



An Analysis of Factors Influencing Atatürk University Students' Faculty Preference Goals

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Abstract: The present study aims to determine the goals and priorities considered by students enrolled at Atatürk University when making their choices for faculty or associate school. In addition to this, identification of the role of student profiles in these decisions was targeted. Students' faculty/associate school preference reasons were identified via the Fuzzy Pair Wise Comparison method, and the results were analysed using the Tobit model. "Having a reputable profession" was determined as the most significant factor in their preference of faculty. Students of Fine Arts Faculty and Nursing School desire to have a profession of any kind less than the other students in other faculties do. Students of Kazım Karabekir Faculty of Education attach more importance to having the desired profession than the others do. Students of Agriculture Faculty, Erzurum Vocational School, Fine Arts Faculty and Nursing School give more importance to having a prestigious job compared to the students at other faculties. Students of Faculty of Religious Studies give less importance to having a high-salary job than the others do. Agriculture Faculty students have less desire to discover oneself, the universe and science compared to the others.

Keywords: Faculty preference, Fuzzy Pairwise Comparison, Tobit model

Atatürk Üniversitesi Öğrencilerinin Fakülte Tercih Amaçlarını Etkileyen Faktörlerin Analizi

Öz: İnsanoğlu hayatı boyunca çeşitli alternatifler arasından seçimler yaparak kararlar verir. Bu çalışmanın amacı, fakülte/yüksek okul tercihini yapan öğrencilerin, hangi hedef ve öncelikleri dikkate aldığını belirlemek ve bu kararda etkili olan öğrenci özelliklerini ortaya koymaktır. Bu amaçla, Fuzzy Pair Wise Comparison yöntemi kullanılmış ve elde edilen veriler Tobit analizine tabi tutulmuştur. "Saygın meslek sahibi olmak" öğrencilerin fakülte tercihlerindeki en önemli hedef olarak belirlenmiştir. Güzel Sanatlar Fakültesi ve Hemşirelik Yüksek Okulu öğrencileri diğer fakülte öğrencilerine göre herhangi bir meslek sahibi olmayı daha az istemektedirler. Kazım Karabekir Eğitim Fakültesi öğrencileri diğer öğrencilere göre istediği mesleğe sahip olmaya daha fazla önem vermektedir. Ziraat Fakültesi, Erzurum Meslek Yüksek Okulu, Güzel Sanatlar Fakültesi ve Hemşirelik Yüksek Okulu öğrencileri diğer öğrencilere nazaran saygın bir meslek sahibi olmaya daha fazla önem vermektedirler. İlahiyat fakültesi öğrencileri diğer öğrencilere göre yüksek gelirli iş sahibi olmaya daha az önem vermektedirler. Ziraat Fakültesi öğrencileri kendini, evreni ve bilimi keşfetmeye diğerlerinden daha az önem vermektedirler.

Anahtar Kelimeler: Fakülte tercihi, Bulanık Eşli Karşılaştırma, Tobit modeli

1. Introduction

Individuals make a lot of decisions regarding school, university, work, city of residence, spouse and many others throughout their lives. The

individual makes a choice out of many alternatives taking into consideration certain criteria and alternatives.

The individual's needs, abilities, personal

characteristics and areas of interest are closely related to the choices made throughout life. Especially, the profession that the individual aims to carry out in the future influences many areas of life and shapes the individual's life (Tanilkan et al. 2002). When choosing a profession, the individual chooses a certain work environment and a lifestyle for oneself. At the same time, the individual will be happy and efficient to the extent that s/he makes a preference in line with his/her ability and desires (Razon 2003). This preference shows that the individual's present knowledge repertoire, interest in the profession, values and future satisfaction as well as personal characteristics are influential in this decision (Tokar et al.1998). On the other hand, factors like socioeconomic status and family also play a significant role though they may differ across countries and cultures (Brown 2002).

