



은퇴가계의 재무전략유형별 심적회계 양상에 대한 고찰

Mental Accounting of Retired Household by the Type of Household Financial Strategy

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Abstract

Retired households are generally considered to be a single, homogenous group; however, their economic behaviors vary significantly. Therefore, a deeper understanding of retired households' composition of assets and debt as well as their connection to consumption is necessary. The goal of this study is to categorize the financial strategies of retired households using a portfolio approach to examine their mental accounting of consumption based on the Behavioral Life-cycle Hypothesis. To achieve this goal, 904 retired households in Korea were analyzed. Cluster analysis was used to deduce household financial strategies, and regression analysis was used to explore mental accounting based on the households' financial strategy type. Three financial strategies were identified: Debtor Type, Real Estate-Focused Type, and Savings-Focused Type. Through analyzing the retired households' portfolios, the significant differences in their financial strategies and actual portfolio composition were confirmed. Moreover, the existence of mental accounting has been empirically proven, and the differences in mental accounting among financial strategy groups have been identified. The biggest difference among the financial strategy types was in the current income account. Since this study did not assume retired households were a single, homogenous group, the understanding of their diversity has been improved. Furthermore, it is differentiated from previous research as the households' financial strategies have been identified based on their actual asset and debt levels rather than the status of their possession

Key words: household financial strategy, mental accounting, portfolio, retired household

국문초록

은퇴가계는 일반적으로 동질적인 단일 그룹으로 간주되

지만 재무적 행동의 모습은 다양하다. 따라서 은퇴가계의 여러 특성을 감안하여 자산과 부채 구성 및 소비와의 연관성에 대해 심층적으로 이해하려는 노력이 필요할 것이다.

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본 연구의 목적은 은퇴가계의 재무전략을 포트폴리오 접근 법으로 분류하여 행동주의적 라이프사이클가설에 기반을 둔 소비에서의 심적회계를 분석하고자 하는 것이다.

한국노동패널 2013년-2015년 데이터에서 은퇴가계 904명의 가계 재무전략을 군집분석으로 추정하고, 회귀분석을 적용하여 재무전략 유형별로 어떠한 심적회계가 존재하는지를 파악하고자 하였다. 은퇴자 가계는 채무자유형, 부동산중심유형, 저축중심유형 등 3가지 유형으로 분류되었으며, 포트폴리오 분석을 통해 재무 전략과 실제 포트폴리오 구성의 중요한 차이를 확인하였다. 특히 심적회계의 존재와 재무전략이 서로 다른 집단 간 심적회계의 차이를 검증할 수 있었다. 재무전략 유형은 급여계좌와 유동성자산 및 금융자산에서 가장 큰 차이가 발견되었다.

선행연구들에서 일반적으로 자산의 보유 상태를 검증하였다면 본 연구는 은퇴한 가계를 동일 집단으로 가정하지 않은 상태에서 다양성에 대한 이해를 높이고 자산 및 부채의 실질 수준을 바탕으로 재무전략을 도출하였다는 점에서 이전 연구와 차별된다고 할 수 있다. 또한 은퇴와 가계의 심적회계 간의 연관성을 입증하여 가계 포트폴리오 전략 특성에 맞춘 은퇴준비도를 점검하고 행동재무학적 특성을 반영한 전략 수립 자료로 활용할 수 있도록 하였다는 데 의의가 있다.

키워드 : 가계재무전략, 심적회계, 포트폴리오, 은퇴가계

I. Introduction

The significance of retirement preparation is growing in the modern world. However, considering the report by OECD that the households' financial soundness has rapidly deteriorated due to continued economic recession and the worsening poverty of the elderly, an in-depth consideration involving the type and amount of assets and debt that the retired household possesses is required prior to encouraging retirement preparation (OECD, 2015). In addition, this composition of assets and debt needs to be connected to the consumption of retired households to understand their relationships. Previous studies have

only roughly examined the household's overall assets so they need to be examined comprehensively.

However, the same aspects of the portfolio of assets and debt and consumption expenditure are not observed in all retired households. Due to this diversity of the portfolio and consumption expenditure, the Behavioral Life-cycle Hypothesis provides a meaningful insight. Shefrin & Thaler (1988) suggested the idea of "Mental Accounting" through the Behavioral Life-cycle Hypothesis. Mental accounting explains that the resources used by individuals are categorized into current income, current assets and future assets, and that each displays different levels of psychological cost. Individuals save and consume based on such mental accounting and therefore show different aspects in the composition of assets and debt and consumption.

