

# 2020 September Educational Issues in Korea II

## Employment outcomes of tertiary- educated graduates by field of study



ANALYZING THE QUALIFICATION MAINTENANCE LEVEL OF  
HIGHER EDUCATION GRADUATE EMPLOYEES REGISTERED FOR HEALTH INSURANCE

How long they are employed after entering the labor market?

**Employment maintenance after  
graduation depending on the college majors**

## Employment outcomes of tertiary-educated graduates by field of study

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The Employment Statistics Yearbook provides the data on the work status of tertiary-educated graduates by a year-follow-up survey. The employment status of recent graduates for 12 months before the survey was announced in December 2019. This survey investigated work status by examining an employer-sponsored health insurance status of recent graduates quarterly (every 3 months).

Table 1 shows the status of insured by graduates' field of studies. In terms of the proportion of graduates by field of study, sociology (28.2%) was the highest, followed by engineering (24.5%), humanities (12.3%), nature science (11.8%), arts and sports (11.0%), medicine (7.4%), and education (4.9%). In the meantime, the ratio of insured workers was high in the order of medicine (79.4%), engineering (58.6%), sociology (52.9%), nature science (45.1%), humanities (40.9%), art and sport (39.1%), and education (38.2%). In short, there is a difference in proportion between the graduates and insured workers. Graduates who studied sociology occupies more than 25% of total graduates, but the proportion of insured workers who studied sociology was lower than those of medicine and engineering.

In the fields of humanity and natural science, only 40% of graduates are found to be insured workers, which may be influenced by that relatively many students of those fields go to graduate school compared to other categories. The enrollment rate of graduate schools by field of study nature represent the largest portion at 15.7%, followed by engineering (9.1%), humanities (7.8%), art and sport (5.8%), education (3.5%), sociology (2.5%), and medicine (2.2%). More specifically, the top 10 sub-fields which have high enrollment rates were Human Ecology (51.2%), natural sciences (41.6%), religion (29.8%), chemistry (26.4%), physics (25.6%), life sciences (24.2%), biology (22.9%), astronomy and meteorology (21.6%), psychology (19.1%), and textile engineering (18.6%). It means the students who study natural science relatively have high enrollment rate than other fields. On the other hand, the ratio of insured employees is high in the field of engineering. At the same time, the enrollment rate of engineering of ISCED 7 and 8 is also high at 9.1%. (The average enrollment rate of graduate school is 6.7%). To sum up, in engineering, about 60% of graduates enter the labor market and about 9% of those continue education.

The following is the percentage of graduates who are insured by employers as of December 31, 2018, and November 2019. By field of study, employees who studied medicine (65.4%) was the largest, followed by engineering (49.7%), society (42.4%), nature science (34.7%), humanities (30.9%), education (29.8%), and art and sport (26.5%). It assumes that the employment status has been stable for at least one year if an employee is insured by the employer as of both survey periods. The result shows that about 80 out of 100 graduates of the medical field was into employer-sponsored insurance in the same year of graduation, and about 65 out of 100 graduates still maintained insurance status of the following year. These results indicate that entering the labor market after graduating from the medical sector is favorable to graduates, considering the small proportion of graduates (7.4%) At the same time, it is likely that they have steady jobs that employment status last more than a year.

As well as medicine, the percentage of employees who are insured by employers is also high in the field of engineering and sociology. The result presents that about 40-50% of graduates last their insurance for at least a year. On the other hand, the employees who graduated in the field of education have the lowest rate of insurance by employers. And there is wide variation among sub-fields. For example, the proportion of employees who are insured by employers is 66% in early childhood education, but 26.5% in secondary education. In particular, it can be assumed that the graduates who studied the field of secondary education had a difficult time entering the labor market, considering the fact that the acceptance rate of appointment exam for teachers is only 11.8% in 2019.

