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Research Report

Impact of the Free Learning Semester (FLS) on Private-Tutoring Investment

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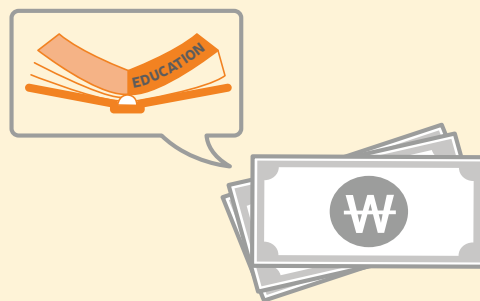
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Impact of the Free Learning Semester (FLS) on Private-Tutoring Investment

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* Based on Park, Yoonsoo, "Study on the Effect of the Free Semester Policy," Policy Study 2017-13, Korea Development Institute, 2017 (in Korean).

Summary

- **Analysis on the impact of the Free Learning Semester (FLS) on the private-tutoring investment for middle school students revealed a significant increase among high-income households.**
 - This study used data on 178,213 middle school students drawn from Statistics Korea's 2009–2016 Private Tutoring Expenditure Survey.
 - No meaningful impact was observed overall but high-income households (over 6 million won monthly) exhibited yearly increases of 15.2%p and 1.79 million won in the participation in and expenditure on private tutoring.
- **Such increases are due to high-income households' easy access to private tutoring and high demand in terms of tutoring for admissions and advance learning.**
 - The FLS reduces the hours spent on academic courses. Therefore, it is easier for students from higher-income households to substitute the loss with private tutoring.
 - Also, the FLS alleviates students' burden of managing their grade point average (GPA), which could increase the demand for private tutoring for admissions and/or advance learning. This is particularly true among higher-income households.
- **The above results indicate that the FLS—designed to help students explore future career paths and facilitate the development of non-cognitive skills—could widen the education gap between income groups through private tutoring.**
 - Better quality programs are needed to supplement the cutback in academic courses in order to ease parental concerns. At the same time, more after-school programs should be introduced to assure students who have little access to private tutoring with ample educational opportunities.
 - Relevant policies must be designed bearing in mind that if they are not aligned with parents' needs, the biggest casualties will be low-income students who are unable to afford private tutoring.

1

Introduction

- **For one semester during middle school, the Free Learning Semester (FLS) system eliminates tests and exams, reduces the hours spent on academic courses and increases the share of various activities. It was initiated as a pilot project in 2013–2015 and implemented extensively from 2016.**
 - The specifics of the FLS, i.e. the contents, operation, etc., are determined autonomously by the respective schools. However, in general, the mornings consist of academic subjects while the afternoons are formed of activity-oriented programs such as career exploration, arts/sports, club activities and optional programs (Figure 1).
 - Written exams and tests including mid-terms and finals are replaced with progress-focused evaluations, and the results are not included in the school transcripts for high school.¹⁾

¹ Schools also set the standards for the progress-focused evaluations.

[Figure 1] FLS Timetable Sample

Time \ Date	MON	TUE	WED	THU	FRI
1	Academic courses (22 hours) ※ Restructured curriculum, Student-centered class, Progress-focused evaluation				
2					
3					
4					
5	FLS activities (12 hours)				
6					
7	Career exploration	Optional program	Club activities	Arts/Sports	Career exploration
After-school program	Operating in connection with FLS activities				

Source: Ministry of Education (Nov. 25, 2015, p.9), press release.

- The FLS frees students from their grades and provides opportunities to explore future career paths and develop creativity and social skills. But, despite the positive outcomes in several aspects, concerns remain over an escalation in the demand for private tutoring.

- Preceding case studies on pilot schools revealed a general increase in student satisfaction (Choi *et al.*, 2014; Shin *et al.*, 2014) as well as enhanced sociability (number of friends) in the students of four middle schools in Daegu (Park, 2017).²⁾
- It has been widely reported that private tutoring institutes use marketing tactics that highlight the fact that the FLS serves as an opportunity to focus on advance learning.³⁾

- Accordingly, this study analyzes the impact of the FLS on households' investment in private tutoring and draws on the policy implications.

