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## The Impact Analysis of Household Variables Factors on the Spending for Preschool Children's Private Education

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### Abstract

*In previous private education expenses were concentrated only on expenses for elementary, middle, and high school students. Therefore, it is difficult to understand the actual condition of preschool children's private education expenses. To solve this problem, we analyze the 2013 and 2020 data of the Korea Welfare Panel to confirm the private education expenditures of pre-school children. Also, we examine the differences and changes in private education expenditures according to household variables. We selected the household variable as the socio-demographic variable of the study subject. We defined the household variable as the area and income of the household. We show the actual results of private education expenses for household variables using frequency analysis, descriptive statistical analysis, t-test, and one-way ANOVA of SPSS 27.*

**Keywords:** Preschool Children, Private Education Expenditures, Household Variables, SPSS 27

### 1. INTRODUCTION

In 2019, the population of pre-school children was 2,285,605. This is a decrease of about 40% from the population of children in 2000 [1]. In 2018, the birth rate in Korea was 0.98. Korea is the only OECD country with a birth rate of less than one [2]. However, while the birth rate decreases, child support costs are increasing over time. In 2018, the average monthly child support in Korea was 733,000 won per child. For two people, the child support expense is 1,376,000 won. In the case of three children, child support expense is 1,619,000 won [3].

The private education market for pre-school children accounts for a large proportion. It was found that 99.8 % of all households with pre-school children use private education as well as regular programs in childcare facilities. This shows that almost all households provide pre-school education. In addition, private education accounts for about 43% of the total educational expenses of pre-school children. This pays nearly half of the total education cost as private education costs [4]. As a result, parents feel the burden of private education expenses. To improve these spending, 42% of respondents are reducing their cost of living. In this respect, we can confirm the fact that the private education expenses of pre-school children are borne by the family. In this respect, the private education expense for pre-school children is a very burden on the family [4].

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Excessive private education negatively affects children's emotional development [5]. In addition, overheated private education causes low birth rates. The greater the economic burden of preschool private education, the more burdensome parents feel about having children. In other words, parents are more likely to not have children. In previous studies, private education expenses were concentrated only on expenses for elementary, middle, and high school students. Therefore, it is difficult to understand the actual condition of pre-school children's private education expenses. Therefore, we analyze the 2013 and 2020 data of the Korea Welfare Panel. We then identify the factors within the family that affect the private education of preschool children. Finally, we compare the data for 2013 and 2020.

This study is organized in the following sections: Section 2 mentions the related theoretical background and previous researches. Section 3 describes the research method. Section 4 analyzes the relationship between private education expenditure and household variables. The last section presents the conclusions and future scope.

## **2. RELATED WORKS**

### **2.1 The Private Education of Preschool Children**

Private education is symmetrical to public education. Kim defined private education as follows: "Tutoring expenses related to subjects other than public education, private academy expenses, tutoring for arts, sports and liberal arts, study materials, reference books, stationery purchase expenses, etc." [6]. Kim (1999) defined private education expenses as expenses that parents or students directly spend for education, not public accounting [7]. However, the existing discussion is a study of elementary, middle, and high school students with a clear concept of public education. Therefore, it is not desirable for research on pre-school children.

Private education for pre-school children has a special definition. In this case, it is outside the scope of compulsory public education. In this respect, most of the educational institutions are private institutions. In 2019, Korea has 8,837 kindergartens. Among them, there are 4,859 national and public kindergartens. There are 3,978 private kindergartens. More than half of Korean kindergartens are private institutions. In addition, the number of children in private kindergartens in 2019 was 456,583. The total number of kindergarten children is 633,913. So, 72% of all children attend private kindergartens. In the case of daycare centers, 48.6% of the total 1,365,085 people attend private institutions [8]. Most children's educational institutions are private. The educational expenses of kindergartens and daycare centers are also calculated as private education expenses. Therefore, these private institutions should not be included within the scope of children's private education. In this study, we define five items as preschool children's private education: academy, study materials, language training, paid lectures on the Internet, TV, cultural centers, etc.

