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Estimation of Housing Services in Korea

CHO, Yong-Gil

Consultant, OECD Statistics Directorate

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## **Estimation of Housing Services in Korea**

In SNA, housing services (or dwelling services) industry poses a peculiar area in the estimation method. It comprises the imputed rental industry which is called “the owner occupied dwelling service industry”, as well as actual rental market for housing service. The imputed rental industry is assumed as if the rentals occurred actually, and the output and value added of the owner occupied dwelling services are set to be estimated on this assumption.

The way to impute the output and value added of owner occupied housing service is different among countries due to the differences in housing market structures and the availability of source data. Because imputation methods in that industry are diverse, the magnitude of output of its industry and GDP and its related aggregates is less comparable among countries.

Korea has a housing rental market somewhat different from other countries in the way of tenants’ paying rentals to landlords. She has a unique form of a rental market, called “Jeon-sei”(lump sum deposit bond) which requires a dissimilar estimation method in compiling national accounts. Accordingly, some variations may occur depending on the imputation method adopted at the statistical offices in Korea, which affect the level of GDP and also, its national savings ratio.

In this paper, the housing rental system of Korea was explained with its influence on the estimation of housing services. Next, the estimation method was described briefly, and the adequacy of the magnitude of the housing services is reviewed with the comparison of other countries.

### **Importance of owner occupied housing services in national accounts**

Housing services comprise relatively higher portion in national accounts due to the owner occupied dwelling services. The value added of housing services industry covers from 5 to 9 % of GDP, and the final consumption of those services reaches 5 to 11% of GDP among OECD countries.

**<Table 1> Ratios on the housing rental expenditure and the value added of housing services**  
(unit: %)

	Total housing rental expenditures <sup>1)</sup> /GDP(2001)	Value added of housing service <sup>2)</sup> /GDP(2000)
Australia	10.6	
Austria	7.0	
Belgium	8.8	
Canada	10.6	
Denmark	8.7	
Finland	11.1	8.6
France	9.1	
Germany	9.9	8.7
Greece	8.9	
Ireland	7.3	
Italy	8.2	
<u>Korea</u>	<u>6.4</u>	<u>5.0</u>
Luxembourg	8.1	
<u>Netherlands</u>	<u>6.8</u>	<u>5.4</u>
<u>Portugal</u>	<u>4.4</u>	
<u>Spain</u>	<u>6.2</u>	
Sweden	10.6	
United Kingdom	8.4	
United States	10.2	8.3
(Chinese Taipeh)	9.2	

Note: 1) actual rentals for housing + imputed rentals for housing.

Sources: OECD, SNA database; Chinese Taipeh Statistical Office.

2) recalculated from the data of Katz's paper(p 28)

The weight of owner occupied dwelling services in the whole housing services industry reaches about 50-90% (refer to <table 4>). Taking the weight of the owner occupied dwelling services into consideration, it is not overstating that the estimation of the amount of its industry by an acknowledged objective way is important on the account that its production is captured not by actual figures but by voluntary imputational procedures.

SNA adopts the valuation method of own-account housing services using the same kinds of services sold on the market. Therefore, if there is no well-developed rental market in the housing services, the imputed output of owner occupied dwelling services could be understated or overstated. The consequence of the understatement could result in the understatement of GDP figures (the same is true in the overstatement case).

As is well known to us, the GDP figures of each country are used as economic indicators to levy several kinds of burden, such as “government maximum budget deficit ratios” in EU and some criteria for its member countries to contribute to OECD budget. The magnitude of GDP is sometimes directly linked to the financial burden of each country.

Another impact from variations in estimating the imputed housing services is the change in national savings ratios. National savings ratio is one of the key macro variables to be studied for analyzing the national consumption, investment behaviour and economic growth. The understatement of owner occupied dwelling services leads to raise national savings ratios by a certain degree.<sup>1</sup>

### **Housing rental market in Korea**

Korea has a peculiar type of rental market in dwelling, which is called “Jeon-sei” and keeps a dominant form of house renting in the country. In this rental system, unlike the normal one for renters to pay rents to landlords every month, the tenants give the deposit money almost amounting to above a half of the rented house’s value to landlords in advance when the renting period starts, and receive the same amount of money back from the landlords when the renting contracts expire. During the renting period, the landlords can utilise that money (*Jeon-sei deposit*) for private financial purposes.

