

Koh, Young-sun

Research Report

Restructuring higher education: Toward a student-led model

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A dwindling school-age population is expected to place many universities under greater financial distress in the coming decades. The Ministry of Education's strategy of assessing universities and coercing poorly performing ones to reduce enrollment has proved inadequate to speed up the restructuring process. A fundamental solution should be found in letting students, rather than the Ministry, lead this process by providing them with more and better information on individual universities and departments. For instance, the average salaries of graduates should be made public. It will facilitate 'voting by feet' by students and force universities to focus their efforts on enhancing their core competencies. It has additional advantages in protecting the restructuring process from political interference, enabling a better matching between supply and demand of skills, and promoting the autonomy in higher education.

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Author Youngsun Koh | Senior Fellow at KDI (82-44-550-4011)

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Restructuring Higher Education: Toward a Student-led Model

Youngsun Koh, Senior Fellow at KDI



I. Issues

There has been a notable downturn in freshman enrollment rates in recent years, corresponding with the decline in the school-age population. If this trend continues, university enrollment figures could halve within the next two decades.

The diminishing school-age population since 2014 has induced a consistent contraction in enrollments in four-year universities, a trend projected to persist. Enrollments plummeted from 1.42 million in 2021 to an anticipated bracket of 690,000~830,000 by 2045, signaling a near 50% decline (Table 1).

This shrinking number has placed a considerable burden on universities, as evidenced by the 2021 enrollment rate (= new entrants/enrollment quota) of 96.0% (Figure 1). Particularly affected are institutions in non-capital areas (NCA), exhibiting alarming fill rates of 90.5% and 97.0% for private and national universities, respectively, with the engineering field recording the lowest fill rate at 94.5% (Figure 2).

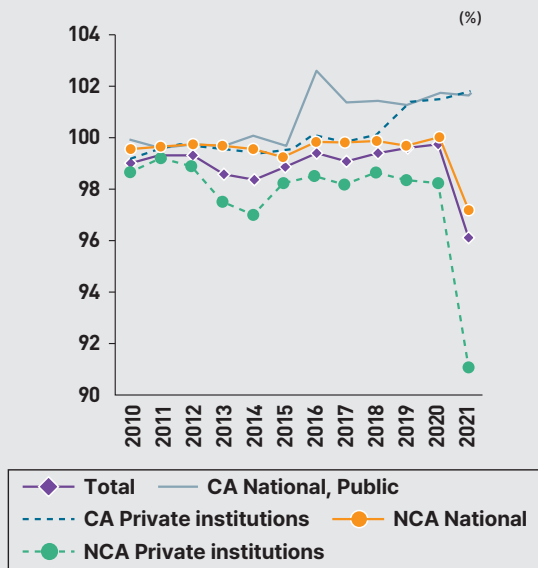
Table 1. Projection of New Entrants and Enrollments in Four-year Universities

		(1,000 persons)					
Variables	Scenario	2021	2025	2030	2035	2040	2045
New entrants	Optimistic	296	291	315	270	189	200
	Pessimistic	296	280	290	238	160	162
Enrollments	Optimistic	1,415	1,328	1,408	1,403	1,019	834
	Pessimistic	1,415	1,309	1,325	1,262	879	691

Note: Based on two scenarios about the ratio of new entrants to the 18-year-old population.

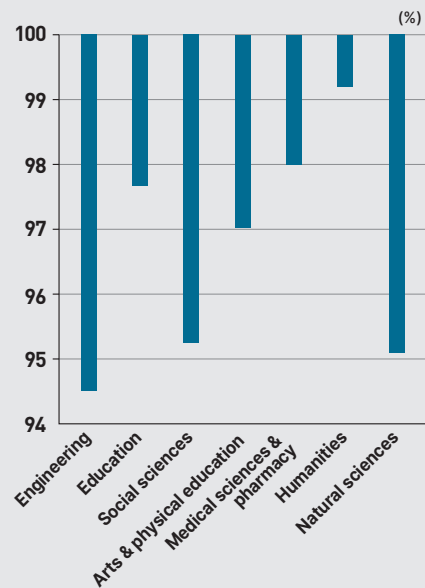
Source: Koh (2023).

