Affordability of Low Income Housing in Amman, Jordan

Jamal Ahmad Alnsour [1]

ABSTRACT

This study aims at examining the affordability of low-income housing in Amman. A quantitative methodology implying a cross-sectional survey was used to satisfy the study objectives. 870 questionnaires were distributed in Abu Nuseir, during April and July 2013. Different dimensions were examined in relation to the affordability of low-income housing, including price to income ratio for households, monthly payment to income ratio for households, price to income ratio versus payment to income ratio, the relationship between housing affordability and dwelling type, and the relationship between housing affordability and family size. Findings revealed that low-income people are unable to afford housing. The inability of low-income people to afford a house is related to a set of social-economic factors such as family size, low income, the lack of finance facilities. This implies that housing policy should tend towards smaller housing units and reduce the cost of housing construction.

Keywords: Housing Affordability, Low Income Housing, Housing Policy, Amman, Jordan.

INTRODUCTION

Low-income housing is a major component of all cities, but is particularly important in developing countries, typically covering 60%-80% of the urban land area, and estimated to be 50%-70% of the fixed capital used in the development of the urban districts of which they are an integral part (Wakely, 2014, p. 18). At present, as a consequence of their inability to afford formal housing, 863 million people live in slums in the developing world, representing one third of its total population (UN-Habitat, 2012). Therefore, since the 1950's, governments have been intervening in urban housing by establishing housing authorities, departments or ministries to produce appropriate policies for the

production of dwellings (Wakely, 2014). In this way, policies governing the affordability of low-income housing cannot be divorced from policies of city management and planning.

Affordability is increasingly one of the most important challenges facing housing markets in the world. The burden of housing expenditure has forced many households to decrease their expenditures for non-housing consumption, particularly for food, health care, and education, which has a substantial effect on overall quality of life (Kutty, 2005). The gap between housing expenditure and personal income has this becomes even more of a challenge when housing costs impact on non-housing expenditures to such an extent that they reach lower than minimum subsistence levels (Kutty, 2005).

Substantial research has already been conducted regarding housing affordability for individual housing units, irrespective of income bracket; that is, for low, middle or high income groups. Several studies, such as Chen *et al.* (2010); Yates & Gabriel (2006); Stone (2006); and Kutty (2005) will be referred to in this

[1] Faculty of Business, Al-Baqla Applied University, Salt, Jordan.

✉ Jamal.alnsour@bau.edu.jo

article. In all cities, income, price and expenditure for either housing or non-housing consumption varies from one district to another. Despite these differences, and that expenditure provides valuable insights into housing affordability, generalization of the results remains questionable. Therefore, classification of housing into types, including private, public (i.e. low-income housing), illegal[1] and informal settlements[2] is very important when assessing housing affordability. There have been few studies which have classified housing in such a way, and examined the housing affordability of low-income groups. This is primarily due to the fact that many researchers consider low income housing as part of the overall housing stock. Indeed, problems of affordability do affect both private and public housing, but these problems are not necessarily the same. A better understanding of the issue requires an examination of affordability in terms of housing type.

Amman is the capital city of Jordan, and, as both the largest city and the main center of economic activities, it is an interesting case study for housing affordability. Amman's approximately 2.5 million inhabitants comprise roughly 39% of Jordan's total population of 6.7 million, and its housing market is estimated at 40% of the country's total residential property value (Department of Statistics, 2013). Understanding the affordability of low-income housing in Amman is thus essential to any attempt to evaluate the outcomes of local housing policies. However, little attention has so far been paid to assessing the affordability of this sector of the housing market.

This paper aims to provide valuable insights into the affordability of low-income housing in Amman. It examines a range of indicators in order to understand the overall situation, including price to income ratio, monthly payment to income ratio, price to income ratio versus payment to income ratio, housing affordability and dwelling type, and the relationship between housing affordability and family size. Analysis of these

dimensions of affordability will contribute to increasing current knowledge in both national and international housing affordability literature.

The main object of this study is to answer the following questions:

- Is there a significant relationship between mean annual income and mean housing prices?
- Is there a significant relationship between mean dwelling price and price to income ratio?
- Is there a significant relationship between mean annual income and price to income ratio?
- Is there a significant relationship between mean monthly income and mean payment?
- Is there a significant relationship between mean monthly income and payment to income?
- Is there a significant relationship between mean payment and mean payment to income?
- Is there a significant relationship between dwelling affordability (price to income ratio or payment to income) and housing type?
- Is there a significant relationship between dwelling affordability (price to income ratio or payment to income) and household size?

2. Overview of Housing in Jordan

One of the main challenges facing Jordan in respect to housing policy is determining best practice for dealing with the escalated demand for housing that has arisen as a result not only of high population growth (2.4% per annum) of its own citizens, but also succeeding influxes of forced migrations from the surrounding countries, including Palestinian, Syrian and Iraqi refugees (Department of Statistics, 2013). The housing sector has witnessed an enormous increase, with the number of housing units increasing from 376,822 units in 1979, 835,604 units in 1994, and approximately 1.2 million units in 2010 (Department of Statistics, 2010). Low-income households constitute about 45% of the total households in Jordan (Department of Statistics, 2013).

The annual demand for housing is approximately 32,000 units, of which 14,000 are required by low-income households (Al Hmoud et al., 2009, p. 235).

