

Factors influencing housing finance from a neoliberal perspective: a case of Lusaka, Zambia

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Abstract

Purpose – Accessing decent, affordable housing is becoming more and more difficult for all countries, but especially for those in the global south. This paper aims to identify factors influencing housing finance from a neoliberal viewpoint using Lusaka as a case study.

Design/methodology/approach – The study used a quantitative methodology and recruited 214 respondents from key institutions involved in housing planning and development in Lusaka, Zambia. A structured questionnaire containing 13 indicator variables informed by literature was used for data collection. The acquired data underwent exploratory factor analysis (EFA) and confirmatory factor analysis (CFA), and goodness-of-fit was used to assess the model's acceptability using a two-index technique.



Findings – Results revealed that housing finance is defined by five variables: low-interest commercial bank loans, public-private partnerships, employer-assisted (housing allowance), community financing initiatives and pension-backed housing finance.

Research limitations/implications – The research is limited to a specific geographical area (Lusaka, Zambia) and may only be generalisable to other locations with the same economic metrics.

Practical implications – This paper provides a guide for improving urban housing by highlighting the areas housing finance should concentrate on. The identified variables can inform policymakers and stakeholders in developing strategies to address affordability challenges and improve access to housing.

Originality/value – This research contributes to the understanding of housing finance models from a neoliberal perspective, particularly in the context of urban areas in the global south. The findings offer insights into the specific variables that define housing finance and can inform interventions to improve housing affordability and access.

Keywords Development, Finance, Housing, Model, Urban

Paper type Research paper

1. Introduction

Finance is an important element in housing development as its availability impacts the quality of life for many families. It is one of the key drivers in housing delivery; therefore, ensuring access to cheaper, long-term funding for housing development is vital. Scholars have established a positive relationship between the supply of housing and access to affordable credit finance (Asabere *et al.*, 2016; Yinusa *et al.* (2017). A household's decision to buy, build, or rent a home is greatly influenced by the availability and accessibility of housing finance (Blackwell and Kohl, 2017; El-hadj *et al.*, 2018). According to Doling *et al.* (2013), a housing unit (house or apartment) is the most valuable asset that most families possess, and they emphasised that both the supply and demand for housing depend on the availability of financing.

Housing constitutes a significant part of contemporary economies. Therefore, governments see providing decent and affordable housing everywhere as a major policy goal (Bundick and Sellon, 2007), housing also has a direct impact on human welfare. Sustaining a good quality of life and social inclusion requires decent housing. People require a location to store their goods, shield themselves from the weather and create a shared area with family (Doling *et al.*, 2013).

According to a 2014 McKinsey report, it will cost \$2.3tn by 2025 to satisfy the growing demand for urban housing from low-income households worldwide. Adding the low-income earners, representing over 70% of the world's population, financing options for housing remain scarce and largely informal (McKinsey, 2014). For example, the majority of households in Africa lack access to formal housing because of the relatively slow growth in per-capita income, which restricts household resources for housing investment or consumption (World Bank Group, 2015). Despite substantial resources and strategies devoted to the problem, governments and the private sector have not been able to address the affordability gap. In many emerging economies, households finance their own housing to a large extent. This restricts access to home ownership and promotes the growth of informal housing and incremental construction (Chiquier and Lea, 2009). This paper, therefore, models housing finance from a neoliberal perspective using Lusaka as a case study.

2. Housing finance in developing countries

In developing countries, especially in sub-Saharan Africa, most households cannot afford adequate housing due to a lack of access to affordable housing finance provided by formal financial institutions (Senbeta and Batra, 2020). Over 90% of housing acquisitions are through self-help and are built incrementally, with the source of finance usually informal.

Arguably advanced as a more efficient source of housing finance in developed economies, mortgage financing is underdeveloped in most African countries ([Donkor-Hyiaman and Owusu-Manu, 2016](#)).

The main reasons behind Africa's underdeveloped housing finance system include weak legal frameworks that do not effectively safeguard lenders' interests; high and unstable inflation and interest rates; a lack of development and regulation in certain areas of the banking and capital markets; and inadequately developed housing market infrastructure ([Chiquier and Lea, 2009](#); [Senbeta and Batra, 2020](#)). Furthermore, according to [Ayenew and Martin \(2009\)](#), the capacity of middle-income earners and those in the lower-income bracket to obtain housing finance has been hampered by low-income and prohibitively expensive housing products on the market. [Senbeta and Batra \(2020\)](#) posit that apart from the housing affordability problem and the high interest rates on loans, other factors preventing households from accessing housing finance include eligibility requirements for potential borrowers, such as down payment or equity contribution, collateral requirements other than the mortgaged property and insurance coverage. Other scholars, such as [Kuma \(2015\)](#), had earlier pointed out that high loan interest rates, the need for statutory land title as security, and the lack of primary mortgage institutions were previously identified by [Kuma \(2015\)](#) as the main obstacles to housing finance availability. Furthermore, the capital markets in many African nations are still small and do not constitute a substantial funding source for long-term real estate projects. The limited financial instruments now in use are insufficient to meet long-term housing financing needs ([El-hadj et al., 2018](#)).

In Zambia, there are 20 million people, 45% of whom reside in urban areas, and the country's young population is growing at a rate of 2.9% but almost 80% of the people are considered low-income ([Policy Monitoring and Research Centre, 2018](#)). This directly affects the affordability of housing and financial accessibility. Like any other nation that is urbanising, Zambia is currently facing issues related to expanding unplanned settlements and a lack of adequate, reasonably priced housing. The primary causes of these shortages are the housing market's inability to meet demand and the absence of sustainable home finance ([Policy Monitoring and Research Centre, 2018](#)).

