

# Housing Costs of Young College Graduate Renters in Capital Region Reflected in the 2012 Korea Housing Survey

Hyun-Jeong Lee\*

Chungbuk National University, Cheongju, Korea

## Abstract

This study examined housing costs and housing affordability of young college graduate renters in the Capital Region of Korea using microdata of the 2012 Korea Housing Survey (KHS). A licensed microdata set of 2012 KHS was obtained on September 29, 2012 from the official KHS Website and analyzed statistically. I selected 93,795 young college graduate renters between 20 and 29 years of age in the Capital Region and compared their housing costs across income levels and tenure type. Major findings were as follows: (1) *Jeon-se* deposit was on average 3.1 times the annual household income and monthly renters' deposit was 7.1 times the monthly household income; (2) households in higher income groups tended to pay a larger deposit and/or monthly rent; however, households with a lower income were found to pay a greater proportion of income to housing costs than households with a relatively higher income; (3) a total of 64% of all young college graduate renters had housing cost burdens to pay 30% or more of their income for housing, and more than 78% of the low-income households were found burdened; and (4) after housing cost payments, low-income households had less than one million KRW left to spend on other needs and savings; in addition, some low- to mid-income households had zero or even minus income left after housing cost payments.

## Keywords

2012 Korea Housing Survey, Housing Cost, Housing affordability, Post-college housing, Young renters, Capital Region

## Introduction

In Korea job markets and household finances have been negatively impacted by economic recessions over last several years. It is now more difficult for young college graduates to find stable jobs and have sufficient incomes to afford an independent living. Such a situation resulted in social problems to make young adults hesitate to move out from their parents and form independent households; and expect for more parental supports for a longer period of time.

In many housing research studies in Korea, college students have been popular research subjects because they are fine representatives of young adults who were considered influential prospective consumers in housing markets. Many research studies have explored college students' housing values, preferences and/or expectations on future housing to gather information for future housing

Received: October 12, 2014  
Revised: November 20, 2014  
Accepted: November 21, 2014

### Corresponding Author:

Hyun-Jeong Lee  
Dept. of Housing & Interior Design,  
Chungbuk National University,  
Naesudong-ro 52, Seowon-gu,  
Cheongju, Chungbuk 362-763, Korea  
Tel: +82-43-261-2740  
Fax: +82-43-276-7166  
E-mail: hlee@cbnu.ac.kr

development targeting the population. However, few research studies have explored living arrangements of young persons after college graduation.

As a part of a research project to investigate the housing situation of young professionals in the United States and Korea, this study examined housing affordability of young college graduate renters in the Capital Region of Korea using microdata of the 2012 Korea Housing Survey (KHS).

Findings of this study will provide an overview of housing cost issues of young college graduates from diverse perspectives not dealt with previously. This study also provides comparisons of the housing costs and housing cost burdens across income levels.

## Literature Review

### Korea Housing Survey (KHS)

KHS is a national housing survey first administered in 2006 by the Ministry of Construction and Transportation. From 2008 to 2012, KHS was administered by the Ministry of Land, Transport and Maritime Affairs (MLTM) due to a reorganization of Korean governmental divisions. Later, the Ministry of Land, Infrastructure and Transport (MOLIT) started to administer KHS since 2013.

Based on its periodicity, KHS consists of scheduled periodical surveys and non-scheduled surveys. The scheduled KHS includes a general household survey which is conducted every even-numbered year and special household survey conducted every odd-numbered year. In statistical terminology, general households include family (related) households, single-person households and unrelated households with five or less persons. For special household surveys of KHS, different types of target households have been selected to reflect emerging housing issues by time of survey: Elderly households in 2007; households with persons with disabilities in 2009; renter households in 2011; and households eligible to receive stipends from new housing voucher program in 2013 (MLTM, 2012a, 2012b).

The 2012 KHS was conducted between June 28 and August 31, 2012, on 33,000 general households selected through a series of stratified sampling procedures (MLTM, 2012a, 2012b). Considering the total number of general households in 2012 were approximately 18,057,000 (Statistics Korea, n.d.), the

actual number of households interviewed during the 2012 KHS represented .2% of all general households in the year.

The 2012 KHS data was collected through face-to-face interviews by trained interviewers using a structured questionnaire that consisted of seven major parts: (1) Structure and tenure information; (2) housing costs and housing cost burdens; (3) residential move experience and housing satisfaction; (4) housing values; (5) home purchase experience; (6) future housing plan within two years; and (7) household information (MLTM, 2012a, 2012b). Because it has been less than a year since the licensed microdata of the 2012 KHS was first released to public in August 2014, it is hard to find studies utilizing 2012 KHS microdata except for the official reports by MLTM (2012a, 2012b). Lee (2014) compared the housing situation of households headed by persons between 20 and 34 years of age including college graduates across their locations using microdata of the 2012 KHS, and found that young households in the Capital Region had: worse housing quality to live in basement or rooftop units, in units that failed to meet minimum housing standards, and had a greater proportion of households with housing cost burdens to pay 30% or more of their income for housing.

### Housing Choices of Young College Graduates

According to the 2010 Korea Population and Housing Census results, persons with a Bachelor's degree or higher educational attainments in their twenties comprised 3.9% of the total population six years or older (Table 1). There were 984,876 college graduates between 20 and 29 years of age in the Capital Region (Seoul, Incheon and Gyeonggi Province) and represented 4.5% of the population aged six years or older in the area.