Figure 1. Changes in Freshman Enrollment Rate (2010~2021)



Source: Korean Educational Statistics Service, "Higher Education Statistics," each year.

Figure 2. Freshman Enrollment Rate by Broad Field (2021)



Source: Korean Educational Statistics Service, "Higher Education Statistics," 2021

Based on Koh, Youngsun, *Restructuring the Market for Higher Education*, Research Monograph 2023-01, Korea Development Institute, 2023 (in Korean).

II. Government Efforts for University Restructuring and Associated Limitations

The current methodology of the Ministry of Education, which compels universities to reduce enrollment quotas based on evaluation results to obtain financial support, remains vulnerable to political influences.

The looming crisis sparked by a decreasing population and declining student enrollments has been anticipated for several years, leading to government-led university restructuring initiatives since the Kim Dae-jung administration. The Park Geun-hye administration notably launched the 'University Structural Reform Evaluation' in 2015, an element of a broader university restructuring plan established in 2014. This plan aimed to curtail enrollment quotas in return for financial support, executing it over three three-year cycles from 2014 to 2022. The subsequent Moon administration rebranded the second cycle as the 'University Basic Competency Diagnosis,' carrying out assessments in 2018 and 2021. These evaluations prompted quota adjustments at lower-tier universities on a broad basis, rather than at the departmental level.

The fundamental objective of these policies was to reduce the surplus of university seats and redistribute student enrollments towards more promising fields. However, the success of these measures is still under debate. Some argue that without government interference, natural market dynamics would instigate a withdrawal of suppliers in the face of dwindling demand.¹ Despite noble intentions, the government's restructuring schemes appear to face several limitations.

Firstly, political factors tend to interfere with the reform process. For example, under the national vision for balanced development, the Moon administration steered university evaluations and quota reductions provincially. The scope of targeted universities also considerably contracted. Institutions identified as low-level and thereby subjected to restrictions on national scholarships and financial support dwindled from 66 (Grades D and E) in 2015 to 20 (Types I and II, subject to fiscal support restriction) in 2018, dropping further to 17 in 2021.

This decrease in low-graded schools led to a dramatic reduction in seat count from 60,077 in the 1st cycle to a paltry 5,903 in the 2nd cycle (Table 2). Some link this decrease to the dramatic dip in the 2021 freshman fill rate (Yeon, 2021, p.23). To ensure unbiased and consistent structural reform, quota reduction decisions should be delegated to an entity resilient to political pressures.

1) Proponents of government intervention often point to ① consumer misjudgment due to lack of information, ② universities' resistance to closure, and ③ the necessity to prevent the failure of local universities for balanced national development. However, these factors do not seem to sufficiently justify the existing approach to university restructuring.

Table 2. Enrollment Quota Reduction by Evaluation Cycle

Evaluation cycle	1 st (2014~2016)	2 nd (2017~2019)	3 rd (2020~2022)
Period (school year)	2015~2017	2018~2020	2021~2023
Size (number of students)	60,077	5,903	Not determined.

Source: Board of Audit and Inspection of Korea (2022).

This current approach has the potential risk of further eroding autonomy and stifling creativity within universities.

Delegating the decision on the expansion of majors or courses to market forces, rather than to government entities, might prove more effective in addressing issues of labor oversupply or undersupply.

Secondly, existing regulatory interventions risk infringing on institutional autonomy, stifling innovation in universities, and fostering governmental dependence. The government's regulations on university operations, including tuition, enrollment quotas, student selection process, academic management, and land and facilities, are already extensive and rigid. Prior and ongoing structural reforms can be seen largely as an extension of such interventions, a level of interference seldom seen in higher education leaders like the US, UK, or Australia. Rather than direct intervention, the government should prioritize creating an environment conducive for universities to improve their competitiveness independently.

Thirdly, the present strategy could distort labor supply. Through financial initiatives like PRIME, the government has pushed universities to promote certain majors. However, the government should not monopolize the selection of expanding majors. Accurately forecasting future demand for specific fields is intricate. Ideally, various stakeholders independently interpret market data, and their collective preferences shape the demand for majors. This balance of supply and demand could mitigate major-specific workforce surplus or shortage—a typical decision-making mechanism within a market economy.

