Private Tutoring and Education Inequality

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Abstract

In 1989, Korea lifted the ban on private tutoring, which had been illegal since 1980. By analyzing region-specific changes in the number of students entering two prestigious universities in Korea before and after 1989, we show that wealthy regions have increased the number of entrants significantly since 1989, relative to less wealthy ones. This is because only wealthy households could afford private tutoring, in addition to other forms of investment in education.

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Key words: private tutoring, education inequality, intergenerational mobility, Korea

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I. Introduction

Many people believe that education should improve intergenerational mobility, i.e., it should alleviate the transmission of socio-economic inequalities across generations. Literature on the intergenerational mobility, however, found that there is a positive correlation in earnings between parents and children (Solon 1999, 2002, and d'Addio 2007). Moreover, educational inequality can reduce the intergenerational mobility, as children of wealthier parents tend to have more opportunities for better education.

Policy changes regarding private tutoring in Korea—initially banned, followed by the lift of it—provide a nice opportunity to analyze the effects of economic inequality on educational attainment. We find that since private tutoring was allowed in 1989, the shares of students in wealthy regions entering two prominent universities in Korea have disproportionately increased. In the categories of private and public universities, we selected the respective top ranking universities. This result suggests that the transmission of economic inequalities could be at least in part due to investment in education rather than inherited intellectual abilities.

The findings of this paper are consistent with those in previous literature. For example, Solon (2004) suggests that government can increase intergenerational mobility by investing in public education. In addition, d'Addio (2007) documents the role of education in inequalities across countries. In most countries, education inequality seems to reduce intergenerational mobility, and thus policies that alleviate education inequality can lessen the intergenerational transmission of economic disadvantages.

II. Background

Until the 1970s, private tutoring had been legal in Korea. In 1980, however, the newly-instated Korean government began to strictly prohibit private tutoring. This policy was in effect for nine years and the violation of this regulation could lead to a severe penalty including imprisonment. Therefore, most of households stopped hiring private tutors. However, the ban on private tutoring was abolished in 1989. The policy change could have brought about differential responses in terms of investment in education, which would have had the potential to widen the gap in educational attainment between the wealthy and middle- or low-wealth students. Therefore, taking a closer look at the

relative performance of children in affluent families before and after the lift of the ban allows us to answer questions about inequalities in education.

III. Data and Empirical Results

III.1. Data

We collected data on the number of entrants into two top universities in Korea, Yonsei and Seoul National Universities, by region, using information from graduation records. The data covers students who entered universities during the period from 1980 to 2001.[1] We also make use of region-specific socio-economic variables such as population and the average property tax, available from government statistics. Table 1 reports the summary statistics for the variables. Our dataset encompasses 22 years and all of 29 regions in Korea.

III.2. Empirical Results

Table 2 displays average shares of the entrants into the top two universities in the Capital area and *Gangnam* region, before and after 1989, when private tutoring was allowed. The Capital area is the metropolitan area consisting of *Seoul* and its surrounding area whereas *Gangnam* is the richest region in Korea.[2] In Table 2, we can clearly see that shares of students entering the two prestigious universities have increased in both regions. This trend is particularly noticeable for *Gangnam*. While its population share rose by only 0.37% points between pre- and post-1989 periods, the share of students in the top two universities increased significantly by 2.99% points.

Why did students from *Gangnam* or, more broadly, the Capital area perform better, following the legalization of private tutoring? Figure 1 gives a clue to answering this question. It displays the average real property tax per head of the two regions relative to the national average. According to the figure, the average person in *Gangnam* has

[1]The data for Yonsei is available for the whole sample period from 1980 to 2001, while that for Seoul National University is only from 1980 to 1997.

[2] *Gangnam* includes two current administration districts: *Gangnam* and *Seocho*, since *Seocho* was originally one part of *Gangnam*.

paid about three times higher property tax than the average person in Korea. Similarly, the value for the Capital area is higher than the national average. The figure, therefore, shows that these two regions are relatively wealthy in Korea, since the amount of property tax reflects the value of real estate properties as property tax rates are similar across regions in Korea. In fact, *Gangnam* has always ranked top or second in terms of average property tax.