The first government act in relation to housing policies was in 1965, when it established the Housing Corporation, which attempted to provide affordable housing for low-income groups, either by provision of constructed dwellings, or by providing loans for individuals and/or co-operatives for this purpose (Zagha, 2003). Since its inception, the Housing Corporation has implemented in the region of 42,000 housing units in over 170 projects, benefiting nearly 400,000 inhabitants (HUDC[3], 2014). The Housing Bank was established in 1973, to provide subsidized housing loans to targeted groups. The Urban Development Department was established in 1980 to meet the challenges of informal settlements and slums; then, during the 1980's, Jordan instituted several housing developments, such as the Military Housing Corporation, Teachers' Housing Fund, Universities' Housing Fund, Housing Cooperatives and others undertaken by the private sector.

As a result of the rapid urban growth identified above, the National Housing Strategy was approved in 1989, which aimed not only to provide adequate and affordable housing for all income groups, but also to improve the efficiency of urban land use in the major cities, and to activate the role of the private sector in housing delivery. The average dwelling size sold by investors through the National Housing Strategy is estimated at $98.6m^2$ - $155m^2$, with a unit price between JD 13,500 - 30,000 (i.e. $19,000 - $42,000).[4]

Although the average annual current per capita income is about $5,000 in Jordan, there is a strong desire for homeownership. Home owners account for approximately 73.1% of residents (Department of Statistics, 2010). This demonstrates that people aspire to homeownership more than the actual housing itself, because homeownership is considered as a source of wealth, and provides social standing in the community.

As a result, housing costs represent 28.8% of the Jordanian Cost of Living Index, reflecting the importance of housing expenditure to the general population (Department of Statistics, 2010).

Despite the fact that the cost of both building plots and building materials rose by 40% to 45% during the last decade, which impacted severely on the private housing market; construction rates in Amman rose rapidly during this period (Jordan Economic & Social Council, 2014). To improve the housing mortgage market, the Jordan Government, with the cooperation of the International Bank for Reconstruction and Development, established the Jordanian Mortgage Refinance Company (JMRC) as a public shareholding in 1996, for the purpose of providing medium and long-term financing for the Jordanian housing sector (JMRC, 2014). JMRC has played a vital role in the expansion of the mortgage market, with around ten commercial mortgage lenders competing in the market. In addition, JMRC has refinanced more than $100 million of mortgage loans, and contributed to the boom in the housing sector (JMRC, 2014). In reality, a growing mortgage market often enhances economic growth and increases income in general, and the current contribution of the construction sector to the GDP is 5.08% (Department of Statistics, 2013). In response to the increased demand for housing, and increased housing prices in Amman and other cities, the Central Bank decreased interest rates from 10% in 2003 to 8% in 2010; for residential loans are payable monthly for a period of 20 years (Al Hmoud et al. 2009). However, with respect to low-income housing provided by the government, the equation is completely different, with mortgage repayments based on a fixed 5% interest rate, with monthly installments for a period of 30 years. Despite the government's attempts to stabilize the housing market, prices in Amman and most other major cities have continued to spiral from 2003 to the present. A major factor for this situation is the instability of

political conditions in the surrounding countries, which resulted in the refugee issue noted above.

3. Housing Affordability

Affordability is often interpreted as the relationship between household income and housing expenditure, and the level at which housing is regarded as unaffordable (Freeman *et al.*, 1999; Kutty, 2005; Nelson *et al.*, 2002). It is a balance between the actual cost of housing and non-housing expenditure, within the constraints of a household's income (Stone, 2006). Similarly, Cullingworth & Nadin (2002) consider affordable housing both as low cost market and subsidized housing (regardless of other issues, such as tenure and ownership, whether exclusive or shared, or financial arrangements pertaining to ownership) that is available to residents who cannot afford to buy or rent dwellings available on the open market.

There is considerable debate about the concept of housing affordability. Stone (2006 pp.157-158) classifies the approaches that deal with housing affordability into five categories. Firstly, the relative approach, which expresses the differences in the relationship between measures of house prices or costs and household income. Secondly, the subjective approach, which is based on the willingness of households to spend. Hallett (1993) argues that affordability often depends upon the percentage of income that people are both willing and able to dedicate to the provision of a dwelling. Thirdly, the family budget approach addresses monetary standards based on housing expenditure. Nelson *et al.* (2002) argues that affordability is influenced by the capacity of a family to consume housing services, income, housing prices and rents. Fourthly, the ratio approach, which determines the maximum ratio of housing cost to income. Kutty, (2005) describes housing affordability in terms of rent burden or owner cost burden. Finally, the residual income approach, which is concerned with the normative standards of minimum

income required to meet basic level non-housing consumption after meeting the financial requirements for housing.

In the present study, housing affordability is measured by two indicators. The first is the price to income ratio. Landeau (1991) defines the ratio as the house purchase price against the borrower's annual income, and is expressed in years of income. It is an indicator illustrating the ability of a borrower to own a dwelling. A higher housing cost in relation to household income results in a higher ratio, and a consequently smaller percentage of people who are able to purchase a dwelling. A low ratio indicates the effectiveness of the housing market to meet the demand, with a higher ratio reflecting an unrealistic housing market, which is unable to meet the demand. There is no agreement about the ideal price to income ratio; it varies from one country to another. In Jordan, the HUDC considers 5.0 as ideal, in spite of the fact that Landeau (1991) concludes that 5.0 is high for developing countries. The price to income ratio in Tunisia is 5.0, Kuwait 6.5, New York 2.7, Thailand 8.8 and Tokyo 5.6 (Zagha, 2003).

