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Master's Thesis of Public Administration

**Old Age Income Maintenance
in South Korea:
Analyzing Income Sources with the
Korean Retirement and Income Study (2004-2014)**

**한국의 노후보장:
국민노후보장패널을 통한
노인소득 분석 (2004-2014)**

August 2017

**Graduate School of Public Administration
Seoul National University
Public Administration Major**

Daniel John Park 박만춘

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Academic Advisor Huck-ju Kwon

Submitting a master's thesis of Public Administration

March 2017

**Graduate School of Public Administration
Seoul National University
Public Administration Major**

Daniel John Park 박만춘

**Confirming the master's thesis written by
Daniel John Park 박만춘**

June 2017

Chair

Mingyo Koo



(Seal)

Vice Chair

Jörg Michael Dostal



(Seal)

Examiner

Huck-ju Kwon



(Seal)

Abstract

What factors influence intergenerational private transfers from adult children to their elderly parents? What is the role of the government and the family when it comes to caring for old age income security? Previous researchers have attempted to analyze the relationship between elderly income received from private and public sources. This study aims to look at the factors that influence *private transfers*.

We analyze the Korea Retirement and Income Study (Hereafter, KReIS), a bi-annual longitudinal survey of elderly households and individuals from 2004 to 2014. In a study for the Korea Development Institute (KDI) Hisam Kim (2014) divided the KReIS dataset by age cohorts to produce insightful observations on income constitution and the determinants of private transfers. Our study builds off of Kim's (2014) study by adding two additional waves of the KReIS panel study, analyzing a ten-year period between 2004 and 2014.

We determine that Kim's conclusions hold true regarding changes to South Korean elderly income constitution by analyzing 2 additional waves of the KReIS panel study. First, South Korean elderly are working more and more with time. Secondly, public transfers are steadily increasing with time. And finally, private transfers are decreasing. This reflects Kim's additional conclusion on changing South Korean perceptions that elderly income security is chiefly the responsibility of government and themselves.

Our analysis of elderly income trends based on household constitution and the income trends for elderly living in 5 categories of

households reveal insignificant differences between household types. We previously conjectured that the five following household types would have different trends in terms of elderly income. The types are: (1) Single elderly homes; (2) Elderly couple homes; (3) Elderly living with adult children; (4) Elderly living with adult children and also grandchildren; and finally, (5) Elderly living with grandchildren, but without adult children.

We conduct regression analysis on waves 1 and 2 of the KReIS study to determine what types of elderly receive the most financial support from their adult children. Waves 1 and 2 of the KReIS panel study are most conducive for analyzing the behavior of adult children's financial support of their elderly parents changes. Waves 4 through 6 lump private transfers into a larger category that includes adult children, and extended family, and therefore can provide broader insight into private transfers. As this study focuses on adult children, we isolated regression analysis on waves 1 and 2 of the KReIS data. Our conclusions support preceding research, which states that non-coresiding adult children financially support their parents more than co-resident adult children do. Furthermore, these findings hold true for both KReIS waves 1 and 2. We wish to thank the South Korean National Pension Research Institute for providing the data used in this paper.

Keyword : Elderly Income Support, Intergenerational Transfers, Elderly Poverty

Student Number : 2013-23946

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Chapter 1. Introduction

1.1 Research Background

How has the role of elderly income support from adult children changed over time in South Korea? What is the appropriate balance between state and family-centered support in Korea? Rapid ageing, increasing life expectancies, and low birthrate combine in a unique way to demand an expedient answer. As Koreans trend towards the westernized view of government and self-responsibility regarding elderly income (KDI Happiness Study, 2014), are proper policies in place to protect the elderly? Hisam Kim (2014) reveals an increasing reliance of elderly upon work income, and a decline in support from children. Public transfers are increasing, but not as rapidly as the elderly's reliance on work. Elderly working conditions are often menial and lack dignity due to Korean elderly's relatively low-educated and low-skilled backgrounds. As Jones and Urusawa (2014) poignantly point out, "the generation responsible for Korea's economic miracle has been poorly rewarded."

An increasingly risky and unsustainable environment for elderly South Koreans can be attributed to several factors. According to the OECD, Korea is the world's most rapidly ageing population (Higo & Klassen, 2017). By 2050, 35.1% of Korea's population is expected to be 65 and older. As of 2015, 13.1% of South Koreans were 65 years old and above. In 2012, 26% of South Korea's elderly earned 450 thousand KRW each month, which equates to about 433 USD (Jones & Urusawa, 2014). The minimum cost of living set by the government is 533 thousand KRW (MHW, 2013).

The role of Confucianism in the Asian welfare state impacts policy features and places families as the most responsible unit for provisions. In East Asia, the family is traditionally supposed to take the brunt of the burden of protecting family members. The Asian crisis of the 1990s revealed the weakness of relying on informal networks and family. New kinds of families have been on the rise in East Asia, such as single parents or elderly-only families, which brings a new dynamic on the role of Confucianism in society (Cook and Kwon, 2007).

Table 1.1 shows a comparison of four countries' reliance on government versus private transfers as an income source for the elderly. The countries are South Korea, Japan, the United States, and Denmark. Two things are noticeable from this chart: the historical change in Korea and Japan, and also the comparative levels of income security from children versus the state. We see that in South Korea, there is a significant decline in support for elderly from children.

Table 1.1 Main income sources of the elderly

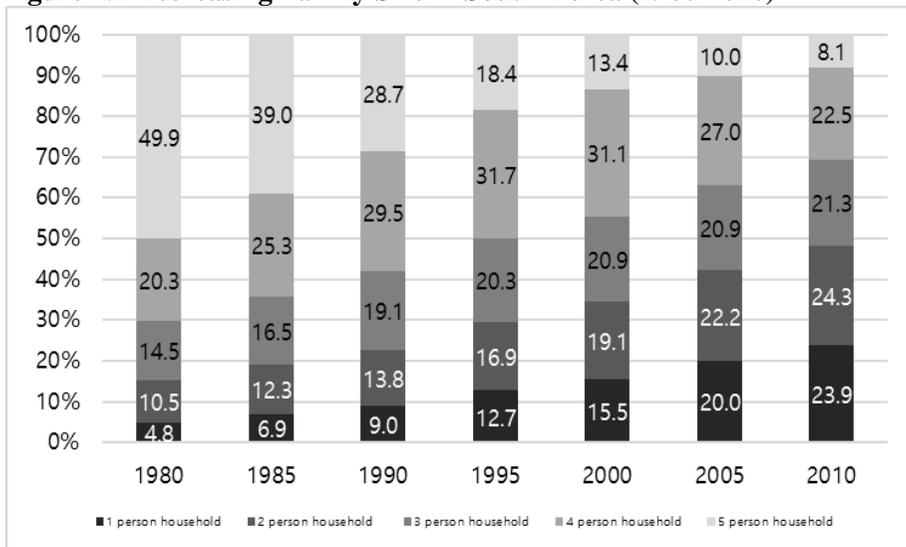
	<u>Korea</u>			<u>Japan_a</u>		<u>US_a</u>	<u>Denmark_a</u>
	1981a	1988a	1994b	1981	1988	1988	1988
Earnings	16.2	26.3	37.6	31.3	24.5	14.1	10.9
Property	5.5	6.8	6.9	7.4	7.8	19.2	7.3
Private Pension	–	–	3.9	3.8	1.9	10.4	8.4
Children	72.4	63.7	44.3*	15.6	9.0*	0.2*	0.1*
State Pension	0.8	1.2	3.5*	34.9	53.4*	53.0*	61.2*
State Assistance	1.2	1.8		1.2	1.1	0.4	3.0
Others	3.2	0.2	3.8	3.1	1.9	2.4	5.7
No answer	0.6	–	–	2.7	0.4	0.3	3.5

Note: * denote figures of interest to our study _a People over 60; _b over 65.

Source: Modified from Kwon (2001); Korea Survey (Gallup Poll) (1990) for 1981 and 1988 Korean, US and Danish data; Lee et al. (1994) for 1994 Korean data; Director General of Budget (1997b) for 1986 and 1993 Taiwanese data.

Graph 1.1 displays decreasing family size in South Korea from 1980 to 2010. In 1980, 5-member households constituted nearly 50% of total households in South Korea, and dropped to 8.1% in 2010. Additionally, there was an increase of 1-person households from 4.8% to 23.9% within the same time period. As the title of the graph suggests, family sizes in South Korea are becoming smaller. Furthermore, the Korea Retirement and Income panel study indicates that more families attain greater satisfaction by living apart from their living children. The decreasing household sizes of the general South Korean population were also reflected in elderly households, as is depicted in the graph 1.2.

Figure 1.1 Decreasing Family Size in South Korea (1980-2010)

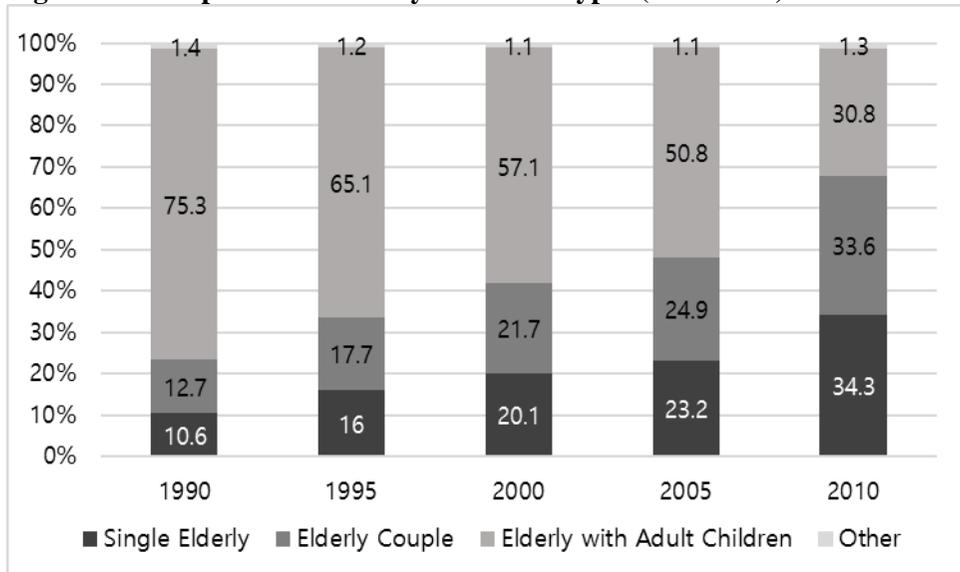


Source: Hisam Kim (2014), National Statistical Office, "Population and Housing Census".

Graph 1.2 reveals trends in the constitution of elderly households. This table is taken from Hisam Kim's 2014 KDI study, and was constructed using

data from the national statistical office’s population and housing census from each year. A clear trend of increasing single-elderly homes, alongside a sharply declining number of households with both elderly and adult children is evident. It appears that elderly couple households are also increasing at a similar rate to elderly single households.

Figure 1.2 Composition of elderly household types (1990-2010)



Note: 1) Elderly households are general households with an age of 65 or older.
 2) Other households include first generation households (excluding elderly couple's households), non-kinship households, and others.
 Source: Hisam Kim (2014), National Statistical Office, “Population and Housing Census”.

Based on changing household constitution of elderly households, this study also attempts to analyze private transfers by type of household. In other words, we look at whether elderly in specific household types, such as single elderly households, have a specific kind of private transfer relationship with their adult children.

1.2 Literature Review

1.2.1 Elderly Poverty in South Korea

Jones and Urusawa write that the elderly are the poorest age group in South Korea. Relative poverty (the percentage of population living under 50% of median income) afflicted 49% of Koreans over 65 years old, which is the highest among OECD countries and quadruple the OECD average of 13% (Jones & Urusawa, 2014). The gap between the elderly poverty rate and the overall poverty rate ranks first in the OECD. In other words, there is a large disparity between the level of wealth between the general population and the elderly as an isolated age group. South Korea's poverty rate for the total population is 15%, compared to 49% for the elderly. Social cohesion is at risk, as cases of elderly suicide have rapidly increased. Elderly suicide increased from 34 per 100 thousand persons in 2000, to 72 per 100 thousand people in 2010. The OECD average of elderly suicide is 22 per 100 thousand persons. Furthermore, a government survey of elderly who have considered suicide reports "economic hardship" as the second-ranking reason behind "disease and disability" (Jones & Urusawa, 2014). The status of "economic hardship" as a leading cause of elderly suicide appears to increase the urgency of looking at old aged income sources.

Yoon (2013) demonstrates that a large Korean elderly labor force engage in precarious employment as non-regular workers after mandatory retirement from their workplaces. Higo and Klassen (2017) report that Korea's average effective retirement age, which is when workers permanently exit the labor force, is higher than the public pension eligibility age. Yoon

(2013) states that Korea's average effective retirement age was 71.1 in 2013, the second oldest among OECD countries. According to the OECD (2015), Korea's official retirement age was 60 years old. In other words, Koreans typically work 11.1 years beyond the official retirement age, engaging in various kinds of labor.

1.2.2 South Korea and the Welfare State

Higo and Klassen (2017) point out that Korea is classified as a "productivist welfare regime", where social and welfare policies are a secondary priority to economic policy (Gough, 2004; Holliday, 2000; Lee, 2015; Higo & Klassen, 2017). Holliday (2005) explains that 'productivist states' are primarily driven by economic policies, while other government activities remain an afterthought. Productivist states can be characterized by the following attributes: (1) employment practices and laws that favor employers, and (2) family-centered income responsibility for the unemployed. Lee and Ku (2007) describe South Korea's export-dominated policy making led to a relatively small Korean welfare state with the development of pensions, old age insurance, and other social policies driven primarily with economic aims.

Cook and Kwon (2007) further discuss how 'Welfare developmentalism' in East Asia was used as a social policy instrument for economic development. This was the case in countries like Japan, Korea, Taiwan, and Singapore. Additionally, the role of Confucianism is clarified in distinguishing the role of family-centered welfare provision versus state-led

strategies. These background details may prove useful in understanding the particular welfare strategies of countries in Asia or the OECD.

Esping-Andersen states that “de-commodification occurs when a service is rendered as a matter of right, and when a person can maintain a livelihood without reliance on the market.” Furthermore, he elucidates why there is an inherent tension between market-forces and the path towards de-commodification, when he states that, “de-commodification strengthens the worker and weakens the absolute authority of the employer.” Esping-Andersen outlines models and levels of promoting de-commodification by “social-assistance dominated welfare states”, states providing “compulsory state social insurance”, and the “Beveridge-type” citizens’ benefit.

1.2.3 Retirement Preparation

Jones and Urasawa (2014) addressed reducing the high rate of poverty in South Korea’s elderly in a 2014 *OECD Economics Department Working Paper*. They identified the lack of participation in the National Pension System, low replacement rate, and ageing population as factors that make increases to Korea’s public expenditure unsustainable. Thus, Jones and Urasawa emphasize the need to improve Korea’s NPS by encouraging participation, increasing contributions, and increasing the replacement rate. Furthermore, they state that non-regular workers as well as small companies have low participation rates in the NPS system.

Hisam Kim (2014) considers the role of family and government in old-age income security. Kim uses results from the KDI Happiness Study to

observe changing perceptions regarding whether family, government, or the elderly themselves, should be responsible for protecting elderly income. The study reveals that Korea's system that previously placed emphasis on the eldest son caring for parents in old age, is rapidly giving way to the idea that the government or elderly, themselves, should securitize old-age income.

Kim (2014) also utilizes the first four waves of the KReIS panel study in order to observe income sources of the elderly. His study confirms the reduction of private transfers from adult children to elderly parents, the increase of the role of public transfers, and the increasing role of elderly's working wage income.

1.2.4 Elderly Labor Force

Yoon (2013) discusses elderly retirement age in South Korea. Typically, the early 50s is when older Koreans retire from their main career, and continue to work for about 10 years before permanently leaving the labor force. Jones and Tsusumi (2009) reveal that physically demanding and often low-paying jobs are held by 65% of workers aged over 50 in Korea. Yoon also sheds light on the kind of seniors that are likely to continue working. Those continuing work after mandatory retirement age are most likely in financial need, whereas wealthier individuals retire earlier. Park (2003) describes this phenomenon as a "downward labor adjustment" or "marginalization of older workers". Furthermore, Yang (2011) reflects that elderly can only gain successful reemployment through "identity devaluation" or "lowering of the self" rather than aiming for satisfying work.

Higo and Klassen (2017) discuss the seniority-based compensation system that is widely used in Korean workplaces and how they guarantee regular wage increases according to the length of employment. Yoon (2013) explains that a worker with a tenure of 25 years in a firm earns nearly three and a half times more than a new hire. Furthermore, those in top management have less education than new hires on average. Korea's knowledge-based economy poses a challenge to elderly workers. Tertiary education was completed by only 13% of the 55-64 age group, but 65% of the 25-34 group. The education gap between the age groups is actually the highest among OECD countries. Mandatory retirement allows companies to dismiss elderly employees as seniority-based wage exceeds productivity. The desire to work is strong in Korean elderly, but the labor market is limited due to Korea's increasingly knowledge-based economy.