**[Table 1] Employer-sponsored health insurance status, by field of study**

Field of study	Graduates		of who continue education after graduation (enrollment rate)	Proportion of employees who are insured by employers		of who lost their insurance.			
	Number	%	%	Dec31.2018	Nov.2019	1/4	2/4	3/4	4/4
Humanities	39,655	12.3	7.8	40.9	30.9	11.2	16.3	22.7	24.6
Linguistic-Literature	24,767	7.7	4.4	43.6	33.2	10.9	16.0	22.2	24.0
Human science	14,888	4.6	13.5	36.4	27.0	11.9	17.0	23.7	25.7
Sociology	91,213	28.2	2.5	52.9	42.4	8.9	13.2	18.2	19.8
Business-Economics	55,038	17.0	2.0	54.6	44.5	8.0	12.2	17.1	18.6
Law	4,968	1.5	3.4	44.4	35.0	10.1	14.5	19.5	21.1
Social science	31,207	9.6	3.4	51.2	40.0	10.4	14.9	20.2	21.8
Engineering	79,280	24.5	9.1	58.6	49.7	6.9	10.3	14.0	15.3

Field of study	Graduates		of who continue education after graduation (enrollment rate)	Proportion of employees who are insured by employers		of who lost their insurance.			
	Number	%	%	Dec31.2018	Nov.2019	1/4	2/4	3/4	4/4
Construction	7,225	2.2	5.7	62.5	52.9	5.9	9.7	13.8	15.4
Civil-Urban	5,049	1.6	8.3	56.6	46.7	7.6	11.8	16.1	17.5
Traffic-transporting	3,908	1.2	9.3	58.5	46.2	9.5	14.8	20.3	21.0
Mechanic-Metal	10,774	3.3	9.5	59.4	51.3	6.5	9.3	12.5	13.6
Electric-electronics	13,603	4.2	9.7	57.7	50.0	6.4	9.2	12.1	13.2
Energy	2,634	.8	13.5	55.8	44.1	9.3	14.3	19.5	21.0
Material	5,796	1.8	16.8	51.7	43.8	7.6	10.4	14.1	15.4
Computer-Communication	18,285	5.6	6.5	60.4	51.0	6.9	10.3	14.1	15.5
Industrial	3,464	1.1	5.5	63.8	54.3	6.6	10.2	13.6	14.8
Chemical	4,887	1.5	14.9	54.5	46.8	6.5	9.0	12.9	14.1
Others	3,655	1.1	7.0	60.1	50.8	7.0	10.0	14.1	15.4
Natural science	38,118	11.8	15.7	45.1	34.7	11.2	15.8	21.6	23.1
Agriculture-Fishery	1,484	.5	9.1	46.0	34.0	14.2	18.2	25.0	26.1
Biology-Chemistry-Environment	18,791	5.8	19.7	42.5	32.9	11.4	15.7	21.1	22.5
Domestic science	9,647	3.0	8.4	51.7	37.7	11.6	17.7	24.9	27.1
Mathmatics-Physics-Astronomy-Geography	8,196	2.5	16.5	43.3	35.5	9.5	13.2	17.1	18.0
Education	15,980	4.9	3.5	38.2	29.8	15.2	17.6	21.2	22.1
Pedagogy	1,410	.4	7.9	39.4	29.7	13.7	17.6	22.8	24.6
Early childhood education	2,832	.9	1.2	66.0	51.7	17.2	18.8	20.9	21.6
Special education	2,208	.7	3.0	48.5	37.8	14.9	17.3	20.8	22.1
Primary education	266	.1	1.9	58.6	50.8	10.3	11.5	13.5	13.5
Secondary education	9,264	2.9	3.6	26.5	20.6	14.6	17.1	21.6	22.6

Field of study	Graduates		of who continue education after graduation (enrollment rate)	Proportion of employees who are insured by employers		of who lost their insurance.			
	Number	%	%	Dec31.2018	Nov.2019	1/4	2/4	3/4	4/4
Medical science	23,904	7.4	2.2	79.4	65.4	7.4	11.5	16.0	17.7
Medical	3,673	1.1	0.9	87.3	72.6	11.3	13.6	16.0	16.9
Nursery	9,971	3.1	0.2	84.4	72.5	4.6	8.1	12.6	14.1
Medicine	1,944	.6	8.9	73.7	51.2	11.8	20.5	26.9	30.6
Treatment health	8,316	2.6	3.6	71.3	57.0	8.2	12.9	18.3	20.1
Art and sport	35,538	11.0	5.8	39.1	26.5	15.2	21.8	30.0	32.3
Design	10,706	3.3	2.4	49.1	33.6	12.7	20.3	29.1	31.4
applied art	5,234	1.6	3.2	41.7	27.6	15.4	21.5	31.4	33.8
Dance:physical training	8,567	2.6	4.6	43.6	32.1	14.1	18.9	24.5	26.4
Art-craft	3,387	1.0	12.7	28.3	17.4	18.9	25.8	35.7	38.4
Play-film	1,810	.6	2.8	29.9	15.9	23.2	33.4	42.6	46.9
Music	5,834	1.8	13.1	20.8	12.5	22.2	29.1	38.3	39.8

