www.kipf.re.kr

KIPF BRIEF

July 5, 2018 (Issue No. 70)

The Effects of Financial Support for Tertiary Education and Policy Suggestions

Jongseok An Senior Fellow
Moon Jung Kim Associate Fellow

KIPF 한국조세재정연구원
KOREA INSTITUTE OF PUBLIC FINANCE

Ⅰ Research Purpose and Background

•• In the past several years, the Korean government has greatly increased financial aid for university students

▪ In an effort to reduce the financial burden on parents of paying their children's college expenses, the government introduced the Income-Contingent Loan Program (ICLP) in 2010 and the National Grants Program (NGP) in 2012.

▪ The NGP was introduced and expanded with the government's commitment to 'halve' the tuition for postsecondary school students through government grants, school scholarships and bursaries, scholarships from other sources, and measures to lower tuition.

••This study aims to analyze the effects of such policy changes, examine the problems raised in the process, and search for future policy directions.

Ⅱ Government Financial Aid Programs and Expected Effects

•• The Korean government provides financial aid in mainly three forms: grants, loans, and tax incentives.

•• The NGP has been around for a long time but mainly operated as a financial aid system for meritorious students and students in the lowest income bracket, such as recipient households of National Basic Livelihood Security. In 2012, Type-I and Type-II National Grants (NGs) were introduced, and the NGP was developed and greatly expanded into the Income-Based National Grant Program (IBNGP) to provide broad support for students from low and middle-income households.

•• Income-Based National Grants (IBNGs), mainly provided to students from low-income households, are expected to play an important part in providing educational opportunities to students from low-income households.

▪ Since NGs lower the price of university education, the NGP has a negative effect of encouraging low returns on educational investment as less capable students are incentivized to receive excessive education.

▪ NGs, with their considerably lower income thresholds, are also problematic in that they do not contribute to expanding educational opportunities for students from households that are ineligible for NGs but do not earn sufficient income to cover tuition.

Table 1. Summary of the Government's Financial Aid System

Type of Financial Aid	Program	Income Threshold
Grants	Type-I NGs	8th decile or below
	Type-II NGs	Determined by each school
	Third Child Grants (TCGs)	8th decile or below
	National Work Study Scholarships (NWSS)	8th decile or below
Loans	Income-Contingent Loans (ICLs)	8th decile or below
	Loans with general amortization schemes	No income threshold applied
Tax incentives	Income tax deduction (15%)	No income threshold applied

Source: created by the authors

•• The majority of loans available to students in higher education were loans with general amortization schemes provided by financial institutions, until 2010, when the Income-Contingent Loan Program (ICLP) was introduced.

▪ Unlike student loans with general amortization schemes, where students have to repay the principal after a certain period of time, the ICLP allows students to repay their debts after they land jobs post-graduation and their annual earned income exceeds a certain minimum, with a share of the amount exceeding the minimum used to pay down the principal and interests.

▪ Theoretically, student loans do not lower the price of education but simply postpone paying for education for a certain period of time with interest, and therefore do not have the adverse effect of encouraging students of lower capability to receive higher education.

•• Tax incentives for educational expenses deduct 15 percent of the amount of tuition paid from income tax.

▪ Tax incentives do not provide financial aid to students at the time of tuition payment but returns a part of the tuition paid to the students in the form of a tax deduction, and therefore can be considered a type of financial aid.

▪ Tax incentives serve the same purpose as grants that are provided irrespective of merit or need in that the government pays for a part of the tuition.

▪ Since tax deductions are made not at the time tuition is due but at the end of the tax year, they are not expected to greatly expand educational opportunities for low-income households.

▪ Instead, the role of tax incentives will likely be limited to windfall income provided to those who have already managed to pay tuition.

Ⅲ Expansion of the Financial Aid Scheme – Outcomes and Problems

1. Reduction of Financial Burden on Parents

•• The primary goal of expanding the financial aid scheme was to reduce the burden of paying for tuition on households with college students. From this perspective, results have been positive.

▪ Related figures from 2016 show that for national and public schools, grants and scholarships accounted for more than 70 percent of tuition and fees at two-year colleges and about 65 percent at four-year colleges.

- For private schools, grants and scholarships accounted for 52.2 percent of tuition and fees at two-year colleges and 46.5 percent at four-year colleges.

▪ When adding the benefit from tax incentives to grants and scholarships, the government's goal to halve the cost of tuition can be considered to have been achieved.

