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Financing Housing Transformation in Informal Settlements in Jordan

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Abstract: This paper aims to examine how housing transformation is financed in informal settlements in Jordan. A quantitative method was seen as an appropriate approach to deal with the research objectives. The Baqa'a Palestinian refugee camp was targeted as the biggest informal settlement in terms of the number of population and housing units. Findings reveal that construction and housing transformation took place over three separate periods of time and was influenced both by increasing family size over time and improvement in a family's income. Irregular financing played a major role in increasing housing transformation and expansion of informal settlements. Regression analysis results demonstrate that irregular financing has a significant impact on housing transformation. As a result, this paper confirms that the process of construction and housing transformation is incremental.

Keywords: Finance; Housing Transformation; Construction; Palestinian Refugee Camps; Jordan.

1. Introduction

The challenges of providing urban housing in developing countries raise major questions concerning the role of the finance sector in urban development strategies. Financial policies for the housing sector are influenced directly on the pattern of urban growth, whether regular or irregular, and the pattern of housing investment itself. These in turn affect quality of life and sustainable development. Therefore, financing housing as an important part of socio-economic development has formed the topic for other research studies (Datta & Jones 2001).

Financing housing is not only a developmental priority, but also a political priority, which can vary considerably across countries. However, it is possible to identify general trends in the provision of finance for housing (HNCHS 2012). In many countries, housing affordability can only be achieved by high levels of finance. Additionally, as a result of financial challenges in many developing countries, the supply of housing for low income groups is often limited by overall demand, and thus low income households are forced to build and live in informal settlements.

Despite the fact that Jordan has launched several initiatives to enable low income people to access housing, and to stimulate the housing supply to meet population growth and refugee migrations, the impact of these initiatives remains small in scale (Alnsour & Meaton 2014). The wide range of policies, strategies and housing programs available have not made a clear contribution to improving the level of finance available for housing. Such diversity may account for the lack of specific financing policies for housing in Jordan. Therefore, understanding the finance of housing, in particular for low income people, is an important step in enhancing socio-economic development plans. It also partially explores public-sector interventions in financing low income housing (Al Homoud et al. 2009).

This paper aims to examine the financial aspects of construction and housing transformations in informal settlements within Jordan, and determine the impact of finance on housing transformation in Jordanian informal settlements. Empirical findings of this study will contribute to enhancing policies and strategies related to the management of informal settlements. Moreover, it will enrich both the national and international literature on informal settlements, since little attention has been paid to this issue. Authors such as (Alnsour 2011; Sheuya 2007; Kombe 2005; Sivam 2002; Fekade 2000; Roston & Durand-Lasserve 2002) argue that housing finance has received little attention in the literature. In addition, the empirical findings of this study would provide opportunities for comparative research between Jordan and other countries, where comparative research often extensively enhances knowledge.

2. Finance and Housing Transformation in Informal Settlements

The term "Informal Settlement" refers to slums for low income people, which are often found in developing countries. A range of academic studies have been conducted with a variety of emphases and influences; diverse labels including unauthorized, uncontrolled, unplanned, disorganized, informal or illegal settlements have been applied to describe housing which develops contrary to planning regulations (Alnsour & Meaton 2009). Hence, any housing development which takes place without adherence to planning regulations or residential standards, and/or the legality of ownership is not clear (including refugee camps) can be considered informal. Fekade (2000) considers informal settlements to be the illegal occupation of land without compliance with planning regulations and standards.

At present, 863 million people reside in slums in the developing world, representing one third of its total population (UN-Habitat, 2012). According to Sheuya (2007, p.442),

between 70% and 95% of all new housing built in the developing countries in the last four decades has been in informal settlements, much of it incrementally in developing countries. The inability of governments in these countries to meet the requirements of high population growth and rapid urbanization has contributed greatly to this issue (Alnsour, 2011). Such inability is related to an assortment of challenges, such as lack of funding for housing programs, low income level, high population growth, weakness in local management practices and the absence of effective urban policies. The lack of finance tends to be one of the most important of driving forces (Alnsour 2011; Sheuya 2007; Kombe 2005; Sivam 2002; Fekade 2000; Roston & Durand-Lasserve 2002; Kim 1997). The availability of sufficient finance is important in terms of housing production because it ensures the standard of basic components required for housing, including plot, on- and off-site infrastructure, building materials and offsetting construction costs (Sheuya 2007).