※ Graduates = Number of graduates by field of study/ Number of total graduates

※ Enrollment rate = Number of graduates who continue education/ Number of graduates by field of study

※ Proportion of employees who are insured by employers = Employees who have a employer-sponsored health insurance/ Number of graduates by field of study

※ Proportion of employees who lost their insurance. = Employees who lost their employer-sponsored insurance/Employees who have a employer-sponsored health insurance

The percentage of employees who lost their employer-sponsored insurance 6 months after 31 December 2018, the field of engineering was the lowest at 10.3%, followed by medicine (11.5%), sociology (13.2%), nature science (15.8%), humanities (16.3%), education (17.6%), and art and sport (21.8%). 9 months after, the rate is still low in engineering(14.0%), followed by, medicine (16.0%), sociology(18.2%), education (21.2%), nature science(21.6%), humanities (22.7%), and art and sport (30.0 %). Lastly, a year after Dec 2018, the proportion of employees who have lost their employer-sponsored insurance was the highest in engineering (15.3%), followed by medicine (17.7%), sociology (19.8%), education (22.1%), nature science (23.1%), humanities (24.6%), and arts and sport(32.3%). Overall, many employees lost their insurance from six to nine months after graduation.

[Table 2] Starting salary of employees who have employer-sponsored insurance, by field of study

	less than 1,000,000 won	over 1,000,000 below 2,000,000 won	over 2,000,000 below 3,000,000 won	over 3,000,000 below 4,000,000 won	more than 4,000,000 won
total	3.0	44.8	34.4	13.0	4.8
Humanities	4.4	49.9	32.6	9.9	3.1
Sociology	3.9	48.6	32.0	10.6	5.0
Education	3.2	60.6	30.1	5.2	0.9
Engineering	1.8	33.6	39.1	19.0	6.5
Natural Science	3.3	49.8	34.1	9.9	2.9
Medical Science	1.0	33.8	40.3	18.3	6.6
Arts and Sports	5.9	67.3	21.8	3.5	1.5

※ Number of cases : 272,352(Dec 31, 2018)

Table 2 presents the starting salary of employees who have employer-sponsored insurance by field of study. A large proportion of employees who studied arts and sports earn between 2 million won and 3 million won(73.2%) while about a quarter of employees who studied engineering and medical science earn between 3 million won and 4 million won(25.5% and 24.9%, respectively). This is about five times that of the proportion of arts and sports(5.0%). The engineering and medical graduated-employees who earn between 2 and 3 million won also account for about 40% which shows their relative high-income level. It seems to be in part related to the fact that the proportion of employees who lost their insurance as of November 2019 was in 10s at engineering and medical, the 30s of arts and sports, and 20s at humanities and natural science.

As seen above, through the proportion of employees who have lost their employer-sponsored insurance and the level of starting salary, information on the employment situation after graduating from schools can be verified indirectly. It is necessary to analyze the status of insurance by field of study and industry to find out a more detailed labor market environment. However, since there is a limitation that the data on the employer-sponsored insurance is confidential.

Table 3 shows the proportion of employees who have employer-sponsored insurance by field of study and industry. The graduates who studied humanities tend to find their jobs in wholesale and retail sectors (14.7%), manufacturing industries (12.9%), and education (9.7%), while graduates in sociology were employed in manufacturing (13.4%), health and social welfare (11.6%), and wholesale

and retail (11.23%). For engineering graduates, the proportion of the field they work in was high in manufacturing (40.1%), information and communication (10.8%), and science and technology (10.4%). For natural science graduates, the proportion of the field they work in was high in manufacturing (24.7%), hotels and food (14.2%), and science and technology (11.8%). In short, the proportion of employment in manufacturing was high in all fields of study, especially for the graduates who studied engineering(40.1%). For graduates who studied education, the proportion of the field they work in was high in the education-related industry (31.8%), health and social welfare (23.3%), and public administration (10.8%), while most graduates who studied medical science find their jobs in the health and social welfare industry(74.2%), indicating a high degree of consistency between job and field of study.