Table 2. Comparison of Educational Costs, Tuition, and Grants and Scholarships per Student (2016)

(Units: KRW 1,000, %)

Type of Institution	Type of Establishment	Per student[4]				Percentage		
		Educational costs (A)	Tuition (B)	Admission fees (C)	Grants (D)[6]	B/A	D/B	D/(B+a×C)[5]
Two-year college[1]	Public and national[3]	14,611	2,414	267	1,854	16.5	76.8	72.8
	Private	9,827	5,904	640	3,251	60.1	55.1	52.2
University[2]	Public and national[3]	13,519	3,864	150	2,531	28.6	65.5	64.9
	Private	12,985	7,127	731	3,401	54.9	47.7	46.5

Notes: 1) Includes all two- and three-year colleges, with the exception of cyber technical colleges, technical colleges, and miscellaneous technical colleges.
2) Includes four-year universities, universities of education, and industrial universities but excludes cyber universities, Korea National Open University, and other technical universities.
3) Includes national universities, national universities established by special laws, and national university corporations.
4) Provides a simple average of educational costs, tuition, grants and scholarships per student and the admission fee per newly-enrolled student in each university.
5) a is 0.5 for two-year colleges and 0.25 for four-year universities.
6) Grants include NGs and all other school and non-school scholarships.

Source: calculated by the authors using data from the Higher Education in Korea website, http://www.academyinfo.go.kr/, accessed August 3, 2017

•• ICLs have also contributed to reducing the burden of tuition on parents, particularly lessening the burden on low-income households.

▪ Of students enrolled at colleges and universities in 2015, 8.95 percent took out ICLs for tuition while 9.82 percent took out ICLs to cover living expenses.

- Of students in the second and lower deciles who have taken out ICLs, 52.3 percent took out ICLs for tuition while 65.6 percent took out ICLs for living expenses.

▪ As for student loans with general amortization schemes, 1.68 percent of students took these out for tuition, while 1.2 percent took them out to cover living expenses. Of students in the second and lower deciles who took out these loans, 31.5 percent used them for tuition while 36.5 percent used them to cover living expenses.

Table 3. Percentage of Current Students Who Took Out Loans, by Decile (2015)

(Unit: %)

	Type-I NGs	ICLs		Student loans with general amortization schemes[1)]	
		Tuition	Living expenses	Tuition	Living expenses
Total	42.04	8.95	9.82	1.68	1.20
Share of students in the 2nd decile or below[2)]	50.3	52.3	65.6	31.5	36.5

Notes: 1) Excludes those who were in graduate programs from among students who took out loans, by decile
2) Share of students in the second and lower deciles of those who received grants, scholarships, or loans.
Source: Statistical data on student loans from the Korea Student Aid Foundation provided through the Open Data Portal (http://www.data.go.kr), accessed August 3, 2017.

2. Expansion of Educational Opportunities for Low-Income Households

•• Another important reason the government provides financial aid is to expand opportunities for students from low-income households to attend college. Two methods were used to perform analyses.

•• First, micro-level data created through surveys were analyzed.

▪ A micro-level analysis was conducted on data provided by the Korea Labor Institute's Korean Labor and Income Panel Studies (KLIPS) and the Korea Employment Information Service's Youth Panel Studies (YPS) using methods tailored to the characteristics of each set of data.

•• Tale 4 provides a summary of findings of the KLIPS-based analysis.

▪ The t_A dataset (2007-2009 cohort) shows whether students who were not enrolled in higher education in 2006 and 2007 had entered higher education in the following two years and is used as data for before expansion of the financial aid scheme. The t_E dataset (2010-2012 cohort) shows whether students who were not enrolled in higher education in 2009 and 2010 had entered higher education in the following two years and is used as data for after expansion of the financial aid scheme.

▪ The analysis in Row [1] takes into account the dummy variables related to expansion of the financial aid scheme: time dummy (t_B), treatment group dummy (T), interaction between time and treatment group dummy variables, and gender dummy variable.

- The remaining rows list additional variables added incrementally to the analysis.

▪ The treatment group consists of individuals from households in the third income quintile or below (in the bottom 60 percent of household income distribution), while the control group consists of individuals from the fourth income quintile or higher (in the upper 40 percent of household income distribution).

