

The impact of after-school programs on educational equality and private tutoring expenses

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Abstract The purpose of this study was to examine how the implementation of after-school programs in Korea's public schools is related to educational equality and private tutoring expenses. The analyzed data was from the Survey on the Status of Private Tutoring and the Study of the Policy Measures to Reduce Private Tutoring Expenses conducted by KEDI (Korea Education Development Institute) in (International conference for exploring the ways to activate the after-school program, KEDI, Seoul, 2007). The Chi-square test was employed to investigate (a) the relationship between after-school participation and family income and residential location of students (b) the association between after-school engagement and the reduction in private tutoring expenses. The study found that: (a) in general, low-income and rural students participated more than higher income and urban peers in after-school programs and (b) after-school participation was generally negatively associated with private tutoring engagement and the impact of after-school participation on the reduction in private tutoring expenses was stronger for low-income students in elementary and high schools and rural students in high schools.

The overall findings provide further research issue regarding whether after-school programs can help foster educational equality by offering more opportunities for learning and achievement improvement for disadvantaged students. The results also imply the potential of after-school programs in reducing private tutoring expenses, particularly for low-income families.

Keywords After-school programs · Educational equality · Private tutoring

Introduction

In an attempt to improve a broad range of Korean educational and social goals, including raising academic performance and lessening the burden of private tutoring expenses, a variety of after-school programs have been implemented since 1995 (Jeong 2007). These goals relate not only to the pedagogical purposes but also to the government's broader education policy. From a pedagogical viewpoint, after-school programs are considered to be an attempt to provide a variety of learning programs that may not be easily offered through the strictly mandated and therefore less flexible regular curriculum (Heo 2007; Ministry of Education and Human Resources Development [MOEHRD] 2007a, 2008). Meanwhile, after-school programs are also understood to be an effort to build partnerships between schools and local communities. Through these initiatives, schools will be able to actively utilize community resources for their students' learning and growth and thus finally strengthen educational capability of schools (Han 2006; Kim 2006).

From an educational policy point of view, important role of after-school programs is to expand educational

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opportunities for low-income and rural students who have limited access to quality education. In recent years, after-school programs have been further emphasized as a vehicle for promoting equality in education (Kim 2007, 2008). Moreover, it is also claimed that after-school programs may be effective in reducing the burden of private tutoring expenses on households (Ministry of Education and Science and Technology [MEST] 2009).

Researchers and policy makers (Bae 2006; Heo 2007) perceive after-school programs as a mechanism to trigger the reform of public schools. More specifically, they may act as ‘a school within a school (Han 2006)’. After-school programs could be designed to function as a medium by which high-quality after-school instructors from outside the schools are employed to provide learner-oriented education services and eventually compete with the regular curriculum-based classes taught by the public school teachers.

Despite the growing public awareness of the positive effects of after-school programs, there exists the lack of sufficient empirical research to conclusively demonstrate that after-school programs lead to improvements in educational equality and the reduction in private tutoring expenses. In the absence of such empirical evidence, it can be argued whether after-school programs can function as an effective mechanism to solve the problems of the alleged increasing gaps in educational opportunity and the growing burden on parents for private tutoring expenses.

In this context, this research intended to examine whether implementing after-school programs has had a positive impact on the equality of public education and the reduction in private education expenses. First, the study set out to investigate empirical evidence to determine the relationship between after-school program participation and students’ socio-economic status (SES) background, including family income and residential location. Specifically, the study compared after-school program participation among different socio-economic groups—i.e., students from low-income versus higher income families and urban versus rural students. Second, the study was designed to examine whether after-school program engagement is associated with the reduction in private tutoring expenses. In addition, the study explored whether low-income and rural areas students had a greater reduction in private tutoring expenses after attending after-school programs. Finally, based on the study results, the authors discussed the potential of after-school programs as a mechanism to narrow educational gaps between social classes and geographic regions, and the possibility that after-school programs may increase the competitiveness of public schools compared to the for-profit private education institutions.

Background

Overview of after-school programs

After-school programs in this study are defined as a set of formal school-based, student-oriented learning and development programs that are not a part of the regular curriculum (Kim et al. 2007b). They are commonly provided after school hours, but in some schools, they are also run early in the morning before the classes start, on the weekends, or during summer/winter vacations.

Historically, after-school programs were introduced to offer supervised and structured learning and development environments to children and youth whose parents, particularly mother, work and thus are not able to take care of them after school hours (Halpern 1999; Vandell and Shumow 1999; Weiss et al. 2009). However, with a growing emphasis on school accountability regarding student learning outcomes, the purpose of after-school programs has expanded into improving student academic performance (Lauer et al. 2006; Kane 2004; Vandell et al. 2006; Weiss et al. 2009). From an education policy perspective, particular attention has been paid to disadvantaged students from low-income and minority families (Bouffard et al. 2006; Weiss et al. 2009). For instance, in the United States, the passage of the landmark “*No Child Left Behind act*” generated greater interest in after-school tutoring programs and increased government investment in the programs (Afterschool Alliance 2009; Lauer et al. 2006).

Nowadays, in many countries, a wide range of programs are offered to pursue a variety of educational and social goals (see KEDI 2007 for a review). Those goals include after-school child care, narrowing student academic performance gaps, social and emotional development of children and youth, promoting health and wellness of students (Little et al. 2008). In recent years, with the advent of learning society, lifelong learning programs for adults in local community are also highlighted as a part of after-school programs (Han 2006). The programs vary by grade level and school, but most of them may be categorized into three groups: (a) after school child-care programs, (b) enrichment programs to help students broaden minds and develop interest and talent in such fields as arts, music, sports, and cultural activities, and (c) academic programs to assist students in enhancing learning performance and preparing for college entrance exams in the case of high schools.