The reason why the Jeon-sei system was developed in Korea is related to traditional practices in private housing contracts, and lack of well-developed mortgage loan market and relatively higher costs in financing kept that system maintained up to modern times. Under the poor mortgage loan market, people who want to buy a house should have relied on the huge deposit money (normally above 50% of house’s value) provided by the tenant who would like to reside in that house. It takes a form of private financing between the owner of the house and the tenant. Landlords, also, can use the deposit money for private lending, or investing in other properties. Instead, the tenant can acquire the right to live in the house in exchange for depositing the deposit money to the owner of the house during the rented period. The tenant also benefits by not paying rentals during that period.

Recently, the causes which have kept the Jeon-sei system dominant in the country disappeared a lot by introducing the mortgage lending system and maintaining relatively lower interest rates in financing by the financial authorities. However, the Jeon-sei system remains a prevalent one in house-renting market in Korea, in which two thirds of the renting markets are run by Jeon-sei. The rest one third comprises both the

ordinary type of the renting market to pay monthly rents(*renter without deposit*) and a hybrid form of paying the lump sum deposit and monthly rents together(*renter with deposit*).

**<Table 2> Number of households by tenure type in Korea**

	Total	owner occupier	Jeon-sei	renter with deposit	renter without deposit	free renter
					(unit: 1,000 households, %)	
1995	12,958 (100.0)	6,910 (53.3)	3,845 (29.7)	1,333 (10.3)	542 (4.2)	328 (2.5)
2000	14,312 (100.0)	7,753 (54.2)	4,040 (28.2)	1,524 (10.6)	589 (4.1)	406 (2.8)

Source: Korea (2003), National Statistical Office

There is no explicit rental charge occurring in *Jeon-sei*. Therefore, when we compile the output and value-added of housing services industry in national accounts, *Jeon-sei deposit* should be converted into actual rentals like we impute the owner-occupied dwelling services into the attributed rentals. And the deposit portion in the tenure type of “the renter with deposit” is also converted into actual rentals. In case of free renter, the subsidy from government or non-profit institutions for free renting are considered *transfers in kind*. That amount of transfer should also be incorporated in the actual rentals category.

As of year 2000, 85.2%(54.2+28.2+2.8)of total households in Korea are on the objective of converting into imputed rentals while other countries like Japan, USA, EU need to convert below 70% of the housing stock, far below the Korean case.

**<Table 3> Shares of renters by tenure type in selected countries**

(unit: %)

	Total	owner occupier	Jeon-sei tenant	Monthly renter	Social renter
Korea(2000)	100	54.2	28.2	14.7	2.8
Japan(2003)	100	62.5	-	27.5	9.9
Chinese Taipei(2000)	100	82.5		10.2	7.3
USA(2001)	100	68.0	-	32.0	
EU(1996)	100	56	-	21	18

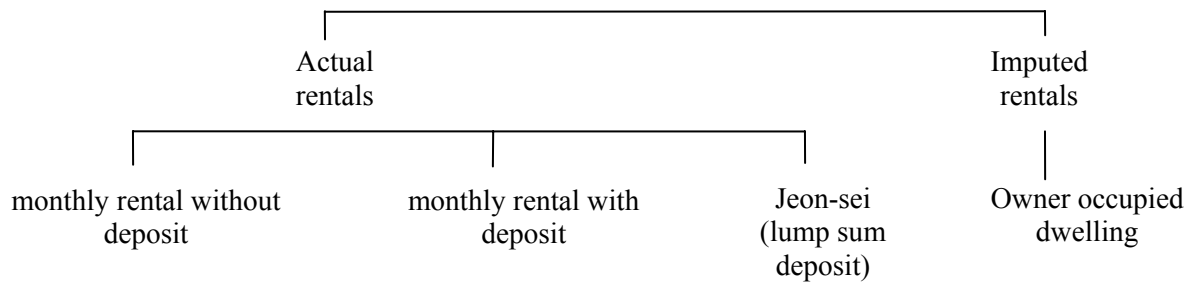
Sources: Japan (2003), Chinese Taipei (2001), USA (2002), European Parliament (1996),

Korea(2003)

### Estimation of housing services in Korea

The coverage of housing services industry in Korea includes the actual rentals on rented houses and imputed rentals. As is shown above, *Jeon-sei* is not a owner occupied dwelling system. However, *Jeon-sei deposit* is converted into attributed rentals to be incorporated into actual rentals.