2

Theoretical Estimation

- A simple supply and demand model for education services was constructed to estimate the impact of the FLS on private-tutoring investment (Figure 2).

- S_1 denotes the education services supply curve when only public education exists, and the service is provided up to Q_0 . S_2 denotes the supply curve when public and private education coexists, and the former is provided up to Q_0 beyond which is the latter.
- D_1 denotes the demand curve for households with a low demand for education services and D_2 denotes the opposite.

- Investment in private tutoring occurs when parents' demand for education exceeds what is provided through public education.

- Households with low education demand (D_1) require only what is provided through public education (Q_1). Thus, there is no additional investment in private tutoring. On the other hand, households with high education demand (D_2) require more (Q_2) and as a result seek private tutoring to make up for the shortfall ($Q_2 - Q_0$).

² It should be noted that the results are from a small number of schools, and hence, should not be interpreted as a general outcome of the FLS, given that the specifics vary among schools.

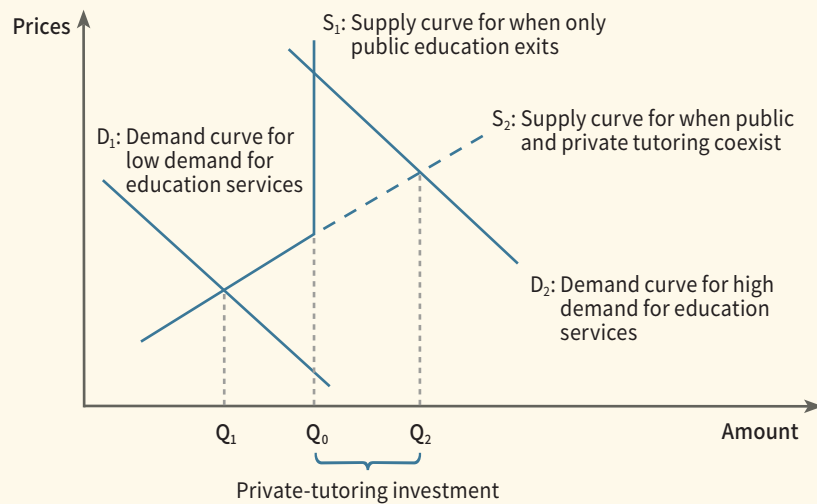
³ Chosun Ilbo (May 10, 2016), Kyunghyang Shinmun (Aug. 11, 2016), Yonhap News (Dec. 15, 2016), Joongang Daily (May 18, 2017) etc.

3

Analysis: Data and Method

⁴ The Survey applies a broad concept to the scope of private tutoring, including not only general subjects but also arts/sports and hobby/cultural activities. But, the latter was excluded from this study because: ① most of these activities are costly and sought by a small number of students — meaning that even a small outlier could affect the analysis results; ② private tutoring for hobby/cultural purposes does not necessitate policy concerns; and ③ arts/sports private tutoring for college admission has a small demand base, and thus, is not appropriate for this study which focuses on the general policy effects of the FLS. According to an analysis of the samples, private-tutoring expenditure for general subjects (2.95 million won) accounts for approx. 92.2% of the total (3.20 million won), including those on arts/sports and hobby/cultural activities. As such, private-tutoring expenditure on general subjects can represent the overall expenditure.

[Figure 2] Determinants of Private-tutoring Investment



Source: Revision of Fig. 1 in Dang and Rogers (2008, p.165).

■ The FLS reduces the hours spent on academic subjects which means that public education, at least in terms of the basic curriculum, is also reduced by as much.

- A reduction in public education services (Q_0 moves to the left) causes the private-tutoring investment of high-demand households to increase by the same amount ($Q_2 - Q_0$) while there are no significant changes in households with low demand (as long as $Q_0 > Q_1$ holds).
- If all other conditions remain unchanged, a higher income will engender a higher demand for education services. Thus, in reality, high-demand households are most likely high-income.