Some individuals intend to manage the assets that the household owns with the ultimate goal of enhancement in economic welfare; this method is called the 'Household Financial Strategy'. And, since the categorization and contents of specific mental accounting systems vary by individual, the household financial strategy and portfolio also display various aspects (Xiao, 1996; Xiao & Olson, 1993). Eventually, it is expected that different households will show different household financial strategies in the formation of the asset and debt portfolio based on their mental accounts. Consequently, during the process of consumption the aspects of mental accounting would vary depending on the financial strategy types of the households.

Therefore, if retired households are considered as all identical and the organic approach to the connection between their portfolio formation and consumption expenditure is overlooked, the fundamental attributes of each household that exist within retired households would be largely ignored and in-depth insight difficult.

This study verifies the presumption that there is diversity in retired households' portfolio construction, consumption expenditure, and internal mental

accounting due to the fundamental differences in these households' financial strategies, meaning the financial goals and selection of methods vary. This study aims to organize and classify household financial strategies based on the actual level of asset and debt possession through the portfolio approach. It also intends to explain the difference in the aspects of mental accounting of classified retired household groups in terms of their consumption expenditure. In particular, since retirees are distinctive in the sense that they have no additional earned income but make consumption expenditures after retirement out of the assets and debt accumulated prior to retirement, this study empirically analyzes the connection between asset accumulation before retirement and consumption expenditure after retirement.

II. Literature Review

1. Overview of Portfolio Theory and Household Financial Strategy

A portfolio may be defined as “the combination of assets in diverse forms” (Bodie et al., 2013). And a household financial strategy refers to “a household's decision to determine the direction of financial management and allocation of resources in order to improve the economic welfare of the household”. Since a household's portfolio is the combination of the diverse assets and debts the household intends to hold, the concept is ultimately based on the household's financial strategy, which indicates the method of managing assets and debts (Park & Rhee, 2002). While direct observation and investigation of individual household financial strategies may be difficult, the portfolio approach functions as very useful tool for apprehending the dynamics. Structuralization of an asset and debt portfolio facilitates a deeper understanding of the financial strategy which each household would eventually adopt.

The systematization of portfolios for household financial strategy investigation entails the diversity of portfolios. When all other conditions are identical and perfect information is given to investors, there would be only one optimal solution for each portfolio. However, in the real market environment each component constitutes a different proportion of the portfolio depending on inherent characteristics of the household. Kim & Park (2003) explained this diversity of portfolios based on numerous theories and one of them was Behavioral Life-cycle Hypothesis. According to this hypothesis (used in this article as the theoretical framework), an individual imposes different liquidity restrictions on various types of assets in order to overcome the impatience generated by time preferences for the present period. As a result, mental accounts are formed and because a difference in specific classifications and contents of mental accounts existing among individuals, portfolios also show broad diversity.

Methods of categorizing portfolios could be divided into two basic approaches: portfolio formalization based on a household's characteristics and portfolio formalization based on a portfolio's characteristics. Firstly, researches conducting portfolio segmentation using the characteristics of a household involve comparing portfolios based on a household's asset and income level (Choi et al. 2005; Park & Joung, 2013) and focusing on the householder's traits such as investment propensity (Huh et al., 2010; Kim & Choe, 2008). These researchers commonly sort households into categories based on certain criteria and investigate the structure and attributes of portfolios according to the pre-determined categories. However, research has also tried to analyze portfolios based on their inherent characteristics and examine the following characteristics of households corresponding to the latter portfolio categorization studies. Park & Choe (1999) classified portfolios as liquidity focused, wealth growth focused, and interest/annuity focused types by the kind of intensively invested asset. Similar to this, Yuh (2007)

sorted household portfolio into four types.

Among researches intended to classify using the characteristics of portfolios, there have also been diverse attempts to categorize portfolios autonomously through cluster analysis rather than by sorting them in accordance with criteria set by researchers. In particular, these studies share the aim of this article in attempting to classify household financial strategies using portfolio analysis. This was first tried by Gunnarsson and Wahlund (1997) and in their study cluster analysis was conducted based on 35 types of portfolio components to sort out household financial strategies. According to their results, household financial strategies could be grouped into six general categories: Residual saving strategy; contractual saving strategy; security saving strategy; risk hedging strategy; prudent investment strategy; and divergent strategy. Park & Rhee (2002), Park & Kim (2007), and Park & Moon (2004a; 2004b) explored household financial strategies of South Korea based on studies by Gunnarsson and Wahlund (1997) Park & Rhee (2002) verified six types of financial strategies, identifying distinctive Korean types. Park & Kim (2007) investigated the financial strategies specific to elderly households and categorized them into five types. Their system is similar to the results reported by Park & Rhee (2002), but regarding the addition of the Real Estate-Focused Type, the exemption of adjacent-institutions and the hedging savor and its distinctive subject, the difference between the two studies is thought to be significant.

