

Household Income and Asset Distribution in Korea

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Introduction

This study bases its analysis of household income and asset distribution on the *Household Finances and Welfare Survey 2014*. Many studies have used nominal income as the measure of household welfare, paying little attention to the effect of household assets on consumption. The importance of household assets lies in that they provide a buffer against unexpected situations that involve, for example, job loss, illness, or family breakdown.

Literature Survey

Sierminska and Smeeding ("Measurement Issues: Equivalence Scales, Accounting Framework, and Reference Unit") discussed a range of definitions concerning asset distribution, equivalence scale, and top and bottom coding. Their discussion of equivalence scales is based on the assumption of perfect economies of scale. In the context of perfect economies of scale, the household is regarded the unit of analysis, while it is the individuals in the household that make the units of analysis in cases where equivalence scales are used. This method has been adopted by the Luxembourg Data Center and OECD's asset distribution research. Meanwhile, in "Wealth Effects out of Financial and Housing Wealth: Cross Country and Age Group Comparisons," Sierminska and Takhtamanova looked at the relationship between wealth and consumption using the Luxembourg Wealth Study database. One of the findings of their observation of wealth effects in Canada, Italy, and Finland was that housing wealth was a stronger effect than financial assets on consumption. Also, they found that the effect of housing assets on consumption was less obvious for the households of younger people.

In "The Distribution of Wealth in Spain"(2008), Azpitarte explored household wealth distribution and conducted wealth inequality decomposition using the *Spanish Survey of Household Finances* conducted in 2002 by the Bank of Spain. The findings include: assets were more unequally distributed than income, and housing assets were more equally distributed than financial assets. The analysis of asset inequality decomposition indicated that financial assets made for increasing inequality in the distribution of total assets, while housing assets contributed to decreasing it. Age-group classifications explained little as to why assets were less equally distributed than was income, while home or business ownership did contribute to explaining the fact that inequality was greater in asset distribution than in income distribution.

In studies devoted to analysis of income distribution, the concept of equalized

income is often used to estimate the welfare levels of individuals in the household. Equivalized income is household income adjusted by using equivalence scales, of which the most widely used is the square-root scale.

Data and Analysis Method

Based on data from Statistics Korea's *Household Finances and Welfare Survey 2014*, this study is set out to identify the main features of asset distribution in Korea and examine how they differ from the features that characterize income distribution. The unit of analysis chosen here is the household, as the focus of this study is on the inequality of asset distribution across households. While most studies in income distribution use individuals' equivalized income, implicit in this study is the assumption that households have perfect returns to scale in the use of wealth. It should also be noted that this study applies neither top- nor bottom-coding, as the structure of the data used in this study is well established to the extent that there is little need for adjusting outliers.

The *Household Finances and Welfare Survey 2014*, the third of its kind since it started in 2012, was jointly conducted by Statistics Korea (the national statistical authority) and the Bank of Korea. The survey covered a sample of close to a total of 20 thousand households from across the country. The figures on "assets," "debt," and "household composition" are as of March 31, 2014, while the data on "income," "expenditure," and "debt service" are for the year 2013.

<Table 1> is a depiction of the distribution of total assets, net assets, and financial assets across Korea households. The mean value of real estate assets for all surveyed households was 244 million KW, while the median was 130 million KW. For all the asset and income variables examined here, the mean-to-median ratio was greater than 1, implying a distribution skewed to the right. The mean-to-median ratios for the variables of ordinary and disposable income, net assets, real estate assets, and financial assets were estimated to be, respectively, 1.2, 1.8, 1.9, and 2.0. Of the surveyed households, those with zero net worth accounted for 0.04 percent, while 0.08 percent had zero financial assets. Over 13 percent were without any real estate assets, and 64.5 percent were found to have debts of varying sizes. A little under 3 percent of the sample were with either zero net worth or a negative net worth. Households with zero or negative ordinary income represented 0.12 percent, while figure was 0.59 percent in the case of zero or negative disposable income.