Table 4. Findings from KLIPS-based Analysis[1)2)]

	Treatment group:	Q 1, 2, and 3	Control group:	Q 4 and 5
	[1]	[2]	[3]	[4]
β_{time}	0.018	-0.021	-0.007	0.021
β_{T}	-0.257***	-0.086	-0.053	-0.038
β_{Policy}	-0.044	-0.091	-0.088	-0.107
Gender (female)	-0.098	-0.098*	-0.095	-0.100*
Age of household head		0.006*	0.006*	0.006*
Gender (female) of household head		0.042	0.049	0.045
Education of household head: high school		0.258***	0.268***	0.263***
Education of household head: two-year college		0.660***	0.685***	0.661***
Education of household head: four-year university or higher		0.685***	0.677***	0.684***
Home ownership status: *jeonse* (key money deposit)			-0.086	-0.084
Home ownership status: monthly rent			-0.144*	-0.137*
Fixing effect of regions controlled	×	×	×	○
N	206	206	206	206
R^2	0.072	0.298	0.301	0.289

Notes: 1) Estimation formula $y_i = \beta_T I(j \in T) + \beta_{time} I(t = t_B) + \beta_{Policy} I(j \in T) I(t = t_B) + \beta_X X_i + \epsilon_i$

β_T represents the effect of government financial aid on higher education enrollment rate of the treatment group compared to that of the control group; β_{time} represents the effect on enrollment rate prior to expansion of the financial aid scheme in comparison to after expansion; and β_{Policy} represents the net effect of government financial aid

2) Statistical significance levels: * p<.10; ** p<.05; *** p<.01

Source: KLIPSs (analyzed and estimated by the authors).

•• The findings of analysis show that introduction of financial aid programs (NGP and ICLP) has not particularly promoted the enrollment of students from low-income households in higher education.

▪ Depending on the regression formulae used, β_{Policy} could have either a negative or positive value, but the estimates lacked statistical significance in all cases.

▪ The estimated value of β_{time} representing the transition of time from t_A to t_B failed to show statistical significance and exhibited different signs depending on the regression formulae used.

▪ β_T, the coefficient of the dummy variables regarding student income level, retained some statistical significance when used with regression formulae involving few explanatory variables. As more explanatory variables were added, however, the statistical significance disappeared.

•• Table 5 provides a summary of the findings of the YPS-based analysis.

▪ The treatment group for this analysis consists of individuals from low-income households—the bottom 30 percent, 50 percent, and 70 percent.

▪ This analysis provides a comparison of the $t = 2009$ cohort and $t = 2011$ cohort, consisting of individuals who enrolled in college prior to and after adoption of the ICLP in 2010.

Table 5. Findings from YPS-based Analysis[1)2)]

	High school grade average quantiles not included in X_{it}			High school grade average quantiles included in X_{it}		
	Low-income: Bottom 30%	Low-income: Bottom 50%	Low-income: Bottom 70%	Low-income: Bottom 30%	Low-income: Bottom 50%	Low-income: Bottom 70%
β_{time}	-0.026	-0.047	-0.047	-0.029	-0.050	-0.050
β_{T}	-0.055	-0.048	-0.048	-0.056	-0.047	-0.047
β_{Policy}	-0.013	0.019	-0.048	-0.01	0.022	-0.047
Father's education: Two-year college	0.021	0.030	0.030	0.021	0.030	0.030
Father's education: University or higher	0.062*	0.072**	0.072**	0.061*	0.072**	0.072**
Mother's education: Two-year college	-0.089	-0.085	-0.085	-0.091	-0.088	-0.088
Mother's education: University or higher	-0.149***	-0.149***	-0.149***	-0.151***	-0.151***	-0.151***
High school location: Busan	-0.080**	-0.077**	-0.077**	-0.082**	-0.078**	-0.078**
High school location: Daegu	-0.027	-0.025	-0.025	-0.030	-0.028	-0.028
High school location: Incheon	0.040	0.039	0.039	0.040	0.039	0.039
High school location: Gwangju	-0.020	-0.023	-0.023	-0.030	-0.032	-0.032
High school location: Other	0.080	0.078	0.078	0.082	0.080	0.080
Gender	○	○	○	○	○	○
Number of siblings	○	○	○	○	○	○
High school grade average	×	×	×	○	○	○
Constant	○	○	○	○	○	○
N	1,132	1,132	1,132	1,132	1,132	1,132

Notes: 1), 2) Refer to Notes 1 and 2 for Table 4.
Source: YPS (2007) (analyzed and estimated by the authors).

