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Analysis of the relationship between academic achievements and employment status of graduates majoring in statistics of China

Qi Han[1], Zezhong Yang[2*], Yiliang Zhao[3], Haiyin Zhou[4]
[1-3] The School of Mathematics and Statistics, Shandong Normal University, Jinan, Shandong, China
Faculty of Education, Shandong Normal University, Ji'nan. China

Abstract
With the method of survival analysis, the relationship between the curriculum scores and employment status of 27 students of the Statistics major in a normal university was studied. The results showed that all the six scores of courses had little effect on employment. Therefore, in order to promote students to get a job as soon as possible, it is suggested to reform the curricula of Statistics in normal university comprehensively, so that through the study of university courses, students' employment skills can be improved and students can be employed smoothly.

Keywords: statistics, normal universities, employment, survival analysis

1. Introduction
Statistics is a science of data processing methodology. As an important means of information processing, this major has shown strong vitality in the social environment which has continuously developing new technologies and methods. Its use covers all areas of social sciences and natural sciences, so promoting students to get a good job in order to serve the society is an important goal of studying the employment status of graduates in statistics (Lin, 2006; Jia & Li, 2017) [6, 4]. However, due to the influence of the company's preference for famous schools, single employment direction, and similar textbooks in universities, the employment forms of graduates of statistics majors are very serious. Therefore, assisting the normal universities' graduates with successful employment has become a top priority (Liu & Li, 2016) [9].

2. Literature review
In order to improve the employment situation of graduates of statistics in normal colleges, many people have started from many aspects and made many studies. For example, Huang Yu suggested that the normal universities are different from general comprehensive universities. It is necessary to improve the setting and arrangement of teacher education courses in normal universities, and help non-teacher students who want to engage in the teacher education industry in the future to make a good knowledge reserve. Wang Xi proposed that statistics is a highly applied specialty. It is necessary to strengthen practical teaching and set up practical teaching in the statistical professional training program to improve students' ability of statistical analysis, statistical calculation and data mining. Zhao Tianming believed that not only professional courses have an effect on student employment, but other public courses, such as Innovative Entrepreneurship courses, Ideological and Political courses, Sports, and Employment Guidance courses, are also beneficial to the personal development of students (Huang & Yan, 2015; Wang, 2019; Zhao, 2018; Liu & Lu, 2018; Liu & Sun & Dai & Liu, 2018; Yu & Lai, 2019) [3, 10, 11, 7, 8, 9].

It is undeniable that the above researches provide a good idea. However, it is obviously not comprehensive. For example, there is no research on the relationship between students' curricula grades and their employment status in the current study. Actually, this kind of research is important for that it not only let teachers and researchers clearly understand the influence factors of the employment but also help the normal universities to arrange the curricula and class schedules according to the priority so as to correctly guide the students to get a job.

3. Method
3.1 Sample
A total of 48 graduates in Statistics at the School of Mathematics and Statistics of a Normal University in China were selected as the initial sample. After that, the students who went to study postgraduate degree and went abroad were removed, and the remaining 27 students were sampled.

3.2 Method
Firstly, the aforementioned academic performance and the Morality education scores are integrated into six kinds of grades of professional compulsory courses, professional optional courses, other compulsory courses, English, Sports and Morality education performance. Secondly, we analyzed the relationship between these six categories of results and their employment situation by the method of survival analysis.

3.3 Data Analysis
With the help of SPSS software, the survival analysis of the above six variables were carried out (Deng, 2016; Li, 2017) [1, 5].

4. Results
4.1 The Impact of Academic Achievement on Employment
Using the Cox function to analyze the six variables and the employment situation, the result is as shown in table 1.

Table 1: Regression of six variables

Variable in the equation						
	B	SE	Wald	df	Sig.	Exp(B)
professional compulsory courses	-.045	.112	.159	1	.690	.956
professional optional courses	-.156	.200	.607	1	.436	.856
other compulsory courses	.270	.390	.479	1	.489	1.310
English	.217	.267	.663	1	.416	1.243
Sports	.230	.141	2.669	1	.102	1.259
other compulsory courses	-.110	.130	.723	1	.395	.896

It can be seen from the table 1 that the absolute value of the coefficient B of all variables was less than 1, which indicated that the above six variables had little effect on the employment status. The companion probability of all variables is greater than 0.05, indicating that the above six variables have no significant impact on employment.