However, the implications of the preceding studies are limited. Due to methodological problems stemming from conducting cluster analysis based solely upon the “haves” or “have-nots” of the portfolio components, the aforementioned researches failed to reflect the actual levels of the components that households possess. In addition even if the actual levels of portfolio components are considered in research studies, portfolios had been categorized based on criteria set by researchers rather than the actual inherent characteristics of the portfolios, and

they are not comprehensive enough to deduce financial strategies from the portfolios alone.

Moreover, since some previous research studies have been based on these markedly different compositions of portfolio components, it is difficult to compare types of portfolio classification and produce consistent overall results.

2. Behavioral Life-cycle Hypothesis and Mental Accounting

The Life-cycle hypothesis was presented by scholars such as Ando & Modigliani (1963) and Modigliani & Brumberg (1954). This is one of the classic models to traditionally implemented to explain households' allocation of resources during and over the entire life-cycle. However, the Life-cycle Hypothesis has limits in that it supposes perfect rationality of consumers and denies the possibility of inheritance. Consequently in order to explain the behaviors not explained by the Life-cycle Hypothesis, the Behavioral Life-cycle Hypothesis was presented to deepen existing comprehension. The Behavioral Life-cycle Hypothesis was theorized by Shefrin & Thaler(1988). It appended the concept of self-control, mental accounting and framing to the General Life-cycle Hypothesis and additionally provided a detailed explanation regarding elements not accounted for by the previous theory. One of the significant differences between the Life-cycle Hypothesis and the Behavioral Life-cycle Hypothesis is that while the former assumes the perfect fungibility of all income and assets, the latter does not presume perfect fungibility.

An individual's decision making process is based on a twofold structure of preference. The “Planner” is the individual who prefers a process of rational thinking which considers and incorporates long-term utility; a “Doer” is the one who prefers impulsive action which based in emotion and which emphasizes imminent compensation. Since rational thinking and emotion-based action are not always compatible.

Consumers usually put present consumption before future consumption. Accordingly, people need individual willpower to ensure stable future consumption and as a result a psychological cost is imposed. Mental accounting is suggested as one of the methods to reduce the psychological cost - the cognitive dissonance- arising from dealing with the conflict of preference between rational thought and impulse the hallmark characteristics of the 'planner' and the 'doer'.

The key point of mental accounting allocation is that the resources the individual usually involve categorization into three accounts - current income, current assets and future income - and each of these three accounts shows different levels of psychological stress. Thaler (1999) defined it as "the set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities". Because of the difference in psychological costs, each account has different effects on consumption and this can be examined through the difference in the marginal propensity to consume. Present income shows the lowest level of marginal propensity to consume, whereas future income shows the highest. This represents the relationship between mental accounts, which in turn reflects the assumptions of the Behavioral Life-cycle Hypothesis, which denies the perfect substitutability of all income and assets.

Many studies have been conducted based on the Behavioral Life-cycle Hypothesis, especially in relation to the concept of mental accounting. The fields of study in which the concept of mental accounting is applied vary from the mental accounting of individuals' hedonic consumption (Panchal & Jha, 2014) to the mental process of accounting implemented by sellers in determining pricing (Hu et al., 2015). Feldman (2010) examined the influence of income tax changes on the process of mental accounting. The results showed that unlike the expected consequence of the Life-cycle Hypothesis, income differences generated from income tax change related policy reduce the possibility of the

household retaining any material savings for retirement. Hess & Sheldon (2012) constructed an experiment to test the perfect fungibility and consistency of resources. It confirmed the idea that the assumption of "perfect substitutability" suggested by the traditional Life-cycle Hypothesis is, in fact, not supported and consequently identified a process of mental accounting which was actually taking place.

Some of the researchers attempted to establish the concept of mental accounting directly, taking a step forward from aforementioned studies which investigated mental accounting in a relatively indirect manner. Lee (1995) categorized the list of assets an individual possesses into four accounts based on assumptions regarding the process of mental accounting. The researcher analyzed each household asset accounts' marginal propensity to consume and confirmed that a significant difference exists between them. Park & Hwang (2014) subdivided household types according to the household's main income source and examined the general household mental accounting tendencies based on household type and income quantile. Kim & Choe (1999) and Yang & Choe (2009) focused on current income and looked through its impact on consumption. Kim & Choe (1999), on the other hand, classified the households selected for study into two groups based on the type of residence, and then analyzed the influence of earned income, assets income, transfer income, and other incomes on consumption for each type of household.