Considering that wealthy households have been concentrated in *Gangnam*, we attribute the improved performance in education to increased educational investment such as private tutoring. In other words, even if the government allows private tutoring, it would be available only to rich households, since private tutoring is considered the most expensive investment in education. As a result, wealthy families would benefit disproportionately more from the expanded education opportunity thanks to the legalization of private tutoring. If this hypothesis is indeed the case, it might have important implications on education inequality and the debate on "Nature or Nurture," which is discussed later.

Table 3 reports the main empirical results that test the hypothesis in the previous paragraph. In the empirical analysis, as a baseline regression, we estimate the difference-in-difference models. The first thing to notice in Table 3 is that the tutoring dummy itself is insignificant regardless of specifications and dependent variables. This means that average families living outside the Capital area have not benefitted from the permission of private tutoring, as it might not be affordable to them.

With regard to the Capital area, columns (1) through (3) of Table 3 report that the coefficient on the Capital dummy is significantly positive regardless of dependent variables. This implies that the Capital area had sent more students to the top two institutions even before private tutoring was allowed. This finding is consistent with the observation from Table 2 that the Capital area has much higher shares of students entering the top two universities compared to its population shares over all sample periods. The interaction term with the tutoring dummy, however, is either insignificant or weakly significant. This is plausible because the Capital area overall is not as affluent as *Gangnam*. Relatively poor households in the region would not have gained much

from private tutoring, which in turn could offset the effect of private tutoring on a wealthier part of it, like *Gangnam*.

However, focusing on *Gangnam*, we can clearly see the disproportionate gains of a richer region from private tutoring. In columns (4) through (6) of Table 3, both *Gangnam* dummy and its interaction term with the tutoring dummy have significantly positive coefficients. It suggests that *Gangnam*, the wealthiest region in Korea, had performed well even under the regulation. Moreover, such an advantage has become even stronger upon the legalization of private tutoring, since households in the region were affluent enough to spend on private tutoring.

Finally, columns (7) through (9) of Table 3 provide additional evidence on the relationship between wealth and educational attainment. Entrants to the top universities increase particularly in the richest regions represented by the property tax upper 10% region dummy. As found in the results of *Gangnam* region, the effects of legalized private tutoring turn out to be more evident when focusing on wealthier regions.

The findings have somewhat interesting implications. First, inequalities in income or wealth can aggravate inequalities in education performance. As wealthier families invest more in education, their children are likely to have more educational opportunities and thus, quite possibly, perform better in exams. Then, since entering top universities can be a stepping-stone to higher income over the life cycle, offspring from wealthier families can inherit the socio-economic advantages of their parents.

Our findings also provide a lesson on the debate about "Nature or Nurture." The positive correlation in earnings between a parent and a child occurs due to the inheritance of intellectual abilities and/or larger education investment for the child. Our results seem to lend support to the "Nurture" hypothesis. Otherwise, *Gangnam* should not have significantly increased its share of entrants into the top universities. In other words, significantly positive signs of the coefficient on the interaction term between *Gangnam* and tutoring dummies indicate the role of education investment in worsening the intergenerational mobility.

IV. Conclusion

Using the data on the number of entrants to the two prestigious universities in Korea, we showed that *Gangnam*, the wealthiest region in Korea, has benefitted from the legalization of private tutoring. Wealthier households could exploit the expanded opportunities enabled by private tutoring. Therefore, the inequalities in income and wealth, combined with private tutoring, turn out to have widened inequalities in educational performance, measured by the number of students entering the top universities.

References

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Table 1. Summary Statistics

	Obs.	Mean	Std. Dev.	Min	Max
Number of students entering					
Yonsei University	636	126.2	131.1	5	1,003
Seoul National University	520	91.4	93.0	1	587
Top two universities	520	222.6	195.0	17	1,262
Log(Total number of entrants)					
Yonsei University	636	8.14	0.37	7.16	8.57
Seoul National University	520	7.79	0.43	6.78	8.33
Top two universities	520	8.74	0.23	8.15	9.06
Log(Population)	635	13.78	0.93	11.71	16.07

Table 2. Average Shares of *Gangnam* and Capital Area (%)

