Overcrowding of Residential Houses in Ethiopia: A Study of Selected Demographic and Socio-Economic Correlates

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Abstract

Existing housing related evidences attest to the fact that many Ethiopians live in houses that are not conducive for healthy life. This article examines the nature of overcrowding of residential units in Ethiopia using the 2007 Population and Housing Census data supported by literature. Descriptive and multivariate statistical analyses are employed to generate empirical evidences that demonstrate the extent to which many live in overcrowded houses. The results show that more than half of Ethiopians live in overcrowded housing units. Findings from multivariate analyses show that overcrowding is strongly linked to demographic and socio-economic characteristics of households, their migration status and type of place of residence. In particular, housing units headed by males are more likely to be overcrowded than those headed by females. Education is negatively associated with overcrowding suggesting that exposure to formal schooling leads to smaller families. There are also significant differences in the level of overcrowding by ethnicity and religion. It is implied from the results that variations in the level of overcrowding of housing units, and hence housing conditions, remain to be one of the indicators of differentiated livelihood situations in the country, which needs to be redressed through investments and instituting the required housing standards.

Keywords: Ethiopia, housing, household heads, overcrowding

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Introduction

It is understandable that the quest for housing (shelter) as a means of overcoming adverse weather conditions, frightening wild animals, and storing some foodstuffs emerged at the time when people appeared on earth (Anonymous, 2009). It is also obvious that house is one of the most basic necessities of life for humans along with food, water and clothing. Its quantity and quality need to be as standard as possible to fulfill the requirements of a good housing. This is not only because most people spend the major part of their life in houses but also for the reason that important human activities such as key household decisions, socialization of children, consumption and others take place in houses. Bondages and values established and attached to houses make occupants create irrevocable love for their houses, which may imply that the more decent the houses are the stronger bondage and values people would develop towards houses.

The issues of housing have mistakenly been understood mainly in relation to urban areas in Ethiopia and therefore housing development and related policies and strategies are, arguably, urban biased. On the other hand, urban housing conditions *per se* are not up to the required standard. The fact remains that most of the country's urban centers are currently suffering from a host of intricately linked problems, including rising unemployment, deepening poverty, severe housing shortage and lack of good governance (UN-Habitat 2007: 5). Available evidences illustrate that though the severe shortages of housing in urban areas create congestion, the most important cause of overcrowding is cost. As stated, in weighing the alternatives of location, amenities and cost per room, the poor tend to accept crowding to limit housing costs and provide for alternative needs. Accordingly overcrowding is associated with people with low-income or no income as these people very often cannot pay higher rents (Hauser and Garder, 1982). One could argue that solutions to overcrowding need to have an integrated feature where crucial problems of housing and income are addressed in unison in urban development processes.

In the context of the above, it is quite informative to quote a statement put across by the UN-Habitat (2007: 1) regarding urban development in Ethiopia:

> *As one of the oldest independent nations in the world, Ethiopia has a long history of indigenous urban development. Nonetheless, the country today is one of the least urbanized nations of Africa, with only about 17 percent of its population living in urban areas. In keeping with the pattern of urban growth of the least urbanized countries, the country is currently witnessing one of the fastest rates of urban growth in the world, namely an average of five percent per annum. Most of this growth manifests itself in the proliferation of small, mostly roadside towns or service centers whose principal role is mediation of local commerce and, more often than not, functioning as centers of public administration.*

Such a growth dynamics has not however been accompanied by the requisite housing and adequate infrastructural facilities and services. As a result, this urban growth trajectory with no doubt yielded nothing but a large size of urban population residing in unhygienic, congested and poor conditions while the conditions of rural housing are more appalling than its urban counterpart. As a whole, poor housing conditions attributed by overcrowding, poor housekeeping, poor designing and construction, etc. are the major factors for the presence of substandard housing and poor health status of the occupants. These problems are increasing at an alarming rate compounded by homelessness, formation of slums and squatter settlements especially in towns and big cities. Population growth, immigration of people from rural to urban areas in search of job, natural and man-made disasters, are creating extreme overcrowding and poor housing in urban settings (Dejene et al. 2002).

Developing a better understanding of housing conditions in the country in relation to some selected fundamental indicators is believed to contribute to the various policy and strategy directions presently underway. The grips these policies and strategies have on housing development can be relaxed if and when knowledge about housing conditions are created and built. The crux of the matter is that housing and housing conditions are the outcomes of lack of relevant public policies on the one hand, and on the other the results of public policies directed either at housing development itself or public policies that have no purpose with housing but which could play potentially detrimental roles to housing development. Cases in point in this regard include policies related to urban development, land tenure,

industrialization, those policies related to other infrastructure development and the like. This article is principally based on that trust.

In the light of the above, the main objective of this article is to examine the associations between demographic and socio-economic characteristics of the population and housing overcrowding - density of housing occupancy - in Ethiopia. The article contains conceptual consideration that renders guidance to the article, housing and well-being, dynamic changes in housing policies in urban Ethiopia and, finally, discussions and conclusion.

Conceptual consideration

Existing evidences demonstrate the fact that among cities in developing countries, all except Accra have less than 10 square meters of floor area per person that further aggravated overcrowding, while the corresponding figure for more developed nations is more than 30 square meters per person (UNCHS 1996). Similarly, a decrease in per capita income is associated with an increase in the number of persons per room in various developing countries (Hauser and Garder 1982; Downson 1988). Thus, in most cities of the developing countries, the number of persons per room is often two or more (UNCHS 1996).

