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Categorization of Consumption Expenditure and Analysis of the Factors Affecting It

- For Households with Elderly Members who Participated in an Employment Promotion Project for the Elderly in 2011 -

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ABSTRACT

   This study was conducted for the purpose of exploring how the consumption expenditure of elderly household can be classified based on their demographic characteristics, economic characteristics, and consumption patterns, and of determining the factors that affected the classification of the consumption expenditure of the 1,000 participants in the Employment Promotion Project for the Elderly[1] in 2011.

   The results of the analyses are as follows:

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[1] The Employment Promotion Project for the Elderly in South Korea is categorized into two sectors: the public and private sectors. The public sector includes three types of programs: programs enabling the participants to provide public services, education service, and welfare services for children, the elderly, the disabled, or the service recipients selected by the government or operating agencies. The private sector, on the other hand, includes two types of programs: one helping the participants start their own business, and the other dispatching the trained participants to employers who want to hire them and pay them a salary.

First, households with elderly members can be classified into three type through cluster analysis. Cluster 1 is the basic-living-expenditure-centered type whose living and housing expenditures account for high portions of its total expenditure, whose members have an average age of about 70, and which consist of middle-school graduates living in big cities. Cluster 2 has much higher consumption expenditure than the other clusters; the elderly in Cluster 2 were also evenly distributed in the big, medium-sized, and small cities and rural areas, and there seemed to be more of them who were living together with their children than in the other clusters. Further, 42% of the elderly in Cluster 2 were participating in the program for education service. It was found that 82.9% of the elderly in Cluster 2 were participating in the employment promotion program for the elderly for leisure, or for social participation, which make such cluster very different from the two other clusters, who were participating in the said program to earn a living due to their economically vulnerable status. As for Cluster 3, its medical expenditure was relatively higher than its other expenditures.

As for the influence factors, it was found that as the elderly are generally poorer than the younger people in the society who are gainfully employed, and as many of them participated in the aforementioned program due to economic problems, they are more likely to fall under Cluster 1. The elderly in Cluster 1 were more likely to be an economically vulnerable status and to have participated in the Employment Promotion Projector for the Elderly to earn a living; they spent their income from the Employment Promotion Project for the Elderly for their basic living expenses, including food and housing.

As for the elderly in Cluster 2, they were likely to belong to non-poor households with elderly members, to be younger than the other clusters, and to be living with their children. Lastly, the elderly in Cluster 3 had a strong possibility of suffering from diseases, significantly participated in the Employment Promotion Project for the Elderly to earn a living, and very likely belonged to households with elderly members that had been provided with private and/or public assistance.

It was proven in this study that both the motives for participation and the economic status of the participants (whether they were poor or not) influenced the results of the survey on the elderly who participated in the Employment Promotion Project for the Elderly by consumption type.

Introduction

The elderly population of South Korea is expected to reach 10,110,000, account of 20% of the entire population in 2026, which means that South Korea is expected to have a super-aged society by that time. The South Korean society's rapid-aging tendency may significantly affect diverse aspects of the country's economic sector, including its economic growth, capital market, labor market, and industry structure, and may also bring about great challenges for the personal lives of the aged and their families as well as for the state's economy from a macroscopic viewpoint. An effective way of meeting the challenges caused by the South Korean society's rapid-aging tendency is to improve the elderly employment rate by delaying the retirement of the elderly and promoting their re-entry into the labor market.

The government has implemented the Employment Promotion Project for the Elderly to create suitable jobs for elderly people 65 years old and above. The Employment Promotion Project for the Elderly aims to provide the elderly 65 years old and above (60 years and above for some programs) and who want to work with sources of income and opportunities for social participation, to prevent related problems among the elderly and to reduce the social cost of the country's aging population. Jobs for the elderly have been created by promoting the social recognition of the need for such, soliciting the participation of the private sector, and providing education for the elderly, including preparation for retirement and lifetime education (LEE et al., 2009; Korea Labor Force Development Institute for the Aged, 2010).

The previous studies on the effectiveness of the Employment Promotion Project for the Elderly (GWON and PARK, 2007; Korea Labor Force Development Institute for the Aged, 2010a, 2010b) presented the elderly people's motives for participating in the said project, and differentiated the demographic characteristics of the project participants by project type. The economic status and educational background of the elderly were found to have influenced the effectiveness of the Employment Promotion Project for the Elderly. Furthermore, as the Employment Promotion Project for the Elderly has helped ease the poverty of households with elderly members by providing the elderly with supplementary income, it is expected to bring about changes in the income and consumption patterns of the households with elderly members who participated in it by increasing the income of such households (LEE et al., 2009).