According to the study, the relationship was affirmed as valid. The study of Yang & Choe (2009) revealed findings similar to those reported by Kim & Choe (1999) in that they intended to examine the direct impact of diverse household income levels on consumption. Yang & Choe (2009), however, have taken a definitive step forward by exploring the difference in its intensity and directivity using a chow-test.

In sum, the significant influence that the process of mental accounting exerts upon households'

consumption is briefly verified and it is also related to the diversity of the portfolios mentioned above. According to Benartzi & Thaler (2007), mental accounting affects asset allocation, which refers to the portfolio composing activity of a household. Individuals separately perceive the money they have already invested as “old money” while money not yet invested is regarded as “new money”. This is because people usually experience anxiety in anticipation of the potential arising from retraction of the original portfolio composition and re-allocating of the assets. Moreover, De Giorgi et al. (2008) proved that individual portfolios differ due to the diverse and individual mental accounting processes of investors depending on aspiration level, purpose of investment and reference point. Nevertheless, the insights provided by these research studies are limited since they are not comprehensive enough to empirically verify any demonstrable relationship between portfolios and individual mental accounting processes. As “consumption decision” also represents one of the financial management behaviors the household determines, an understanding of how household financial strategies are systematically connected to consumption would be required.

III. Methods

1. Research Question

The research questions of this study, which categorizes households’ financial strategies based on retired households’ asset and debt portfolios and examines the mental accounting tendencies in consumption expenditure of each category, are as follows.

Question 1: How is the financial strategy of retired households categorized?

Question 2: What are the mental accounting processes of retired households based on the

financial strategy type?

2. Data

The data used in this study was acquired from the Korean Labor and Income Panel Survey (by the Korea Labor Institute). In defining retired households, this study has examined various previous studies (Burtless & Moffitt, 1984; Disney et al., 2015; Eibich, 2014; Hospido & Zamarro, 2014; Wannell, 2007) and revised and combined existing definitions and defined a “retired household” as a household with “no earned income; the head of the household is over 55 years of age and the weekly labor hours are less than 30 hours for the last three years”. KLIPS’s data from 2013-2015 has been combined to select 904 households as retired households for this study. SPSS 21 was used to analyze the data.

3. Variables

In categorizing the asset and debt portfolio in Question 1, this study subdivided the components of portfolios into seven subcomponents of assets and three subcomponents of debt. Assets are divided into financial assets and non-financial assets. Financial assets are divided into safe financial assets, savings insurance, financial investment assets and other financial assets. Here, safe financial assets indicate bank deposits and savings insurance provides higher benefits than the premium paid at the expiration of the insurance. Financial investment assets involve all types of stocks, bonds, and trusts. Non-financial assets are divided into owner-occupied housing value, real estate other than housing, and other non-financial assets. The owner-occupied housing value indicates the market value of a house that the respondent owns. Lastly, debt is divided into general debt, security deposit and other debt. General debt is the value of money the respondent has borrowed from financial institutions or non-financial institutions, while security deposit is classified as an independent

category since the housing form of lease based on a high level of deposit is very common in the Korean real estate market.

Next, the study model in Question 2 was designed to explain the effects of four kinds of mental accounting processes for each portfolio type on total consumption and expenditure when socio-demographic variables were controlled. In this study, the mental accounting processes were further segregated into current income, current asset A, current asset B and current asset C in general and subdividing the current assets in particular. The current income account includes all income-related items such as earned income, financial income and real estate income; current asset A consists of financial assets with relatively high liquidity that the household owns; and current asset B consists of all non-financial assets except housing. Housing is classified into current asset C, reflecting the fact that retired households' will to inherit housing is generally high and housing has the highest ratio among the total non-financial assets. These four mental accounts were labeled as ACC1, ACC2, ACC3 and ACC4 in sequence for convenience sake. The socio-demographic variables that form the study model in Question 2 besides the mental account included the age of the head of the retired household, the number of members in the household, the educational level of the head of household, possession of own home, and the current subjective financial status of the household. The dependent variables of the study model, the expenditure, are classified into food, education and childcare, transportation, communication, medical and other living expenses; the total expenses figure represents the aggregate of the six elements noted above.