The second indicator is the monthly payment to income ratio. Evaluation of affordability has more than one ratio (Malpezzi *et al.*, 1985). Price to income ratio reveals the ability of a household to purchase the housing unit at the prevailing a level of income (Zagha, 2003). In actual fact, the monthly payment to income ratio denotes the adequacy of a household's income to maintain mortgage repayments (Zagha, 2003). In evaluating housing affordability, both rent to income ratio and price to income ratio should be examined (Landeau, 1991). The monthly payment to income ratio varies from one country to another. For example, the monthly payment to income ratio in London is 15.6%, 28.0% in New York, 20.3% in Tunisia, 27.8% in Kuwait, and 22.0% in Thailand (Zagha, 2003). The HUDC (1989) recommended 25% in Jordan, but since 1992 this ratio has been raised to 33%. However, the

World Bank database for urban indicators listed it as 20.2%. Despite the 33% recommended by HUDC, many researchers suggest that a contribution of 30% of income to payment would leave many low-income people and large households with insufficient income for non-housing expenses (Chen et al. 2010, Stone, 2006 and Nelson, 2002).

Stone (2006, p. 179) states that:

"Using the conventional ratio concept to define and measure housing affordability has been the prevailing approach, because it is simple to understand and apply, because it seems to fit people's commonsense experience, and because it has a long tradition, the imprimatur of venerable historical authority, and the official sanction of most governments."

The works of Chen *et al*. (2010); Stone (2006); Kutty (2005); Zagha (2003) and Nelson et al. (2002) all used a ratio approach in order to assess housing affordability. This study seeks to find the differences between ratios, affordability problems, the ratios of payment to monthly income and housing prices to annual income they are willing to pay on their housing. However, this study also examines price to income ratio versus payment to income ratio, housing affordability and dwelling type, and the relationship between housing affordability and family size.

A review of the literature on low income housing does indicate support for a relationship between the various factors mentioned above and housing affordability. However, the extent of these relationships is still not clear due to the limited research which has been undertaken in this area. Nevertheless, a number of researchers have made recommendations on how to fill the gaps in this field. For example, Rakodi (2006) states: "…more attention needs to be given to the ways in which people organise their lives, engage in social and economic relationships, organise space and produce places at the local level." (p. 316)

Few et al. (2004) recommend that researchers should support policy makers in terms of understanding housing in cities by accurately identifying issues to overcome problems, and also investigating the application of housing strategies in developing countries. He states: "Future studies need to […] help policy makers understand what happens to residents of housing interventions." (p .440)

Tipple (2000) recommends that developing countries require more empirical studies focusing on housing affordability, the behavior of both the general community and the government in order to gain a better understanding of this phenomenon. Turkoglu (1997) as part of his study on housing in Turkey, recommends that research in housing requires a more detailed analysis, in order to understand the interrelationships affecting housing in developing countries. Liu (1999) suggests that further research should focus on the impact of social factors (for example, family income). Other researchers, such as Chen et al. (2010), Stone (2006), and Kutty (2005), have remarked on the gap which exists in the literature concerning the understanding of housing affordability. They argue that further research would help to create a better understanding of housing affordability as a strategic planning anchor. Examining how economic variables impact on housing would, therefore, be very useful in helping researchers and managers understand housing affordability.

The State of Arab Cities Report (issued by UN-Habitat in 2012) has reassessed urban-regional development in Arab cities, focusing on normative institutional and legal frameworks of economic development and housing issues; however, the report did not take housing and income relationships into account. In this context, Kowaltowski et al. (2005, p.96) demonstrate that local socio-factors including income level play an important role in housing affordability. Kombe (2005, p. 22) proposes that there is a need for

planners and economists to understand the economic aspects of housing.

A great deal of effort has been expended on discovering the challenges that residents of low income housing face, but few studies have investigated the reasons behind the inability of some sections of a community to own housing (Chen et al. 2010). However, most studies have focused on some factors affecting the housing market, such as rural-urban migration, population growth, yet very little attention has been paid to the impact of housing practices and policies on affordability. There is a need for more empirical investigation of real world practices, with respect to decisions of all stakeholders, to gain a better understanding of housing (Alnsour & Meaton, 2009). In addition, it must be understood that the theory of housing affordability is still in its infancy. Development and evaluation of housing classification and testable relationships will require ontological developments to continue to advance and improve the theoretical structure.

In Jordan, previous studies have addressed the relationships between a range of components, including socio-economic factors and housing. For example, the works of Alnsour (2015), Alnsour & Meaton (2014), Meaton & Alnsour (2012), Alnsour (2011), Alnsour & Meaton (2009), Al-Homoud et al. (2009) have paid little attention to housing affordability. Moreover, the continuous fluctuations and challenges of many socio-economic aspects in Jordan justify the need to investigate housing affordability, so that effective policies and practices can be instigated in order to deal with economic change successfully.