Because of its shorter lease term and relatively lower housing costs, renting is a dominant housing tenure choice for young households including households headed by young college graduates compared to home purchase. According to results from the 2010 Census, more than 88% of general households headed by young persons between 20 and 29 years of age were renter households while only 42.2% of general households headed by relatively older persons (Table 2).

### Housing Affordability of Young College Graduates

Housing affordability refers to a household's financial ability

**Table 1.** College Graduates Between 20 and 29 Years of Age by Location (2010)

Location	Population with 6 years of age or older (person) [X]	College graduates <sup>A</sup> between 20–29 years of age (person) [Y]	Y/X * 100 (%)
Capital Region <sup>B</sup>	22,126,074	984,976	4.5
Other metropolitan cities <sup>C</sup>	9,344,642	373,506	4.0
Other areas	13,877,859	396,192	2.9
TOTAL	45,348,575	1,754,674	3.9

Note. Population was calculated from the 2010 Korea Population and Housing Census results retrieved from the Korean Statistical Information Service (<http://kosis.kr>)

<sup>A</sup> Persons with a Bachelor's degree or higher educational attainments

<sup>B</sup> Seoul, Incheon and Gyeonggi Province

<sup>C</sup> Five metropolitan cities other than Incheon: Busan, Daejeon, Daegu, Gwangju and Ulsan

**Table 2.** Tenure Types of Entire General Households and Households Headed by College Graduates Between 20 and 29 Years of Age

Tenure type	General households headed by college graduates <sup>A</sup> between 20–29 years of age	All general households <sup>B</sup>
Homeowner	154,877 ( 11.9%)	9,389,855 ( 54.2%)
Renter	1,147,351 ( 88.1%)	7,949,567 ( 45.8%)
TOTAL	1,302,228 (100.0%)	17,339,422 (100.0%)

Note. Population was calculated from the 2010 Korea Population and Housing Census results retrieved from the Korean Statistical Information Service (<http://kosis.kr>). Percentages in parentheses are valid percentages within each column.

<sup>A</sup> Persons with a Bachelor's degree or higher educational attainments

<sup>B</sup> General households include family households, single-person households, and unrelated households with five or less persons

to pay costs related to housing without sacrificing spending for other basic needs. There are several indices to measure housing affordability. Among them, one of the most widely used indices is a housing cost-to-income ratio. If a household pays 30% or more of its income for housing, the household is considered to have a housing cost burden, and if it pays 50% or more, the household is considered to have a severe housing cost burden.

Depending on the researchers, the definition of housing costs varies. Some researchers only use costs related to purchase or lease of units such as a down payment and monthly mortgage payment for homeowners as well as deposits and cash rent payments for renters. PIR (price-to-income ratio) and RIR (rent-to-income ratio) are some examples. In some research studies and national surveys (such as the American Housing Survey and KHS) housing costs include cost for home purchase or rental but fees as well as costs associated with housing such as utility and maintenance costs (U.S. Department of Housing and Urban Development, 2011; MLTM, 2012a).

Lim, Han and Lee (2013) conducted a questionnaire survey to young professionals in architecture and related fields living in the

Capital Region apart from their parents; consequently, it was found that the respondents paid an average of 25% of their income for monthly rent, and some paid more than 70% of their income for monthly rent.

From an on-line questionnaire survey to young college graduates in Korea and the United States, Lee, Beamish and Goss (2014) concluded that many young professionals in both countries shared costs with a roommate or received parental support to afford their housing costs. Researchers also stated that lump sum funds such as deposits might be a barrier for young professionals to afford housing costs independently.

The housing affordability issue may have hindered many young graduates in Korea to form new autonomous households apart from parents. Using microdata sets of the 2011 American Housing Survey and the 2012 Korea Household Income and Expenditure Survey, Lee (2014) compared housing choices and housing costs of young college graduates in their twenties. In the study, the researcher defined young college graduates as persons between 20 and 29 years of age with a Bachelor's degree or higher educational attainment and analyzed the housing situation of households

with one or more young college graduates. It was found that young college graduates in Korea showed less tendency to live independently from their parents than U.S. college graduates did.

In this study, young college graduates are defined as persons with a Bachelor’s degree or higher educational attainments between 20 and 29 years of age. This study targeted young college graduates in Capital Region (Seoul, Incheon and Gyeonggi Province). In terms of the housing affordability, this study focused on: Housing costs; housing cost-to-income ratios; households with housing cost burdens; and household income remaining after housing cost payments.

## Methodology

### Data and Sample Selection

The 2012 KHS microdata was used as secondary data for this study. The licensed microdata set was obtained online on September 29, 2014, from *Joo-geo-noo-ri* (<http://hnuri.go.kr>), a Website operated by MOLIT. The data set includes survey results from 33,000 general households nationwide. With weights applied to each case, the households surveyed represent 17,733,831 general households. The household frequencies reported in this study are weighted frequencies.