4. Data Analysis

In order to explain Question 1, this study has utilized hierarchical cluster analysis. The reference variable in cluster analysis consists of the ratio of the subcomponent that comprises the assets and debt

in the portfolio, in proportion to total assets. As mentioned previously, this study intends to examine the overall structure of portfolios and classify this structure by improving the limitations of previous studies; therefore, the groups were divided in Stage 1 based on the debt possession status. The subcomponents of portfolios were standardized by dividing them by the total assets, and based on the ratio per component the cluster analysis was performed in Stage 2 for groups that possess debt and groups that do not. In order to explain the specific attributes of the groups as deduced from the cluster analysis and the difference between these groups, descriptive analysis such as average analysis or frequency analysis has been performed alongside ANOVA. In Question 2, regression analyses of each household's financial strategy type as categorized in Question 1 were performed. When the influence of other socio-demographic factors that represent the preferences of households that fall under specific financial strategy types and the changes in consumption expenditure according to the increase in each mental account are examined, and the coefficient of each account here signifies the marginal propensity to consume. It was previously assumed that the four mental accounting and socio-demographic attributes of each household were in a linear relationship with the total consumption and each expense. After examining whether or not mental accounting processes occur in households through regression analysis, a regression co-efficient difference test was performed to evaluate the differences between each group.

IV. Findings

1. Categorization of Household Financial Strategies in Retired Households

The results of the categorization of financial

strategies in retired households in this study are as follows: As a result of primary categorization based on debt possession, 226 households possessed debt and 678 households did not. Cluster analysis was performed on the two groups based on the ratio of the subcomponents of assets and debt to total assets and no further categorization occurred for households with debt, so they were assigned as Type 1. The 678 households without debt were further categorized into two groups: they were assigned as Type 2 and Type 3.

As mentioned earlier, Type 1 included 226 households that possess debt, corresponding to 25% of the 904 households in total and accounting for the lowest ratio of the three types. In terms of the average ratio of asset and debt to the total assets of households that fall under Type 1, safe financial assets presented the highest ratio with 8.76% followed by financial investment assets, savings insurance, and other financial assets. Non-financial assets resulted in the order of owner-occupied housing value, real estate other than housing, and

other non-financial assets; debt resulted in the order of general debt, security deposit and other debts. When Type 1 was compared with other types, it was the group with the highest average ratio in terms of financial investment assets (0.35%), real estate other than housing (8.45%), and other non-financial assets (2.27%), while their debt possession ratio was understandably the highest as well. On the other hand, the ratio of their other financial assets was 0.01%, representing the lowest among the three groups. The Type 1 group made relatively evenly distributed investments in various types of assets, taking the highest debt; therefore, they were entitled the 'Debtor Type'.

Cluster analysis formed Type 2, which consists of households without debt, and 382 households (42.2%) fell under this category. In terms of the average ratio of assets and debt for households in Type 2 the owner-occupied housing value was 91.49%, which is an overwhelmingly high figure. Safe financial assets were next with 6.82%, followed by real estate other than housing with 0.72%; the

〈Table 1〉 Asset Ratio by Household Financial Strategy Type Group

(%)

	Type 1	Type 2	Type 3	Total	F
N(%)	226 (25.0)	382 (42.2)	296 (32.7)	904 (100.0)	
Safe financial asset	8.76	6.82	28.02	14.25	55.30 ***
Savings insurance	0.07	0.13	0.02	0.08	0.86
Financial investment asset	0.35	0.00	0.33	0.19	0.78
Other financial asset	0.01	0.17	0.08	0.10	0.57
Total financial asset	9.19	7.11	28.44	14.62	54.66 ***
Owner-occupied housing	66.75	91.49	3.93	56.63	1182.42 ***
Real estate other than housing	8.45	0.72	3.92	3.70	16.90 ***
Other non-financial asset	2.27	0.69	1.88	1.47	2.98
Total non-financial asset	77.54	92.89	9.73	61.82	985.41 ***
General debt	58.45	0.00	0.00	14.61	7.08 ***
Other debt	11.89	0.00	0.00	2.97	5.19 *
Security deposit	16.77	0.00	0.00	4.19	18.31 ***
Total debt	87.11	0.00	0.00	21.78	13.11 ***
Financial Strategy Type	Debtor	Real Estate- Focused	Savings- Focused		

Notes. * $p < 0.01$. ** $p < 0.005$. *** $p < 0.001$.

difference compared to owner-occupied housing value was substantial. As already mentioned, these households did not have any debt, so their general debt, other debt and security deposit were all 0% and their financial investment asset was also 0%, displaying the lowest level among all three groups. In addition, the ratios of their safe financial assets, real estate other than housing, and other non-financial assets were the lowest among the three groups. Since households falling under Type 2 had far bigger ratios of owner-occupied housing in terms of the total assets and the lowest total financial assets among the three groups they were collectively titled the 'Real Estate-Focused Type', meaning their investment in real estate asset is restricted. The findings of Park & Kim (2007) were thought to suggest that the Real Estate-Focused Type represents the most typical type of Korean household and the attributes of the Type 2 groups in this study are entirely compatible with the supported by these findings.