4. Methodology

The study area adopted for this research is the low income housing project in Abu Nuseir, northwest of Amman. Abu Nuseir was chosen by the HUDC as an extension of urban growth towards the northwest of Amman, due to its proximity to services and roads. The Abu Nuseir Project is considered a vital part of the Greater Amman Municipality, with a population of 70,000 inhabitants (HUDC, 2014). It was implemented over several phases on a land area of 3,005,000 m^2 with 6,116 housing units. The current number of housing units is 8,700, distributed over sixteen residential areas, a variety of types and size of construction present (HUDC, 2014). The area of each dwelling ranges from 90 m^2 to 140 m^2 (HUDC, 2014). Additionally, the project includes serviced plots, which provide an opportunity for beneficiaries to extend their homes over time. It is the biggest residential project in Jordan, and therefore it was targeted in this study.

The study uses a quantitative method, cross-sectional survey methodology to collect data. The questionnaire was designed to obtain detailed information on both housing affordability and households. Data collected includes reasons why individuals chose to live in the study area, their thoughts on whether they would stay in the area or leave in the future, reasons for selection of a specific house, the ability to pay monthly loan installments, the amount required for monthly payment, the ability to live within the parameters of the remaining income, the price of the house, the type of house chosen, and socio-economic characteristics. The primary source for determining the content of the questionnaire was the current literature; most of the questions used in this study were based on previous studies.

The Abu Nuseir project consists of 8,700 housing units; therefore a random sample of 870 housing units was regarded as a representative sample of the research population, representing 10% of the project. The justification for selecting a large sample was to attain a sufficient response rate, and to ensure that the sample was representative. This is constant with Saunders et al. (2012) and Cooper & Schindler (2001) who stress that it is important to select a large sample size in order to ensure confidence with the validity of the data.

In order to generalize of results of the study, it was necessary to ensure the randomization of the sample and, thus, a systematic period for responses was produced, calculated by the formula:

S.P = N/n, hence 8700/870 = 10.

The questionnaires were distributed into households by selecting one house and leaving the following ten housing units, and so on. 870 questionnaires were distributed in Abu Nuseir during April and July 2013; 335 usable, completed questionnaires were returned. Validity and reliability were met via a pilot survey of 25 households from another low-income project, Ahl Al-Azem. Finally, both descriptive and inferential statistics were used to satisfy the objectives of the study, and to examine the relationships between study variables.

In addition, this study employs a series of semi-structured interviews with planners and experts in the housing sector, to attain a better understanding and in-depth information about the affordability of low-income housing.

There have been numerous studies conducted regarding housing affordability and changing perceptions over time, using repeated cross-sectional data (Wood & Ong, 2011). For example, Green (1996) investigated housing affordability in the U.S.A. using the 1980 and 1990 censuses. In China, Chen et al. (2010) examined different dimensions of housing affordability in Shanghai for the period 1995 to 2008, using the Shanghai Statistical Year Book and the Shanghai Real Estate Year Book. In Australia, Yates & Gabriel (2006) evaluated housing affordability between 1995 and 2003, using the Survey of Income and Housing Costs. This study uses both primary and secondary data, due to the lack of longitudinal secondary data in Jordan.

5. Results and Discussion

This section deals with empirical findings of affordability for low-income housing.

5.1 Characteristics of Respondents

Empirical findings indicate a clear variation in the characteristics of respondents. Table 1 shows that many beneficiaries can be designated as "young adults", with the average age of householders 33.6 years. 76% of householders work in the public sector, and 24% in the private sector. Family size, which is on average 5.3 persons, is comparable to the average household size in Jordan, which is 5.4 persons. However, the average area for housing units tends to be large enough to accommodate a family, with an average area of 116.2 m^2. The average household income is JD 3,047 ($4,304) per annum, which is lower than the average of household income in Amman, JD ,6912 ($9,763) per annum.

Table 1
Characteristics of Respondents

Indicators	Average and percent
Household size	5.3 members
Occupant's age	33.6 years
Ratio of males to females	103/ 100
Occupational category	76% public sector 24% private sector
Household income	3,047.00 per year

Source: Researcher

5.2 Projects Costs

The preliminary estimated cost of the total number of housing units in Abu Nuseir is JD 39,839 million, with an estimated cost of JD 85-JD 90 per square meter. 25% was added to this cost to cover design, supervision and finance; this brought the expected total to JD 49,798 million. Due to a delay in completion, (the project took three years from start date to finish date), the actual cost of the project was JD 74,123 million (this cost includes infrastructure and services), which correlates to JD 168 per square meter. This is evidence for the ineffectiveness of the implementation process, which increased the overall cost enormously. Therefore, the Jordan

Government subsided the project by JD 29,06 million, with the cost per square meter actually paid by the householder being JD 113. However, this cost can be considered as high compared to the initial maximum cost of JD 90.