The previous studies on the Employment Promotion Project for the Elderly discussed the project's impact on the poverty of its participants, on their social relationships, and on their health and psychological effectiveness, and also suggested that the elderly participants' levels of satisfaction with the project varied according to the project type, the elderly participant's motive for participating in the project, and the socioeconomic background of the elderly participant. No study has been conducted, however, to analyze the consumption patterns of households with elderly members who participated in the

Employment Promotion Project for the Elderly based on the aforementioned influence factors. This study may help consider the demographic and economic goals and environments of the elderly who participated in the Employment Promotion Project for the Elderly from a macro perspective, and provide the basis for the improvement direction and policy suggestions for the said project by categorizing and analyzing the consumption patterns of the elderly who participated in the project based on their motive for participating in it and the project type.

1. Review of Precedent Studies

The elderly go through changes in their income sources when they retire from the labor market, start receiving pension, etc., and in their family structure when their children marry, when they spouse dies, etc. Moreover, they may confront health problems and economic distress after retirement (JEONG, 2000).

All the resources that are available for the elderly are reflected on the consumption of the elderly, including their earned income, property income, and property, and because, when their income decreases, they can depend on their lifetime property to maintain their consumption level, they are less likely to rely on earned income (Meyer and Sullivan, 2007). Therefore, to analyze the economic welfare of households with elderly members, it is suitable to explore the consumption patterns and consumption expenditure items of households with elderly members. The previous research argues that consumption generally provides a more appropriate measure of well-being than income for families with few resources (Meyer and Sullivan, 2007).

The previous studies on the consumption expenditure of households with elderly members clarified that the consumption expenditure varies according to the type and poverty level of households with elderly members, and suggested the economic needs and characteristics of households with elderly members by categorizing their consumption expenditure pattern (SEONG and YANG, 1997; JEONG, 2000; YANG, 2001; YEO, 2003; BAN and KIM, 2008; BAEK, 2010; CHOI, 2011). According to such studies, one of the most important factors for determining the consumption pattern of a household, which is generally considered the household's consumption behavior, is the family structure. Further, the poor elderly have limited resources to consume, which makes their consumption expenditure centered on necessities to meet their low need level in spite of the popularization and homogenization of consumption. As pointed out by Hak-Yeong BAEK (2010) and Ok-Geum CHOI (2011), the consumption expenditure of households with elderly members is significantly affected by such households' economic conditions and family structure. The results of the studies that explored the characteristics of the consumption expenditure of households with elderly members by categorizing them showed that health and housing expenditures account for the biggest portions of such households' entire consumption expenditure (YEO and YANG, 2001; BAE and BAK, 2005).

Traditionally, neither have the elderly been regarded as agents of production in the labor market nor of consumption. Considering that the types of families composed exclusively of elderly people (single elderly people and elderly couples) have increased, and that the elderly have begun to actively participate in the labor market to earn a living, the economic roles of the elderly (i.e., income and consumption) require more attention. The Employment Promotion Project for the Elderly, which has been implemented since 2004, aims to expand opportunities for social participation, secure supplementary income for them, and improve the quality of their lives by providing them with suitable jobs. It was found in the study conducted by Seok-Won LEE et al. (2009) that the Employment Promotion Project for the Elderly has partially met its economic objective. Even though the salaries that have been given to the elderly are not high, the project has certainly played an important role in securing supplementary income for the elderly[2].

The Employment Promotion Project for the Elderly has selected particularly the elderly in the low poverty levels who are the subjects of supplementary security income (Korea Labor Force Development Institute for the Aged, 2010b); that is, it has created income sources for elderly people who do not have any opportunity to earn money.

It was shown that the motives for participating in the Employment Promotion Project for the Elderly, and the project types, have been affected by the economic statuses and educational backgrounds of the participants (Korea Labor Force Development Institute for the aged, 2010a). The elderly who participated in the program providing education services had relatively higher levels of education and income than those who participated in the other programs, and highly tended to participate in the project not for economic purposes but for social participation. A significant number of the elderly participants can be classified into those who were not satisfied with their income even though they were not poor, those who participated in the project for reasons other than earning money, and those who had substantial income from property, which may differentiate the households' consumption patterns.

According to the previous studies, the factors (including demographic factors, family structure, and economic conditions) that affect the consumption expenditure of households with elderly members are gender, age, education, employment/unemployment, health condition, household type, housing tenure type, residential area, household income, and poverty rate. Therefore, these factors were analyzes based on the motive for participating in the Employment Promotion Project for the Elderly and the project type, which is expected to cause significant differences in the structure of the consumption expenditure of the elderly who participated in the Employment Promotion Project for the Elderly. In this context, this study intended to analyze the consumption structures of the elderly who participated in the Employment Promotion Project for the Elderly.