Access to conventional housing finance from banks and building societies is limited to a small group of high-income households. Service providers include banks, building societies and Micro Financial Institutions. Other players, though they may not be considered conventional, include, to a very small extent, intermediary micro-lenders such as community finance initiatives/village banks ([Drummond et al., 2013](#)). A few commercial banks and micro-financial institutions make up the mortgage industry. For residents of unplanned communities, the lack of title deeds and the high cost of financing (interest rates) present obstacles to obtaining a mortgage. Even though the mortgage industry has grown steadily in recent years, most citizens still find it expensive to obtain a mortgage due to the high interest rates, ranging from 14% to 35% ([Policy Monitoring and Research Centre, 2018](#)).

Although they can register under the Societies Act, intermediary microlenders involved in home finance are typically not subject to central bank regulation. These organisations are individually managed and self-governing that pool funds to be distributed to their members. Significantly, these organisations function in the low-income, comparatively underserved market. Nonetheless, the scope of lending and the size of the market sector it serves are constrained by capacity and scale issues. One major obstacle to Zambia's house ownership market development is a lack of financial access. Most work in the housing construction industry is still done by individuals employing "self-build" construction methods, which are informal, artisanal jobs. Due to a lack of economies of scale, high construction input prices,

and a small local supply of building materials, few private developers have entered the housing market yet, which drives up expenses.

2.1 *Housing finance in neoliberalism*

The origin of the word neoliberalism is linked to the period of capitalist political economy that came after the collapse of the post-World War II Keynesian–Fordist regimes. It is typically connected to the encouragement of new markets and market rationality, frequently by the state, and the subsequent rollback of numerous welfare state elements and government economic intervention (Byrne and Norris, 2022). The ideology of neoliberalism is frequently seen as one that focuses on limiting the role of the state in the market. It is an approach that various regimes adopt in different ways, emphasising that the ideal way to advance the well-being of everyone is to allow people to apply their entrepreneurial freedoms and capabilities within a framework that is established by rights, liberalised markets, as well as free-trade (Mahony and Weiner, 2019). Neo-liberalism has been used as a development approach in many nations over the past few decades, and major international financial organisations like the World Bank and the International Monetary Fund have supported its use (Wahidi, 2012).

Many governments worldwide have adopted neoliberal policies focusing on reduced social expenditure, free trade, tax cuts and budgetary restraint. At inception, in the US and most European countries, this was characterised by the privatisation of public housing. Many policy thrusts and governance advancements encouraged the liberalisation of the mortgage markets (Rolnik, 2013). New policy mechanisms such as public–private partnerships (PPPs) were championed as a form in which a process of neo-liberalisation could continue to be implemented within the key institutions of the welfare state. Their use was expanded considerably in the 1990s and 2000s to provide public housing, hospitals, motorways, schools, rail and water and waste infrastructure (MacLaren and Kelly, 2014). Neoliberals advocate for a more significant role for the private sector and less for the government, citing fiscal constraints on the government side. The argument is that private sector companies and communities should assume many of the state’s duties instead of the public sector serving as the exclusive provider of public services. This approach supports PPPs as a market-enabling strategy by which the private sector’s role is supported by the resources of the government, the community and the NGOs (Miraftab, 2004).

Neoliberals have advanced the development and growth of the mortgage market; however, in developing economies, mortgage lending is limited, as aforementioned, due to the underdevelopment of credit information systems and pervasive collateral risk (De Soto, 2001). Pension assets present alternative or complementary collateral for obtaining housing finance (mortgage), according to Donkor-Hyiaman *et al.* (2019). Furthermore, in the course of credit underwriting, the information content of pension assets and institutions could serve as depositories of information and be used in a complementary and alternative manner to evaluate potential borrowers’ ability, nature and equity contribution.

Important things to consider are that although neoliberalism has advanced in making markets more functional and decreased government involvement in the provision of affordable housing, it also carries the risk of further alienating low-income earners from market participation if strong policy positions are not adopted. The goal of policy interventions should be to encourage the private sector to provide low-cost, accessible housing that is geared towards low-income individuals. Some economic theories support this stance and are discussed further.

Neoclassical economic theory focuses on the role of supply, demand and market equilibrium in shaping housing prices and financing. It posits that housing markets respond predictably to changes in variables such as interest rates, loan-to-value ratios and consumer

preferences. Recent studies demonstrate that reductions in mortgage rates significantly influence housing prices, while shifts in credit conditions can alter demand patterns. [Garriga et al. \(2019\)](#) model housing price swings driven by financial market segmentation, highlighting how credit constraints and expectations about financing affect housing markets. Institutional theory, on the other hand, examines how policies, regulations and societal norms shape housing finance. It provides a lens to analyse systemic issues, such as accessibility and equity in housing markets. [Fernandez and Aalbers \(2020\)](#) argue that the financialisation of housing varies globally due to institutional differences, which influence credit access and market stability ([Fernandez and Aalbers, 2020](#)).

2.1.1 Selection of indicator variables for housing finance. The identification of measurement variables as espoused in this study was informed by literature.

Financing through mortgages remains one of the most prominent mechanisms for facilitating long-term investments in housing. [Ogunnaiké et al. \(2013\)](#) and [O'Callaghan and McGuirk \(2021\)](#) highlight that mortgages allow costs to be spread over extended periods, making homeownership more accessible to middle-income households. However, in many contexts, stringent qualification criteria and high interest rates often exclude low-income earners from accessing this form of financing. To address such gaps, low-interest commercial bank loans have emerged as a viable alternative, particularly in economies with underdeveloped mortgage markets. [Taiwo et al. \(2014\)](#) emphasise that these loans enhance affordability and extend the reach of formal housing finance to a broader demographic.

