

Entrepreneurial universities and the effect of the types of vocational education and internships on graduates' employability

Young-Ah Kim¹, Kyung-Ah Kim^{2*}, Nikolaos Tzokas³

ABSTRACT

Using a sample of 15,741 graduates from the 2019 Korean Graduates Occupational Mobility National Survey, the study examines the effects of different types of vocational education, job skills-enhancing training and the quality management of university education on graduates employability. The results show that students' participation in internships and the suitability and usefulness of the university's curriculum have a great impact. Interestingly, volunteer activities had a negative impact on the employability from all types of university and four-year university graduates.

KEYWORDS: *Graduates employability; employment support programs; quality of education; Internships*

¹ University of Essex, Essex Business School, 10 Elmer Approach, Southend-On-Sea, Essex, SS1 1LW, United Kingdom (yakim@essex.ac.uk)

² Jeonbuk National University, College of Social Science, 567 Baekje-daero, Deokjin-gu, Jeonju-si, Jeollabuk-do, 54896, Republic of Korea (innovation@jbnu.ac.kr)

³ Prince Mohammed Bin Salman College of Business & Entrepreneurship, King Abdullah Economic City, 23964-2522, Saudi Arabia (ntzokas@mbsec.edu.sa)

***Corresponding Author: Professor Kyung-Ah Kim**

Tel: +82(0)63 270 2843 Email: innovation@jbnu.ac.kr

Introduction

The role of universities in society has expanded significantly from simply the education of university students and key repositories of new knowledge to critical sources of innovation and significant drivers of economic development as well as social and economic prosperity. In this context, universities have been reconceptualized as entrepreneurial institutional actors and their wider contribution to regional, social and community development have been widely discussed (Audretsch and Belitski 2021). The entrepreneurial university is a vague notion that has evolved by applying the concepts of enterprise and entrepreneurship to a university context (Jones and Patton 2020) and its business model is highly ambiguous incorporating enterprise and entrepreneurship frameworks in a university context (Audretsch and Belitski 2021). However, it is widely advocated that the entrepreneurial mindset associated with entrepreneurial universities plays a significant role in their effort to prepare their students for an ever-increasing competitive labor market that crosses national, regional and international areas (Guerrero and Urbano 2012). To this end, the influence upon employability of different types of educational and training programs (Arranz et al. 2017), job employability (Römgens et al. 2020; Succi and Canovi 2020) and associated employment skills development in graduate activities (Arranz et al. 2017; Winkel et al. 2013) have received considerable attention in the relevant literature. However, there is still lack of large-scale empirical studies on the impact of the employment support programs on early graduates seeking to secure their first job in the market. Therefore, the research questions of this study are as follows: (1) how do the university employment support programs and the quality (suitability and usefulness) of the university education affect the graduates' first jobs? (2) how does internship experience affect the graduates' first jobs? (3) how do individual activities and personal perceptions for job search affect the graduates' employability for the first job markets?

To test existing theories on graduates' employability and to extend the knowledge of the relationships between university support programs and graduates' employability, this study examines empirically the impact of youth employment policy programs and vocational education on the employability of university graduates in Korea with a large data set, which is the sample of 15,741 graduates from the 2019 Korean Graduates Occupational Mobility National Survey.

Theoretical underpinnings

This study explores the relationships between vocational education and employability based on human capital theory (Becker 1964) and job market signaling theory (Spence 1978). The human capital theory assumes that education determines the marginal productivity of labor and this determines earnings. As developed by Becker (1964), it has dominated economics and helped policymakers and the public understand of relations between education and the labor market. As an individual's human capital increases, the value of the individual increases and, in turn, this increases their competitiveness in the labor market and by implication their employability prospects. The theory assumes that employers have the means (knowledge and skills) to objectively assess and evaluate an individual's ability and match it to their specific needs and circumstances. This assumption has been questioned since recruitment in the marketplace is performed under conditions of time constraints, limited information and uncertainty as regards an individual's ability as well as the future conditions/needs of the company and the marketplace. This is addressed by the job market signaling theory. According to Job market signaling theory (Spence 1978), the factors of the past performance of employees or job seekers can be a significant signal to employers. In particular, because the contents and level of education acquired by individuals function as a kind of signal to quality or ability of

the individual, in this theory, attainment in the educational system is considered as a key factor in determining the students' successful entry into the labor market (Considine et al. 2018).