5.3 Price to Income Ratio for Households

Figure 1 shows that the mean price to income ratio is 5.35. This ratio is considered high, as 5 percent is considered the normal standard. Table 2 illustrates that the correlation between the mean annual income and the

mean housing prices is quite low, with R^2 calculated at 0.0013. According to table 2, the correlation between the mean housing prices and price to income ratio is also low, at 0.152. Findings show that the relationship between mean annual income and price to income ratio is high and negative, with R^2 calculated at -0.725, with a significant level of 0.01. This suggests that an increase in annual income corresponds to a decrease in the price to income ratio. As a result, the project did not take the housing price with reference to income sufficiently into account.
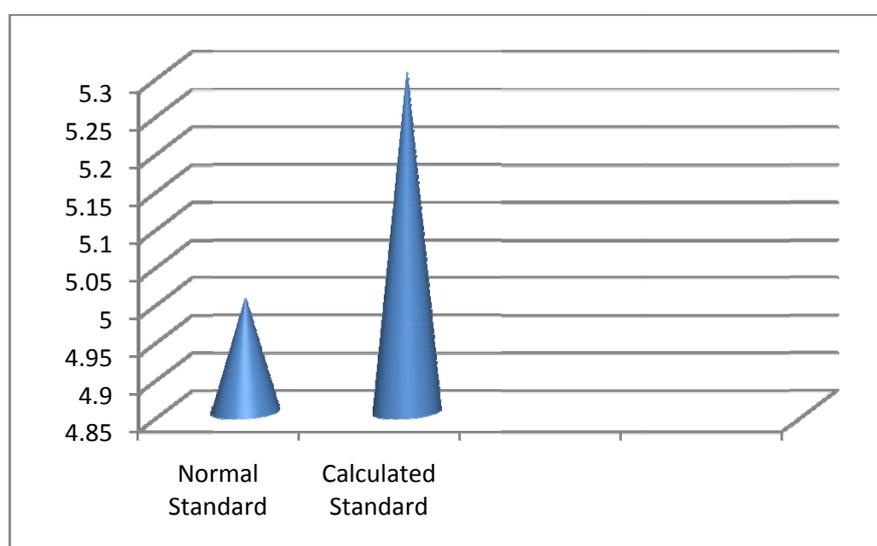

Figure 1: The Mean Price to Income Ratio for Households
Source: Researcher

Table 2

Correlation Matrix of Price to Income Ratio for Households

Variables	mean annual income	mean housing prices	price to income ratio
mean annual income	1.000	0.0013**	-0.725*
mean housing prices	0.0013**	1.000	0.152**
price to income ratio	-0.725*	0.152**	1.000

** Significant level ≥0.01   * Significant level ≥0.05
Source: Researcher

5.4 Monthly Payment to Income Ratio for Households

Payment to income ratio for households was calculated based on an interest rate of 5%, with monthly payments for a period of 30 years. The acceptable range of payment to income ratio for households is 25%; these standards were set when the project was initiated. Figure 1 shows that the mean payment to income ratio is high, with a ratio of 0.35. In addition to exceeding the expected ratio of 25%, it is also above the current advisory ratio of 33%. Therefore, the assumption can be made that, theoretically, all housing units are unaffordable, and that residents will face extreme obstacles to manage monthly payments.
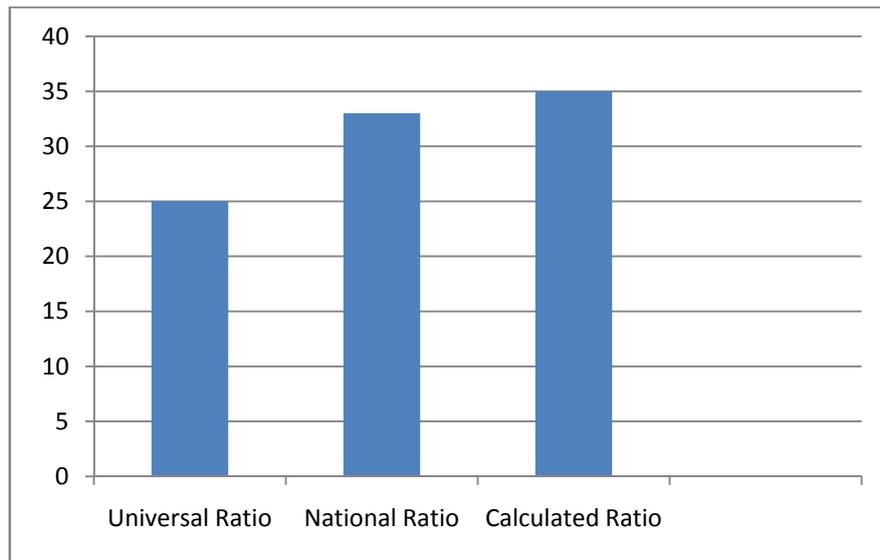

Figure 2: The Mean Price to Income Ratio for Households

Source: Researcher

Findings also reveal that affordability of low-income housing is a critical issue due to the current rapid growth of prices compared with sluggish income growth. The average household's income in the study area is JD 254 per month. Many researchers aver that housing should not consume more than 30% of a household's total income, which means that households mortgage repayments should be JD 76.2 per month. These results agree with Al Hmoud's (2009) argument, in which the amount allocated for low-income housing can be no more than JD 36 to 90 per month. In conclusion, the cost of housing in the Abu Nuseir Project is unsustainable for low-income residents, as the remaining income after mortgage payments are deducted does not satisfy non-housing commitments.

Table 3 shows that the relationship between mean monthly income and mean payment is quite low, where R^2 is calculated at 0016. However, the relationship to mean monthly income and payment to income is high, where R^2 is calculated at 0.711. The correlation between mean payment and mean payment to income is low, at 0.132.

