

# Analysis of Attendance Duration -- A Case Study of University of Taipei

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**Abstract**—The purpose of this study is to use survival analysis method to discuss the factors that affect student attendance duration. In this study, 182 dropouts, most of the suspension of the school occurred in the freshman year. We analysis the student backgrounds of suspension of study, such as their "college", "school loan", "type of higher school", "indigenous peoples", those reasons are more than 20%. Use Kaplan-Meier curve, we find that the attendance duration will be significantly different by the different background factors, such as "college", "school loan", "early alert", and "half of the credits failed".

**Keywords**—dropouts, attendance duration, Kaplan-Meier curve

## I. INTRODUCTION

Many works of literature have explored the factors of dropouts. We analyze the factors of dropouts by the data of the student system, we hope that will have to achieve preventive effects through pre-analysis. Use the data of the student system to find out the factors for students to drop out of school. This study is to use survival analysis method to discuss attendance duration and explore factors that affect attendance duration. Analysis by 182 dropouts, the question in this paper is the analysis of the attendance duration of the student at the University of Taipei by the student's background variables.

## II. LITERATURE

### A. Definition of Attendance Duration

UNESCO(1972) define the dropout is that students in the education stage leave school before they complete their studies. Tinto (1993) defined that students leave school, regardless of the reason and traits, all students who do not continue to attend the original school are dropouts. In this study, the attendance duration refers to the time from enrollment to leave the school.

### B. Status of Dropouts in Taiwan

In Taiwan, the proportion of dropouts is increasing year by year. And found that the number of male students who dropped out of school exceeded the number of females who dropped out of school.

### C. Factors on Dropouts

Tinto (1993) said that female of colleges have a lower dropout rate. Leppel (2001) said that the dropout ratios of male and female in different departments are different. But Astin (1964) found that females have a higher probability of dropouts than male. Bean and Metzner (1985) pointed out that the student's race is a factor that affects college students' dropouts. Xiao Yiwei (2005) found that most of the Aboriginal students in the universities drop out of school because of the family economy. Tinto (1993) found that three out of every 10 college students who had dropped out of school were drop out in the first year of college.

### D. Survival Analysis

Qiu Jingren (2004) used survival analysis to explore the employment period in the agricultural sector. Chen Jiahao (2003) used the survival analysis to discuss the credit risk of auto loans and used different variables such as age, model, and occupation to explore the survival time of their loans. We used survival analysis to explore the influences of those variables with attendance duration.

## III. DATA ANALYSIS FRAMEWORK

The data in this study is from the student system in 2012 that includes the student's time of retreat, gender, type of high school graduation, place of residence, school loan, accommodation, etc.. The background variables in this study are including student gender, graduation high school type, residential area, school loan, accommodation situation, study achievement, admission route, early alert record, flunk out record, education course. The attendance duration is calculated by the days of students stay in the school before they leave school and is based on the number of years.

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The Kaplan-Meier curve and Log-Rank Test were used to explore the effect of background variables on attendance duration.

#### IV. EMPIRICAL DATA ANALYSIS

The question in this paper is the analysis of the attendance duration of the student at the University of Taipei by the student's background variables.

##### A. Factors for the Students of Drop Out of School

We find that

(1) The student of the College of Science has the highest percentage of dropouts. It is 21.62%.

(2) The student with school loan has the highest percentage of dropouts. It is 20.61%.

(3) Students who graduated from private higher vocational education have the highest percentage of dropouts. It is 30.51%.

(4) Indigenous students have the highest percentage of dropouts. It is 24.36%.

##### B. Analysis of Attendance Duration

The Kaplan-Meier curve results show in Figure IV-1 to Figure IV-4.

(1) The proportion of students with attendance duration of less than one year is the highest. It is 47.3%

(2) In Figure IV-1, the attendance duration of students has significant differences between different colleges. (by Log-Rank Test,  $p$ -value=0.004). By K-M curve and Log-Rank Test we find that the attendance duration of the students of the college of kinesiology is longer than the other colleges. It can be seen that the college has a significant impact on the student's attendance duration.

(3) In Figure IV-2, the attendance duration of students is a significant difference in whether the student has a school loan. (by Log-Rank Test,  $p$ -value=0.001). By K-M curve and Log-Rank Test, we find that the attendance duration of the students who have school loan is longer than the others. It can be seen that the school loan has a significant impact on the student's attendance duration.

(4) In Figure IV-3, the attendance duration of students is significantly different from the factors of "early alert". (by Log-Rank Test,  $p$ -value=0.000). By K-M curve and Log-Rank Test, we find that the attendance duration of the students who got early alert is longer than the others. Displaying a student's early system can increase the amount of time a student stays in school.

(5) In Figure IV-4, the attendance duration of students is significantly different by the factors of "half of the credits failed". (by Log-Rank Test,  $p$ -value=0.000). Warnings from student grade can slow down their dropouts.

#### ACKNOWLEDGMENT

In the University of Taipei, most of the suspensions occurred in the freshman year. By the K-M curve and Log-Rank Test, there is enough statistical evidence to infer that

variables, such as degree, school loan, early alert, and half of the credit failed, the attendance duration is different. The attendance duration of the students of the college of kinesiology is longer than the other colleges. The attendance duration of the students who have school loans is longer than the others. The attendance duration of the students who got early alert is longer than the others. Warnings from student grades can slow down their dropouts.

#### Appendix

Figure IV-1

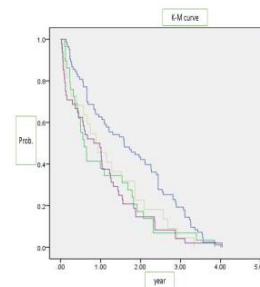


Figure IV-2

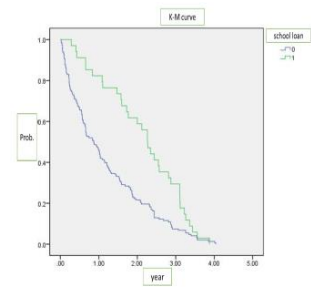


Figure IV-3

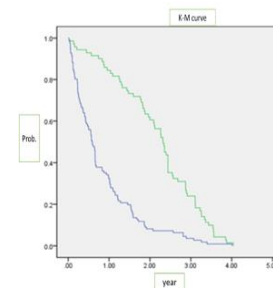
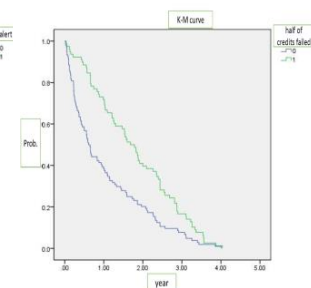


Figure IV-4



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