Unfortunately, the current situation deviates from this ideal. A regression analysis was conducted to ascertain if quota adjustments align with consumer preferences. The growth rate of freshman recruitment was the dependent variable, while the explanatory variables included the admission competition rate, freshman enrollment rate, and graduate employment rate, each lagged by one, two, and three years, respectively. Positive coefficient estimates of these lagged variables might suggest that enrollment quotas reflect applicants' preferences. This analysis was performed at both the departmental and university levels, with and without department and university fixed effects.

Table 3. Student Recruitment Growth Regression Analysis

By establishment		CA National, Public	CA Private Institutions	NCA National	NCA Private Institutions	Nationwide
Graduate employment rate (%)	(-1)	0.001 (0.255)	0.108 (0.158)	0.082 (0.098)	-0.117* (0.061)	-0.013 (0.049)
	(-2)	0.402 (0.308)	-0.096 (0.095)	-0.084 (0.133)	0.059 (0.078)	-0.014 (0.053)
	(-3)	-0.235 (0.215)	0.138 (0.148)	0.035 (0.039)	0.023 (0.049)	0.061 (0.041)
NOBS		40	520	232	720	1,512
R-squared		0.352	0.043	0.456	0.060	0.021

Note: 1) This regression analysis employs the growth rate of student recruitment by university (log growth rate x 100) as a dependent variable, with 1-, 2-, and 3-year lags of graduate employment rates and year-fixed effects as explanatory variables.

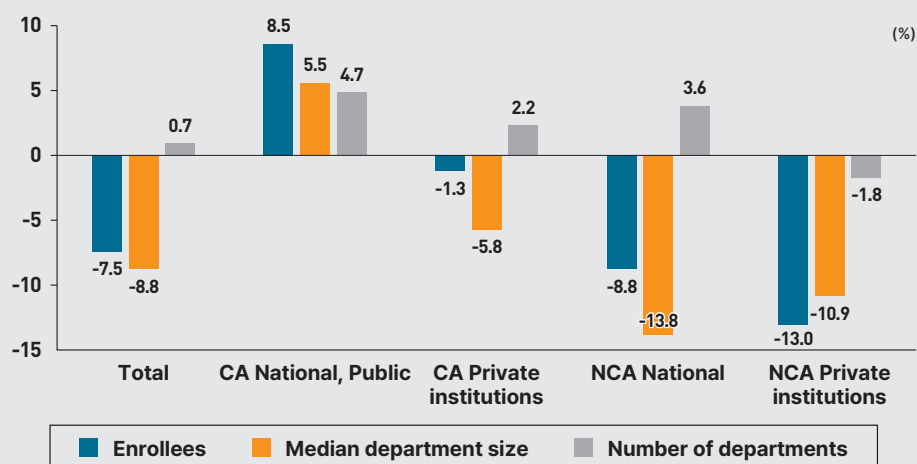
2) Standard errors are clustered at the university level.

3) The regression analysis was weighted for the number of new entrants. Significance level is *<0.1.

Source: Koh (2023).

Faced with declining enrollments, universities have largely opted for a uniform downsizing of department sizes rather than specializing their programs.

Table 3 shows the graduate employment rate regression results at the university level without fixed effects. None of the 15 coefficient estimates yielded statistically significant and positive results. This observation persisted even when the admission competition rate or freshman enrollment rate were considered. These findings emphasize the need for future policies to allow consumer demand to more directly influence quota adjustments.

Figure 3. Growth Rates of University Enrollees, Median Department Size, and Number of Departments (2014~2021)

Note: The median department size is based on the number of students enrolled per department.

Source: Korean Educational Statistics Service, "Higher Education Statistics," each year.

Lastly, the quality of university education may be compromised. Amidst declining enrollments since 2014, universities have responded by expanding the number of departments and reducing department sizes, instead of concentrating on their areas of strength. Between 2014 and 2021, the student population declined by 7.5% from 1.53 million to 1.42 million, but the number of departments increased by 0.7% from 6,185 to 6,231.² This trend points toward a general decrease in individual department size. Indeed, the median department size (in terms of the number of enrollees) declined by 8.8% over the same period, from 181 to 165 (Figure 3). Notably, the number of departments in national universities in non-capital areas (NCA) rose by 3.6%, while the median department size fell by 13.8%.