•• The analysis revealed that, irrespective of the combination of explanatory variables and of how low-income households are defined, β_{Policy}, standing for the coefficient of the policy effect, failed to have statistical significance.

▪ This implies that the ICLP did not exert a significant impact on encouraging low-income students to seek higher education.

▪ The important contribution of introduction and expansion of the ICLP is in reducing credit constraints. However, since student loans with general amortization schemes were available prior to introduction of the ICLP, the ICLP does not seem to have contributed much to encouraging students from low-income households to enroll in higher education.

•• Since we were unable to find micro-level data on systemic changes that can be used to review the effects of expansion of the NGP from 2012 to recent years, we drew implications from the changes in distribution of the recipients of NGs by income quintile. The findings of the analysis are as follows:

▪ First, the number of students has stagnated in recent years and decreased in 2015. The number of students in the eighth and lower income deciles, who are eligible to receive Type-I NGs, decreased more rapidly.

▪ Second, in terms of income level, the decline in the ratio of NG recipients in the fourth and lower deciles to the students enrolled in higher education was much smaller than in the ratio of NG recipients in the fifth to eighth deciles to the enrolled in higher education.

- During this period, the share of NG recipients in the number of enrolled students fell by 3.2 percentage points, with the decline occurring mainly in the fifth to eighth income deciles.

▪ Third, from the fact that the reduction of students in the eighth and lower deciles was larger than the decline in number of students enrolled in higher education, it is possible to deduce that the number of students in the ninth and tenth deciles have increased.

•• These changes show that Type-I NGs played a critical role in reducing the burden of educational costs on low-income households and expanding their educational opportunities, with the effects appearing clearly in the fourth and lower deciles.

Table 6. Ratio of Type-I NG Recipients vs. Students Enrolled in Higher Education

(Units: %, %p)

	Share of Type-I NG recipients in number of students enrolled in higher education				Percentage change[1)]	
	2012	2013	2014	2015	2014-2015	2013-2015
Total	26.27	45.24	45.99	42.04	3.95	3.20
Basic	2.35	2.27	2.27	2.20	0.06	0.07
1st decile	7.88	9.33	10.43	9.81	0.62	-0.48
2nd decile	8.71	8.82	8.84	9.12	-0.28	-0.30
3rd decile	7.32	6.19	5.73	5.50	0.23	0.69
4th decile	-	4.13	4.14	4.18	-0.05	-0.06
5th decile	-	3.56	3.58	2.67	0.91	0.90
6th decile	-	3.58	3.45	2.62	0.83	0.96
7th decile	-	3.50	3.52	2.70	0.82	0.80
8th decile	-	3.85	4.04	3.23	0.81	0.61
9th, 10th deciles	-	-	-	-	-	-
1st-4th deciles	23.9	28.5	29.1	28.6	0.52	-0.14
5th-8th deciles	-	14.5	14.6	11.2	3.37	3.27

Notes: 1) The share in 2015 has been subtracted from the share in 2014 and in 2013. Positive numbers refer to increases in share, while negative numbers refer to decreases in share.

Source: calculated by the authors using the following data:

Data on the number of NG recipients by income level – Statistical data on NGs from the Korean Student Aid Foundation, provided through the Open Data Portal (http://www.data.go.kr), accessed August 3, 2017.

Number of students enrolled in higher education by year – Number of students by city and province, and type of establishment of institution (entrance, enrollment, and leave of absence), Korea Educational Statistics Service at the Korean Educational Development Institute, accessed October 4, 2017.

3. Weakened Price Mechanism of Tuition

•• One of the important concerns regarding NGs is that they may weaken the price mechanism of tuition, and this problem is likely to be found in the lowest-income level households

▪ The fact that the number of students in the fourth and lower income deciles decreased more than the number of students in the fifth to eighth deciles hints at the possibility of excess demand among the lowest-income households in the fourth and lower income deciles due to the weakened price mechanism of tuition.

▪ For income-based NGs, the expansion of educational opportunities and the weakening of education's price mechanism are two similar sides of the same coin.

- A large expansion of educational opportunities dramatically weakens the price mechanism of education while a small expansion of educational opportunities slightly weakens the price mechanism of education.

4. Effect on University Finance

•• Lastly, this study examines the effect of government expansion of the financial aid scheme on educational conditions and university finance.

▪ From the perspective that government financial aid is the government paying for a portion of an individual's tuition that parents pay, expansion of the financial aid scheme is not necessarily related to educational conditions or university finance.