For underserved populations, loans from micro-financial institutions (MFIs) offer a more flexible option. [Gumbo \(2013\)](#) and [El-hadj et al. \(2018\)](#) describe how MFIs provide smaller, tailored loans, particularly for incremental housing development, thereby empowering low-income households. These institutions play a crucial role in enhancing financial inclusion and addressing the unique needs of informal housing sectors. Similarly, PPPs have become innovative mechanisms to bridge funding gaps in housing delivery. [Ogunnaiké et al. \(2013\)](#) and [Su \(2022\)](#) argue that PPPs combine private-sector efficiency with public-sector support, fostering sustainable and cost-effective housing solutions.

Employer-assisted loan initiatives provide another layer of support, especially for employees needing housing. [Ramovha \(2017\)](#) notes that such initiatives alleviate financial pressures while enhancing productivity by ensuring access to decent accommodation. Similarly, housing allowances offered by employers directly subsidise employee housing expenses, further promoting affordability. Community-based approaches, such as loan initiative schemes, are also significant. [Stein and Castillo \(2005\)](#) and [Ferguson and Smets \(2010\)](#) discuss how these schemes mobilise collective resources, especially in low-income communities where formal financial systems remain inaccessible. By fostering local ownership and participation, these initiatives address housing affordability and strengthen social cohesion.

Self-financing through savings represents another important mechanism, especially in societies with cultural solid practices of resource pooling. [Sandhu and Korzeniewski \(2004\)](#) highlight how this method minimises reliance on external borrowing, empowering individuals to achieve housing security incrementally. On a broader scale, state-led financing initiatives, such as providing social housing and essential services, are critical in addressing systemic affordability challenges. [Mullins and Moore \(2018\)](#) underscore that government support targets vulnerable populations while catalysing private sector participation by reducing development costs.

Additional strategies include policies such as duty waivers on materials that cannot be produced locally. [Sandhu and Korzeniewski \(2004\)](#) argue that such measures lower construction costs, making housing projects more viable and affordable. Pension-backed

housing finance introduces a novel approach by leveraging retirement savings for housing investments. [Donkor-Hyiaman et al. \(2019\)](#) emphasise how this mechanism enhances access to long-term financing while preserving financial security for retirees. Community-driven financing initiatives complement these strategies by pooling resources for collective housing projects. [Ferguson and Smets \(2010\)](#) state that such schemes promote inclusivity and resilience, addressing affordability challenges in low-income neighbourhoods.

Table 1 comprehensively summarises the indicator items (variables) for the housing finance construct.

3. Research methodology

This study used a quantitative methodology through the distribution of a structured questionnaire with questions on a five-point Likert scale to collect data. The choice of a quantitative approach was informed by its capacity to systematically capture and analyse patterns, trends and relationships among variables related to housing finance. Quantitative methods are well-suited for studies that provide generalisable findings and derive statistically significant insights from large data sets. The preference for a quantitative approach over qualitative or mixed methods lies in its ability to measure respondents' perceptions, preferences and experiences in a standardised manner, facilitating comparability and data aggregation. While qualitative methods are invaluable for exploring in-depth contextual insights, they may not effectively capture the breadth of patterns across diverse stakeholders in housing finance. In the context of this research, they allowed for a structured exploration of the impact of various financing mechanisms on urban housing development in Lusaka, Zambia. A total of 214 respondents from various institutions involved in housing development and planning were sampled, namely government ministries, NGOs, financial institutions, regulators, private property developers, quasi-government institutions, as well as other housing-allied professions (quantity surveyors, architects, valuers and urban planners). A thorough assessment of literature on housing finance served as the basis for developing the questionnaire used for data collection. A summary of the sample frame is shown in [Table 2](#). For studies using confirmatory factor analysis (CFA) (structural equation modelling) such as this one, scholars have recommended having a minimum of 200 respondents ([Jackson, 2003](#); [Hair et al., 2008](#); [Bagozzi, 2010](#); [Oke et al., 2012](#)).

Table 1. Measurement indicator variables for housing finance

Latent variable construct	Indicator variables	Label
Housing finance	Financing through mortgages	HFE1
	Low interest commercial bank loans	HFE2
	Loans from micro-financial institutions	HFE3
	Public private partnerships	HFE4
	Employer assisted loan initiatives	HFE5
	Community loan initiative schemes	HFE6
	Employer assisted (housing allowance)	HFE7
	Self-financing through savings	HFE8
	State financing of social housing	HFE9
	Duty waive on materials that cannot be produced locally	HFE10
	Community financing initiative	HFE11
	State financing provision of basic services	HFE12
	Pension backed housing finance	HFE13

Source(s): Authors' compilation

Table 2. Organisations or institutions sampled

Institution	Frequency	%
Government ministries	48	22.4
Non-governmental organisations	19	8.9
Private property developers	23	10.7
Mortgage lending institutions	6	2.8
Quasi-government institutions	27	12.6
Consultancy firms	68	31.8
Others	21	9.8
Did not indicate	2.0	1.0
Total	214	100.0

Source(s): Authors' compilation

The reason Lusaka, the capital of Zambia, was selected for the study was that approximately 70% of its housing stock is of poor quality, a circumstance common in many cities in sub-Saharan Africa. Two stages of analysis were performed on the processed data: an exploratory factor analysis (EFA) and a CFA. To learn more about the latent construct of housing finance and the connections between the measured indicator variables and the related latent factor (construct), EFA was employed as a preliminary phase (first stage) because it shows how well items load on a non-hypothesised factor. EFA is helpful in the early stages of development (Hurley *et al.*, 1997). Its objectives are to establish the ideal number of variables and demonstrate the existence of sound indicators for various potential features of measured items (variables) (Brown, 2015; Koyuncu and Kiliç, 2019a, 2019b). Whereas CFA was performed to determine how well the data fits the proposed measurement model.