This trend, seemingly stemming from a government mandate enforcing enrollment quota reductions across all departments, may potentially impair education quality. To support a diverse selection of majors, a significant number of faculty members is necessary, a challenge with reduced department sizes. There has been a consistent increase in small departments with fewer than two to three full-time faculty members since 2014. To address this, future reforms should prioritize department-level quota adjustments, as opposed to university-wide adjustments.

III. Higher Education Issues: Supply and Demand

In a context of a shrinking population eligible for university admission, one might logically expect universities to initiate internal restructuring, independent of governmental mandates. However, the lack of such an adjustment suggests the presence of complex challenges on both the supply and demand sides. On the supply side, a significant issue is the resistance from faculty members. To shed light on this, a survey was conducted among professors,³ and the findings are outlined as follows.

2) In this study, the term 'detailed field,' extracted from educational statistics, is used as a substitute for 'department.' This is due to several instances where 'department' within the dataset does not align with an independent department; the 'detailed field' category is considered more consistent with the conventional understanding of 'department.'

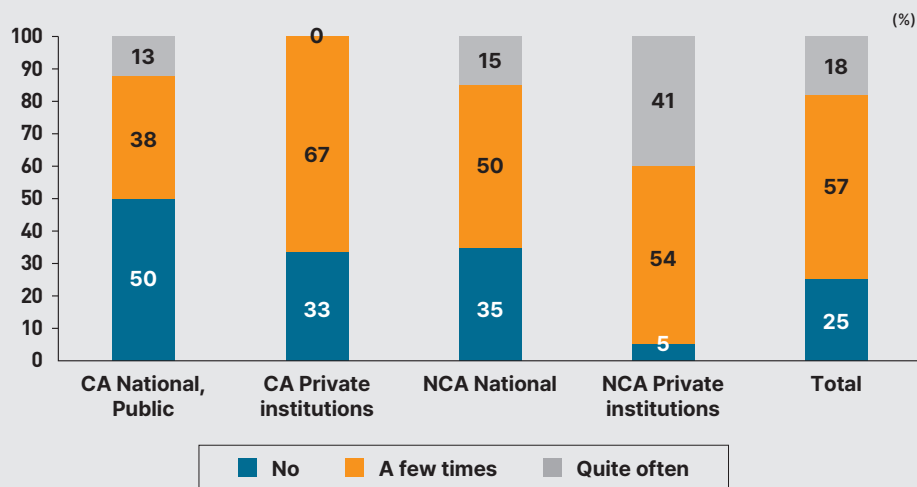
3) The survey engaged professors of business administration and economics, registered in the expert database of KDI's Economic Information and Education Center (EIEC). A total of 171 professors participated in the Computer-Assisted Web Interviewing (CAWI) survey. A subsequent survey of university students, also administered via CAWI, yielded responses from 1,045 participants between November 10 and 22, 2022.

From a supply-side perspective, the most significant hurdle to restructuring is perceived to be resistance from faculty members.

When asked, "Does your university adjust the enrollment quota to match demand?" a substantial 25% of professors answered negatively (Figure 4). This reluctance was particularly prominent in national universities, where 50% in the capital area and 35% in non-capital areas reported no adjustments, implying a hesitance to embrace structural reform despite rapidly declining enrollment.

Among those professors at universities that did not adjust quotas, the largest portion, 41%, attributed the absence of adjustment to opposition from stakeholders such as professors, students, and alumni. Furthermore, even when quota adjustments did occur, 60% of respondents noted that "the process is not smooth," with the majority (82%) identifying "faculty resistance" as the main hurdle. This indicates that opposition from vested interests, including professors, renders quota adjustment exceedingly difficult, if not impossible.

Figure 4. Does Your University Adjust the Enrollment Quota in Accordance with Demand?



Source: Korea Development Institute, "Professor Survey on University Education," Nov. 10~22, 2022.