The effects of after-school program participation

Through a number of studies on the effects of after-school programs on educational outcomes, researchers have come to determine various benefits. The most common benefit is improvement in academic performance—e.g., increased

achievement test scores and more active engagement in learning activities (Huang et al. 2000; Kane 2004; Malloy 2007; Posner and Vandell 1994; Vandell and Shumow 1999). It is also evident that the effects differ according to the manner in which students participated in the programs. The more and sustained engagement was significantly associated with greater improvement (George et al. 2007; Lauer et al. 2006; Little et al. 2008). Importantly, the effects were stronger for low-performing or at-risk students from low-income or minority families (Jenner and Jenner 2007; Lauer et al. 2006, McComb and Scott-Little 2003).

Secondly, social and emotional development is another benefit frequently reported by previous studies. According to researchers (Grossman et al. 2002; Malloy 2007; Posner and Vandell 1994; Vandell and Shumow 1999), sustained participation in after-school programs, particularly enrichment activities, has a positive impact on social-emotional adjustment, self-efficacy and confidence, and conflict resolution skills. Those outcomes are important in that they ultimately contribute to decreasing behavioral problems.

Thirdly, active participation in after-school programs is positively related to students' attitudes toward school (Grossman et al. 2002; Vandell et al. 2006). Improved work habit, increased school attendance, decreased drop-out, suspension, and vandalism were among attitudinal outcomes. Finally, sustained after-school program participation was found to produce a wide range of prevention outcomes. Those prevention outcomes include reduction in juvenile crime, decrease in school violence and sexual activity, avoidance of drug and alcohol use (Goldschmidt et al. 2007; Grossman et al. 2002; Newman et al. 2000; Vandell et al. 2006). In the case of Korea, however, almost no research has been done to reveal what after-school programs bring to individual participations.

After-school programs in Korea

The roots of after-school programs in Korea may be traced back to the landmark report of “*5.31 Education Reform Initiatives*” published in 1995 by the Presidential Committee on Education Reform (Jeong 2007). They were initially introduced to help promote holistic education and provide a variety of programs that may nurture more creativity among students (Han 2006). Accordingly, schools were encouraged to implement more enrichment programs and cultural activities. To policy makers, the regular curriculum under the national curriculum structure was found to be too much dominated by knowledge-based and subject-oriented learning activities and therefore have little room for diverse enrichment activities. Another important government report of “*Education Vision 2002: Creation of New School Culture*” published in 1998 also points to this perspective (Ham 2007).

Despite government efforts to stimulate after-school enrichment programs in schools, however, the growing competitions for college admissions and the increasing burden of parents for private tutoring expenses have played as the driving force behind the scene to urge schools to operate academic tutoring programs. The majority of high school after-school programs are in fact programs designed to help students prepare for college admissions. Meanwhile, with the increasing maternal employment, schools are also expected to implement school age child-care programs (Ham 2007; Son 2009).

In summary, after-school programs in Korea have been developed to accomplish a variety of educational and social needs. They are supported by not only the central government, but also metropolitan/provincial office of education and local business and industry (Bae 2006). The officially announced goals of after-school programs by the government include: (a) provision of diverse programs that may not be offered through the regular curriculum, (b) narrowing the education gaps between social classes and regions, (c) reduction in private tutoring expenses, (c) bridging schools and community through after-school programs (MOEHRD 2008).

As shown in Table 1, as of 2008, 99.9% of Korean schools implemented more than one program, while 54.3% of students took at least one program. An increase in anecdotal evidence in recent years has encouraged the Korean government to increase financial investment to support schools for implementing after-school programs. As of 2008, the total amount of government spending on after-school program implementation reaches to about 329 billion won (2.74 billion \$ at the exchange rate of 1200 won to the US dollar).

After-school programs, educational equality, and private tutoring expenses

Among the possible outcomes mentioned above, the Korean government, in recent years, has the keenest interest in the role of after-school programs in enhancing educational equality and reducing private tutoring expenses of households. First, the promotion of equality in education has always been on the top of the Korean government's education agenda. The investment of enormous public financial resources in supporting schools that desire to implement quality after-school programs and helping disadvantaged students attend the programs is linked to the idea that after-school programs would offer better educational opportunities to low-SES students who cannot afford expensive private tutoring and eventually contribute to enhancing their learning and growth (Kim 2007, 2008). Such an idea is supported by the result from the 2007 KEDI survey on the policy outcomes of after-school programs. According to the

Table 1 After-school implementation and student participation rates by school level (%)

	Elementary	Middle	High		Total
			General	Vocational	
After-school implementation	100.0	99.9	99.7	99.7	99.9
Student participation	46.9	45.5	84.9	59.9	54.3

KEDI survey of 6,132 nationally representative samples, 51.8% of Korean parents agreed that after-school programs are of great use in increasing opportunities for learning and growth for low-income students—only 17.8% disagreed and 30.1% neutral (Kim et al. 2007a, b, c).

The survey also found that such perception was greater among low-income parents. Conducting qualitative interviews with students and their parents engaged in after-school programs Kim (2007) found that after-school programs have the potential to promote learning and development of disadvantaged students. Interestingly, however, he claimed that more efforts should be made to help low-income students attend enrichment programs rather than academic programs so that they could identify their interest and talent and subsequently achieve successful future life. Kim (2007) also conducted a study using the sample of 3,512 middle school students to determine who participated in after-school programs. He found that students from less-educated, low-income, and rural families were more likely to attend after-school program.