4.2 The impact of differences in grades on employment

Each of the above six kinds of grades was divided into four levels of the excellent, good, medium and poor, which were represented by 1, 2, 3, and 4 respectively. Then we analyzed the impact of different levels on employment.

4.2.1 The impact of different levels of professional compulsory courses on employment

Using the K-M method to calculate the effect of the professional compulsory courses on the employment situation, and the results obtained are as shown in table 2.

Table 2: Log rank test for grade 1 (professional compulsory courses)

Overall comparison			
	chi-square	**df**	**Sig.**
Log Rank (Mantel-Cox)	3.193	3	.363

It can be seen from table 2 that the companion probability is 0.363, which was greater than 0.05, which indicated that the different grades of professional compulsory courses were insignificant on employment status.

4.2.2 The Impact of Different Levels of Professional Optional Courses on Employment

Using the K-M method to calculate the effect of the professional optional courses on the employment situation, and the results obtained are as shown in table 3.

Table 3: Log rank test for grade 2 (professional optional courses)

Overall comparison			
	chi-square	**df**	**Sig.**
Log Rank (Mantel-Cox)	.750	2	.687

It can be seen from table 3 that the companion probability is 0.687, which was greater than 0.05, which indicated that the different grades of professional optional courses were insignificant on employment status.

4.2.3 The Impact of Different Levels of Other Compulsory Courses on Employment

Using the K-M method to calculate the effect of the other compulsory courses on the employment situation, and the results obtained are as shown in table 4.

Table 4: Log rank test for grade 3 (other compulsory courses)

Overall comparison			
	chi-square	**df**	**Sig.**
Log Rank (Mantel-Cox)	.565	1	.452

It can be seen from table 4 that the companion probability is 0.452, which was greater than 0.05, which indicated that the different grades of other compulsory courses were insignificant on employment status.

4.2.4 The Impact of Different Levels of English on Employment

Using the K-M method to calculate the effect of English scores on employment status, and the results obtained are as shown in table 5.

Table 5: Log rank test for grade 4 (English)

Overall comparison			
	chi-square	**df**	**Sig.**
Log Rank (Mantel-Cox)	1.019	2	.601

It can be seen from table 5 that the companion probability is 0.601, which was greater than 0.05, which indicated that the different grades of English was insignificant on employment status.

4.2.5 The Impact of Different Levels of Sports on Employment

Using the K-M method to calculate the effect of sports scores on employment status, and the results obtained are as shown in table 6.

Table 6: Log rank test for grade 5 (sports)

Overall comparison			
	chi-square	**df**	**Sig.**
Log Rank (Mantel-Cox)	1.678	2	.432

It can be seen from table 6 that the companion probability is 0.432, which was greater than 0.05, which indicated that the different grades of sports was insignificant on employment status.

4.2.6 The Impact of Different Levels of Morality Education Performance on Employment

Using the K-M method to calculate the effect of morality education performance scores on employment status, and the results obtained are as shown in table 7.

Table 7: Log rank test of grade 6 (Morality Education Performance)

Overall comparison			
	chi-square	**df**	**Sig.**
Log Rank (Mantel-Cox)	1.837	2	.399

It can be seen from table 7 that the companion probability is 0.399, which was greater than 0.05, which indicated that the different grades of morality education performance was insignificant on employment status.

5. Discussion

From the results of the above Cox regression calculation, it can be seen that the above courses have little impact on the employment situation, and there is no significant regression relationship with employment, which indicates that whether students are employed has little relationship with their academic performance.

From the results calculated by the above K-M method, it can be seen that the companion probability of the above six courses is greater than 0.05, indicating that the different levels of the above six courses have little effect on the

employment situation.

6. Conclusion

From the above analysis, it is known that the above courses setting and grades have little impact on the employment situation. It is recommended that it is necessary to carry out targeted arrangements of courses and class hours to enhance the role of these courses in employment, improve teaching methods, help students to better receive professional knowledge, and acquire professional skills to better adapt to employment.

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