This study focused on housing costs of young college graduates, 93,795 households meeting the following criteria were selected for data analyses:

- Householder’s age: 20-29 years
- Householder’s educational attainment: Bachelor’s degree or higher
- Tenure type: *Jeon-se* rental or monthly rental (with or without deposit) in private rental units

- Residential location: Capital Region (Seoul, Incheon and Gyeonggi Province)

In the official final report of 2012 KHS by MLTM (2012a), household incomes were categorized in three levels using tenth percentiles of income distribution among surveyed households: low-, mid- and high-incomes. The households classified into low-income households had monthly incomes of 2.2 million Korean Won (KRW) or less including zero income (the lowest 40% of the income distribution), mid-income households had monthly incomes of 4.1 million KRW or less, and the high-income households had monthly incomes of more than 4.1 million KRW (the top 20% of the income distribution).

For data analysis of the study, the 93,795 young college graduate renter households selected were classified into the three income groups used in the official report of 2012 KHS (Table 3). Among the 34,700 low-income monthly renter households with deposit, 1,318 households had zero income. To see the income distribution by tenure type, young college graduate households with relatively higher income showed a greater tendency to choose *Jeon-se* rentals and most of the households in the low-income group were monthly renters without deposit.

### Data Analysis

To measure housing affordability of young college graduate renters, this study focused on four aspects of housing affordability: housing costs, housing cost-to-income ratios, households with housing cost burdens, and household income remaining after housing cost payments. Those housing affordability measurements were compared across three income levels (low-, mid- and high-income) by tenure types (*Jeon-se* rental, monthly rental with deposit, and monthly rental without deposit) using a series of one-

Table 3. Tenure Types and Income Levels of Households Selected for the Study

Income level	<i>Jeon-se</i> renter	Monthly renter with deposit	Monthly renter without deposit	TOTAL
Low-income	4,991 ( 22.7%)	34,700 ( 72.6%)	23,542 ( 98.2%)	63,233 ( 67.4%)
Mid-income	13,493 ( 61.3%)	13,117 ( 27.4%)	437 ( 1.8%)	27,047 ( 28.8%)
High-income	3,515 ( 16.0%)	0 ( .0%)	0 ( .0%)	3,515 ( 3.7%)
TOTAL	21,999 (100.0%)	47,817 (100.0%)	23,979 (100.0%)	93,795 (100.0%)

Note. Low-, mid- and high-income categories were from official final reports of the 2012 KHS (MLTM, 2012a, p.47). Low-income households had a monthly income of 2,200,000 KRW or less, mid-income households had a monthly income of 4,100,000 KRW or less, and high-income households had a monthly income over 4,100,000 KRW.

Table 4. Household and Housing Characteristics

Characteristic	n (%)	Characteristic	n (%)
Gender		Structure type	
Male	65,847 ( 70.2%)	Single-family structure	
Female	27,948 ( 29.8%)	Single-unit structure	5,516 ( 5.9%)
TOTAL	93,795 (100.0%)	Multi-unit structure (Da-ga-gu) <sup>A</sup>	16,304 ( 17.4%)
Household size		Multifamily structure	49,434 ( 52.7%)
1 person	79,145 ( 84.4%)	Other <sup>B</sup>	22,540 ( 24.0%)
2 persons	9,675 ( 10.3%)	TOTAL	93,794 (100.0%)
3-4 persons	4,975 ( 5.3%)	Number of bedrooms	
TOTAL	93,795 (100.0%)	No bedroom (studio/efficiency)	3,978 ( 4.2%)
Average	1.22 persons	1 bedroom	67,972 ( 72.5%)
Marital status		2 bedrooms	13,384 ( 15.3%)
Never married	81,836 ( 87.2%)	3-4 bedrooms	7,461 ( 8.0%)
Married	11,959 ( 12.8%)	TOTAL	93,795 (100.0%)
Divorced/separated	0 ( .0%)	Average	1.28 rooms
TOTAL	93,795 (100.0%)	Unit Size	
Household composition		40 m <sup>2</sup> or smaller	54,973 ( 58.6%)
Single-person household	79,145 ( 85.6%)	41 m <sup>2</sup> - 60 m <sup>2</sup>	13,883 ( 14.8%)
Family household	11,959 ( 12.9%)	61 m <sup>2</sup> - 85 m <sup>2</sup>	2,026 ( 2.2%)
Unrelated household (5 persons or less)	1,343 ( 1.5%)	Larger than 85 m <sup>2</sup>	22,912 ( 24.4%)
TOTAL	92,447 (100.0%)	TOTAL	93,795 (100.0%)
		Average	45.8 m <sup>2</sup>

Note. Percentages presented in parentheses are valid percentages within each age group.

<sup>A</sup> Under Housing Law, a *Da-ga-gu* housing is classified as a single-family structure although it contains multiple units in one structure.

<sup>B</sup> Other types of structure includes units in non-residential buildings and non-housing living quarters.

way analyses of variance, independent-sample *t*-tests, and *Chi*-square tests of independence. For entire data analysis, IBM SPSS Statistics 21.0 was used.

## Findings

### Household Overview

Around 30% of the young college graduate households selected for the study were headed by females, and 87.2% of householders were never married (Table 4). Nearly 95% were single- or two-person households, and 1.5% lived with unrelated roommates. Average age of the householders was 26.3 years. Average monthly household income was 1,853,493 KRW including 1,318 households with zero income. Average monthly household income excluding households with zero income was 1,879,904 KRW.

To see the housing characteristics, about a half were living in

multifamily structures including apartments, and 24% were in non-housing living quarters or units in non-residential buildings. Over three quarters of the households lived in studio/efficiency units or one-bedroom units, and 73% lived in units 60 square meters or smaller.