As explained earlier, there has been a great deal of research suggesting that the effects of after-school participation are greater among low-income students (Jenner and Jenner 2007; Lauer et al. 2006, McComb and Scott-Little 2003; Posner and Vandell 1994, 1999). For instance, Posner and Vandell (1999) stated “after-school programs can provide low-income children with experience more similar to those experiences by middle-class children who have access to a rich array of lessons, coached sports, and academic tutoring (p. 877).”

In recent years, there has been increasing interest from government in employing after-school programs as a means to resolve the problems from prevailing private tutoring. In accordance with the government’s emphasis on their role in reducing the burden on parents for private tutoring expenses, after-school programs have been actively employed as the key policy measure in various government-sponsored projects to deal with private tutoring-related issues. One example is the project of “the Schools Without Private Tutoring,” which was launched in 2009. Four hundred and fifty-seven public schools nationwide are now aggressively implementing after-school programs to reduce private tutoring of students (Ministry of Education, Science, Technology 2009).

In order to find evidence on whether after-school program participation influenced the private tutoring expenses

of households, MOEHRD conducted an administrative survey of 280 public schools in 2006. The result showed that the average monthly spending per student on private tutoring decreased by 62 thousand one (\$51.7) during the first half year (MOEHRD 2007b). Another survey conducted for 7,456 nationally representative Korean parents by MOEHRD points to similar findings.

Regarding the impact of after-school participation on private tutoring expenses, there have been a few studies indicating that Korean parents in general have positive views (MOEHRD, 2007a, 2008; Kim et al. 2007a, b, c, 2008). The annual surveys done by the Korean Educational Research Institute (KEDI) provide valuable information regarding the impact of after-school participation on private tutoring expenses. Specifically, according to the 2008 survey of 8,154 nationally representative samples, 41.3% of parents agreed that participating after-school programs is effective in decreasing private tutoring expenses, with 28.1% disagreed and 30.5% neutral (Kim et al. 2008). The positive views were particularly salient among low-income and rural parents (Kim et al. 2008). In his study on the determinant of after-school program participation, Kim (2008) reported that attending after-school programs is negatively associated with the participation in private tutoring. In the same way, in their study using the empirical data of the Korean Education Longitudinal Study (KELS), Park et al. (2009) found that sustained participation in after-school programs led to the reduction in private tutoring expenses. Finally, analyzing data from the 2008 survey of private tutoring expenses conducted by Korean National Statistical Office (KNSO), Ministry of Education, Science, Technology (2009) suggest that after-school program participants reported significantly lower monthly private tutoring expenses than non-participants.

Conceptual framework

The main concept of this study was based upon two perspectives: theoretically, the sociological perspective of education and practically, the public policy perspective. First, from the sociological standpoint of education, family SES and school resources have been identified as important factors in determining educational opportunities and the eventual performance outcomes of students (Coleman et al. 1966; Coleman and Hoffer 1987; Farkas 1996; Heyneman

and Loxley 1983; Lee and Bryk 1989; Riordan 1997). In this case, while after-school programs as school-based activities are expected to play a significant role in maximizing the educational capacity of public schools, they are also recognized as government interventions designed to expand educational opportunities for low-SES students, mainly low-income and rural students. As will be explained later, the authors attempted to find the clue as to how after-school program implementation is related to the increase in educational equality. That is, an assumption is that if low-SES students have a greater participation than higher SES students in after-school programs, after-school program implementation may possibly contribute to enhancing educational equality by improving educational opportunities for disadvantaged students who cannot afford expensive private tutoring.

Second, as stated earlier, after-school programs in Korea have been developed as education reform initiatives aimed at the resolution of a variety of education and social problems (Jeong 2007). From the public policy perspective, the government has paid special attention to the role of after-school programs in narrowing the gaps in educational opportunities between social classes and regions and solving the problems of skyrocketing private tutoring expenses (Bae 2006). Nonetheless, there has been little research to explore whether after-school programs as a government intervention are effective in accomplishing these two goals. This study was conducted to fill this void by empirically examining the impact of after-school programs on educational equality and the reduction in private tutoring expenses (Fig. 1).

Methods

Sample and data

This study involved secondary data analysis. The research was conducted utilizing data from *the Survey on the Status of Private Tutoring and the Study of the Policy Measures to*

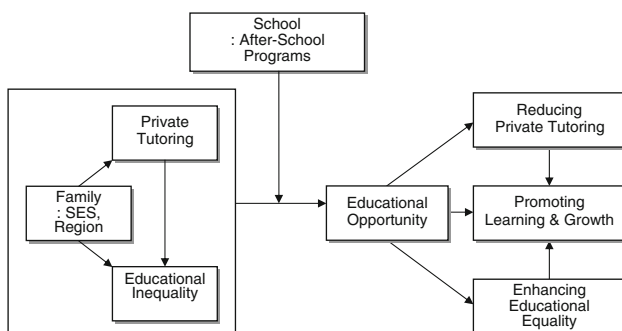


Fig. 1 The conceptual framework of this study

Reduce Private Tutoring Expenses conducted by Korean Education Development Institute (KEDI) in 2007. Taking into consideration of the government's dramatic increase in investment in after-school programs since 2006, this study, which analyzes data collected in 2007, is of great interest and importance in exploring the impact of after-school programs on such education goals as educational equality and the reduction in private tutoring expenses.