Different concepts have been employed to reveal what a house is across space and overtime. Nonetheless, all concepts allure to mean more or less the same thing, i.e., that house is a place where humans shelter themselves. In other words, 'Housing is the conjunction of the home, the dwelling, community and immediate environment. Each of these four dimensions has the capacity to affect individual health status through physical, mental or social mechanisms, and they are all linked together. Therefore, adequate housing depends on the sufficient provision of services and conditions on all the four dimensions' (Anonymous 2009:1). In the same tone, the WHO Expert Committee on the public health aspects of housing has defined housing as '… the physical structure that man (sic) uses for shelter and the environment of that structure including all necessary services, facilities, equipment and devices needed and desired for the physical and mental health and social wellbeing of the family and the individual' (WHO 1961:18).

Moreover, housing refers to a 'package of services; public facilities, access to employment and to other services as well as to the dwelling structure itself' (Khurana 1995:22). According to Khurana, access, space and on-site services are some attributes that combine to define housing. Access refers to contact with employment and income generating opportunities, with off-site services such as health and education. Space refers to commercial and recreational activities as well as privacy. Onsite services include water and energy supply, waste disposal, drainage and protection from fires and rains. Housing unit refers to the dwelling structure that may be occupied by one or more households or may be used partly for living and partly for commercial purpose.

According to the Canadian National Occupancy Standard developed by the Canada Mortgage and Housing Corporation, a household is said to be crowded if the dwelling requires extra bedrooms against the criteria that there should be no more than two people per bedroom; parents or couples share a bedroom; a child aged five to 17 years should not share a bedroom with one aged under five of the opposite sex; single adults aged 18 years and over and any unpaired children require a separate bedroom (Canadian Ministry of Housing Corporation 1991).

What is more, household crowding is defined as 'a situation where one or more additional bedrooms are required to meet the sleeping needs of the household', a standard first used in Canada as it is sometimes called the Canadian National Occupancy Standard (Baker et al. 2003:12). Crowding is not evenly distributed across the population. As these authors' analysis shows crowding is highly concentrated in some population groups and geographic areas. Low-income families with children, households containing some ethnic groups and those with recent migrants are more likely to experience crowding. There is also evidence that levels of crowding have risen for some groups over time in New Zealand (Baker et al. 2012).

Crowding indices generally measure either people per room (or bedroom), or people per square meter. People per bedroom measures also consider the age and gender of children, and the relationships between adults, in determining whether or not the household is crowded. According to Kevin et al. (2007), the most common measure of overcrowding is persons per room in a dwelling unit, while the United Kingdom Office of the Deputy Prime Minister (2004) defines it as persons per room and/or persons per

bedroom. The concept used to present housing conditions in Ethiopia in this article is overcrowding of houses (UN-Habitat 2007; CSA 1999; UN 1967, 1961), which occurs when the number of persons per room is more than 2.5. Other competing concepts utilized elsewhere to divulge more or less the same housing conditions relate to occupancy rate and room density, among others.

The article rests on overcrowding of houses in its broadest meaning. It covers Ethiopia as a whole showing rural and urban dichotomy within the various regions. It covers the whole country showing rural and urban dichotomy within the various regions of the country. This is meant to capture variations in the overcrowding of houses by measuring the level of overcrowding and its associations with demographic and socio-economic characteristics of the heads of the households on the basis of the 2007 population and housing census data.

Housing and Well-being

Like any other basic necessities of survival, housing has two-pronged means of assessing its deficits; both quantitative and qualitative terms. Quantitative assessment has to do with the inadequacy of housing itself seen in terms of people's need, i.e., supply side dimension. This has been caused by the fast growth of population in the face of slowly developing house constructions which is in turn caused by various socio-economic, political and institutional factors. Wide gaps have been created between the supply of and the need for housing across the world mainly in poor developing countries like Bangladesh, Sir Lanka, Pakistan (Nevona 2010) and Indonesia (UN-Habitat 2006a) in the Asian continent, and Nigeria (Kabir and Bustani 2009), and Ethiopia (Yenoineshet 2007) in Africa. The widening gap between supply and demand has created a market situation whereby houses have become inexorably very expensive as the case of Nigeria clearly demonstrates (Nubi 2008) though countries like Ethiopia are manifesting the same skyrocketing market prices for houses, which are beyond the reach of most citizens to realize. Qualitative assessment on the other hand is based on the materials from which houses are being made and incomplete houses. Due to the rising prices of construction materials and the falling capacity of the people to afford, less durable and poor quality construction materials have been used by most house builders in the

developing world and even then the houses remain incomplete (UN-Habitat 2006b). Such conditions make houses crumble in a short period of time and expose residents to various repair and maintenance costs and health risks.

Overcrowding, being one of the measures of the quantitative dimension of houses, is a formidable problem of many developing countries and in particular of the poorest segment of the population. Despite the minimum recommended 75 square feet of housing space per person to ensure sufficient privacy and adequate health (Bajwa et al. 2008), estimate shows that approximately 20 percent of the urban dwellers of the developing countries live in houses that lack sufficient living area two-third of which is in Asia (UN-Habitat 2006b). In large cities like Addis Ababa, Kampala, Dhaka, Karachi, and others, the size of population residing in, quite deplorably, insufficient spaces is higher than 50 percent of the population (Bajwa et al. 2008).

Qualitative deficits can also be expressed in terms of the unavailability and/or inadequacy of housing amenities such as water supply, toilet facility, sewage, waste disposal areas, recreation space, etc. Just to mention some revealing evidences in Asia and Africa; water is available only for 3-4 hours a day in Karachi and 4 hours a day in Delhi whilst 70 percent of the households in the lowest income quintile share toilets with 10 or more households in Accra (World Bank 2003). About 51 percent of the state-owned houses in Addis Ababa that comprise about 46 percent of the total housing stock in the city share communal toilets (Yenoineshet 2007). In general, the quality of life of people depends mainly on the general condition of their residences, which is the immediate human environment. Likewise, density of housing occupancy is vital for health and privacy of occupants. Infectious diseases may spread faster in densely occupied – overcrowded - housing units. There are even suggestions that lack of privacy, high noise levels and other concomitant of high densities may increase mental illness and mal-adjustments (CSA 1999). Therefore, deficiencies in the quantitative and qualitative dimensions of housing often trigger overwhelming challenges to human survival in the developing world.