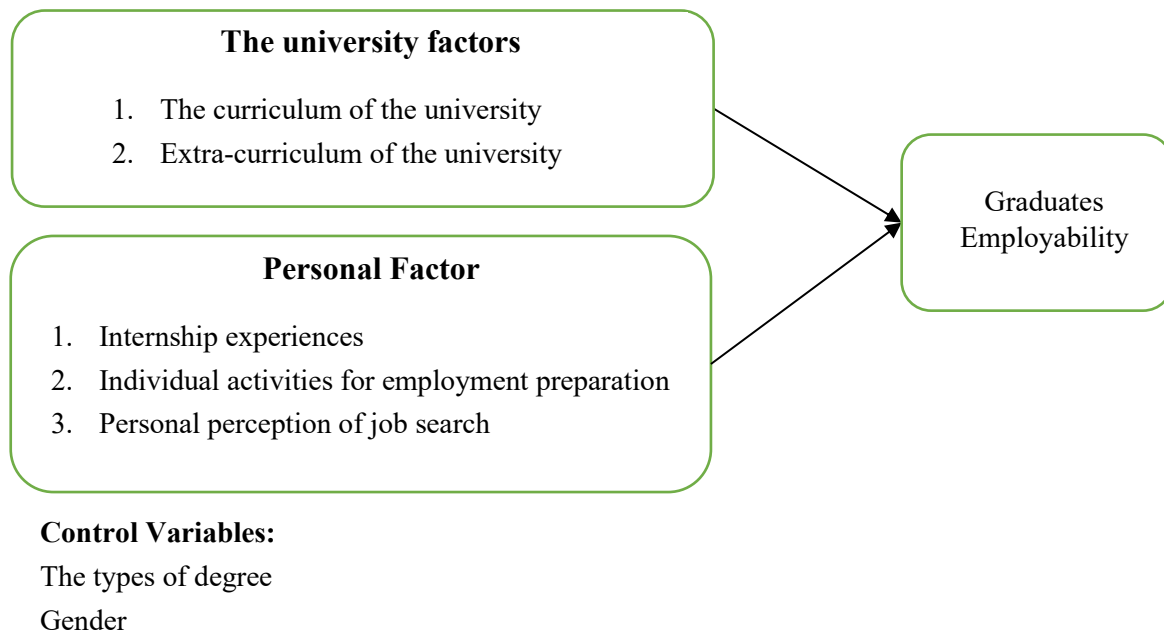
The status of Korean government support policies for graduates' employability

The recent change in Korea's youth job policy is related to the political demands of the younger generation who have responded very sensitively to the matters of *equality of opportunity* and *fairness based on ability*. Korea has pledged to create jobs for young people, and the current government operates a presidential committee called 'Job Committee' to support job education and training for young people at the national level. They encourage large companies and Small and Medium-sized Enterprises (SMEs) to actively participate in this policy. In particular, the Korean local governments provide information updated in real-time on job-related policies promoted by the government through the system called 'Government 24' and the 'Employment and Welfare Plus Center' provides information on education and training programs and recruitment offered for free or through very low-cost supported by the Ministry of Health and Well-being and the Ministry of Employment and Labor. Additionally, the recruitment test based on National Competition Standards (NCS) was adopted by most public and quasi-governmental organizations. NCS offered by the Human Resources Development Service of Korea (HRD Korea) standardizes the ability (including knowledge, skills, attitudes) required to perform duties at industrial sites. In other words, it is a national system that encourages companies to use for recruiting, training (education), placement, and promotion by creating standards for job competency through reflecting the needs of the industry. In 2020, South Korea had 203 universities and 136 community colleges. Generally, a university has a four-year curriculum, and a community college has a two- or three-year curriculum for a technical training course.

Hypotheses and measure

This study examines empirically the impact of youth employment policy programs and vocational education on the employability of university graduates in Korea. Figure 1 shows the conceptual framework employed.