Higo and Klassen (2017) also describe policy changes to mandatory retirement age. The Age Discrimination in Employment Prohibition and Aged Employment Promotion Act was amended in 2013 to set 60 as the national retirement age, or the minimum age that companies could force older workers to retire. The amendment will go into effect in waves. Larger companies with over 300 employees and public enterprises must comply by 2016, and smaller companies by 2017.

Higo and Klassen (2017) elucidate mandatory retirement policies are enforced by 87.7% of Korean companies, with most workplaces setting this age at around the mid-50s. A nationally common retirement age was only set in 2016 in Korea. Freedom in determining a mandatory retirement age is

exercised by Korean companies. 58 is the age set by most large private-sector companies. Klassen and Yu (2014) reveal that many companies use ages as young as 55 or even 53 years old as the mandatory retirement age, showing a lack of uniformity. Yoon (2013) points out that in 2011, 57.3 was the average age of mandatory retirement.

Kim and Klassen (2015) show that self-employed and non-regular work characterizes a majority of Korea's 25 million workers, and constitute 27% and 26% of Korea's labor force, respectively. Kim and Klassen (2015) write that regular workers are 47% of Korea's labor force and are subject to mandatory retirement policies. Peak wages were introduced in the 2013 amendment to the The Age Discrimination in Employment Prohibition and Aged Employment Promotion Act. The peak wage system reduces older workers wages 5 years prior to compulsory retirement. In other words, beginning 55 years old, Korean workers' wages are reduced until they earn only two-thirds of their peak wage.

Song (2014) discusses the resistance to increasing retirement age in South Korea. Raising the age of contractual mandatory retirement is opposed by many Korean politicians, employers, and labor unions, due to the widespread belief that such a raise would reduce employment opportunities for younger workers.

1.2.5 Income Transfers

Kim (2014) looks at the amount of help adult children provide to their parents in old age. He conducts empirical analysis of the Korean Retirement and Income Study's first four waves, conducted from 2004 to

2010. Using this dataset, Kim looks at trends in the changes on income sources. Furthermore, he breaks the data into age cohorts to compare experiences between different generations of ageing. Kim's empirical analysis of the data set confirms that private income transfers are motivated by altruism, as lower total incomes of elderly parents, the higher private transfers become. Kim notes that such higher levels of private transfers could also be attributed to exchange motives for grandparents caring for their grandchildren. Kim finds that the National Basic Livelihood Security (NBLs) scheme has a significant crowding out effect on private transfers from adult children. Kim uses the KDI Happiness Study to examine changing trends related to retirement preparation for the elderly in South Korea. Most importantly, it revealed that Korean traditional norms that designate the eldest son as the main support for old age parents are giving way to the government responsibility or self-sufficiency.

Kwon (2001) analyses income transfers to elderly households in Korea to understand the impact of income-maintenance policy on their overall level of wealth. Kwon reveals that the elderly rely more on private transfers. Furthermore, poorer elderly households appear to be more reliant on private transfers than wealthier families. Isolated elderly individuals, living apart from their adult children, are particularly vulnerable to poverty. Kwon outlines the main income sources of the elderly in South Korea and comparison countries. Allowances provided to the elderly are compared to official and relative poverty lines to provide context on the adequacy of these provisions. By analyzing income transfers to elderly households in Taiwan and Korea, a

clear picture is provided as to the impact of income-maintenance policies on the elderly's overall level of wealth.

Higo and Klassen (2017) point out that the role of intergenerational transfers is central to the discussion on social protection for the elderly in South Korea. In Korea, family has traditionally taken the primary responsibility of income security for unemployed elderly citizens. Jones and Urusawa (2014) point out that high rates of elderly poverty reflect a decline in family support before other sources of old-age income have fully matured. Kim (2013) writes that the average amount of private transfers decreased from 55% to 45% from 1990 to 2008, respectively. The composition of families in South Korea living with at least one elderly person is changing. Previous studies also indicate that elderly people co-residing with adult children receive less private monetary transfers from family members.

1.3 Research Purpose

What factors influence intergenerational private transfers from adult children to their elderly parents? What is the role of the government and the family when it comes to caring for old age income security? A Korea Institute for Health and Social Affairs (KIHASA, 2013) report on poverty in South Korea states that in 2012, the relative poverty rate of elderly over 65 was 60%, compared to a 16.3% for the total population.

Previous researchers have attempted to analyze the relationship between elderly income received from private and public sources. This study aims to look at the factors that influence *private transfers*. We analyze the Korea Retirement and Income Study (Hereafter, KReIS), a bi-annual

longitudinal survey of elderly households and individuals from 2004 to 2014. In a study for the Korea Development Institute (KDI), Hisam Kim (2014) divided the KReIS dataset by age cohorts to produce insightful observations on income constitution and the determinants of private transfers. Our study builds off Kim's (2014) study by adding two additional waves of the KReIS panel study, analyzing a ten-year period between 2004 and 2014.

Alesina and Giuliano (2010) point out that South Koreans are increasingly prioritizing self-responsibility of the economically weak, including the elderly. The World Value Survey shows an increasing trend towards self-responsibility, placing South Korea closer on the spectrum to the United States, where personal responsibility is emphasized more than Japan. We aim to uncover the changing roles of government and family with regard to protecting elderly income.

Analyzing a ten-year period of KReIS panel data in addition to Hisam Kim's six-year analysis will shed light on whether Kim's (2014) conclusions hold true regarding changes to South Korean elderly income constitution. First, are South Korean elderly working more and more with time? Secondly, are public transfers steadily increasing with time? Finally, are private transfers decreasing? Do these results confirm changing South Korean perceptions that elderly income security is chiefly the responsibility of government and the elderly themselves?

We conduct empirical analysis on the KReIS waves one through six, a ten-year period ranging from 2004 to 2014. KReIS's wave 6 data is still in beta form and was granted for use of this study under the condition that it is

clearly expressed that the dataset is not in its final form. Kim's (2014) methodology is used as a baseline in dividing the datasets into age cohorts to observe trends in income constitution, with additions in the criteria for analyzing income sources. Our additions include observing South Korean elderly income trends based on five age groups, and four household constitution types. Our aim is to provide a clear picture as to the changes to income sources for South Korean elderly for the ten-year period between 2004 and 2014. Furthermore, we aim to see whether household constitution is a determinant to income, and specifically private transfer income.

Kim's (2014) regression analysis is replicated by using the same 22 determinants, but is added to KReIS wave 2 data. KReIS's questionnaire methodology changed after the second waves. Thus, analysis regarding different trends in private transfers from co-residing and non-co-residing adult children can only be conducted for years 2004 and 2006. The reason that regression analysis is not conducted for waves 3 through 6 is because changes to questionnaire made the results more general. To clarify, Waves 3 and onward asked elderly regarding overall private transfers from any relatives, without specifying the amount of private transfers from adult children. Thus, regression analysis would report the affect on non-government support based on the 22 determinants. We believe that this moved beyond the scope of our study, and therefore, was not used. By recreating Kim's (2014) regression analysis and applying it to an additional KReIS data set wave 2, we can confirm the significance or insignificance of the 22 determinants to adult children's support of their elderly parents. We discuss the level of significance

for each determinant, while interpreting the results and drawing conclusions on what kinds of parents receive the most benefit from their adult children.

Chapter 2. Analytical Framework

As seen in the literature, the study of elderly poverty and income security has been approached from many vantage points. It is clear that the elderly themselves are taking on a larger role in securing income through work. Furthermore, previous literature elucidates South Korea's historical family-centric nature that emphasizes the eldest son and other adult children's roles to securitize their elderly parents' income. The literature also points to changing perceptions regarding the role of family with increasing expectations from South Koreans that government and the elderly themselves are primarily responsible for elderly income.

2.1 Theoretical Background

2.1.1 Income Transfers

Private income transfers refer to the transfer of private income, not considered payments, and is the most common type of transfer between parents and children (Kim 2014). Using private transfers as a dependent variable allows us to see the amount of financial assistance that adult children provide to their aged parents. We can gain deeper insight by distinguishing between co-resident and non-co-resident adult children's private transfers.

Kim and Cook (2011) point out that the crowding out effect is a concern regarding increasing public expenditure for elderly in South Korea. The crowding effect assumes that an increase in public transfers would

‘crowd-out’, or reduce, private transfers. Two competing theories related to children’s motivation in supporting their elderly parents are the *altruism* and *exchange* hypotheses. Altruism supports the idea that higher public transfers lead to less financial family support for elderly parents. In contrast, the exchange hypothesis contends that financial support from children would increase with more public transfers to elderly. The implications of the presence of the crowding out effect are serious because they are in contrast to the notion that a more expensive and generous public pension system will improve the livelihood of elderly in South Korea. Previous studies observe whether people’s motivations for supporting elderly family members are based on altruism or exchange expectations.

Altruism supports the idea that public transfers would “crowd-out” private transfers from adult children (Kim and Cook 2011). In other words, adult children support elderly in order to provide a particular standard of living for their parents. Because public transfers would contribute to greater income levels for elderly parents, adult children would be less inclined to provide monetary private transfers to support their parents. Barro (1974) writes poorer families would receive more private transfers because of their needs. On the other hand, elderly receiving public transfers would be less likely to receive financial support due to less need.

Bernheim, Shleifer and Summer (1985) explain that the exchange theory contends that individuals are inherently selfish and provide private transfers for parents with an expectation of reciprocity. Under this theory, increased public transfers could lead to higher cost for services typically

provided by elderly parents, such as childcare, since elderly parents would have less demand for money and demand more compensation. Nonetheless, a specific kind of relationship between public and private transfers is not hypothesized by the exchange theory.

2.1.2 Empirical and Regression Analyses

The theoretical framework for analyzing the factors influencing private transfers is taken from Cox et al.'s (2004) model, which assumes a two-member family, in which private transfers occur. The donor is assumed to have an altruistic preference. The 'net provider' is the individual with greater net donations, and vice-versa for the 'net recipient'. The two-member family is composed of an altruistic donor and non-altruistic recipient. The utility function U_d of the donor is explained as the following:

$$U_d = U(C_d, s, V(C_r, s))$$

V is the utility of the recipient, C_d and C_r are the level of consumption of the donor and the recipient, respectively. S is the service that the recipient is likely to provide to the donor. Voluntary motivations of the donor increases the recipient's utility. We see this when the donor's efficiency becomes higher, i.e. $dU/dV > 0$. On the other hand, an exchange motive is evident when the donor gains utility from the service he receives from the recipient ($dU/ds > 0$), and the recipient decreases the utility by the effort or opportunity cost to provide the service ($dV/ds > 0$) (Kim 2014).

The donor and recipient relationship is expressed as $C_d = I_d - T$ and $C_r = I_r - T$, respectively. T is the private transfer income the donor gives to the

recipient. I_d and I_r are the donor and recipients' income prior to income transfers, respectively. In the case of an altruistically motivated private transfer, $dT/dI_r < 0$.

In the case of an exchange motive, the relationship between T and I_r becomes ambiguous. If the transfer of income is in return for services purchased from the recipient at an implicit price p , in other words, $T = ps$, then Cox (1987) argues that $ds/dI_r < 0$ and $dp/dI_r < 0$ are satisfied. The richer the recipient, the less willing the recipient is to provide service to the donor. Thus, a higher price should be paid for the service received from one recipient. Depending on whether the price effect overwhelms the quantity effect, the income may increase or decrease as the income of the recipient increases (Kim 2014).

We use the normal least squares (OLS) estimation models to analyze the characteristics of parents who have an influence on private transfers received from their children.

2.2 Research Design and Scope

We extend Kim's (2014) analysis of old age income sources from six-years of KReIS data (2004 to 2010) to ten-years of KReIS panel data (2004 to 2014). We test whether Kim's conclusions hold true that private transfers to elderly are decreasing, while public and work income is increasing. Since KReIS panel study's questionnaire changed after the second wave, our study may provide more consistent comparisons in data analysis. We also treated KReIS data to create one standard of information regarding income sources.

The KReIS questionnaire changed after wave 2. In waves 1 and 2, four income sources were collected in terms of elderly couples' total income.

We conduct regression analysis to determine the impact of 22 determinants outlined by Kim (2014) on the level of private transfers by adult children that are living with and apart from their elderly parents. In short, we ask the question, "What kind of elderly people are receiving the most financial support from their adult children?" Additionally, we ask how the financial support behavior of adult children contrasts among adult children living together and apart from their elderly parents. Some important determinants that we observe are the elderly parent's gender, level of education, number of children, gender of children, and the constitution of the elderly parent's household. The list of the determinants can be found on page 56 under Table 4.2.1.

We provide a comparative analysis of KReIS wave 1 (2004) and 2 (2006) data. We also provide possible explanations for the consistency, or lack thereof, of the significance of determinants. While conducting regression analysis on the ten-year period could provide some interesting results regarding the impact of private income elderly receive from their adult children, the change of the questionnaire precludes a detailed analysis of 2008 through 2014 data. This is unfortunately, one downside to the new standardization of KReIS's questionnaire from wave 3 (2008) and onward. In waves one and two, specific information related to monetary values received from co-residing and non-co-residing adult children were reported. In waves 3 and onward, private transfers were reported in a more general way. Thus, the

total amount each elderly received from their adult children were difficult to quantify. Private transfers could not be distinguished amongst relatives, adult children, or friends. Thus, regression analysis on the four subsequent waves would yield meaningful, but much broader results and not provide insight on intergenerational transfers between adult children and their elderly parents.

2.3 Data Analysis

2.3.1. Korea Retirement and Income Panel Study (1st ~ 6th survey)

The data used in this study comes from the first, 2004, to sixth (beta), 2014, waves of the Korea Retirement and Income study (KReIS), which was established by the National Pension Service. The KReIS is a biannual survey of households with at least one member aged 50 or older. The purpose of the survey is to establish effective post-retirement income protection policies. The KReIS study began in 2005 and is conducted every other year.

The biggest challenge in using KReIS's panel study was the change in questionnaire methodology after wave 2 regarding income sources. The elderly income sources collected by the KReIS are as follows: 1) work income, 2) financial income, 3) real estate income, 4) public transfer income, 5) private transfer income, 6) and private pension income. In KReIS waves 3, 2008, through 6 (beta), 2014, all of these income monetary values were measured at an individual level. In KReIS's first two waves, 4 out of 7 of these categories were collected as the total income value of elderly couples, or inclusive of spouse's income. The four income categories that were collected as total elderly couple's income were as follows: 1) financial income, 2) real

estate income, 3) private transfer income, and 4) other income. The other categories were collected on an individual basis, and are as follows: 1) work income, 2) public transfer income, and 3) private pension income.

The discrepancy between KReIS questionnaire before and after wave two is significant because it effects how we view income source proportions from various waves, especially prior to KReIS's wave 2 questionnaire. If we look at the proportion of private transfers that occupy an elderly household in the first two waves, we will have distorted data because some income sources were collected on an individual basis, and others on a couple basis.

We aim to present accurate proportions in income source ratios, and also consistency across the 6 waves (2004 to 2014) by adjusting the data set and reporting the total amount of elderly couple income for all categories. KReIS's data provides spousal identification numbers, which allow users to total both elderly and their spouse's responses for income source categories. Thus, the elderly income source data that is presented throughout this paper is presented in terms of the total amount of an elderly couples' incomes. In the event that the elderly does not have a spouse, their reported income is unaffected and their income would be reported their total single elderly income. The categories modified are as follows: 1) financial income, 2) real estate income, 3) private transfer income, and 4) other income. The merging operation was completed using SAS software.

Two benefits of the KReIS panel study are twofold. Firstly, KReIS is a longitudinal panel study, and secondly, the KReIS panel study specifies monetary transfer amounts from adult children, which are not disclosed in

other surveys targeting the elderly. In the first wave conducted in 2004, KReIS survey respondents were asked to report specific monetary values for private transfers received and given to family members. These family members are categorized into groups, such as co-residing adult children and non-co-residing adult children in the first two waves. In waves three to six, the survey questionnaire was changed, making analysis of these groups more difficult.

We treat KReIS data to remove duplicate entrees, following Kim's (2014) methodology. Since KReIS includes all age-eligible respondents from each household for the first two waves, we shorten the dataset to reflect only one member per household. We prioritize household heads first, then spouses, and then parents. Furthermore, we limit our findings to respondents over the age of 50 in order to get an accurate reflection of elderly private transfers.

Chapter 3. Elderly Income Sources (2004-2014)

3.1 Elderly Income Sources by Birth Cohort

Building off of previous research, this study tracks South Korean elderlies' myriad sources of income. The Korean Retirement and Income Study generously allowed use of wave 5, 2012, and wave 6 (beta), 2014, data to track changes of elderly income constitution. The study covers a 10-year period from 2004 to 2014.