Financial institutions, including commercial and Islamic banks, do not provide housing finance to low-income groups, because of their inability to meet the operational procedures and lending requirements of these institutions (Malhotra 2003). On the other hand, financial systems for consumers and developers are also not developed sufficiently to support the housing sector in developing countries (Alnsour & Meaton 2009; Sivam 2002; Kim 1997). The weakness of mortgage finance systems in these countries has created overwhelming obstacles for many people who wish to buy residential plots or houses, and has resulted in poor quality home construction and neighborhood environments. Roston and Durand-Lasserve (2002) have observed that official land and housing provision systems, both public and private, are unable to respond to the needs of the poor.

Kim (1997) argues that, because of the lack of fixed long-term funding providers, and the deficiency of financial institutions engaged in financing the housing sector in terms of lending support, most loans in these countries are from relatives, employers or money lenders. An enormous section of the urban population in developing countries has no access to formal financial channels. Even if finance is available, the interest rate is often too high, and they are unable to service the loan requirements (Sivam 2002). Therefore, the majority of people in developing countries use informal channels to resolve the difficulties of mortgage finance. Informal channels refer to irregular sources used to fund housing construction, such as borrowing from friends or relatives, selling jewellery, borrowing from informal associations, etc. (Fekade 2000). Informal financial sources fit the expanding illegal construction processes used by the low-income majority. Alnsour & Meaton (2014) argue that most housing is currently financed by people through personal savings, and there is a clear need to enhance formal housing finance systems such as building societies, housing banks, loan associations, home development mutual funds, and others to facilitate the deployment of housing finance. Tipple (2000) argues that irregular financing currently provides the greatest share of housing finance in developing countries, and the result is the expansion of informal housing process.

Financing housing is one of the most important sources to create sustainable urban development. Mabogunje (2002) argues that housing finance institutions should rectify the deficiencies of availability, accessibility, affordability and sustainability. In most developing countries, these issues are still far from being addressed, as the housing finance institutions are still underdeveloped, with a limited resource base, for the most part operating in a chaotic macroeconomic environment and vague framework of ownership rights, as well as ambiguous mortgage regulations (Aduwo 2011). As a consequence of this, the contribution of regular housing finance institutions in terms of

meeting the current demand for housing financing in developing countries remains limited. The contribution of regulated financial institutions is estimated at between 5% and 20% of finance provided for housing in African countries (Aduwo 2011).

In Jordan, Al-Homoud et al. (2009, p.235) classifies the sources of housing finance as follows:

1. Regular financing by commercial and Islamic banks, and some private financial institutions. These sources finance about 18% of the housing units annually. Public financing is provided by the Housing and Urban Development Corporation (HUDC). HUDC usually provides housing units and/or vacant land for residential purposes, not financial assistance.
2. Individual financing as a result of personal savings, selling property, and money transfers from abroad; this source contributes about 48% of annual housing financing.
3. Irregular financing by borrowing from family members, relatives, small business and construction material traders; these sources provide approximately 34% of annual housing finance.

The classification above illustrates that 82% of housing units in Jordan are built without the assistance of regulated financing sources. Individual financing is classified as an irregular financing source (Stein & Castillo, 2005). This situation is analogous to other developing countries, where 70% of housing construction is incremental, and most housing development takes place without regular finance (Sheuya 2007).

Other studies have demonstrated that irregular finance often creates incremental housing, commonly extensions and alterations to the home unit itself (Tipple, 2000). Extensions and alterations refer closely to housing transformation; indeed, they can be

considered as variables of physical alterations, extensions and replacement (Nguluma 2003). Tipple (1991, p.4) defines the transformation of housing as

"…an alteration or extension involving construction activity and using materials and technology in use in the locality."