■ To estimate the impact of the FLS on private-tutoring investment, an analysis was conducted of data from 178,213 middle school students compiled by Statistics Korea's Private Tutoring Expenditure Survey for 2009-2016.

- The definition for private-tutoring investment is the participation in private tutoring for general subjects (Korean, Math, English etc.) and yearly expenditure.⁴⁾
- Approximately 65.1% of respondents answered that they received private tutoring and spent a yearly average of 2.95 million won.⁵⁾

■ To estimate the impact of the FLS, a comparison was made between regions that adopted the system early and those that adopted it later in terms of the changes in the participation in and expenditure on private tutoring.

- 17 regions (9 cities and 8 provinces) implemented the FLS with a time gap (Table 1).
- The linear trend in private-tutoring investment was controlled in all analyses as the changes after the implementation of the FLS can only be seen an outcome if the trend in private tutoring is the same across different regions.

Analysis Results

- 5 The expenditure of the remaining respondents (34.9%)—those who did not receive private tutoring—was set at zero. In cases where the expenditure on private tutoring was used as a dependent variable, the tobit model was applied, which takes into account the left-censoring of dependent variables, instead of the ordinary least square (OLS) method.
- 6 These increases are equivalent to approx. 19% and 37% of the average participation rate (80.6%) and yearly expenditure (4.90 million).
- 7 Although the statistical significance is insufficient, given that most lower-income households tend to seek private tutoring for supplementary purposes, it is possible that the demand for private tutoring will decrease when academic courses are cut back during the FLS. Refer to Section 6 for further details.

<Table 1> FLS Implementation Rate by Region (2009-2016)

(Unit: %)

	Proportion of schools implementing the FLS				
	2009-12	2013	2014	2015	2016
Seoul	0	1.3	39.2	60.9	100
Busan	0	1.8	23.4	64.5	100
Daegu	0	1.6	33.1	100	100
Incheon	0	1.5	23.3	71.6	100
Gwangju	0	3.4	20.5	100	100
Daejeon	0	4.5	31.8	63.6	100
Ulsan	0	3.3	24.2	72.6	100
Sejong	0	10.0	30.8	100	100
Gyeonggi-do	0	0.3	15.4	90.0	100
Ganswon-do	0	1.2	20.4	100	100
Chungcheongbuk-do	0	1.6	25.8	88.3	100
Chungcheongsam-do	0	1.6	41.9	78.0	100
Jeollabuk-do	0	1.0	14.8	36.8	100
Jeollanam-do	0	1.2	23.7	70.8	100
Gyeongsangbuk-do	0	0.7	22.2	100	100
Gyeongsangnam-do	0	0.7	17.6	86.8	100
Jeju	0	4.5	100	100	100
Total	0	1.3	25.3	79.6	100

Note: Schools in the table are middle schools participating in the FLS as pilot test subjects and applicant schools in respective cities and provinces.

Source: Internal materials from the Support Center for the Free-Exam Semester System at Korea Educational Development Institute (2017).

■ Overall, there was no statistical significance (① in Table 2).

- A full-scale implementation of the FLS (implementation rate 0% → 100%) incurred an increase of 0.4%p or 130,000 won in the participation in and yearly expenditure on private tutoring, although there was no statistical significance.

■ There was a meaningful increase in the private-tutoring investment of high-income households (monthly income over 6 million won) while that for low- and middle-income households (monthly income below 6 million won) was minor and had little statistical significance (② and ③ in Table 2).