<Table 1> Assets and Income in Korea: Arithmetic Mean and Median

(Units: 10,000 KW, %)

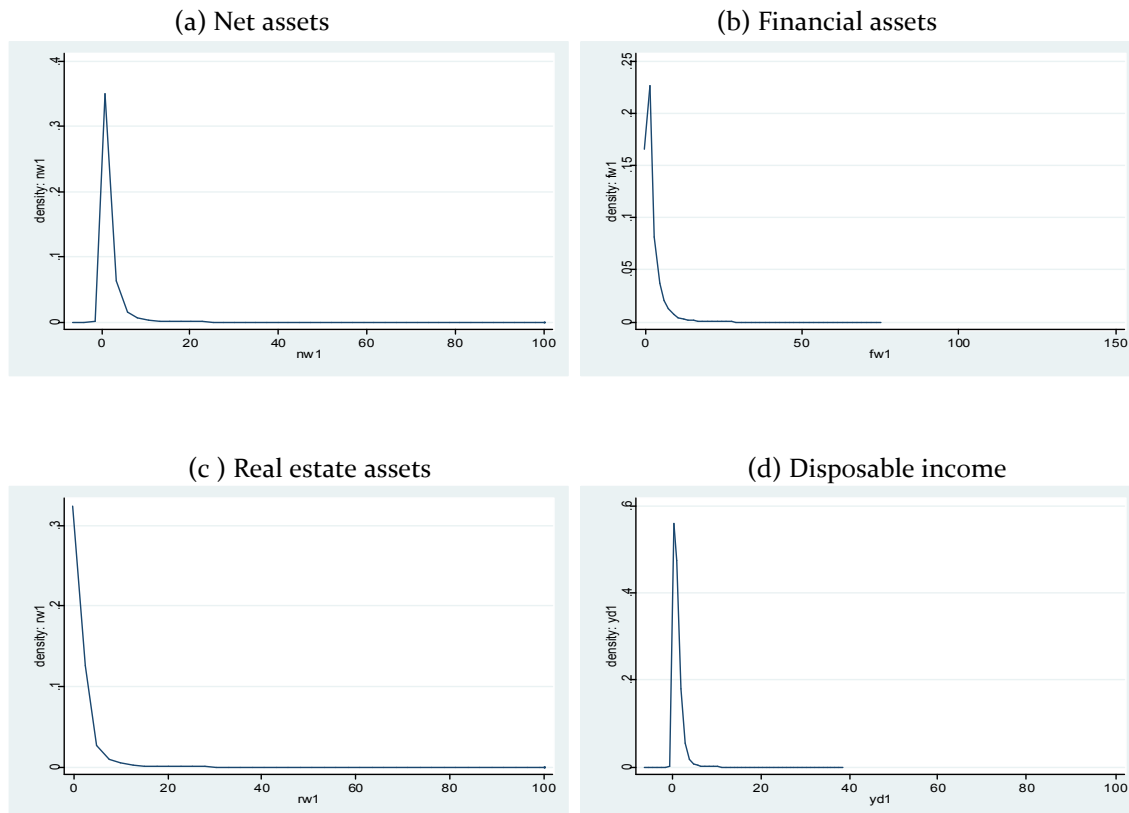
	Total assets	Financial assets	Real estate assets	Total debt	Net assets	Ordinary income	Disposable income
Mean (in 10,000 KW	33,364	8,931	24,433	5,994	27,370	4,676	3,833
Median (in 10,000 KW)	19,360	4,553	13,000	1,000	15,453	3,800	3,137
Mean/Median	1.7	2.0	1.9	6.0	1.8	1.2	1.2
Zero worth (%)	0.04	0.08	13.04	36.52	0.04	0.12	0.01
Negative worth (%)	0.00	0.00	0.00	0.00	2.91	0.00	0.58

Note: The mean and median values are calculated for a total of 17,863 households by using household weights.

Source: Author's calculation using the *Household Finances and Welfare Survey 2014*

Each of the histograms in Figure 1 presents the respective variable's normalized values that were calculated by dividing the actual values by the median. The maximum value for disposable income was around 40, with the mode at around 5. Both net assets and real estate assets had a maximum value of over 100, while the mode was around zero, which indicates that net and real estate assets are much more unequally distributed than income.