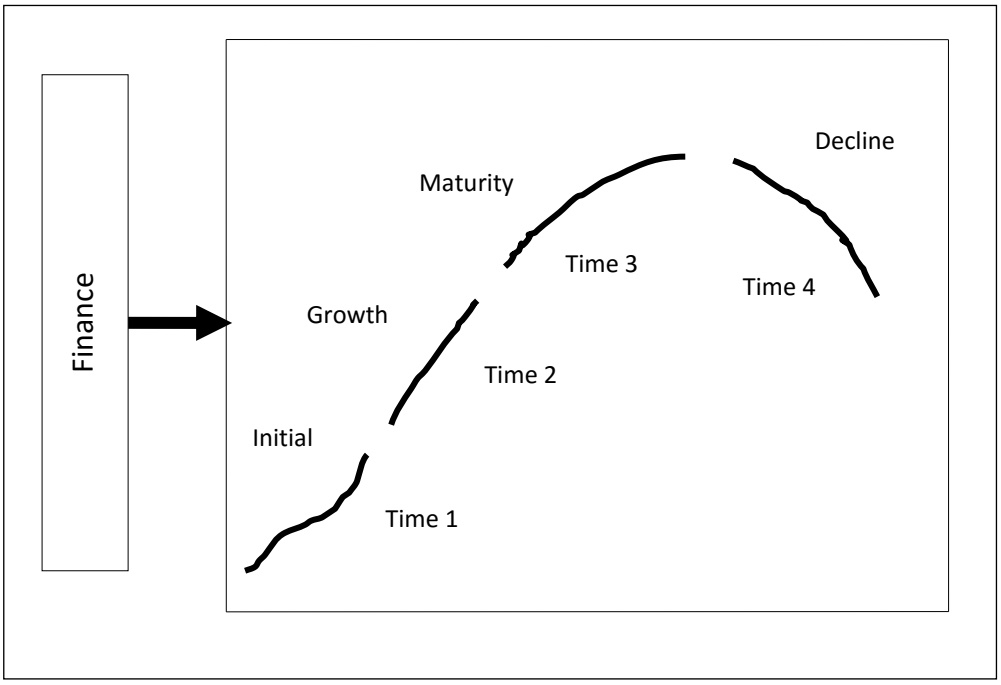
Salama (1998) agrees with Tipple's discussion, and believes that the concept of transformation is usually a result of the failure of governments to respond to peoples' housing needs; in these instances, families tend to take control of housing construction, and engage in informal building activities, relying upon available finance. Extensions to a dwelling are often influenced by finance. Transformation, by using a space for household accommodation or economic gain, could be regarded both as an expression of this demand and a tool for satisfying it.

Salama (1998) identifies various types of both interior and exterior transformation. Interior transformation relates to a change in the use of the interior space of a building; removal or construction of walls in order to change room size, repositioning doors, and making provision for extra storage space are just some examples. Exterior transformation may take place by creating privacy by enclosing a balcony, creating windows by creating openings in the flank walls of a block, extending an existing room or by appropriating public open space for a room extension (Nguluma 2003). As a result, housing transformation may occur either horizontally or vertically, and in some instances, in both dimensions. Transformation can take place by making authorized or unauthorized changes; however, unauthorized changes have a pivotal role in the deterioration of the built environment and housing in developing countries.

3. Linking Finance to Construction and Housing Transformation

The decision to construct a dwelling links the need for space to accommodate a family with the amount of finance available (Tipple 2000). Finance specifies the space of construction over time (Sweis et al. 2008). Therefore, the process of housing transformation often goes through four stages (see Figure 1). These stages are: initial, growth, maturity and decline.

Fig.1. Life cycle of housing transformation in informal settlements.