▪ However, the government expanded the financial aid scheme, set the goal of halving the cost of tuition, and even caused universities to restrain their tuition increases as means of achieving its goal.

▪ The government considered the tuition freezes and reductions as well as the number of students who receive scholarship from universities as requirements for supporting Type-II NGs and these requirements are also factors that affect educational conditions and university finance.

•• In consideration of the characteristics of the financial aid scheme and the fact that tuition for colleges and universities hardly rose in the process of introducing and expanding the NGP, this study hypothesized that educational conditions have not improved much and have even deteriorated.

•• However, an examination of statistics shows that educational costs per student and the ratio of full-time faculty have considerably improved.

▪ Educational costs per student increased by 45.5 percent at national and public two-year colleges and by 47.2 percent at private two-year colleges.

- Educational costs per student increased by 22.6 percent at national and public universities and by 18.2 percent at private universities.

▪ The number of students per full-time faculty has decreased by 6.1 percent in national and public two-year colleges and by 4.8 percent in private two-year colleges.

- The number of students per full time faculty decreased by 6.5 percent in national and public universities and 9 percent in private universities.

•• In order to understand how such changes were possible, we conducted a review of changes in university finance, which showed that an expansion of support from the national treasury for universities played an important role, and what was not able to be covered by government aid was reflected as a decrease in operating balance.

•• The national treasury support for general projects unrelated to financial aid for higher education has increased by 28.1 percent (KRW 1.21 trillion), from KRW 4.32 trillion in 2012 to KRW 5.53 trillion in 2015.

▪ In a situation where the number of students has been decreasing and the tuition was frozen, resulting in the reduction of educational institution income, such an increase in government subsidies played an important part in improving educational conditions.

- The amount of transferred income and endowments during the same period increased as well, but was not enough to have a critical effect on educational costs per student

Table 7. Changes in Educational Conditions (2012-2016)

(Units: KRW 1,000, number of students, %)

Year	Type of institution	Type of establishment	Educational costs per student	Number of students per full-time faculty member	Tuition per student	Number of students enrolled in higher education
2012	Two-year college	National and public	11,236	32.0	1,370	9,004
		Private	7,894	34.1	5,398	479,315
	University	National and public	11,042	29.8	812	352,109
		Private	11,523	29.9	7,416	1,147,401
2016	Two-year college	National and public	16,350	30.0	2,481	8,522
		Private	11,621	32.5	5,430	449,599
	University	National and public	13,542	27.9	3,938	343,357
		Private	13,618	27.2	7,489	1,105,341
2016/ 2012	Two-year college	National and public	145.5	93.9	181.0	94.6
		Private	147.2	95.2	100.6	93.8
	University	National and public	122.6	93.5	485.0	97.5
		Private	118.2	91.0	101.0	96.3

Source: “Higher Education in Korea” website, http://www.academyinfo.go.kr/, accessed October 16, 2017. Data from 2012 to 2014 has been provided by the Korea Council of University Education’s University Information Disclosure Center.

Table 8 Government Funding for Higher Education, by Project Type

(Units: KRW 1 billion, %)

		General funding project	Student financial aid	Operating expenses for national and public colleges and universities	Total
2012	Ministry of Education	1,618.7	1,974.0	2,557.1	6,149.8
	Total	4,318.3	2,088.5	2,989.2	9,396.0
2015	Ministry of Education	2,258.4	3,805.2	2,623.2	8,686.8
	Total	5,530.2	4,022.3	2,909.7	12,462.2
Rate of increase	Ministry of Education	39.5	92.8	2.6	41.3
	Total	28.1	92.6	-2.7	32.6

Source: Higher Education Fiscal Support Information System (Hi-Edu Port), https://hiedupport.kfpp.or.kr/UNIVFSS/kr/main/stats/bizStatsGovern.do, accessed October 10, 2017.

•• What was unable to be covered by the increase in government subsidies and other revenues was reflected by the decrease in operational margins, savings, and reserve funds.

▪ An examination of the changes in operational margins and non-operating expenses using data from individual schools showed that both decreased in about 80 percent of schools. In about 60 percent of schools, operational margins fell by over 100 percent.