The previous section details our methodology in adjusting KReIS's data set to reflect the monetary value of income sources on the basis of total elderly couple's income. We adjust the data sets because the methodology of

collecting information regarding elderly income changed after KReIS's second wave. In KReIS's first two waves, four income categories were collected to reflect elderly couples, rather than individuals. Besides these four categories, which include private transfers, all other income sources were collected on an individual basis from waves 1, 2004, to 6, 2014.

The main impetus to treating the data set is that KReIS data, left untreated, will distort results when considering income source ratios in waves 1 and 2. We consider it imperative to reflect consistent comparisons between all 6 waves. The tables and graphs below represent elderly couple's incomes, and provide a uniform standard of income source comparison.

We compare South Korean elderly income sources by birth year cohorts to remain consistent to Kim's (2014) study. Kim created 4 cohorts, which were divided in the following manner: (1) Cohort 1, born between 1950 and 1955; (2) Cohort 2, born between 1944 and 1949; (3) Cohort 3, born between 1938 and 1943; and lastly (4) Cohort 4, born between 1932 and 1937.

Our approach allows readers to track changes to these birth cohorts over a 10-year period. Kim (2014) drew comparisons of similar age groups to shed light on changes to elderly income constitution. We add two KReIS data sets to preceding research to lengthen the observations from a 6-year period to a 10-year period. We use Kim's birth cohorts for the sake of comparability to previous research.

More importantly, we compare elderly income constitution by creating age groups, to augment longitudinal observations of the 4 birth cohorts. Our study creates the following five age groups to compare over the

10-year period: (1) 61-65; (2) 66-70; (3) 71-75; (4) 76-80; (5) and 81-85. We opted to create 5 age groups because of the ease in observing changes to specific age groups over time. For example, we can directly see how income sources changed from 2004 to 2014 for South Koreans aged 61 to 65.

Observing longitudinal changes in birth cohorts have limitations because changes in income constitution will be attributed to ageing. As people age, they will naturally undergo changes in how they receive income. For example, between the ages of 60 and 65, many South Koreans will retire and begin to rely more on public transfers than before. The first birth cohort is younger and naturally will have higher ratios of work income, and less private transfers from children.

Isolating age groups and observing changes from 2004 to 2014 will control changes that may be attributed to the natural ageing process. Thus, we can see how elderly income constitution changes to for the following groups: (1) 61-65; (2) 66-70; (3) 71-75; (4) 76-80; (5) and 81-85.

The following charts track the age cohorts based on birth year. We are able to draw conclusions on the experience of ageing for different birth cohorts and make observations on the process of ageing year by year. Essentially, the charts that we create reflect the monetary amount and ratio of the seven categories of income collected by KReIS.

We begin with birth cohort 1, born between 1950 and 1955, and end with the fourth birth cohort, born between 1932 and 1937. Because each birth cohort encompasses 6 years, we are able to draw comparisons of the same age across cohorts. For example, the 1950-1955 birth cohort in 2010, should

reflect a similar life stage as the 1944-1949 birth cohort in 2004. Nonetheless, we strongly believe that the easiest method to draw comparisons amongst similar age groups, was to break the results in age groups, rather than tracking age cohorts.

In Tables 3.1 and 3.2, we observe that for the ‘1950 to 1955’ age cohort, work income comprises the most significant portion of total income. Public transfers change significantly over the 10-year period, from 5% to 25%. Private transfers, interestingly, remain relatively fixed, which may reflect the newer generation of Korean’s emphasis on elderly’s responsibility over their own income security. Thus, consistent with preceding literature, the two main income sources that fluctuate the most are work income and private transfers. From 2004 to 2014, the average age of the ‘1950 to 1955’ age cohort changes from 52.5 years old to 62.5 years old. This age cohort is significant in that it represents a cohort that is largely engaged in regular work and transitioning into retirement life. Average total income falls from 32.5 million KRW to 29.5 million KRW.

Table 3.1 1950-1955 birth cohort income sources (1,000KRW)

<u>Year</u>	<u>Work</u>	<u>Finance</u>	<u>Real Estate</u>	<u>Public Transfers</u>	<u>Private Transfers</u>	<u>Private Pension</u>	<u>Other</u>
2004	₩24,968	₩811	₩1,589	₩1,108	₩1,887	₩77	₩2,370
2006	₩24,737	₩711	₩1,692	₩1,855	₩2,006	₩33	₩3,718
2008	₩21,850	₩959	₩1,891	₩2,664	₩1,435	₩21	₩2,428
2010	₩18,776	₩933	₩1,513	₩3,504	₩1,343	₩163	₩988
2012	₩19,295	₩679	₩1,415	₩4,939	₩1,327	₩36	₩1,124
2014	₩18,141	₩582	₩1,669	₩6,401	₩1,581	₩199	₩886

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.2 1950-1955 birth cohort income sources (% of Total Income)

<u>Year</u>	<u>Work</u>	<u>Finance</u>	<u>Real Estate</u>	<u>Public Transfers</u>	<u>Private Transfers</u>	<u>Private Pension</u>	<u>Other</u>
2004	78%	2%	4%	5%	9%	0%	3%
2006	71%	2%	4%	7%	9%	0%	6%
2008	68%	3%	5%	11%	8%	0%	5%
2010	65%	3%	5%	17%	8%	0%	1%
2012	61%	3%	5%	21%	8%	0%	3%
2014	56%	2%	5%	25%	10%	0%	1%

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.1 1950-1955 birth cohort income sources (1,000KRW)

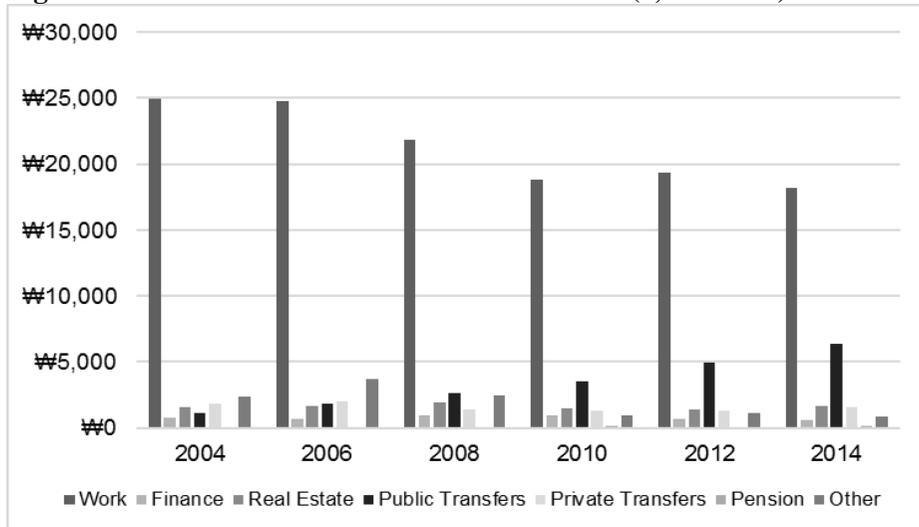
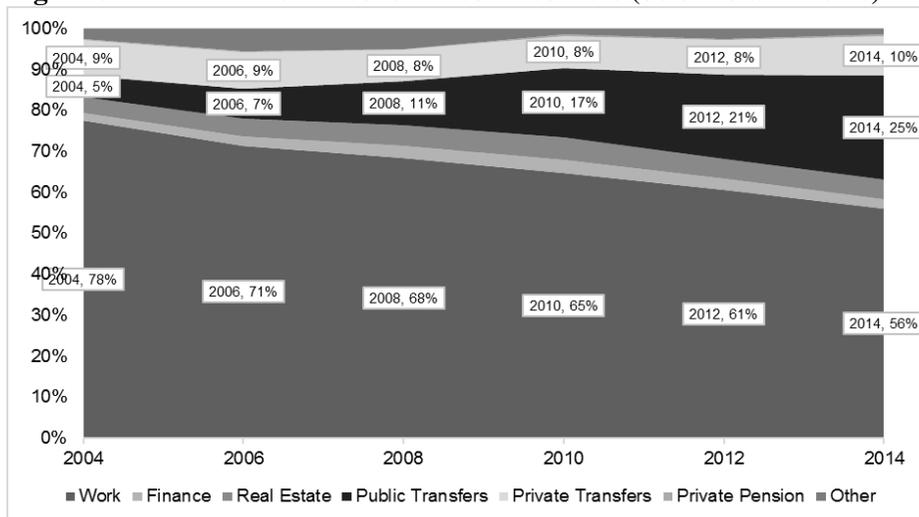


Figure 3.2 1950-1955 birth cohort income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.3 and 3.5 and their corresponding figures reveal a significant increase in the ‘1944 to 1949’ age cohort’s public transfers, and a decrease in work income that tapers out in wave 4, in terms of monetary value. Specifically, public transfers increase from 12% to 27% after 10 years. Private transfers remain about the same going from 15% to 15%, which may also reflect changing attitudes regarding family-centered elderly income security. Work income goes from 62% to 39% in terms of overall income. Finance income also appears to shrink significantly monetarily, while comprising the same ratio of overall income. Total income contracts from 24.4 to 22.8 Korean won (hereafter, KRW) per year. In sum, the two most significant fluctuations are in work income, and public transfers. From 2004 to 2014, this age cohort’s average age changes from 58.5 years old to 68.5 years old. This is significant because it represents the transitional period of retirement. In 2008, wave 3, the average age of this cohort is 62.5 years old, a time when many elderly South Koreans leave their regular jobs to engage in new forms of labor.

Table 3.3 1944-1949 birth cohort income sources (1,000KRW)

<u>Year</u>	<u>Work</u>	<u>Finance</u>	<u>Real Estate</u>	<u>Public Transfers</u>	<u>Private Transfers</u>	<u>Private Pension</u>	<u>Other</u>
2004	₩14,937	₩732	₩1,742	₩2,057	₩2,285	₩122	₩2,012
2006	₩13,339	₩668	₩1,884	₩3,324	₩2,537	₩60	₩2,161
2008	₩11,984	₩890	₩2,656	₩4,597	₩2,081	₩32	₩1,189
2010	₩10,262	₩729	₩2,531	₩4,936	₩1,414	₩279	₩294
2012	₩10,351	₩523	₩2,604	₩6,041	₩1,958	₩108	₩413
2014	₩9,921	₩388	₩2,657	₩7,107	₩2,149	₩41	₩542

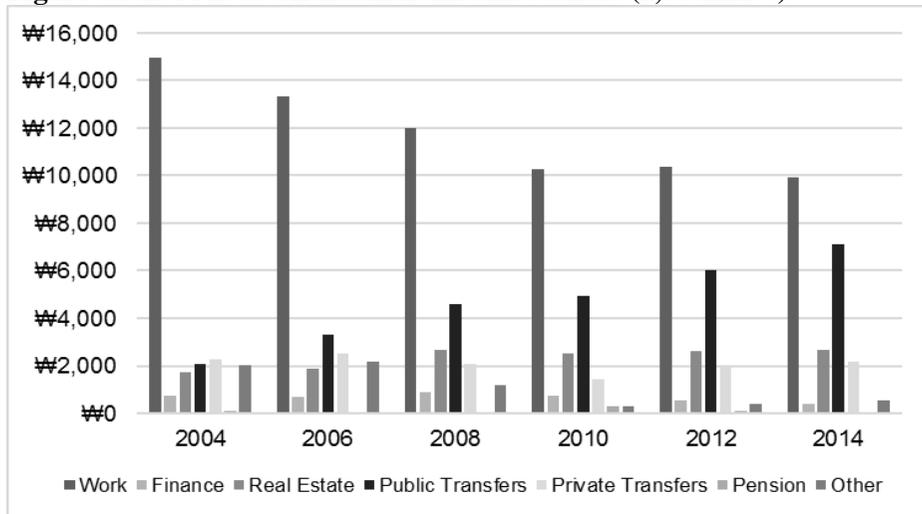
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.4 1944-1949 birth cohort income sources (% of Total Income)

<u>Year</u>	<u>Work</u>	<u>Finance</u>	<u>Real Estate</u>	<u>Public Transfers</u>	<u>Private Transfers</u>	<u>Private Pension</u>	<u>Other</u>
2004	62%	2%	6%	12%	15%	1%	2%
2006	54%	3%	7%	16%	15%	0%	5%
2008	48%	4%	8%	23%	14%	0%	4%
2010	45%	3%	8%	30%	12%	1%	1%
2012	42%	2%	7%	32%	14%	0%	2%
2014	39%	2%	8%	37%	14%	0%	1%

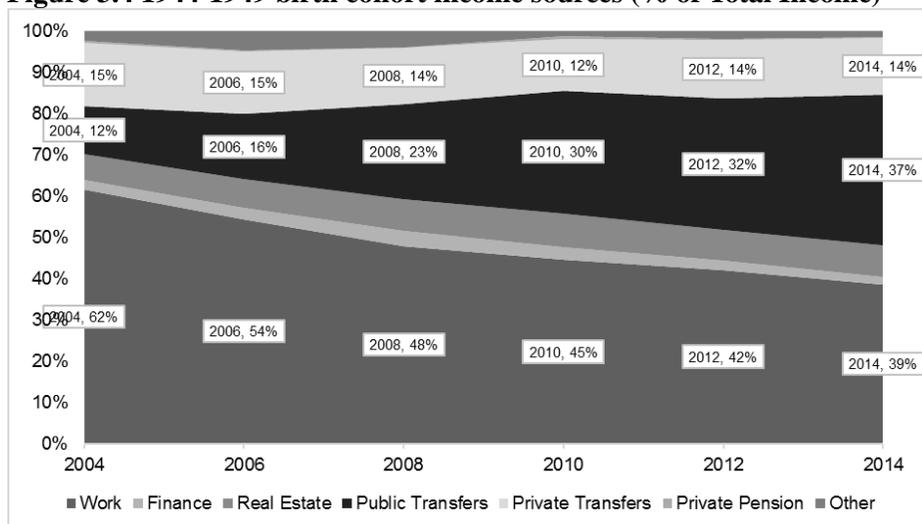
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.3 1944-1949 birth cohort income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.4 1944-1949 birth cohort income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.5 and 3.6 and their corresponding figures show the trends in income sources for the ‘1938 to 1943’ birth cohort. Similar to the 1944-1949 birth cohort, we see a decrease in monetary value of work income until 2010 (wave 4), and then a constant value of about 5.5 million South Korean won per year. Work income reduces from 48% to 28% from 2004 to 2014. Private transfers interestingly also reduce from 25% to 21%. Public transfers, however, increase from 15% to 41% over the 10-year period. All other income sources remain about the same. The most interesting aspect of this age-cohort’s results relate to the reduction of private transfers. Private transfers reduce both in monetary value and ratio, which may indicate a crowding out effect from the increase in public transfers. Despite the reduction in private transfers, total income between 2004 to 2014 actually increases from 15.4 million Korean won to 16.6 million Korean won annually. Monetarily, public transfers increase from 2.2 million KRW to 5.5 million KRW. Private transfers reduce from 2.7 million KRW to 2.5 million KRW. Between 2004 and 2014, this age cohorts average age goes from 64.4 years old to 74.3 years of age. This age group represents an age cohort that has already mainly transitioned into retirement life. We see that work income reduces from 8.1 million KRW to 5.5 million KRW.