### **2.2 The Causes of the Preschool Child's Overheating**

Parents' demand motives for private education of preschool children is largely influenced by human capital motivation and consumer choice variables [9]. The human capital theory is a theory that 'wages are determined in proportion to a worker's innate labor power and the amount of human capital investment'. In other words, children's income increases as much as they invest in the formation of their children's human capital. This can be interpreted as an economic benefit that is greater than the initial investment cost. Private education can complement public education through private investment. This is considered an effective means because it can be used as a competitive force in the future labor market. In particular, in the case of private education for pre-school children, the perception that the correlation between creativity and learning attitude is effective for children is common. Therefore, the investment value for human capital formation is proven.

Parents are influenced by consumer choice theory. And they form a demand motive for private education. The consumer choice theory is defined as follows: It is a theory that assumes complete information ownership, rational judgment, and maximization of utility. In other words, parents choose their children's private education as the most efficient judgment among the economic and environmental situations of the family [9]. For example, Parents choose private education as a means of raising their children especially. However, current education is a means of excellence in preparation for the next educational institution [10]. Currently, many families focus their attention and investment on one or two children. This is related to Korean scholasticism. For this reason, parents educational fever is high [11]. with their children's interests. Private education for preschool children has nothing to do with their children's interests. In addition, such private education becomes a competitive structure for the learning ability of the next educational institution.

### **2.3 Factors Affecting Private Education**

There are many factors that influence private education in Korea. In this study, we selected the representative variable that will have the greatest impact. This variable is a household variable including income and residential area. Household variables are related to the status of preschool children's private education. The higher the household income, the higher the expenditure on private education. In addition, the higher the income level, the proportion of kindergartens and private education is proportional [12]. However, the proportion of private education expenses among household living expenses was not statistically significant. Private education expenses are spent at a certain rate regardless of the household's income level [13]. Therefore, the low-income class is burdened with private education.

Private education expenditures differed significantly depending on the residence of children before school [14]. In particular, it was found that large cities spend more on average monthly private education than rural areas. This is because the types and forms of private education in rural areas are less diverse than in large cities, and the private education market is not large enough.

## **3. RESEARCH METHODS**

### **3.1 Analysis Data**

This study analyzed the data of the 8th wave in 2013 and the 15th wave in 2020 by the Korea Welfare Panel. This data is a representative longitudinal survey conducted nationwide from the 1st wave (2015) to the 15th wave (2020) at the Ministry of Health and Welfare, the Korea Institute for Health and Social Affairs, and Seoul National University. We selected 90% data from the 2005 Population and Housing Census and 30,000 households from the 2006 National Living Conditions Survey using the two-step stratified cluster sampling(SCS). We sampled low-income households and general households using the SCS. From low-income and general households, we selected 3,500 households each (Total 7,000 households). Then, we collected data from the first wave (final 7,072 households). The total sample households for the 8th wave were 5,104. After the sixth wave survey, the original sample household retention rate decreased. So the researchers added a new sample household. In this survey, the distribution of low-income households and members was some biased. Regional sample sizes fluctuate due to frequent migration and dropouts. In the 8th wave survey, the researchers added about 1,700 households to maintain the size of the first wave sample. Sampling is the same as the first wave sampling method.

### **3.2 Analysis Method**

We investigate the difference in private education expenditure according to socio-demographic variables of pre-school children. We analyzed the household variables of the study subjects. The household variables are the household's income and region. This study conducted frequency, descriptive statistical analysis, t-test, and one-way variance analysis using the SPSS 27.

### 3.3 The Background of the Study Subjects

We identify factors that affect pre-school children's spending on private education. We analyzed factors focusing on sociodemographic variables. Table 1 shows the general characteristics of pre-school children's households.

