Admission Type and Female Students' Academic Success at Addis Ababa University: The Case of Social Science Students

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Abstract: *This study attempted to estimate the magnitude and pattern of academic survival rates and to compare survival rates and achievements among female students by type of admission. Longitudinal data on 289 female students who joined the College of Social Sciences Freshman Programme at Addis Ababa University in September 1994 were considered. The findings revealed that while the survival status among female students was very minimal, the survival status for female students admitted on quota system was lower than the survival rates for the regularly admitted female students. The dropout rate among female students was as high as 41% at the freshman level (this was largely attributable to academic dismissal rather than non-academic reasons), but the rate rapidly declined as the students progressed to higher classes, and within four to six years of university education about 60% managed to successfully complete their studies. On the other hand the average trend of academic achievement for successful quota and regular female students increased as the students progressed in their course of study. Implications of these results are discussed and recommendations are given.*

Introduction

The inequalities of females in all aspects of life is widely documented in the context of developing and developed countries. In order to re-address these inequalities government and non-government organizations are incorporating gender responsive policies as part of their development strategies. It has been widely argued that the existing gender imbalance against females is the function of their limited educational opportunities. Different interlocking factors contribute to women's marginal place in education.

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These days the participation of female students in primary and secondary educational levels is not considerably lower than their male counterparts. But female representation at tertiary levels is very minimal. To alleviate the problem of female students' access to higher education, affirmative action strategy or quota system has been in practice according to the New Education and Training Policy of Ethiopia. There is no doubt that the strategy is quite important and helpful in increasing female students participation in higher learning institutions. Abebayehu (1998) indicated that as the result of affirmative action strategy female students' enrolment at undergraduate degree level grew from 8.5% in 1985/86 to 13.5% in 1996/97. However, the overall female students' enrolment in higher institutions did not increase significantly despite the increasing number of female students admitted each year probably because a considerable number of female students discontinued their studies due to academic and non academic reasons.

Dropout has been a serious and long standing problem in higher institutions. For instance, based on national sample data Bayer (1968) showed that after five years 25% of female students were dropouts, 10% were still registered and working on a degree, and 65% were graduates. As cited in Spady (1970), Trent and Medsker found that after four years of university education 51% of female students were dropouts, 16% were still working toward a degree, and 33% were graduates. At Addis Ababa University level, GebreSelassie (1983) reported that in 1982, 21.5% of the female entrants to the College of Social Sciences dropped out during the first semester of the freshman year. Similarly, data obtained from the Freshman Programme showed that 32.9%, 35.0%, and 34.3% of female students dropped out from 1995, 1996, and 1997 during the freshman year, respectively. These figures indicated that in the freshman year female students' dropout rate was consistently high over the years. In a recent work, Tamirie (1997) found that more than 20% of 1996 freshman students (more than 40% of females) in Bahir Dar Teachers College and Polytechnic Institute discontinued their studies. As an overall indicator of female students academic survival status,

Abebayehu (1998) showed that among female students admitted to higher institutions over the years 1979-1985 hardly half of them completed their studies.

Regarding the reasons for dropout, Asmerom and et al. (1989) showed that a great number of college dropouts were due to academic dismissals rather than non-academic reasons. Laekemariam (1994) suggested that almost all the withdrawals (male or female) of the first year first semester students in Wondo Genet College of Forestry were academically weak students who did not wish to see the fate of academic dismissal.

The problem of selection of students for admission to the various colleges in Ethiopia has become acute due to the large number of students that need college places. In the process of selection, the Ethiopian School Leaving Certificate Examination (ESLCE) plays the major role and the following admission types have been in use: regular admission (includes those students who sit for ESLCE for the first time and fulfill the GPA cut-off point for admission set every year by Ministry of Education), quota admission (includes those female students who scored 0.2 in the ESLCE below the cut-off point for regular admission), private admission (includes those who took the ESLCE two or more times), and others (includes those Ethiopians or foreigners admitted on equivalent foreign examinations).