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[2]In the program for providing public services, each participant was given 200,000 won a month for seven months by the government, and 11-150,000 won per person was given to the agencies running the programs.

2. Analysis Data and Research Methods

1) Analysis data and measurement of variables

In this study, the actual consumption expenditures of 1,000 participants of the Employment Promotion Project for the Elderly in 2010 were analyzed based on the evaluation of the effectiveness of the employment policies for the elderly in 2011. Multidimensional analyses of the effectiveness of the Employment Promotion Project for the Elderly were conducted for four weeks for the 700 participants and 300 non-participants. The items that were considered for the measurement of the consumption expenditure in this study included food, housing, water, heating, light, clothing, transportation, communication, culture/entertainment, health care, furniture, appliances, housekeeping services, education, other consumption expenditures, and non-consumption expenditures.

2) Analysis methods

This study clarified the expenditure of each consumption expenditure item of households with elderly members to analyze such households' consumption characteristics. To categorize the consumption expenditure according to the consumption pattern of the said households, cluster analysis[3] was employed. For the induced clusters, logit analysis[4] was employed to explore the effects on the expenditure of households with elderly members of such households' demographic and other characteristics, the elderly member's motives for participating in the Employment Promotion Project for the Elderly, and the type of project that the elderly member participated in.

The independent variables included gender, age, education level, health condition, household type, residential area, and poverty or non-poverty, which were found to be related with the consumption patterns of households with elderly members in the previous studies, and the motives for participating in the Employment Promotion Project for the Elderly, the type of project participated in, and whether receiving financial support from the private or public sector or not. Through logit analysis, the clusters were analyzed by giving a score of 1 or 0 to each cluster that had been classified through cluster analysis, and the input independent variables were classified into demographic

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[3] Cluster analysis is the method of binding the subjects into homogeneous groups based on their interrelationships. For this study, clusters for the analysis of the types of consumption expenditure of households with elderly members were induced via K-means cluster analysis. K-means cluster analysis, the data are partitioned into a specific number of groups set by the user through an iterative process, in which, starting from an initial set of cluster means, each observation is placed into the group whose mean vector it is closest to (generally in the Euclidean sense) (Handbook of Statistical Analyses Using Strata, 2007). In this study, analysis was conducted while changing the clusters, and the number of clusters where the value of the proportion of Calinski and Harabasz pseudo-F is the highest was chosen.

[4] This study employed logit analysis. As mentioned by Ok-Geum CHOI (2011), multinominal logit analysis is proper for understanding the difference between the reference group and the non-reference group, but it has limitations in analysis between non-reference groups. It is difficult to specifically choose one reference group among the participants of the Employment Promotion Project for the Elderly. Therefore, this study focused on comparing and analyzing the factors influencing the consumption pattern of each cluster among the three clusters.

factors, household-related factors, and project-related factors. First, among the demographic variables, gender was coded into 1 or 0, and age and education years were analyzed with the continuum. Whether the elderly household member was suffering from a disease or was not was analyzed by giving a score of 1 to those with a disease and 0 to those without a disease. The residential areas were analyzed by producing dummy variables of metropolitan cities and small and medium-sized cities based on the big cities. The household types were analyzed by producing dummy variables of the elderly living alone, an elderly couple living with their children, and a single elderly living with his/her children and/or others, based on the elderly couple living alone, and by giving a score of 1 to the poor households and 0 to the non-poor households. The households with elderly members that were receiving financial support from the public sector were given a score of 1, and the cases where the elderly members were not receiving financial support from the public sector were given a score of 0.

The project-related variables were analyzed by giving a score of 1 to the program participants and 0 to the wait-listed people, and 0 to those who participated in the programs for financial reasons and 1 to those who participated in the programs for non-financial reasons (e.g., social participation, self-realization)[5]. The variables related to the project type were divided into the dummy variables of the programs providing education and welfare services and helping the participants start a business, based on the program providing public services.

3. Analysis Results

1) Economic characteristics of households with elderly members who participated in the Employment Promotion Project for the Elderly in 2011

The average monthly consumption amount of the subjects in 2010 was 850,000 won. It has been reported that a significant part of the income from the Employment Promotion Project for the Elderly was spent to cover the cost of living (LEE et al., 2009). It was found that households with elderly members spent more for food, housing, and health care compared to households without elderly members, which is identical to the results of the previous studies.

Table 1 shows the consumption patterns according to the demographic characteristics. There are significant differences among the clusters by residential area, household type, and project type. The average monthly consumption amount by household type shows statistical significance, which confirms that the household type influences the pattern of consumption of households with elderly members, as suggested in the previous studies.