In the initial stage, the construction process begins with a small number of rooms and sanitation facilities based on the amount of finance available (Kombe 2005; Tipple 2000; Fekade 2000). In this phase, the demand for housing and the price of land are both expected to be low. The cost of construction also tends to be low, because quality and design are not important and finance allocated for the building is often dependent on informal sources (Fekade 2000; Tipple 2000; Baross 1990). Due to differences in socio-

economic conditions, the size of a home differs from one house to another; it also differs from one place to another, as well as from one time to another.

Increasing construction over time creates the growth phase, which is accompanied by an increasing demand for space. This stems from three sources: (1) increase in family size; (2) willingness to rent to improve the family's income; and (3) increased household savings. This phase is exacerbated by the provision of basic services in an area of informal settlement by the local authorities (Baross 1990). In this phase, the cost of building tends to have escalated. A consequence of available finance is that people tend to extend the original dwelling and thus an incremental housing process continues over time (Tipple, 2000).

In the maturity phase, young household members become of marriageable age; male sons and their wives often live with their parents in informal housing (Tipple 2000 and Fekade 2000). This generates an additional demand for space. Once again, people tend to save money over time in order to satisfy their needs for increased space. In this phase, income has increased but living costs tend to be higher than in the earlier phase, accompanied by an increasing cost of construction. Finance to expand the dwelling is usually provided by family savings, associated with procedures to increase the family income, such as working extra hours and/or taking on an additional job (Alnsour 2011). The standards of finish which homeowners are prepared to accept are often lower than in the previous instance (Tipple, 2000). Hence, the quality of the built environment tends to become even more unsustainable, and both horizontal and vertical patterns of housing development continue to take place unsystematically.

In the decline stage, available space in which to build additional rooms or dwellings begins to decrease, and thus transformation also decreases. Environmental and spatial

problems are aggravated, and housing transformation exceeds the demand for space in this stage of an informal settlement life cycle. Due to spatial and environmental challenges, policy makers are required to manage these challenges by applying appropriate policies.

In conclusion, irregular financial arrangements for home construction can be seen as stimulating the construction and extension of informal settlements in a region. Thus, the need for irregular finance, as opposed to finance provided by regulated financial institutions, has an important role in influencing the extent of housing transformation in informal settlements. It can be hypothesized that irregular finance has a positive impact on housing transformations in informal settlements (Tipple 2000; Fekade 2000).

4. The Study Area

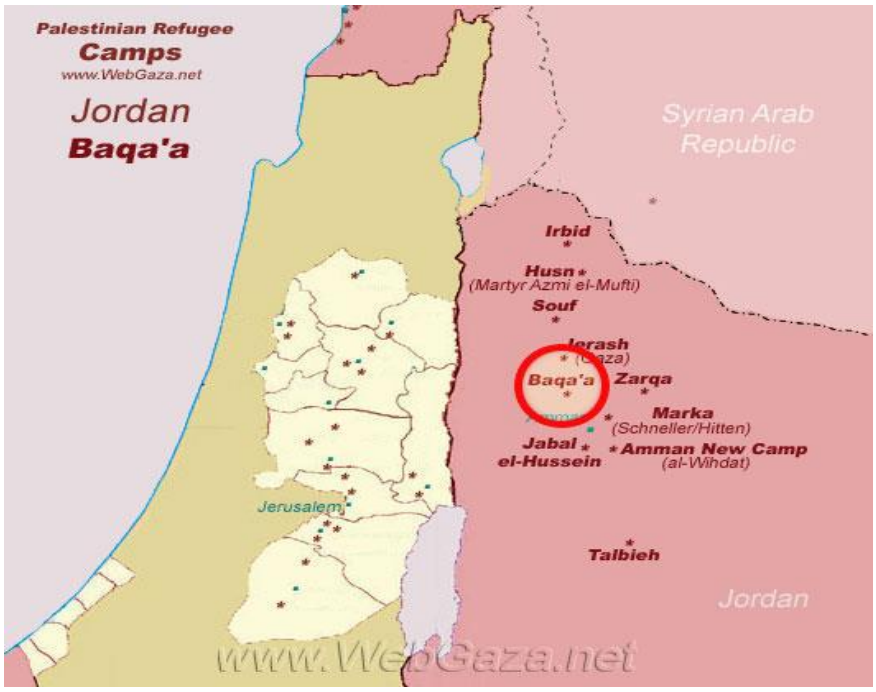
According to the Department of Statistics (2013) Jordan consists of twelve governorates, with a total population of approximately 6.5 million inhabitants, with the vast majority (roughly 83%) living in cities. Jordan has been seriously affected by successive refugee migrations, with about 2 million Palestinian refugees (United Nations High Commissioner for Refugees (UNRWA) 2014) more than 1.4 million Syrian refugees (Alnsour 2014, p. 272) and 1.4 million Iraqi refugees (Potter et al. 2009: p. 118) settling within its borders.