4. Findings

This section covers the results of the analysis on the retrieved data from the respondents.

4.1 Demographic information of respondents

The majority of the respondents' academic backgrounds were in subjects related to housing and the built environment. These included real estate/property valuers ($n = 51$; 24.0%), quantity surveyors ($n = 65$; 30%), urban and regional planners ($n = 39$; 18.0%), architects ($n = 40$; 19.0%) and other professionals ($n = 18$; 8.0%). One respondent, though, omitted to mention their professional background.

4.2 Exploratory factor analysis result

The one-dimensionality and reliability of housing finance construct was assessed using EFA. The extraction and rotation methods for principal components with Varimax rotation were provided, respectively. As indicated in Table 3, the attributes of housing finance had a KMO value of 0.881 and a significant ($p = 0.000$) Bartlett's test of sphericity for the attributes. This suggested that the factor analysis was appropriate (Rehbinder, 2011; Chisumbe *et al.*, 2022).

Three components were identified by a PCA as having eigenvalues greater than 1, which together accounted for 45.15%, 11.837% and 9.387% of the variance. However, a closer look at the scree plot showed that there was a distinct break following the second element. After applying Catell's (1966) scree test, two components were retained for further analysis. The findings of a parallel analysis, which revealed just two components with eigenvalues greater

Table 3. Factor analysis result

Variables	Component matrix		% of variance
	Component 1	Component 2	
HFE11	0.863		45.150
HFE12	0.819		
HFE10	0.776		
HFE5	0.710		
HFE13	0.701		
HFE6	0.679		
HFE7	0.675		
HFE9	0.542		
HFE3		0.845	11.539
HFE1		0.821	
HFE4		0.689	
HFE2		0.538	
HFE8		0.511	
Kaiser–Meyer–Olkin measure of sampling adequacy			0.881
Bartlett’s test of sphericity			1367.181
			Df
			78
			Sig.
			0.000
Extraction method: Principal component analysis			
Rotation method: Varimax with Kaiser normalisation ^a			

Source(s): Authors’ compilation

than the matching threshold values for a randomly created data matrix of the same size (13 variables $\times$ 214 respondents), further supported this. The two-component solution explained a total of 56.987% of the variance, with Component 1 contributing 45.150% and Component 2 contributing 11.837%. The rotated matrix revealed that eight items (HFE11, HFE12, HFE10, HFE5, HFE13, HFE6, HFE7 and HFE9) were loaded on component one, while four components (HFE3, HFE1, HFE4 and HFE2) were loaded on component two. The factor loadings for all items were greater than the recommended 0.4 (Hair *et al.*, 2008; Field, 2009), as shown in Table 3. For this construct, there was sufficient evidence of convergent validity. Therefore, the items were retained for further analysis.

4.3 Confirmatory factor analysis result

4.3.1 Statistics on SEM assumptions – outliers and missing data. An inspection of the data sets revealed that some data sets had missing responses, which was on the respondents’ demographic profile. After a thorough analysis of the missing data pattern, it was discovered that the missing data was missing at random (MAR) rather than missing completely at random (MCAR). Allison (1987) recommends the maximum likelihood method as one option available to deal with problem of missing data. Multivariate normality, which the model assumes, suggests that the means, variances and covariances are adequate statistics (Allison, 1987; Carter, 2006). Based on the aforementioned, robust maximum likelihood was used for this study.

Furthermore, an examination of the data sets revealed a few cases of outlier responses. A researcher must seek for univariate and multivariate outliers in data sets when using SEM. If a participant’s score is extreme on just one measure, it is considered a univariate outlier.

Multivariate outliers are individuals with two or more extreme scores or a unique score configuration. The case numbers with the most contributions to Mardia’s normalised multivariate kurtosis were included in the EQS result output in the current investigation. It was determined that there were a few outliers in the data based on the examination of these case numbers, which revealed the case numbers that contain outliers. Nonetheless, the robust maximum likelihood (RML) estimate technique selected for this investigation was sufficient to handle the outlier issues. The robust estimates of covariances that the RML technique uses in place of regular sample covariances make it reliable (Aigbavboa, 2014; Chisumbe *et al.*, 2022).

4.3.2 *Statistics on SEM assumptions – data distribution characteristics.* When performing structural equation modelling, the assumption with most statistics used is that the multivariate distribution is normally distributed. Therefore, violating this assumption can be problematic since the precision of statistical tests can be impaired by non-normality. If a researcher tests a model with non-normally distributed data, the outcomes may incorrectly indicate that the model is a good fit for the data or that, depending on the level and nature of the problem, the model is a poor fit for the data. Kline (2005) posits that:

[...] testing whether the assumptions for multivariate normality are met is impractical as it involves examining an infinite number of linear combinations. One solution is to examine the distribution of each observed variable. This screening for univariate normality can inform researchers whether multivariate normality may be an issue. To determine whether univariate normality exists, the researcher examines the distribution of each observed variable for skewness and kurtosis.

Skewness is the degree to which the distribution of a variable is asymmetrical, with a positive skew defining a distribution having many scores at the low end of a scale. Kurtosis is a measure of the distribution’s peak and tails. Significantly peaked distributions with few outliers are represented by positive kurtosis. Conversely, when the distribution is rather flat and shows many outliers, there is a negative kurtosis. Kurtosis index absolute values greater than 10.0 indicate an issue and values greater than 20.0 are extreme (Kline, 2005). The most important measures of the degree to which non-normality impacts the inferences made in the analysis of variance are skewness and kurtosis. Any time skewness is different from zero (0), it indicates that the distribution deviates from symmetry. Similarly, anytime kurtosis is different from zero (0), it indicates that a distribution deviates from normality in tail mass and shoulder (Scheffe, 1959; DeCarlo, 1997). The robust maximum likelihood estimation method of the postulated model was adopted after an inspection of the EQS result output, which included univariate statistics like the mean, kurtosis, skewness, and standard deviations, revealed that the data distributions in this study were highly kurtotic, as indicated in Table 4.