The average monthly consumption amount by project type was also statistically significant, especially between the participants in the program providing education

[5]"Financial purposes" include earning money to cover the cost of living and pocket money while "non-financial purposes" include social participation, health improvement, self-realization, leisure, overcoming one's feeling of alienation, and volunteer work.

services and those in the other programs. As mentioned earlier, the fact that the participants of the program providing education services were more likely to belong to the financially rich cluster than the participants of the other programs was found through the analysis of the consumption amount. In addition, as the difference in consumption pattern by project type is significant, the project type can be regarded as an important variable for the classification of the consumption patterns of households with elderly members. Whether the participants were poor or not also significantly affected the consumption pattern; the average monthly consumption amount of non-poor households with elderly members was 1,620,000 won, and that of poor households with elderly members was only 680,000 won, which showed an over-2.5-fold difference.

The residential area, household type, and state of poverty or non-poverty, which were mentioned as significantly affecting the consumption pattern of households with elderly members, also present significant results in Table 1. The consumption pattern based on the project types that were expected to affect the consumption pattern of households with elderly members, among the project-related factors, also showed statistically significant differences. Therefore, it is considered that there may be a difference in the consumption pattern of households with elderly members according to the household type, residential area, and project type. Cluster analysis was conducted to analyze the consumption expenditure pattern of households with elderly members.

Table1. Average Consumption Amount by Program Type and Demographic Characteristics in 2010

		Frequency	Percentage (%)	Average Consumption Amount in 2010 (SD)
Gender	Male	387	38.70	94.49 (75.49)
	Female	613	61.30	79.12 (62.35)
	T			t=-3.4964
Age	60-69	402	40.20	95.95 (59.70)
	70-74	367	36.70	83.88 (78.42)
	75 and over	231	23.10	78.36 (63.76)
	F			F= 2.18 (0.1138)
Residential Area	Big cities	398	40.20	82.03 (73.36)
	Small and medium-sized cities	401	36.70	93.04 (69.51)
	Farming and fishing villages	201	23.10	75.18 (50.83)

	F			F=5.31 (0.0051)**
Education Level	Middle school and under	716	75.69	83.3128 (72.08)
	High school	147	15.54	79.421 (55.27)
	University and over	83	8.77	77.554 (64.11)
	F			F=1.69 (0.1853)
Family Structure	Single elderly living alone	268	26.80	48.50 (25.03)
	Elderly couple living alone	403	40.3	76.54 (44.48)
	Elderly living with children	290	29.00	130.12 (91.96)
	Others	39	3.90	89.44 (81.31)
	F			F=86.67 (0.000)***
Program Type	Programs providing public services	350	35.00	75.934 (63.06)
	Programs providing welfare services	261	22.10	78.448 (67.01)
	Programs providing educational services	221	26.10	108.26 (79.04)
	Programs helping the participants start a business	168	16.80	83.875 (53.34)
	F			F=11.85 (0.000)***
State of Poverty or Non-Poverty	Non-poor	175	17.5	162.84 (97.20316)
	Poor	825	82.5	68.57212 (45.52687)
	T			t=19.5446***

*p<.05, **p<.01, ***p<.001

2) Consumption expenditure pattern and analysis of the characteristics of households with elderly members

(1) Analysis of the consumption expenditure pattern of households with elderly members

Table 2 presents the results of the cluster analyses that were conducted to determine the consumption expenditure pattern of households with elderly members. It can be seen in Table 2 that the food expenses in all the clusters account for 1/3 of the entire consumption amount, and that the housing expenses are also high, which support the results of the previous studies (LEE, 2007; BAEK, 2010; CHOI, 2011).

Table2. Monthly Consumption Expenditure by Cluster Type

(Unit: 10,000 won, %)

