CONDOMINIUM HOUSING AFFORDABILITY: THE CASE OF PUBLIC SERVICE EMPLOYEES IN ADDIS ABABA

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Abstract

The study assesses purchase affordability and constraints in accessing condominium housing for public service employees. The analysis is based on two categories i.e. academic and non-academic employees in relation to government sponsored condominium housing market. The types of data employed are secondary, transfer cost of condominium units by type and salary scale of public service employees. To determine the purchase affordability, capacity of public service employees' maximum allowable loan to income or affordable limit (AL) and median income are employed. The analysis based on affordable limit computed in five different payment modalities disclosed purchase affordability is positively affected by reduced interest rate and extended duration of mortgage payment. As a result of this the academic employees are found better than the non-academic employees in purchase affordability. The median income analysis revealed the great majority of the non-academic employees earn below the median income and do not afford to purchase even the cheapest type unit. This signifies the degree of influence of income/salary in determining purchase affordability. Next to income higher interest rate and shorter duration of payment are found to be constraints of purchase affordability for both groups i.e. academic and non-academic employees. To mitigate the challenges of purchase affordability, preferential treatment (reduced interest rate and extended duration of mortgage payment) and alternative delivery strategies such as public provision of serviced land and facilitating access to housing finance are appropriate measures to be considered.

Key words: Purchase Affordability, Public Service, Affordable Limit, Condominium

INTRODUCTION

Generally affordability problems emerge when housing costs increase faster than household incomes. Affordability can only be improved through a significant reduction in market rents and prices, direct housing subsidies to households or, more realistically through large scale new housing supply. Housing affordability affects new household formation. Consequently, policy must address this issue by overcoming existing housing supply barriers and quantifying the supply needed to deliver diverse and affordable housing for low-moderate-income groups (Steven & Ong, 2012 and Kim, 2009). Therefore it is found essential to move towards housing market and housing needs assessment, which include the demand for various types of affordable housing, to provide a reliable evidence base for setting housing supply targets to address the negative outcomes of declining affordability. This study mainly focuses on the public service employees who are vulnerable to increasing rents and prices of housing in Addis Ababa.

The Integrated Housing Development Program (IHDP), which is government-led initially, aimed at enabling the urban low and middle-income groups to be home owners. In Addis Ababa the IHDP has greatly increased the number of home owners that would never otherwise have owned a home and in parallel has benefited the housing market by increasing the supply of owner occupied housing and rental units. Among the would-be beneficiaries of the program employees of the public service are highly expected about 2.6 percent of the total as indicated in Part -4. The public service employees have got the opportunity of either being home owners or accessing adequate rental units.

In the course of time the project is facing a number of challenges. As stated in the Executive Summary of UN- Habitat (2011, p. vii), the most pressing issue is the affordability of the units for low-income households with the cost increase in the price

of condominium houses deeming them no longer an option for many low income households. Based on the same source (UN- Habitat, 2011) the change in the price of units is also affecting the middle-income households undermining the initial objectives of the Program which was cherished by the majority residents of the city especially employees of the public service.

The study aimed at seeking answers to the following questions. What is the purchase affordability capacity of public service employees under different payment modalities? What is the relation between typology of units and the maximum allowable loan to income? What are the effects of affordability constraints on access to home purchase by public service employees? What are the appropriate measures or strategies to be enforced by the government to increase purchase affordability of public service employees? This study is limited to assessing the purchase affordability capacity of public service employees living and working in Addis Ababa. In the following sections, concept of affordability, definitions of affordability by different scholars/researchers, strands of affordability measurements, and benchmarks used to determine the affordable limit are discussed

Concept of Affordability

Affordability as a concept is hard to define. Stone (1994, p. 21) states that affordability is not an inherent characteristic of housing, but rather a relationship between incomes and relative prices. Of course, this argument could easily be extended to any good or service in addition to housing. This is an example of the conceptual problem economists have with housing affordability. Glaser & Gyourko (2008) state that the ability to pay criterion confuses poverty with housing prices and that income should form no part of affordability considerations. They believe that the physical construction costs of housing are a more sensible benchmark to compare with prices. It is widely believed that the ability to pay is a crucial element of housing affordability.

Defining Affordability

The works of many scholars prove that housing affordability is the function of income, housing price/rent and other non-housing consumptions. The following definitions explain this reality.