<Figure 1> Histograms for Asset and Income Distribution



Note: The x-axis present the values of each variable divided by the median.

<Table 2> illustrates the percentage shares held by different asset and income groups. Here, too, net assets are more unequally distributed than is disposable income, with their Gini coefficients, respectively, at 0.6014 and 0.4259. The top quintile owned 63.8 percent of total financial assets, while the shares held by each of the bottom and 2nd quintiles were 0.8 percent and 4.5 percent. The Gini coefficient for financial assets was estimated to be 0.5839. An even higher level of inequality was observed in the distribution of real estate assets, with a whopping 66.1 percent of it held by the top quintile and as little as 2.2 percent. Also, 79 percent of total debt was held by the most heavily indebted quintile, while the three least indebted quintiles accounted for only 5 percent. The polarization of indebtedness is especially conspicuous in Korea where many in the most heavily indebted quintile are assumed to be also asset-rich households who are likely to have obtained large home loans with their real estate wealth as collateral.

The degree of inequality in income distribution was less severe when adjusted by the OECD equivalence scale than in original household income figures. The Gini coefficient for the household disposal income variable was 0.4259, while the figure for its counterpart adjusted with the OECD equivalence scale turned out to be 0.3840, which is still higher than the official figure of 0.302, one calculated based on the *Household Income and Expenditure Survey* for 2013.

<Table 2> Household Assets and Income Distribution

(Units: %, p)

	Total assets	Financial assets	Real estate assets	Total debt	Net assets	Ordinary income	Disposable income
Percentage share (%)							
1st quintile	1.2	0.8	0.0	0.0	0.6	3.5	3.5
2nd quintile	5.6	4.5	2.2	0.3	5.3	9.8	10.0
3rd quintile	11.7	10.4	10.5	4.0	11.5	16.1	16.4
4th quintile	21.2	20.5	21.2	16.7	21.2	24.1	24.2
5th quintile	60.3	63.8	66.1	79.0	61.5	46.5	46.0
Bottom 40%	6.8	5.3	2.2	0.1	5.9	13.5	13.4
Middle 50%	50.5	49.3	50.0	40.2	50.4	57.1	57.4
Top 10%	42.8	45.3	47.9	59.7	43.7	29.4	29.1
Top 10~5%	13.3	14.6	14.1	17.5	13.3	11.0	10.8
Top 5~1%	17.8	19.0	19.7	24.8	18.0	11.8	11.7
Top 1%	11.7	11.8	14.0	17.4	12.4	6.6	6.6
Inequality indicators							
Gini coefficient	0.5839	0.6186	0.6608	0.7714	0.6014	0.4281	0.4259
Coefficient of variance	1.6702	1.6563	1.9897	2.4150	1.7699	0.9878	1.0142
Gini coefficient (for positive values only)	0.5837	0.6181	0.6077	0.6523	0.5839	0.4272	0.4200

GE(0)	0.8699	1.0131	1.0899	1.1175	0.8497	0.3725	0.3574
GE(1)	0.6611	0.7288	0.7349	0.8332	0.6676	0.3261	0.3182
GE(2)	1.3939	1.3696	1.6439	1.7459	1.4916	0.4863	0.5036
p90/p10	41.602	75.460	124.20	104.11	38.300	11.356	10.403
p90/p50	3.807	4.716	3.764	5.726	3.825	2.403	2.355
p10/p50	0.092	0.063	0.030	0.055	0.100	0.212	0.226
p75/p25	5.731	7.091	7.975	9.444	5.508	3.203	3.133

Note: For the calculation of percentile shares, a total of 17,863 households were arranged according to their corresponding variable, with each household weighted.

Source: Author's calculation based on the *Household Finances and Welfare Survey 2014*

Davies and Shorrocks observed (in "The Distribution of Wealth") life-cycle savings as one of the important contributors to income inequality. The basic idea was that as people tended to save for consumption in their post-retirement years, "age" in part explained the income inequality present across many areas of the world.