Figure 1. The conceptual framework



Dependent variables: Employability

As defined by Fugate, Kinicki, and Ashforth (2004, 16), this study approaches employability as “a form of work specific active adaptability that enables workers to identify and realize career opportunities”. We measure employability as a dichotomous variable reflecting whether or not respondents got a full-time job within one year after graduating from a university or a college.

Independent variables

As indicated in figure 1 above, independent variables were distinguished between university factors and personal factors. University factors included the quality of the university education

and eight employability enhancing programs offered by the university education system as extra-curricular activities. On the other hand, the personal factors consisted of an individual's activities to strengthen employment capabilities and personal perception of job search. Among the university factors, factors relevant to the curriculum of college majors are measured through the suitability and usefulness of majors for the desired jobs, and the extra-curriculum of the degree is used for the usefulness of education and training programs provided by universities. The personal factors were reflected in seven activities (multiple responses) that were judged to be important for employment and practice, and confidence in employment. These are as follows.

(1) Quality of the university education

Quality here was reflected by the suitability and the usefulness of the curriculums provided by universities. The suitability of the curriculums provided by the university was measured by how useful graduates' subjects are perceived in terms of solving problems that graduates face and must deal with at work. The usefulness of curriculums provided by the university was measured by whether major education contents were perceived as appropriately related to work contents.

H1: The quality of university education has a positive effect on graduates' employability

(2) The eight employment-related programs

The 8 representative employment-related programs were the employment support programs provided by universities including career employment-related courses, job experience programs (including internship), job psychological tests, on-campus job fairs, career-related individual and group counselling programs, job camps, and corporate recruitment briefings held by universities.

H2: The extra-curriculum of university education have positive effects on graduates' employability

(3) Individual activities to strengthen employment capabilities

Individual activities to strengthen employment capabilities consist of eight factors and which include the following:

- 1) *Vocational education and training experience.* This refers to education and training to improve work capability conducted by individuals after entering college and before and after employment.
- 2) *Acquiring relevant certificates and foreign language competencies.* As the most basic evidence of employment competency in document screening is certificates, that are directly related to employment and TOEIC scores used to measure foreign language competency.
- 3) *Activities to prepare for the employment test.* This refers to activities that specifically prepare for document screening, writing, and mock interview tests for employment.

H3: Individual activities have positive effects on graduates' employability

(4) Personal perception of job search

Since the main characteristics of individuals influencing employment are perceptions related to job and job search activities, they were measured in four factors: clarity of preferred job and clarity of job selection criteria, clear goals for future jobs, and clear job plans.

H4: Personal perception of job search has a positive effect on graduates' employability

(5) Internship program

The internship program can be said to be a system implemented by companies in most countries with free-market economies to hire excellent individuals. In Korea, the internship program is operated quite differently compared to other countries. For example, youth job policy is a presidential pledge and major national task, and various policies related to youth employment are included in the central government performance evaluation index. The central government directly supports programs of universities and employment agencies through budget projects, and indirectly reflects performance indicators of public and quasi-governmental institutions, links them to local government budget support projects, and reflects internship programs as conditions or additional points for research and development (R&D) support project for small and medium-sized enterprises (SMEs). In addition, the SME manpower support project is strongly promoting youth internships in various ways, including youth internship support. Youth internships in the public sector are very active because the results of these performance evaluations are directly or indirectly reflected in CEO competency evaluations of public institutions and quasi-governmental institutions, incentives based on performance reflected in all employees' annual salary systems, and budget projects for next year.

H5: Internship program has a positive effect on graduates' employability

Control variables

Two control variables were selected as factors that show significant differences in the labor market even under the same conditions, and they are gender and degree type. The type of degree was classified into three types: Industry customized degree, the degree of business school and social science school, and the degree of engineering school. In terms of gender, previous studies have demonstrated gender differences, with female graduates presenting less positive perceptions of preparation and lower expectations of successful transitions (Monterio et al. 2020), while male graduates show a greater propensity to secure permanent and full-time

employment and to reach better matches between their educational level and employment (Vuorinen-Lampila 2016).