Table 4. Univariate and Mardia’s normalised multivariate estimates

Latent constructs	Indicators	Mean	Skewness	Kurtosis	SD	Mardia’s coefficient	Normalised estimate
Housing finance	HFE2	2.1028	1.0936	0.7634	1.0741	3.8727	3.3857
	HFE4	2.6355	0.3742	−0.2789	0.9131		
	HFE7	2.3037	0.2697	−0.6823	1.0099		
	HFE11	2.0047	1.0383	0.9114	0.9114		
	HFE13	2.4579	0.4414	−0.2896	1.0944		

Source(s): Authors’ compilation

4.3.3 Statistics on SEM assumptions – identifiability of the model. A model must meet the requirements of model identification before it can be examined. If a unique estimate of each parameter can be derived theoretically, then that statistical model is considered identified (Kline, 2005). From a conceptual standpoint, model identification is the ability to generate all of the estimates needed in a model from the available observed data. As a result, identification is a data problem that involves the quantity of known data and the quantity of model parameters that need to be estimated. Structural equation models are identified when each latent variable has a metric or measurement scale, and when there are more covariances and variances in the input data matrix than there are parameters to be estimated (Kline, 2005). Before performing model analysis, it is necessary to verify that the model is identified. Unidentified models will remain unidentified, and attempting to analyse them may not yield positive results (Kline, 2005:105; Aigbavboa, 2014). A model can be under-identified, identified (just-identified) or over-identified.

4.3.4 Measurement model for housing finance construct. This section presents the housing finance (HFE) construct uni-dimensional model. For the analysis of this construct, 214 cases were used. The HFE construct had 13 indicator variables at first, but only five were kept for additional examination following a CFA. HFE2, HFE4, HFE7, HFE11 and HFE13 were among the five indicators included in the CFA because they demonstrated convergent validity and a good residual matrix measure. The Bentler–Weeks structure report was examined, and it was found that there were five dependent variables, six independent variables, ten free parameters and six fixed non-zero parameters. The resultant housing finance measurement model is shown in Figure 1.

The five dependent indicator variables retained for the housing finance construct include low-interest commercial bank loans, public–private partnerships, rent-to-income ratios not being more than (30%), community financing initiatives and pension-backed housing finance. The residual covariance matrix, goodness-of-fit statistical indices, statistical significance of parameter estimations, internal reliability and construct validity were all examined during the analysis process for determining the measurement model.

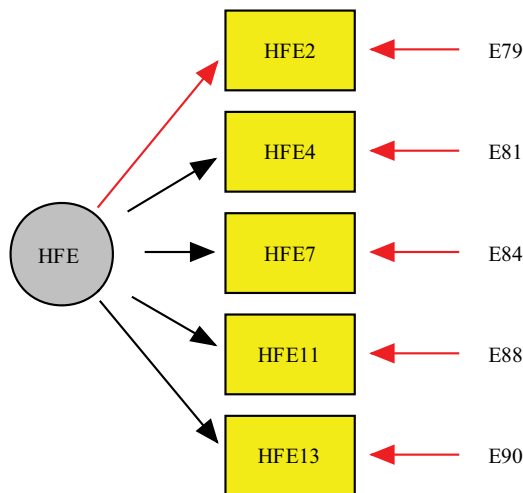


Figure 1. Measurement model of housing finance
Source: Authors' compilation

4.3.5 *Diagnostic fit analysis: analysis of residual covariance estimate.* All the construct housing finance values were around the recommended zero, according to a diagnostic fit inspection of the standardised and unstandardised absolute residual matrix values. Scholars have recommended that:

[...] for a variable to be included in a CFA, thus enabling the model to be described as well-fitting, the distribution of residuals covariance matrix should be symmetrical and centred around zero.

(Browne *et al.*, 2002; Ullman and Bentler, 2003; Somiah, 2019), with values of ± 1.96 ($p < 0.05$) or ± 2.58 ($p < 0.01$) suggesting a bad model-data fit (Schermelleh-Engel *et al.*, 2003). Table 5 reveals that the standardised average off-diagonal residual value for this construct was 0.0263, whereas the unstandardised average off-diagonal residual value was 0.0260. The housing finance measurement model's results showed that the sample data fit the model well. The statistical results recorded were within the recommended range for model acceptability (Joreskog and Sorbom, 1988; Browne *et al.*, 2002; Ullman and Bentler, 2003; Byrne, 2006; Aigbavboa, 2014; Somiah, 2019).

An examination of the frequency distribution on the residual covariance matrix revealed that the majority of residual values, around 99.99%, fell within the required range of -0.1 – 0.1 . The findings indicated that the housing finance measurement model suited the data quite well. Therefore, additional goodness-of-fit tests may be performed to determine with certainty whether the measurement model was adequate and well-fitting.