Table 9. Changes in Non-Operating Expenses and Operational Difference

(Units: number of private universities, %)

	2012-2016 rate of increase	Non-operating expenses		Operational margins	
		Number of schools	Percentage	Number of schools	Percentage
Four-year university	Lower than -100%	79	53.0	87d	58.4
	-100--50%	33	22.1	11	7.4
	-50--20%	10	6.7	9	6.0
	-2-20%	4	2.7	13	8.7
	Over 20%	23	15.4	29	19.5
	University total	149	100.0	149	100.0
Two-year college	Lower than -100%	56	41.8	78	58.2
	-100--50%	39	29.1	13	9.7
	-50--20%	9	6.7	5	3.7
	-20-20%	7	5.2	5	3.7
	Over 20%	23	17.2	33	24.6
	Two-year college total	134	100.0	134	100.0

Source: “Higher Education in Korea” website, http://www.academyinfo.go.kr/, accessed October 16, 2017.
2012 data has been provided by the Korea Council of University Education’s University Information Disclosure Center.

•• A regression analysis of changes in operational margins with changes in educational expenses and changes in factors that make up earnings, such as tuition, was conducted using micro-data of individual universities. The results revealed that an increase in educational expenses and a decrease in tuition were the main factors driving the decrease in operational margins.

▪ Transferred income and government subsidies increased operational margins.

▪ A comparison of the analysis of changes in operational margins by year and analysis of changes from 2012 to 2015 shows that a decrease in tuition does not have a critical impact in the short term but exhibits statistical significance in decreasing operational margins in the long term.

▪ Transferred income has a huge effect on increasing operational margins in the short term, but its influence weakens in the long term due to the low sustainability of increases in transferred income.

▪ Changes in educational expenses and government funding were found to have more influence in analysis of the changes in the whole period than in one year, as educational expenses and government funding have increased consistently during this period.

Table 10. Estimation of Explanatory Function for Operational Margins [1)]

Variables[2)]	Panel Analysis of Differences by Year		Analysis of Changes from 2012 to 2015	
	(1)	(2)	(3)	(4)
Dependent variable	Non-operating expenses	Operational margins	Non-operating expenses	Operational margins
Educational expenses	-0.427*** [0.0415]	-0.347*** [0.0551]	-0.782*** [0.179]	-0.713*** [0.186]
Tuition	0.561*** [0.191]	0.261 [0.254]	0.593** [0.248]	0.548** [0.250]
Transferred income	0.875*** [0.0326]	0.859*** [0.0433]	0.774*** [0.221]	0.496** [0.228]
Financial support	0.253*** [0.0582]	0.134* [0.0773]	0.447*** [0.107]	0.303*** [0.116]
Variable (2014)	180.9** [86.44]	-13.66 [114.7]		
Variable (2015)	-6.053 [85.53]	-24.15 [113.5]		
Constant	-115.1 [105.9]	-91.85 [140.6]	-0.189 [2.142]	2.441 [2.125]
N	762	762	175	184
R2	0.504	0.352	0.213	0.131

Notes: 1) Numbers in brackets are standard deviations: *** p<0.01, ** p<0.05, * p<0.1
2) The panel analysis used changes by year, while the analysis of changes from 2012 to 2015 used changes during this period. A certain amount was added to each variable to first change all variables into positive numbers and their logs were taken to perform analysis.
Source: calculated by the authors.

•• There are two reasons universities have increased operating expenses through the budget deficits, reduction in capital expenditures reserve funds: competition in the market and the effect of government policy.

▪ Unable to increase tuition, universities have had to do their utmost to receive more government funding. In this process, universities increase their educational expenses to improve educational environment, because educational environment is a very important factor in allocation of government subsidies to universities. However, the increase in educational expenses inevitably leads to an increase in deficit or a reduction in capital expenditures.

▪ This kind of fiscal operation is expected to become a critical risk factor in university finance from a long-term perspective.

IV Policy Directions

•• The following policy directions can be drawn from the discussions above.

•• First, it would be advisable to provide tax deductions for one's own educational expenses and not for those of a dependent.

▪ Since an individual's own educational expenses are necessary expenses for investment in one's own human capital, the government allows tax deductions.

▪ Meanwhile, a dependent's educational expenses does not seem to be a necessary expense for labor supply, and tax deductions for a dependent's educational expenses do not have the positive effect of expanding educational opportunities for low-income households. On the other hand, these tax deductions have a negative effect in terms of income distribution.

•• Second, it is necessary to introduce a merit factor to NGs

▪ Currently, Type-I NGs are provided to students based on need, irrespective of their grades. This encourages students of low capability to receive excessive education despite the expected low returns.