**[Table3]** Employees who have employer-sponsored insurance, by field of study and industry

Field	Humanities			Sociology			Engineering				Natural Science			Education	Medical science	Arts and Sports
	Linguistics·Literature	Human Science		Business·Economics	Social Science		Mechanics·Metal	Electronics·Electric	Computer·Communication		Biology·Chemistry·Environment	Domestic science				
A.Agricultural and Forestry Fisheries	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.0	1.2	1.7	0.2	0.0	0.0	0.1
B.Mining	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
C.Manufacturing	12.9	13.8	11.1	13.4	16.9	7.9	40.1	61.1	51.2	23.5	24.7	33.7	19.7	2.0	3.6	15.1
D.Electricity and gas industry	0.5	0.5	0.4	0.4	0.5	0.3	1.8	1.3	5.3	0.7	0.4	0.8	0.1	0.1	0.0	0.1
E.Water, sewage, and waste	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.3	0.4	0.1	0.6	1.2	0.1	0.1	0.0	0.1
F.Construction Industry	1.3	1.3	1.2	1.8	2.0	1.5	7.1	3.3	6.4	2.6	2.1	3.1	0.9	0.3	0.6	4.3
G.Wholesale and Retail	14.7	16.2	11.8	11.2	14.0	7.1	7.8	8.5	6.2	8.9	10.5	8.5	12.9	2.0	2.9	15.6
H.Transportation and storage	5.1	5.9	3.3	4.3	5.9	1.8	2.7	1.9	2.7	1.4	1.3	1.1	0.9	0.6	0.2	1.1
I.Hotel and Restaurant	5.4	5.5	5.1	5.6	7.5	2.8	1.5	1.3	1.3	1.9	14.2	2.4	30.8	1.1	0.6	4.8

Field	Humanities			Sociology			Engineering				Natural Science			Education	Medical science	Arts and Sports
	Linguistics-Literature	Human Science		Business-Economics	Social Science		Mechanics-Metal	Electronics-Electric	Computer-Communication		Biology-Chemistry-Environment	Domestic science				
J.Information and Communication	9.2	9.2	9.2	5.7	6.1	5.2	10.8	1.6	5.5	36.5	3.6	2.1	2.1	1.3	0.4	9.7
K.Finance and Insurance	5.6	6.1	4.5	7.8	10.1	4.0	1.5	1.0	0.7	3.1	4.1	2.2	1.4	0.9	0.7	0.7
L.Real Estate	1.1	1.1	1.0	1.5	1.8	1.0	0.8	0.3	0.7	0.4	0.9	0.6	1.2	0.3	0.4	0.8
M.Professional, scientific and technical activities	7.3	7.1	7.7	8.1	9.7	4.9	10.4	5.5	6.8	5.4	11.8	18.2	5.5	1.0	1.3	8.8
N.Business and Renting	9.0	9.4	8.2	8.2	8.5	7.8	4.6	4.0	5.9	5.4	5.7	5.1	6.4	1.2	0.9	8.2
O.Public administration	8.2	6.8	11.2	8.9	5.3	14.0	4.8	3.6	3.0	4.0	6.5	9.5	2.6	10.8	3.1	3.7
P.Education	9.7	8.7	11.7	5.0	3.7	6.9	1.9	1.2	1.3	2.8	4.8	4.1	5.0	31.8	9.3	7.5
Q.Health and social welfare	3.5	2.8	5.1	11.6	2.8	26.6	0.8	0.2	0.5	1.0	3.5	1.9	5.8	23.3	74.2	4.4
R.Arts, Sports, and Leisure	2.3	1.8	3.2	1.5	1.9	0.9	0.4	0.3	0.4	0.4	1.0	0.9	1.1	0.5	0.2	4.3
S.Association, Repair, Personal service.	2.3	2.0	2.9	2.2	1.4	3.7	1.3	3.0	0.9	1.0	1.7	1.8	1.7	1.2	0.8	8.6

※ Standard Industrial Classification of Korea  
 ※ Number of cases : 272,352 (person) (Dec.31,2018)