The focus of this research is on Palestinian refugee camps, more specifically Baqa'a Camp. Between 1950 and 1970, Jordan, in cooperation with UNRWA, constructed thirteen camps to meet the housing needs of Palestinian refugees. Only ten are regarded as official (Department of Palestinian Affairs, 2014), which means that their services are provided by UNRWA. The remaining three camps are considered to be unofficial (i.e.

Madaba, Heteen, Alsokna) because they are managed by the Jordanian government and not UNRWA.

Palestinian refugee camps are typical of any informal settlement. Housing is characterized by poor condition, the quality of services and infrastructure tends to be low, there is no legal homeownership, and construction does not follow planning or residential regulations.

Fig.2. Palestinian refugee camps in Jordan. Source: www.WebGaza.net.



As evident in table 1, these informal settlements vary in terms of area, and population size. The Baqa'a camp is the largest in terms of both housing and population and, thus, is a valid choice as a study area. The camp accommodates 28% of the total number of refugees residing in all ten camps, and there are 8507 housing units (Department of

Palestinian Affairs 2014). Fig. 3 is a map of the Baqa'a camp, illustrating residential density in the camp compared to the surrounding area.

Table.1. Official Refugee Camps in Jordan Source: http://www.uno.org/unrwa/refugees/Jordan.html

Year of Establishment	Camp	Initial Population	Population (mid 2000's)	Area m^2
1949	Zarqa	Unknown	18,509	189,000
1950	Irbid	4,000	25,250	219,000
1952	Jebal El-Hussein	8,000	29,464	338,000
1955	Amman New Camp (Al-Wihdat)	5,000	51,443	477,000
1967	Souf	Unknown	20,142	596,000
1968	Baqa'a	26,000	93,916	1,307,000
1968	Husn	12,500	22,194	754,000
1968	Jerash (Gaza)	11,500	27,600	507,000
1968	Marka (Hitten)	15,000	45,593	894,000
1968	Talbieh	5,000	6970	133,000

5. Research Methodology

A quantitative method, employing a cross-sectional survey, was seen as the appropriate methodology to satisfy the research objectives. As Baqa'a camp consists of 8,507 housing units (Department of Palestinian Affairs 2014), a simple random sample of 850 housing units was considered to be a representative sample of the research population. The justification for targeting a large sample was to obtain a sufficient response rate, and to ensure that the sample was representative. This is in line with Saunders et al. (2012) and Cooper & Schindler (2001) who confirm that it is important to select a large

sample size in order to ensure confidence with the validity of the data. To generalize the findings of study, the randomization of the sample was achieved by producing a systematic period among responses. Based on Alnsour & Meaton (2014) a systematic period was calculated with the following formula:

S.P = n/N, where n equals sample size and N equals the population size; hence 8507 ÷ 850 = 10.

The questionnaire was therefore distributed to households by selecting one house and leaving the next ten housing units, and so on. In this way, each housing unit has the same chance in appearance.

The questionnaires were distributed by a small trained team and 238 usable questionnaires were returned. Indeed, there were 512 households refused taking part in this study. As indicated by De Vaus (1990, p.99), calculating the response rate can be executed by using the following formula: Response rate = Number of completed and returned/ (Number of respondents in sample-(Unreachable respondents-Ineligible respondents). Applying this equation, the response rate = 338 / (850 – 0) = 40%. This number was deemed to be adequate enough to carry out the data analysis.