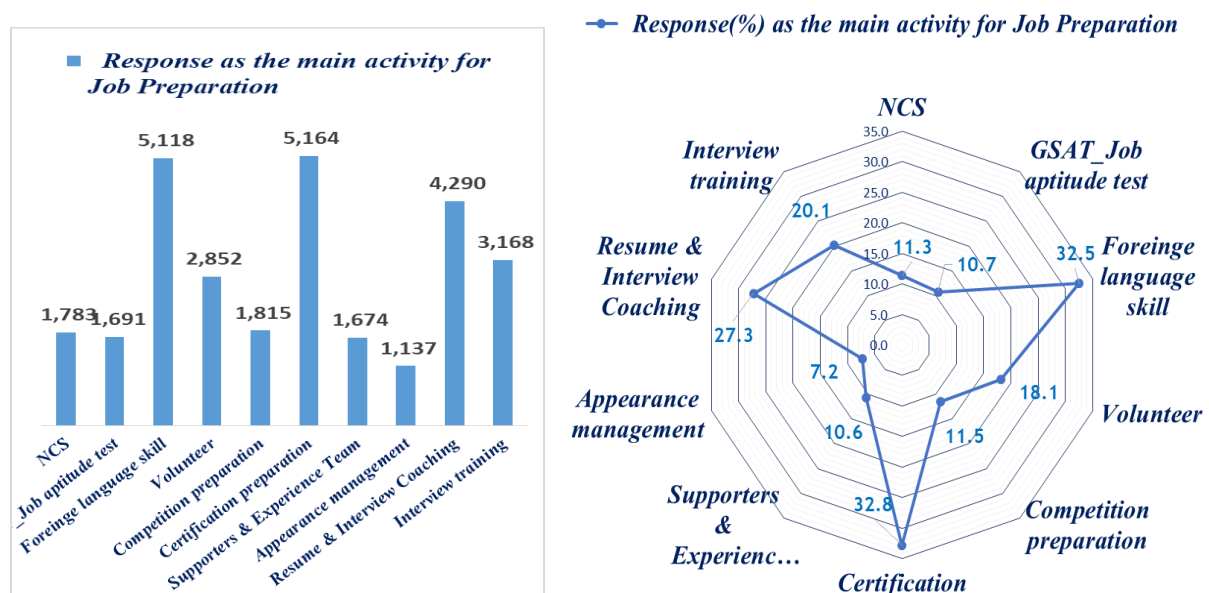
Data

The study used data of the 2019 Korean Graduates Occupational Mobility National Survey, officially approved by Korea National Statistical Office. The population is cross-sectional account of 18,163 graduates from the previous year. The sample size used in this study is 15,741 graduates in 2018 and this consists of 8,747 male (55.6 %) and 6,994 female (44.4%) graduates.

Analysis

Figure 2 shows the results of multiple responses about the main activities that respondents have done to prepare for employment.

Figure 2. The main activities for job preparation (multiple responses)



Binary logistic regression analysis

To examine the conceptual framework underlying this study, we used binary logistic regression analysis (Harrell 2015). Table 1 reflects both the measurement and the structural model (Model 1-4). Model 1 is the results of binary logit analysis of 15,741 respondents, while Model 2 is for only four-year university graduates (n=12,200) among the 15,741 respondents in Model 1. Model 3 is for only graduates from engineering schools (n=4,628) while Model 4 is for only graduates from business schools and social science schools (n=3,254).

Table 1. The results of binary logit regression analysis (Model 1-4)

		Model 1 Workers & Job Seekers (n=15,741)		Model 2 4-year University (n=12,200)	
		B	Exp(B)	B	Exp(B)
Quality (Suitability & Usefulness of Curriculum)	Job Suitability of Major	.717 ***	2.048	.632***	1.881
	Work-related Usefulness of Major	.918 ***	2.503	.960***	2.611
Extra-Curriculum of university <i>(Usefulness of Programs for Career Selection & Employment Preparation)</i>	Curriculum related to Career & Employment	-.006	.994	-.010	.991
	Occupational psychology test	-.016	.984	-.011	.989
	On-Campus Job Fair	-.022	.979	-.043	.958
	Career-related Counseling program	.013	1.013	.030	1.030
	Interview skills & resume coaching	.038	1.039	.046*	1.047
	Job camp	.041	1.042	.027	1.027
	Corporate recruitment briefing	-.009	.991	.001	1.001
	Work experience & Internship	-.037	.964	-.040	.961
<i>Internship Experience</i>	at First Job	2.470 ***	11.817	2.670***	14.433
	During university degree	.245 *	1.278	.273*	1.314
Personal	Certification preparation	.172 **	1.188	.175*	1.192