4.3.6 *Goodness-of-fit statistics – robust maximum likelihood.* The Satorra–Bentler scaled chi-square ($S - B\chi^2$) of 6.1980 with five degrees of freedom (df) and a probability of $p = 0.19635$ was obtained from the sample data on the housing finance measurement model. Overall, the results suggest little variation between the sample data and the proposed housing finance measurement model. Table 6 displays the results of the chi-square calculation and degrees of freedom ratio, which came out to be 1.2396. Given that this ratio was below

Table 5. Residual covariance matrix for housing finance (HFE) model (unstandardised and standardised)

Variables	HFE2	HFE4	HFE7	HFE11	HFE13
<i>Unstandardised residual covariance matrix</i>					
HFE2	0.000				
HFE4	0.091	−0.000			
HFE7	0.005	−0.010	0.000		
HFE11	−0.034	−0.039	0.022	0.000	
HFE13	−0.009	−0.006	−0.021	0.023	0.000
Average absolute standardised residual = 0.0174					
Average off-diagonal absolute standardised residual = 0.0260					
% falling between $-0.1 + 0.1 = 100\%$					
<i>Standardised residual covariance matrix</i>					
HFE2	0.000				
HFE4	0.093	−0.000			
HFE7	0.004	−0.011	0.000		
HFE11	−0.033	−0.045	0.022	0.000	
HFE13	−0.008	−0.006	−0.019	0.022	0.000
Average absolute standardised residual = 0.0176					
Average off-diagonal absolute standardised Residual = 0.0263					
% falling between $-0.1 + 0.1 = 100\%$					

Source(s): Authors' compilation

Table 6. Robust fit indexes for housing finance (HFE) construct

Fit indices	Acceptable threshold levels	Estimated	Comment
S-B		6.1980	
DF		5	
Chi-square (χ^2/df)	< 3 (good fit) < 5 (acceptable)	1.2396	<i>Good fit</i>
Comparative fit index (CFI)	> 0.90 (acceptable fit) > 0.95 (good fit)	0.994	<i>Good fit</i>
Standardised root mean	≤ 0.08 (acceptable fit)	0.030	<i>Good fit</i>
Square residual (SRMR)	< 0.05 (good fit)		
Root mean square error of approximation (RESEA)	< 0.05 (good fit) 0.05 < 0.08 (acceptable fit) 0.08 – 0.10 (moderate fit) > 0.10 (bad fit)	0.034	<i>Good fit</i>
RMSEA 90% CI		[0.000, 0.105]	<i>Acceptable fit</i>

Source(s): Authors' compilation

Kline's (2005) recommended threshold of 3.00 or 5.0, the model appears to be a good fit. Likewise, it was discovered that the SRMR was 0.030, below the 0.05 cut-off value, suggesting a well-fitting model. A good fit was shown by the RMSEA of 0.034, which was less than the 0.05 cut-off value. Furthermore, the CFI was discovered to be 0.994, which is higher than the 0.95 cut-off number and indicates a strong fit.

The housing finance measurement model's fit indices suggest that the proposed model sufficiently explains the sample data.

Additional validation techniques were employed to ensure the robustness and validity of the model. First, a cross-validation approach was applied, splitting the data set into training and testing subsets. The training data was used to estimate the model parameters, and the testing data was used to evaluate the model's predictive performance. This method ensured that the model was not overfitted to the sample data and could generalise well to other data sets. Furthermore, bootstrapping techniques were implemented to assess the stability of the parameter estimates. By repeatedly resampling from the data set, confidence intervals were calculated to test the reliability of the model parameters. The results indicated consistent estimates across multiple iterations, confirming the model's robustness.

4.3.7 Statistical significance of parameter estimates. Before drawing any conclusions about the measurement model's suitability for housing finance, the test statistics and parameter coefficients were examined. Table 7 illustrates the results, which showed that all

Table 7. Factor loadings, Z-statistics, reliability and construct validity of HFE measurement model

Indicators	Unstandardised coefficient	Standardised coefficient	Z-Statistics	R-Square	Sig (5%)	Factor loadings	Cronbach's alpha	Reliability coefficient rho	Internal consistency reliability
HFE2	1.000	0.629		0.396	Yes	0.6294	0.792	0.797	0.811
HFE4	0.674	0.499	7.306	0.249	Yes	0.4987			
HFE7	0.990	0.663	7.399	0.439	Yes	0.6625			
HFE11	1.049	0.737	8.608	0.544	Yes	0.7374			
HFE13	1.221	0.754	6.960	0.569	Yes	0.7545			

Source(s): Authors' compilation

signs were proper and that the values for the Z-statistics were above the advised 1.96 (Raykov *et al.*, 1991; Chisumbe *et al.*, 2022; Somiah, 2019). The values for the standardised coefficients were also less than 1.0. The results also revealed that, with a value of 0.754, HFE13 was the indicator variable with the highest standardised coefficient value. This variable dealt with house finance supported by pension funds.

All parameter estimates had strong correlations with values near to 1.00, and HFE13 was shown to be more closely associated with housing financing than the other variables. Furthermore, the R^2 values (HFE11 and HFE13) were almost exactly at 1.00, with the exception of HFE2, HFE4, and HFE7, whose values were marginally less than 0.50. The overall findings, however, point to a significant prediction of the unobserved construct by the indicator variables. As a result, there is a significant correlation between housing financing and all the examined factors.

4.3.8 Internal reliability and validity of scores. The rho coefficient of internal consistency was found to be 0.797. This value exceeded the minimum threshold of 0.70 (Chin, 1998; Demo *et al.*, 2012; Doré *et al.*, 2017). Similarly, the Cronbach's alpha value scored above 0.70, which is the minimum recommended (Griethuijsen *et al.*, 2014; Al-Osail *et al.*, 2015; Taber, 2017). The Cronbach's alpha was found to be 0.792, as shown in Table 7. A high degree of internal consistency and reliability was revealed by the values of Cronbach's alpha and the rho, indicating that the indicator variables rightly represent the same latent construct (housing finance).