In a literal sense, a house is expected to upkeep and improve the well-being of its occupants. Well-being maybe equated both to the physical and mental health of the occupants. Standard housing is required which often fulfills the requirements of the physical and mental health of the occupants.

The WHO (1989) outlined a set of seven principles regarding the relationship between housing condition and human health. These principles of housing include: protection against communicable diseases; protection against injuries; prevention of poisonings and chronic diseases; reduction of psychological and social stresses to a minimum; improvement of the housing environment; making informed use of housing; and protection of population at special risk.

Congruent with the above principles, healthful housing is one that satisfies the basic physiological and psychosocial needs of human beings. In Ethiopia basic housing needs, such as safe drinking water and toilet facilities, have low coverage in the majority of housing units especially in rural areas. For example, the percentages of rural housing units with safe drinking water and toilet facilities were 34.5 percent and 24.2 percent, respectively (CSA 2010). These conditions create favorable environment for the transmission of various types of communicable diseases.

Moreover, inadequate in-house space has been identified as a risk factor for the propagation of respiratory infections. A study conducted in Addis Ababa revealed that a high risk of acute lower respiratory infection was associated with increasing number of persons per room and high level of indoor air pollution (Kebede, 1997). What is more, crowding, poor air quality within homes as a result of inadequate ventilation, and the presence of mold and smoke contribute to poor respiratory health in general and have been implicated in the spread and/or outcomes of tuberculosis (Shaw 2004), pneumonia, meningococcal disease, and tuberculosis (Baker et al. 2012).

More often, small but important change in housing conditions has proved to yield a big change in health outcomes. For instance, the Mexican housing program, where the government covered the dirt floors of participating households with concrete free of charge resulted in a tremendous reduction in the incidence of parasitic infestations, diarrhea, and the prevalence of anemia with a significant improvement in children's cognitive development and in household happiness (Cattaneo et al. 2007). Studies elsewhere have shown that children who grew up in a home with at least two kids per bed room are both more likely to be held back and to drop out of school than those in less crowded rooms. A lack of space for homework, noisy neighbors, and shared bedrooms can be serious factors for the underachievement of children at school (Goux and Maurin 2005). In general, if the home environment is poor, education is going to suffer

regardless of how good a school is. Poor housing conditions can make homework impossible. Problems in school can often be caused or exacerbated by bad housing conditions. More than 60 percent of children at age 15 living in overcrowded conditions have been held back in primary or middle schools (4 Children 2014). Furthermore, a study conducted in Latin America found that house tenure and overcrowding each has observable impacts on educational attainment but that housing quality is less significant (Office of the Deputy Prime Minister 2004).

There exists strong agreement that overcrowding contributed to about 77 percent of the causes for weakening family relationships (Reynolds 2005). Likewise, there are ample evidences that prove that housing conditions can play important roles, besides acquisition of diseases, in the prevalence of accidents and crime as well as in in-door pest infestation (Anonymous, 2009). It is also confirmed in the Ethiopian case that from health standard point of view each family and individual should have a decent home and a suitable living environment. Clear air, pure and adequate water, safe food, adequate shelter, unpolluted land and freedom from excessive noise and odors are the most important requirements. However, large segments of the Ethiopian urban and rural population do not enjoy these fundamental needs (Dejene et al. 2002).

Dynamic Changes in Housing Policies in Urban Ethiopia

It is obvious that Ethiopia is the second most populous country in sub-Saharan Africa, just behind Nigeria. According to the 2012 Inter-Censual Population Survey, the population of Ethiopia is estimated to be 83.7 million with a growth rate of 2.6 percent. About 83.9 percent of Ethiopians live in rural areas while 16.1 percent live in urban areas of the country (CSA and ICF International 2012). The country is one of the highest fertility nations with a total fertility rate of 4.4 children per woman (PMA2014/ Ethiopia 2014) making the sheer size of population to keep on growing in the decades to come. Such a significant demographic dynamism with no doubt would create inevitable demand for housing and hence the housing sector often requires to be one of the priority agendas of the government, more than what is being done, in order to address the emerging problem of housing and overcrowding both in rural and urban areas of the country.

However, Ethiopia has not made progress with regard to instituting housing development policies in the rural areas. Therefore, this review of the dynamic changes in housing policies in the country is entirely urban in nature. Issues of housing predominantly depend on land and land tenure/use policies. Since land and land use/policies remain controversial political and economic subjects in Ethiopia. Questions related to accessing and utilizing land occupied center stage and often obtained responses immediately following the formation of successive political regimes. Ways of accessing urban land directly or indirectly impinged, provoked and being greeted by changes in housing development interventions in Ethiopia. These two associated changes feature conspicuously as part and parcel of the three different regimes as will be briefly discussed in the subsequent sections.

The Pre-1974/5 Era (Imperial Regime)

Under the Imperial Regime, land was treated as private property subject to sale, inheritance, and mortgage without any restriction. The housing market during this period was characterized by free market principles in that landlords were: (1) leasing urban land; (2) constructing residential houses for tenants; and (3) that there was no restriction with regard to selling and buying houses.