**<Housing services industry in Korea>**



### Estimation method

Due to the peculiar situation of Korean housing rental market, the method to estimate the output and value added of the housing service industry has different characteristics from other countries.

Source data for the volume and price of rentals are collected by the national statistical office on a basis of *household*, not on *house unit*. The volume data on household stock are collected every five year by various categories in the “population census”. The price data on house rentals are surveyed every year. In collecting rental data, the **self-assessment method** is used for owner occupied dwelling and Jeon-sei, asking the real estate agents located near the property to estimate a potential rental for it. Actual rentals on monthly renters are gathered through “the urban household expenditure survey”. Ultimately, the National Income Division of the Bank of Korea compiles the output and value added of housing service industry using these source data.

The simple procedures of calculating the output and value added of the housing services are shown below for *the benchmark year*.

**Output of housing services:**

- Volume data: number of households
- Price data: urban area → *composite rental price* in urban area  
rural area → *housing cost* in rural area
- Output: number of households in urban area × composite rental price + number of household in rural area × housing cost

The *composite rental price* in urban area is calculated by averaging the monthly rentals of each type of tenure with the weights of their dwelling households, not their housing stock.<sup>1</sup> The types of tenure are divided into four categories, such as the monthly renter without deposit, the monthly renter with deposit, Jeon-sei tenant, and owner occupier. Actual rentals are derived from rental data of Jeon-sei, monthly renters without deposit, and monthly renters with deposit. Imputed rentals are derived from the rental data of owner occupiers. The combined one of actual rentals and imputed rentals constitutes the average monthly rental of a house as a composite rental price. The *housing cost* in rural area is surveyed on the farmers and fisheries. These two statistics are published every year at the Korean National Statistical Office.

**Value-added of housing services:**

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<sup>1</sup> Monthly housing rentals in Korea are surveyed based on *household*, not on *house unit*, because there are special types of house in which several units of household live together.

- Value-added: Output  $\times$  *value-added ratio* of the housing service industry in the input-output table

The estimates for years other than *the benchmark years* are calculated by extrapolating household volume data for output, and applying the base year value-added ratio for value-added amounts each year.

### **Adequacy of the size of the housing services**

In surveying the rental expenditures data for housing services of owner occupier and Jeon-sei, statistical offices are trying to keep the objectivity in methodology. However, whether the housing services industry in Korea is measured adequately or not is not easy to assess. One indicator as illustrated in <table 1>, “Total housing rentals/GDP” of OECD countries, illustrates that Korea is grouped into one of the lowest level (6.4%). It can be compared with Chinese Taipeh, a neighbouring similar-conditioned Asian economy which shows 9.2% for the same indicator.

On the other hand, the main focus of assessing the adequacy of the housing services is how well a magnitude of owner occupied housing services is measured. Therefore, if we compare the imputed rental expenditures data with housing stock of owner occupier, it would be a meaningful indicator to decide that housing services are overstated or understated. If “the imputed rental expenditure /total rental expenditure” is lower than “the housing stock of owner-occupier /total housing stock”, there would be some signs that imputed rentals are under-estimated. In <table 4>, “imputed rental expenditure/total rental expenditure” ratio and “owner occupied housing stock/total housing stock” ratio are illustrated for the comparison among OECD countries.

<Table 4> Comparison of imputed rentals and owner occupied housing stock in OECD countries

(unit: %)

	Imputed rental / Total rental(2001) <sup>1)</sup>	Owner occupied housing stock / Total housing stock(2000) <sup>2)</sup>
Australia	74.5	69
Austria	76.9	54
Belgium	72.4	73
Canada	74.9	68
Denmark	64.6	65
Finland	71.5	68
France	72.8	63
Germany	54.0	43
Greece	83.0	84
Ireland	86.0	82
Italy	82.3	75
<u>Korea</u>	59.6	54 <sup>2</sup>
<u>Netherlands</u>	61.2	53
<u>Portugal</u>	85.0	65
<u>Spain</u>	88.9	85
Sweden	60.5	60
United Kingdom	69.8	71
United States	76.4	68
(Chinese Taipeh)	(84.5)	(83)

Note: 1) OECD, SNA database.

