

# Analysis of the Effect of Promoting University Specialization on University Education Outcomes

Suk-Yeol Lee <sup>1,1</sup> and Ho-Seub Lee<sup>1</sup>

<sup>1,1</sup> Namseoul University, 91 Daehak-ro Seonghwan-eup Sebuk-gu  
Cheonan-si Chungcheongnam-do, Korea, 331-707,  
edupro@hanmail.net

<sup>1</sup> Sookmyung Women's University, Cheongpa-ro 47-gil 100  
(Cheongpa-dong 2(i)-ga),  
Yongsan-gu, Seoul, Korea, 140-742,  
smlhs@sookmyung.ac.kr

**Abstract.** The purpose of this study is to analyze the effects of university specialization on the key education outcomes of graduate employment rates and enrolled student rate. According to the results, factors related to university specialization do not have a meaningful impact on the university's education outcomes. Therefore, the following two points need to be taken into consideration. First, in the case of wanting to see university specialization outcomes and education outcomes, what will be defined as education outcomes needs to be contemplated. Second, to enhance the competitiveness of a university through university specialization, the direction of university specialization policies needs to be reviewed.

**Keywords:** university education, higher education, university specialization, university education outcomes, university competitiveness

## 1 Introduction

The opinion of a university's competitiveness influencing the future of the nation has already become generalized and widely accepted. Many developed countries have increased the competitiveness of their universities through university specialization utilizing the strengths of the university [4-6]. Similarly, South Korea has increased the nation's competitiveness by promoting university specialization as the power and capacity to effectively propel balanced national development. University specialization is using the effect of promoting the strengths of each individual university to improve the competitiveness of the university. Such specialization has become an important strategy to enhance the competitiveness of higher education around the world, including South Korea. In the case of South Korea, the majority of universities include university specialization in their development plans preparing for the decrease of future school-age population and its efforts for self-preservation to obtain aid government financial aid [4-5]. Therefore, there is a need for empirical analysis examining whether the strategy of university specialization has any effect on improving the competitiveness of the university [1-3]. Accordingly, the purpose of

this study is to analyze the effects of university specialization outcomes on the key education outcomes of graduate employment rates, enrolled student rate and the constancy of graduate employment rate over time. Analysis results can be utilized as a resource to review the overall direction of governmental university specialization strategies as well as the strategy of university specialization of each individual university.

## 2 Research Methodology

The research subjects and methodology are presented in Table 1. University Information Disclosure materials and documents were utilized for analysis. For analysis, descriptive statistic analysis and generalized linear fixed model was applied using SPSS 21. The specialization variable used for the university specialization analysis model was the data from the university specialization information notification system. Indicators of university specialization include the number of corporations promoting specialization (number), support funds for specialization (unit: 1,000 won), average time of promoting specialization (unit: years), and number of specialization corporations eligible for support (number). Various performance indicators of university evaluation used within South Korea were set as performance variables of university education: the enrolled student rate, employment rate, and the constancy of the employment rate.

**Table 1.** Analysis model

Control Variable		Independent Variable	Dependent Variable
Location (16 cities and provinces), Year (2010~2014)	Institute (Public, Private), Region (Capital, Central, Provincial city, Provincial other) Scale (Large, Medium, Small, Very Small 4 tier ranking), Affiliation (Humanities and Social Sciences, Natural Sciences, Performing Arts, Medicine, Interdisciplinary, etc.)	Number of corporations promoting specialization (number), support funds for specialization (1,000 won), average time of promoting specialization (year), number of specialization corporations eligible for support (number) * Materials and data of specialization related variables collected in 6 types	- Enrolled Student Rate, - Employment Rate, - Employment Rate Constancy
Random Effect, Repeated Measures Variable	Fixed Effect		

\*University Size: Very Small (Less than 1,000 students), Small (Between 1,000-5,000 students), Medium (Between 5,000-10,000 students), Large (More than 10,000 students)

### 3 Research Outcome

Analysis of how the university performance variables of enrolled student rate, graduate employment rate and graduate employment rate consistency influence the specialization variable is presented in Table 2. The effect of the university specialization variable on the enrolled student rate and the graduate employment rate does not appear to be statistically significant. In the case of the graduate employment rate constancy, there was a positive effect for engineering corporations, and a negative effect of supporting funds for the natural sciences was analyzed.