The most critical stage in profession selection is the selection of faculties. The individual should decide on a faculty and the profession s/he wants to lead. S/he should carefully analyze whether this aim can be reached after graduation or not. When making a preference, students should rank their targets in the order of importance and direct their studies in line with the primary goal (Tumer et al. 2011). The individual's perceptions have a significant role in their career preferences. Some students perceive the "luck" factor to be determining their life and leave the career choice to chance without making serious planning and comprehensive research on professions (Paa and McWhirter 2000). Students who will shape their lives should make preferences in line with their knowledge, skills and goals instead of leaving it to chance.

In 2008, 1.646.376 people participated in the University Entrance Exam (UEE). Of these, 16.11% gained the right to be placed in an undergraduate program, 8.58% in an associate program and 20% in the Open Faculty. About 155.000 of the students who enrolled in a university in 2007 retook the exam in 2008 for various reasons (Anonymous 2009). The

university, the location of the city and displeasure with the life conditions may be considered among the reasons for this. Apart from this, the fact that the department is not appropriate for one's talents and characteristics, making a preference influenced by the family, failure to find the expected qualities in the department may also lead students to retake UEE: Students who retake the exam are faced with exam anxiety, stress and many other emotional problems. In addition to this, they have to pay private course fees and buy resource books in order to get prepared to the university exam. In order to minimize the physical and emotional loss of university candidates, it is very important to decide on the faculty they want to study at.

The present study aims to determine the goals and priorities considered by students enrolled at Atatürk University when making their choices for faculty or associate school. In addition to this, identification of the role of student profiles in these decisions was targeted.

2. Material and Methods

The data were acquired from face-to-face surveys conducted in the education year of 2008-2009 at Ataturk University. Survey number was set to be 379 based on Proportional Sampling Method (in 95% confidence interval and 5% mean deviation) (Newbold 1995).

$$n = \frac{N * p * (1 - p)}{(N - 1) * \sigma_p^2 + p * (1 - p)}$$

In the sampling Formula, n:Sampling size, N:Population size (30067), σ_p :Confidence interval of probability level, r:Mean deviation (%5), p:Estimating rate (0.5 for maximum sample size). 379 questionnaires were distributed to the faculties, associate schools and vocational school in proportion with student numbers (Table 1).

Table 1. Distribution of survey according to faculty, collage and vocational high school
Çizelge 1. Anket sayılarının fakülte, yüksek oklu ve meslek yüksek okullarına göre dağılımı

	Survey number
Faculty	317
Collage	20
Vocational high school	42
University	379

The Fuzzy Pair-Wise Comparison Method

Partial membership is a central concept in fuzzy set theory (Zadeh 1965). Assuming partial membership, the fuzzy set is mapped over a [0, 1] closed interval. Thus, an element is assigned a value between 0 and 1, representing the partial membership the element has in the fuzzy set (Van kooten *et al.*, 2001). Thus, fuzzy set theory is based on some-what vague preferences. A person don't have to choose between two aim which be consist of 0 and 1. A unit line segment as illustrated in Fig. 1 was used. Goal A and B are located at opposite ends of the unit line. Respondents were asked to mark an "x" on the line to indicate preference. In comparing the goal, whichever had the shortest distance to the mark was preferred over the other. The degree of the preference of A over B, R_{AB} , was 1 minus the distance from the mark to the A, where total distance from A to B is 1. If $R_{AB} < 0.5$, B is referred to A; if $R_{AB} = 0.5$, then A was indifferent from B; likewise, if $R_{AB} > 0.5$, then A was preferred to B. In the case of absolute preference for one alternative, R_{AB} takes the value of 1 or 0.

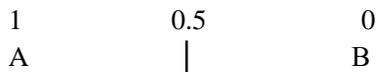


Figure 1. Fuzzy method for making pair-wise comparison between A and B

The number of pair-wise comparisons of goal, K, can be calculated as follows:

$K = n * (n - 1) / 2$ where $n =$ the number of goal.