Table 3.5 1938-1943 birth cohort income sources (1,000KRW)

<u>Year</u>	<u>Work</u>	<u>Finance</u>	<u>Real Estate</u>	<u>Public Transfers</u>	<u>Private Transfers</u>	<u>Private Pension</u>	<u>Other</u>
2004	₩8,165	₩306	₩1,221	₩2,226	₩2,798	₩100	₩412
2006	₩7,069	₩436	₩1,318	₩2,839	₩2,991	₩15	₩933
2008	₩6,108	₩659	₩1,427	₩3,476	₩2,841	₩17	₩469
2010	₩5,714	₩513	₩1,377	₩3,788	₩2,017	₩206	₩189
2012	₩5,827	₩417	₩1,533	₩4,518	₩2,577	₩28	₩282
2014	₩5,555	₩333	₩2,278	₩5,574	₩2,569	₩45	₩257

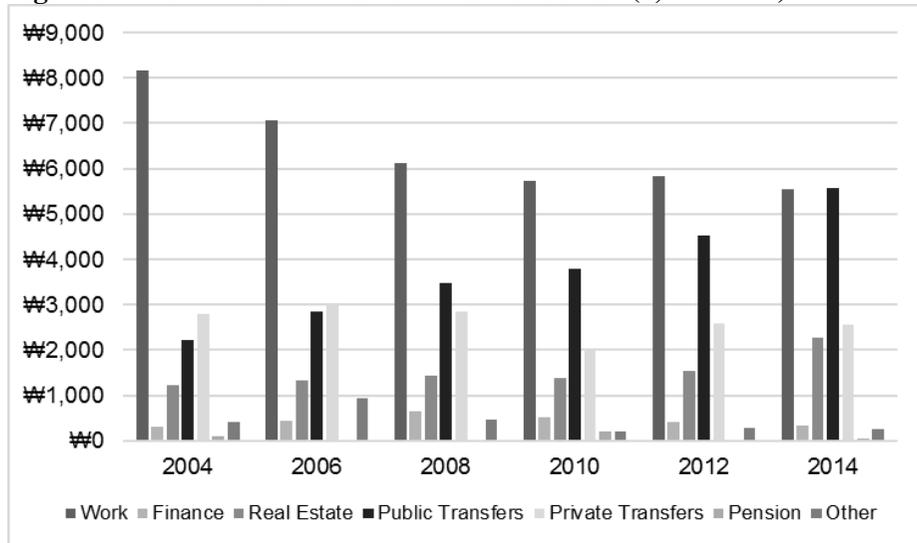
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.6 1938-1943 birth cohort income sources (% of Total Income)

Year	Work	Finance	Real Estate	Public Transfers	Private Transfers	Private Pension	Other
2004	48%	3%	7%	15%	25%	1%	1%
2006	41%	3%	7%	19%	26%	0%	3%
2008	35%	4%	7%	27%	23%	0%	3%
2010	33%	3%	8%	34%	20%	1%	1%
2012	31%	3%	6%	34%	25%	0%	2%
2014	28%	2%	6%	41%	21%	0%	2%

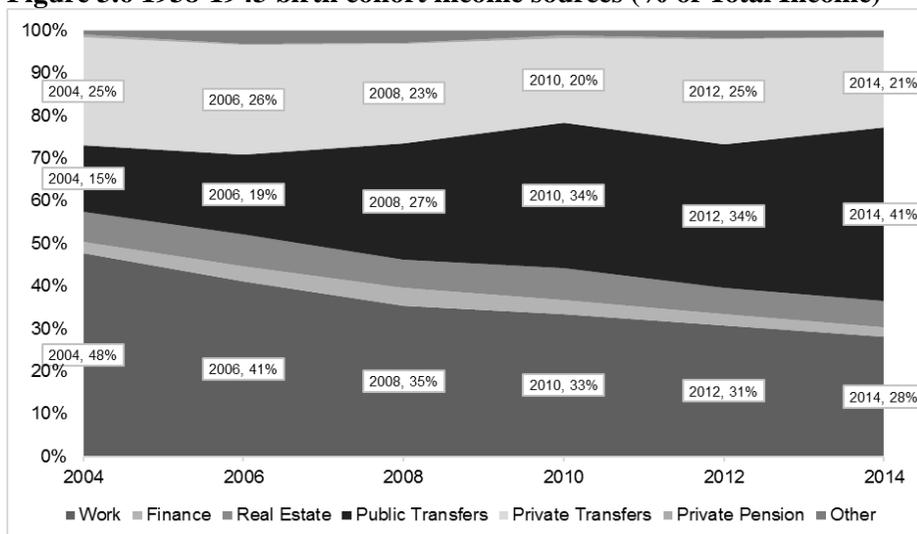
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.5 1938-1943 birth cohort income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.6 1938-1943 birth cohort income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Tables 3.7 and 3.8 and their corresponding figures illustrate the level of income sources for the ‘1932 to 1937’ birth cohort. The average age of this age group changed from 70.2 years old to 80.1 years old during the ten-year period. The total income of this group did not have any directional change, and was as follows: 11.5 million KRW in 2004; 12.8 million in 2006; 13.7 million KRW in 2008; 11.7 million KRW in 2010; 13.3 million KRW in 2012; and 15.3 million KRW in 2014. We see a dip in income following 2008, which may be attributed to the Asian financial crisis. This is the most elderly age cohort among our groups. The 1932-1937 age cohort has a relatively stable level of work income in terms of monetary value. As for ratio of income, public transfers jump from 23% to 45%, work income decreases from 31% to 18%, and private transfers show a declining trend from 34% to 25%. The ‘1932 to 1937’ age cohort represents the transition of elderly averaging 70 years of age to 80 years of age, and the steadiest source of income is public transfers. All other sources are unclear, as they have dips and changes throughout the 10 years. As with the other age cohorts, we see the clearest trends in income ratio from a declining work income, increasing public transfers, and, to a degree, reducing private transfers.

Table 3.7 1932-1937 birth cohort income sources (1,000KRW)

<u>Year</u>	<u>Work</u>	<u>Finance</u>	<u>Real Estate</u>	<u>Public Transfers</u>	<u>Private Transfers</u>	<u>Private Pension</u>	<u>Other</u>
2004	₩3,776	₩250	₩1,003	₩2,849	₩2,904	₩11	₩275
2006	₩3,841	₩341	₩1,369	₩2,917	₩3,092	₩6	₩584
2008	₩3,029	₩630	₩2,398	₩3,920	₩3,406	₩3	₩333
2010	₩3,331	₩576	₩1,059	₩3,918	₩2,494	₩190	₩201
2012	₩3,338	₩436	₩1,229	₩4,666	₩2,947	₩390	₩336
2014	₩3,392	₩332	₩2,572	₩5,868	₩2,954	₩51	₩168

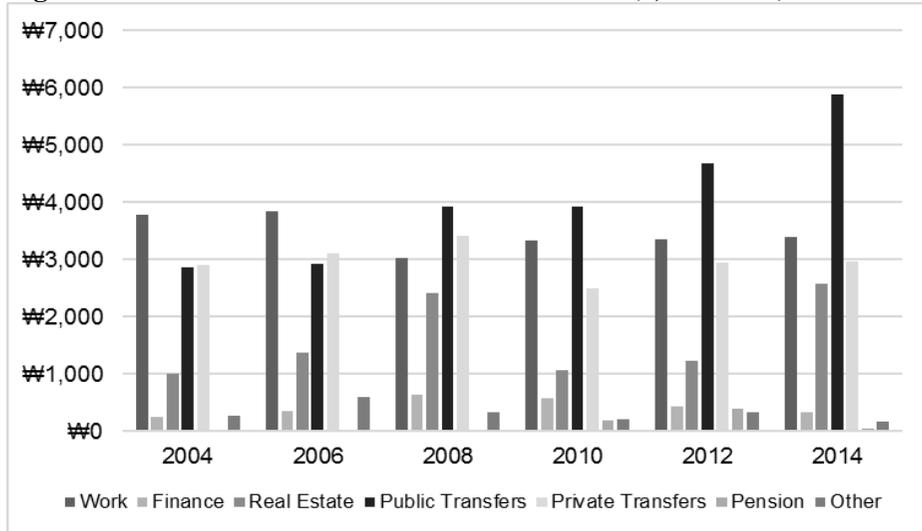
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.8 1932-1937 birth cohort income sources (% of Total Income)

Year	Work	Finance	Real Estate	Public Transfers	Private Transfers	Private Pension	Other
2004	31%	3%	8%	23%	34%	0%	0%
2006	29%	4%	8%	24%	34%	0%	2%
2008	24%	4%	8%	33%	29%	0%	2%
2010	23%	4%	7%	38%	26%	0%	1%
2012	19%	3%	8%	38%	30%	1%	2%
2014	18%	3%	7%	45%	25%	0%	1%

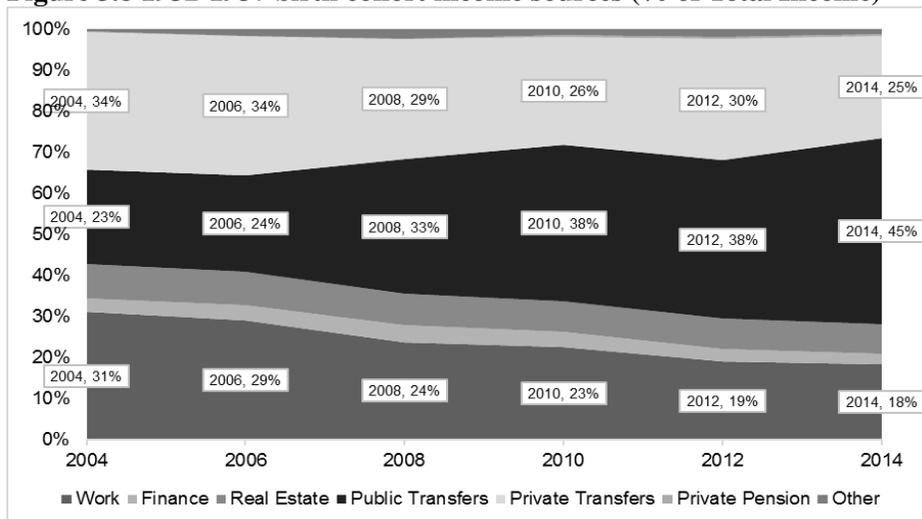
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.7 1932-1937 birth cohort income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.8 1932-1937 birth cohort income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

3.2 Elderly Income Sources by Age Groups

This next section divides the KReIS study into the following five age groups: 1) 61-65, 2) 66-70, 3) 71-75, 4) 76-80, and 5) 81-85. Comparing the same age group over the 10-year period allows for a more direct form of comparison that shows changes in income constitution over time. The limitation to this method rather than age cohorts, is that we are no longer able to take advantage of the longitudinal aspect of the KReIS study. Nonetheless, this methodology was chosen due the simplicity in making comparisons from year to year, and controlling changes in income constitution resulting from the natural ageing process.

We ask about income sources for a specific age groups, and see how ratios change over the 10-year period. What follows are fascinating results that shed light on the changing attitudes of Koreans regarding elderly income security.

As before, we adjusted the KReIS data to reflect total elderly couple's monetary amounts of income to provide more comparable analysis across the year. Thus, all data should be interpreted from the standard of total elderly couples' income.

Table 3.2.1 and Table 3.2.2 and their corresponding figures show the changes in income constitution for '61 to 65' year-old age group. The average age of this age group holds at about 63 years of age. It should be noted that the sample size of this age group steadily declines from 1,686 to 1,017 from 2004 to 2014. There is an increase of work income from 9.3 million KRW to 17.3 million KRW, however, this amount is not adjusted for inflation. Using

an inflation calculator reveals that 9.3 million KRW in 2004 is equivalent to about 12.2 million KRW in 2014. The difference, therefore, is not as pronounced as the data suggests. The decrease in private transfers from 2.6 million KRW to 1.7 million KRW is notable, especially when considering the 2014 value of 2.6 million KRW when adjusted for inflation equals 3.4 million KRW. In other words, there is a significant drop off in private transfers. Public transfers, after adjusting for inflation, increase from 2.9 million KRW to 6.4 million KRW, a considerable increase. One possible consideration is to create a table with monetary amounts adjusted for inflation.

Tables 3.2.2 provides interesting information regarding the ratio of income sources. While work income increases slightly from 50% to 54%, there is a notable rise in public transfers from 16% to 27% and decline in private transfers from 23% to 10%. Since this is a younger age group, it is difficult to attribute the decrease in private transfers solely to the exchange theory, where compensation is provided in exchange for services, such as childcare. It is possible that the reduction in private transfers demonstrates a crowding out effect. Kim (2014) used regression analysis to show that the National Basic Livelihood Security (NBLS) has a crowding out effect that reduce the amount of private transfers. Public transfers appear to remain steady after 2010, which is coupled by a steady percentage of private transfers from 2010 to 2014.

Table 3.2.1 61-65 age group income sources (1,000KRW)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	₩9,327	₩10,261	₩11,051	₩11,993	₩14,301	₩17,253
Finance	₩311	₩544	₩827	₩818	₩615	₩593
Real Estate	₩1,510	₩1,881	₩2,449	₩2,250	₩1,886	₩1,581
Public Transfer	₩2,226	₩3,162	₩4,539	₩4,900	₩6,476	₩6,443
Private Transfer	₩2,609	₩2,542	₩2,216	₩1,360	₩1,604	₩1,675
Private Pension	₩104	₩35	₩37	₩303	₩76	₩120
Other	₩906	₩1,387	₩1,165	₩361	₩690	₩438
Total Income	₩17,216	₩19,928	₩22,285	₩21,986	₩25,647	₩28,102

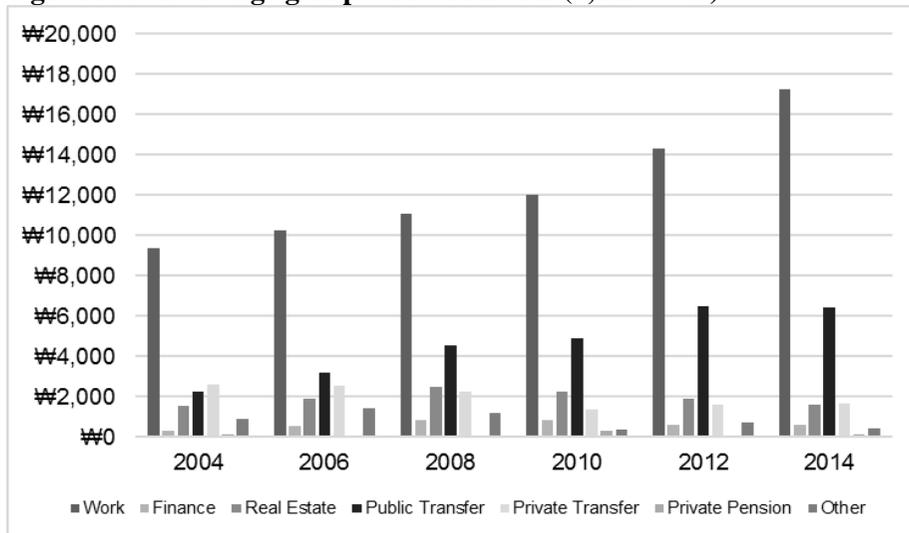
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.2.2 61-65 age group income sources (% of Total Income)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	50%	49%	46%	49%	51%	54%
Finance	3%	3%	4%	3%	3%	3%
Real Estate	7%	8%	8%	8%	6%	5%
Public Transfer	16%	18%	24%	27%	28%	27%
Private Transfer	23%	18%	15%	11%	10%	10%
Private Pension	1%	0%	0%	1%	0%	0%
Other	1%	3%	4%	1%	2%	1%

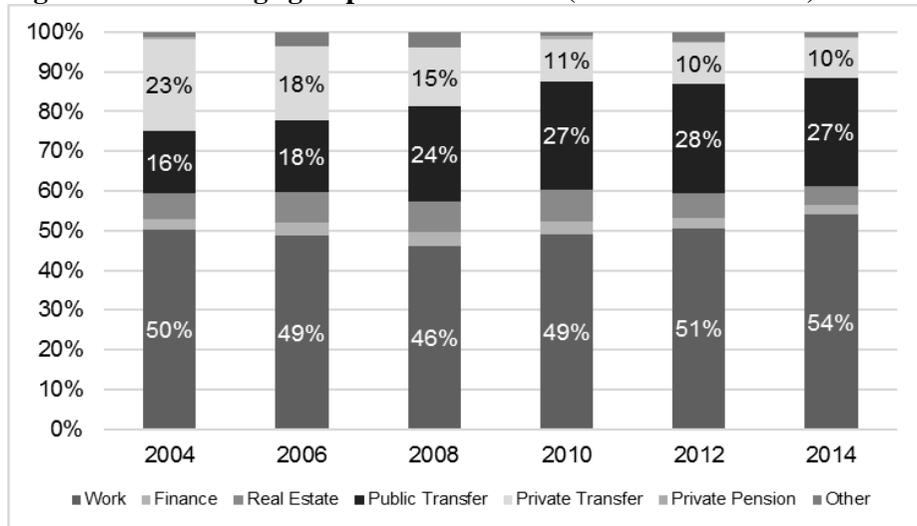
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.1 61-65 age group income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.2 61-65 age group income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.2.3 and 3.2.4 show the changes in income sources for the ‘66 to 70’ age-group. The monetary values are not adjusted for inflation, and any increasing changes are not as pronounced as the data appears. Throughout the 10-year period, the average age of this sample is 69 years old. The sample size decreases over time, from 1,425 in 2004 to 1,067 in 2014.

Table 3.2.3 shows monetary values of income sources not adjusted for inflation. Work income increase from 5.3 million KRW to 10.5 million KRW. After adjusting for inflation, the change is from 7 million KRW to 10.5 million KRW, which shows an upward trend in elderly in their late 60s engaging in work. We also see a steady increase in real estate income from 1.5 million KRW to 2.3 million KRW, after adjusting for inflation. The total income of this age group increases from 17.4 million KRW to 23.3 million KRW, after adjusting for inflation. We also see an adjusted increase in public transfers from 3.2 million KRW to 7.4 million KRW, a marked increase.

Adjusted private transfers decrease from 4.1 million KRW to 2.0 million KRW, cutting the total in half. The increase in public transfers more than offsets the decrease in private transfers.