Type 3 is also derived from the cluster analysis of households without debt and 296 households fell into this type, corresponding to 32.7% of all households. In terms of the Type 3 portfolio, the highest ratio appeared in safe financial assets (29.02%) followed by owner-occupied housing value (2.93%), real estate other than housing (3.92%) and other non-financial assets (1.88%). The ratio of safety financial assets was overwhelmingly greater than other types of assets, and was two to three times higher than the other type groups and the overall average. However, the ratios of savings insurance and owner-occupied housing value to total assets were lower than other groups and the real estate other than housing was significantly smaller. The Type 3 groups had a lower ratio of assets other than safe financial assets and do not own debt, so they correspond to the 'Savings-Focused Type' that has been suggested in previous studies (Gunnarsson & Wahlund, 1997; Kim & Park, 2003; Park & Rhee, 2002). It rejects high level-high risk investment assets and is a low

asset-low debt group with low level of non-financial asset possession, so there is positive correspondence between the findings.

Based on these financial strategy types, the actual levels of assets and debt for each type have been compared along with their socio-demographic attributes. As a result of the analysis, there was found to be evidence of significant differences in all socio-demographic attributes. In other words, based on the type of household financial strategies, groups with different attributes were formed. As presented in <Table 2>, Debtor Type households possessed the highest level of financial estate, non-financial assets and debt among the three financial strategies. Upon closer inspection was no significant difference in financial assets between the three groups was identified. However, the level of three financial asset subcomponents was highest in the Debtor Type and the Real Estate-Focused Type had the biggest proportion of other financial assets. The Real Estate-Focused Type had the lowest level of safe financial assets and financial investment assets. Savings insurance was lowest in the Savings-Focused Type while other financial assets were lowest in the Debtor Type.

Secondly, there was a statistically significant difference between the three groups with regard to the levels of all types of non-financial assets including owner-occupied housing, real estate other than housing, and other non-financial assets. As previously mentioned, Debtor Type households indicated the highest level of total non-financial assets at 307.71 million Korean Won. In addition to total non-financial assets, all further subcomponents were highest in the Debtor Type. The Real Estate-Focused Type had the second highest level of owner-occupied housing and other non-financial assets while also having the lowest level of real estate other than housing. The Savings-Focused Type was shown to have a significantly lower level of owner-occupied housing and other non-financial assets but possessed an intermediate level of real estate

〈Table 2〉 Asset Level by Household Financial Strategy Type Group

(KRW 1,000)

	Debtor	Real Estate- Focused	Savings- Focused	Total	F
N	226(25.0)	382(42.2)	296(32.7)	904(100.0)	
Safe financial asset	2,217.0	1,502.5	1,737.4	1,758.0	1.15
Savings insurance	53.0	22.2	1.6	23.2	2.29
Financial investment asset	140.2	0.0	10.1	38.3	1.56
Other financial asset	2.2	26.4	10.1	15.0	0.72
Total financial asset	2,412.6	1,551.1	1,759.4	1,834.7	1.66
Owner-occupied housing	25,387.2	13,433.7	1,300.0	12,449.1	60.34***
Real estate other than housing	5,057.5	250.7	1,926.5	2001.1	11.84***
Other non-financial asset	304.4	168.0	89.0	176.2	4.98*
Total non-financial asset	30,771.2	13,852.6	3,315.5	14,632.0	59.06***
General debt	2,897.2	0.0	0.0	724.3	23.66***
Other debt	127.1	0.0	0.0	31.7	21.53***
Security deposit	4,615.9	0.0	0.0	1,153.9	50.88***
Total debt	7,640.3	0.0	0.0	1,910.0	62.36***
Subjective economic condition	2.36	2.43	2.06	2.29	15.74***

Notes. *p<.01 **p<.005 ***p<.001

holdings other than housing. One of the distinguishing features is that the value of owner-occupied housing that the Savings-Focused Type has is 10~20 times lower than the overall figure or the figure for the other two groups.

Lastly, the total debt level of household was of course the highest in the Debtor Type. While the portfolio composition ratio was highest in terms of general debt followed by security deposit and other debt, the actual possession level was highest for the security deposit followed by general debt and other debt. In this article, the subjective economic conditions of each household was additionally analyzed to indirectly examine their level of satisfaction with their portfolios and financial status, which were composed and achieved as a result of each financial strategy. Subjective economic conditions were measured using a five point Likert scale, which required its respondents to evaluate present household economic conditions themselves.

Consequently, subjective household economic conditions were highest in the Real Estate-Focused

Type with 2.43 points, followed by 2.36 for the Debtor Type and 2.06 for the Saving Focused Type. The overall average was 2.29 points and these points turned out to be significantly different in the statistics. Even though the absolute level of assets was highest in the Debtor Type, real estate was still a higher grade than the Debtor Type. This fact might indirectly suggest that household satisfaction level might would be higher in the Real Estate-Focused Type, where the portfolio is mainly based on stable non-financial assets and avoidance of debt.