**Table 1. The General Characteristics of Preschool Children's Households**

Variable	Item	Category (Won)	8 <sup>th</sup> Wave	15 <sup>th</sup> Wave
			N(%)	N(%)
Household Variable	Household Income	Less than 3,000,000	121(17.6)	11(2.9)
		3,000,000~5,000,000	326(47.5)	122(31.9)
		5,000,000~7,000,000	148(21.5)	122(31.9)
		7,000,000~9,000,000	61(8.9)	74(19.4)
		Over 9,000,000	31(4.5)	53(13.9)
		Total	687(100)	382(100)
	Household Area	Seoul	102(14.8)	41(10.7)
		Metropolitan City	210(30.6)	115(30.1)
		City	303(44.1)	187(49.0)
		Country	58(8.4)	29(7.6)
Urban and Rural Complex		14(2)	10(2.6)	
	Total	687(100)	382(100)	

\*: The total may differ due to missing values.

Data: Korea Institute of Health and Social Affairs and Seoul National University Institute of Social Welfare. 15th Wave of Korea Welfare Panel Original Data

## 4. THE RESULTS

### 4.1 The Relationship between Private Education Expenditure and Household Variables in Preschool Children

In the survey data items, we selected the household's monthly income and the location of the household as household variables. All variables are data from the 8th and 15th waves of the Korea Welfare Panel.

Table 2 shows private education expenditures according to the monthly income level of households. We classified private education expenditure of preschool children according to the monthly income level of the household. Then, we analyzed using one-way ANOVA. We divided it into 12 using the 'current income' of questionnaire. This value is a monthly income variable. In addition, we analyzed it by converting it into categorical variables. The categories are as follows: Less than 3,000,000, 3,000,000~5,000,000, 5,000,000~7,000,000, 7,000,000~9,000,000, Over 9,000,000. In the 8th wave, the monthly household income of the survey subjects is as follows: Less than 3,000,000(17.6%), 3,000,000~5,000,000(47.5%), 5,000,000~7,000,000(21.5%), 7,000,000~9,000,000(8.9%), Over 9,000,000(4.5%). Among them, households with 3 to 5 million won were the most. In the 15th wave, the monthly household income of the survey subjects is as follows: Less than 3,000,000(2.9%), 3,000,000~5,000,000(31.9%), 5,000,000~7,000,000(31.9%),

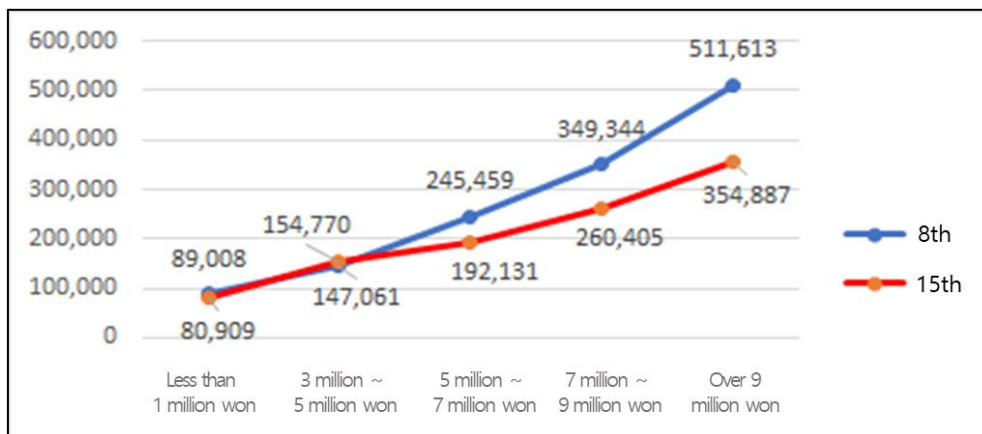
7,000,000-9,000,000(19.4%), Over 9,000,000(13.9%). As a analysis result, the highest items were 3 to 5 million won households and 5 to 7 million won households. Households with 7 to 9 million won increased by about 10.5%. Over 9 million won increased by about 9 percent. Compared to 7 years ago, we were able to draw the following results. 1) Overall, monthly income increased. 2) The wage level in Korea has risen.