Table 3

Correlation Matrix of Monthly Payment to Income Ratio for Households

Variables	mean monthly income	mean payment	payment to income
mean monthly income	1.000	0.0016**	0.711*
mean payment	0.0016**	1.000	0.132**
payment to income	0.711*	0.132**	1.000

** Significant level ≥0.01   * Significant level ≥0.05

Source: Researcher

5.5 Price to Income Ratio Versus Payment to Income Ratio

The relationship between payment to income ratio and price to income ratio can also be compared. The comparison is based on Landeau (1991), who indicates that a price to income ratio of five years, which means that the housing price is equivalent to five years of yearly income, may be a risk or not, depending on the payment to income ratio, because, although the asset may be large, it can be affordable if purchased by means of personal savings. On the other hand, a low price to income ratio can result in outstanding debt for the lending institution if the borrower has considerable debts or financial commitments, and defaults on the mortgage commitment (Zagha, 2003). Landeau (1991) proposes that if the price to income ratio is more than 5% and/or the payment to income ratio is more than 30% of the total income over the life of the loan, the risk can be deemed as high. Findings revealed that price to income ratio is more than 5% and the payment to income is also more than 30%, which means that, overall, the situation can be described as "risky" and low income earners are, in reality, unable to afford the cost of the housing.

5.6 Housing Affordability and Dwelling Types

Housing affordability can vary from one housing unit to another. Dwelling type refers to the number of rooms contained in the housing units. Figure 3 reveals that 30% of housing units consist of three rooms (designated as small); 42% of houses are comprised of four rooms (designated as medium); and 28% have 5 rooms (designated as large).
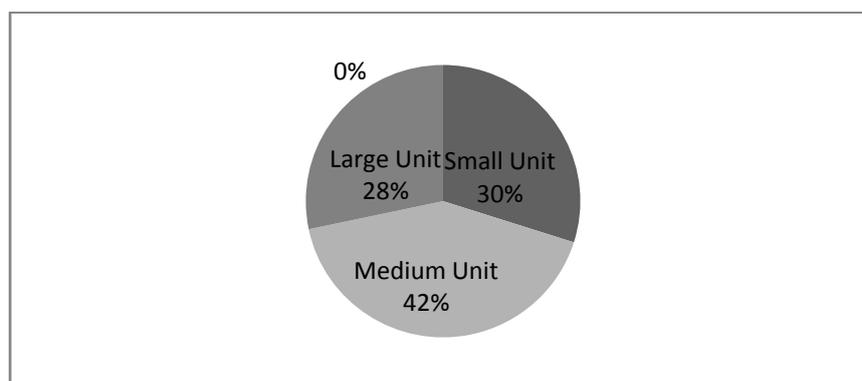

Figure 3: Dwelling Types
Source: Researcher

Tables 4 and 5 show that there is a positive relationship between dwelling affordability (price to income ratio or payment to income) and small housing units; these have a significant level of 0.01. There is also a positive

relationship between dwelling affordability and housing units for medium units, with a significant level of 0.01. However, there is a negative relationship between dwelling affordability and housing units for large units; these have a significant level of 0.01. As a result, the least affordable housing is the large housing units, as an increase in the size of a house usually increases the price.

Table 4
Correlation Matrix of Dwelling Types and Price to Income Ratio

Variables	price to income ratio	small units	medium units	large units
price to income ratio	1.000	0.453*	0.367*	-.0.349*
small units	0.453*	1.000	0.103	0.012
medium units	0.367*	0.103	1.000	0.117
large units	-0.349*	0.012	0.117	1.000

** Significant level $\geq$0.01   * Significant level $\geq$0.05

Source: Researcher

Table 5
Correlation Matrix of Dwelling Types and Payment to Income

Variables	payment to income	small units	medium units	large units
payment to income	1.000	0.502*	0.398*	-0.401*
small units	0.502*	1.000	0.103	0.012
medium units	0.398*	0.0103	1.000	0.117
large units	-0.401*	0.012	0.117	1.000

** Significant level $\geq$0.01   * Significant level $\geq$0.05

Source: Researcher

5.7 Affordability and Household Size

Findings reveal that there is no significant relationship between housing affordability and household size, where the correlation coefficient between price to income ratio and household size is designated as 0.0028, and the correlation between monthly payment to income ratio and household size is estimated to be 0.0036. This shows that lower price and payment ratios are associated with higher family size. Despite the fact that larger families require correspondingly larger space for accommodation, expenditure for non-housing consumption often tends to be more than a small household. Accelerated demand for housing under such demographic conditions usually results in large households being accommodated in small housing units.

6. Conclusion and Recommendations

The main conclusion is that housing provided for low income people is in reality unaffordable. It can be concluded that the inability of low income people to afford a house is related to social-economic and cultural factors. Challenges such as family size, low income levels and the lack of residential finance facilities play an important role in housing affordability. These motives are accompanied by an increasing demand for housing,

as a result of high population growth (about 2.4% in Jordan) and an influx of refugees from the surrounding countries. An accelerated demand for housing under these conditions has resulted in a situation where housing has become unaffordable.