Table 3.2.3 66-70 age group income sources (1,000KRW)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	₩5,341	₩5,691	₩6,294	₩7,059	₩8,755	₩10,516
Finance	₩293	₩382	₩657	₩594	₩472	₩399
Real Estate	₩1,131	₩1,337	₩1,312	₩2,120	₩2,513	₩2,396
Public Transfer	₩2,439	₩2,599	₩3,563	₩4,203	₩5,307	₩7,386
Private Transfer	₩3,132	₩3,174	₩2,801	₩1,789	₩2,126	₩2,005
Private Pension	₩35	₩11	₩15	₩142	₩68	₩15
Other	₩283	₩770	₩509	₩363	₩435	₩620
Total Income	₩13,260	₩14,471	₩15,150	₩16,270	₩19,675	₩23,337

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

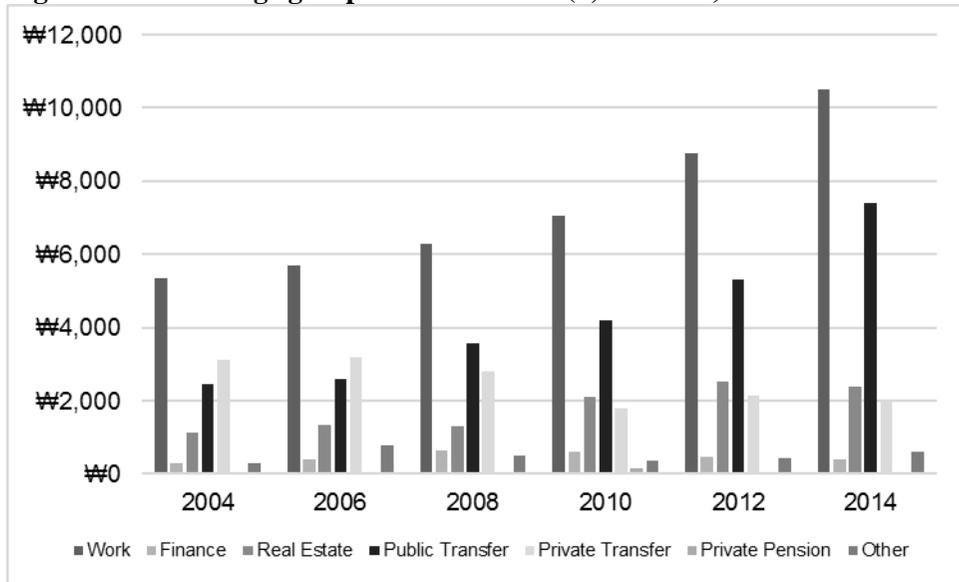
Table 3.2.4 66-70 age group income sources (% of Total Income)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	38%	37%	36%	37%	39%	40%
Finance	3%	3%	4%	3%	2%	2%
Real Estate	9%	8%	6%	8%	7%	7%
Public Transfer	18%	19%	28%	33%	32%	36%
Private Transfer	31%	30%	23%	17%	17%	13%
Private Pension	0%	0%	0%	1%	0%	0%
Other	1%	3%	3%	1%	2%	2%

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

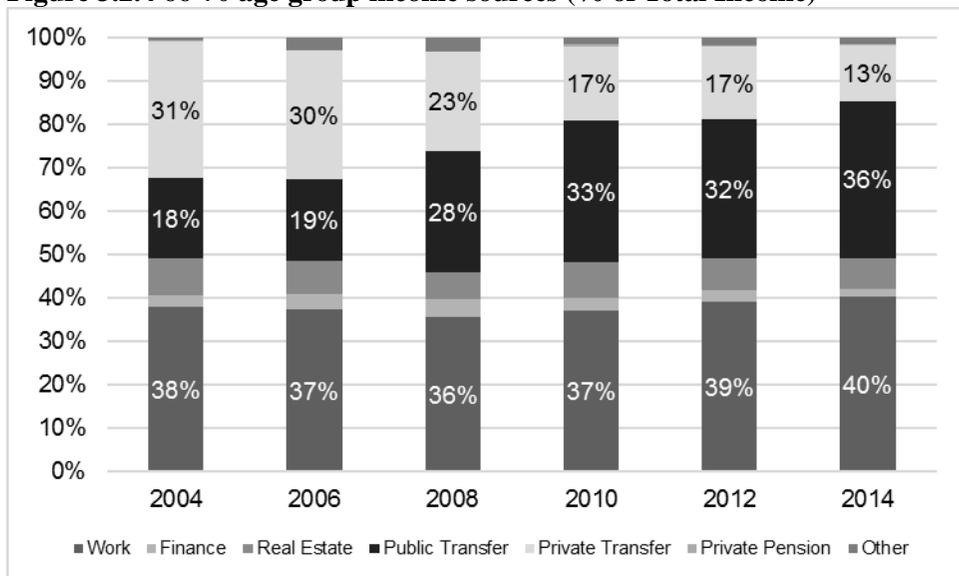
Table 3.2.4 and the corresponding figures display income ratios. The most significant changes are in the categories of public transfers and private transfers. Work income increases from 38% to 40%. Public transfers double from 18% to 36% of total income. Private transfers are cut sharply from 31% to 13%. As mentioned above, the total income of the ‘66-70’ age group increases, even when accounting for inflation. Due to the contrasting trends of public and private transfers, we may attribute the decrease in private transfers to the crowding out effect for the ‘66-70’ age group.

Figure 3.2.3 66-70 age group income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.4 66-70 age group income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Tables 3.2.5 and 3.2.6 shed light on the '71-75' age group. The average age for each wave was nearly identical at 72.8 years old. The sample sizes from wave 1 to wave 6 increased gradually from 927 to 1,235. The

average total income also increased, after adjusting for inflation, from 13.0 million KRW to 18.0 million KRW. Overall, we see a more marked increase in work income for this age group. Public transfers increase significantly, while private transfers remain nearly the same prior to adjusting for inflation.

Table 3.2.6 sheds light on the income source ratios of the ‘71-75’ age group. There is a 6% increase in work income from 24% to 30% of total income. Public transfers grow significantly from 26% to 41%, while private transfers nearly half from 37% to 19%. Percentage-wise, we see that an increase in work income affects older age groups in terms of income ratio, consistent with Kim’s (2014) findings.

Table 3.2.5 71-75 age group income sources (1,000KRW)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	₩2,373	₩3,302	₩3,734	₩4,238	₩5,150	₩6,295
Finance	₩230	₩363	₩669	₩507	₩424	₩337
Real Estate	₩886	₩1,204	₩2,672	₩1,203	₩1,509	₩2,623
Public Transfer	₩2,942	₩3,090	₩3,678	₩3,462	₩4,404	₩5,806
Private Transfer	₩2,784	₩3,053	₩3,323	₩2,259	₩2,669	₩2,564
Private Pension	₩23	₩5	₩10	₩207	₩33	₩76
Other	₩309	₩641	₩332	₩84	₩194	₩254
Total Income	₩9,946	₩12,241	₩14,418	₩11,960	₩14,384	₩17,956

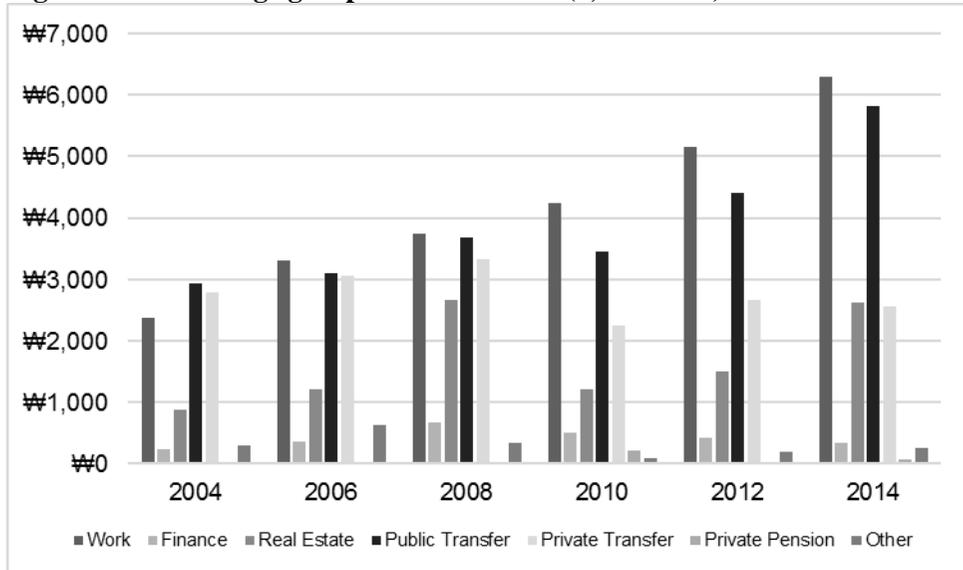
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.2.6 71-75 age group income sources (% of Total Income)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	24%	27%	28%	28%	29%	30%
Finance	4%	4%	4%	4%	3%	2%
Real Estate	9%	8%	8%	8%	6%	7%
Public Transfer	26%	25%	29%	36%	34%	41%
Private Transfer	37%	34%	28%	24%	26%	19%
Private Pension	0%	0%	0%	1%	0%	0%
Other	0%	2%	2%	1%	2%	1%

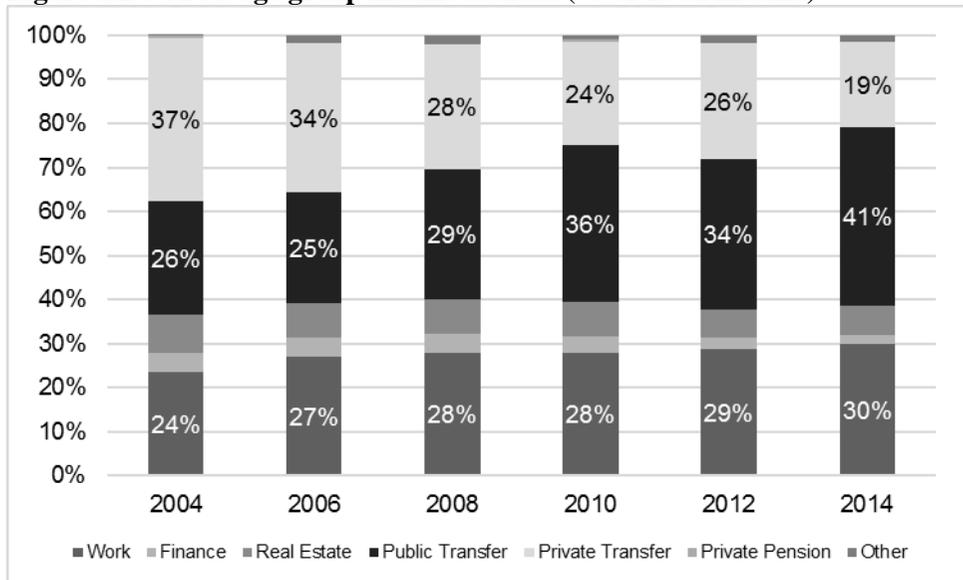
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.5 71-75 age group income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.6 71-75 age group income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Tables 3.2.7 and 3.2.8 shed light on income sources for the ‘76-80’ age group. Due to the older age of this group, the elderly represented here are particularly vulnerable to changes in income security. The average age across

all waves is 77.7. The sample size steadily increases from 514 persons in 2004 to 964 people in 2014.

Table 3.2.7 shows the monetary values of income sources for the ‘76-80’ age group. Work income increases very significantly when adjusting for inflation from 1.8 to 4.1 million KRW. Percentage-wise, however, work income only increases from 18% to 22%. Table 3.2.8 reveals the changes in income ratio from public and private transfers. Public transfers increase sharply from 22% to 42%, while, private transfers fall steeply from 48% to 25%. It appears that the government is taking increasing responsibility for caring for the elderly, compared to adult children. While a 4% increase in work income does not suggest a steep change, it shows a trend of elderly becoming more self-reliant to secure their income. After adjusting for inflation, the total income of the 76-80 age group increases from 11.0 million KRW to 15.0 million KRW.

Table 3.2.7 76-80 age group income sources (1,000KRW)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	₩1,402	₩1,228	₩1,562	₩2,758	₩3,528	₩4,113
Finance	₩194	₩244	₩599	₩619	₩430	₩300
Real Estate	₩547	₩1,369	₩1,775	₩1,139	₩1,232	₩1,942
Public Transfer	₩1,952	₩2,773	₩4,025	₩4,295	₩4,588	₩5,384
Private Transfer	₩2,989	₩3,474	₩3,595	₩2,490	₩2,883	₩2,996
Private Pension	₩25	₩0	₩0	₩266	₩401	₩31
Other	₩3	₩410	₩166	₩261	₩361	₩219
Total Income	₩8,422	₩10,602	₩11,723	₩11,827	₩13,423	₩14,985

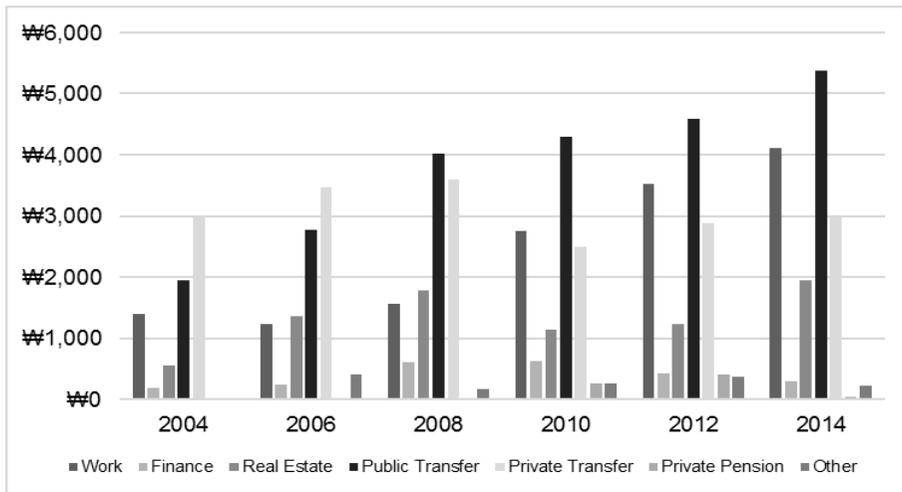
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.2.8 76-80 age group income sources (% of Total Income)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	18%	16%	15%	20%	20%	22%
Finance	4%	4%	4%	4%	3%	2%
Real Estate	7%	10%	8%	7%	7%	7%
Public Transfer	22%	24%	36%	39%	38%	42%
Private Transfer	48%	45%	35%	27%	29%	25%
Private Pension	0%	0%	0%	1%	1%	0%
Other	0%	1%	2%	2%	2%	2%

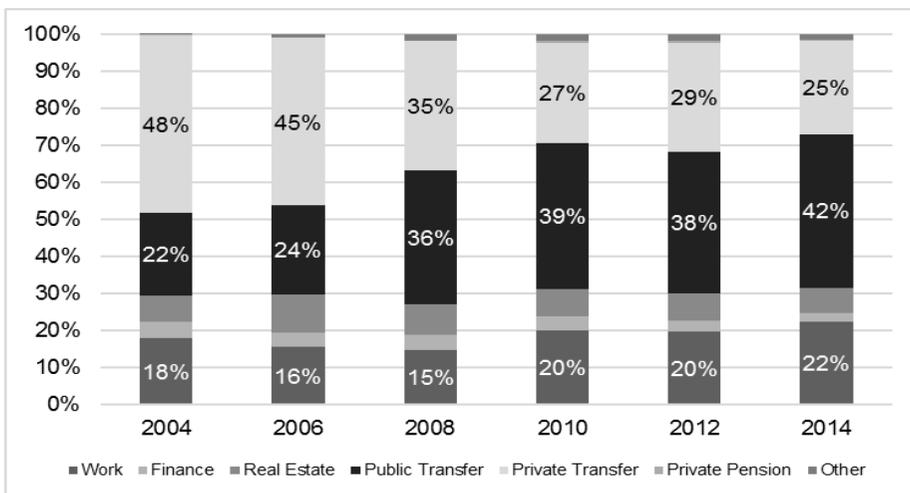
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.7 76-80 age group income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.8 76-80 age group income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Tables 3.2.9 and 3.2.10 reveal the income sources for the ‘81 to 85’ year old age-group. The average age of this group is about 82.6 years old across the ten years. This group has the smallest sample size, which grows steadily from 257 people in 2004 to 493 persons in 2014. After adjusting for inflation, we observe the following trends in the monetary value of incomes sources. Total income increases from 9.8 million KRW to 15.4 million KRW. Work income increases from 1.4 million KRW to 1.9 million KRW. Percentage-wise, we only see a 1% increase in work income. The most marked changes occur in public and private transfers. Public transfers increase significantly from 1.7 million KRW to 6 million KRW. Private transfers decrease from 3.3 million KRW to 2.6 million KRW. In terms of ratio, public transfers jump from 21% to a whopping 50%. Private transfers decrease sharply from 60% to 24%. This shift may suggest elderly’s increasing reliance on family-centered elderly income security to public-centered income security. While, Kim (2014) emphasizes the growth of work income, in terms of ratio, the increase is not considerable for the 81 to 85 year old age group.