**Table 2. Private Education Expenses According to Household’s Monthly Income Level (M: Private Education Expenses, Unit: Won)**

Item	8 <sup>th</sup> Wave			15 <sup>th</sup> Wave		
	N(%)	M(SD)	F	N(%)	M(SD)	F
Less than 3,000,000	121(17.6)	89,008 (15.31)	29.021 ***	11(2.9)	80,909 (13.53)	7.459***
3,000,000 ~ 5,000,000	326(47.5)	147,061 (18.81)		122(31.9)	154,770 (18.5)	
5,000,000 ~ 7,000,000	148(21.5)	245,459 (33.61)		122(31.9)	192,131 (22.97)	
7,000,000 ~ 9,000,000	61(8.9)	349,344 (31.45)		74(19.4)	260,405 (27.33)	
Over 9,000,000	31(4.5)	511,613 (38.36)		53(13.9)	354,887 (38.57)	
Total	687(100)	192,445 (26.56)		382(100)	212,804 (26.02)	

\*P < 0.5, \*\*p < .01, \*\*\*p < .001

Data: Korea Institute of Health and Social Affairs and Seoul National University Institute of Social Welfare. 15th Wave of Korea Welfare Panel Original Data



**Figure 1. Trend in Private Education Expenses by Household’s Monthly Income**

Table 2 and Figure 1 show the results of private education expenditure according to household income. Compared to the 8th wave, the average education cost of the 15th wave increased from 192,445 won to 212,804 won. In the eighth wave, private education expenses spent increased as household income increased. In addition, the average monthly private education fee for households exceeding 9 million won is 511,613 won. This represented the largest private education expenditure. In the 15th wave, private education expenses spent increased as household income increased. In addition, the average monthly private education expenditure for households exceeding 9 million won is 354,887 won. This is the largest private education expenditure.

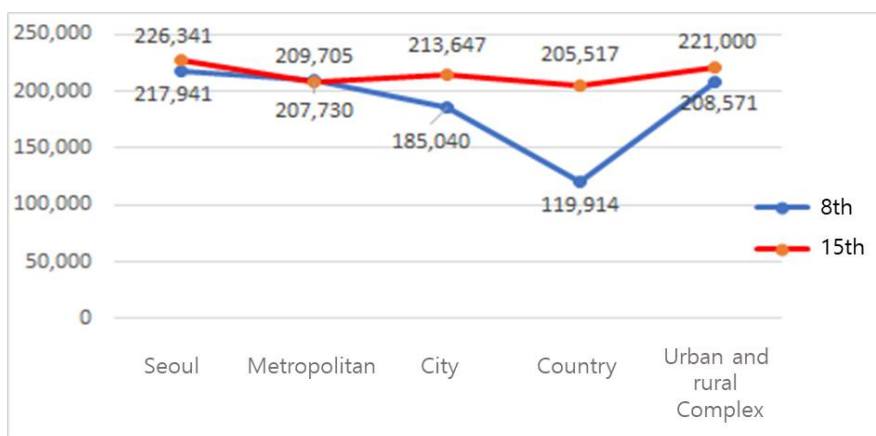
Private education expenses for households exceeding 9 million won decreased in the 15th wave compared to the 8th wave. However, in the overall average, the average value of the 15th wave is higher than the average value of the 8th wave. There are some households with high cost private education in the eighth wave. This is the outlier. For this reason, we believe that the average cost of private education for households exceeding 9 million won has increased. In the 8th wave and the 15th wave, groups according to income level showed statistically significant differences. In order to analyze the difference in monthly private education expenditure according to the location of the household, we divided the residential area into five areas. We also calculated the average for each group. The distribution of residential areas in the 8th wave is as follows: Seoul 102 household (14.8%), Metropolitan City 210 household (30.6%), City 303 household (44.1%), Country 58 household (8.4%), Urban and rural Complex 14 household (2%). The results of the 15th wave are as follows: Seoul 41 household (10.7%), Metropolitan City 115 household (30.1%), City 187 household (49.0%), Country 29 household (7.6%), Urban and rural Complex 10 household (2.6%).