University governance appears to be a factor contributing to the difficulty of overcoming faculty resistance. Structural reforms often face roadblocks due to inadequate managerial leadership to persuade faculty. Previous studies have suggested that the management and faculty, the two pillars of university governance, often have divergent interests. To optimize university performance, an appropriate division of responsibilities is essential. Management should control strategic responses to rapid environmental changes and internal financial

resource allocation, while faculty should influence decisions on appointments, promotions, tenure, curriculum design, and course creation or elimination (Brown, 2001; Cunningham, 2009). As the higher education landscape rapidly changes, governance reforms favoring stronger management, like those seen in the UK (Sporn, 2003), will be necessary in Korea.

Another supply-side issue is the soft budget constraint faced by national universities. Governmental financial support for higher education stands at approximately 20 million won per student at national and public universities, quadrupling the amount provided to private institutions (5.10 million won) (Table 4). The difference in current operating expenses, such as labor costs, is an astounding 113-fold. National universities receive as much financial support for educational expenses as private universities. Furthermore, faculty and staff are ensured lifetime employment as civil servants, which diminishes the incentive for national universities to embark on potentially difficult and uncomfortable restructuring.

The demand side also presents its challenges. According to a student survey, the most common reason for choosing their current university and department (32.0%) was school grades (Figure 5). Only 14% reported using the Academy Info platform (<http://academyinfo.go.kr>)⁴ during the application process. Alarming, 40% were unaware of their university and department's graduate employment rate.⁵ The remaining 60% who were aware had a perception of the employment rate that significantly deviated from the actual rates. For example, students were 84.5% likely to perceive the employment rate as above 50% when the actual rate was below 50% (Figure 6).⁶ Consequently, selecting universities primarily based on school grades, without accurate information such as employment rate, poses a substantial demand-side issue.⁷

4) 'Academy Info' provides a wide range of information on universities, encompassing 194 detailed items and 65 categories across 14 fields, consistent with Article 2 of the Higher Education Act.

5) While this study utilizes the employment rate as a crucial performance indicator, it is merely illustrative. It is essential to understand that this study does not propose employment as the singular objective of higher education.

6) The regression analysis on the relationship between actual and perceived employment rates reveals a significant correlation: a decrease of 10%p in the actual employment rate corresponds to a 16%p increase in the likelihood of the actual rate being underestimated.

7) A similar trend appears in the regression analysis of admission competition rates by department. Even after accounting for a variety of university and department attributes, the coefficient estimate of the preceding year's admission competition rate exceeds all other variables; coefficient estimates linger around 0.8, indicating a strong persistence in the competition rate. This implies that once the competition rate is established as either high or low, it is likely to persist.

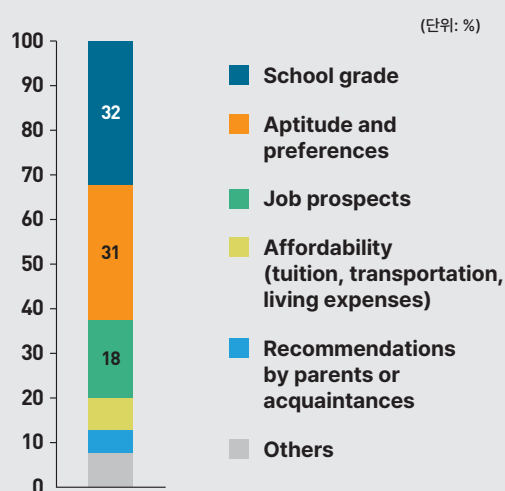
**Table 4. Higher Education Financial Support per Enrolled Student
(2021, including Master's and Doctoral students)**

(1 million won)

	Total	General support	Educational expenses	Current operating expenses
National, Public universities	20.0	7.2	1.6	11.2
Private institutions	5.1	3.0	2.0	0.1
National, public/Private (fold)	3.9	2.4	0.8	113.1

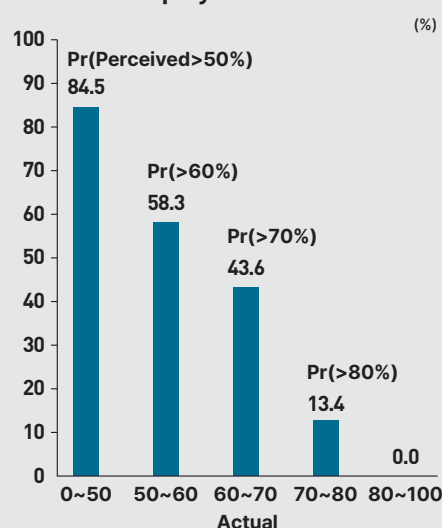
Source: Academy Finance Info (Uniarlimi website); Korean Educational Development Institute, *Statistical Yearbook of Education*, 2021.