Table 3.2.9 81-85 age group income sources (1,000KRW)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	₩1,053	₩1,196	₩1,145	₩996	₩972	₩1,904
Finance	₩201	₩92	₩391	₩295	₩655	₩345
Real Estate	₩188	₩279	₩742	₩1,868	₩1,582	₩4,383
Public Transfer	₩1,278	₩1,757	₩3,139	₩4,779	₩5,163	₩5,994
Private Transfer	₩2,519	₩2,854	₩3,869	₩2,311	₩2,889	₩2,605
Private Pension	₩0	₩0	₩217	₩882	₩152	₩51
Other	₩523	₩340	₩104	₩80	₩61	₩70
Total Income	₩7,491	₩9,023	₩9,606	₩11,211	₩11,473	₩15,351

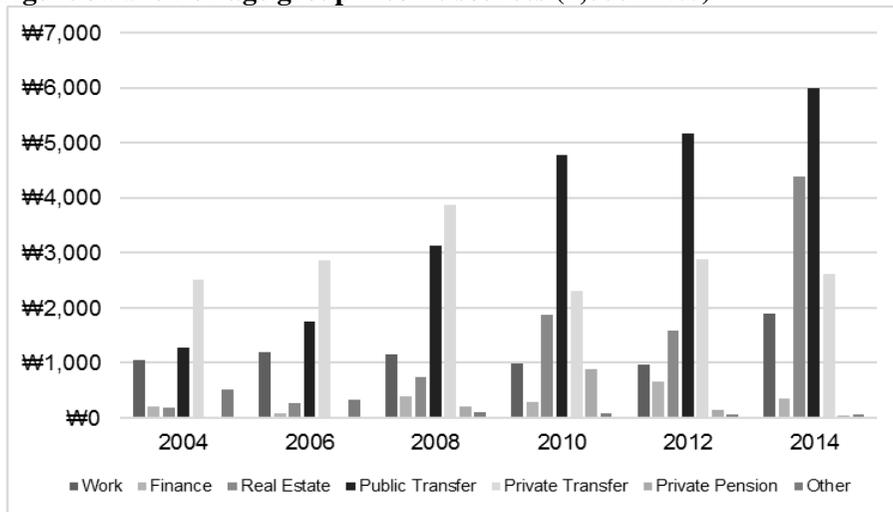
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.2.10 81-85 age group income sources (% of Total Income)

<u>Year</u>	<u>2004</u>	<u>2006</u>	<u>2008</u>	<u>2010</u>	<u>2012</u>	<u>2014</u>
Work	11%	10%	10%	13%	8%	12%
Finance	1%	4%	4%	3%	5%	3%
Real Estate	6%	7%	5%	11%	9%	10%
Public Transfer	21%	21%	37%	44%	45%	50%
Private Transfer	60%	55%	43%	26%	32%	24%
Private Pension	0%	0%	1%	3%	1%	0%
Other	0%	3%	1%	1%	1%	1%

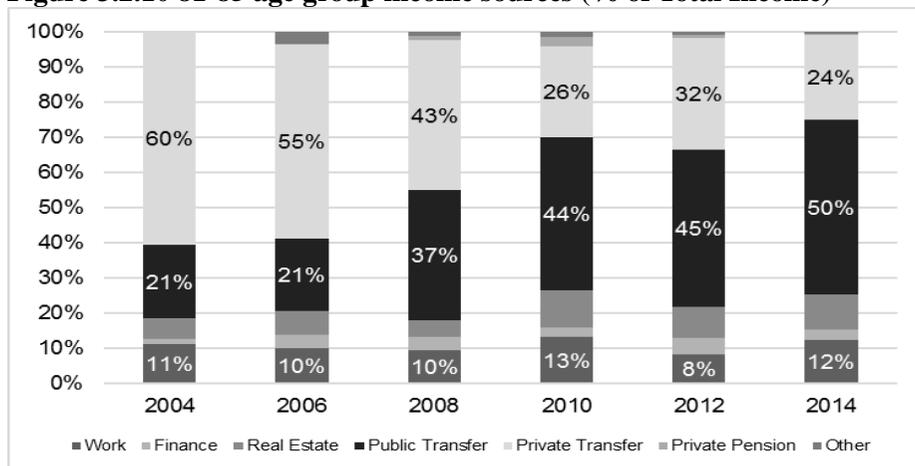
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.9 81-85 age group income sources (1,000KRW)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.2.10 81-85 age group income sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

3.3 Elderly Income Sources by Household Constitution

Demographic changes and the trend towards decreased family size raises the question as to whether elderly living in different types of household constitutions have unique trends in income source reliance. Do different types of households generally operate the same way in terms of income dependence? Are singly elderly households more likely to rely on work income in their late age? Do elderly co-residing with adult children receive less in terms of private transfers as preceding research suggests? Which kind of elderly household relies the most on public provision and government aid? We divide the KReIS data set into different types of household constitution, and prepare analysis on income sources for each type.

Table 3.3.1 Single Elderly Income Sources (in 1,000KRW)

Year	2004	2006	2008	2010	2012	2014
Work	₩1,954	₩1,731	₩2,174	₩2,118	₩3,452	₩3,801
Finance	₩95	₩122	₩252	₩254	₩139	₩167
Real Estate	₩539	₩653	₩840	₩526	₩681	₩759
Public Transfer	₩1,263	₩1,649	₩2,130	₩2,151	₩1,994	₩2,659
Private Transfer	₩2,444	₩2,694	₩2,541	₩1,797	₩2,122	₩2,033
Private Pension	₩6	₩1	₩28	₩18	₩7	₩17
Other	₩407	₩1,236	₩2,298	₩186	₩392	₩998
Total Income	₩6,699	₩8,154	₩9,363	₩7,126	₩8,756	₩9,925

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.3.1 show trends in income sources for single elderly households. There is an increase in work income from 1.9 million KRW to 3.8 million KRW before adjusting for inflation. After adjusting for inflation, work income rises from 2.55 million KRW, in 2014 terms, to 3.8 million KRW. In other words, work income increases by 1.25 million KRW annually. After adjusting for inflation, public transfers rise from 1.65 million KRW per year

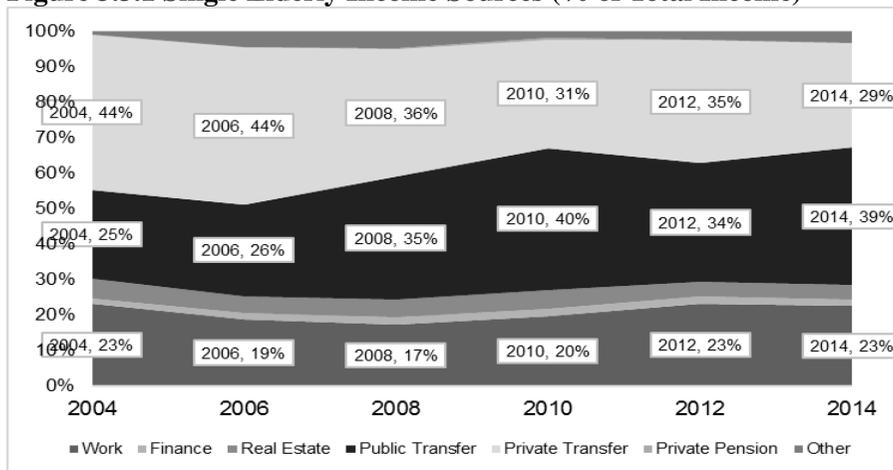
to 2.7 million KRW per year, a 1.05 million KRW difference. Private transfers reduce from 3.19 million KRW, in 2014 terms, per year to 2.0 million KRW, 1.19 million KRW decrease. The monetary values in this paragraph are adjusted for inflation in 2014 terms. Looking at ratio tables will also provide insight on single elderly households on different forms of income.

Table 3.3.2 Single Elderly Income Sources (% of Total Income)

Year	2004	2006	2008	2010	2012	2014
Work	23%	19%	17%	20%	23%	23%
Finance	2%	2%	2%	2%	2%	2%
Real Estate	5%	5%	5%	5%	4%	4%
Public Transfer	25%	26%	35%	40%	34%	39%
Private Transfer	44%	44%	36%	31%	35%	29%
Private Pension	0%	0%	0%	0%	0%	0%
Other	1%	4%	5%	2%	2%	3%

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.3.1 Single Elderly Income Sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Tables 3.3.2 and Figure 3.3.1 display the change in income source ratios. The largest change for single elderly households is the decrease of private transfer income, from 44% to 29% of total income. Public transfers rise 25% to 39%. Public transfers appear to have a crowding out effect on

private transfers. This was demonstrated by Kim’s (2014) study, specifically regarding the National Basic Livelihood Security scheme. Despite the monetary change of work income for single elderly households, the ratio of work income for single elderly households does not change much throughout the ten-year period from 2004 to 2014.

Table 3.3.3 Elderly Couple Household Income Sources (in 1,000KRW)

Year	2004	2006	2008	2010	2012	2014
Work	₩4,653	₩4,477	₩4,737	₩4,469	₩6,543	₩7,036
Finance	₩913	₩659	₩473	₩310	₩293	₩222
Real Estate	₩1,584	₩1,948	₩990	₩848	₩822	₩1,169
Public Transfer	₩1,208	₩1,477	₩1,892	₩2,097	₩2,336	₩2,836
Private Transfer	₩2,398	₩2,606	₩1,357	₩921	₩972	₩953
Private Pension	₩21	₩12	₩13	₩138	₩55	₩41
Other	₩767	₩1,395	₩629	₩328	₩338	₩451
Total Income	₩11,674	₩12,368	₩9,617	₩9,089	₩11,305	₩12,380

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

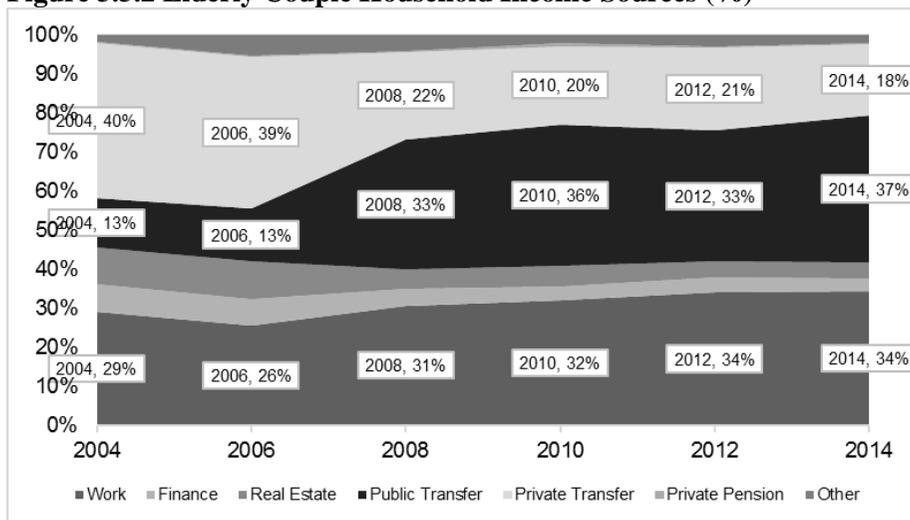
Table 3.3.3, 3.3.4, and Figure 3.3.2 portrays income trends for elderly couple households, which consist of both elderly partners. After adjusting for inflation, monetary value increases of income sources become *less* pronounced, and monetary decreases value are *more* pronounced. For example, elderly couples work income changed from 6.07 million KRW to 7.04 million KRW between 2004 to and 2014, which is less significant than the values represented in Table 3.3.3. Public transfers grow from 1.58 million KRW to 2.84 million KRW. Most significantly, private transfers drop from 3.13 million KRW to 953,000 KRW.

Table 3.3.4 Elderly Couple Household Income Sources (%)

Year	2004	2006	2008	2010	2012	2014
Work	29%	26%	31%	32%	34%	34%
Finance	7%	7%	4%	3%	4%	3%
Real Estate	9%	10%	5%	5%	4%	4%
Public Transfer	13%	13%	33%	36%	33%	37%
Private Transfer	40%	39%	22%	20%	21%	18%
Private Pension	0%	0%	0%	1%	0%	0%
Other	2%	5%	4%	2%	3%	2%

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.3.2 Elderly Couple Household Income Sources (%)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Tables 3.3.4 and Figure 3.3.2 display ratios of elderly couple households. Work income increases from 29% to 34% over ten-years. Public transfers sharply increase from 13% to 37%. Private transfers decline significantly from 40% to 18%. Private transfers dip sharply between 2006 and 2008. The role of public transfers and private transfers appear to have changed drastically for elderly couple households between 2006 and 2008. Finance income also decreases from 7% to 3% between 2004 and 2014.

Table 3.3.5 Elderly with Adult Children Income Sources (in 1,000KRW)

Year	2004	2006	2008	2010	2012	2014
Work	₩11,180	₩11,000	₩9,646	₩8,480	₩17,840	₩18,424
Finance	₩508	₩818	₩404	₩421	₩308	₩284
Real Estate	₩1,707	₩2,035	₩1,268	₩915	₩657	₩695
Public Transfer	₩660	₩1,007	₩1,411	₩1,825	₩940	₩1,150
Private Transfer	₩1,704	₩1,927	₩732	₩725	₩364	₩364
Private Pension	₩57	₩23	₩4	₩67	₩12	₩39
Other	₩1,941	₩3,266	₩625	₩60	₩313	₩759
Total Income	₩17,197	₩19,598	₩13,703	₩12,554	₩20,233	₩21,227

Source: KRIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.3.5 shows changes in annual values for elderly households with adult children. Glancing at the table shows a stark difference in the amount of annual work income. High values of work income may be attributed to the reporting of adult children's work income. Future research might limit the sample to those aged over 50 years old, to control for this. Work income increases from 14.58 million KRW to 18.42 million KRW from 2004 to 2014, after adjusting for inflation. Public transfers rise from 861,000 KRW to 1.2 million KRW. Private transfers decrease from 2.2 million KRW to 364,000 KRW.

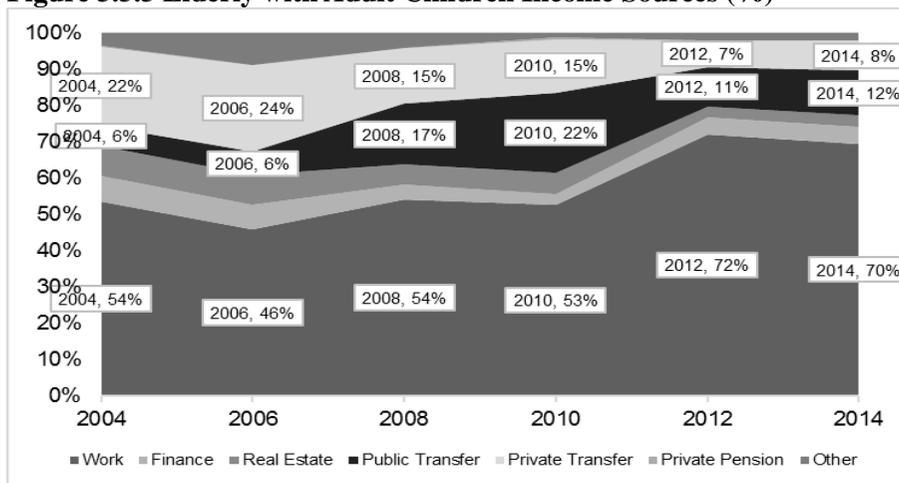
Elderly co-residing with adult children experienced large shifts in income composition. This group was affected the most by changes in work income. However, since the sample was not controlled for age, changes in the reliance on work income may be attributed to the wages of adult children. Work income increases from 54% to 70% between 2004 and 2014. Public transfers appear to have a smaller role in this household type's income mix, rising from 6% to 12%. Furthermore, private transfers also play a smaller role for elderly co-residing with adult children, falling from 22% to 8% from 2004 to 2014.