The Ethiopian School Leaving Certificate Examination has been used as the sole criterion for admission to colleges. This has attracted the attention of a number of researchers. As has been summarized by Tassew and et al.(1990), most of the investigators were interested to find the ability of the examination in predicting success at institutions of higher education and the majority of research findings demonstrated that ESLCE was weak in predicting success at higher institutions. In their conclusion Tassew and et al. suggested that very little could be attained about the predicting ability of ESLCE, because they operated only with the sharpest top of ESLCE achievers. To this effect, the present research considered admission type instead of

actual ESLCE GPA as one among many factors affecting students success at college.

In previous studies, though the methods employed to study admission requirements and success at college were appropriate and the results had contributed a lot, the process of college success or dropout and academic achievement during the students' course of study was not addressed. Moreover, attention was not given to the possible differences among female students themselves. Therefore, in this study attempts were made to find out to what degree and in what fashion the process of academic survival and achievement differed among female students by type of admission. Briefly, the specific aims of the study were as follows:

- to determine the magnitude and pattern of academic survival or dropout rates among female students as they progress in the course of their study;

- to compare the academic survival status of female students admitted through regular and quota admissions;

- to determine and compare the trend of academic achievement for successful (who graduated) female students admitted through regular and quota admissions over the eight semesters; in this regard the following questions were considered;

  - Did female students admitted through regular and quota admissions have the same shape or parallel mean cumulative GPA profiles over the eight semesters? If so:

    - Was there any significant difference in the mean academic achievements of female students admitted through regular and quota system? and

    - Was there any significant difference in the mean academic achievements of female students over the eight semesters?

- To determine the graduation rate of those female students who dropped out for at least a semester and came back to continue their studies.

With these objectives in mind, this study was designed to a) determine the magnitude of survival rate among female students, b) find out if there was any significant difference in the survival rates by admission type, and c) assess admission type difference effect on the academic achievement of successful female students. Though the study was limited to only one cohort of female students, as far as dropout rate was consistently high over the years and no significant attempt was made to tackle the problem, it is believed that the findings of this study may help to highlight the seriousness of the problem and to indicate the possible areas of intervention programmes to alleviate the problem.

Methodology

The Data

The data for this study were obtained from the College of Social Sciences Freshman Programme and the Registrar's Office, Addis Ababa University. The data consisted of all female students admitted to the College of Social Sciences Freshman degree programme in September 1994. Few students were excluded due to incomplete records and 289 cases were available for analysis. 162(56.1%) were admitted through regular, 87(30.1%) through quota system, 22(7.6%) through private admissions, and 18(6.2%) through equivalent foreign examinations. Female students in the social sciences were deliberately considered because the number of female students in the social sciences was more than the number of female students in the natural sciences, and because it was easy to obtain graduation information on dropouts on this group.

For the purpose of this study dropout[1] is defined as any one leaving college at which she is registered. That is, dropout stands for female students who leave the university for good due to academic dismissals, and students who withdraw or are academically dismissed but are eligible to return after being out of the university for one or more semesters.

Data on the number of female dropouts and academic achievement (Cumulative GPA) of female graduates were obtained from their academic records over eight semesters. It was found that 156(54%) were dropouts and 133(46%) were successful or graduated in a four year uninterrupted study period. Of the dropouts 117(75%) were academic dismissals and 39(25%) were withdrawals for various reasons.

The Statistical Methods

Survivor Function Estimation

Since data on college dropout and survival have characteristics which appear to be very similar to failure time data, life table estimation procedure was employed to determine the magnitude and pattern of female students survival and dropout rates over the eight semesters.

Let q_t be the conditional probability of being a dropout in the tth semester given survival to the tth semester which agree with the observed conditional relative frequency of dropout in the tth semester ($t = 1, 2,..., 8$) . The life table survivor function estimator or cumulative proportion of survivals at the kth semester, $f_k(t)$, is given by

$$f_k(t) = \prod_{i=1}^{k}(1-q_i)$$

with asymptotic variance

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[1] One of the operational definitions of dropout given by Spady (1970).

$$\text{var}\,(f_k(t)) = [f_k(t)]^2 \sum_{t=1}^{k} d_t / n_t (n_t - d_t)$$

where d_t : number of female dropouts in the tth semester

n_t : number of female students registered in the tth semester

The equality of survival functions for the two admission groups was tested using the log rank statistic. This statistic makes efficient utilization of the available data by summarizing the differences between survivor functions over the eight semesters; (see for detailed discussion, Kalbefleisch and Prentice 1980).