2. Mental Accounting Tendency based on Household Financial Strategy Types

In order to understand the mental accounting aspects of the Debtor Type, Real Estate-Focused Type and Savings-Focused Type of retired households, regression analysis based on the previously mentioned study model was performed. After exclusion of the Savings-Focused Type, most household types were found to have higher marginal propensity to consume

in relation to current income (ACC1) rather than current assets (ACC2, 3, 4), partially corresponding to the Behavioral Life-cycle Hypothesis. More specifically, retired households as a group turned out to have higher marginal propensity to consume in current income (ACC1) than current assets (ACC 2, 3, 4) considering all expenditure categories. The Debtor Type also showed identical results to all households. In the case of the Real Estate-Focused Type, examination of current income demonstrated a higher level of marginal propensity to consume than did current assets in all expenditure categories except for education and childcare where the regression co-efficients were all statistically insignificant. However, for the Savings-Focused Type, ACC 4 (which indicates current asset C) showed the highest marginal propensity to consume. Despite this, the marginal propensity to consume for current income was greater than that represented by current assets only for communication and medical expenses. These statistics were presumed to be due to the significantly lower value of owner-occupied housing that the Savings-Focused Type possesses relative to other types of households. According to <Table 2>, the owner-occupied housing value of Savings-Focused households is approximately 10-20 times lower than that of other groups. While most Debtor Type and Real Estate-Focused Type households are owner-occupied housing, about 88% of Savings-Focused Type households exist in the form of lease. Therefore, when the average level of ACC 4 is calculated, the liquidity factor is more significant when compared to that the other households. This indicates that there exists a tendency to diversity in the mental accounting processes in terms of the financial strategy implemented even within the relatively homogeneous group of individuals who comprise a typical retired households.

Moreover, when examined more specifically by the household type, the order of marginal propensity to consume was not uniform in terms of current assets (ACC 2, 3, 4). Nevertheless, for all households,

ACC 2 was mostly the highest and for Debtor Type households ACC 2 also showed the highest marginal propensity to consume with the exception of medical expenses. The Real Estate and Savings-Focused Types were similar in directivity. Within these two groups, ACC 4 showed the highest co-efficient level except for transportation expenses. However, for education and childcare expenses and medical expenses, the level of regression equation explanatory power is extremely low and therefore the marginal propensity to consume is mostly insignificant. As previously mentioned and in terms of statistically significant accounts the account which most directly impacts the total consumption expenditure and each expense most was current income (ACC1). Furthermore, the mental accounting process with the least power to influence behavior was current asset B (ACC3). This is most likely due to the wide distribution of the level of current asset B in all group types. Based on the regression analysis results, each mental accounting form of the three financial strategy type groups and retired households had different effects on expenses, leading to the process of mental accounting.

Next, a regression coefficient difference test <Table 4> was performed to examine the effects of each mental account of financial strategy type groups on specific expenses, and the following results were obtained. The Table below analyzes the differences in the three financial strategy groups' regression co-efficients, in other words the marginal propensity to consume. The mental account confirmed in the expense with the largest difference among the groups was current income account (ACC1). Current income varied in all groups in terms of total expenses, food expenses, transportation expenses, communication expenses, medical expenses and other living expenses. Current asset A varied in total expenses, food expenses and other living expenses while current asset B varied in transportation expenses, but there was no significant difference in marginal propensity to consume for current asset C within any of the