Table 3.3.6 Elderly with Adult Children Income Sources (%)

Year	2004	2006	2008	2010	2012	2014
Work	54%	46%	54%	53%	72%	70%
Finance	7%	7%	4%	3%	5%	5%
Real Estate	8%	8%	5%	6%	3%	3%
Public Transfer	6%	6%	17%	22%	11%	12%
Private Transfer	22%	24%	15%	15%	7%	8%
Private Pension	0%	0%	0%	0%	0%	0%
Other	4%	9%	4%	1%	2%	2%

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.3.3 Elderly with Adult Children Income Sources (%)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 3.3.7 Elderly with Adult Children and Grandchildren (1,000KRW)

Year	2004	2006	2008	2010	2012	2014
Work	₩7,805	₩7,320	₩7,666	₩7,873	₩14,418	₩11,017
Finance	₩183	₩378	₩290	₩279	₩166	₩155
Real Estate	₩1,092	₩946	₩571	₩511	₩433	₩454
Public Transfer	₩727	₩1,089	₩1,289	₩1,107	₩742	₩1,397
Private Transfer	₩1,960	₩2,326	₩1,027	₩534	₩532	₩968
Private Pension	₩6	₩1	₩1	₩10	₩4	₩13
Other	₩910	₩1,553	₩503	₩106	₩165	₩209
Total Income	₩13,602	₩14,688	₩10,872	₩10,422	₩16,242	₩13,870

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

The experience of elderly living in three-generation households with adult children and their grandchildren experience a less pronounced shift in

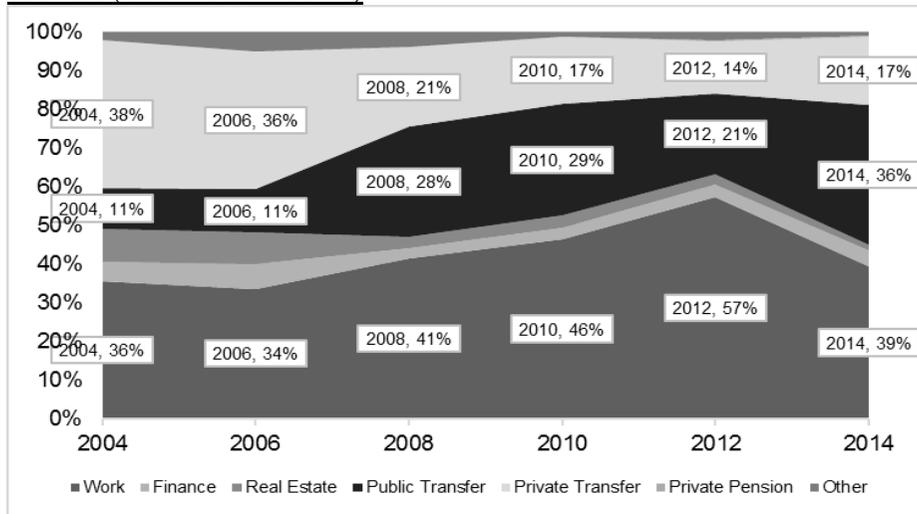
work income than elderly living with adult children. However, the sample for elderly households living with adult children was not controlled for age, which likely impacted the results to include work income from adult children as well. Work income increases from 36% to 39% for single elderly living with both adult children and grandchildren. Real estate reduces from 8% to 2% of total income. Public transfers more than double from 11% to 36%. Private transfers contrastingly cut more than half from 38% to 17%. Again, the most pronounced change in income composition comes between years 2006 and 2008, showing a steep increase in public transfers and a large reduction in private transfers.

Table 3.3.8 Elderly with Adult Children & Grandchildren Income Sources (% of Total Income)

Year	2004	2006	2008	2010	2012	2014
Work	36%	34%	41%	46%	57%	39%
Finance	5%	6%	3%	3%	3%	4%
Real Estate	8%	8%	3%	3%	2%	2%
Public Transfer	11%	11%	28%	29%	21%	36%
Private Transfer	38%	36%	21%	17%	14%	17%
Private Pension	0%	0%	0%	0%	0%	0%
Other	2%	5%	4%	1%	2%	1%

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 3.3.4 Elderly with Adult Children and Grandchildren Income Sources (% of Total Income)



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Chapter 4. Elderly Income from Adult Children

What are the determinants that affect private transfers from adult children to their aged parents? Private transfers are defined as the transfer of private income, excluding payments, which are the most common form of income transfer between children and their parents (Kim 2014). Thus, analyzing private transfers can provide useful insight into the level of financial assistance that children are giving to their parents. In this chapter, we expand upon Kim's (2014) regression analysis by applying it to KReIS wave 2 data. Regression analysis comprising all 6 waves from 2004 to 2014 were more generalized due to changes in the KReIS questionnaire. Specifically, KReIS questionnaires in waves 1 and 2 specifically ask for monetary values for private transfers from elderly South Koreans' adult children. In waves 3 through 6, private transfers are inclusive or extended family members, friends,

and others. Thus, regression analysis on waves 3 through 6 would not specifically look at adult children's support for their elderly parents. We thus apply regression analysis only on wave 2 to determine whether the determinants impacting private transfers from adult children remain significant over time. We look at the importance of the characteristics of elderly parents in influencing the amount of private transfers from adult children to provide comparability to Kim's work. The list of determinants can be found on page 56, and comprise factors such as education level, gender, presence of co-residing adult children or other family members, and more. Do these determinants remain significant over time?

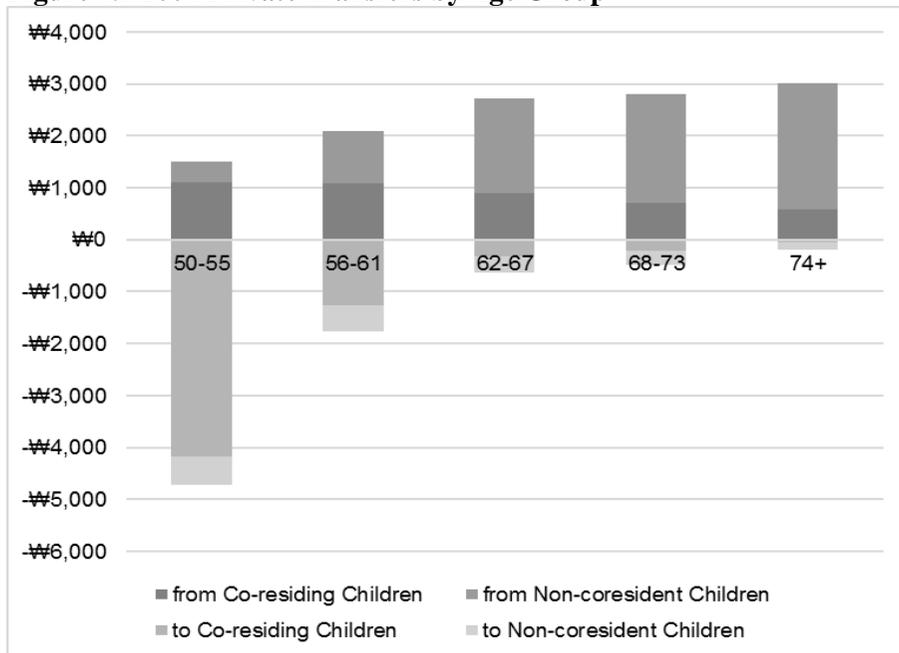
The Korea Retirement and Income Study's method of collecting private transfer information has many benefits. Each wave reports the income transfers that respondents have exchanged with others in the previous year. The KReIS is unique because it also acquires information regarding private transfers from co-resident children. Other studies on ageing only collect information from non-co-resident adult children. According to the KReIS study, private transfers include cash support for pocket money, living expenses and educational expenses. KReIS private transfers also include in-kind support in terms of market value, but excludes one-time gifts given on holiday or birthdays (Kim 2014).

4.1 Background: Adult children's net support to old aged parents

The following tables describe the state of net transfers to and from co-residing and non-co-residing adult children. Using this information, we see

that as time progresses, the elderly are providing more for their adult children than before into late age. These tables show a changes in the level of responsibility for elderly income from adult children. It appears that the elderly must look to other income sources as their role as net recipients diminish.

Figure 4.1 2004 Private Transfers by Age Group



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 4.1 2004 Private Transfers by Age Group (in 1,000KRW)

Age	50-55	56-61	62-67	68-73	74+
from Co-residing Children	₩1,109	₩1,095	₩903	₩701	₩589
from Non-co-resident Children	₩405	₩987	₩1,810	₩2,095	₩2,420
to Co-residing Children	-₩4,178	-₩1,271	-₩325	-₩205	-₩45
to Non-co-resident Children	-₩544	-₩492	-₩308	-₩286	-₩150

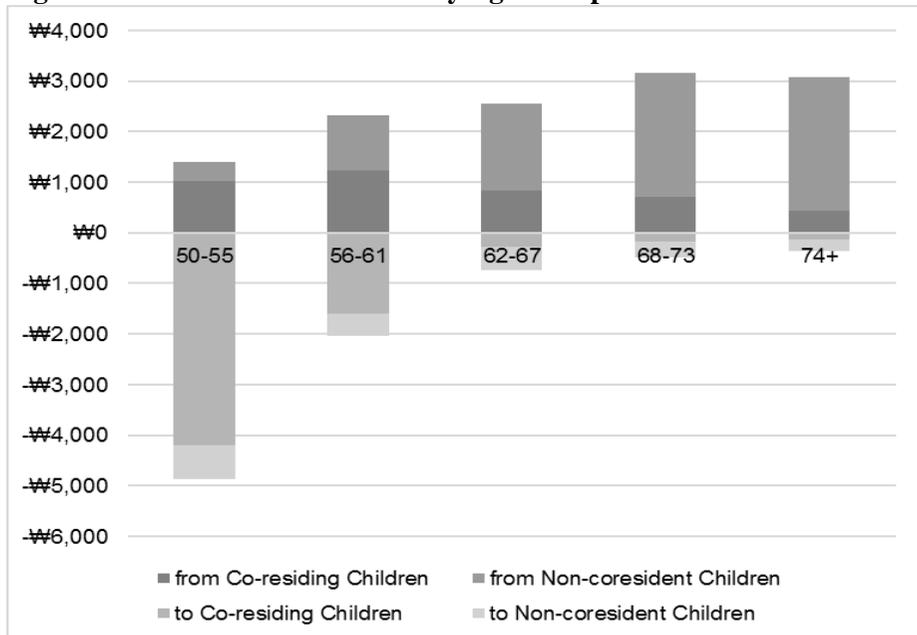
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 4.1 shows the net amount of old-age private transfers in 2004. We see that beginning the ‘56 to 61’ year-old age group, there is a trend

towards becoming net recipients of private income transfers from adult children. Non-co-resident children provide the largest amount of income transfers, which increases with the age of their parents. Co-resident adult children also provide private transfers, but at a much smaller scale than their non-co-resident adult siblings. Co-resident adult children’s contribution to elderly parents falls from 1.1 million KRW to 589 thousand KRW. Meanwhile, non-co-residing adult childrens’ private transfer contributions increase from 400 thousand KRW to 2.4 million KRW as their elderly parents age.

Considering our treatment of data, each age group has a different sample size. In 2004, age 50 to 55 have a sample size of 897; age 56 to 61, 1047; age 68 to 73, 975; age 74 and older, 779. As this is the first observation period, it provides a base for comparison.

Figure 4.2 2006 Private Transfers by Age Group



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 4.2 2006 Private Transfers by Age Cohorts (in 1,000KRW)

Age Group	50-55	56-61	62-67	68-73	74+
from Co-residing Children	₩1,030	₩1,231	₩835	₩697	₩444
from Non-co-resident Children	₩363	₩1,081	₩1,719	₩2,459	₩2,638
to Co-residing Children	-₩4,200	-₩1,608	-₩268	-₩165	-₩139
to Non-co-resident Children	-₩677	-₩439	-₩475	-₩319	-₩231

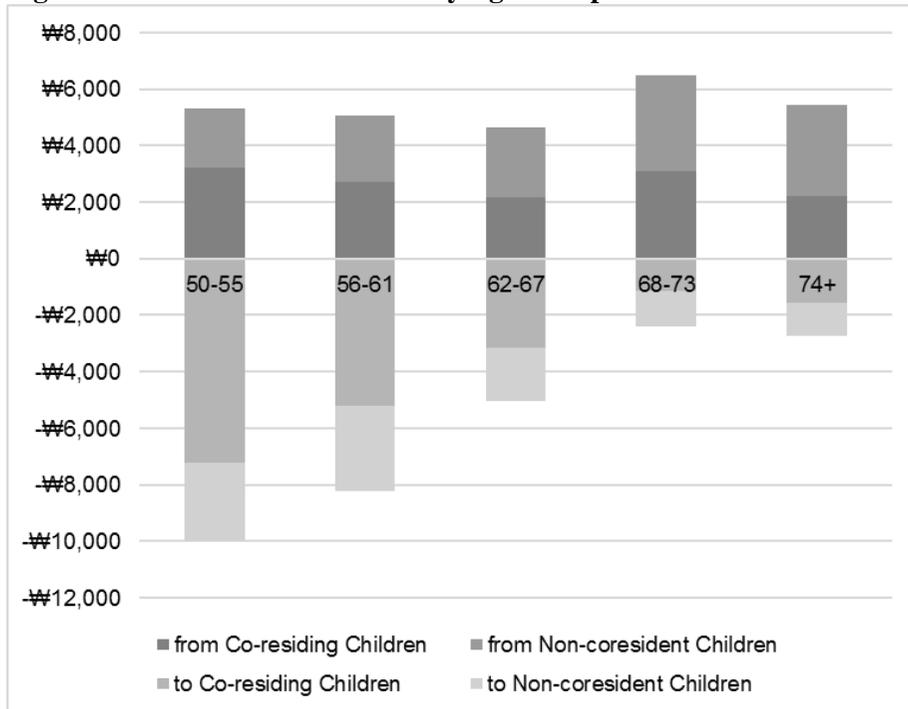
Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Figure 4.2 and Table 4.2 shows trends in private transfers in 2006, which is similar to 2004. Co-residing adult children initially provide more to younger elderly parents. However, adult children living with their parents give less and less. They provide 1 million KRW to their 50-55 year-old parents, and only 444,000 KRW to the 74+ year-old elderly parents. Non-co-resident children increase their giving from 363,000 KRW to 2.64 million KRW, a significant leap in financial support. The 2006 data shown in Figure 4.2 and Table 4.2 have varying sample sizes according to our criteria. In 2006, age 50 to 55 have a sample size of 605; age 56 to 61, 878; age 68 to 73, 1125; age 74 and older, 1035.

Figure 4.3 reveals the most pronounced change in net private transfers for South Korean elderly. However, due to changes in the KReIS questionnaire, this report is less reliable. The sample size of private transfers received from non-co-resident children, range from 402 to 796. However, the sample sizes of private transfers from co-residing children are lower, from 70 to 144. Similarly, private transfers to non-co-resident children range from 69 to 243. Private transfers to co-resident childrens' sample size is the lowest from 21 to 61 persons. Thus, it is difficult to draw meaningful conclusions from Figure 4.3 and Table 4.3 because the information may be biased towards those that are more willing to answer specific questions about private transfers to and from adult children. This is unfortunately, one of the weaknesses in the

changed methodology of KReIS questionnaire from wave 3 onward.

Figure 4.3 2008 Private Transfers by Age Group



Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

Table 4.3 2008 Private Transfers by Age Cohorts

Age	50-55	56-61	62-67	68-73	74+
from Co-residing Children	¥3,210	¥2,694	¥2,166	¥3,101	¥2,218
from Non-co-resident Children	¥2,117	¥2,380	¥2,493	¥3,390	¥3,222
to Co-residing Children	-¥7,209	-¥5,203	-¥3,161	-¥1,141	-¥1,567
to Non-co-resident Children	-¥2,765	-¥3,025	-¥1,894	-¥1,257	-¥1,171

Source: KReIS (2017), Wave 6 (2014) Data is in its beta version

4.2 Adult childrens' support of elderly parents

What kinds of elderly are most supported by their adult children? Do traditions hold true that sons will support their aged parents more financially than daughters? These are some of the questions that we aim to divulge.

4.2.1 Determinants of Private Transfer Amount

Kim (2014) creates a regression model with the selected determinants to examine their impact on net and gross private transfers. In this section, we focus solely on gross private transfers, using the OLS method to determine the impact of these elderly characteristics. We also apply this model to the second wave of KReIS's panel study. Our reasons for using only wave two are due to changes in the KReIS questionnaire after 2006. Private transfers are not grouped according to adult children and thus analyzing subsequent waves does not provide insight into the amount adult children support their elderly parents.

Table 4.2.1 Hisam Kim's (2014) list of determinants of Private Transfers

Total Income***
Net assets (assets – liabilities)***
Age***
Household head***
Elementary School***
Middle School***
High School***
Grad School*
Presence of Age group 0-4/5-9/10-19***/20-39***/40-64***/65+***
Number of boys***
Number of girls*
Caring for Grandkids***
Private Transfers from Co-residing Children
Private Transfers from Non-co-resident Children
Private Transfers from Others
Female*
Annual Savings

Note: Statistical significance is denoted by *, where ***, **, and * are .01, .05, and .1 levels of significance, respectively.