**Figure 5. Why did You Choose the University/
Department You Are Now In?**



Source: Korean Development Institute, "University Student Survey on University Education," Nov. 10~22.

**Figure 6. Probability of Overestimating the
Employment Rate**

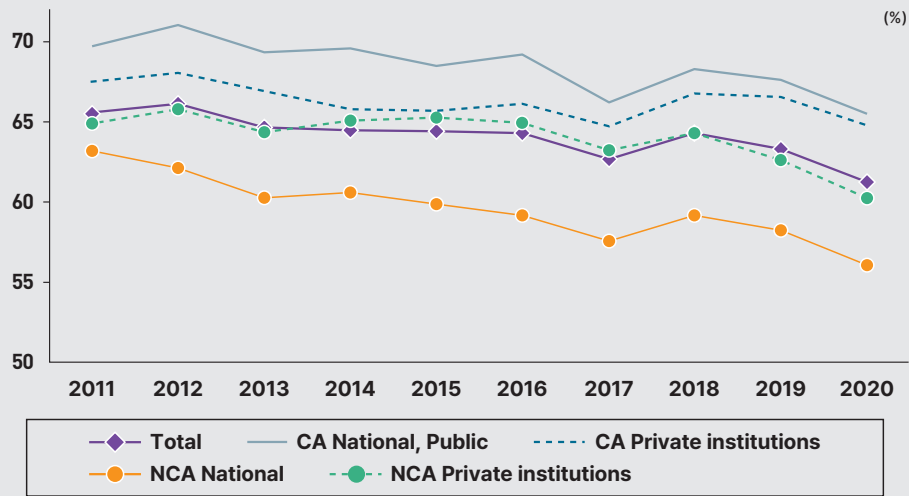


Source: Korea Development Institute, "University Student Survey on University Education," Nov. 10~22, 2022; Korean Educational Statistics Service, "Higher Education Graduates Employment Statistics," 2020.

The overestimation of the employment rate becomes more pronounced as the actual rate decreases. For instance, national universities in non-capital areas, exhibiting lower employment rates between 2011 and 2020 (Figure 7), are associated with a higher likelihood of their students inaccurately overestimating their employment prospects, in contrast to students from other universities.⁸

8) The outcomes of the regression analysis indicate that students at national universities in non-capital areas are approximately 11 percentage points more likely to overestimate the employment rate, compared to their peers at private institutions in the capital area.

Figure 7. Changes in Graduate Employment Rate by Administrative Area and Establishment Type (2011~2020)



Source: Korean Educational Statistics Service, "Higher Education Graduates Employment Statistics," each year.

IV. Future of Higher Education Restructuring: A Policy Direction

Despite some accomplishments achieved through earlier university restructuring policies, there remain notable constraints. To circumvent these challenges, a novel strategy that casts students, rather than the Ministry of Education, as the key evaluators of universities, is crucial. Present circumstances indicate that students aren't sufficiently equipped to undertake this role, hence calling for interventions that provide them with essential information and motivation to make enlightened choices. When students are well-informed and able to make decisions via a "voting by feet" mechanism, this will instigate transformations on the supply side.

This student-focused approach presents several benefits over traditional models. First, unlike governments, students are not subjected to political pressures. They are less likely to be caught in a tug-of-war between conflicting objectives, such as balanced regional development, or lose steam midway through the process. Second, student preferences can stimulate universities to adopt dynamic, creative, and autonomous strategies in response to evolving student demands. This approach empowers universities to bolster their competitiveness through the delivery of superior education, as opposed to mere bureaucratic prowess. Third, involving multiple stakeholders, like students, in decision-making processes can curtail the risks of over or undersupply in specific majors. Lastly, addressing consumer preferences at the department level can prevent

Income mobility continues to decline, weakening the expectations for upward mobility

indiscriminate reductions in department sizes.