- High-income households recorded increases of 15.2%p and 1.79 million won in the participation in and yearly expenditure on private tutoring.⁶⁾
- For low- and middle-income households, participation decreased 2.7%p but without any statistical significance, and their yearly expenditure decreased 250,000 won with a statistical significance of only 10%.⁷⁾

<Table 2> Impact of FLS on Middle School Students' Participation in and Yearly Expenditure on Private Tutoring

Sample	① Total	Average monthly income	
		② Below 6 million won	③ Over 6 million won
A. Impact on participation (0=non-participation, 1=participation)			
FLS	0.00419 (0.0257)	-0.0270 (0.0210)	0.152** (0.0541)
Number of observations	178,213	150,478	27,735
Average participation rate	0.651	0.623	0.806
B. Impact on yearly expenditure (10 thousand won)			
FLS	12.56 (22.08)	-24.89* (13.60)	179.0*** (64.32)
Number of observations	178,213	150,478	27,735
Average yearly expenditure	295.1	258.9	490.2

Note: All estimates represent the coefficient estimates for the FLS implementation rate in the regression analysis which used private-tutoring participation (participation=1) and expenditure (10 thousand won/year) as dependent variables and FLS implementation (continuous variable between 0 and 1), student characteristics (gender, academic records), parent characteristics (age, education level, economic activities and average monthly income), regional dummy (17 regions—9 cities and 8 provinces), year dummy and interaction term between region and year dummies (linear trends by region) as explanatory variables. Panel A estimates were obtained through the ordinary least square (OLS) method and Panel B estimates through the tobit model which takes into account the left-censoring at 0. Standard errors are expressed in the parentheses and were calculated by allowing clustering at the city and provincial levels. Statistical significance levels are ***p<0.01, **p<0.05 and *p<0.1.

Robustness Check

■ The probability that the results in <Table 2> are rooted in reverse causality is low (Table 3).

- The FLS may appear to be effective—although not necessarily true—if the education authorities adopted the FLS during an upward trend in private tutoring.
- The results remained almost the same with the addition of a lead term variable (moving up the implementation period by one year), implying that there was a change in private tutoring after the implementation of FLS.

<Table 3> Robustness Check I: Addition of a Lead Term

Sample	① Total	Average monthly income	
		② Below 6 million won	③ Over 6 million won
A. Impact on participation (0=non-participation, 1=participation)			
FLS	-0.00101 (0.0319)	-0.0318 (0.0264)	0.146** (0.0614)
FLS (One-year lead term)	-0.0168 (0.0307)	-0.0161 (0.0318)	-0.0153 (0.0341)
Number of observations	178,213	150,478	27,735
B. Impact on yearly expenditure (10 thousand won)			
FLS	10.59 (29.97)	-26.46 (19.47)	173.0** (74.80)
FLS (One-year lead term)	-6.249 (29.84)	-5.082 (28.84)	-17.75 (40.04)
Number of observations	178,213	150,478	27,735

Note: The coefficient estimates were represented by adding a placebo implementation rate (one-year earlier implementation of the FLS) as the explanatory variable to the empirical model while maintaining the samples used in <Table 2>. Standard errors were calculated by allowing clustering at the regional level. Estimates were obtained through the OLS method and Panel B estimates through the tobit model. Statistical significance levels are ***p<0.01, **p<0.05 and *p<0.1.

■ Moreover, it is also highly unlikely that the results in <Table 2> derived from other factors that were not controlled (Table 4).

- If the results in <Table 2> were driven by other factors that could not be observed, similar results would probably be obtained if the same analysis was conducted on groups irrelevant to the FLS.
- Almost no variations were observed when the sample for middle school students was replaced with that for general high school students, implying that the results in <Table 2> were not the consequence of any factors other than the FLS.⁸⁾

8 General high school students are similar to middle school students in terms of the purpose of private-tutoring investment (better grades). Also, they are supervised by the same competent authorities under the local government's office of education. Thus, it is highly likely that they share similar economic, social and policy aspects which could sway the investment in private tutoring.