### Housing Costs and Housing Cost-to-Income Ratios

For renter households, housing costs include deposits, monthly rental fees and other costs related to housing. Other housing costs in the 2012 KHS include costs for heating, electricity, water, sewage, fuel, and routine home maintenance (MLTM, 2012a p.73). Housing costs of young college graduates were compared across household income levels by tenure types.

Housing costs of a *Jeon-se* renter included *Jeon-se* deposit and other housing costs. Housing costs of young college graduate *Jeon-se* renters were compared using a series of one-way analyses of

Table 5. Housing Costs of Jeon-se Renters by Income Level

Housing cost	n	Mean	SD	Range	
				Min.	Max.
<i>Jeon-se deposit (10,000 KRW)</i> <sup>***</sup>					
Low-income	4,991	6,404.3 <sub>c</sub>	3,384.4	3,000	15,000
Mid-income	13,493	10,371.5 <sub>b</sub>	6,815.7	2,000	30,000
High-income	3,515	15,390.4 <sub>a</sub>	11,316.7	5,500	43,000
TOTAL	21,999	10,273.4	7,689.8	2,000	43,000
<i>Jeon-se deposit / Annual income</i> <sup>**</sup>					
Low-income	4,991	3.9 <sub>a</sub>	3.0	1.3	16.7
Mid-income	13,493	3.0 <sub>b</sub>	2.0	.7	10.9
High-income	3,515	2.2 <sub>c</sub>	1.3	1.0	5.1
TOTAL	21,999	3.1	2.2	.7	16.7
Total monthly housing costs (10,000 KRW) <sup>A***</sup>					
Low-income	4,991	59.8 <sub>c</sub>	27.8	31.8	128.8
Mid-income	13,493	96.9 <sub>b</sub>	53.3	35.0	247.5
High-income	3,515	152.7 <sub>a</sub>	99.0	54.9	391.8
TOTAL	21,999	97.4	65.5	31.8	391.8
(Total monthly housing cost / Monthly income)×100 (%) <sup>***</sup>					
Low-income	4,991	44.1 <sub>a</sub>	30.9	16	172
Mid-income	13,493	33.5 <sub>b</sub>	19.0	12	108
High-income	3,515	27.4 <sub>c</sub>	14.4	10	56
TOTAL	21,999	34.9	22.3	10	172

Note. Refer to Table 3 for income categories. Alphabet subscripts next to means are homogeneous subsets by Duncan's PostHoc tests (a>b>c).

<sup>\*\*\*</sup> Means differ significantly by income groups at  $p < .001$  using a one-way analysis of variance.

<sup>A</sup> Total monthly housing costs = Deposit converted to monthly rent + Actual monthly rent + Other monthly housing costs. *Jeon-se* deposit was converted to monthly rent to facilitate housing cost comparisons across different rental types. In 2012, the rent conversion rate for residential property deposits was 8.7% (MLTM, 2012a, p.69). The deposit was converted as follows: *Jeon-se* deposit converted to monthly rent = (*Jeon-se* deposit × .087) / 12. Other monthly housing costs refer to monthly costs related to housing other than rental fee. Other monthly housing costs include costs for heating, electricity, water, sewage, fuel, and routine home maintenance. (MLTM, 2012, p.73).

variance. Table 5 shows the comparisons of young *Jeon-se* renter households' housing costs across income levels.

*Jeon-se* deposit the young college graduates paid was average 102,734,000 KRW ranging from 30,000,000 KRW to 430,000,000 KRW. The *Jeon-se* deposit was about 3.1 times a household's annual income. When *Jeon-se* deposit amounts and *Jeon-se* deposit-to-annual income ratios were compared across income groups, it was found that the high-income group showed the greatest average *Jeon-se* deposit amount (153,904,000 KRW), while the low-income group had the greatest *Jeon-se* deposit-to-annual income ratio (3.9). Among low-income *Jeon-se* renters, there were some households with *Jeon-se* deposits that exceeded 16 times their annual income.

Total monthly housing costs of *Jeon-se* renters include *Jeon-se* deposit converted to monthly rent and other monthly housing costs. In 2012, the rent conversion rate for residential property deposits was 8.7% (MLTM, 2012a, p.69). The proportion of total monthly housing costs out of monthly household income was on average 34.9%. Households with a greater income paid greater amounts of housing costs; however, households with lower income paid a greater proportion of household income for total housing costs. Among households in low- and mid-income groups, there were some households whose monthly housing costs exceeded incomes.

Housing costs for the monthly renters with deposit consisted of deposit, monthly rent, and other housing costs. There were 1,318 households in the low-income group that reported zero income.