The original KEDI survey employed a stratified sampling method to reduce sampling errors. The strata consisted of region (Seoul, all the other metropolitan cities, capital region, medium and small cities, all the rural area), school type 1 (public, private), and school type 2—in the case of high schools (general, vocational, specialized¹). The sample, 0.5% of the population, was nationwide selected from 116 elementary schools, 109 middle schools, and 110 high schools.² Considering that private tutoring is reportedly most prevalent in the area of the Gangnam-Gu in Seoul and for students in specialized high schools, the sampled schools included 10 schools from the Gangnam-Gu area at each school level and 10 foreign language high schools nationwide. Finally, the total sample consisted of 11,273 students including 3,828 6th graders, 3,815 9th graders, and 3,630 11th graders. Questionnaires were sent to their parents, and the response rate was 76.59% at the elementary school level, 80.94% at the middle school level, and 79.01% at the high school level, respectively. Due to missing values, the data analyzed in this research was 7,001 cases for the family income-based analysis and 8,516 cases for the region-based analysis, respectively (see Table 2).

As stated earlier, this study was guided by the sociological perspective of education (Coleman et al. 1966; Farkas 1996; Riordan 1997), which considers family SES in determining students' opportunities to learn and subsequent academic performance. In this study, *Family income* and *Residential location* were used as variables representing student SES background. *Family Income* of students was categorized into three groups at each school level: low income, medium income, and high income. The number of samples by family income level is shown in Table 2. *Residential location* of students was categorized into six groups: Gangnam-Gu, Seoul, all other metropolitan cities, Capital region, Medium and small cities, and rural areas.³ In this study, particular attention was given to rural students—i.e., students in county towns and subdivisions.

¹ A majority of specialized high schools include foreign language high schools that are allegedly known to have wealthy students.

² The details of the selected sample may be found in the Survey on the Status of Private Tutoring and the Study of the Policy Measures to Reduce Private Tutoring Expenses (Kim et al. 2007a, b, c).

³ In this survey, rural areas refer to towns and subdivisions in counties.

Table 2 Number of samples by school level and family income and region (%)

Group	Elementary	Middle	High
Family income			
Low	1,233 (39.0)	1,167 (36.9)	762 (24.1)
Middle	527 (31.5)	362 (21.6)	785 (46.9)
High	832 (38.4)	725 (33.5)	608 (28.1)
Region			
Gangnam-Gu	265 (30.6)	321 (37.0)	281 (32.4)
Seoul	435 (34.8)	324 (25.9)	491 (39.3)
Metropolitan city	747 (34.1)	695 (31.7)	749 (34.2)
Capital city	341 (32.4)	354 (33.6)	359 (34.1)
Medium and small city	767 (34.3)	752 (33.6)	717 (32.1)
Rural area	339 (36.9)	360 (39.2)	219 (23.9)

Comparison groups were urban students in the other regions. The number of samples by region is shown in Table 2.

Method

The purpose of this research was to examine whether implementing after-school programs has an influence on educational equality and the reduction in private tutoring expenses. To assess the relationship between after-school program implementation and equality in education, comparisons were made across family income levels and regions. Particular attention was paid to students from low-income families and rural areas. To examine the relationship between after-school program participation and the reduction in private tutoring expense, comparisons were made between after-school participants and non-participants on private tutoring engagement. In addition, the study investigated whether after-school program participation led to the reduction in private tutoring expenses, particularly for low-income and rural students.

Given the exploratory nature of this study, the authors attempted to provide a thumbnail view of the impact of after-school programs on educational equality and private tutoring expenses. To analyze the data, the Chi-square test was employed. The Chi-square test is commonly used to identify a statistically significant difference between the expected frequencies and the observed frequencies (Greenwood and Nikulin 1996). Given the cross-sectional categorical data used in this study, the Chi-square test was of great use. Two-dimensional contingency tables were formed by classifying subjects by two variables—e.g., after-school participation and student SES background, such as family income and region, respectively.⁴

⁴ Three-dimensional contingency tables may be created by classifying subjects by three variables—e.g., after-school participation and

Separate analysis was conducted across school levels and programs. In general, after-school programs are grouped into three categories: child-care programs, enrichment programs, and academic programs. Due to the data availability in this study, the analysis was conducted across after-school enrichment programs and academic programs. However, since implementation of after-school academic programs at the elementary school level was not allowed by government regulation in 2007, the study could not reflect this data. SAS 9.0 was used for the analysis. Finally, the theoretical and practical implications of the findings were presented from the sociological and public policy perspective of education.

Findings

Table 3 presents the results of the Chi-square analyses to determine the relationship between after-school program participation and family income of the student across all three school levels. In elementary schools, there was statistically significant difference in after-school program participation between low-income and higher income students [$\chi^2(3, N = 2,458) = 5.59, p = .06$]. That is, students from low-income homes participated more than their peers from higher income homes in after-school programs. Results were generally similar across after-school programs in middle schools (for enrichment programs, [$\chi^2(3, N = 2,187) = 5.06, p = .08$]; for academic programs, [$\chi^2(3, N = 2,178) = 13.29, p = .00$]).

In high schools, however, results were inconsistent. Only the relationship between after-school participation and family income was statistically significant in the case of academic programs in general high schools at the .01 level [$\chi^2(3, N = 1,448) = 19.07, p = .00$]. Considering that after-school academic programs in general high schools are designed to prepare for college admissions and therefore a large number of students attend the programs, this finding is meaningful from an educational policy perspective. In the other cases, there were no statistically significant differences between low-income and higher income students on after-school program participation.