〈Table 3〉 Marginal Propensity to Consume by Household Financial Strategy Type

		Debtor	Real Estate- Focused	Savings- Focused	Total
Total Expenditure	ACC1	0.557***	0.572***	0.201***	0.371***
	ACC2	0.188***	0.013	-0.007	0.141***
	ACC3	0.041	0.047	0.072	0.058**
	ACC4	-0.054	0.128***	0.222***	0.069**
	R ²	0.682	0.728	0.573	0.628
Food	ACC1	0.279***	0.428***	0.204***	0.260***
	ACC2	0.193***	0.061	-0.040	0.120***
	ACC3	0.066	0.011	-0.066	0.033
	ACC4	0.137*	0.110**	0.332***	0.141***
	R ²	0.563	0.628	0.500	0.557
Education & Childcare	ACC1	0.054	0.030	0.004	0.048
	ACC2	0.034	-0.035	-0.042	0.023
	ACC3	-0.037	-0.009	-0.087	-0.035
	ACC4	-0.060	0.068	0.101	-0.022
	R ²	0.140	0.223	0.135	0.104
Transportation	ACC1	0.558***	0.424***	0.096*	0.308***
	ACC2	0.114*	0.057	0.258***	0.159***
	ACC3	0.054	0.156***	0.191***	0.087***
	ACC4	-0.214***	-0.025	0.014	-0.045
	R ²	0.514	0.458	0.472	0.431
Communication	ACC1	0.317***	0.395***	0.095*	0.220***
	ACC2	0.083	-0.038	0.006	0.067
	ACC3	-0.026	-0.009	0.032	0.013
	ACC4	-0.099	0.092*	0.054	0.010
	R ²	0.477	0.555	0.438	0.472
Medical	ACC1	0.191*	0.270	0.108	0.147***
	ACC2	-0.082	-0.101	-0.046	-0.053
	ACC3	0.023	-0.011	0.077	0.041
	ACC4	0.065	0.072	-0.022	0.042
	R ²	0.122	0.068	0.123	0.075
Other Living	ACC1	0.597***	0.553***	0.138**	0.365***
	ACC2	0.236***	0.058	-0.078	0.176***
	ACC3	0.019	0.033	0.084	0.050*
	ACC4	-0.113*	0.140***	0.223**	0.050
	R ²	0.577	0.613	0.361	0.470

Notes. *p<.01 **p<.005 ***p<.001

expenses. A greater difference in current income, in addition to the fact that the regression coefficient of current income was the largest, signifies that current income is especially important for an individual's

consumption expenditure even in retired households with no earned income. Moreover and despite the fact that non-financial assets have a significant effect in terms of categorizing household financial strategy,

〈Table 4〉 Regression Coefficient Difference Test by Household Financial Strategy Type

	Total	Food	Edu & Childcare	Transportation	Communication	Medical	Other living
Current Income	***	***		***	***	*	***
Current Asset A	***	***					***
Current Asset B				**			
Current Asset C							

Notes. *p<.01 **p<.005 ***p<.001

it is noteworthy that there was no difference among financial strategy types in terms of the effects of current asset B and current asset C, which consist of non-financial assets only. Based on such analysis, this study has confirmed the connection between household financial strategies, which reflect mental accounting, and consumption aspects.

V. Conclusion and Implications

This study categorized the portfolio of retired households based on their practical levels of the asset and debt subcomponents. According to cluster analysis results, three financial strategy types have been deduced: Debtor Type, Savings-Focused Type, and Real Estate-Focused Type. Households with these three financial strategy types showed significant differences in the composition of portfolio subcomponents as well as its practical level of possession. Consequently, based on the three types of retired household groups, the marginal propensity to consume in four mental accounts on the total consumption expenditure and each expense has been examined to study the mental accounting aspects.

In the Debtor Type and Real Estate-Focused Type current income consistently showed the highest level of marginal propensity to consume while the Savings-Focused Type had tendencies which were notably inconsistent. Moreover, the research was able to examine the differences in marginal propensity to

consume between the groups through a regression coefficient difference test.

This study differs from previous studies in that it has included a practical categorization based on the actual ratio of retired households' assets and debt, rather than categorizing a portfolio based on a random standard set by the researcher. As opposed to the previous studies that attempted to categorize portfolios based on mere possession (Gunnarsson & Wahlund, 1997; Kim & Park, 2003; Park & Rhee, 2002), this study has considered the size of subcomponents through inspection and analysis of the debt ratio against total assets. Such categorizing is expected to contribute to the financial planning of pre-retirees in terms of desirable retirement preparation and asset and debt remodeling for retired households in terms of improvement in life sustainability; thus, the nature of the household can be understood and financial planning can continue.

In addition, this study has examined not only the main source of income, income type and asset type, but also studied in relation to the household's asset portfolio type and effect on consumption expenditure, enabling multilateral understanding of mental accounting process, conflict resolution and the mental accounting mechanisms as they may relate to consumption expenditure behavior. The difference in the various aspects of mental accounting according to the portfolio type is expected to contribute to understanding of the mental accounting system presented by Shefrin & Thaler (1988) more in depth.

Furthermore, close and comprehensive supervision and management of asset accumulation prior to retirement and the consumption expenditure after retirement will raise the level of awareness and understanding of the connection between retired households' financial management and consumption behavior.

At a more practical level, the existence of mental accounting should be acknowledged in any particular household's consumption expenditure and individualized financial planning based on the retired household portfolio type that should be used. This study has anticipated significant implications in terms of understanding the attributes of retired households' portfolio types and performing appropriate financial planning. Moreover, following this study and the empirical proof of aspects of mental accounting, the decision maker should acknowledge and sufficiently consider that policies related to income tax, property tax and real estate business may affect an individual's mental accounting as well as the consumption expenditure of retired households.

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

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