Expense Items	Cluster 1	Cluster 2	Cluster 3
Food, alcoholic and non-alcoholic beverages, cigarettes	25.97 (38.93)	45.88 (28.9)	22.20 (32.82)
Clothing, shoes (fabrics, shoes)	3.27 (4.89)	9.82 (6.18)	2.63 (3.88)
Housing, water, light, and heating (actual housing expenses, fuel)	9.19 (13.78)	13.74 (8.65)	10.01 (14.79)
Housewares, housekeeping services	1.60 (2.40)	5.63 (3.54)	1.73 (2.55)
Health (medicines, outpatient care services)	4.52 (6.78)	7.26 (4.57)	6.18 (9.14)
Transportation (car, fuel, public transportation)	4.12 (6.18)	12.45 (7.84)	4.77 (7.05)
Communication (telephone, Internet, mobile phone, mail services, etc.)	4.04 (6.06)	10.35 (6.52)	4.36 (6.44)
Culture, entertainment (sports and entertainment services, books, group tours)	1.14 (1.71)	4.64 (2.92)	1.21 (1.78)
Education (regular education, private educational institutes for children and adults)	1.00 (1.51)	10.30 (6.49)	1.12 (1.66)
Food, accommodations (meals, accommodation costs)	2.30 (3.46)	7.58 (4.77)	2.61 (3.86)
Other commodities, services (hygiene, hair goods, insurance)	2.42 (3.64)	8.84 (5.57)	2.97 (4.38)
Other family expenses (offerings and donations, support for family life, pocket money, fines, pecuniary penalties, etc.)	3.47 (5.19)	10.35 (6.51)	5.16 (7.63)
Non-consumptive expenditures (family or other-family events, income tax, pension, interest cost, interest repayment)	3.64 (5.46)	11.98 (7.55)	2.73 (4.03)

In the analysis results, the clusters were classified into three. In Cluster 1, which represented 30.3% (303 households) of all the subjects, food expenditure was the highest; accounting for 38.93% of the entire consumption expenditure, and the housing expenditure was higher (15.78%) than the other expenditure items. Cluster 1 spent 53%

of its entire consumption expenditure for food and housing and was thus classified into the "basic-living-expenditure-centered type" This cluster seems to be poorer than the others, and to have more elderly people living alone.

In Cluster 2, which represented 19.4% (194 households) of all the households with elderly members in this study, the consumption expenditure on all the items were significantly higher than those in the other two clusters. The food expenditure was 29%, which was relatively low, but the expenses for transportation, communication, and education, the other consumption expenditures, and the non-consumption expenditures were relatively high. This cluster is thus regarded as the "high-consumption-level type" or "leisure-centered consumption type."In fact, it was found that non-poor households with elderly members spent for eating out, culture and recreation, transportation, and communication more than for food and housing.

Cluster 3 had a similar consumption pattern as Cluster 1, but it showed a relatively small food expenditure portion and big healthcare and transportation expenditure portions; especially, the other consumption expenditures and the healthcare expenditures accounted for big portions of the entire consumption expenditure. The other consumption expenditures related to social relationships included expenses for family or other-family events, donations, pecuniary gifts, jewelry purchases, incidental expenses for family members or members of other families, marriage and funeral expenses, diverse government office fees, and offerings to social/religious organizations. The healthcare expenses included health-related items. This cluster is thus called the "relationship- or healthcare-centered type."

The three clusters in this study showed unique differences according to their consumption expenditure items. Cluster 1 could be characterized by big cost-of-living and housing portions and small recreation and education expenditure portions of the entire consumption expenditure. Cluster 2 showed a relatively big consumption amount, especially for non-consumption expenditures, clothing, shoes, and transportation, and a relatively very small food consumption amount. Finally, Cluster 3 seems to show a similar consumption pattern as Cluster 1 but had a relatively bigger medical-expenditure portion compared to the other expenditure items; especially, its medical expenditure was bigger than that of the two other clusters.

Table3. Characteristics of Households and Programs by Household Expenditure Type

(Unit: person, %)

		Cluster 1	Cluster 2	Cluster 3
Gender	Male	109(35.97)	87(44.85)	169(38.5)
	Female	194(64.03)	107(55.15)	270(61.5)
Average Age (year)		70.85	69.84	71.59

Education	Middle school and under	231(76.24)	149 (76.8)	330(75.17)
	High school	48 (15.84)	29 (14.95)	69 (15.72)
	University and over	24 (7.92)	16 (8.25)	40 (9.11)
Residential Area	Big cities	303 (100)	71 (30.60)	-
	Small and medium-sized cities	-	99 (51.03)	277 (63.10)
	Farming and fishing villages	-	24 (12.37)	162 (36.90)
Household Type	Single elderly living alone	95 (31.35)	5 (2.58)	145 (33.03)
	Elderly couple living alone	119(39.27)	45 (23.2)	215 (48.97)
	Elderly living with children	35 (11.55)	82 (42.27)	33 (7.52)
	Single elderly living with children	42 (13.86)	53 (27.32)	30 (6.83)
	Others	12 (3.96)	9 (4.64)	16 (3.64)
Participants or Non-Participants	Participants	210(69.31)	131 (67.53)	309 (70.39)
	Wait-listed elderly	93 (30.69)	63 (32.47)	130 (29.61)
Project Type	Programs providing public services	112(36.96)	46 (28.71)	171 (38.99)
	Programs providing welfare services	50 (16.5)	82 (42.27)	79 (18)
	Programs providing education services	89 (29.37)	35 (18.04)	118 (26)
	Programs helping the participants start a business	52 (17.16)	31 (15.98)	71 (16.17)
Reason for Participation	Living expenses	184(60.73)	24 (12.37)	229 (52.16)
	Health improvement	16 (5.28)	15 (7.73)	29 (6.61)
	Pocket money	81(26.73)	78 (40.21)	140 (31.89)
	Overcoming feeling of alienation	-	2 (1.03)	4 (0.91)
	Leisure	12 (3.96)	35 (18.4)	23 (5.24)
	Social participation	9 (2.97)	26 (13.4)	12 (2.73)
	Self-realization	1 (0.33)	13 (6.7)	2 (0.46)
	Volunteer work	-	1 (0.52)	-
State of Poverty or Non-Poverty	Poor	297 (98.7)	33 (17.1)	438 (99.8)
	Non-poor	4 (1.3)	161 (82.9)	1 (0.02)