2) UK, ONS (<http://www.statistics.gov.uk/STATBASE/ssdataset.asp?vlnk=7326>)

According to these indicators, there seems to be no indication that Korea has underestimated the rental expenditure on owner occupied dwelling because, like other countries, “imputed rental over total rental” ratio in the country(59.6%) is higher than “owner occupied households over total households”(54%).

On other hand, if we take into account that 82% of the housing services in the country is estimated by *self-assessment* (of owner occupier + *Jeon-sei*), and only 18% through actual renter’s expenditure data, the above indicators are not sufficient to explain the adequacy of Korean data in a simple cross-country comparison.

Another source data show a signal that there might be some understatement of imputed rentals on owner-occupied housing services in current Korean national accounts. According to a new input-output

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<sup>2</sup> Korean data are “households of owner occupier /total households” ratio because *imputed rentals* are calculated based on the number of households. According to the housing stock data, the ratio is 70.6 %.

table figures for year 2000 published in 2004<sup>3</sup>, total rental expenditures of households are 33% higher than the current national income statistics figures. When we revise the ratio of “total rental /gross national income” by using the new input-output table figures, the ratio goes up to 8.9% for year 2000, much higher than original national income statistics figure 6.4%. And the national savings ratio drops to 31.1% from the original figure 31.7%.

Considering the above result, more study is needed to establish the adequacy of housing services figures through a new research or survey method in national income statistics in Korea.

## **Conclusion**

Imputed rentals are costs for housing that are incurred without an explicit transaction. Accordingly, they might not be adequately estimated in case there is no sufficient data and survey. In Korea, a unique system called “Jeon-sei” in housing rental market made it difficult to estimate the actual housing rental expenditures. For those rental expenditures, the attributed rentals are estimated in the same way as the owner occupied rentals, which might lead to inadequate estimation of housing service output in national accounts. Therefore, it might be needed to review on the estimation method of that industry by using more widely accepted data sources.

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<sup>3</sup> The Bank of Korea(2004), Input-Output Table 2000

<Annex>

**Estimation method of housing services: General Description**

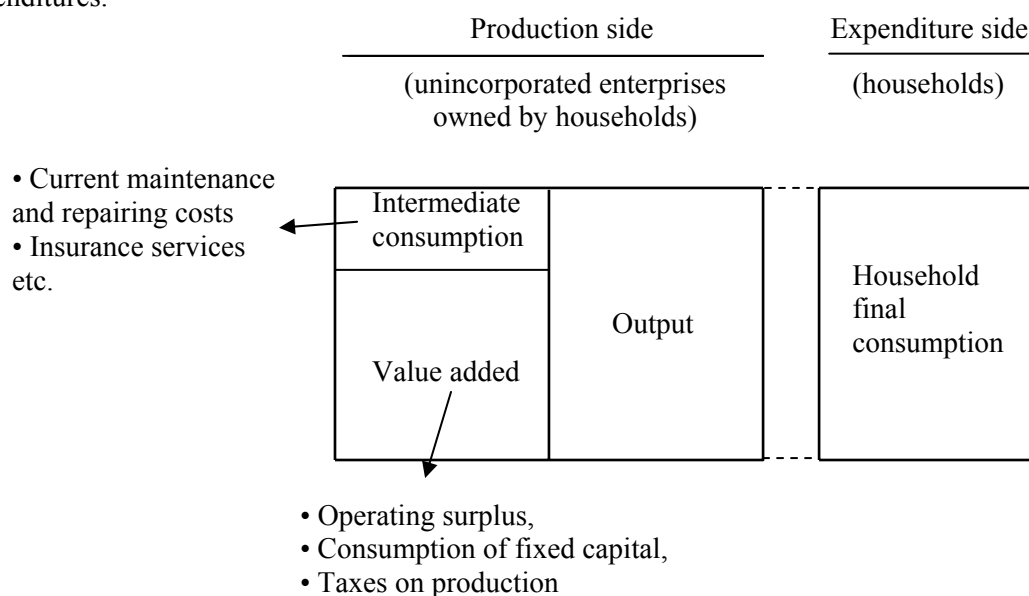
**1. Institutional sectoring**

Housing services are produced by the unincorporated enterprises owned by households in case of owner occupied dwellings, and are generated by each institutional sector in case of actual house-renting.