> "Affordability is concerned with securing some given standard of housing (or different standards) at a price or rent which does not impose, in the eye of some third party (usually government) an unreasonable burden on household incomes." (Mac Lennan & Williams 1990, p.9).
>
> "A household is said to have a housing affordability problem, in formulations of the term when it pays more than a certain percentage of income to obtain adequate and appropriate housing"(Hulchanski 1995, p.471).
>
> "Definitions of affordability concentrate on the relationship between housing expenditure & household income & define a standard in terms of that income above which housing is regarded as unaffordable" (Freeman, et al.1997).
>
> "Physically adequate housing that is made available to those who, without some special intervention by government or special arrangement by the providers of housing, could not afford the rent or mortgage payments for such housing." (Field, C G., 1997)
>
> "Housing affordability' refers to the capacity of households to meet housing costs while maintaining the ability to meet other basic costs of living." (Burke, T., 2004)

Strands of Affordability

Housing affordability can be viewed from three different perspectives: affordability for renters; affordability for would-be home owners; and affordability for existing homeowners (Gan & Hill, 2008). These different approaches help researchers to choose the appropriate perspective as affordability issues are likely to differ for different groups of people/households. Hence, Burke (2004) elaborated the broad view

of affordability as the amount of financial stress a housing-related transaction would produce. Generally, there are two ways to consider this financial stress. The two broad groups of affordability measures have been adopted in measuring affordability, namely: 'shelter first' and 'non-shelter first' measures. The *shelter first approach* assumes that housing has first claim on the household budget, and other expenditure is met from the residual income. This is the most common approach. The rarely used "non-shelter first" approach assumes that other expenditure has first claim on the household budget, with housing costs met from the remainder. There are two main types of measurement in this group. They are an outgoing (on housing) to income ratio (OTI), and a residual income measure (RI). A third type, similar to OTI, is a house price to income ratio. These measures are applied differently for renters and for home owners.

The study of Robinson et al, (2006) discloses that the measures outlined earlier are useful to some degree. They all provide information about the affordability of housing. However no single measure gives a complete picture of the situation. The same study further elaborates that when considering affordability for specific groups we need to consider more than one measure. For example, a particular group could have a high OTI that may look unsatisfactory, but if they have a high residual income then they are probably not in an unaffordable situation that requires government assistance. Similarly, if an individual has a low residual income and a low OTI, then their problem is a lack of income, which may require different government assistance. Finally, the study concludes by recommending the use of more than one measure when investigating affordability.

Factors That Contribute to Housing Affordability

There are several factors identified that contribute to the affordability of housing. According to DTZ New Zealand (2004) in (Robinson et. al,. 2006), income (current and expected lifetime), house prices and rents, labor market conditions,

mortgage and rent payments, and supply constraints are factors affecting affordability. Among the many studies made on housing affordability, analysis based on a benchmark cost of the 25% and or 30% is widely applied (Robinson et al, 2006, Burke, T., 2004, Field, C G., 1997). As discussed earlier, every measure requires a benchmark for an absolute affordability analysis. At what proportion of total income do housing costs become 'unaffordable'? Organizations in many countries use either a 25% or 30% benchmark. That is, they calculate the proportion of households whose housing costs exceed this level. As Burke (2004) argues, the rationale for such benchmarks is more of a philosophical judgment based on a society's values and its historical and institutional structures than one based on any technical reason.

METHODOLOGY

Based on the nature of the research problem and objectives, this study is a quantitative research and descriptive in type. The study employed secondary data compiled by concerned institutions and organizations.

Type of Data, Sources and Collection Techniques

The data employed to meet the objectives of the study include salary scale (see Annex) of public sector employees obtained from Federal Ministry of Public Service & Human Resource Development and the transfer cost of completed condominium units with the corresponding typology and payment modalities provided by Addis Ababa city Housing Development Agency. The study basically depends on secondary data generated and compiled by the above mentioned sources. Thus, both published and unpublished data from publications, reports, and statistics of the mentioned institutions are collected.

Data Analysis Techniques

The following techniques are applied to analyze the data regarding purchase affordability.