<i>Activities for Vocational Education and Training</i>	Volunteer	-.178 *	.837	-.224*	.799
	Competition preparation	-.044	.957	-.046	.955
	Supporters & Experience Team	.207 *	1.230	.239*	1.270
	Appearance management	.266 **	1.305	.381**	1.464
	Frequency of vocational education	-.022	.979	-.016	.984
	English level (TOEIC score)	-.033 *	.968	-.023	.978
Personal Perceptions of Job Search	I have clear criteria for choosing a job	-.197 ***	.821	-.190***	.827
	I have a clearer job plan than others	-.045	.956	-.033	.968
Degree type	Industry customized Degree	-.030	.970	-	-
	Business & Social Sciences	.206 **	1.229	.223**	1.249
	Engineering	.188 **	1.207	.210**	1.234
Gender		-.377 ***	.686	-.366***	.693
Constant		-2.482 ***	.084	-2.607***	.074
Nagelkerke R-squared			.738		.730
Cox & Snell R-squared			.491		.479
Summative test of model coefficients			.000		.000

*** p<.000, ** p< .05, * p< 0.1

		Model 3		Model 4	
		Engineering (n=4,628)		Business & Social Sciences (n=3,254)	
		B	Exp(B)	B	Exp(B)
Quality (Suitability & Usefulness of Curriculum)	Job Suitability of Major	1.182***	3.262	.936***	2.549
	Work-related Usefulness of Major	1.174***	3.235	.830***	2.294
<i>Extra- Curriculum Courses of College (Usefulness of Programs for Career Selection & Employment Preparation)</i>	Curriculum related to Career & Employment	.032	1.033	-.123**	.884
	Occupational psychology test	-.015	.985	-.096*	.908
	On-Campus Job Fair	-.015	.986	-.047	.954
	Career-related Counseling program	.012	1.013	.084	1.088
	Interview skills & resume coaching	-.064	.938	.054	1.055

	Job camp	-.002	.998	.056	1.058
	Corporate recruitment briefing	.025	1.025	-.050	.951
	Work experience & Internship	-.075	.928	.040	1.041
<i>Internship Experience</i>	at First Job	2.635***	13.944	2.057***	7.824
	During university degree	.133	1.142	.385	1.470
Personal Activities (Activities for Vocational Education and Training)	Certification preparation	.231	1.260	.161	1.174
	Volunteer	-.393	.675	-.292	.747
	Competition preparation	-.122	.885	-.523*	.593
	Supporters & Experience Team	.736**	2.089	.140	1.150
	Appearance management	.104	1.110	.554**	1.739
	Frequency of vocational education	.060	1.062	-.214**	.807
	English level (TOEIC score)	-.195***	.823	-.030	.971
Personal Perceptions of Job Search	I have clear criteria for choosing a job	-.018	.982	-.190*	.827
	I have a clearer job plan than others	-.139	.870	.029	1.029
Degree type	Industry customized Degree	-.162	.851	.058	1.060
Gender		-.389*	.678	-.267*	.766
Constant		-3.315***	.036	-2.469***	.085
Nagelkerke R-squared		.836		.734	
Cox & Snell R-squared		.541		.482	
Summative test of model coefficients		.000		.000	

*** p<.000, ** p< .05, * p< 0.1

Results and discussion

What is most noticeable in Model 1 and Model 2 is that the participation of internships and the suitability and usefulness of the university's curriculum have great impacts on getting a full-time job within one year after graduating from a university or a college. Hypothesis 1 is accepted while Hypothesis 2 is rejected. In Model 1, the more suitable the university major is

for the job they want to get, or the more useful it is for managing the job they want to get, the higher the probability of getting a full-time job within one year after graduation by 204.8% and 250.3% respectively. On the other hand, the eight programs corresponding to the university level extra-curriculum activities were not statistically significant. This does not mean that extracurricular programs offered by universities are ineffective. It may be attributed to the fact that the dependent variable is a binomial variable which means that they have or have not been employed within a year after graduation, and job programs provided by Korean universities are often provided to most fourth-graders who are expected to graduate. This time lag may be the responsible for this lack of any significant impact. Also, in Korea, there is an evaluation system that examines whether universities can receive government-funded budgets. Very important indicators in this university evaluation system are the employment rate of graduates and the employment rate maintained after a year. If the employment rate is low, the university will become a financially restricted university, and students will not be able to apply for national scholarships, which is a serious problem with the survival of the university. Therefore, it is reasonable to assume that the impact of the employment support program provided by the university in the binary logit regression analysis results from Model 1 to Model 4 is not statistically significant, since the beneficiaries of educational support are not differentiated.