- This problem occurs particularly among students from low-income households (in the bottom 30 percent of household income distribution of current students).

▪ There has been criticism that students with potential from the lowest-income class are unable to focus fully on school due to grants barely covering tuition.

- These students have to spend a lot of time working part-time to pay for their living expenses.

▪ To resolve this problem for students in the lowest-income class whose tuition is fully covered by NGs, it is necessary to provide for living expenses through NGs for those with excellent grades to allow them to focus on learning and maximize their educational achievements,

- and reduce NGs for students with low grades as a way of partially restoring the price mechanism of tuition.

- These changes do not have to be all applied to Type-I NGs. Application can also be to Type-II or even other NGs.

•• Third, it is necessary to expand the NGP for students from middle-low income households (those who are in the bottom 35 to 40 percent of household income distribution of current students, 5 to 8 deciles in the income distribution table used NGP)

▪ It is desirable to prioritize these students from low-income households among those in this group to receive NGs. To minimize the expected negative effects, it is also desirable to prioritize students with good grades.

•• Fourth, it is necessary to improve the eligibility requirements for the ICLP.

▪ Students in the ninth and tenth deciles of household income distribution are ineligible for the program. This criterion seems to have been introduced in an effort to exclude those from the highest income households.

▪ However, according to the findings of this study, more than half of currently-enrolled students are from households in the ninth and tenth deciles of household income distribution as reported by the Korean Student Aid Foundation.

▪ This means that students from middle class households are excluded from the ICLP. Thus, we can say that it is necessary to relax the eligibility requirements to provide ICL to students from middle class households.

- Students in the highest income brackets are not expected to take out student loans even though they are eligible. Therefore eliminating the income factor from the eligibility requirement for ICL would not cause significant problems.

▪ However, the ICLP can partially weaken the price mechanism of tuition. To minimize the negative effects, it would be advisable to lower the student loan ceiling for students with low grades (for instance, those earning a C average), and have them secure the remaining amount of tuition from student loans with general amortization schemes, so that they can recognize the role of tuition as the price of education.

•• Lastly, it is necessary to relax the regulations for university tuition.

▪ So far, the government has been curbing tuition increases to provide NGs in line with its policy to “halve” the cost of tuition. However, if this restricts the development of higher education in the long term, it is necessary to make adjustments.

▪ One such measure can be in regulating the share of school scholarships rather than directly regulating the amount of tuition.

References

• Kim, J. and Lee, J., “Analysis of the Performance of Government Financial Aid for Higher Education,” *Journal of Fiscal Economics for Education*, 24, 2015, pp. 65-88.

•Shin, H. and Choi, J., “Effects of Government Financial Aid for Higher Education on the Academic Performance and Adaptation of New Students,” *Journal of Education in Asia*, 14(3), 2013, pp. 129-154.

•Lee, J. and Park, H., “Analysis of Intended and Actual Effects of the Income-Contingent Loan Program on Work Patterns and Learning Activities of University Students from Low- to Middle-Income Households,” *Journal of Educational Administration*, 30, 2012, pp. 105-134.

•Jin, S. and Kang, S., “Effect of Government Financial Aid for Higher Education in Korea: Focusing on Alleviation of Financial Burden and Students’ Academic Performance,” *Winter Conference Collection of the Korean Association for Policy Studies*, 2013, pp. 876-898.

•Cha, S., Min, B., and Kim, J., “Analysis of the Effects of Government Financial Aid for Higher Education: Applying a Causal Mediation Model,” *Journal of Fiscal Economics for Education,* 25, 2016, pp. 107-128.

• e-Index, http://www.index.go.kr/potal/

• Public Data Portal, “Statistics on Government Grants for Higher Education, http://www.data.go.kr/dataset/3060496/fileData.do

• ----------, “Statistics on Government Student Loans,” http://www.data.go.kr/dataset/3060497/fileData.do

•Youth Panel Study and Employment Study Analysis, http://survey.keis.or.kr/index.jsp

• Statistics Korea, “KOSIS,” http://kosis.kr/

• Higher Education Fiscal Support Information System (providing information on government financial aid for higher education),

• KLIPS, https://www.kli.re.kr/klips/index.do

• Korea Council of University Education, “Higher Education in Korea” website, http://www.academyinfo.go.kr/

• KOSAF, http://www.kosaf.go.kr/