- Tables and percentages to show variance: distribution of Academic and Non-Academic Employees above and below the Median Income.
- The formula of Affordable Limit (AL) is applied to indicate:
  - The purchase affordability of both academic and non-academic public sector employees of different salary scales;
  - The relationship between the maximum allowable loan to income and transfer cost of different typology of units.
  - The impacts of reduced interest rates and extended duration of mortgage repayment on purchase affordability of public service employees.

$$AL = \left(\frac{\alpha}{1-\beta}\right)\left(\frac{1-(1+i)-N}{i}\right)$$

(Source: Gan and Hill, 2008)

Where:

AL = Affordability Limit
α = the expected proportion of housing cost to gross income,
β = the proportion of down payment to the total house prices,

i= interest rate

N = duration of mortgage repayment (years)

- The median income is employed to assess the distribution of would-be purchasers above and below the median income and measure level of affordability as a function of house price (Transfer cost) and median income of public service employees.

RESULTS AND DISCUSSION

Addis Ababa's current population is estimated to be over 3 million. According to the Ministry of Public Service & Human Resource Development (MoPSHRD, 2013/14), a total of 78,682 with 8.07 percent average annual growth rate the size of the public service employees is expected to reach 104,088 by 2018. The proportion of the public service employees from the total population accounts for about 2.6 percent, which is quite insignificant in its size. This study focuses on the purchase affordability analysis as a function of the maximum allowable loan to income and median income carried out based on two broad groups of public service employees. They are academic and non-academic employees.

Maximum Allowable Loan to Income and Corresponding Type of Unit

In this part the study attempts to explain condominium house affordability based on the maximum allowable loan to income i.e. affordable limit (AL). The maximum allowable loan to income (AL) is calculated for different salary scales in relation to different mortgage payment modalities and the corresponding typology of units that could be purchased by using the maximum allowable loan to income are identified. This means the comparison is between the maximum allowable loan and the transfer cost of the respective typology of units. The analysis involves five different

payment modalities in order to identify the one that is found to be convenient for public sector employees. The following formula is used to calculate affordable limit under the indicated payment modalities.

$$AL = \left(\frac{\alpha}{1-\beta}\right)\left(\frac{1-(1+i)-N}{i}\right)$$

AL = Affordability Limit

α = the expected proportion of housing cost to gross income,

β = the proportion of down payment to the total house prices,

i= interest rate

N = duration of mortgage repayment (years)

Two types of interest rates are employed in transferring finished condominium units. The first one was 10 percent employed during all lottery rounds before the 10th lottery round. The second one is 9.5 percent introduced during the 10th lottery round. The other variables given include expected proportion of housing cost to gross income (30 %), down payment (20 %) and repayment duration (N) of years.

***Modality One*:** The payment modality indicated here is used for all condominiums transferred before the 10th lottery rounds in Addis Ababa. Employing the 10 percent interest rate and other variables as set by the government and Affordable Limit (AL) = 3.19.

As indicated in Table: 1A, the analysis reveals two cases. The first one is all academic employees afford to purchase a condominium unit in general. The second case is that although they afford to purchase a unit differences regarding typologies are

observed as a result of difference in the maximum allowable loan for different positions. As explained in the same Table, Asst. Lecturer I & II are restricted to studio type. Asst. Lecturer and Lecturer positions enable to purchase a one bed room unit whereas Asst. Professor and Associate Professor positions enable to purchase two bed room units. From the academic employees only those with the position of Professor can afford to purchase units with three bed rooms.

Table: 1A

Academic Employees: Maximum Allowable Loan & Affordable Limit at 3.19 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL. 3.19	Unit Type
Asst. Lec. I	3,145	37,740	120,390. 60	Studio
Asst. Lec. II	4,282	51,384	163,914. 96	Studio
Asst. Lec.	5,077	60,924	194,347. 56	1br
Lecturer	7,286	87,432	278,908. 08	1br
Asst. Prof.	8,847	106,164	338,663. 16	2 br
Ass. Prof.	10,790	129,480	413,041. 20	2 br
Professor	13,468	161,616	515,555. 04	3 br

Source: * Ministry of Public Service Human Resource Development,
functional from July 2014 to July 2016; Computed from survey data

The purchase affordability analysis regarding non-academic employees indicated in Table: 1B reveals the following facts. Only those employees having a professional science position can purchase units with one bed room.

Table 1B

Non-academic Employees: Maximum Allowable Loan & Affordable

Position	Basic Salary*	Salary /annual	AL. 3.19	Unit Type
Prof. science	5,781	69372	221,296. 68	1 br
Administrative	4,461	53532	170,767. 08	Studio
Sub-prof/	3,425	41100	131,109. 00	Studio
Secretarial	3,001	36012	114,878. 28	Studio
Semi-skilled	2,298	27576	87,967. 44	10/90
Custod. & Man.	961	11532	36,787. 08	No Fit

Limit (AL) at 3.19 and corresponding Type of Unit

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016; computed from survey data

Those with administrative, sub-professional, and secretarial positions are restricted only to studio typology. Those in semi-skilled position afford the newly introduced typology i.e. the 10/90. Those with custodial & manual position do not afford to purchase any of the typologies and are unfit.