Table 4 shows participation rates in after-school programs by region. As was assumed, in elementary schools, urban students in big cities such as Seoul and the other metropolitan cities showed higher participation in after-school enrichment programs than rural students in county

Footnote 4 continued

family income and region. However, in this case, there may be the possibility that some cells have small frequencies and thus, the Chi-square test may not work well. In addition, considering the brevity of interpretation of the relationship between two variables, we used two-dimensional contingency tables.

Table 3 After-school participation by school level, program, and family income (%)

Group	Participation	Non-participation	χ^2
<i>Elementary</i>			
Enrichment			
Low	367 (31.7)	790 (68.3)	5.59***
Middle	146 (28.8)	361 (71.2)	
High	213 (26.8)	581 (73.2)	
<i>Middle</i>			
Enrichment			
Low	198 (17.4)	937 (82.6)	5.06*
Middle	61 (17.5)	288 (82.5)	
High	96 (13.7)	607 (86.3)	
Academic			
Low	125 (11.1)	1,006 (88.9)	13.29***
Middle	33 (9.5)	314 (90.5)	
High	42 (6.0)	658 (94.0)	
<i>High</i>			
Enrichment			
General			
Low	114 (27.0)	308 (73.0)	0.45
Middle	159 (29.0)	390 (71.0)	
High	134 (28.2)	341 (71.8)	
Vocational			
Low	87 (31.1)	193 (68.9)	1.66
Middle	49 (32.5)	102 (67.5)	
High	12 (23.1)	40 (76.9)	
Specialized			
Low	10 (25.6)	29 (74.4)	2.07
Middle	14 (25.0)	42 (75.0)	
High	19 (36.5)	33 (63.5)	
Academic			
General			
Low	268 (63.2)	156 (36.8)	19.07***
Middle	338 (61.6)	211 (38.4)	
High	239 (50.3)	236 (49.7)	
Vocational			
Low	47 (16.9)	231 (83.1)	4.19
Middle	34 (22.8)	115 (77.2)	
High	14 (27.5)	37 (72.5)	
Specialized			
Low	8 (20.5)	31 (79.5)	2.30
Middle	9 (16.4)	46 (83.6)	
High	15 (28.3)	38 (71.7)	

* $p < .1$, ** $p < .05$, *** $p < .001$

subdivisions and towns at the .01 level [$\chi^2(5, N = 2,738) = 26.25, p = .00$]. One may speculate that in urban areas, more education resources, either human resources or education facilities, lead to a greater number of students

attending after-school enrichment programs. However, the results were opposite in middle and high schools—that is, rural students participated more than their urban peers in the programs. Of note, enrollment of students from medium and small cities and rural areas in after-school programs was generally greater than that of students from big cities, especially in the case of enrichment programs both in general and vocational high schools and academic programs in general high schools (see Table 4). As a result, the overall findings suggest that after-school program implementation may contribute to enhancing educational equality by providing more opportunities for learning and growth for disadvantaged students from low-income homes and rural areas.

Table 5 presents the relationship between after-school participation and private tutoring engagement. There were statistically significant differences in private tutoring engagement between after-school participants and non-participants both in elementary and middle schools (for elementary school enrichment programs, [$\chi^2(1, N = 2,728) = 3.85, p = .04$]; for middle school enrichment programs, [$\chi^2(1, N = 2,504) = 9.86, p = .00$]; for middle school academic programs, [$\chi^2(1, N = 2,494) = 26.69, p = .00$]) That is, after-school participants as a group had a significantly lower enrollment in private tutoring compared with non-participants. However, the results were inconsistent in high schools. While the relationship was negative both in enrichment programs in vocational high schools and academic programs in general high schools, it was positive both in enrichment and academic programs in specialized high schools that wealthy students attend (see Table 5). From the overall findings indicating that after-school participation was generally negatively associated with enrollment in private tutoring, one may claim that after-school programs have the potential to reduce private tutoring engagement of students.

Tables 6 and 7 provide information about (a) whether private tutoring expenses was reduced after attending after-school programs by family income and region and (b) whether there is a significant difference in the decrease in private tutoring expenses after being engaged in after-school programs among different family income groups and regions. In general, the number of students reporting that private tutoring expenses was almost unchanged despite after-school participation was greater than the number of students indicating that after-school participation led to the reduction in private tutoring expenses. Nonetheless, in the case of low-income high school students who attended after-school enrichment programs, those who experienced a reduction in private tutoring expenses outnumbered those who reported that private tutoring expenses were unchanged. The results were the same for rural middle schools students who attended

Table 4 After-school participation by school level, program, and region (%)