**Table 6.** Housing Costs of Monthly Renters with Deposit by Income Level

Housing cost	n	Mean	SD	Range	
				Min.	Max.
Deposit (10,000 KRW) <sup>***</sup>					
Low-income	34,700	1,025.3	1,323.8	200	10,000
Mid-income	13,117	1,692.6	1,524.8	200	7,000
TOTAL	47,817	1,208.3	1,413.5	200	10,000
Monthly rent (10,000 KRW) <sup>***</sup>					
Low-income	34,700	39.0	10.5	10	60
Mid-income	13,117	38.0	9.6	20	60
TOTAL	47,817	38.7	10.2	10	60
Deposit / Annual income <sup>***</sup>					
Low-income	33,382	.61	.71	.61	.62
Mid-income	13,117	.53	.55	.52	.54
TOTAL	46,499	.58	.67	.58	.59
(Monthly rent / Monthly income)×100 (%) <sup>***</sup>					
Low-income	33,382	31.9	18.6	4.5	100.0
Mid-income	13,117	13.9	4.5	5.7	24.0
TOTAL	46,499	26.8	17.9	4.5	100.0
Total monthly housing costs (10,000 KRW) <sup>A***</sup>					
Low-income	34,700	56.0	16.9	23.6	137.5
Mid-income	13,117	67.4	26.7	42.3	155.8
TOTAL	47,817	59.1	20.7	23.6	155.8
(Total monthly housing cost / Monthly income)×100 (%) <sup>***</sup>					
Low-income	33,382	44.3	24.4	15.8	169.0
Mid-income	13,117	24.8	12.5	15.3	67.7
TOTAL	46,499	38.8	23.4	15.3	169.0

Note. Refer to Table 3 for income categories.

<sup>\*\*\*</sup> Means differ significantly by income groups at  $p < .001$  using independent-sample  $t$ -tests.

<sup>A</sup> Total monthly housing costs = Deposit converted to monthly rent + Actual monthly rent + Other monthly housing costs. Deposit was converted to monthly rent to facilitate housing costs comparisons across different rental types. In 2012, the rent conversion rate for residential property deposit was 8.7% (MLTM, 2012a, p.69). Thus, deposit was converted as: Deposit converted to monthly rent = (Deposit × .087) / 12. Other monthly housing costs refer to monthly costs related to housing other than rental fees. Monthly housing costs include costs for heating, electricity, water, sewage, fuel, and routine home maintenance. (MLTM, 2012, p.73).

Those households were included in housing cost statistics, but excluded in calculations of housing cost-to-income ratios. There were no monthly renters classified as high-income households; consequently, housing costs were compared between low- and mid-income groups using independent-sample  $t$ -tests.

The average deposit was 12,083,000 KRW (7.1 times the monthly income) ranging from 2,000,000 to 100,000,000 KRW, and average monthly rent was 387,000 KRW (approximately 27% of the monthly income) ranging from 100,000 to 600,000 KRW (Table 6). Mid-income households were found to have

paid a significantly greater deposit and monthly rent than low-income households; however, low-income households paid greater proportions of their income for housing when deposit- or monthly rent-to-income ratios were compared.

Total housing costs of monthly renters with deposit were calculated by adding deposits converted to monthly rent, monthly cash rent and other housing costs. The deposit was converted to monthly rent using the same method to convert the *Jeon-se* deposit introduced earlier in this study. The young college graduate monthly renters with deposit paid average 38.8% of their income

Table 7. Housing Costs of Monthly Renters without Deposit by Income Level

Housing cost	n	Mean	SD	Range	
				Min.	Max.
Monthly rent (10,000 KRW) <sup>***</sup>					
Low-income	23,542	26.0	.0	26	26
Mid-income	437	30.0	.0	30	30
TOTAL	23,979	26.1	.5	26	30
(Monthly rent / Monthly income)×100 (%) <sup>***</sup>					
Low-income	23,542	31.3	3.7	17.3	32.5
Mid-income	437	13.0	.0	13.0	13.0
TOTAL	23,979	31.0	4.4	13.0	32.5
Total monthly housing costs (10,000 KRW) <sup>B***</sup>					
Low-income	23,542	27.1	.5	27	29
Mid-income	437	40.0	.0	40	40
TOTAL	23,979	27.3	1.8	27	40
(Total monthly housing costs / Monthly income)×100 (%) <sup>***</sup>					
Low-income	23,542	32.6	3.9	18.0	36.3
Mid-income	437	17.4	.0	17.4	17.4
TOTAL	23,979	32.4	4.4	17.4	36.3

Note. Refer to Table 2 for income categories.

<sup>\*\*\*</sup> Means differ significantly by income groups at  $p < .001$  using independent-sample  $t$ -tests.

<sup>A</sup> Total monthly housing costs = Deposit converted to monthly rent + Actual monthly rent + Other monthly housing costs. Other monthly housing costs refer to monthly costs related to housing other than rental fees. Other monthly housing costs include costs for heating, electricity, water, sewage, fuel, and routine home maintenance. (MLTM, 2012, p.73).

for housing costs. To see the maximum percentage, there were households in low-income group that had total monthly housing costs that represented 169% of their income.

Housing costs of monthly renters without deposit included monthly rent and other monthly housing costs. Monthly renters without deposit headed by young college graduates paid an average 261,000 KRW that ranged from 260,000 to 300,000 KRW, the monthly rent comprised about 31% of the monthly household income (Table 7). Total monthly housing costs including monthly rent and other monthly housing costs were 273,000 KRW, the average total monthly housing cost-to-monthly income ratio was 32.4%.

According to the independent-sample  $t$ -test results, comparisons of housing costs and housing cost-to-income ratio between low- and mid-income households showed the same tendency as *Jeon-se* renters and monthly renters with deposit: Households with a higher income paid a greater amount of housing costs, but the proportion of housing costs out of income were smaller than lower income

households.