For each paired comparison (i,j), R_{ij} ($i \neq j$) is obtained. R_{ij} values is collected from students. The measurement of the degree by which j is preferred to i was obtained as $R_{ji} = 1 - R_{ij}$. The

individual's fuzzy preference matrix R can be constructed (Van Kooten et al. 1986) as follows:

$$R_{ij} = \begin{cases} 0, & \text{if } i = j \quad \forall i, j = 1, \dots, n \\ r_{ij} & \text{if } i \neq j \quad \forall i, j = 1, \dots, n \end{cases}$$

The measure of preference, I_j , can be calculated for each information source by using student's goal matrix R . The intensity of each preference is measured separately by the following equation:

$$I_j = 1 - \left[\sum_{i=1}^n R_{ij}^2 / (n - 1) \right]^{1/2}$$

I_j has a range in the closed interval [0,1]. As the value gets closer to 1, greater intensity of preference for the particular goal has been indicated. As a result, student's goal are ranked from most to least important. The fuzzy pair-wise comparison method in ranking of goal, preference and expectations has been used by Basarır and Gillespie (2003), Basarır and Gillespie (2007), Günden and Miran (2007), Günden et al. (2008), Koyubenbe et al. (2010), İkiat Tumer et al (2010), Tumer (2011). It was assumed that the objectives effective over students' faculty preferences were "Having a higher education degree", "Having a profession of any kind", "Having a prestigious profession", "Having the desired profession", "Having a high-salary profession" and "Discovering oneself, the universe and science".

Tobit Model

The Tobit model is an econometric and biometric model proposed by James Tobin (1958) to describe the relationship between a non-negative dependent variable y_i and an independent variable x_i . The Tobit model is a well-known econometric regression model used in the presence of censored data (Tobin 1958). In

econometric research, there are frequently subjects for whom we do not observe the true response or dependent variable. For such subjects, all that is known is that the true response, if it had been observed, would have been above, (or below) some threshold. Assume that the true model is given by the following equation: $Y_i^* = \alpha + X_i^* + \varepsilon_i^*$

where Y_i^* denotes the student's faculty decision. However, an individual with an observed faculty decision and the expectations of the students from teaching staff of 1, has a true $Y_i^* \geq 1$. As a result, the observed dependent variable is given by $Y_i = Y_i^*$ for $Y_i^* < 1$ and $Y_i = 1$ for $Y_i^* \geq 1$. The actual estimated regression equation will then be $Y_i = \alpha + \beta X_i + \varepsilon_i$. Ordinary least squares (OLS) estimation of this equation will produce biased and inconsistent estimates of α and β . However, the Tobit model using maximum likelihood estimation produces consistent estimates of α and β (Tobin 1958). The Tobit model is well known in econometric

research. The purpose of this paper is to illustrate its usefulness in the analysis of measures of faculty decision and the expectations of the students from teaching staff, in certain settings. The Tobit model assumes that the distribution of the response variable, conditional on the explanatory variables is Normal, with uniform variance. In this paper, we explore the robustness of the Tobit model when these assumptions are violated.

3. Results and Discussion

The mean age of the students enrolling at Atatürk University in the 2008-2009 academic year was calculated as 21.42 years. The student's family had 3.98 children on average. Students' high school GPA was 4.05 on average and the current GPA was 2.66. The number of enrollment in private courses was 1.87 and the number of entrance in UEE was 2.24 on average. It was determined that students monthly read 2.17 extra-curricular books on average (Table 2).

Table 2. Characteristics of the students enrolling at Ataturk University

Çizelge 2. Atatürk Üniversitesine kayıtlı olan öğrencilerin özellikleri

	Mean	Std. Deviation
Age	21.42	1.984
The number of child in family	3.98	1.935
Students' high school GPA	4.05	0.645
The current GPA	2.66	0.672
The number of enrollment in private course (private course)	1.87	1.079
The number of entrance in UEE	2.24	1.039
The number of students monthly read extra-curricular books (Extra books)	2.17	2.037

It was found out that 39.52% of these students attended private courses twice and 43.01% took UEE twice. The rate of the students who made use of guidance services in university and department selection when preparing for the university entrance exam was 46.44%; the rate of those who made use of a guidance service for determining professional skills was 18.73% and the rate of those who targeted a specific profession was 91.29%. It was also found that 42.22% of the

students had a monthly family income of 1000 TL and less; the rate of those who had a monthly allowance of 200-499 TL was 38.26% and the rate of those who had a scholarship, credit, etc. of 100-199 TL was 52.24%. Of the students, 38.52% stayed at a house and 29.82% stayed at a state dormitory (Table 3). Sarıkaya and Khorshid (2009) had earlier stated that 46% of the students in their study stayed in a dormitory.