**2. Valuation of owner occupied housing services**

On the production side, the valuation method of housing services output produced by owner-occupiers follows, so called, *rental equivalence approach*.<sup>4</sup> That is, the output of the housing services of owner-occupiers is valued using the prices of the same kinds of dwelling services sold on the house-renting market. The value is imputed one on the basis of estimated current basic prices of the similar housing service market. Intermediate consumption is comprising estimated current maintenance and repairing costs, insurance services etc. of the similar accommodation. Value-added is composed of operating surplus, consumption of fixed capital and taxes on capital.

On the expenditure side, the same figure of output is recorded under household final consumption expenditures.



<sup>4</sup> This approach is adopted by SNA93(para. 6.89, 9.58, 15.67) and ESA95(para. 3.64).

### **3. EU method to estimate the housing services**

The Commission Decision of 18 July 1995 by the EU specifies the principles for estimating dwelling services in EU countries, and describes the specific guidelines of the estimation in the annex. (95/309/EC, Euratom) In this Decision, the Commission recommends that, for the benchmark year estimates, member countries adopt the *stratification method* by breaking down the total housing stock into various strata to acquire the information on actual rentals paid in each stratum, and actual rentals data be exploited for compiling the imputed rentals of owner occupied dwellings. Stratification criteria of dwellings, and special problems like rent-free and second home etc. are dealt with. In case of rent-free and cheap dwelling, the difference between the actual and referential rental will be treated as *remuneration in kind*. Estimates for years other than a benchmark year shall be estimated by extrapolating the base year figures using appropriate quantity, price and quality indicators.

### **4. User cost approach**

User costs of capital are a well-established notion in economics (Diewert 2003): they constitute the rental that the owner of a capital good would charge when renting out a capital good for one period. When the owners of capital goods are also their users, no market transaction can be observed but a user cost of capital can be calculated and imputed as the price that an owner of a capital good ‘charges himself’ for the use of this capital good. In the case of owner-occupied housing, the user cost approach can be used when rental markets are very thin i.e., when there is a large share of owner-occupied housing in the economy. In this case, observable rents may not be representative for the economy and the imputation of user costs constitutes an alternative. User costs are built up from several main elements: (i) a real net operating surplus, that captures the cost of financing or the opportunity cost of capital that is tied up in the dwelling. This could, for example, be computed by applying a real net rate of return to the net stock of dwellings and land; (ii) consumption of fixed capital, i.e., the loss in value of the asset due to wear, tear and normal obsolescence; (iii) other operating expenses associated with using a dwelling such as expenditures for ordinary maintenance and repair, net insurance premiums, and taxes less subsidies (Katz 2002).

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<sup>1</sup> If we put original savings ratio,  $a = \frac{\text{NDI} - \text{final consumption}}{\text{NDI}}$ . And add newly imputed rentals to both of the numerator and denominator of the original savings ratio and make a new savings ratio,

$b = \frac{\text{NDI} - \text{final consumption}}{\text{NDI} + \text{rental}_{\text{new}}}$ . Then “a” is always greater than “b” as far as  $\text{rental}_{\text{new}}$  is above zero.

$$\begin{aligned} \text{Pr oof : } a - b &= \frac{\text{NDI} - \text{final consumption}}{\text{NDI}} - \frac{\text{NDI} - \text{final consumption}}{\text{NDI} + \text{rental}_{\text{new}}} \\ &= \frac{\text{NDI} - \text{final consumption}}{\text{NDI}} \times \frac{\text{rental}_{\text{new}}}{\text{NDI} + \text{rental}_{\text{new}}} > 0 \end{aligned}$$