Modality Two: This is the currently working payment modality. All other variables being the same except Interest Rate (i), which is reduced to 9.5%, applied beginning from the 10th lottery round in Addis Ababa and Affordable Limit (AL) = 3.304643 is employed to assess purchase affordability capacity of academic and non-academic employees.

As indicated in Table:2A, an increase in the amount of the maximum allowable loan to income is observed following a reduced interest rate despite the fact that there no change in the typology of units to be purchased and it remains the same with that of

Table:1A. This condition signifies that the amount of reduced interest rate is insufficient to achieve the desired goal for academic employees.

Table 2A

Academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 3.31 and Corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL3.31	Unit Type
Asst. Lec. I	3,145	37,740	124,919. 40	Studio
Asst. Lec. II	4,282	51,384	170,081. 04	Studio
Asst. Lec.	5,077	60,924	201,658. 44	1br
Lecturer	7,286	87,432	289,399. 92	1br
Asst. Prof.	8,847	106,164	351,402. 84	2 br
Ass. Prof.	10,790	129,480	428,578. 80	2 br
Professor	13,468	161,616	534,948. 96	3 br

Source: * Ministry of Public Service Human Resource Development, functional from July, 2014 to July 2016; Computed from survey data

The Impacts of a reduced interest rate is better observed in Table 2B for the non-academic employees when compared to Table: 1B. Employees with professional science and administration position are found able to purchase units with one bed room whereas employees of sub-professional science, secretarial and semi-skilled positions are limited to studio type. Here the reduced interest rate increased the maximum allowable loan to income and this in turn enabled employees of administrative and semi-skilled to purchase a one bed room and studio type units respectively which are better than those indicated in Table: 1A. Employees of custodial and manual position do not afford to purchase any type of unit.

Table 2B

Non-academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 3.31 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL.3.31	Unit Type
Prof. science	5,781	69372	229,621. 32	1 br
Administrative	4.461	53532	177.190. 92	1 br
Sub-prof.	3,425	41100	136,041. 00	Studio
Secretarial	3,001	36012	119,199. 72	Studio
Semi-skilled	2,298	27576	91,276. 56	Studio
Custod.& Man.	961	11532	38,170. 92	No Fit

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016; Computed from survey data

Modality Three: In this case the impacts of extended duration of mortgage payment (N) 30 years (proposed by the Researcher) and reduced Interest Rate (i) set by the Government are evaluated using affordable Limit (AL) = 3.68802 other variables being the same. As indicated in Table – 3A, the impact of extended duration of mortgage payment is strongly and clearly seen enabling Asst. Lecturer II and Ass. Professor positions for 1 bed room and 2 bed room units in contrast to Table 2A.

Table 3A

Academic Employees: Maximum Allowable Loan & Affordable Limit (AL at 3.69 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL 3.69	Unit Type
Asst. Lec. I	3,145	37,740	139,260.60	Studio
Asst. Lec. II	4,282	51,384	189,606. 96	1 br
Asst. Lec.	5,077	60,924	224,809. 56	1br
Lecturer	7,286	87,432	322,624. 08	1br
Asst. Prof.	8,847	106,164	391,745. 16	2 br

Ass. Prof.	10,790	129,480	477,781. 20	3 br
Professor	13,468	161,616	596,363. 04	3 br

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016; Computed from survey data

Regarding the administrative staff, purchase affordability remains very low and found to be the same with that of Table: 2B despite the extended duration of mortgage payment proposed by the researcher.

Table 3B

Non-academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 3.69 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL 3.69	Unit Type
Prof. science	5,781	69372	255,982. 68	1 br
Admin.	4,461	53532	197,533. 08	1 br
Sub-prof.	3,425	41100	151,659. 00	Studio
Secre.	3,001	36012	132,884. 28	Studio
Semi-skilled	2,298	27576	101,755. 44	Studio
Custod. & Man.	961	11532	42,553. 08	No Fit

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016; Computed from survey data

Modality Four: The forth modality is based on a reduced interest rate proposed by the researcher. The proposed interest rate is 5% while other variables remain the same as set by the government and Affordable Limit (AL) = 4.673.