Group	Participation	Non-participation	χ^2
<i>Elementary</i>			
Enrichment			
Gangnam	75 (29.8)	75 (29.8)	26.25***
Seoul	139 (34.2)	268 (65.8)	
Metropolitan city	230 (32.2)	485 (67.8)	
Capital region	60 (18.6)	262 (81.4)	
Medium and small city	213 (29.0)	522 (71.0)	
Rural area	82 (26.7)	225 (73.3)	
<i>Middle</i>			
Enrichment			
Gangnam	43 (13.7)	272 (86.3)	62.91***
Seoul	36 (11.5)	278 (88.5)	
Metropolitan city	140 (21.0)	526 (79.0)	
Capital region	21 (6.1)	325 (93.9)	
Medium and small city	121 (16.7)	604 (83.3)	
Rural area	86 (25.0)	258 (75.0)	
Academic			
Gangnam	15 (4.8)	299 (95.2)	72.23
Seoul	11 (3.5)	302 (96.5)	
Metropolitan city	87 (13.2)	573 (86.8)	
Capital region	17 (4.9)	330 (95.1)	
Medium and small city	75 (10.4)	647 (89.6)	
Rural area	65 (19.0)	278 (81.0)	
<i>High</i>			
Enrichment			
General			
Gangnam	55 (22.1)	194 (77.9)	27.94***
Seoul	66 (19.4)	275 (80.6)	
Metropolitan city	138 (28.6)	345 (71.4)	
Capital region	70 (26.7)	192 (73.3)	
Medium and small city	126 (31.4)	275 (68.6)	
Rural area	50 (39.7)	76 (60.3)	
Voc.			
Gangnam	0 (0.0)	4 (100.0)	4.19***
Seoul	20 (21.5)	73 (78.5)	
Metropolitan city	38 (16.9)	187 (83.1)	
Capital region	3 (13.6)	19 (86.4)	
Medium and small city	99 (43.4)	129 (56.6)	
Rural area	27 (42.9)	36 (57.1)	
Spec.			
Gangnam	3 (15.8)	16 (84.2)	6.34
Seoul	20 (50.0)	20 (50.0)	
Metropolitan city	5 (35.7)	9 (64.3)	
Capital region	19 (33.3)	38 (66.7)	
Medium and small city	23 (37.7)	38 (62.3)	
Rural area	1 (4.8)	20 (95.2)	

Table 4 continued

Group	Participation	Non-participation	χ^2
Academic			
General			
Gangnam	49 (19.8)	199 (80.2)	502.93***
Seoul	69 (20.3)	271 (79.7)	
Metropolitan city	371 (76.5)	114 (23.5)	
Capital region	179 (68.3)	83 (31.7)	
Medium and small city	323 (79.6)	83 (20.4)	
Rural area	79 (62.7)	47 (37.3)	
Voc.			
Gangnam	0 (0.0)	4 (100.0)	36.74***
Seoul	15 (16.1)	78 (83.9)	
Metropolitan city	27 (12.0)	198 (88.0)	
Capital region	13 (59.1)	9 (40.9)	
Medium and small city	48 (21.4)	176 (78.6)	
Rural area	20 (31.3)	44 (68.8)	
Spec.			
Gangnam	2 (10.0)	18 (90.0)	21.26***
Seoul	8 (20.0)	32 (80.0)	
Metropolitan city	2 (14.3)	12 (85.7)	
Capital region	8 (14.3)	48 (85.7)	
Medium and small city	28 (45.9)	33 (54.1)	
Rural area	0 (0.0)	21 (100.0)	

* $p < .1$, ** $p < .05$, *** $p < .001$

after-school enrichment programs and rural high school students who took after-school enrichment programs and academic programs, respectively.

Meanwhile, the study found that the impact of after-school participation on the reduction in private tutoring expenses was greater among lower income students compared with higher income students both at the elementary and high school levels (for elementary school enrichment programs, [$\chi^2(4, N = 1,671) = 24.64, p = .00$]; for high school enrichment programs, [$\chi^2(4, N = 572) = 17.06, p = .00$]; for high school academic programs [$\chi^2(4, N = 931) = 7.94, p = .09$]). Likewise, the impact was stronger among rural students compared with urban students in big cities at the high school level (for enrichment programs, [$\chi^2(10, N = 728) = 17.94, p = .06$]; for academic programs, [$\chi^2(10, N = 1,177) = 22.94, p = .01$]).

From the statistics shown in Tables 6 and 7, we found two important clues. First, there were a substantial number of students who experienced a reduction in private tutoring expenses after attending after-school programs. Considering most schools have been actively implementing after-school programs for only one or 2 years, the findings suggest that implementing after-school programs has the potential to

Table 5 The relationship between private tutoring participation and after-school participation (%)

Group	After-school	Non-after-school	χ^2
<i>Elementary</i>			
Enrichment			
Private tutoring	685 (28.4)	1,723 (71.6)	3.85**
Non-private tutoring	108 (33.8)	212 (66.3)	
<i>Middle</i>			
Enrichment			
Private tutoring	314 (15.6)	1,693 (84.4)	9.86***
Non-private tutoring	107 (21.5)	390 (78.5)	
Academic			
Private tutoring	165 (8.3)	1,834 (91.7)	26.69***
Non-private tutoring	79 (16.0)	416 (84.0)	
<i>High</i>			
Enrichment			
General			
Private tutoring	357 (27.2)	957 (72.8)	0.48
Non-private tutoring	122 (28.9)	300 (71.1)	
Vocational			
Private tutoring	55 (24.6)	169 (75.4)	3.26*
Non-private tutoring	118 (31.5)	257 (68.5)	
Specialized			
Private tutoring	53 (41.4)	75 (58.6)	8.55***
Non-private tutoring	14 (20.6)	54 (79.4)	
Academic			
General			
Private tutoring	737 (55.7)	585 (44.3)	12.62***
Non-private tutoring	276 (65.6)	145 (34.3)	
Vocational			
Private tutoring	46 (20.7)	176 (79.3)	0.60
Non-private tutoring	68 (18.1)	307 (81.9)	
Specialized			
Private tutoring	35 (27.3)	93 (72.7)	4.00**
Non-private tutoring	14 (20.6)	54 (79.4)	

* $p < .1$, ** $p < .05$, *** $p < .001$

reduce the private tutoring expenses. Furthermore, there may be the possibility that the effects could be especially greater for low-income students. This argument is also supported by the study result indicating that after-school participation is generally negatively related to private tutoring engagement of the students (See Table 5). Second, the study found that a considerable number of students began to attend after-school programs without being engaged in private tutoring. This finding suggests that after-school programs could be successful in responding to some extent to the needs of students that could have otherwise only been met through private schools. In this context, it may be argued that well-implemented high-quality after-school programs may work well as a mechanism for making our schools more competitive against private education institutions.