Profile Analysis

The academic achievement of successful female students by type of admission was examined using Profile Analysis. The three null hypotheses to be tested using profile analysis were

H_{01}:   The mean academic achievement (CGPA) profiles of the two admission types are parallel.

If the mean CGPA profiles are indeed parallel, we can proceed to test the remaining two hypotheses.

H_{02}:   There is no significant difference in the academic achievement of female students admitted through regular and quota admissions.

H_{03}:   There is no significant difference in the mean academic achievements of female students over the eight semesters.

The analysis of data was performed using SPSS (Statistical Package for the Social Sciences).

Results

Magnitude and Pattern of Female Students' Academic Survival Rates

The application of life table estimation procedure resulted in the survival estimates, their standard errors, and the hazard rates at each semester. The results are shown in Table 1. As can be seen in Table 1, 59% (with 2.9% standard error) of female students survived the freshman year. Whereas at higher classes, beginning the second semester of second year, the dropout rate rapidly declined and after four years, about 46% graduated from the initial cohort of female entrants.

Further examination of graduation lists of those students who had dropped out and came back to continue their studies upon readmission, indicated that about 26% of them graduated within the following two years beyond the normal four years study period. Thus, after six years of college education in a four year degree programme the overall graduation rate of female students was found to be about 60%.

Table 1: Data on Female Students' Survival and Dropout Rates

Year	Semester t	n_t	d_t	q_t	Survival Estimates	Standard Errors	Hazard Rates
Year I	1	289	88	0.301	0.696	0.027	0.359
"	2	201	31	0.154	0.588	0.029	0.167
Year II	3	170	16	0.094	0.533	0.029	0.099
"	4	154	6	0.039	0.512	0.029	0.040
Year III	5	148	7	0.047	0.488	0.029	0.048
"	6	141	5	0.036	0.471	0.029	0.036
Year IV	7	136	3	0.022	0.460	0.029	0.022
"	8	133	0	0.000	0.460	0.029	0.000

The last column of Table 1 provides the hazard rates or estimates of the probability that a female student who survived the beginning of a semester would dropout during that semester. For instance, the

probability of a newly admitted female student from a drop out (academically dismissed or withdrew) in the first semester was about 0.36. In general, the trend of dropout rates and the hazard rates declined as the students progressed to higher classes.

Table 2: Female Students' Survival Estimates by Type of Admission

Semester t	Quota Admission				Regular Admission			
	n_t	d_t	q_t	Survival Estimates	n_t	d_t	q_t	Survival Estimates
1	87	32	0.368	0.632	162	41	0.253	0.747
2	55	12	0.218	0.494	121	18	0.149	0.636
3	43	5	0.116	0.437	103	10	0.097	0.574
4	38	1	0.026	0.425	93	5	0.054	0.543
5	37	0	0.000	0.425	88	5	0.057	0.512
6	37	1	0.027	0.414	83	3	0.036	0.494
7	36	1	0.028	0.402	80	0	0.000	0.494
8	35	0	0.000	0.402	80	0	0.000	0.494

Academic Survival Status and Admission Type

The academic survival estimates among female students by type of admission are shown in Table 2. Graphically these estimates are displayed by step functions in figure 1. As can be seen in Table 2 or Figure 1, relatively low survival rates were observed at first year level for female students admitted through quota admissions. That is, the freshman year survival rate of female students admitted through quota admission was approximately 50% while that of regular admission was about 64%; and the graduation rates for the two groups of female students after four years were about 40% and 50%, respectively.
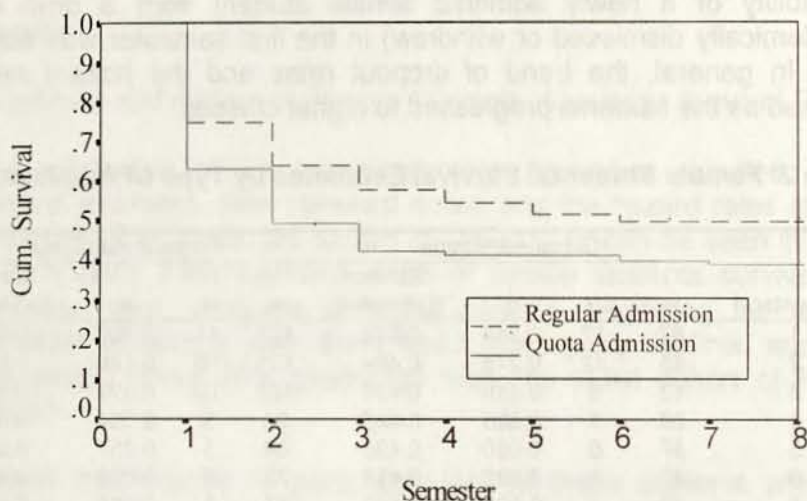
Figure 1. Survivor Functions of Female Students by Type of Admission