As indicated in Table: 4A for positions ranging from Asst. Lecturer-I to Asst. Lecturer the maximum allowable loan to income enables to purchase units of one bed room, Lecturer, two bed rooms and the rest Asst. Professor to Professor positions are able to purchase units having three bed rooms. When it is compared with Table: 3A which is based on extended duration of mortgage payment the difference in the type of units that could be purchased is significant. The difference between Tables: 3A and 4A reflect the degree of strength of impact of extended duration of payment and reduced interest rate. The comparison shows as a result of reduced interest rate the maximum allowable loan enables to purchase units of one bed room for Asst. Lecturer-I position, two bed room units for Lecturer and three bed room units for Asst. Professor which is not the case with that of modality three that is based on extended duration of mortgage repayment (Table: 3A).This signifies the influence of proposed reduced interest rate is more visible for the academic employees.

Table 4A

Academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 4.67 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL 4.67	Unit Type
Asst. Lec. I	3,145	37,740	176245.80	1br
Asst. Lec. II	4,282	51,384	239,963.28	1br
Asst. Lec.	5,077	60,924	284,515.08	1br
Lecturer	7,286	87,432	408,307.44	2br
Asst. Prof.	8,847	106,164	495,785.88	3br
Ass. Prof.	10,790	129,480	604,671.60	3br
Professor	13,468	161,616	754746.72	3br

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016 ; Computed from survey data

Table 4B

Non-academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 4.67 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL.4.67	Unit Type
Prof. science	5,781	69372	323967.24	1br
Admin.	4,461	53532	249994.44	1br
Sub-prof.	3,425	41100	191937.00	1br
Secre.	3,001	36012	168176.04	Studio
Semi-sk.	2,298	27576	128779.92	Studio
Custod. & Manual	961	11532	53854.44	No Fit

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016; Computed from survey data

With regard to the non-academic employees the impact of the proposed reduced interest rate is better (Table: 4B) than that of Modality –Three indicated in Table: 3B. The maximum allowable loan enables to purchase one bed room units for sub-professional position which is not the case as presented in Table: 3B. In general the impacts of the proposed reduced interest rate are significant in both cases.

Modality Five: In this case both variables are proposed by the researcher. Therefore, it enables to evaluate the magnitude of the proposed interest rate 5 percent, extended duration of mortgage payment (30 years) and Affordable Limit (AL) =5.764669.

As indicated in Table:5A (Academic Employees), the maximum allowable loan as a function of the proposed interest rate and extended duration of mortgage payment enables them to purchase better units ranging from one bed room to three bedroom units.

Table 5A

Academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 5.765 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL. 5.765	Unit Type
Asst. Lecturer I	3,145	37,740	217,571.10	1br
Asst. Lecturer II	4,282	51,384	296,228.76	1br
Asst. Lecturer	5,077	60,924	351,226.86	2br
Lecturer	7,286	87,432	504,045.48	3br
Asst. Professor	8,847	106,164	612,035.46	3br
Ass. Professor	10,790	129,480	746,452.20	3br
Professor	13,468	161,616	931,716.24	3br

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016; Computed from survey data

The trend is the same with regard to the non-academic employees (Table: 5B). The maximum allowable loan enables to purchase better units with two bedrooms (Prof. Science) and single bed room units to administrative, sub-professional and secretarial positions which are not observed in other modalities discussed earlier.

Table 5B

Non-academic Employees: Maximum Allowable Loan & Affordable Limit (AL) at 5.765 and corresponding Type of Unit

Position	Basic Salary*	Salary /annual	AL 5.765	Unit Type
Prof. science	5,781	69372	399,929.58	2br
Administrative.	4,461	53532	308,611.98	1br
Sub-prof.	3,425	41100	236,941.50	1br
Secretarial	3,001	36012	207,609.18	1br
Semi-skilled	2,298	27576	158,975.64	Studio
Custod. & Man.	961	11532	66,481.98	Unfit

Source: * Ministry of Public Service Human Resource Development, functional from July 2014 to July 2016, Computed from survey data

The comparison among the different modalities discloses the impacts of reduced interest rate and extended duration of mortgage payment is significant in enabling would-be home owners to purchase units. Above all, as indicated in Modality-5 which is based on proposed interest rate and extended duration of mortgage payment by the researcher, the more the rate of interest decreases and duration of mortgage payment extends – the higher the amount of maximum allowable loan and the more the opportunity to purchase units with more than one bed room increases for both academic and non-academic employees.