Table 4.2.1 reveals that most of the determinants were determined to be significant. The determinants significant at .01 level were total income, net assets, age, status as a household head, all levels of education other than graduate school, the presence of 10+ year olds in the household, the number of boys, and caring for grandchildren.

Table 4.2.2 2004 Determinants of Private Transfers from Adult Children

Method: Ordinary Least Squares Dependent Variable: Private Transfers	<u>All Children</u>		<u>Co-Resident Children</u>		<u>Non-co-resident Children</u>	
<u>Characteristic of Elderly</u>	Parameter Estimate	t Value	Parameter Estimate	t Value	Parameter Estimate	t Value
Intercept	1059.82358	0.95	4093.6609	6.65***	-3033.8374	-3.2***
Total Individual Income	0.02814	7.55***	0.00914	4.45***	0.019	6.02***
Total Assets	-0.00132	-1.3	-0.000452	-0.81	-0.0008701	-1.01
Net Assets	0.00037397	0.36	4.658E-05	0.08	0.0003274	0.38
Age	37.40658	2.54**	-16.41828	-2.02**	53.82486	4.31***
No. of 0-4 Year Olds in Household	360.08654	1.59	18.16296	0.15	341.92358	1.78*
No. of 5-9 Year Olds in Household	-119.43932	-0.61	-404.23625	-3.74***	284.79693	1.71*
No. of 10-19 Year Olds in Household	-535.8058	-3.22***	-493.16597	-5.38***	-42.63983	-0.3
No. of 20-39 Year Olds in Household	117.46079	0.99	528.43326	8.1***	-410.97246	-4.1***
No. of 40-64 Year Olds in Household	-440.46059	-3.31***	-114.3801	-1.56	-326.0805	-2.89***
No. of 65+ Year Olds in Household	126.02099	0.88	69.78902	0.88	56.23197	0.46
No. of Sons	263.38276	3.77***	-20.55415	-0.53	283.93691	4.8***
No. of Daughters	144.30051	2.65***	-30.89489	-1.03	175.1954	3.8***
Caring for Grandchildren	-897.39895	-6.72***	-262.67358	-3.57***	-634.72537	-5.61***
Total Savings	-0.02645	-1.82*	-0.00714	-0.89	-0.01932	-1.57
Elementary Education	1086.00283	5.38***	322.613	2.9***	763.38983	4.46***
Middle School Education	1264.12446	4.76***	482.51286	3.3***	781.6116	3.48***
High School Education	1832.42808	6.93***	205.58254	1.41	1626.8455	7.26***
University Education	1586.3363	4.55***	421.74838	2.2**	1164.5879	3.94***
Graduate School Education	1705.53378	1.85*	511.74886	1.01	1193.7849	1.53
Household Head	-1429.38521	-6.66***	-2590.0991	-21.91***	1160.7139	6.38***
Female Gender	299.18192	1.55	-128.08225	-1.2	427.26417	2.61***

Table 4.2.3 2006 Determinants of Private Transfers from Adult Children

Method: Ordinary Least Squares Dependent Variable: Private Transfers	<u>All Children</u>		<u>Co-Resident Children</u>		<u>Non-co-resident Children</u>	
<u>Characteristic of Elderly</u>	Parameter Estimate	t Value	Parameter Estimate	t Value	Parameter Estimate	t Value
Intercept	1812.70616	1.48	2420.2813	3.51***	-607.57511	-0.58
Total Individual Income	0.03187	7.5***	0.00852	3.56***	0.02335	6.45***
Total Assets	-0.00313	-2.37*	-0.000941	-1.27	-0.00219	-1.94*
Net Assets	0.00222	1.59	0.0004148	0.53	0.00181	1.52
Age	33.70559	2.3*	-12.3023	-1.49	46.00789	3.69***
No. of 0~4 Year Olds in Household	-1025.94144	-3.2***	-849.9518	-4.71***	-175.98964	-0.64
No. of 5~9 Year Olds in Household	-284.35203	-1.14	-109.3585	-0.78	-174.99357	-0.82
No. of 10~19 Year Olds in Household	-175.80443	-1.08	-213.6274	-2.33**	37.823	0.27
No. of 20~39 Year Olds in Household	376.97014	3.04***	872.99019	12.51***	-496.02005	-4.7***
No. of 40~64 Year Olds in Household	-556.61173	-3.68***	85.64939	1.01	-642.26112	-4.99***
No. of 65+ Year Olds in Household	-85.66812	-0.5	238.37043	2.47**	-324.03855	-2.22**
No. of Sons	398.88368	5.29***	-6.82753	-0.16	405.71121	6.32***
No. of Daughters	241.53625	4.19***	-29.01997	-0.89	270.55621	5.51***
Caring for Grandchildren	-1284.35277	-5.07***	-374.8304	-2.63***	-909.52237	-4.22***
Total Savings	-0.01157	-2.15**	-0.00187	-0.62	-0.0097	-2.11**
Elementary Education	500.30863	2.44*	192.59682	1.67	307.71181	1.76*
Middle School Education	999.25423	3.81***	610.40167	4.13***	388.85256	1.74*
High School Education	1230.31688	4.62***	461.76586	3.08***	768.55102	3.39***
University Education	1362.46429	3.95***	482.25881	2.48**	880.20548	3***
Graduate School Education	72.49932	0.08	-35.77553	-0.07	108.27485	0.14
Household Head	-870.96831	-3.39***	-1414.395	-9.78***	543.42685	2.49*
Female Gender	521.16713	2.58**	394.53327	3.46***	126.63386	0.74

4.2 Discussion on Significance of Determinants

Tables 4.2.2 and 4.2.3 are the results of regression analysis on KReIS data from years 2004 and 2006. The data sets from 2008 to 2014 were not used due to changes in the questionnaire, which did not collect specific information on the amount of private transfers from adult children. We hope to comment on changes and consistency of these determinants from 2004 to 2006. One benefit of Tables 4.2.2 and 4.2.3 is the ability to compare private transfer support patterns for old age parents from both co-resident and non-co-resident adult children.

In terms of total individual income, there is a positive correlation between old age parent's total income and the amount of private transfers. However, there may be a mediating factor in that private transfers contribute to total income.

Age, co-resident and non-co-resident children have contrasting impacts in terms of private transfers. Non-co-resident children provide 53,825 KRW for every year their parents age, while co-resident children decrease private transfers by 16,418 KRW for each year their parents age. This supports the Figures 4.1 and 4.2 in the previous section, which indicate that a contrasting behavior of co-resident and non-co-resident adult children in supporting their elderly parents over time.

The makeup of elderly households also affects the level of private transfers. Specifically, whether an elderly person is living with people of certain age groups affects the amount of private transfers they receive. The number of '10 to 19' year olds has a negative relationship with private transfers from both types of adult children. Kim (2014) attributes this to the large investment needed to care for individualistic teenagers. The impact of teenagers in the household is much larger for co-resident children. The presence of '40 to 64' year olds similarly has a negative relationship with private transfers, but affects transfers from non-co-resident children more negatively. It appears that adult children are less willing to provide support for their aged parents, when that money will be used to also support their siblings.

Having sons was only significant for non-co-resident children. Each additional son positively correlates to an additional 283,000 KRW per year.

This determinant was statistically insignificant for co-residing adult children.

Daughters were also only significant for non-co-resident children. Each additional daughter correlated to an additional 175,000 KRW per year. Similarly, this determinant was statistically insignificant for co-residing adult children. It appears that non-co-residing children do more in terms of securing their aged parents income.

The exchange theory is challenged by the determinant titled “caring for grandchildren”. Caring for grandchildren negatively correlates to private transfers significantly. For co-residing adult children, caring for grandchildren reduces private transfers by 262,000KRW per year. For non-co-residing adult children, it reduces private transfers by nearly 635,000 KRW.

For education level, the baseline was no education, and dummy variables were created to compare the difference in private transfers based on subsequently higher levels of education. All levels of education were statistically significant, besides graduate school. Non-co-resident adult children provide larger sums of private transfers, which supports preceding research. All education levels up to university increase the level of private transfers. Looking at the results for all children, we see that elementary education increases annual private transfers by 1,086,000 KRW compared to no education; middle school 1,264,000KRW annually more than no education; high school 1,832,000KRW annually more than no education; and university 1,586,000KRW annually more than no education. Aged parents with a high school level of education appear to gain the most benefit from their educational background in terms of financial support from adult children.

Status as the household head was also significant and had opposite responses from co-residing and non-co-residing adult children. Non-co-residing adult children pay 2,590,000KRW less per annum to elderly parents who are household heads, and non-co-residing adult children pay 1,160,000KRW more per year for elderly parents who are household heads.

Finally, the female gender is statistically significant for non-co-resident children, and increase private transfers by 427,000KRW per year. It appears that non-co-residing children are more willing to support their mothers than fathers.

Table 4.2.3 show the significance of the same determinants in the 2006 KReIS study. We see similar trends that reinforce the impact of these determinants with changes that are noted below.

In 2006, the significance of elderly household constitution changes. The presence of '20 to 39' year olds becomes significant. We see a positive correlation in private transfers for co-resident adult children, and a strong negative correlation for non-co-resident children. This may indicate that household members in this age group are contributing to household income through private transfers.

In 2006, all education levels remain significant, however, the education level correlated with the highest level of private transfers is the university level, in contrast with 2004, where high school received the highest amount of private transfers. Attaining graduate level education remains statistically insignificant.

Chapter 5. Conclusion

5.1. Future Research

In the future, more in-depth regression analysis can be conducted to determine the significance of household constitution on private transfers. Our cursory research showed low levels of significance in household constitution being an influential determinant of private transfers, however, it is worth further investigation. In addition, samples should be controlled to limit ages represented in future research related to household constitution and elderly income trends.

Regression analysis can be conducted on waves 3 to 6 of the KReIS dataset. However, because of the change in questionnaire, the results would be limited to generalized information about overall private transfers, rather than detailed information on the behavior of coresident and non-coresident adult children.

The results suggest a crowding out effect of public transfers, which point to altruistic motives of adult children in supporting elderly parents. If policies securing elderly income are meant to improve the standard of living of elderly, then further policies should be considered that could encourage adult children's support of elderly parents.

The rise in work, although slight, should be taken into consideration, especially as older Koreans engage in menial, unskilled, and undignified work. Korea's current trajectory of establishing later retirement ages will secure higher quality work for elderly Koreans. New laws should be considered that would increase opportunities for better working conditions for Korean elderly.

5.2. Conclusion

This paper uses the Korea Retirement and Income Study (KReIS) to shed light on trends related to the incomes sources of South Korea's elderly. It adds to Hisam Kim's (2014) research by adding two waves of KReIS data, extending the six-year period to ten-years. Wave 6 of the KReIS data is in beta form and was generously released for the purpose of this study. This studies unique contribution is providing uniform data that offsets the changes in questionnaire methodology regarding incomes sources before and after KReIS's 2nd wave. This produces results that are comparable between years, and also provides a clearer image of the ratios of elderly income, especially in years one and two.

In extending the period of observation, we find that there is indeed a rapid growth in public transfers and simultaneously marked decline in private transfers. It appears that there is a growing expectation for government to provide for elderly income security. The increase in work income, however, may be less considerable than suggested by preceding research, especially after adjusting for inflation. Nonetheless, even a gradual increase in work income for elderly is significant due to the physical vulnerability of people in late age. The slight increase in work income over time may point to an increasing sense of self-responsibility to secure income in old age.

Our empirical analysis of KReIS data from 2004 to 2014 paints a picture of the reality of the role of government and family in providing for elderly income. The role of old age income security seems to be steadily shifting from the family to the government. A system once dependent on the

eldest male to provide old age income security may be giving way to broad support from all children, and ultimately an expectation for the country to provide for aged parents.

We began this paper taking into consideration demographic changes, such as changes in family constitution, fewer occurrences of co-residing adult children with their aged parents, longer life-expectancy, and a rapidly ageing society. Some researchers show a concern of eventual overdependence on the South Korean government, which is already experiencing smaller family sizes, and disjointed households. Some express that increased public transfers may only further dependence on government provision, and weaken the family unit. However, trends show that adult children are indeed financially supporting their elderly parents less over time, a trend that will not easily be overturned. Thus, smart policies could be enacted that ensure income security for the aged and take into consideration changing behaviors and family dynamics. Indeed, South Korea's societal change is leading to a group of middle-aged South Koreans that may never receive support from their children, while enduring the responsibility of supporting their parents. What provisions will be made for this middle-aged South Korean group?

Analysis on determinants impacting private transfers from adult children support their significance level. Elderly characteristics, such as education level, household constitution, and gender appear to impact how much private transfers they receive from adult children. The list of 22 determinants show high degrees of statistical significance and can be used by policymakers to create balanced policy that will ensure income security for

the aged from a myriad of sources.

The South Korean government should find a solution to secure elderly income and ensure that the old aged are not overextending themselves in menial work after retirement. The obligatory supporter rule has gained attention recently and should be corrected to ensure income for elderly that are not being supported by adult children, while being excluded from government benefits due to family ties. A policy recommendation is rewarding children that do provide financial assistance to their aged parents. Such a measure might mitigate the crowding out effect of public transfers, and ensure stronger financial stability for South Korea's elderly.

Our results also point to a crowding out effect of public transfers on private transfers. Government provision should not crowd out private transfers in a way that leads to overall lower income levels for elderly. Nonetheless, public transfers do much to benefit the elderly and is essential in reducing poverty and securing South Korean elderly livelihood. Some are concerned that public transfers crowd out private transfers and leave the elderly worse off than before. However, trends in the behavior of adult children in financially supporting their elderly parents cannot be overlooked or easily changed by government regulations. How far will measures to encourage private transfers go? Assuming that the behavior of adult children, and the changing South Korean family dynamic, it is imperative to securitize elderly livelihood through public measures.

Overall, this study aimed to provide a clear picture and analysis of South Korean elderly income sources from 2004 to 2014. Using the KReIS

panel study, we demonstrate a strong trend in a rise in public transfers, reduction of private transfers, and a gradual increase in work income for Korean elderly. This ten-year analysis points towards trends that will not easily be overturned. Thus, it is imperative that the South Korean government prioritize on public measures to secure elderly income. Some reforms might include changes to the National Pension System by encouraging greater participation and increasing the replacement rate. Gradual increases to the national retirement age appear to be a step in the right direction, however, seniority-based wage and hiring practices should be re-examined. Public measures that create pathways for dignified work for South Korean elderly, while discouraging physically demanding and menial jobs in later life, may create a more economically balanced society among age groups. Some of these measures will help to ensure a better outlook for older South Koreans, which, as empirical analysis points out, might never enjoy financially stewardship from their adult children.

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국문초록

어떤 요인들이 성인자녀로부터 노인부모로의 세대간 사적 이전에 영향을 주는가? 노인 소득의 보장이라는 측면에서 정부와 가족의 역할은 무엇인가? 선행 연구들은 노인소득에서 사적 이전과 공적이전의 관계를 규명하기 위해 노력해 왔다. 이 연구는 그 연장선에서 한국 노인을 대상으로 사적이전에 영향을 미치는 요인들을 조사하기 위함이다.

이 연구는 2004년부터 2014년까지 매 2년마다 노인 가구와 그 구성원들을 대상으로 소득과 생활실태를 반복적으로 조사관찰해온 국민노후보장패널조사(Korea Retirement and Income Study)를 분석한다. 한국 노인의 소득과 관련하여 한국경제개발연구원의 김희삼의 연구(2014)는 연령코호트 별 노인 소득의 구성요인과 사적 이전 소득의 결정요인을 조사하였다. 이 연구는 김희삼의 연구를 발전시켜 국민노후보장패널조사의 최근 두 개 연도를 추가하여 2004년부터 2014년 10년 동안의 노인소득의 변화양상을 분석한다.

연구결과, 우리는 한국에서 노인 소득의 구성에서 나타나는 변화와 관련해 김희삼의 연구와 유사한 결론에 도달하였다. 우선 한국의 노인들이 시간이 흐름에 따라 점점 더 근로활동에 종사하고 있다는 점이다. 두번째로 공적이전이 시간이 흐름에 따라 점진적으로 증가하고 있다는 점이다. 마지막으로 사적이전이 감소하고 있다는 점이다. 이는

주요하게 노인의 소득을 보장하는 것이 정부와 노인들 자신의 책임이라는 인식이 확산된 것과 관련된 것으로 보인다.

다음으로 다섯가지 가구형태별로 노인 소득의 변화양상이 다른지를 분석한 결과 그 변화양상이 가구형태에 따라 다르지는 않은 것으로 나타났다. 우리는 노인 1 인가구, 노인부부가구, 자녀와 함께 사는 노인가구, 자녀 및 손자녀와 함께 사는 노인가구, 자녀없이 손자녀와 함께 사는 노인가구의 다섯 가지 가구형태 별로 노인 소득의 변화양상이 다를 수도 있음을 추측하였다.

주요어: 노인소득지원, 세대간 이전, 노인빈곤

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