Table 4 presents the status of health insurance loss by the field of industry. By field, a large number of university graduates were employed in manufacturing (19.8%), health and social welfare services (17.0%), and wholesale and retail (9.0%). On the other hand, as of the 3 months after December 31, 2018, the number of health insurance loss was in art, sports, and leisure (21.1%), followed by hotel business and restaurant (17.7%), education (17.5%), and business and renting (16.5%). In short, university graduates employed in the arts, sports, and leisure industries seem to have lost their employer-sponsored insurance in three months after December 2018. Six months later December 2018,

the result was still the highest in art, sports, leisure (28.3%), followed by hotel and restaurant (26.9%), business and rent (24.1%), and education (21.3%).

It maintained similar patterns in 9 months and 11 months later. In particular, graduates who were employed in the hotel and restaurant business (40.8%) and arts, sports, and leisure (38.9%) industries were found to have lost their insurance about one year after graduation. On the other hand, public administration (6.9%) showed the lowest rate of insurance loss, which showed a noticeable difference from other industries. The insurance loss rate also was low in the electricity and gas industries (12.8%), finance and insurance (13.5%), and water, sewage, and waste (14.8%).

**[Table 4]** Employees who have lost their employer-sponsored insurance, by field of industry

Field	Number of cases		Proportion of insurance loss			
	Dec 31. 2018.	%	1/4	2/4	3/4	4/4
A.Agricultural and Forestry Fisheries	488	0.2	9.0	14.1	21.3	23.2
B.Mining	47	0.0	8.5	12.8	19.1	19.1
C.Manufacturing	53,838	19.8	6.2	10.3	14.9	16.4
D.Electricity and gas industry	1,905	0.7	9.3	11.6	12.6	12.8
E.Water, sewage, and waste	581	0.2	5.3	8.4	13.4	14.8
F.Construction Industry	8,812	3.2	8.9	14.6	20.7	22.6
G.Wholesale and Retail	24,570	9.0	11.1	17.9	25.7	28.1
H.Transportation and storage	6,818	2.5	8.6	13.2	17.6	19.0
I.Hotel and Restaurant	11,162	4.1	17.7	26.9	37.7	40.8
J.Information and Communication	17,615	6.5	8.2	13.1	18.9	20.7
K.Finance and Insurance	9,272	3.4	7.4	9.8	12.4	13.5
L.Real Estate	2,488	0.9	9.3	17.2	24.2	26.2
M.Professional, scientific and technical activities	20,727	7.6	11.7	16.8	22.6	24.4
N.Business and Renting	14,958	5.5	16.5	24.1	32.1	34.3
O.Public administration	17,057	6.3	4.2	5.3	6.5	6.9
P.Education	18,852	6.9	17.5	21.3	27.5	28.9

Field	Number of cases		Proportion of insurance loss			
	Dec 31. 2018.	%	1/4	2/4	3/4	4/4
Q.Health and social welfare	46,274	17.0	8.5	13.1	18.4	20.2
R.Arts, Sports, and Leisure	3,263	1.2	21.1	28.3	36.3	38.9
S.Association, Repair, Personal service.	6,038	2.2	15.7	20.9	28.3	30.9

※ Standard Industrial Classification of Korea

※ Number of cases : 272,352 (person)(Dec.31, 2018)

※ Proportion of insurance loss = Employees who have lost their employer-sponsored insurance / Employees who have employer-sponsored insurance.

※ 1/4(Mar.2019), 2/4(June.2019), 3/4(Sep.2019), 4/4(Nov.2019)

However, it is necessary to pay attention to the interpretation of the result because this analysis has assumed that employment status has been consistent during 3-, 6-, 9- and 11-months. In other words, a person who has still insurance as of November 2019 was assumed that he/she has been employed at the same workplace at least for a year. However, there is a possibility that the workplace of the employees at each point of the survey period may not be the same. In other words, the employee may have lost their insurance between the survey periods and then re-employed after that. Despite its limitations, it is also necessary to consider the possibility that the employer did not report the status of their employee's insurance properly. And the graduates who were employed after January 1, 2019, were not included in this analysis. Nevertheless, it can be useful data that provides an overview of young people's entry into the labor market and the sustainability of employment after graduation.

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