Table 3. Charecteristics of the students enrolling at Atatürk University

Çizelge 3. Atatürk Üniversitesi'ne kayıt yaptıran öğrencilerin sosyo-demografik özellikleri

		Frequency	%
Sex	Male	190	50.13
	Female	189	49.87
Graduated field from high school	Numeric field	258	68.07
	Verbal field	57	15.04
	Equal weight	56	14.78
	Another	8	2.11
The number of enrollment in private course	0	30	7.92
	1	110	29.02
	2	146	38.52
	3+	93	24.54
The number of entrance in UEE	0	6	1.58
	1	81	21.37
	2	163	43.01
	3+	129	34.04
A guidance services in university/department selection	Yes	176	46.44
	No	203	53.56
A guidance service for determining professional skills	Yes	71	18.73
	No	308	81.27
Targeted a specific profession	Yes	346	91.29
	No	33	8.71
A monthly family income	<1000	160	42.22
	1000-1999	150	39.58
	2000-4999	55	14.51
	5000+	14	3.69
A monthly allowance	0	8	2.11
	<100TL	75	19.79
	100-199	119	31.40
	200-499	145	38.26
	500+	32	8.44
A monthly scholarship, credit income, etc	0	49	12.93
	<100TL	32	8.44
	100-199	198	52.24
	200-499	80	21.11
	500+	20	5.28
Stayed	State dormitory	113	29.82
	Private dormitory	38	10.03
	Family	82	21.64
	Student house	146	38.52

Sarıkaya and Khorshid also determined the rate of those who took UEE twice as 45.9%. In the present study, it was found that 21.37% of the students took UEE once.

In a questionnaire applied to 1818 doctors in Finland, the factors related to profession selection

were listed as dealing with people (79%), variety of professional possibilities (67%), prestige of the profession (62%), high level of school success (55%) and a high salary (49%) (Hyppola et al. 1998). In order to identify faculty preferences in İnönü University Faculty of Medicine, 364

students were interviewed face to face. In the study, it was found that 75% of the students chose the faculty of medicine since it was a prestigious profession while 35.3% chose it because of its high salary (Genç et al. 2007).

Students were asked to compare the six objectives assumed to be essential in line with the Fuzzy Pairwise Comparison procedure. The Fuzzy Pairwise Comparison method was instrumental for ranking goals and measuring their weight (Tumer et al. 2011).

Students placed the highest level of significance on "Having a prestigious profession" when making faculty preferences. This was followed by "Having a high-salary profession", "Having the desired occupation", "Discovering oneself, the universe and science" and "Having a higher education degree". When making faculty preferences, students give the least amount of significance to "Having a profession of any kind" (Table 4).

Table 4. Weight of students' faculty/associate school preference aims

Çizelge 4. Öğrencilerin fakülte/yüksekokul tercih amaçlarının ağırlıkları

Aims	Mean	St. Dev	Minimum	Maximum
Having a higher education degree	0.3575	0.1772	0.1000	0.9000
Having a profession of any kind	0.3090	0.1231	0.1000	0.8735
Having the desired occupation	0.5218	0.1704	0.1191	0.9000
Having a prestigious profession	0.5254	0.1227	0.1645	0.9000
Having a high-salary profession	0.5220	0.1412	0.1851	0.9000
Discovering oneself, the universe and science	0.4633	0.1731	0.1000	0.9000

*Significant by Friedman Test for $p < 0.01$

*Kendall's $W = 0.3$

The Friedman test is used for comparing the distributions of two or more variables related to each other and test whether there is a significant difference between the distributions. In other words, whether there is a difference between the repeated measures of a sample is tested. The presence of a difference between students' faculty/associate school preferences according to the analysis results was analyzed by means of the Friedman test. As a result of the analysis, a difference was found between students' faculty/associate school preferences. Kendall's W value was determined to be 0.3. It is possible to argue that the results are poorly compatible with students.

Students' faculty/associate school preference reasons were identified by means of the Tobit model.