Hypotheses 3, 4 and 5 are accepted. Among the independent variables, individual factors are individual activities to strengthen employment capabilities and individual perception for job search. Another important point among the analysis results is that graduates of engineering and business/social science schools differ significantly from other majors in the activities for vocational education and training. For example, as we can be seen in Models 3 and 4, certification preparation and volunteer work do not affect the employability of engineering or business graduates, but the impact of that was significant in Models 1 and 2 for all respondents.

The influence of the certificates was not significant in engineering and business schools that the major curriculum programs are deeply related to the business contents of the company or job capability. On the other hand, the influence of certificates on employability was significant in other schools. Volunteer activities were not statistically significant in the employability of graduates from engineering and business school, while had a negative impact on the employability of graduates from all types of university (Model 1) and four-year university graduates (Model 2). In Korea, in the early 2000s, volunteer activities were often used as an item to predict good personalities or attitudes of organizational life. However, companies may be shifting the use of signals they use to detect personality, attitude, and character, especially given the almost compulsory participation in internships programs, which they also provide a good indication of relevance of activities, success within a selection process (unlike voluntary which is self-selected) and the additional opportunity of detecting character through citizenship behaviors while in an internship scheme. Experience on supporters had a positive effect on employability in most cases except for business/social science school graduates. It was surprising for us to see that changing appearance, through diet or medical procedures, had a significantly positive effect on employability in most cases including Model 1, 2, and 4, except for graduation of engineering students. While this is in line with general findings in the literature about the effect of appearance in employability (Shtudiner 2020), it may also reflect experience of discriminatory practices or indeed be simply an outcome of perceptions driven by attributions of failure or successes with employability and associated appearance-improving expenses.

Competence in English (TOEIC test scores) did not have a significant effect on four-year university and graduates of business schools, while in the case of engineering students, those with low English TOEIC scores got full-time employment. This is thought due to the fact that foreign language grades are not considered important in the case of SMEs with relatively many

jobs for engineers and easy to join compared to large companies where competence in English is important.

The impact of competition preparation and frequency of vocational education on employability was not significant for all college and four-year college graduates (Model 1), four-year university graduates (Model-2), and engineering graduates (Model 3). However, the higher the number of participants in ‘competition preparation’ or ‘frequency of vocational education’ in business/social college graduates, the lower the employment rate within a year after graduation at 59.3% and 80.7%, respectively. These results need to be explored further through probably in-depth interviews, as they may reflect the relative proliferation of such preparatory programs which inevitably become rather ineffective in separating successful from unsuccessful approaches to employability.

Conclusions and implications

To explore the factors impacting Korean youth employability, this study employed two seemingly competing theories, namely the human capital theory and the job market signaling theory. The most interesting results of this study are as follows.

First, an internship in Korea is the most important factor that influences the employability of university graduates. Second, the perceived suitability and usefulness of the curriculum had a major positive effect on employability. Third, in the case of employment programs in which individuals participated, certificates, supporters, appearances had positive effects on employability while volunteer activities and English competence were not very important or had rather negative relationships on employability. Fourth, employability of females within one year after graduation is only about two-thirds of the equivalent figure for men.

Overall results point to a stronger influence of the job market signaling to employability as opposed to the human capital theory. Internships and the suitability & usefulness of the

curriculum seem to act as clear signals for the recruiting employers. Self-appearance is another job market signal emerging from the data. These factors may as well reflect contemporary realities of the Korean labor market. For example, it is necessary to consider the special policy environment of Korea's job-related policies to understand why internships are an important factor. In particular, Korea has used youth internship as a policy tool to create youth jobs by reflecting the recruitment of new manpower in league tables/scores. It also provides direct financial support, including policies to support youth job search activities and youth internship funds for small and medium-sized enterprises.