In the 1960s two major legislations were promulgated. One was the legislation which specifically dealt with the provision of housing finance - Proclamation No. 47/1961, which dealt with the provision of housing finance and Proclamation No. 188/1962, which established the Imperial Savings and Home Ownership Public Association (ISHOPA). ISHOPA was established primarily to accommodate the needs of low-income people. The Mortgage Company of Ethiopia, S.C. was established in 1965 to give loans to the private sector for construction purposes (Tadesse 2000). Generally, the involvement of the Imperial government was low in the housing sector, which resulted in unplanned development of most urban centers of the country, particularly in Addis Ababa.

As a result, there had been significant deterioration of the physical conditions of residential areas which consequently made the provision of infrastructure difficult. Furthermore, the pre-1974/5 era had marked the housing market to have been characterized by speculation of land prices and high house rents which were always working to the benefits of landlords. The majority of the low-income group of the population had to access rental

housing in the most quagmire conditions in that the owners had the right to indefinitely decide and hence increase the amount of house rent (Esayas 2001).

The 1975-1991 Era (Derg Regime)

The *Derg* regime completely changed private land ownership and made land 'state' or public property not subject to sale, transfer, or inheritance by individuals. This means that citizens only had a 'use' right over the land. The main measure that was taken by the *Derg* regime in the urban context was the nationalization of all urban land, extra houses, high-rise apartments and office buildings without any compensation under Proclamation No. 47/1975. The main target of the proclamation was to get rid of the rights of landlords and their affiliates. Therefore, the most important immediate effect of the proclamation was the reduction of house rent by 50 percent for those houses with a monthly rent of less than 144 Ethiopian Birr (about US$ 7.00 by 2015) (PMAC 1975a). This shows that the *Derg* government had begun direct involvement in the sphere of housing provision.

Another major legislation related to housing provision which could in essence be considered pro-poor development issued by the *Derg* Administration was Proclamation No. 60/1975, which created the Housing and Savings Bank (HSB) in the country. Some of the responsibilities of HSB included the provision of long-term and short-term loans for construction, acquisition, maintenance and renovation of residential houses, buildings including apartments, offices, and shops (PMAC 1975b).

Using the expansion of urban areas, in particular Addis Ababa, the government began intervening and strengthening its grips on urban land and houses. As far as the development of new dwelling houses was concerned, different programs were designed and implemented. To overcome the housing problem, the government allocated budget to construct dwelling houses on rental basis, which were administered by the Agency for the Administration of Rental Houses (AARH). Self-help and assisted self-help housing as well as housing cooperatives flourished to render support to the low-income groups of the population. These groups of the population were offered house plan free of charge and technical assistance from the government whether they worked in formal or informal sectors of the economy. They were in fact categorized into self-help housing and housing cooperatives, and were allowed to get loans from the government Housing

and Construction Bank (HCB) with significantly reduced interest rate (UN-Habitat 2007).

After the stipulation of Proclamation No. 47/1975, the government took the responsibility of developing residential housing units. The aim of the government in this regard was to equalize the living conditions of the people based upon its *socialist* philosophy. Allocation of budget and subsidy to the housing sector were the main focus of the time. However, the government took this broad initiative in allocating the resources without building the requisite capacity to regenerate them on sustainable basis and thus resources became scarce. As a result, sites and services projects turned out to be too expensive for the government to uphold and therefore it ceased subsidized housing provision program after sometime (Esayas 2001).

Another housing related measure issued by the government was Proclamation No. 292/1986. The proclamation had two-pronged objectives: (a) to achieve space and material economy through non-public participation in the construction of standardized dwelling units, and (b) to enable the government to further control the housing market. The main approaches used to achieve these objectives were: setting housing standards, promoting the proliferation of housing cooperatives and subletting (Tadesse 2000). It appears that government came close to a success story in achieving the set objectives.

Post-1991 Era (Present Regime)

Under the present government (post-1991), land is also a state/public property. Formally, citizens have only the right to use the land. The difference now is that individuals can get land through lease payments and retain the right to use the land for the period determined by the lease contract. Needless to say, the government charges subsidized lease rates for poor and low-income home builders. In such conditions, property values are based solely on the improvements (the building/house) made on land excluding the actual value of land (Meheret and Richard 2009). The implication of this tenure system has become a growing concern as it significantly influences the value of investment people make on housing.

On the other hand, the present government in its two policy documents has shown the direction to be followed in the housing sector. This policy direction deserves its own individual note as shown in the order that follows:

Firstly, Article 8 of the Economic Policy document (issued in November 1991) (Transitional Government of Ethiopia TGE 1991) was devoted to Urban Land and Housing Construction during the transition period. The sub-articles of article 8 state that: the government will retain ownership of urban land but will ensure its equitable distribution for those who want to construct houses; the government will issue and enforce regulation, create favorable situations to promote integrated urban development and encourage people to benefit from the construction of their own houses; as resources permit, government agencies are to construct low cost houses for rent or sell to consumers; and the government was/is to issue regulations governing the relationships between owners/landlords and renters/tenants. The policy also pointed out the need to expand and strengthen the participation of private investors in the areas of urban development, housing and construction sectors.

Moreover, the government came up with Proclamation No. 721/2011 to provide for leasing holding of urban lands whose aim was to provide land on a bid basis (Federal Democratic Republic of Ethiopia (FDRE) 2011). Following this proclamation, urban land possession periods differ according to the type of services to which the lands are put with the minimum period of 15 years of lease for urban agriculture and maximum period of 99 years of lease for residential housing plots. In 1993, the government allowed participation of the private sector in the provision of housing. In short, individuals can buy land on a bid tender and build residential houses, services and facilities with the right to sell or rent (Ministry of Works and Urban Development (MWUD) 2007).