Faculty of Religious Studies students give more importance to "definitely studying at an associate school" in comparison with others. As students' credit income increases, the desire to

study at higher education institutes decreases. Students residing in a foundation dormitory desire to study at an associate school more than others. As the number of extra-curricular books read within the past month increases, the desire to study at higher education institutes increases. As students' current GPA increases, the desire to study at higher education institutes decreases. Students who have increased monthly stationary expenditure have less desire to study at higher education institutes (Table 5).

Students of Faculty of Fine Arts and Nursing School desire to have a profession of any kind less than other faculties. Students who have increased credit income have less desire to have an occupation of any kind. As the number of books read within the past month increases, the desire to have a profession of any kind decreases. As students' current GPA increases, the desire to have a profession of any kind increases. Students who have increased monthly stationary expenses have more desire to study at higher education institutes (Table 5).

Table 5. An analysis into the factors influencing Ataturk University students' faculty preference goals
Cizelge 5. Atatürk Üniversitesi öğrencilerinin fakülte tercih amaçlarını etkileyen faktörlerin analizi

	Having a higher education degree	Having a profession of any kind	Having the desired occupation	Having a prestigious profession	Having a high-salary profession	Discovering oneself, the universe and science
	Coefficient (Std.Err.)	Coefficient (Std.Err.)	Coefficient (Std.Err.)	Coefficient (Std.Err.)	Coefficient (Std.Err.)	Coefficient (Std.Err.)
Constant	0.5341 * (0.0440)	0.3935 * (0.0311)	0.4719 * (0.0427)	0.4658 * (0.0310)	0.4768 * (0.0355)	0.3564 * (0.0429)
Faculty 1 (Agriculture:1, Another:0)	0.0580 (0.0392)	0.0216 (0.0277)	-0.0587 (0.0380)	0.0585 ** (0.0276)	0.0511 (0.0316)	-0.1198 * (0.0382)
Faculty 2 (EMYO:1, Another:0)	-0.0333 (0.0325)	-0.0134 (0.0229)	0.0149 (0.0315)	0.0455 ** (0.0229)	-0.0124 (0.0262)	-0.0495 (0.0316)
Faculty 5 (GSF:1, Another:0)	0.0107 (0.0788)	-0.0974 ** (0.0556)	0.1244 * (0.0765)	0.1230 ** (0.0556)	-0.0726 (0.0635)	-0.0156 (0.0768)
Faculty 10 (KKE:1, Another:0)	-0.0109 (0.0205)	-0.0132 (0.0145)	0.0563 * (0.0199)	0.0069 (0.0145)	-0.0169 (0.0165)	0.0036 (0.0200)
Faculty 12 (Religious:1, Another:0)	0.2786 ** (0.1211)	0.0670 (0.0854)	0.0224 (0.1175)	-0.1515 *** (0.0854)	-0.1949 ** (0.0976)	-0.0709 (0.1180)
Faculty 13 (HYO:1, Another:0)	0.0620 (0.0768)	-0.1327 ** (0.0542)	0.0051 (0.0746)	0.1069 ** (0.0542)	0.0203 (0.0619)	-0.0034 (0.0749)
Kredit income (TL/month)	-0.0257 * (0.0088)	-0.0104 ** (0.0062)	0.0058 (0.0085)	0.0078 (0.0062)	0.0175 ** (0.0071)	-0.0016 (0.0086)
Graduated field from high school (Numeric field:1, Another:0)	-0.0072 (0.0209)	-0.0015 (0.0147)	-0.0397 ** (0.0203)	-0.0034 (0.0147)	0.0121 (0.0168)	0.0608 * (0.0204)
Father' education	-0.0093 (0.0065)	-0.0036 (0.0046)	0.0123 *** (0.0063)	-0.0054 (0.0046)	0.0031 (0.0053)	0.0044 (0.0064)
Stayed2 (With family:1, Another:0)	0.0182 (0.0214)	0.0070 (0.0151)	-0.0397 *** (0.0208)	0.0089 (0.0151)	-0.0027 (0.0173)	-0.0119 (0.0209)
Stayed 3 (State dormitory:1, Another:0)	0.1940 ** (0.0991)	0.0568 (0.0699)	-0.0072 (0.0962)	-0.0315 (0.0699)	-0.1101 (0.0798)	-0.1158 (0.0966)
Extra books	-0.0103 ** (0.0043)	-0.0067 ** (0.0031)	0.0072 *** (0.0042)	0.0006 (0.0031)	-0.0061 *** (0.0035)	0.0146 * (0.0042)
Current GPA	-0.0236 ** (0.0125)	-0.0198 ** (0.0088)	0.0126 (0.0121)	0.0179 ** (0.0088)	-0.0005 (0.0101)	0.0173 (0.0122)
Stationary expenses (TL/month)	-0.0005 ** (0.0003)	0.0004 ** (0.0002)	-0.0005 ** (0.0003)	0.0000 (0.0002)	0.0004 *** (0.0002)	-0.0001 (0.0003)
Sigma	0.1681 * (0.0061)	0.1187 * (0.0043)	0.1632 * (0.0059)	0.1186 * (0.0043)	0.1355 * (0.0049)	0.1639 * (0.0060)
LR	137.9532	270.0748	149.220	270.3362	219.7204	147.6664