Compared with rental housing cost statistics from the official report of 2012 KHS (MLTM, 2012a, p.68), deposit amounts of *Jeon-se* renters and monthly renters with deposits were similar or less than renters in the Capital Region with the same income levels (Table 8). Monthly cash rent amounts of young college graduate renters, however, were found to be greater than the amounts of renter households in same income levels in the Capital Region.

### Housing Cost Burdens

In general, households that pay 30% or more of household income to housing costs is considered to be households with housing cost burdens. In defining households with housing cost burdens, the Joint Center for Housing Studies of Harvard University (JCHS) classified households with zero or negative income as households with housing cost burdens unless they had no cash rent payment (JCHS, 2014, p.37). In this study, households with housing cost burdens were defined as households spending



**Table 8.** Comparison of Housing Costs of Study Samples and Renters in the Capital Region by Tenure Type and Income Level

Housing cost (10,000 KRW)	Young college graduate renters <sup>A</sup> in Capital Region			Renters in Capital Region <sup>B</sup>		
	Low-income	Mid-income	High-income	Low-income	Mid-income	High-income
<i>Jeon-se</i> renter						
<i>Jeon-se</i> deposit	6,404.3	10,371.5	15,390.4	6,476.2	10,454.6	20,634.7
Monthly renters with deposit						
Deposit	1,025.3	1,692.6	n/a	1,248.7	2,604.0	3,501.0
Monthly rent	39.0	38.0	n/a	19.1	30.4	49.3
Monthly renters without deposit						
Monthly rent	26.0	30.0	n/a	25.0	32.5	142.8

Note. Refer to Table 3 for income categories.

<sup>A</sup> Renter households headed by persons between 20 and 29 years of age with a Bachelor's degree or higher educational attainments selected from households surveyed in the 2012 KHS.

<sup>B</sup> Statistics from the official final report of the 2012 KHS (MLTM, 2012a, p.68)

**Table 9.** Households with Housing Cost Burdens by Tenure Type

Tenure type & Income	Burdened	Not burdened	TOTAL
<i>Jeon-se</i> renter <sup>***</sup>			
Low-income	2,571 (51.5%)	2,420 ( 48.5%)	4,991 (100.0%)
Mid-income	6,820 (50.5%)	6,673 ( 49.5%)	13,493 (100.0%)
High-income	1,747 (49.7%)	1,767 ( 50.3%)	3,514 (100.0%)
TOTAL	11,138 (50.6%)	10,860 ( 49.4%)	21,998 (100.0%)
Monthly renter with deposit <sup>***</sup>			
Low-income	26,135 (75.3%)	8,565 ( 24.7%)	34,700 (100.0%)
Mid-income	1,911 (14.6%)	11,206 ( 85.4%)	13,117 (100.0%)
TOTAL	28,046 (58.7%)	19,771 ( 41.3%)	47,817 (100.0%)
Monthly renter without deposit <sup>***</sup>			
Low-income	20,910 (88.8%)	2,631 ( 11.2%)	23,541 (100.0%)
Mid-income	0 ( .0%)	437 (100.0%)	437 (100.0%)
TOTAL	20,910 (87.2%)	3,068 ( 12.8%)	23,978 (100.0%)
All renters <sup>***</sup>			
Low-income	49,616 (78.5%)	13,616 ( 21.5%)	63,232 (100.0%)
Mid-income	8,731 (32.3%)	18,316 ( 67.7%)	27,047 (100.0%)
High-income	1,747 (49.7%)	1,767 ( 50.3%)	3,514 (100.0%)
TOTAL	60,094 (64.1%)	33,699 ( 35.9%)	93,793 (100.0%)

Note. Refer to Table 2 for income categories. Percentages presented in parentheses are valid percentages within each income group. Households that are housing cost burdened refer to households that pay 30% or more of income for housing costs. Housing costs include deposits converted to monthly rent, monthly rent and other housing costs. Other monthly housing costs include costs for heating, electricity, water, sewage, fuel, and routine home maintenance. (MLTM, 2012, p.73). Households with no income were considered to have housing cost burdens.

<sup>\*\*\*</sup> *Chi*-square significant at  $p < .001$

30% or more of household income for total housing costs and households with zero income. Total housing costs included deposits converted to monthly rent, monthly rent and other housing costs.

Proportion of households with housing cost burdens were compared across income groups using a series of *Chi*-square tests of independence (Table 9). It was found that over 64% of young college graduate renter households had housing cost burdens

that represented 30% or more of their housing income, and 78.5% of low-income households were housing cost burdened. Interestingly, high-income households showed a greater proportion of households that are housing cost burdened (49.7%) than mid-income households (32.3%).

*Jeon-se* renters showed the lowest proportion of households with housing cost burdens. Regardless of tenure types, low-income households showed the greatest proportion of households with housing cost burdens ( $p < .001$ ). Nearly 89% of low-income monthly renters without deposit were found to have housing cost burdens while there was no mid-income households with housing cost burden with same tenure type ( $p < .001$ ). More than 75% of low-income monthly renters with deposit were found to be housing cost burdened while only 14.6% of mid-income monthly renters with deposit were burdened ( $p < .001$ ).