The characteristics of each individual and household and the reasons for participating in the Employment Promotion Project for the Elderly according to the consumption

expenditure items were explored. As suggested by the previous studies, Cluster 1 and 3, which had big food and housing expenditure portions of the entire consumption expenditure, were likely to be poor and to be living alone. Cluster 2 was more likely to consist of non-poor households, of elderly couples living with their children, and to have big relationship- and leisure-related portions of their entire consumption expenditures.

All the three clusters showed an about 70% participation rate. The participation rate of Cluster 2 was 67.5%, and that of Cluster 3 was 70.39%. As for the project type, in Cluster 1 and 3, about 40% participated in the program providing public services, and in Cluster 2, only 29% participated in the program providing public services, but 42% participated in the program providing education services, showing big differences among the clusters. The program providing education services was carried out to promote the transmission of traditional cultures to the children, and to improve the ability of the children to learn by delivering to them the experiences and knowledge of the elderly. Therefore, the elderly with higher education levels who wanted to contribute to the society, including the former teachers, usually participated in the program providing education services. It was found that Cluster 2, which had many participants in the program providing education services, participated in the project for social participation and leisure.

As for the motives for participating in the project based on the consumption pattern, Cluster 2 showed noticeable differences compared with the two other clusters, even though there were some differences among the three clusters; 61% of Cluster 1 and 52% of Cluster 3 indicated that they participated in the project to earn a living. Only 12.4% of the elderly in Cluster 2, however, indicated that they participated in the project to earn a living, with 40.21% indicating that they participated in the project to obtain pocket money, and 18.4% for leisure, which showed that Cluster 2 participated in the project to obtain pocket money while doing easy work and engaging in leisure activities. In Cluster 2, 13.4% indicated that they participated in the project to contribute their experiences and knowledge to the society, and to have exchanges with the younger generations. Some indicated that they did so for self-realization and to render volunteer work, which shows that they participated in the project for social participation and to obtain pocket money rather than for livelihood purposes.

Eighty-three percent of Cluster 2 were not poor, which makes it very different from the other clusters because, in the case of the non-poor households with elderly members, the amount of consumption was 2.5-fold higher than that of the poor households. Cluster 2 spent much and were living in affluence compared with the other clusters.

As 98% of the people in Cluster 1 who participated in the project, however, and almost 100% in Cluster 3, were poor, the elderly in both clusters can be said to be poor.

As for the income resources by cluster, Cluster 2 earned over four times the average monthly income of the two other clusters, which showed that there was big income inequality among the clusters. Cluster 1 had more income from labor, business, finance, and real estate than Cluster 3, and Cluster 3 had more income from other resources and

from financial support from the private sector. Cluster 2 had a higher income from all the resources, and especially from property, than the two other clusters.

(2) Analyses of the factors influencing the consumption expenditure patterns of households with elderly members

Logit analysis was employed to explore the factors influencing the consumption patterns by cluster. Logit analysis was implemented by coding each value into 1 or 0, 1 for the corresponding case and 0 for the non-corresponding case. The results of the logit analysis are shown in Table 4.