Promoting the "voting by feet" approach requires a significant increase in available information about individual universities and departments. By enhancing the user interface of the Academy Info platform, consumers can easily access pivotal information, such as quality of employment and salary data. Despite the Ministry of Education's 2018 declaration of its intentions to disclose graduate salary data, gathered through the National Health Insurance (Ministry of Education, Mar. 21, 2018), this plan is yet to be realized. This initiative must be fast-tracked, along with the provision of comprehensive employment rate data and other pertinent metrics, like faculty research output and results of industry-academia collaborations. For effective access and utilization, this data must be presented in a format that facilitates easy comparison across various universities and departments. The current system's restriction, which only allows a maximum comparison of five universities, severely undermines its usefulness. Establishing a national departmental ranking of graduate employment rates could significantly enhance comparability. Although concerns might emerge about promoting university rankings and hierarchy, the primary focus should be on the personal and national costs and implications stemming from uninformed student choices.

Moreover, it is crucial to reevaluate or abolish regulations regarding tuition fees and enrollment quotas in the capital area. Current tuition fee regulations impede competitive universities from amassing the necessary resources to set themselves apart from others. Easing these regulations could spark a restructuring process anchored in competitive universities. Simultaneously, enrollment quota regulations in the capital area limit opportunities for students in non-capital areas, thus bestowing economic rent on geographically advantaged universities in the capital area and impeding the entry of universities from non-capital areas. While balanced development is an important goal, these restrictions could fundamentally hinder university restructuring and hence require reconsideration. Augmenting these deregulation efforts with financial support for university, such as subsidies per student, could hasten demand-driven restructuring.

Table 5. University Characteristics Comparison by Administrative Area and Establishment Type

Variables	CA National, Public universities	CA Private institutions	NCA National	NCA Private institutions	Average of variables
Employment rate (%p)	1.56***	0.00	-7.59***	-3.85***	62.88
Department enrollees (person)	-5.93	0.00	-89.26***	-93.08***	238.03
University enrollees (1,000 persons)	-0.89***	0.00	0.83***	-0.87***	10.51
Departments (number)	5.55***	0.00	12.49***	2.63***	42.46

Note: 1) The regression analysis draws on department data spanning the academic years 2011~2021.

2) Dependent variables are listed in the left column, while explanatory variables encompass dummy variables for detailed field, administrative area, and establishment type.

3) The regression analysis was weighted for the number of students enrolled. Significance level is ***<0.01.

4) "Average of variables" on the far right column represent the average of all available data sources.

Source: Koh (2023).

National universities, due to their public sector nature, necessitate unique restructuring initiatives. These institutions are likely to persist, regardless of student choice. However, national universities in non-capital areas pose specific challenges. Table 5 highlights the concerning realities of these institutions. Their employment rates lag by 7.6%p and 3.7%p compared to private institutions in the capital and non-capital areas, respectively. Concurrently, department sizes are approximately 90 students smaller than private institutions in the capital area. Paradoxically, they sustain the highest enrollments and department numbers, surpassing even national and public universities in the capital area. Innovative strategies for these institutions could encompass increased tuition fees, diminished governmental support, and expanded scholarships for students from low-income backgrounds.

The role and necessity of national universities warrant a fundamental review. Policies concerning university restructuring should be formulated in alignment with the outcomes of this reevaluation.

More fundamentally, an in-depth reassessment of the objectives of national universities is imperative. Are their purposes to 1) provide educational opportunities for low-income students, 2) nurture academic disciplines with limited market demand, or 3) prioritize research over teaching? The form and function of national universities must be meticulously reevaluated in the context of these objectives. Each goal demands custom solutions; for example, to assist low-income students, scholarships should be extended across all institutions; to nurture low-demand disciplines, national universities should specialize in these fields; and to prioritize research, funding should be amplified for top researchers, regardless of their institutional affiliation. ■

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KDI FOCUS

263, Namsejong-ro, Sejong-si 30149, Korea
Tel: 044-550-4030