The comparison of the equality of the academic survival functions of female students admitted through quota and regular admissions using the log rank statistic resulted in a significant difference ($\chi^2 = 4.23$, df = 1, $p<0.05$) among the survival status of female students in the two admission groups.

Academic Achievement and Admission Type

In this section an attempt was made to investigate the effect of admission type difference on the academic achievement of successful (who graduated) female students using profile analysis. To this end Cumulative Grade Point Average (CGPA) of successful female students in the eight semesters were considered. Table 3 provides the distribution of female students' CGPA at graduation.

The mean CGPA profiles over the eight semesters by type of admission are shown in Table 4.

Table 3: Female Students CGPA at Graduation by Type of Admission

	Female Graduates	
CGPA	Quota Admission	Regular Admission
2.00 - 2.49	22(63%)	36(45%)
2.50 - 3.24	12(34%)	36(45%)
3.25 & Above (Honour Graduates)	1(3%)	8(10%)
Total	35	80

Table 4: Female Students' Mean CGPA Profiles

	Mean CGPA		
Semester	Quota	Regular	Overall
1	2.26	2.38	2.34
2	2.27	2.50	2.45
3	2.37	2.53	2.50
4	2.42	2.57	2.53
5	2.41	2.58	2.54
6	2.45	2.58	2.55
7	2.46	2.60	2.57
8	2.50	2.62	2.59

The profile analysis began by presenting graphical displays of mean CGPA profiles as shown in Figure 2. Referring to this figure, it can be seen that there is an increasing trend of academic achievement for both groups of female students.
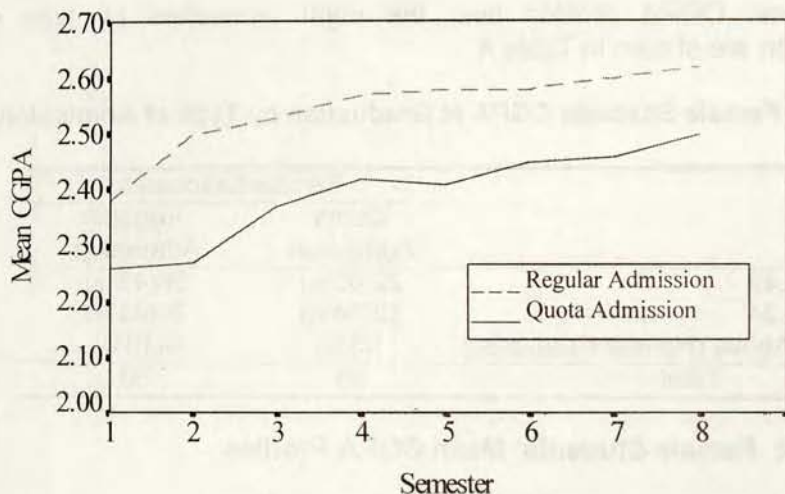
Figure 2. Female Students' Mean CGPA Profiles by Type of Admission

The data on academic achievement were subjected to profile analysis to test the three hypotheses stated in section 2. The first hypothesis to be tested was that female students' mean CGPA profiles in the two admission groups were parallel or had no semester-by-admission type interaction(H_{01}). One-way MANOVA (Multivariate Analysis of Variance) was employed to test this hypothesis. The application of one way MANOVA to the seven consecutive differences of CGPAs produced a statistically significant result   (F = 2.83, df = 7 and 107, p<0.05). That is, the hypothesis of parallel mean CGPA profiles for the two groups of female students was rejected or the data revealed a significant interaction effect between admission type and semester of study on the academic achievement of female students. Therefore, we could not proceed to test the remaining two hypotheses (H_{02} and H_{03}) because it had no meaning to test the effect of admission type on academic achievement and to compare average academic achievements in the eight semesters due to the presence of

interaction between admission type and semester of study (Morrsion, 1990).