Table4. Factors Influencing Household Expenditure Types

		Cluster 1		Cluster 2		Cluster 3	
		B (SE)	Odds Ratio	B (SE)	Odds Ratio	B (SE)	Odds Ratio
Gender (Criterion: Male)		-0.6839	0.5046	0.7822	2.1863	-1.1091*	0.3299
Age		0.0695	1.0721	-0.0792*	0.9268	0.0774	1.0756
With or Without Disease		0.6911	1.9968	-0.6949	0.4840	1.0536*	3.0461
Education		-0.0682	0.9339	0.0652	1.0602	-0.0340	0.9718
Participation or Wait-listed Elderly (Criterion: Participants)		-0.0218	0.9783	-0.7782	0.4592*	1.0051	2.7318
Motives of Participation (Criterion: Economic Purpose)		2.8108***	16.5686	-2.5963***	0.0677	2.4899***	12.881
Residential Area (Criterion: Big Cities)	Dummy variables of small and medium-sized cities	-	-	0.5334	1.6821	42.375	4.04e+18
	Dummy variables of farming and fishing villages	-	-	-0.6533	0.5304	43.871	1.80e+19
Household Type (Criterion: Elderly Couple)	Single elderly living alone	0.9176	2.4953	-0.5910	0.5333	-0.7160	0.4772
	Elderly couple living with children	-0.3565	0.7010	0.1389	1.1686	17.775	4.73e+07
	Single elderly	-0.8826	0.4140	1.4655	4.5153**	-2.076	0.1304

	living with children and others						
	Program providing education services	-0.5489	0.5714	0.8557	2.5867	-0.2754	0.6090
	Program providing welfare services	-0.8432	0.4307	0.6105	1.9100	-0.6203	0.4814
Project Type (Criterion: Program Providing Public Services)	Program helping the participants to start a business, and program for dispatching trained participants to employers who want to hire them and pay them a salary	0.1752	1.1952	0.4491	1.7573	-1.1030	0.2589
State of Poverty or Non-Poverty		6.5473***	696.78	-6.8164***	0.0097	26.4897	3.60e+11
Receiving Financial Support from the Public Sector or Not		-0.4854	0.6157	0.4984	1.6500	1.1853*	3.2999
Receiving Financial Support from the Private Sector or Not		0.1933	1.2143	0.1634	1.1563	1.1195*	3.5482

*p<.05, **p<.01, ***p<.001

In the analysis results, the elderly in Cluster 1 (basic-living-expenditure-centered type [spent much for food and housing, and their motives for participating in the project and whether they are poor or non-poor were significant influence factors. As the elderly participate in the programs for economic purposes, as determined by analyzing their poverty or non-poverty based on the criterion of economic purpose (livelihood and pocket money), the possibility that they belong to Cluster 1 increased at an interval of 16.5685. In addition, the possibility that the elderly who were poor belonged to Cluster 1 increased at an interval of 695.78 compared with the elderly who were non-poor; therefore, the

elderly who were poor and who were economically vulnerable had a very high possibility of belonging to this cluster.

Even though it was not statistically significant, the elderly with diseases had a 99.68% possibility of belonging to Cluster 1. Moreover, as the value of the odds ratio of the single elderly living alone was 2.49533, the single elderly living alone may have a bigger possibility of belonging to this cluster. Therefore, Cluster 1 was more likely to be living alone in big cities and to have diseases, to participate in the project for financial purposes, and to be socially and financially vulnerable.

Cluster 2 generally showed a high level of consumption, to consist of single elderly people or elderly couples living with their children, and to be either poor or non-poor based on their age, their motive for participating in the project, and the household type, which were the significant influence factors. First, as their ages were higher, the possibility that the elderly belong to this cluster became lower. As the value of b among the reasons for participating in the project was -.259, and the value of the odds ratio was .06770, the possibility that the elderly belong to Cluster 2 was lowered by 32.3% as the elderly participated in the project not for financial purposes but for non-financial purposes (e.g., social participation, self-realization, health, volunteer work). As revealed in the earlier review of the characteristics of each cluster, Cluster 2 is more likely to participate in the project to obtain easy jobs and for social participation, and Table 4 proves that this variable is statistically significant. The elderly who are not poor are likely to belong to this cluster, and as the value of b was -6.8164 and the value of the odds ratio was .0097, the possibility that the elderly who are non-poor belong to Cluster 2 was lowered to 99%. Based on the fact that the participants were given a score of 1, the possibility that the wait-listed elderly belong to this cluster went up to 54%; this means that the elderly who are not poor exert less efforts to participate in the project than those who are poor or who have other motives for participating in the project, such as for non-financial purposes, and the preference for other types may affect whether one belongs to this cluster. As for the household type, the elderly living with their married or unmarried children are more likely to belong to this cluster. The elderly in Cluster 2 are more likely to be wait-listed than to be project participants, to participate in the project for social participation, health improvement, social relationships, and volunteer work, and to belong to non-poor households with elderly members. In addition, as the elderly were younger, they were likely to belong to this cluster rather than to the two other clusters. Therefore, because this cluster certainly has different motives for participating in the project, and has a different financial condition, the policy and implementation of the Employment Promotion Project for the Elderly needs to consider these factors.