### Household Income Remaining after Housing Cost Payments

In addition to housing cost-to-income ratios or percentage of households with housing cost burdens, monthly household income remaining after subtraction of total monthly housing costs were compared across income groups by tenure type to measure the housing affordability of young college graduate renters. Monthly housing costs used to calculate the remaining monthly income included deposits converted to monthly rent, actual monthly rent payments and other housing costs.

An average of 2,051,000 KRW was left to spend on necessities and savings after the *Jeon-se* deposit converted to monthly rent and other monthly housing costs were subtracted from monthly income of the *Jeon-se* renter households, (Table 10). According to calculations, however, there were low- and mid-income *Jeon-se* households that had no or even minus income left for expenses

Table 10. Household Income Remaining after Housing Cost Payment

Remaining monthly income (10,000 KRW)	n	Mean	SD	Range	
				Min.	Max.
<i>Jeon-se</i> renter <sup>A***</sup>					
Low-income	4,991	99.2c	49.3	-22	168
Mid-income	13,493	193.3b	59.7	-18	308
High-income	3,515	400.8a	114.2	288	627
TOTAL	21,999	205.1	116.5	-22	627
Monthly renter with deposit <sup>B***</sup>					
Low-income	34,700	88.2	56.5	-59	179
Mid-income	13,117	216.8	59.5	74	322
TOTAL	47,817	121.3	82.0	-59	322
Monthly renter without deposit <sup>C***</sup>					
Low-income	23,542	57.9	16.5	51	123
Mid-income	437	190.0	.0	190	190
TOTAL	23,979	60.3	24.1	51	190
All renters <sup>***</sup>					
Low-income	63,233	76.2	47.5	-59	179
Mid-income	27,047	204.6	60.3	-18	322
High-income	3,515	400.8	114.2	288	627
TOTAL	93,795	125.4	96.7	-59	627

Note. Refer to Table 3 for income categories.

\*\*\* Means differ significantly by income groups at  $p < .001$  using one-way analysis of variance and independent-sample  $t$ -tests.

<sup>A</sup> Monthly household income - (*Jeon-se* deposit converted to monthly rent + Other monthly housing costs). Alphabet subscripts represent homogeneous subsets by Duncan's PostHoc test ( $a > b > c$ ).

<sup>B</sup> Monthly household income - (Deposit converted to monthly rent + Monthly rent + Other monthly housing costs)

<sup>C</sup> Monthly household income - (Monthly rent + Other monthly housing costs)

other than housing costs.

As for monthly renters with deposit, average monthly household income remaining after subtraction of deposit converted to monthly rent, monthly cash rent and other monthly housing costs was 1,213,000 KRW with a wide range of -590,000 to 3,220,000 KRW. Monthly rent and other monthly housing costs were subtracted from the monthly household income of monthly renters without deposit; subsequently, the average monthly household income remaining was 603,000 KRW and ranged from 510,000 to 1,900,000 KRW.

Young college graduate renter households with lower income tended to have less income left after housing cost payments than households with higher incomes. There were some households in low- and mid-income groups that had zero or less income remaining after the payment of housing costs.

## Conclusions

This study explored the housing affordability of young college graduates in their twenties renting housing units in the Capital Region. This study focused on four aspects of housing affordability (housing costs, housing cost-to-income ratios, households with housing cost burdens, and household income remaining after housing cost payments) and compared them across income levels. The major findings of the study and implications are summarized as follows.

First, young college graduate renter households in the Capital Region paid a relatively lower amount of deposit compared to the deposit amounts of Capital Region renters reported in the official report of the 2012 KHS (MLTM, 2012a). Interestingly, however, the young college graduates monthly renters paid a greater amount of monthly cash rent than the average monthly rent in the Capital Region (Table 7). Young households had a tendency to live in smaller sized units (MLTM, 2012a, p.59); therefore, it is necessary to implement further analyses or investigation to explore influences on higher rental costs of the young renters. Some of the possible influences would be locations with convenient transportation systems and amenities that attract young persons usually associated with greater rental costs; and a rental system requiring less deposits and greater monthly rent in rental markets that target young

households.

Second, deposits required for most housing rentals could be the biggest obstacle for young college graduates to move out from their parents' homes and form independent households. Based on the study analysis, the average *Jeon-se* deposit was 102,734,000 KRW and the average deposit of monthly renters was 12,083,000 KRW. When the deposit amount was compared with the household income, *Jeon-se* deposit was 3.1 times the annual household income (maximum 16.7 times) and the deposit of the monthly renters was average 58% of annual household income (maximum 55.6 times). It is very difficult to expect young people entering the workforce to have saved such a lump sum deposit without assistance from external sources including parents and loans from financial institutions. It is very typical for young professionals to receive parental support to afford housing costs in the early-stages of their careers in Korea (Lee, Beamish & Goss, 2014; Lim, Han & Lee, 2013; SaramIn, 2009, 2010). Chung (2012) also stated that parental income level had a positive influence on children's new household formation in Korea as parents with greater incomes could provide more financial support for children's independent living.

Third, the housing affordability of low- and mid-income renter households headed by young college graduates seemed to be in greater jeopardy. Households in a higher income group tended to pay a greater amount of deposit and/or monthly rent. Households with a lower income, however, were found to pay a greater proportion of income for housing costs than households with a relatively higher income. In the low-income group, there were *Jeon-se* renter households whose *Jeon-se* deposit was 16.7 times the annual household income; and monthly renters with deposit whose deposit exceeded 55 times their monthly income or monthly rent was the same amount as their monthly income. Also, more than 78% of the low-income households had housing cost burdens of 30% or more of their income for housing. When housing cost payments were subtracted from household income, less than one million KRW left for low-income households to spend for other needs and savings while high-income households had more than two million KRW and mid-income households had 1.9 million KRW left. There were households in low- and mid-income households who had zero or even minus income left after housing

cost payments. Housing costs definitely influence the life quality of households.