Table 2. Analysis results

Category	Enrolled Student Rate	Employment Rate	Employment Rate Constancy
<b>Number of corporations promoting specialization</b>			
<b>Humanities and Social Sciences</b>	<b>-.001</b>	<b>-.004</b>	<b>-.001</b>
<b>Natural Sciences</b>	<b>-.000</b>	<b>.002</b>	<b>-.003</b>
<b>Engineering</b>	<b>-.000</b>	<b>.002</b>	<b>.002*</b>
<b>Performing Arts</b>	<b>-.003</b>	<b>-.015</b>	<b>.066</b>
<b>Medicine</b>	<b>-.001</b>	<b>.022</b>	<b>.005</b>
<b>Other</b>	<b>.000</b>	<b>-.000</b>	<b>-.003</b>
<b>Total number of specialization corporation</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Support funds for specialization</b>			
<b>Humanities and Social Sciences</b>	<b>.000</b>	<b>-.001</b>	<b>.001</b>
<b>Natural Sciences</b>	<b>.000</b>	<b>.000</b>	<b>-.002*</b>
<b>Engineering</b>	<b>-.000</b>	<b>-.001</b>	<b>.001</b>
<b>Performing Arts</b>	<b>.001</b>	<b>.006</b>	<b>-.000</b>
<b>Medicine</b>	<b>-.000</b>	<b>-.003</b>	<b>.000</b>
<b>Other</b>	<b>.000</b>	<b>.001</b>	<b>.000</b>
<b>Total Support funds for specialization</b>	<b>.001</b>	<b>.005</b>	<b>.005</b>
<b>Average time of promoting specialization</b>	<b>-.000</b>	<b>.001</b>	<b>-.001</b>
<b>Number of funding organizations for</b>	<b>.000</b>	<b>.001</b>	<b>-.000</b>

<b>specialization</b>			
<b>Humanities and Social Sciences</b>			
<b>Natural Sciences</b>	<b>-0.000</b>	<b>-0.000</b>	<b>.000*</b>
<b>Engineering</b>	<b>.000</b>	<b>.000</b>	<b>.000</b>
<b>Performing Arts</b>	<b>.000</b>	<b>-.005</b>	<b>-.001</b>
<b>Medicine</b>	<b>.000</b>	<b>-.001</b>	<b>-.000</b>
<b>Other</b>	<b>-0.000</b>	<b>.000</b>	<b>-.000</b>
<b>Total number of funding organizations for specialization</b>	<b>0</b>	<b>0</b>	<b>0</b>

※ ‘\*’ P<.05, ‘\*\*’ P<.01

#### 4 Conclusions and Discussions

The results of this study show that the promotion of university specialization does not have a significant affect on the variables set as universities' education outcomes of enrolled student rate and graduate employment rate. However, there was in part positive effects and in part negative effect only on the graduate employment rate constancy. Therefore, it is difficult to determine the promotion of university specialization as a significant variable for education outcomes.

These results can be interpreted by two approaches. First, there is a possibility that the effect of university specialization variable did not appear as significant due to a limitation of the university specialization variable applied to this study. In other words, there was a lack of evaluation conducted on the university specialization variable, used as the quantitative variable, as the variable representing university specialization. In addition, the enrolled student rate and graduate employment rate, the set performance indicators of various evaluations, may not be suitable as education outcomes. Due to the error of selecting these variables, there is the possibility that the effect of specialization was not accurately measured. Second, despite the validity of the variables of promotion specialization and education performance and outcomes, it is possible that university specialization has not had a significant effect on the current education performance indicators since 2010 until 2013. This shows that the ultimate goal for promoting university specialization, which is not just the development of specialized fields but the overall development and increasing competitiveness of the university through specialization, is not being fully realized or properly implemented. If it is not possible to improve the competitiveness of the university, in line with the aim to strengthen university specialization, there is a need to reevaluate the policy promoting university specialization as a means to improving level of competitiveness of a university. There is also a need for this be considered in the implementation of later higher education related policies and university evaluations

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