All of the values and signs were appropriate to support construct validity as revealed by an analysis of the parameter coefficient estimates. As seen in Table 7, all of the factor loading values were considerably high, with the lowest being 0.4987 between HFE4 and housing financing. The housing finance measurement model's construct validity and internal reliability were examined, and it was found that the factor loadings were high enough to suggest statistical significance and that, equally, the Cronbach's alpha and rho's values exceeded the 0.70 cut-off criteria. According to scholars, a variable's factor loading should be 0.5 or higher, and ideally, 0.7 or higher, to account for around 50% of the variance in an indicator variable. However, it is advanced that a factor loading of 0.5 can account for a strong correlation between an indicator variable and the construct.

5. Discussion of results

The results of the SEM for this exogenous variable indicate that the influence of housing finance in determining overall urban housing development in Lusaka is direct and statistically significant. The housing finance model is defined by five variables, namely, low-interest commercial bank loans, public, private partnerships, employer-assisted (housing allowance), community financing initiatives and pension-backed housing finance. Furthermore, the results showed that every item in the model significantly impacted the development of housing finance. These findings generally agree with the work of Donkor-Hyiaman *et al.* (2019). In contrast to previous housing research, this study takes a unique approach to examine the cumulative impact of the five items that explain the construction of housing finance. More so, with a standardised coefficient value of 0.754, pension-backed housing finance is the main variable influencing the housing finance construct. The findings agree with the literature; according to Donkor-Hyiaman *et al.* (2019), there are two types of pension-backed housing finance: pension-secured (backed) loans and pension loans itself. Pension loans, which allow members of pension funds to borrow their accumulated pension money as a mortgage, are managed either internally by the pension fund or through a designated administrator. Pension funds can be used as an equity contribution or down payment for a mortgage in situations where they are insufficient to buy a home. On the other

hand, pension-secured loans are made to allow applicants to use their accrued pension equity as security for a home loan from a third party, most often a commercial bank (Donkor-Hyiaman and Owusu-Manu, 2016; Donkor-Hyiaman *et al.*, 2019). Pension backed housing finance have contributed considerably to housing finance development in developing countries faced with housing finance challenges. Likewise, the findings agree with literature that community-based financing is a crucial source of funding for building individual homes, maintaining existing homes, purchasing land and acquiring public (community) infrastructure (Smets, 2004; Ferguson and Smets, 2010). Community-based finance can have a complementary role to financial institutions and mortgage lenders who are not eager to offer loans to many people in the informal sector (Shand and Colenbrander, 2018). Community based initiatives include savings associations and rotating savings and credit associations. According to Smets (2018), in a basic saving association:

[...] people pay regular contributions of a fixed or variable size to a common fund, from which no credit will be provided. More so, people can join together to save for a common purpose such as the construction of a community school or place of worship. Rotating savings and credit associations consist of a group of participants who make regular contributions to a fund that is given in whole or in part to each member in turn.

From all other participants, the first collector receives an interest-free loan that can be used for housing or other purposes. While giving other members credit, the last person in line saves money. The other members switch off the roles of net debtor and net creditor. It is an intermediary between savers and borrowers. Similarly, the results agree that the 30% of income standard is a widely used and accepted measure of the extent of housing affordability (Herbert *et al.*, 2018). By convention, housing is considered affordable to a household if the rent (including utilities) is no more than 30% of its pre-tax income (Belsky *et al.*, 2005). Fisher (1992) and Herbert *et al.* (2018) advance that:

[...] imbedded in the use of an income ratio to assess affordability is the notion that housing is but one item that people need to meet their basic needs. This, in turn, means that if housing accounts for too large a share of income there will not be enough left over for these other necessities. This approach is not without precedent: it uses the same logic that underlies the poverty threshold, which is based on the idea that the cost of a minimum food basket should account for one-third of a family's after-tax money income.

The finding that commercial bank should provide low interest housing finance loans is supported by literature. Hingorani and Tiwari (2012) posit that financial institutions should work efficiently in supplying affordable credit for the purchase of dwelling units. Taiwo *et al.* (2014) adds that an integral part of the formal private sector, which grant housing loans, are the financial institutions such as the commercial banks. Olotuah (2001) argues that availability of housing finance is fundamental to the provision of adequate housing. However, Hingorani and Tiwari (2012) advance that as financial markets are likely to exclude low-income groups and some middle-income earners, options should be made available for households whose income levels are not adequate to either rent or buy housing. The PPP variable contributed the least to the construct with a standardised coefficient value of 0.499, it was still considered significant based on the overall results of other statistical tests. This result is supported by literature, which posits that PPP is necessary for addressing the urban housing shortages and that the government's role in the partnership should be through the provision of land, some basic amenities such as access roads, electricity, regulatory framework, permits, housing development plans approval and registering land titles. Whereas the private sector should be involved in the actual construction funding and management of the housing projects (Umar *et al.*, 2012; Chitongo, 2017; Ogunnaike *et al.*,

2013). The provision of essential services and housing should engage the private sector more and more. Because of its comparative advantage in addressing service inadequacies for both economic growth and general well-being, the private sector plays a crucial role. By including private companies in the development, funding, and maintenance of infrastructure services, PPPs lead to cost savings and increases in efficiency. These findings suggest that overall housing development is a product of the influence of housing finance. Moreso, that housing in Lusaka can be enhanced by improvement of the housing finance through low interest commercial bank loans, PPP, employer assisted (housing allowance), community financing initiative and as pension backed housing finance.

Overall, the outcome showed that the five (5) indicator variables measured the housing finance (HFE) construct and that the measurement model for this construct suited the sample data sufficiently. All of the internal reliability and validity scores, goodness-of-fit statistics, statistical significance tests and residual covariance matrix values were deemed statistically significant because they all fell within the allowed threshold.