Table 6 Changes in private tutoring expenses after participating in after-school programs by family income (%)

Group	Decreased	Almost unchanged	Expense added	χ^2
<i>Elementary</i>				
Enrichment				
Low	319 (38.9)	371 (45.3)	129 (15.8)	24.64***
Middle	89 (26.1)	188 (55.1)	64 (18.8)	
High	152 (9.7)	281 (55.0)	78 (15.3)	
<i>Middle</i>				
Enrichment				
Low	57 (32.2)	82 (46.3)	38 (21.5)	2.24
Middle	20 (36.4)	23 (41.8)	12 (21.8)	
High	26 (29.9)	36 (41.4)	25 (28.7)	
Academic				
Low	41 (38.7)	46 (43.4)	19 (17.9)	2.95
Middle	8 (26.7)	16 (53.3)	6 (20.0)	
High	18 (46.2)	16 (41.0)	5 (12.8)	
<i>High</i>				
Enrichment				
Low	92 (45.3)	63 (31.0)	48 (23.6)	17.06***
Middle	65 (31.1)	93 (44.5)	51 (24.4)	
High	43 (26.9)	72 (45.0)	45 (28.1)	
Academic				
Low	109 (35.9)	123 (40.5)	72 (23.7)	7.94*
Middle	113 (30.8)	172 (46.9)	82 (22.3)	
High	67 (25.8)	123 (47.3)	70 (26.9)	

* $p < .1$, ** $p < .05$, *** $p < .001$

Conclusions and implications

The purpose of this study was to examine whether implementing after-school programs has a positive influence on educational equality and the reduction in private tutoring expenses. For this purpose, the study investigated (a) the relationship between after-school participation and students' SES backgrounds including family income and residential location and (b) whether after-school program engagement led to the reduction in private tutoring expenses, particularly for disadvantaged students from low-income families and rural areas. The study was conducted across two types of after-school programs: after-school academic programs in middle and high schools and after-school enrichment programs at all school levels. The Chi-square test was employed to analyze data.

The key findings are summarized as follows. First, as was assumed, there were statistically significant differences in after-school program participation among different family income groups. Consistent with previous studies (Afterschool Alliance 2008; Bouffard et al. 2006; Kim 2008), students from low-income families in general

Table 7 Changes in private tutoring expenses after participating in after-school programs by region (%)

Group	Decreased	Same	Expense added	χ^2
<i>Elementary</i>				
Enrichment				
Gangnam	43 (24.6)	104 (59.4)	28 (16.0)	25.15***
Seoul	106 (39.0)	119 (43.8)	47 (17.3)	
Metropolitan city	186 (36.0)	252 (48.8)	78 (15.1)	
Capital region	55 (30.2)	90 (49.5)	37 (20.3)	
Medium and small city	159 (32.4)	268 (54.6)	64 (13.0)	
Rural area	70 (32.9)	98 (46.0)	45 (21.1)	
<i>Middle</i>				
Enrichment				
Gangnam	9 (22.5)	17 (42.5)	14 (35.0)	12.21
Seoul	12 (44.4)	7 (25.9)	8 (29.6)	
Metropolitan city	38 (29.7)	59 (46.1)	31 (24.2)	
Capital region	5 (31.3)	6 (37.5)	5 (31.3)	
Medium and small city	32 (30.2)	46 (43.4)	28 (26.4)	
Rural area	34 (44.2)	29 (37.7)	14 (18.2)	
Academic				
Gangnam	2 (25.0)	4 (50.0)	2 (25.0)	9.56
Seoul	4 (57.1)	3 (42.9)	0 (0.0)	
Metropolitan city	38 (50.7)	25 (33.3)	12 (16.0)	
Capital region	6 (40.0)	6 (40.0)	3 (20.0)	
Medium and small city	20 (31.3)	28 (43.8)	16 (25.0)	
Rural area	22 (36.7)	28 (46.7)	10 (16.7)	
<i>High</i>				
Enrichment				
Gangnam	16 (29.1)	22 (40.0)	17 (30.9)	17.94*
Seoul	36 (36.0)	44 (44.0)	20 (20.0)	
Metropolitan city	66 (37.9)	73 (42.0)	35 (20.1)	
Capital region	18 (20.7)	38 (43.7)	31 (35.6)	
Medium and small city	91 (37.9)	81 (33.8)	68 (28.3)	
Rural area	26 (36.1)	26 (36.1)	20 (27.8)	
Academic				
Gangnam	16 (35.6)	15 (33.3)	14 (31.1)	22.94**
Seoul	35 (40.2)	36 (41.4)	16 (18.4)	
Metropolitan city	117 (30.6)	188 (49.2)	77 (20.0)	
Capital region	45 (23.7)	89 (46.8)	56 (29.5)	
Medium and small city	119 (31.0)	176 (45.8)	89 (23.2)	
Rural area	36 (40.4)	28 (31.5)	25 (28.1)	

* $p < .1$, ** $p < .05$, *** $p < .001$

participated more than their peers from wealthy families in the programs—the only exception being after-school enrichment programs in high schools.

Second, there were statistically significant differences in after-school program engagement between urban and rural students. Generally speaking, consistent with previous research (Afterschool Alliance 2008; Kim 2008), rural students had a greater participation than urban students in the programs—the exception being after-school enrichment programs in elementary schools.