An increasing family size is a fundamental motive for demanding a larger space. The study findings illustrate that the average family size is large, which relates to an increased demand for large space, which then results in an increase in the price of the desired house. This suggests that large household size has contributed to unaffordable housing. In addition, the lack of financial facilities available for housing can be seen as a barrier to a low income family's ability to access housing. Hence, housing affordability cannot be achieved without high levels of finance.

With regard to cultural motives, it can be concluded that the demand for low income housing is supported because of the desire of the general community to own their own house is stronger rather than the desire for the housing itself (in Jordan, the rate of homeownership is equivalent to 73%). This is because homeownership can be considered as a source of economic stability and social value in the community.

The above argument implies that a shift in housing policy towards smaller housing units and attempts to assist with a reduction of housing cost would be adequate for affordability to be obtained in all respects. Based on interviews with planners and experts in the housing sector, the most important attributes influencing this transformation include:

- Housing policy specifies that each dwelling unit must have an area between 90 m^2 to 140m^2; this study determined that the current average area in Abu Nuseir is about 116.2m^2. A reduction in the specified size from 70m^2 to 110m^2 would create an ideal housing unit area of 90 m^2, which would meet the

requirements of an average household size of 5.3.
- Real estate norms and good management practice should be established. Project management can decrease a dwelling unit cost.
- Current low-income housing units tend to be separate dwellings; changing such expensive design into attached housing could reduce the cost of each housing unit.
- The location for low-income housing projects should be selected depending on economic feasibility studies, which do not need high infrastructure costs. Affordable plot price and construction costs could reduce individual housing unit costs.
- Improving local building material companies and improving building techniques could decrease could decrease cost of construction.

The study has examined a set of components for a broader concept of affordability, represented by price to income ratio and monthly Payment to Income Ratio for households, price to Income Ratio versus payment to income ratio, housing affordability and dwelling type, and the relationship between housing affordability and family size. The study has found benefits in the use of all these indicators; however, although all are essential, none of them alone can attain affordability. Therefore, future research should pay attention to all indicators, in order to examine housing affordability on a larger scale.

The comparison of the results of this study with other results in the Middle Eastern environment would enrich knowledge extensively concerning the affordability of low-income housing.

Notes

(1) Illegal housing refers to any construction for a dwelling that takes place which contravenes the residential and planning regulations imposed by the law and acts of the government.

(2) Informal settlements refer to dwellings that are built without legal ownership; this often happens on government or crown land.

(3) The HUDC was established in 1990 by merging the Housing Corporation and the Urban Development Department into one institution, which was called the Housing & Urban Development Corporation (HUDC).

(4) Each Jordanian Dinar is equivalent to U.S. $1.42.

REFERENCES

Al-Homoud, Majd, Salem Al-Oun and Al-Mutasem Al-Hindawi (2009). The Low-Income Housing Market in Jordan, *International Journal of Housing Markets and Analysis*, 2 (3): 233-252.

Alnsour, Jamal and Julia Meaton (2009). *Factors Affecting Compliance with Residential Standards in the City of Old Salt, Jordan, Habitat International*, 33 (4): 301-339.

Alnsour, Jamal and Julia Meaton (2014). Housing conditions in Palestinian Refugee Camps, Jordan, *Cities,* (36): 65-73.

Alnsour, Jamal (2011). Illegal Housing in Jordan, *Jordan Journal of Social Sciences*, 4 (3): 339-354.

Alnsour, Jamal (2015). The Relationship between Dwelling Area and Energy Consumption in Jordan, *International Journal of Economic Research*, 12 (1): 61-76.

Chen, Jie, Qianjin Hao and Mark Stephens (2010). Assessing Housing Affordability in Post-reform China: A Case Study of Shanghai, *Housing Studies*, 25 (6): 877-901.

Cooper, Donald and Pamela Schindler (2001). *Business Research Methods*, Irwin/McGraw-Hill, New York.

Cullingworth, J. Barry and Nadin Vincent (1994). *Town and Country Planning in the UK*, Routledge, London.

Department of Statistics (2010). *Household Expenditure and Income Survey*, Jordan.

Department of Statistics (2013). *Statistical Yearbook*, Jordan.

Few, Roger, Nelson Gouveia, Angela Mathee, Trudy

Harpham, Amelia Cohn, André Swart and Nancy Coulson (2004). Informal Sub-division of Residential and Commercial Buildings in Sao Paulo and Johannesburg: Living Conditions and Policy Implications, *Habitat International*, 30 (1): 427-442.

Freeman, A., E. Alan, and Christine, E. Whitehead (1999). *Evaluating Housing Affordability: Policy Options and New Directions*, Local Government Association, London.

Green, Richard (1996). Should the Stagnant Homeownership Rate be a Source of Concern?, *Regional Science and Urban Economics*, 26 (3-4): 337-368.

Hallett, Graham (1993). *The New Housing Shortage: Housing Affordability in Europe and the USA*, Routtledge, London.

Housing and Urban Development Corporation (1989). *National Housing Strategy*, www.hudc.gov.jo, accessed 03/11/2014.

Housing and Urban Development Corporation (2014). www.hudc.gov.jo, accessed 18/11/2014.

Jordan Economic and Social Council (2014). *The Obstacles of Real Estate Sector in Jordan*, Amman, Jordan.

Jordanian Mortgage Refinance Company (2014). www.jmrc.com.jo*,* accessed 03/01/2015.