6

Further Analysis

<Table 4> Robustness Check II: Replacement of the Sample for Middle School Students with the Sample for High School Students

Sample	① Total	Average monthly income	
		② Below 6 million won	③ Over 6 million won
A. Impact on participation (0=non-participation, 1=participation)			
FLS	-0.0211 (0.0221)	-0.0214 (0.0203)	-0.0245 (0.0367)
Number of observations	285,836	237,753	48,083
B. Impact on yearly expenditure (10 thousand won)			
FLS	-25.30 (30.57)	-24.56 (25.46)	-18.13 (73.57)
Number of observations	285,836	237,753	48,083

Note: The coefficient estimates for the FLS implementation rate were represented by replacing the sample for middle school students with that for high school students while maintaining the empirical model in <Table 2>. Standard errors were calculated by allowing clustering at the regional level. Estimates were obtained through the OLS method and Panel B estimates through the tobit model 0. Statistical significance levels are ***p<0.01, **p<0.05 and *p< 0.1.

- The demand for private tutoring for advance learning and admissions increases in line with income level, meaning that the FLS will incur the biggest impact on the private-tutoring investment of high-income households (Table 5).

- As students are freed from exams and having to manage their GPA during the FLS, there is a higher tendency to seek private tutoring for advance learning and admissions –this is particularly strong among high-income households.

<Table 5> Purpose of Private Tutoring for Basic Subjects: By Income Level (multiple answers allowed)

(1=Yes, 0=No)

Monthly household income		Admissions	Advance learning	Supplementary lesson	Anxiety and others
Below 1 million won		0.243*** (0.00966)	0.404*** (0.0112)	0.824*** (0.00859)	0.290*** (0.0103)
Difference from below 1 million won	1-1.99	-0.0104 (0.0108)	0.0261** (0.0125)	0.00350 (0.00956)	-0.0167 (0.0115)
	2-2.99	-0.00216 (0.0102)	0.0483*** (0.0118)	0.00179 (0.00908)	-0.0308*** (0.0109)
	3-3.99	0.0199** (0.0101)	0.0669*** (0.0117)	-0.00685 (0.00898)	-0.0482*** (0.0107)
	4-4.99	0.0541*** (0.0102)	0.0686*** (0.0118)	-0.0260*** (0.00908)	-0.0739*** (0.0108)
	5-5.99	0.0855*** (0.0105)	0.0691*** (0.0120)	-0.0533*** (0.00938)	-0.0871*** (0.0109)
	6-6.99	0.115*** (0.0113)	0.0732*** (0.0127)	-0.0739*** (0.0101)	-0.0889*** (0.0114)
	Over 7	0.147*** (0.0106)	0.0715*** (0.0121)	-0.0945*** (0.00949)	-0.102*** (0.0109)
Number of observations		115,159	115,159	115,159	115,159

Note: Only those who participated in private tutoring were surveyed. As such, the number of observations was 115,159 or 65.1% of the total (178,213). Standard errors are expressed in the parentheses and was calculated by allowing heteroskedasticity. The OLS method was used for estimation. Statistical significance levels are ***p<0.01, **p<0.05, *p<0.1.

Implications

- **Before expanding the FLS to cover the whole year, it is important to first strengthen the contents of academic courses and also to formulate measures to provide ample public education services to students with poor access to private tutoring.**
 - The quality of academic courses should be enhanced to counteract the reduction, which would also help ease parental concerns. Also, more after-school programs should be introduced during the FLS to provide sufficient educational opportunities to students with low access to private tutoring.
- **Policies should be designed keeping in mind that low-income households with low accessibility to private tutoring will be dealt the largest blow if the FLS is not aligned with parents' needs, despite the good intentions.**
 - Japan also witnessed a widening gap in the academic achievements of students from different income deciles with the adoption of the five-day school system in 2002, which reduced the number of class hours (Kawaguchi, 2016).
 - As shown by the Special Act on the Promotion of Public Education Normalization and Regulation on Pre-Curriculum Education (often referred to as the prohibition of advance learning) and the recent government decision to ban English classes in kindergarten, in reality, the education gap between different income groups will widen further if public education services are curtailed when there is such a demand for advance learning and English education.

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