The findings from this study and previous studies indicate that the rental costs of households headed by young persons, especially those who had relatively lower income, might be more than households could afford without external assistance such as parental support. A previous research study indicated that college students' perception of post-college housing cost burden even influenced their job choices (Lee, 2013). A young households' housing affordability could also have a negative impact on the formation and maintenance of independent living as well as on their parents' life quality and their preparations for later life (Baek, 2008).

More governmental efforts to alleviate cost burdens of young renter households are required. Some examples of governmental solutions would be extended provision of public housing units with lower deposits and monthly rents, financial support such as stipends to property owners or renters in order to reduce renters' cost burdens, and tax benefits for property owners providing low-cost rental units to young households and for young renters based on income levels.

## References

- Baek, D. (2008). *A study on housing preferences of career beginners: Based on questionnaire survey in Seoul*. Unpublished Master's thesis. Seoul: Konkuk University.
- Chung, E. (2012). Housing costs and household formation of young adults in Korea. *Journal of the Korea Real Estate Analysts Association*, 18(2), 19-31.
- Joint Center for Housing Studies of Harvard University. (2014). *The state of the nation's housing 2014*. Retrieved from <http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf>
- Lee, H. (2013). Workforce entry preparers' post-college housing expectations and perception of housing cost burden. *Journal of the Korean Housing Association*, 24(4), 29-37.
- Lee, H. (2014). Comparisons of young renter households' housing situation by locations reflected in the 2012 Korea Housing Survey. *Proceedings of Autumn Annual Conference of KHA, 2014*, 269-274.
- Lee, H., Beamish, J., & Goss, R. C. (2014, October 6). *Housing situation of young professionals in the United States and Korea*. Paper presented at the 2013 Annual Conference of the Housing Education and Research Association.
- Lee, H. (2014). Housing choices of college graduates in their 20s reflected in national surveys of Korea and the United States. *Proceedings of Spring Annual Conference of KHA, 2014*, 263.
- Lim, E., Han, S. J., & Lee, H. (2013). Housing cost burdens of young professionals in architecture and interior design-related companies. *Proceedings of 2013 Summer Conference of KAHE, 245-246*.
- Ministry of Land, Infrastructure and Transport. (n.d.). 주거실태조사 안내 [Introduction to the Korea Housing Survey]. 주거누리 [Joo-geo-noo-ri]. Retrieved from <http://hnuri.go.kr/guide/dfn.do>
- Ministry of Land, Transport and Maritime Affairs. (2012a). 2012년도 주거실태조사: 연구보고서 [2012 Korea Housing Survey: Final report]. 주거누리 [Joo-geo-noo-ri]. Retrieved from [http://hnuri.go.kr/stat/stat\\_byYearSearchViewPage.do](http://hnuri.go.kr/stat/stat_byYearSearchViewPage.do)
- Ministry of Land, Transport and Maritime Affairs. (2012b). 2012년도 주거실태조사: 통계보고서 [2012 Korea Housing Survey: Statistics]. 주거누리 [Joo-geo-noo-ri]. Retrieved from [http://hnuri.go.kr/stat/stat\\_byYearSearchViewPage.do](http://hnuri.go.kr/stat/stat_byYearSearchViewPage.do)
- SaramIn. (2009. 1. 14.). 2030 직장인 21%, 취업후에도 부모에게 경제적 도움 받아 [Twenty one percent of workers in their 20s and 30s receive parental supports even after their employment]. SaramIn. Retrieved from [http://www.saraminhr.co.kr/open\\_content/pr/press\\_release.php?sno=60&group=basic&code=B2&category=&&field=all&search=%B0%E6%C1%A6%C0%FB&abmode=view&no=1133&bsort=&bfsort=wdate&listno=85](http://www.saraminhr.co.kr/open_content/pr/press_release.php?sno=60&group=basic&code=B2&category=&&field=all&search=%B0%E6%C1%A6%C0%FB&abmode=view&no=1133&bsort=&bfsort=wdate&listno=85)
- SaramIn. (2010. 6. 8). 직장인 5명중 1명, 취업하고도 부모에게 손 벌려 [One in five office workers receives parental supports even after their employment]. SaramIn. Retrieved from [http://www.saraminhr.co.kr/open\\_content/pr/press\\_release.php?sno=50&group=basic&code=B2&category=&&field=all&search=%B0%E6%C1%A6%C0%FB&abmode=view&no=1433&bsort=&bfsort=wdate&listno=94](http://www.saraminhr.co.kr/open_content/pr/press_release.php?sno=50&group=basic&code=B2&category=&&field=all&search=%B0%E6%C1%A6%C0%FB&abmode=view&no=1433&bsort=&bfsort=wdate&listno=94)
- Statistics Korea. (n.d.). 주택보급률 [Housing distribution rates]. e-나라지표 [e-National Index]. Retrieved from [http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx\\_cd=1227](http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=1227)