The issues of validity and reliability were met by completing a pilot survey of 20 households in the Jebal El-Hussein Camp. Descriptive statistics in terms of means and percentages were used to describe and analyze the study variables. Inferential statistics in terms of simple regression analysis were used to examine the study hypothesis.

6. Results and Discussion

The aim of this paper is to understand the provision of finance for the purpose of housing in informal settlements. The following sub-sections present the empirical findings in detail.

6.1 Characteristics of Respondents

The socio-economic characteristics of respondents are important when designing housing policies. According to table 2, the residents of the Baqa'a Camp can be described as varied. Findings determine that the average family size is 6.3 persons. This average is higher than the 5.4 members per household in Jordan estimated by the Department of Statistics in 2013. Gender percentage is balanced, with 52% of the total population male and 48% female. The average householder's age is 48 years old, and most of them are male. 48% of all householders are secondary educated, 17 % have upper secondary or university education, and 35% only attended primary school. The average annual income per household is JD 5,615 (i.e. $7,930).

Table 2: Characteristics of Respondents.

Indicators	**Average and percent**
Household size	5.4 members
Gender	Male 52% Female 48%
Occupant's age	48 years
Educational level	Primary 35% Secondary 48% Undergraduate 17%
Household income	$7,930 per year
Homeownership	Owner 75.6% Renter 24.4%

Results show that 75.6% of households considered themselves as homeowners, (in spite of the fact that none of the occupiers have legal ownership, and 24.4% as tenants. Renting is another way of entering an informal settlement.

6.2 Housing Transformation

Findings show that the current dwelling unit area ranges between 70 m^2 and 300 m^2. The floor area for average housing units is adequate for the typical family of 6.3 members per housing unit. Table 3 shows the motives for extending or altering the original house, as mentioned by respondents themselves.

Table 3: Motives for Extending or Altering.

Motives for extending or altering	Percent
Increase in the number of family members	53%
The need for extra space to separate male and female	15%
Additional space for sons when they marry	11%
Rental	21%

According to table 3, the motives for extending or altering the original house can be classified as follows:

1. Social factors: increase of family members, the need for extra space to separate male and female occupants, and provision of additional space for sons when they marry.

2. Economic factor: increasing the family income by constructing rental properties.

These results are agreed with Tipple's findings (2000) in which the process of construction and housing transformation occurs over a series of time periods, depending on the availability of finance and the changing needs of households. In the Baqa'a Camp, construction has taken place over three time phases.

The first phase is the construction of the core unit, which ends when the house is ready for habitation and the owner moves in. Any construction implemented after this phase is deemed to be a transformation activity. This study established that the smallest housing units, constructed at the end of the 1960's until the 1970's, were approximately 70 m^2, and the largest were about 100 m^2. Findings show that 56% of the houses built during that time were between 70 m^2 to 85 m^2, and 44% were between 85 m^2 to 100 m^2. Land is divided into small plots, each with an area of about 100 m^2. In Jordan the maximum built area to vacant space ratio should not exceed 70% (Alnsour & Meaton, 2009), which means that this construction violates the maximum plot occupancy ratio. Findings reveal that 16% of the total number of housing units remained without any transformation; in other words, did not move on to the second phase.

The second phase occurs during the first transformation of the original housing unit. Findings reveal that 58% of the total number of housing units surveyed had at least one transformation, with 26% undergoing a second transformation. In contrast, the empirical findings of Sheuya (2007); Nguluma (2003) and Tipple (2000) determined that housing transformation in most developing countries take place over four to five phases, depending on availability of finance. These findings suggest that the construction phase in the Baqa'a Camp was converted to the incremental development process.