Secondly, the National Urban Development Policy document that was approved by the Council of Ministers in 2005 focused primarily on housing development. As a result, city administrations and regional governments are expected to allocate special budgets and participate in the construction of low cost houses for the low-income group of the population on the basis of long-term loans. It is noted that the houses to be constructed by city administrations should use physical space - land wisely. Additionally, such housing efforts should be centered on the construction of cost saving communal buildings (e.g., condominiums) by using labor from the beneficiaries themselves and thus this new housing effort was expected to be a means for the creation of job opportunities for residents (Tadesse 2009).

As it is obvious, the Ministry of Works and Urban Development (MWUD) is the lead agency entrusted with the responsibility of housing provision. It has prepared a policy proposal on housing development which would serve as a guide for cities and regional governments in meeting the soaring housing demand in the country. The policy envisages two approaches to tackle the housing problem, namely direct government intervention and promotion of private real estate development. However, despite the good intension of the policy direction little has actually changed on the ground regarding overcoming the ever rising house rent and house price.

Data

To explore the level of overcrowding of residential houses in the country, some selected demographic and socio-economic factors are identified and examined. As noted elsewhere, both descriptive and analytical statistical techniques are applied congruent with the kind of statistics and associations to be established in response to the intent of the objective of the article.

The housing data used in this article is taken from the Third National Population and Housing Census of Ethiopia. This census was carried out in May 2007 in all regions of the country except Somali and Afar regions, where the data collection operation was conducted in November 2007. Elementary and secondary school teachers participated in data collection and supervision activities along with the staff members of the Central Statistical Agency (CSA). Housing information was collected from occupied residential and partially residential housing units on 20 percent sample basis. Enumerators were instructed to collect data from one household only during enumeration works even if more than one household happened to reside in one housing unit. This approach to data collection obviously masks the severity of overcrowding particularly if members of the 'other households' were not included in the housing data.

The census questionnaire included a detailed set of housing questions administered both in urban and rural areas. In the census, the following information on housing characteristics and conditions were collected: bathing facility; toilet facility; whether a housing unit had traditional or modern type of kitchen; source of drinking water; source of power for lighting; type of fuel used for cooking; availability of radio, television, and

telephone sets; number of rooms; type of waste disposal; whether domestic animals spent the night in the room where members of the household spent the (census) night; whether there was a separate room in the housing unit that was used mainly as kitchen; type of housing unit; type of construction material of walls, roofs, floors, and ceilings and status of tenure of housing units.

Analyses

With few exceptions, the analyses of all key variables of housing conditions were conducted in two parts: descriptive and multivariate. A comprehensive study of this sort in principle needs to use logistic, multiple and or stepwise regression model to see the combined effects of the demographic and socio-economic characteristics of the occupants and non-household characteristics on housing quality. Unless otherwise indicated, all descriptive analyses were based on weighted data, whereas multivariate analyses were conducted on unweighted data. This is because research has shown that unweighted estimates (in multivariate analyses) are more consistent and more efficient than the weighted ones (Frohlich et al. 2001).

Some variables (e.g., education, employment of the household head and housing characteristics) were obtained from the long questionnaire, which was administered to 20 percent of the population. Other data were obtained from the short questionnaire, which was administered to 80 percent of the population. However, because missing values are excluded from the present analyses, some of the statistics presented in this article may be slightly different from those reported elsewhere.

This article focuses on overcrowding whereby, in general, a person is considered to be living in an overcrowded housing unit if he or she shares the room with two or more people. To be consistent with the definition used in the previous Ethiopian report (CSA 1999), a household is considered overcrowded if it has 2.5 or more people in one room. In this report, CSA seemed to have utilized the thresholds set by the UN (1967) such that: a) housing units with more than one room occupied on average by less than one person per room are classified as under-occupied; b) housing units with one or more rooms occupied on average by one to 2.4 persons per room are classified as adequately occupied; and c) housing units with one or more rooms occupied on average by 2.5 or more persons per room as

overcrowded. In fact, in the analysis we resorted to the numbers of rooms, not to sizes of rooms, simply because data on sizes of rooms are not made available in the 2007 Ethiopian census data. Nevertheless, it is to be acknowledged that floor area per person is a more precise indicator of overcrowding than persons per room (UNCHS 1996).

We worked out the overcrowding index by dividing the number of persons living in the same household by the number of rooms available in that household. If the resulting value is equal or more than 2.5, then the index is coded 1 for overcrowded; otherwise, 0 for not-overcrowded. As a dichotomous variable, the multivariate analysis of overcrowding was conducted in the form of logistic regression.

Results

Based on the above classification, the degree of overcrowding in Ethiopia in the 2007 Census was reported as 56.4 percent. Not surprisingly, housing units both in rural and urban parts of Ethiopia were overcrowded, i.e., 60.1 percent versus 29.3 percent, respectively. Regarding housing overcrowding by sex, male-headed housing units were more overcrowded than female-headed households; 61.1 and 41.3 percent, respectively (Table 1).