Median Income Analysis

As indicated in Tables 6 & 8 the median income/salary of Academic and Non-academic employees is birr 7,286 and 3,212.5 per month respectively computed based on the salary scale of public service employees (see Annex).

Academic Employees

Table 6

Distribution of Academic employees above and below the Median Income

Median Salary	Male	Female	Total	
			No.	%
< 7286	416	90	506	15.79
7286 & above	2337	361	2698	84.21
			3204	100.0

Source: Computed from data Table 1.14, National Civil Service Human Resource Statistics 2006/2013/14

Table 7

Median income, different affordable limit, maximum allowable loan and corresponding typology of units for academic employees

Affordable Limit	Median Income birr/Month	Annual Income	Max. Allowable Loan	Typology
3.19	7286	87432	278,908.08	1b
3.31	7286	87432	289,399.92	1b

3.69	7286	87432	322,624.08	1b
4.67	7286	87432	408,307.44	2b
5.76	7286	87432	503,608.32	3b

Source: computed from survey data

The distribution of academic employees above and below the median income reveals that over 84 percent of the academic employees are above the median income. This median income enables the purchase of different typologies depending on different affordable limit and maximum allowable loan as indicated in Table-7. Accordingly, the typology of units to be purchased ranges between single bed room and three bed room units. Asst. Lecturer I, II and Asst. Lecturer positions are below the Median salary and the opportunity to purchase units of two and three bedrooms depends on conditions explained in modalities Four and Five. The conditions are reduced interest rate and extended duration of mortgage payment both proposed by the researcher.

Non-Academic Employees

The distributions of non-academic employees above and below the median income shows over 78.3 percent of the employees earn a monthly income below the median value i.e. birrs 3212.5 per month (Table-8). This median income allows at best studio and or 10/90 typology units as indicated in Table-9.

Table 8

Distribution of Non-Academic Employees above and below the Median Income

Median Salary	Male	Female	Total	
			No.	%
< 3212.5	27,022	33971	60993	78.1
3212.5 & above	10,688	6701	17089	21.9

	78082	100.0

Source: computed from data Table 1.14, National Civil Service Human Resource Statistics 2006/2013/14

About 21.9 percent of the non-academic employees earn income above the median income as indicated in Table-8. This implies that the would-be owners are limited at best to studio or 10/90 type units depending on the payment modalities. The great majority of the non-academic employees that are below the median income, 78.1 percent are found unable to purchase even the lowest type units. As indicated in Table-9 those who earn above the median income (21.9 percent) are limited to purchase largely studio type.

Table 9

Median income, affordable limit, maximum allowable loan and corresponding typology of units for non-academic employees

Median Income /month	Affordable Limit (AL)	Annual Income	Max. Allowable Loan	Typology
3212.5	3.19	38550	122,974.5	Studio
3212.5	3.31	38550	127,600.5	Studio
3212.5	3.69	38550	142,248.5	Studio
3212.5	4.67	38550	180,028.5	1br
3212.5	5.76	38550	222,048.0	1br

Source: computed from survey data

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The findings of the study are based on the analysis and evaluation made on the maximum allowable loan to income and the median income of public service employees. The purchase affordability capacity varies from modality to modality. The analysis based on the five payment modalities revealed that purchase affordability capacity of academic and non-academic employees increases with increasing affordable limit, reduced interest rate, and extended duration of mortgage payment.

This relationship in turn determines positively purchase affordability of different typology of units by would-be owners from both academic and non-academic employees respectively. The higher the amount of affordable limit (AL) the higher the maximum allowable loan. The higher the maximum allowable loan the better the opportunity of would be owners to purchase better units with more number of bedrooms.

The impact of the median income varies based on the amount of median income of each group. For instance the median income of the academic employees is more than two times greater than that of the non-academic employees. Consequently this enabled 84 percent of the academic employees to purchase single bed room units under modalities 1, 2 and 3 (Tables: 8 & 9). On the other hand as indicated in the same tables 21.9 percent of the non-academic employees who earn above the median income are limited to the purchase of studio type units under the first three modalities and 1-bed room units under the rest two payment modalities. The great majority of the non-academic employees who earn below the median income have no opportunity to purchase units of any type due to low income.