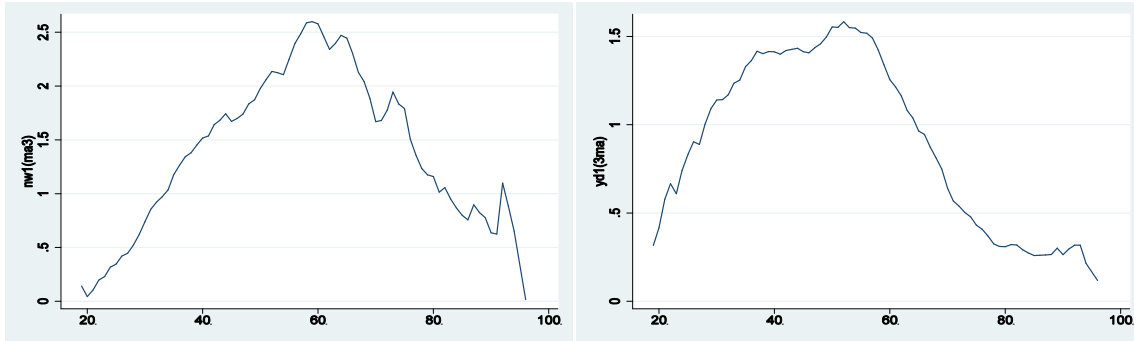
<Table 3> shows that the mean value of income and financial assets was at its highest for the 45-54 bracket. The mean values of real assets, total debt, and net assets all peaked in the 55-64 bracket and then declined for older groups, a finding in line with the life-cycle savings hypothesis. While the mean value of assets was at its highest for those aged about 60, the income peak was found around those aged 50 (see Figure 2). Also, after reaching their respective peaks, the mean income tended to fall much more steeply than the mean value of assets.

<Table 3> Age-Asset & Income Profile

	Total assets	Financial assets	Real estate assets	Total debt	Net assets	Ordinary income	Disposable income
34 and under	0.47	0.86	0.33	0.54	0.46	0.90	0.93
35-44	0.89	1.11	0.81	1.08	0.85	1.16	1.15
45-54	1.11	1.20	1.08	1.23	1.09	1.24	1.23
55-64	1.36	1.18	1.43	1.28	1.38	1.09	1.09
65-74	1.06	0.60	1.22	0.71	1.13	0.57	0.60
75 and over	0.62	0.36	0.71	0.32	0.68	0.26	0.28
All	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Source: Author's calculation using the *Household Finances and Welfare Survey 2014*

<Figure 2> Age-Net Assets Profile; Age-Income Profile
 (a) Age-Net Assets Profile (b) Age-Income Profile



<Table 4> presents inequality in the distribution of net assets and income across different age groups. Most of the inequality in the distribution of net assets was attributed to within-group inequality, while as much as 20 percent of overall income inequality was due to between-group differences. The 45~54 and 55~64 groups represented, respectively, 23 percent and 19.5 percent of overall inequality in the net asset distribution, which suggests high inequality in the years around retirement. The pattern was similar for ordinary income. The between-group inequality was greater in income than in net assets (presumably because earned income levels are relatively lower for older workers). The within-group inequality was greater in net assets than in income.

<Table 4> Inequality Decomposition by Income and Net Assets

(Units: p, %)

Age group	Share (%)	Net assets		Ordinary income	
		Inequality GE(o)	Relative contribution (%)	Inequality GE(o)	Relative contribution (%)
~35	10.2	0.5548	6.6	0.1693	4.7
35~44	22.9	0.5829	15.7	0.2006	12.4
45~54	26.3	0.7452	23.0	0.2704	19.2
55~64	20.0	0.8248	19.5	0.3455	18.6
65~74	12.5	1.0588	15.6	0.4843	16.0
75~99	8.1	1.4892	14.1	0.4323	9.2
Within group			94.5		80.1
Between group			0.05		19.9
Total	100	0.8497	100	0.3725	100

Source: Author's calculation based on the *Household Finances and Welfare Survey 2014*