraging the Social Determinants to Build a Culture of Health Housing as a Social Determinant of Health*. Retrieved from https://healthequity.globalpolicysolutions.org/wp-content/uploads/2016/12/Housing2.pdf

Makhalima, J. L., Sekatane, M. B., & Dunga, S. H. (2014). Determinants of Child Poverty in a South African Township: A Case of Boipatong Township. *Mediterranean Journal of Social Sciences*, *5*(1). https://doi.org/10.5901/mjss.2014.v5n1p235

Mncayi, N. P., & Dunga, S. H. (2017). Determinants of Housing Insecurity in a Low Income Area. *International Journal of Economics and Finance Studies. 9*(2), 117–133.

Nazli, H., & Malik, S. J. (2003). Housing : Opportunity , Security , and Empowerment for the Poor. *The Pakistan Development Review*, *4*(May), 893–906.

Nussbaum, M. C., & Sen, A. K. (1993). The Quality of Life. *Ethics*, *1*(December), xi, 453. https://doi.org/10.1093/0198287976.001.0001

Walliman, N. (2011). *Research Methods*(1st ed.). New York: Routledge.

Zick, C. D., & Smith, K. R. (1991). Marital Transitions, Poverty, and Gender Differences in Mortality. *Journal of Marriage and Family*, *53*(2), 327–336. https://doi.org/10.2307/352902