Table 1: Percentage Distribution of Overcrowded Housing Units by Demographic and Socio-economic Characteristics of the Household Head, Ethiopia 2007

Demographic and Socio-economic Characteristics		Number	Percent
All – County Level		8,749.808	56.4
Sex			
	Male	6,639,394	61.1
	Female	1,417,312	41.3
Age			
	15-29	1,423,380	42.0
	30-39	2,490,281	65.2
	40-49	1,911,356	68.1
	50-59	1,098,987	60.1

60+	1,132,702	46.2
Level of Education		
Less than primary	7,763,479	57.6
Primary	189,616	47.5
Secondary+	103,610	25.5
Employment Status		
Employed	6,302,034	58.3
Unemployed	1,754,672	50.3
Marital Status		
Married	6,994,982	64.5
Not married	1,061,724	30.7
Religion		
Orthodox	3,368,903	49.4
Other Christian	1,405,126	56.4
Muslim	2,962,235	66.0
Other	320,442	64.0
Ethnic Group		
Oromo	2,708,674	57.1
Amhara	2,136,547	49.5
Somali	566,377	88.7
Tigray	433,586	45.4
Other	2,211,522	60.7
Type of Residence		
Urban	306,119	29.3
Rural	8,443,689	60.1
Migration Status		
Migrant	1,447,670	42.3
Non-migrant	6,609,036	60.8

Source: Own Computation, 2015

Similarly, housing units with married household heads were more overcrowded than those with unmarried household heads. This table also shows that the Somali households were more likely to live in overcrowded housing (88.7 percent) than all other ethnic groups. Tigray people were the least likely to be in overcrowded housing (45.4 percent). Regarding religion, Muslims were more likely to live in overcrowded housing units as

compared to persons of other religious groups.

Likewise, one may posit such basic question as 'What are the factors associated with overcrowding in Ethiopia?' The results from the logistic regression models presented in Table 2 show that variables considered in the logistic regression equations are significantly associated with overcrowding, although not in the same way. Based on the demographic and socio-economic status of the head of the household, these results show that being male, being married, not being a member of the Orthodox Church, and being of the Somali ethnic group were associated with the likelihood of living in an overcrowded household.

The influences of the demographic and socio-economic variables are understandable. For example, because of the predominance of the Ethiopian society by patrilineal norms, male household heads certainly attract more relatives into their houses than female household heads. On another consideration, male household heads are expected to have more resources than their female counterparts due partly to gender differences that contribute to varying economic status.

The fact that housing units in which the household heads were employed were less likely to be overcrowded as compared to the ones in which the household heads were unemployed could indicate the importance of resource sharing among households. It is possible that housing units where the household heads were unemployed comprise different generations of relatives who participate in various survival strategies to bring income and other resources to the extended families. It could also indicate that the employed household heads prefer to have nucleus families as compared to the unemployed household heads as a characteristic feature of upward social mobility. It could also be that more of the unemployed household heads were rural residents where the sizes of households often remain larger than their urban counterparts. Making conclusive verification however demands further investigation.

The effect of age seems consistent across the housing index variables analyzed in this study. That is, those household heads that were at the height of their working age probably had more opportunities to house extended family members. On the other hand, education is negatively associated with overcrowding. Households headed by more educated persons were less likely to be overcrowded than those headed by less educated people.

Table 2: Logistic Regression Analysis of Overcrowding, Ethiopia 2007

Characteristics		Model I Socio-demographic Characteristics Only		Model II All Variables	
		Coeff.	SE	Coeff.	SE
Sex					
	Male	0.302*	0.004	0.283*	0.004
	Female	--	--	--	--
Age					
	15-29	--	--	--	--
	30-39	0.677*	0.004	0.676*	0.004
	40-49	0.867*	0.004	0.872*	0.004
	50-59	0.547*	0.005	0.551*	0.005
	60+	-0.043*	0.004	-0.042*	0.004
Level of Education					
	Less than primary	--	--	--	--
	Primary	-0.439*	0.003	-0.383*	0.003
	Secondary+	-1.450*	0.006	-1.251*	0.006
Employment Status					
	Employed	-0.063*	0.003	-0.069*	0.003
	Unemployed	--	--	--	--
Marital Status					
	Married	0.948*	0.004	0.927*	0.004
	Not married	--	--	--	--
Religion					
	Orthodox	--	--	--	--
	Other Christian	0.016	0.004	-0.006	0.004
	Muslim	0.292*	0.004	0.288*	0.004
	Other	0.193*	0.008	0.173*	0.008
Ethnic Group					
	Oromo	--	--	--	--
	Amhara	-0.079*	0.004	-0.059*	0.004
	Somali	1.420*	0.010	1.414*	0.010

Tigray	-0.168*	0.006	-0.128	0.006
Other	0.238*	0.004	0.248*	0.004
Type of Residence				
Urban			-0.410*	0.007
Rural			--	--
Migration Status				
Migrant			-0.174*	0.004
Non-migrant			--	--
Constant	-1.228*	0.006	-1.159*	0.006
-2 Log Likelihood	3,272,236		3,261,715	
Number of Cases	2,669,358		2,669,358	

Notes: -- indicates reference category* $P \leq 0.001$
Source: Own Computation, 2015

The results associated with marriage indicate the effects of reproduction. In countries such as Ethiopia, where virtually all childbearing occurs within marriage, married households are expected to be larger, and eventually more crowded than unmarried ones. This may explain at least partly the association between marriage and overcrowding found in this study. Results related to religion show that heads of households who were members of the Orthodox Church were more likely to live in overcrowded housing units than those households belonging to other religious denominations. At this juncture, it is interesting to pose an interesting question as to 'How religion affects housing occupation density?' The answer to this question requires more socio-cultural data on each religious group's values and norms with regard to family, marriage, procreation, and living arrangement.

As for ethnic groups, compared to the Oromo people, the Somali and those in the "Other ethnic group" were significantly more likely to be living in overcrowded housing units. It seems that there is something unique about the Somali and those in the "Other ethnic group" when it comes to living arrangements which nonetheless requires additional data to reveal the reasons behind.

Furthermore, the inclusion of migration status and type of the place of residence in the logistic regression equation did not change the effects of the previous variables. Conversely, the effects of these two control variables

are negative and significant (Mode II). Evidently, urban housing is not only constrained by the physical space (e.g., number of rooms) but also by economic constraints (the ability of the head of household to house more people). Understandably, households headed by migrants were significantly less likely to be overcrowded than those households headed by non-migrants. This is probably because migrants are still fighting for their own integration in the new place of residence and cannot afford to host many people in their housing units.