Discussion and Conclusion

In this study attempts were made to demonstrate the magnitude and pattern of survival rates and to investigate the difference in survival rates and academic achievements by type of admission.

On the basis of life table survival estimation procedure, approximately 46% of the admitted female students to the social sciences were able to graduate in a four year uninterrupted study period. This figure did not reflect those female students who would graduate after one or more semesters of delay due to health, social or personal problems and academic dismissal but allowed to repeat status. If the graduation rate of dropouts (about 26%) was included, the overall female students' graduation rate would be about 60%.

The comparison of survival estimates over the eight semesters by type of admission revealed significant difference among female students. The graduation rates for quota and regular female students were about 40% and 50%, respectively. Therefore, the study disclosed that while the overall survival rate among female students was very low, the rate for quota admissions was lower than regular admission. However, the trend of dropout among the different admission groups rapidly declined as these students continued in the course of their study. A detailed examination of Table 1 showed that almost all dismissals or withdrawals of quota students occurred at the freshman year. This was possibly because of fear and doubt related to their relatively lower grade in the ESLCE.

The other interesting finding of the study was that an increasing trend of academic achievement was observed over the eight semesters for successful female students admitted through quota and regular admissions. The result of the profile analysis indicated that the mean cumulative GPA profiles of regular and quota students were not

parallel; i.e. the gap in the academic performance difference between the two groups got closer and closer as the students progressed to higher classes due to, in particular, improved performance of quota students. This may be so because quota students came to terms with the university requirements as they moved out of their formative years of freshman and sophomore classes that filled the alleged gaps which they were felt to be missing prior to their admission. Though it was not statistically tested due to the presence of interaction effect, Figure 2 showed that students admitted through regular arrangement on the average achieved "better" than those admitted through quota system over the eight semesters.

Surprisingly, about 41% of the entering female students dropped out at the freshman year mainly due to academic dismissal. This was frustrating and shocking because the selected female students for higher education were the best achievers in ESLCE and the failure of these "best" students was unexpected.

The heavy dropout rate of female students has the following major implications. First, students who are not capable to face the rigorous study of higher learning are admitted even though they are the 'best' achievers in the ESLCE. Thus, ESLCE as an admission criterion for college education is open to question. Similar findings were recently reported by Tasew and et al. (1990); Laekemariam (1994); and Fantu and et al. (1996) about the weak predicting validity of ESLCE to college success. Second, female students performance is affected by factors related to their background characteristics such as regional difference (Mulugeta, 1997) and high school achievement (Tassew and et al., 1990; and Fantu and et al., 1996). Third, since the purpose of affirmative action strategy has been limited to admitting more female students without a concomitant effort aimed at helping them to academically cope with University demands at the freshman year; thus, dropout rate of quota students was very high. Fourth, one may raise the question why dropout begins early in the freshman year. Is it due to the University policy and standard requirements, or is it due to

inadequate academic preparation of students in order to master the fundamental skills that most college curriculum assume?

Therefore, on the basis of the results of this study the following recommendations are made.

- Strategies should be designed to develop better means of academic potential differentials at admission for the scarce openings in our higher institutions;

- Due attention should be given to strengthen counseling and academic advising services for female students by the Dean of Students and the Freshman Programme Office;

- Affirmative action strategy should be extended to include academic capacity building not only at college level but also at lower educational levels;

- Immediate institutional interventions should be made at the freshman year to minimize the prevailing high female students' dropout rate; and

- On their part, female students should work hard by taking advantage of the opportunity they have already been offered.

Finally, the results of the present study have significant importance for policy makers and educators. It indicates that there is an urgent need to efficiently utilize the scarce openings at higher institutions and design intervention strategies to identify and treat potential dropouts.

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