Findings also reveal that the majority of these extensions doubled the initial area of the dwelling. Most extensions to the original home took the form of adding an additional

floor (that is, a vertical pattern). Findings illustrate that the area of extension to the original house ranged from 70% to 100% in the first transformation, and from 90% to 100% in the second transformation. The reason that this pattern of extension was possible is that construction took place vertically; none of the plots exceeded an area of 100 m^2. Kombe (2005) and Fekade (2000) argue that the pattern of informal settlement growth does not occur systematically over time, and that both vertical and horizontal patterns prevail in developing countries.

In terms of the timing of transformation activities, results show that the period from the end of 1968 to the 1990's witnessed the most extensive construction; 77% of households underwent transformation during this period. Such a short period of time reflects the rapidity of the expansion of informal settlements.

6.3 Sources of Finance

Housing transformation tends to continue over time because the flexibility of the source of finance means that construction takes place whenever finance is available. Table 4 shows that most households implemented construction and transformation based on personal savings during the process. This demonstrates that low income people are unable to access regular financing. Such a result agrees with the empirical findings of Al Homoud et al. (2009), which discloses that most housing in Jordan is financed by irregular, individually organized methods. It can be concluded that households are not too poor to save, but that their savings are small in scale, and they face obstacles when attempting to obtain finance from public or private sector lending institutions.

Table 4: Source of Finance and Transformation Phases.

Source of finance	Initial construction	Transformation	
		Phase 1	Phase 2
Savings	72%	60%	52%
Personal Loans from Commercial Banks	28%	35%	41%
Borrowing from Friends and Relatives	0.0	1.0%	1.4%
Financial Remittances from Abroad	0.0	4%	5.6%

The second source of finance is to obtain a personal loan from a commercial bank. It is noticeable that such borrowing has increased over time. On average, loans granted to people in the Baqa'a Camp are small in scale. However, it must be noted here that personal loans are characterized by a higher interest rate (at 9% to 10%) than housing loans (at 7% to 8%), which means that commercial banks did not provide appropriate finance for low income people. Results reveal that there are barriers to accessing housing loans from commercial banks. The first barrier is organizational, and relates to the restrictions placed by banks on the lending process, where housing loans may only be provided through a system of warrantors and mortgage, making borrowing difficult. In most cases, the residents of informal settlements fail to meet these requirements. The second factor is that Islamic rules forbid any form of money transfer which is related to dealing with interest (this is called Reba, which is defined in Islam as exchanging cash or kind, with one party paying back extra at once or at a later time. This type of transaction is forbidden in Islam, and also applies to depositing money in the bank and receiving interest (Alnsour 2011).

Financial remittances played a minor role in supporting housing transformation. These financial remittances are sent to households from family members who work abroad, such as the Gulf States and the U.S.A. Al-Homoud et al. (2009) noted that financial remittances play a limited role in supporting low income housing in Jordan. Borrowing from relatives and friends also contributed, but to an even more limited extent, to the provision of finance for housing transformation in the Baqa'a Camp.

Hence, the process of housing transformation in the camp took place through household savings, personal loans from commercial banks and other limited finance sources as mentioned earlier. Authors such as Sheuya (2007); Sengupta (2006); Stein & Castillo (2005); Pillay & Naude (2005); Fruet (2005); Nguluma (2003); Sivam (2002); Tipple (2000); Fekade (2000); Salama (1998); Tipple et al. (1998) have all concluded that the most important irregular source of finance for the expansion of housing in informal settlements is family savings, and thus the ongoing nature of informal urban housing is strongly related to a lack of regular finance for low income people.

6.4 Impact of Irregular Financing on Housing Transformation

Table 5 provides some very important information about the regression model. The value of R for this model is 0.648, which is an indication that the model provides a good explanation of the observed values of the outcome variable. R^2 is 0.419, which means that the dependent variable accounts for 41.6% of the variation in the housing transformation. The adjusted R^2 gives an idea of how well the model generalizes and ideally it is better if the value of adjusted R^2 is close to the value R^2. In the case of this model, the value of adjusted R^2 is 0.416, which is perfectly close to R^2.