Discussions and Conclusion

Issues of decency in housing - quantity and quality in housing conditions - deserve particular attention and understanding. Housing conditions are associated with several measures of well-being, including children's educational outcomes and the psychological and overall health of the population. This article attempts to show the complexity of the housing pattern in Ethiopia, with a focus on overcrowding. The results show that more than half (56.4 percent) of housing units in Ethiopia were overcrowded by the time census was carried out (2007). These are housing units in which 2.5 or more persons share the same room. Since this is a somewhat conservative measure, which counts all rooms regardless of their size and utility, the picture is probably worse than these statistics portray. This finding in urban context is consistent with the results reported by the UN (UN-Habitat 2007).

The results from logistic regression show that overcrowding was strongly associated with socio-demographic characteristics of the household heads. Due in part to the patrilineal culture that gives men more authority in the household to invite relatives to join the household, male headed housing units were more likely to be overcrowded than female headed ones. We argue that such a gender related difference may also be due to men's overall socio-economic advantage in the Ethiopian society. It is also obvious that female headed households always remain less than their male counterparts by one person and therefore possess smaller household sizes. Overcrowding was also associated with the age of the household heads; those in typical working age-groups (30 to 59 years) were at higher risk of overcrowding than those in younger and older age categories. This could result from the

prevailing condition that younger households have not completed their childbearing ages and old ones have sent out some of their offspring.

Education, employment, urban residence, and migration were negatively associated with overcrowding. Since these variables are usually associated with upward mobility, our findings may imply that Ethiopians who experienced some sort of upward social mobility tend to avoid excessive housing density. Such a pattern can be a welcome condition for children in terms of better health and school achievements as obviously echoed elsewhere (Office of the Deputy Prime Minister 2004).

We have also found significant associations between religious affiliation, ethnicity, and overcrowding. Muslims and other non-Christians were more likely to live in overcrowded housing than Orthodox Christians and other Christians. In terms of ethnicity, compared to households headed by Oromo people, those headed by Somali and "other ethnic groups" were more likely to be overcrowded whilst those headed by Amhara and Tigray people were less likely to be overcrowded. Ingrained

These results further show that overcrowding was associated with a host of cultural factors, besides demographic and socio-economic characteristics, of the population embedded in various religious and ethnic groups. However, the fact that more than half of the population lives in overcrowded housing calls for the review of current government policies to determine their effectiveness in providing Ethiopians with decent living conditions. On the other hand, it maybe implied from the results that variations in housing conditions, and hence overcrowding, remain to be the notable indicators of differentiated livelihood situations in the country, which need to be redressed through investments in housing both in rural and urban areas as one of the required public sectors in the time ahead. Setting minimum housing standards everywhere in the country has to be embraced as a base of improving the livelihoods of the population particularly those of the young ones. It is underlined that housing improvement is generally linked with or affected by such factors as economic status, social conditions, educational status, custom, traditions, governmental and local housing policies and geographical conditions. Hence, a concerted and integrated effort of different concerned sectors including the occupants is necessary for effective housing program and improvement (Dejene et al. 2002). Finally, a thorough investigation is suggested to uncover some of the salient features of the relationships and possible driving forces between

overcrowding and such factors as employment/unemployment, religion and ethnicity.

References

Anonymous. 2009. Conditions in Kersa District, Eastern Hararge, Eastern Ethiopia.
Policy Brief Number 7. Haramaya University, Faculty of Health Sciences.

Baker, M., Goodyear, R., and Howden-Chapman, P. 2003. Housing crowding and health, in
What is the extent of crowding in New Zealand? An analysis of crowding in New Zealand households 1986-2001. Wellington: Statistics New Zealand. Available from www.stats.govt.nz Accessed on 04.10.14
Baker, M. G., Goodyear R, Telfar Barnard L, Howden-Chapman P. 2012. *The distribution of*
household crowding in New Zealand: An analysis based on 1991 to 2006 Census data. Wellington: He Kainga Oranga/ Housing and Health Research Programme, University of Otago.
Bajwa, U., I., Ahmad, I. and Khan, Z. 2007. Urban Housing Development in Pakistan; A case study of Lahore Metropolitan Area. Paper No. 248. Pakistan Engineering Congress.
Canadian Ministry of Housing Corporation. 1991. *Core Housing Need in Canada*, Canadian Government Print, Ottawa.
Cattaneo, M., Galiani, S., Gertler, P., Martinez, S. and Titunik R. 2007. *Housing, health, and happiness*. Policy Research Working Paper 4214. Washington, DC: The World Bank.
Central Statistical Agency (CSA). 2010. *Population and housing census: Statistical report*. Addis Ababa, Ethiopia: Central Statistical Agency.
Central Statistical Agency (CSA). 1999. *The 1994* p*opulation and housing census of Ethiopia: Results at Country Level. Vol. II.* Addis Ababa, Ethiopia: Central Statistical Agency.
Central Statistical Agency and ICF International. 2012. *Ethiopia Demographic and Health Survey 2011*. Calverton, MD: ICF International.

Dejene Hilu, Kebede Faris, Mengeha Adimassu, Solomon Tassew. 2002. Housing and Institutional Health: Lecture Notes. Ethiopian Public Health training Initiative. Hawassa University in collaboration with the Ethiopia Public Health Training Initiative, The Carter Center, the Ethiopia Ministry of Health, and the Ethiopia Ministry of Education

Downson, A. 1998. *Urban Affairs and Urban Policy*. The Selected Essay of Anthony Downson, Vol.2; Edward Elgar, USA.