The results of the analysis of Cluster 3 proved that gender, whether having diseases, whether participating in the project, household type, and whether receiving financial support from the private or public sector are significant influence factors. As with Cluster 1, the elderly who participated in the project for financial purposes were more likely to

belong to Cluster 3; when the elderly had diseases, the possibility that they belonged to this cluster went up to 173%. As for the consumption pattern, it can be said that the medical expenditure of Cluster 3 was higher than that of the two other clusters. As for gender, as the value of b was -1.10895 and the odds ratio was 0.3299, the possibility that the male elderly belonged to Cluster 3 went down to 67.81%. Whether the elderly are receiving financial support from the private or public sector was proven to be a significant variable; the possibility of belonging to this cluster when the elderly did not receive financial support from the public sector went up to 229%; and financial support from the private sector was also likely to increase the possibility of belonging to this cluster.

4. Conclusion and Suggestions

This study intended to explore how the consumption expenditure of households with elderly members   can be classified based on their demographic characteristics, economic characteristics, and consumption patterns, and which factors have affected the classification of consumption expenditure for the participants of the Employment Promotion Project for the Elderly) in 2011. The results of the analyses are as follows:

First, the results of the analysis of the consumption expenditure pattern based on the characteristics of the participants and of households with elderly members showed that the residential area, household type, project type, and poverty or non-poverty significantly affected the consumption amount. It was also found that the project type significantly affects the consumption expenditure of households with elderly members, and the type of household with elderly members and the poverty or non-poverty of the subjects were proven to be significant influence factors, as indicated in the previous studies.

Second, the clusters were classified into three for the cluster analysis of the consumption pattern. Cluster 1 was the "basic-living-expenditure-centered type" with big cost-of-living and housing expenditure portions. As for Cluster 2, the consumption expenditure amounts on all the items are significantly higher than those of the two other clusters; the food expenditure was relatively small; the expenses for transportation and clothing, and the non-consumption expenditure (related to property), were relatively big; and the social-relationships and leisure expenditures accounted for big portions of the entire consumption expenditure. Finally, Cluster 3 is called the "relationship- or healthcare-centered type," with relatively big medical- and other-expenditure portions, even though it is similar to Cluster 1.

Considering the characteristics of each cluster, Cluster 1 are mostly elderly couples or single elderly people living alone and participating in the program providing public services. It was found that 99% of the participants in this cluster took part in the project to earn money to cover their cost of living because of their poverty. The subjects who belonged to Cluster 2 were evenly distributed in big, small, and medium-sized cities and

in farming and fishing villages, and their average age was 69.84. This cluster is more likely composed of the elderly living with their other family members, and over 42% of this cluster is affiliated with the program providing education services, making it quite different from the two other clusters. This cluster is also more likely to be non-poor and to participate in the Employment Promotion Project for the Elderly to obtain pocket money, to engage in leisure activities, and for social participation, which make it significantly different from the two other clusters, who participated in the project to earn a living. Cluster 3 is generally similar to Cluster 1, but they generally live in small and medium-sized cities and in farming and fishing villages, and more than half of the elderly in this cluster were elderly couples living alone. The elderly in Cluster 3 were more likely to participate in the program providing public services to make money.

Considering the factors influencing the consumption pattern of households with elderly members, the subjects who participate in the project for financial purposes were more likely to belong to Cluster 1, which is the reason that this cluster was named the "basic-living-expenditure-centered type" The elderly in Cluster 1 participate in the project to earn a living because of their economically vulnerable status, and spend the biggest portion of their income for food and housing.

Different from Cluster 1, Cluster 2 is more likely to consist of the elderly living with their unmarried children, to be non-poor, and to be younger. The results of the categorization of the elderly who participated in the Employment Promotion Project for the Elderly showed that the motives of participation and poverty or non-poverty were the significant factors in all the clusters.

Based on the conclusions mentioned above, the following suggestions are made:

First, the motives for participating in the project, the project type, and the state of poverty or non-poverty caused differences in the consumption patterns of the elderly who participated in the Employment Promotion Project for the Elderly. As suggested in the previous studies (Lee et al., 2009; Korea Labor Force Development Institute for the Aged, 2010), it was proven that the motives for participating in the project and the project type were the significant influence factors; there were outstanding economic gaps among the motives for participating in the project and the project types, which significantly affect the consumption pattern of households with elderly members. Therefore, the policy directions of the Employment Promotion Project for the Elderly need to be differentiated based on the motives for participating in it.

Second, among the study participants, the single elderly people and the elderly couples living alone in big cities were the most economically vulnerable. Therefore, policies for expanding the function of providing income sources for the elderly, among the policies for employment for the elderly, need to be implemented.

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CONTENTS

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SHORT PAPERS