*, **, *** 0.01, 0.05 and 0.10 in significant level

Students of Kazım Karabekir Faculty of Education attach more importance to having the desired profession than others. High school science section graduates have less desire to have the desired profession than others. As the father's educational level increases, students attach more importance to having the desired occupation. Students who stay with their family give less importance to having the desired profession than others. As the number of books read within the past month increases, the desire to have a specific profession decreases. Students whose monthly stationary expenses increase aim to have the desired profession more (Table 5).

Students of Agriculture Faculty, Erzurum Vocational School, Fine Arts Faculty and Nursing School give more importance to having a prestigious job than students at other faculties. Students of Faculty of Religious Studies give less importance to having a prestigious profession than others. As students' current GPA increases, the desire to have a prestigious profession increases as well (Table 5).

Students of Faculty of Religious Studies give less importance to having a high-salary job than others. As students' credit income increases, the desire to have a high salary job increases as well. As the number of books read within the past month increases, the desire to have a high salary

job increases as well. Students who have increased monthly stationary expenditure have more desire to have a high salary job (Table 5).

Agriculture Faculty students have less desire to discover oneself, the universe and science than others. Students who are science graduates of high schools have more desire to discover oneself, the universe and science. As the number of books read within the past month increases, the desire to explore oneself, the universe and science increases (Table 5).

4. Conclusions

Faculty of Religious Studies students give less importance to studying at higher education institutes and having a high-income job compared to the others. These students are graduates of vocational high schools and it is obligatory for them to be faculty graduates in order to get a job as an imam, muezzin or orator, though with less salary. Students of Faculty of Fine Arts desire more to have a prestigious profession than the others do and want to have a profession of any kind less than the others do. Since these students enroll at the faculty as a result of a special examination, they prefer to have an appropriate job compatible with their talents rather than any profession. Nursing School students have less desire to have an occupation of any kind and have more desire to have a prestigious profession. As nursing school students are aware that this profession is significant for helping people and regaining health, they desire more to have a prestigious profession like nursing instead of any profession. Kazım Karabekir Faculty of Education students give more importance to having the desired job than the others do. As is known, teaching requires patience, tolerance and human love. This shows that faculty of education students select these faculties voluntarily. Students of Agriculture Faculty give more importance to having a prestigious job compared to the others. Agriculture is important for countries in terms of feeding people, providing raw material for the industry and forming workpower. Agriculture Faculty students aim to work in this sector, which is highly significant

and prestigious in Turkey. Erzurum Vocational School students give more importance to having a prestigious job than the others do.

School and managers of high schools can contribute to their students' future decisions by taking the university preference reasons and the factors influencing them into consideration. As for the academics, they can direct education in line with the priorities of the students who choose or enroll at a faculty.

"The training of the trainers" program applied in many universities in order to develop academic services and relationships should be investigated and applied at Atatürk University if it is found to be feasible. In addition, in the light of the collected data, the strategies to be followed in the introduction of Atatürk University can be determined so that more students and parents choose it.

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