High interest rate and short duration of mortgage payment for academic employees and the added burden of low income for non-academic employees remain to be the major constraints of purchase affordability. In a nutshell the condominium housing supply strategy failed to provide affordable and adequate housing for the majority of public service employees and calls for other alternative supply strategies.

Recommendations

Based on the findings of the study and to make the city inclusive or comfortable for living and working for the majority urban dwellers particularly public service employees, the following points are recommended.

a. ***Preferential Treatment***: enable public service employees to be home owners enhancing purchase affordability by reducing interest rate and extending duration of mortgage payment as indicated in payment modalities three, four, and five.

b. ***Introduce Alternative Housing Delivery Strategies:*** to alleviate the problems of affordability and adequacy of housing for the majority of public service employees, the following alternative supply strategies need to be implemented:-

    i. ***Public provision of serviced land***: this enables incremental construction of housing and is preferable for public service employees, particularly to the non-academic group.

    ii. ***Housing finance***: innovative and alternative housing finance systems and packages need to be introduced. Extension of housing finance to lower income public service employees by formal financial institutions and organizing and encouraging of housing microfinance

and community funds to facilitate access to housing finance for low-income public service employees is needed.

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Annex: Salary Scale of Public Service Employees

Academic Employees (2006EC/July2014)

Level	Academic status	Basic Salary		Level								Max.
			1	2	3	4	5	6	7	8	9	
1	Asst.Lec. I	3145										
2	Asst. Lec II	4282										
3	Asst. Lec.	5077	6070	6371	6672	6978	7286	7596	7596	8219	8532	8847
4	Lecturer	7286	7598	7908	8219	8532	8847	9165	9486	9810	10135	10462
5	Asst. Prof.	8847	9165	9486	9810	10135	10462	10790	11119	11449	11778	12114
6	Asso.Prof.	10790	11119	11449	11778	12114	12450	12786	13123	13468	13823	14186
7	Professor	13468	13823	141886	14559	14942	15738	15738	16169	16612	17067	17535

Source; Federal Ministry of Public Service & Humane Resource Development

Non- Academic Public Sector Employees (July 2006 EC/July 2014)

Level	Type of Service						Basic Salary	Level									Max.
	CM	TC	CF	SP	AD	PS		1	2	3	4	5	6	7	8	9	
I	1						582	615	650	688	727	769	813	860	909	961	1013
II	2	1	1				650	688	727	769	813	860	909	961	1013	1068	1123

III	3	2	2	1			727	769	813	860	909	961	1013	1068	1123	1182	1243
IV	4	3	3	2			813	860	909	961	1013	1068	1123	1182	1243	1305	1370
V		4	4	3			961	1013	1068	1123	1182	1243	1305	1370	1439	1511	1586
VI		5	5	4			1123	1182	1243	1305	1370	1439	1511	1586	1663	1743	1828
VII		6	6	5			1305	1370	1439	1511	1586	1663	1743	4828	1916	2008	2100
VIII		7	7	6	1		1511	1586	1663	1743	1828	1916	2008	2100	2197	2298	2404
IX		8	8	7	2		1743	1828	1916	2008	2100	2197	2298	2404	2514	2628	2748
X		9	9	8	3	1	2008	2100	2197	2298	2404	2514	2628	2748	2872	3001	3137
XI		10	10	9	4	2	2298	2404	2514	2628	2748	2872	3001	3137	3278	3425	3579
XII			11	10	5	3	2628	2748	2872	3001	3137	3278	3425	3579	3740	3909	4085
XIII			12	11	6	4	3001	3137	3278	3425	3579	3740	3909	4085	4269	4461	4662
XIV				12	7	5	3425	3579	3740	3909	4085	4269	4461	4662	4867	5081	5304
XV					8	6	3909	4085	4269	4461	4662	4867	5081	5304	5538	5781	6036
X					9	7	44	466	48	50	53	55	57	60	62	65	68

VI							61	2	67	81	04	38	81	36	91	47	09
XVII						8	5081	5304	5538	5781	6036	6291	6547	6809	7081	7364	7609
XVIII						9	5781	6036	6291	6547	6809	7081	7364	7647	7936	8236	8539

Source; Federal Ministry of Public Service & Humane Resource Development

CM Custodial and Manual

TC Trade and Crafts

CF Clerical and Fiscal

SP Sub Professional

AD Administrative

PS Professional Science