The influence of the perceived suitability and usefulness of the curriculum points to the conclusion that confidence in the curriculum is translated to self-confidence in the job market and therefore it makes a direct impact to the employability of such individuals.

Notwithstanding the issues above, the results of this study point to clear policy implication as well as fruitful avenues for future research.

To begin with the efforts of the Korean government to enhance employability through internships should be applauded and further recommended to other countries. As a job market signal, it provides a strong indication of the skills and competencies of the individuals and their readiness to deliver in the real work environment. Moreover, it may be also considered as in line with the human factor theory too in that preference to those in internships is not only signaled by their job readiness but also by the fact that they may be perceived as possessing both knowledge and the dynamic skills required to mold and release this knowledge to the requirements of the company. Therefore, continued attention and support to the internship schemes in Korea will further accelerate employability prospects.

Similarly, greater attention to matching the university curriculums to the current and future job opportunities will also accelerate employability. Universities and policymakers should find ways to tangibilise this matching to their students as this may increase their confidence in their

degree and by implication their suitability self-confidence. Similarly, companies seeking to attract the best candidates may find it useful to devise recruitment methods highlighting their job requirements and juxtaposing them to university curriculums so that prospects can benefit from more fit to the jobs they apply for.

In addition, further research requires as follows. First, the positive effect of appearance needs to be considered in more detail and the underlying factors supporting it explored. On the same lines, the much lower employability of females, as opposed to males in our sample, and negative effects should also be explored further by further interviews.

References

- Arranz, N., F. Ubierna, M. F. Arroyabe, C. Perez, and J. C. Fdez. de Arroyabe. 2017. "The effect of curricular and extracurricular activities on university students' entrepreneurial intention and competences." *Studies in Higher Education* 42(11): 1979-2008.
- Audretsch, D. B., and M. Belitski. 2021. "Three-ring entrepreneurial university: in search of a new business model." *Studies in Higher Education* 46(5): 977-987.
- Becker, G. 1964. *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*. Chicago, IL: University of Chicago Press.
- Considine, M., P. Nguyen, and S. O'Sullivan. 2018. "New public management and the rule of economic incentives: Australian welfare-to-work from job market signalling perspective." *Public Management Review*, 20(8):1186-1204.
- Fugate, M., A. J. Kinicki, and B. E. Ashforth. 2004. "Employability: A Psycho-Social Construct, its Dimensions, and Applications." *Journal of Vocational Behavior* 65: 14-38.
- Guerrero, Maribel, and David Urbano. 2012. "The Development of an Entrepreneurial University." *The Journal of Technology Transfer* 37 (1): 43-74.
- Harrell, F. E. 2015. "Binary logistic regression." *In Regression modeling strategies, edited by F. E. Harrell*, 219-274. Springer, Cham.
- Jones, D. R. and D. Patton. 2020. "An academic challenge to the entrepreneurial university: The spatial power of the 'Slow Swimming Club'." *Studies in higher education* 45(2): 375-389.
- Römgens, I., R. Scoupe, and S. Beusaert. 2020. "Unraveling the concept of employability, bringing together research on employability in higher education and the workplace." *Studies in Higher Education* 45(12): 2588-2603.
- Spence, M. 1978. "Job market signaling." *In Uncertainty in economics*, edited by P. Diamond and M. Rothschild, 281-306. New York: Academic Press.
- Succi, C., and M. Canovi. 2020. "Soft skills to enhance graduate employability: comparing students and employers' perceptions." *Studies in Higher Education* 45(9): 1834-1847.
- Shtudiner, Z. 2020. "The impact of attractiveness on employability: Gender differences in peer effects". *Managerial and Decision Economics*, 41(8), 1613-1620.

- Winkel, D., J. Vanevenhoven, W. A. Drago, and C. Clements. 2013. "The structure and scope of entrepreneurship programs in higher education around the world." *Journal of Entrepreneurship Education* 16: 15.
- Vuorinen-Lampila, P. 2016. "Gender Segregation in the Employment of Higher Education Graduates." *Journal of Education and Work* 29 (3): 284–308.