Esayas, A. 2001. *Policy impacts on housing sector: The Case of Addis Ababa*. Addis Ababa, Ethiopia: Ministry of Urban Work and Urban Development. Available at www.lth.se/fileadmin/hdm/alumni/papers/ad2001/ad2001-06.pdf, Accessed 03.12.14.

Federal Democratic Republic of Ethiopia (FDRE) 2011. A Proclamation to Provide for Lease Holding of Urban Lands, Proclamation No. 721/2011. Federal Negarit Gazeta of the Federal Democratic Republic of Ethiopia, Addis Ababa, Ethiopia. FDRE.

Frohlich, N., Carriere, K. C., Potvin, L. and Black, C. 2001. 'Assessing socio-economic effects on different sized populations: to weight or not to weight?' *J. Epidemiol. Community Health*, 55, 913-920.

Goux, D. and Maurin, E. 2005. The effect of overcrowded housing on children's performance at school. *Journal of Public Economics* 89: 797-819.

Hauser, P. and Garder, R. (eds).1982. Urban Future; Trends and Prospects. State University Press; New York.

Kabir, B., and Bustani, S. A., 2009. A Review of Housing Delivery Efforts in Nigeria. In: Conference on housing efforts housing people, organized by Department of Urban Studies, University of Glasgow.

Kebede, D. 1997. 'Socio-demographic characteristics and indoor air pollution as risk factors for acute lower respiratory infections in under five children in Addis Ababa, Ethiopia.' *The Ethiopian Journal of Health Development*, 11 (special issue): 315-323.

Khurana, M. 1995. Organization and Management of Housing Cooperative. National Cooperative Housing Federation of India Khel Gaonmary; New Delhi.

Kevin, S. Blake, Rebecca L. Kellerson, Aleksandra, Simic. 2007. Measuring Overcrowding in Housing. Econometrica, Inc. Bethesda, Maryland and ICF International. U.S. Department of Housing and

Urban Development Office of Policy Development and Research

Meheret, A. and Richard, M. 2009. 'Access to housing finance in Africa: Exploring the issues, No. 9, Ethiopia.' London, UK: FinMark Trust. Available at http://www.housingfinance.org/uploads/Publicationsmanager/HFSS_Ethiopia.pdf. Accessed 14.01.15.

Ministry of Works and Urban Development (MWUD) 2007. *Plan for Accelerated and Sustained Development to End Poverty (2005/06-2009/10)*. Addis Ababa, Ethiopia: Ministry of Works and Urban Development.

Nevona, T. 2010. Expanding Housing Finance to the underserved in South Asia: Market Review and Forward Agenda. South Asia Regional Housing Finance Conference, January 27-29 2010, New Delhi, India. World Bank.

Nubi, O. T. 2008. Affordable Housing Delivery in Nigeria. The South African Foundation International Conference and Exhibition. Cape Town.

Office of the Deputy Prime Minister. 2004. *The impact of overcrowding on health and education: A review of evidence and literature.* London, UK: Office of the Deputy Prime Minister. Available at http://dera.ioe.ac.uk/5073/1/138631.pdf, Accessed 3.12.14.

Provisional Military Administrative Council (PMAC). 1975a. Government Ownership of Urban

Land and Extra Houses, Proclamation No. 47/1975. *Negarit Gazeta.* Year 34, No. 41, Addis Ababa, Ethiopia.

Provisional Military Administrative Council (PMAC). 1975b. Housing and Savings Bank Establishment Proclamation No. 60/1975, *Negarit Gazeta*, Year 35, No. 7, Addis Ababa, Ethiopia.

PMA2014/Ethiopia. 2014. Performance, Monitoring and Accountability 2020. Addis Ababa University, CSA and Johns Hopkins Bloomberg School of Public Health. Available at (http://www.pma2020.org. Accessed 09.12.14

Reynolds, L. 2005. Full House?: How Overcrowded Housing affects Families, Policy Recommendation by Nicola Robinson. Shelter 2005.

Shaw, M. 2004. 'Housing and public health.' *Annual Review of Public Health*, 25: 397- 418.

Tadesse, G. G. 2009. *An assessment of housing situations in Addis Ababa*.

Addis Ababa, Ethiopia.

Tadesse, G. G. 2000. *The urban housing situation in Ethiopia: Problems and prospects*. Addis Ababa, Ethiopia.

Transitional Government of Ethiopia (TGE). 1991. *Ethiopia's Economic Policy during the Transitional Period* (Official Translation), Addis Ababa, Ethiopia

UN. 1967. Principles and Recommendations for the 1970 Housing Censuses. New York, United Nations

UN-Habitat. 2007. *Situation analysis of informal settlements in Addis Ababa*. Addis Ababa.

UN-Habitat. 2006a. Enabling Shelter Strategies: Review of Experiences from Two decades of Implementation. Nairobi: UN-Habitat.

UN-Habitat. 2006b. State of the World's Cities 2006/7. The Millennium Development Goals and Urban Sustainability: 30 Years of Shaping the Habitat Agenda. London: United Nations Human Settlements Programme.

UNCHS (Habitat).1996. An Urbanizing World: Global Report on Human Settlements. Oxford University Press.

World Bank. 2003. World Development Report 2004: Making Services Work for Poor People. Washington, D.C.: World Bank and the Oxford University Press.

World Health Organization (WHO).1961. Public Health Aspects of Housing: First Report of the Expert Committee, Technical Report No. 225, Geneva.

World Health Organization (WHO). 1989. Health Principles of Housing. Geneva, World Health Organization.

Yenoineshet M. 2007. Integrated Housing Development Programs for Urban Poverty Alleviation and Sustainable Urbanization: the case of Addis Ababa. Rotterdam.