6. Implication of findings

The findings of this study have significant implications for policymakers, urban planners, housing developers, financial institutions and other stakeholders involved in urban housing development, particularly in the context of Lusaka, Zambia, and other similar settings in the global south.

Firstly, the model developed in this study underscores the importance of access to housing finance in a liberalised market. By identifying key variables that contribute to housing finance, such as low interest commercial bank loans, PPP, employer-assisted housing allowances, community financing initiatives and pension-backed housing finance, policymakers can prioritise these areas for intervention. The emphasis on low interest commercial bank loans as a crucial component of housing finance underscores the need for financial institutions to play an active role in providing affordable credit for housing. Building on existing literature, which suggests that financial markets often exclude low and middle-income groups, policymakers should work to ensure that financial products cater to the diverse needs of urban residents, including those with limited income levels.

Moreover, the findings highlight the importance of fostering PPPs in addressing urban housing shortages. While the government plays a vital role in providing essential services and regulatory frameworks, the private sector's involvement in the construction, funding and management of housing projects is equally essential. By leveraging the strengths of both sectors, PPPs can lead to cost savings, increased efficiency and improved access to housing for urban residents. Additionally, the study emphasises the significance of employer-assisted housing allowances and community-based financing initiatives in addressing affordability challenges. These initiatives can complement formal financial institutions by providing alternative sources of funding for housing development, particularly for those in the informal sector. By supporting such initiatives, policymakers can promote inclusive and sustainable urban housing development.

Furthermore, the prominence of pension-backed housing finance initiatives highlights the potential of leveraging pension funds to address housing finance challenges. By allowing pension fund members to borrow accumulated savings for mortgage purposes or using pension equity as security for home loans, these initiatives can expand access to housing finance for a broader segment of the population. Policymakers should explore ways to strengthen and scale up such initiatives to maximise their impact on urban housing development.

Overall, the findings of this study suggest that enhancing access to housing finance through a combination of policy interventions, financial innovations and collaborative efforts between the public and private sectors can contribute to realising urban housing development goals in Lusaka and similar contexts. By prioritising the identified variables and implementing targeted strategies, stakeholders can work towards creating more inclusive, affordable and sustainable urban housing ecosystems.

7. Conclusion and recommendation

Grounded in neoliberal perspectives, this study has shed light on the attributes of housing finance that significantly influence urban housing development in developing countries, particularly within the context of Lusaka, Zambia. The findings underscore the pivotal role of housing finance in shaping the overall trajectory of urban housing development, highlighting the need for targeted interventions to enhance access to affordable housing finance. The results of this study corroborate the premise that access to housing finance is a critical determinant of urban housing development. By identifying key variables such as low interest commercial bank loans, PPP, employer-assisted housing allowances, community financing initiatives and pension-backed housing finance, policymakers and stakeholders are equipped with actionable insights to address affordability challenges and promote inclusive housing development strategies.

Building upon these findings, this study offers several recommendations for policymakers, urban planners, financial institutions and other stakeholders involved in housing development initiatives:

- *Integration of community-led financing initiatives:* Community-based financing initiatives can be integrated into formal financial systems through well-structured legal frameworks that promote transparency, accountability and sustainability. For instance, the Incremental Housing Development Program in Chile has successfully combined community-driven efforts with government subsidies to enable low-income families to build or improve their homes over time. Policymakers in Zambia could adopt similar strategies by establishing matching grants for community housing projects and providing technical support to ensure compliance with building standards.
- *Development of housing products linked to pension-backed finance:* Pension-backed housing finance offers a unique opportunity to enhance access to affordable housing finance by leveraging retirement savings as collateral. South Africa's Government Employees Pension Fund (GEPF) provides an example of how pension funds can be used to support homeownership. The GEPF allows members to use their pension assets to secure housing loans, mitigating the traditional barriers of collateral requirements. Policymakers in Zambia could replicate this by partnering with pension fund administrators to design innovative housing products that cater specifically to public sector employees and formal sector workers.
- *Strengthening PPP:* PPPs have demonstrated success in addressing urban housing shortages in countries like India, where the Affordable Housing Partnership Program has mobilised private sector resources to deliver low-cost housing. In this model, the government provides incentives such as land at subsidised rates, expedited project approvals, and tax benefits to private developers in exchange for a commitment to build affordable housing. Zambia could adapt this approach by creating PPP frameworks that prioritise affordable housing and ensure private sector accountability through strict performance monitoring.
- *Enhancing financial inclusion:* Improving financial inclusion requires targeted strategies to address the specific needs of marginalised and low-income groups. For

example, Kenya's M-Pesa platform has revolutionised access to microfinance and savings products for low-income households, enabling them to participate in housing finance initiatives. Similar digital financial platforms could be introduced in Zambia to reach underserved populations, complemented by financial literacy programs and housing-specific savings schemes. Furthermore, targeted subsidies for housing loans and tax incentives for financial institutions that lend to low-income borrowers could help bridge affordability gaps.

By implementing these recommendations, policymakers and stakeholders can work towards creating more inclusive, resilient, and sustainable urban housing ecosystems that cater to the diverse needs of urban residents. While this study focuses exclusively on Lusaka, Zambia, its findings have broader applicability to regions with similar economic and urbanisation dynamics. For instance, many sub-Saharan African cities face analogous challenges in housing affordability, limited financial inclusion and reliance on community-driven solutions. The key variables identified in this study can serve as a blueprint for urban housing finance strategies in other cities with comparable socioeconomic contexts, such as Nairobi, Kenya, and Accra, Ghana, where informal settlements and limited access to formal financial systems are prevalent. Future research could build on this study by conducting comparative analyses across such cities to further validate and refine the applicability of these findings. This approach would enrich the generalisability of the results and enhance their relevance for developing global best practices in urban housing finance.

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