Third, statistically significant differences were found in private tutoring engagement between after-school program participants and non-participants at all school levels. That is, after-school program participants showed lower engagement in private tutoring, when compared to non-participants. However, it should be noted that these results do not necessarily indicate the possibility of causal relationships between the two variables.

Finally, there were a substantial number of students who experienced a reduction in private tutoring expenses after attending after-school programs. In the case of low-income high school students who took after-school enrichment programs, those reporting a reduction in private tutoring expenses outnumbered those reporting there was almost no change in private tutoring expenses. The same was found among rural middle school students who took after-school enrichment programs and rural high school students who took after-school enrichment programs and academic programs. Remarkably, the relationships between after-school program participation and the reduction in private tutoring expenses were found to be stronger among low-income students in elementary and high schools and rural students in high schools. The study also found a considerable number of students who participated in after-school programs without taking private tutoring.

In the meantime, the current study, using the Chi-square test, was conducted to identify the relationship between after-school program participation and students' SES background—i.e., family income and residential location. It should be noted that the results of the Chi-square test do not mean the causal relationships between after-school program implementation and educational equality and the reduction in private tutoring expenses. Therefore, the results of the study need to be interpreted with caution. Despite the findings suggesting that low-SES students generally participated more than higher SES students in after-school programs, it may not be valid to insist that implementing after-school programs has a direct and causal influence on expanding educational equality. The same holds true for the relationship between after-school program participation and the reduction in private tutoring expenses.

However, if the Chi-square test can find a significant relationship between after-school program participation and residential location of students—meaning that low-SES students participated more than their high-SES peers

in after-school programs, one may be able to assume that implementing after-school program may have potential to help foster educational equality. The same holds true for the relationship between attending after-school programs and private tutoring expenses.

Nevertheless, given the little research regarding the effects of after-school program implementation on educational equality and the reduction in private tutoring expenses, the findings of the current study offer some important clues regarding the effects of after-school program. First, considering the study results showing that low-income and rural students had generally lower participation in private tutoring compared to wealthy and urban students (MEST 2009; Kim et al. 2007a, b, c), it may be hypothesized that school-based after-school programs substitute for private tutoring for less-advantaged students. Practically, this assumption may be summed up in one sentence: in terms of opportunities for learning, after-school programs are to disadvantaged students what private tutoring is to wealthy students. Therefore, subsequent studies, using advanced statistical techniques controlling for other variables, are encouraged to determine whether after-school programs help increase equality in education by providing more time and opportunities to learn for low-income and rural students who can afford limited education services after school hours. Meanwhile, assuming opportunities for learning are important in determining educational achievement (Coleman et al. 1966; Farkas 1996; Riordan 1997), the results of this study offer a starting point for further investigation as to whether after-school programs as a government intervention have the potential to reduce student achievement gaps between high and low socio-economic groups.

Second, partly supporting government's argument (MOEHRD, 2007a, 2008; MEST 2009), the study results suggest that implementing school-based after-school programs seems to be helpful in lessening financial burden on Korean parents to provide private tutoring opportunities for their children. Considering sampled schools have implemented after-school programs for only one or 2 years, the study results showing that substantial number of students experienced a reduction in private tutoring expenses after attending the programs provide meaningful information to policy makers and practitioners. In particular, the study results show that there may be the possibility that the effects of after-school participation on the reduction in private tutoring expenses could be stronger among low-income families. As explained earlier, however, this study was not designed to directly estimate the degree to which after-school program participation reduced the private tutoring expenses. Thus, the results need to be interpreted with caution.

Finally, a significant number of students reported that they began to participate in after-school programs without

being engaged in private tutoring—i.e., those who answered that after-school participation created additional spending by individual families. This suggests that although school-based after-school programs may fail to completely replace private tutoring, the programs may be successful in responding to some degree to the needs and interests of students that could have otherwise only been met through private schools.

Recommendations for future study

This study has several limitations. First, the current study was designed to examine whether statistical differences exist in after-school program participation between different socio-economic groups—mainly, low-income versus higher income students and urban versus rural students. From the sociological perspective of education, family income and residential context were considered as the critical variables in determining after-school program participation of the students. This study was conducted only for the exploration of the relationship between after-school program participation and the two SES-related variables. Other SES factors may be included in the analysis—e.g., family structure, parents' education level and employment status, and schools' academic climate. In addition, the Chi-square test used in this study has a limitation in providing the evidence regarding the causal relationship between after-school program implementation and educational equality. Thus, more sophisticated statistical techniques may be of great use in determining the impact of after-school program implementation on the equality of education, when controlling for other variables.

Second, the current study found that after-school participation was negatively associated with private tutoring engagement of the students. However, the mechanism through which after-school participation influences student engagement in private tutoring was beyond the scope of this study. Subsequent research may be of great value in the investigation of whether after-school programs replace private tutoring and the reasons why students choose after-school programs rather than private tutoring. Researchers may ask questions regarding the quality of and expenses for after-school programs in comparison with private tutoring, safety issues, trust in school-based activities, etc.

Finally, assuming that opportunities to learn are related to student performance, one may argue that after-school programs could contribute to narrowing achievement gaps between classes and regions. However, this study was not designed to directly examine the effects of after-school program participation on student performance outcomes. Subsequent studies are recommended to be conducted to explore the relationship between after-school engagement

and educational outcomes such as academic achievement, social development, prevention, and health outcomes. In addition, it may also be of great interest to investigate whether the relationships differ among different socioeconomic groups.

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