	Capital Area (A)		*Gangnam* (B)		(B)/(A)	
	Pre-1989	Post-1989	Pre-1989	Post-1989	Pre-1989	Post-1989
Population	38.16	44.88	1.71	2.08	4.48	4.63
Yonsei University entrants	78.78	80.23	11.52	14.04	14.62	17.50
Seoul National University entrants	61.94	69.76	11.48	14.78	18.53	21.19
Entrants to the two universities	71.68	75.02	11.49	14.48	16.03	19.30

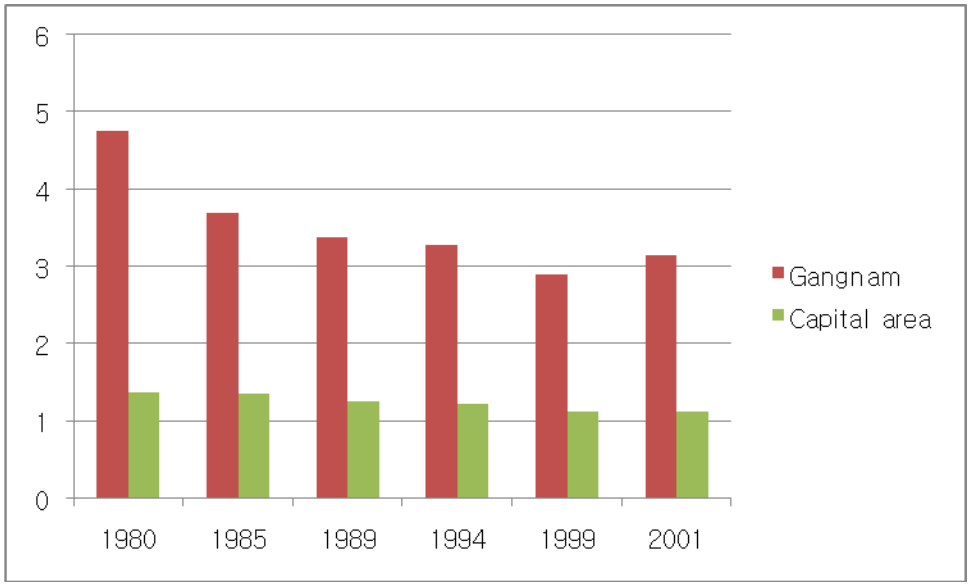
Notes: 1. Capital area consists of *Seoul*, *Inchon*, and *Gyounggi* province. *Gangnam* is a part of *Seoul*, and hence it belongs to the Capital area.2. All values above are simple averages of respective shares over a given period. However, averages shares in the Seoul National University entrants and in total entrants for post-1989 are taken for the period from 1989 to 1997, instead of 2001.

Table 3. Regression Results

	Dependent variable: The number of entrants to universities								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Yonsei Univ.	Seoul National Univ.	Overall	Yonsei Univ.	Seoul National Univ.	Overall	Yonsei Univ.	Seoul National Univ.	Overall
Capital area dummy (A)	177.32 (15.43)***	57.94 (12.03)***	235.12 (24.39)***						
Gangnam dummy (B)				277.71 (35.16)***	211.28 (22.22)***	495.21 (45.66)***			
Property Tax Upper 10% Region Dummy (C)							97.83 (25.26)***	81.29 (16.37)***	178.67 (36.53)***
Tutoring dummy (D)	-4.85 (26.86)	-7.16 (20.73)	-34.04 (46.62)	7.11 (24.18)	9.23 (15.42)	-9.63 (36.03)	6.17 (28.26)	7.11 (18.35)	-11.96 (46.48)
Interaction (A)*(D)	16.96 (17.66)	26.25 (14.48)*	40.99 (29.35)						
Interaction (B)*(D)				160.10 (45.71)***	110.01 (31.40)***	330.76 (64.52)***			
Interaction (C)*(D)							44.75 (32.00)	42.00 (22.44)*	101.98 (50.08)**
Other controls	Included	Included	Included	Included	Included	Included	Included	Included	Included
Observations	634	518	518	634	518	518	634	518	518
R-squared	0.399	0.322	0.368	0.402	0.526	0.545	0.192	0.338	0.250

Notes: 1. Standard errors are in parentheses. 2. *, **, and ***, respectively, indicate 90%, 95%, and 99% significance. 3. All specifications include other dummies such as population, total number of university entrants, and year dummies, but not reported.

Figure 1. Real Property Taxes per Person



Note: National average is normalized to unity.