Table 5: Regression Analysis

Independent variables	Unstandarized coefficients		Standardized coefficients	t-value	Sig.
	B	Std. Error	Beta		
(Constant)	**0.558**	**0.179**	**-**	**3.117**	**0.000**
Housing Trans	**0.072**	**0.013**	**0.109**	**5.538**	**0.000**
R = 0.648					
R^2 = 0.419					
Adjusted R^2 = 0.416					
F = 170.196 Sig. 0.000					

It can be seen from table 5 that the model causes R to change from zero to 0.648 and this change in the amount of variance explained gives rise to an *F-ratio* of 170.196, which is significant ($P< 0.05$). This indicates that the improvement due to fitting the regression model is much greater than the inaccuracy within the model (Field, 2000, p.147).

Regression findings reveal that irregular finance has a significant effect on housing transformation in informal settlements, with a beta of 0.109 (t-value = 5.538). Findings for the regression model indicate there is a positive direct relationship between finance and the area of dwelling, supported by the 0.05 significance level. Such a result supports the argument of Pillay and Naude (2005) in which housing transformation in informal settlements is a direct consequence of the lack of finance. It is also supported in the literature, which reveals that policies dealing with finance are inadequate in developing countries (Datta and Jones 2001). These results agree with the work of

Sengupta (2006), in which access to finance continues to act as a fundamental constraint on housing acquisition by low income people. The lack of mortgage finance facilities for people may be a factor in an increase in the number and size of informal settlements (Datta and Jones 2001). Fruet's (2005) empirical work in the case of Brazil demonstrates that there is a strong positive relationship between finance and the continuation of informal settlements.

As the urban poor cannot access formal finance, they are obliged to build in an irregular manner. However, neither commercial nor Islamic banks provide loans for low income people. The regression results support the argument provided by Datta and Jones (2001) in which low income households face severe restrictions when attempting to obtain a loan. Thus, poor people tend to turn to irregular financing sources to meet their housing needs.

7. Concluding Remarks

This paper provides valuable insights into improving understanding of the provision of finance for construction and housing transformation in informal settlements in Jordan. The process of construction and housing transformation occurs over three periods of time, depending on the availability of finance and the changing needs of the household. Therefore, this paper confirms that housing construction and transformation in informal settlements is incremental.

The need for housing transformation is determined by two factors. The first is the social factor, as a result of an increase in family size over time. The second factor is economic, representing the desire to improve the family income by constructing a rental property. Both these factors resulted in forcing low income households to seek irregular financing sources and irregular building patterns. Housing transformation is therefore seen as the

most effective instrument which can achieve the desires of low income people socially and economically.

Family savings, as a fundamental source of irregular financing, tend to play a key role in increasing and expanding construction, and housing transformation over time. In addition, small scale personal loans from commercial banks, with a high rate of interest, have also clearly contributed to the expansion of housing transformation. The contribution of regular finance in the form of housing loans from banks or the public sector is zero. Therefore, irregular financing has a significant positive impact on housing transformation within informal areas. In other words, demand for space stimulates irregular financing and then leads to an increase in housing transformation in informal settlements. Clearly, the irregular financing of construction and housing transformation in informal settlements plays a vital role in urban economics, as a key source to provide housing for low income people, and improve their incomes.

The Jordan government should reassess policy regarding finance for housing. Current policy does not enable low income people to access appropriate housing. Indeed, if the government is really concerned with emphasizing the socio-economic effect of their policies on the general community, investigating alternative sources of finance for low income people would limit future informal settlements. In this way, a partnership between the public and private sectors could be of great assistance in enabling low income people to access regular finance. Furthermore, housing finance could be strengthened by enacting legislation that enables financial institutions which provide funds for housing to operate effectively, sustainably and contribute to enhanced housing delivery.

Examining the provision of finance for housing transformation in similar environments to Jordan in the Middle East would greatly enhance the literature. Such studies could also lead to an improvement in housing finance policies, and contribute to new strategies for managing informal settlements.

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