Kombe, W. Jackson (2005). Land Use Dynamics in Peri-urban Areas and their Implications on the Urban Growth and Form: The Case of Dar es Salaam, Tanzania, *Habitat International*, 29 (1): 113-135.

Kowaltowski Doris, Silvia Pina, G. Mikami, Regina Ruschel, Lucila Labaki, Stelamaris Bertolli, Francisco Filho and Edison Favero (2005). A House Design Assistance Program for the Self-building Process of the Region of Campinas, Brazil: Evaluation through a Case Study, *Habitat International*, 29 (1): 95-111.

Kutty, K. Nandinee (2005). A New Measure of Housing Affordability: Estimates and Analytical Results, *Housing Policy Debate*, 16 (1): 113-142.

Landeau, F (1991). Ratio Analysis: A Study of Mortgage Borrowers in Tunisia, in A. Tipple and K. Willis (Ed.), *Housing the Poor in Developing World: Methods and Analysis, Case Studies and Policies*, Routledge, London.

Liu, M (1999). Residential Satisfaction in Housing Estates: A Hong Kong Perspective, *Automation in Construction*, (8): 511-524.

Malpezzi, Stephen and Mayok, Stephen (1985). *Housing Demand in Developing Countries,* World Bank, Washington D.C.

Meaton, Julia and Jamal Alnsour (2012). Spatial and Environmental Planning Challenges in Amman, Jordan, *Planning Practice & Research*, 27 (3): 376-386.

Nelson, Arthur, Rolf Pendall, Dawkins, J. Casey and Knaap, J. Gerrit (2002). *The Link between Growth Management and Housing Affordability: The Academic Evidence*. A Discussion Paper, the Brookings Institution Center on Urban and Metropolitan Policy, USA.

Rakodi, Carole (2006). Relationships of Power and Place: The Social Construction of African Cities, *Geoforum*, 37 (3): 312-317.

Saunders, Mark, Lewis, Philip and Thornhill, Adrian (2012). *Research Methods for Business Students*,
Prentice Hall, London.

Stone, E. Michael (2006). What Is Housing Affordability? The Case for the Residual Income Approach, *Housing Policy Debate*, 17 (1): 151-184.

Tipple, Graham (2000). *Extending Themselves: User-initiated Transformations of Government-built Housing in Developing Countries*, University of Liverpool, Liverpool.

Turkoglu, D. (1997). Residents' Satisfaction of Housing Environments: The Case of Istanbul Turkey, *Landscape and Urban Planning*, 39 (1): 55-67.

UN-HABITAT (2012). *Global Urban Indicators Database*, http:// webcache. googleusercontent.com, accessed 28/11/2014.

UN-HABITAT (2012). *State of the Arab Cities*, http://mirror.unhabitat.org, accessed 26/11/2014.

Wakely, Patrick (2014). *Urban Public Housing Strategies in Developing Countries: whence and Whither Paradigms, Policies, Programmes and Projects*, Working Paper Series, 163/60, DPU, University College London, UK.

Wood, Gavin and Rachel Ong (2011). Factors Shaping the Dynamics of Housing Affordability in Australia 2001-06, *Housing Studies*, 26 (7-8): 1105-1127.

Yates, Judith and Michelle Gabriel (2006). *Housing Affordability in Australia,* National Research Venture 3: Housing Affordability for Lower Income Australians, Research Paper 3, Melbourne, Australian Housing and Urban Research Institute, Australia.

Zagha, S. Lama (2003). *Urban Built and Quality of Life of Low to Middle income Housing Neighborhoods: The Case of Greater-Amman-Jordan*, PhD Thesis, Oxford Brookes University, UK.

القدرة على تحمل التكاليف لإسكان ذوي الدخل المنخفض في عمان، الأردن

جمال أحمد النسور [1]

ملخص

تهدف هذه الدراسة إلى اختبار قدرة ذوي الدخل المنخفض على تحمل تكاليف السكن في عمان. تم استخدام المنهج الكمي بتطبيق المسح لتحقيق أهداف الدراسة. وزعت 870 استمارة على سكان مدينة أبو نصير خلال شهر نيسان وتموز من العام 2013. تم اختبار العديد من الأبعاد ذات الصلة بالقدرة على تحمل تكاليف إسكان ذوي الدخل المنخفض والتي منها السعر إلى نسبة الدخل والدفعة الشهرية إلى نسبة الدخل للأسر والسعر إلى نسبة الدخل مقابل الدفعة إلى نسبة الدخل والعلاقة بين تحمل تكاليف السكن ونمط المسكن والعلاقة بين القدرة على تحمل تكاليف السكن وحجم الأسرة. بينت النتائج أن ذوي الدخل المنخفض غير قادرين على تحمل تكاليف الإسكان. وأن عدم قدرة الأفراد على تحمل تكاليف السكن يرتبط بمجموعة من العوامل الاجتماعية والاقتصادية كحجم الأسرة والدخل المنخفض وضعف التسهيلات المالية. لذا ينبغي أن تتجه سياسة الإسكان نحو الوحدات السكنية الأصغر حجماً وتخفض من تكلفة بناء.

الكلمات الدالة: القدرة على تحمل تكاليف الإسكان، إسكان ذوي الدخل، سياسة الإسكان، عمان، الأردن.