**Table 3. Private Education Expenditure by Household Location**  
(M: Private Education Expenses, Unit: Won)

Residential Area	8 <sup>th</sup> Wave			15 <sup>th</sup> Wave		
	N(%)	M(SD)	F	N(%)	M(SD)	F
Seoul	102(14.8)	217,941 (33.27)	1.615	41(10.7)	226,341 (22.72)	.047
Metropolitan City	210(30.6)	209,705 (26.26)		115(30.1)	207,730 (26.57)	
City	303(44.1)	185,040 (25.32)		187(49)	213,647 (26.54)	
Country	58(8.4)	119,914 (20.20)		29(7.6)	205,517 (20.27)	
Urban and Rural Complex	14(2)	208,571 (22.54)		10(2.6)	221,000 (21.09)	
Total	687(100)	192,245 (26.56)		382(100)	212,804 (26.02)	

\*P < 0.5, \*\*p < .01, \*\*\*p < .001

Data: Korea Institute of Health and Social Affairs and Seoul National University Institute of Social Welfare. 15th Wave of Korea Welfare Panel Original Data



**Figure 2. Trend in Private Education Expenses by Household's Monthly Income**

Table 3 and Figure 2 show the results of private education expenditure by household location. According to the 8th wave survey, the Seoul area was the most expensive to spend on private education, with an average of 217,941 won. Private education costs in country areas are the lowest at 119,914 won on average. The average private education expenditure was similar in the rest of the areas. As a result, there was no statistically significant difference between the other areas and the county area. In the 15th wave, the Seoul area showed the highest private education expenditure with an average of 226,341 won. Private education costs in country areas are the lowest at 205,517 won on average. Comparing the 8th and 15th waves, private education expenditures in the four areas, excluding the country area, increased in general. However, the difference is negligible. It was shown that private education expenses in the country area increased sharply. As a result, the F-value between the groups of the average monthly private education expenditure according to each group of the 15th wave was very small, so there was no statistical difference.

## 5. CONCLUSION

This study identifies the private education expenditures of households with pre-school children and examines the differences in expenditures according to variables. Also, we check the changes in the 8th and 15th waves. Moreover, referring to [15], the previous research period was compared with the present period. We analyzed the data of the 8th wave (2013 survey) and the 15th wave (2020 survey) of the Korea Welfare Panel.

Private education costs overall increased in the 15th wave compared to the 8th wave. We compared the household variables that affect private education expenses. Household variables include household income level and residential area. And the higher the household income level, the higher the private education expenses. The residential area consists of 5 categories (Seoul, Metropolitan City, City, Gun, Urban-rural Complex). As a result of the 8th wave analysis, private education expenditures are similar for all groups except the country. In the 15th wave, private education spending in the county increased sharply. As a result, all five groups spent a similar level on private education expenses. Therefore, private education for pre-school children is overheating in all areas, and the level of private education is increasing by region.

This study examines the influence and trend of private education expenses on household variables. We analyzed the data based on the same variables. However, we found different results due to policies implemented at different times or intensifying competition for private education. We confirmed the difference in the amount of private education expenditure according to household variables. However, it was difficult to understand the causal relationship clearly. Based on this study, we will study various factors affecting private education expenses. The government implements various welfare and education policies according to the times. Also, people's opinions about private tutoring may change. Therefore, we will conduct a follow-up study considering these factors.

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