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THE PERFORMANCE OF MALE VERSUS FEMALE STUDENTS IN A SENIOR ACCOUNTING COURSE

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Abstract
The studies carried out on the impact of gender on academic performance of students in the field of Accounting have been widely debated by experts in the developed and developing countries. Both camps have arguments that hold water and the debate continues unabatedly today without either camp able to wrap up the arguments in their favour. This paper compares the performance of male and female Accounting major students in a senior accounting course. The scores obtained by the class taking one of senior Accounting courses during the final semester of a four-year under-graduate programme are analysed. The data collected spans over fifteen consecutive semesters. Three major findings are obtained that further contribute to this debatable issue. Firstly, comparing students enrolled in the regular program, the performance of male students is statistically significantly higher than that of female students. Another salient finding is the performance of extension male and female students, which does not appear to be statistically different. And lastly, the female students did not outperform the male students significantly irrespective of the nature of the program (regular and extension). In addition to this, the performance of the female students is similar in both the programs - regular and extension.

1. Introduction

A recent study was carried out to examine the impact of sex[1] on the academic performance of students in the field of accounting, a topic that has been widely debated by experts in the developed and developing countries. Both camps, the camp that believes that gender has an impact on the academic performance and the camp that thinks otherwise, have arguments that hold water and the debate continues unabatedly today without either camp being able to wrap up the arguments in their favour.

There are many researchers that belong to the camp who suggest that male and female students perform equally well. To mention a few findings by such researchers in the developed world; Hanks and Shivaswamy (1985), Fraser *et al.* (1978), Lipe (1989) and Tyson (1989) all confirm the theory that either male or female students have not significantly outperformed their counterparts in the field of accounting.

On the other hand, Mutcher *et al.* (1987) have affirmed the opposite and hold, with significant statistics, that female students have outperformed males in this domain. Furthermore, Mutcher *et al*. (1987) spelt out four competing and complementary theories in support of their conclusions:

(1) female students may be driven to perform better than male students in order to succeed in a stereotypical male profession,
(2) female students are more success-oriented and career-motivated than male students,
(3) female students may have a higher quantitative aptitude than male students,
(4) female students who major in accounting may be perceived by instructors as being more outstanding than male.

[*]This paper was presented in an International Meeting of American Accounting Association, Annual Meeting, San Francisco, California, USA.

A study made in the developing world by Rifaat Ahmed, Abdel Karim and Ali Mohammed Ibrahim (1992) confirmed with the first two of the above-mentioned findings. However, they commented that the difference was not statistically significant.

The present research is based on the empirical evidence of gender impact on the academic performance of students from the relevant field. This paper was presented in an International Meeting of American Accounting Association, Annual Meeting, San Francisco, California, USA, and its feedback is incorporated at appropriate place to be more representative of its conclusions and recommendations.

This paper consists of three sections. The first section describes the methodology and database used for the purpose of this paper. The second section presents the analysis of data and findings. The final section includes a summary and the conclusions drawn from the study.

2. Methodology and Data Base

The data for this study are collected from the Assessment and Progress Reports of students taking one of the senior accounting courses offered in the final semester by the Department of Accounting and Finance, Addis Ababa University. The course, formulated by author himself, is offered in the final semester of the four-year under-graduate programme for Accounting majors. The author has studied the average performance of students enrolled for this course for the fifteen semesters, over a period of fifteen consecutive years, covering a total of 2158 students of whom 1734 were male and 424 were female, in terms of variables like proportion of students (gender-wise and program-wise) and their performances during the study period. The data deal with the performance graded on a four-point scale ranging from excellent, good, satisfactory and unsatisfactory[2] based on the scores obtained over the fifteen years of the study period.

It may be noted that students majoring in Accounting have to complete twelve Accounting courses, of which five are prerequisite for this course. For the fifteen semesters, the course was the same; of course the course outline has been refined and updated from time to time in consonance with the latest relevant developments. The exams for the course comprise three types of questions: short answer questions, short numerical questions, and lengthy problem solving questions. The pattern of examination paper has remained more or less the same for the fifteen semesters under study. The grading policy and methods of evaluation too have remained basically the same over the past fifteen semesters. This uniformity in the grading system ensures the reliability of the present study. This enabled the researcher to compare the performance of the students based on the gender difference.

Apart from the gender difference, the other significant difference pertinent to the study is the proportion of their enrolment in terms of gender and nature of the program. Students could be enrolled either as Regular students or Extension students as Addis Ababa University offers two major schedules viz., the regular (day) program and the extension (evening) program. The regular program is scheduled during office hours and gives admissions to students based on the scores they obtain in an exam conducted at the national level. The extension program is primarily meant for employees but applies the same scores for admission, and is scheduled after office hours. The Regular students are those who are enrolled in the day program and the Extension students are those enrolled in the extension program.

The methodology employed in this study consists of computing the average scores obtained by the male and the female students from both Regular and Extension[3] programs of each semester. Their performances, average scores, are compared to see if any statistically meaningful differences emerge.

The difference in performances is regressed with time and the statistical significance of the differences is tested using the popular t-test. The model used is as follows:

$D_t = b_0 + b_1 t + u_t$

D_t = Difference in the average marks in a semester. For example, average marks of male students minus average marks of female students in regular program.

t = time period, representing 15 semesters
b_0 = constant term
b_1 = coefficient of time variable
u_t = error term.

3. Data Analysis and Findings

Proportion of Students

Data pertaining to this variable are presented in Table 1.Table 1, indicates the percentage of male and female students who registered for the pertinent course in each semester, for both the regular and extension programs. As can be observed from Table 1, for the period of fifteen semesters, average figures of enrolment for male and female regular students are 49.58% and 6.67% respectively.

The figures for the extension program are 30.77% for male enrolment and 12.98% for female enrolment. The overall average percentage of male and female students enrolled in regular and extension programs together during this period is 80.35 (49.58 + 30.77) and 19.65 (6.67 + 12.98) respectively. The average percentage of regular and extension students in the totals of male and female categories was in the ratio of 56.25 and 43.75.

Table 1,The Percentage of Male And Female Students Enrolled in Regular and Extension Programs

Semester	No. of Students	Percentage (Number of Students)					
		Regular			Extension		
		Male %	Female %	Total %	Male %	Female %	Total %
1	141	51.09(72)	15.60(22)	66.66 (94)	24.11(34)	9.22(13)	33.34(47)
2	133	53.38(71)	7.52(10)	60.90 (81)	26.32(35)	12.78(17)	39.10(52)
3	177	48.59(86)	5.08(9)	53.67 (95)	28.25(50)	18.08(32)	46.33(82)
4	152	54.61(83)	8.55(13)	63.16 (96)	28.95(44)	7.89(12)	36.84(56)
5	160	55.62(89)	3.13(5)	58.75 (94)	25.00(40)	16.25(26)	41.25(66)
6	156	57.69(90)	7.05(11)	64.74(101)	25.64(40)	9.62(15)	35.26(55)
7	48	NA	NA	NA	60.42(29)	39.58(19)	100. (48)
8	127	54.33(69)	10.24(13)	64.57 (82)	25.20(32)	10.23(13)	35.43(45)
9	116	54.31(63)	7.76(9)	62.07 (72)	31.90(37)	6.03(7)	37.93(44)
10	172	56.98(98)	4.65(8)	61.63(106)	30.23(52)	8.14(14)	38.37(66)
11	162	46.30(75)	6.79(11)	53.09 (86)	33.95(33)	12.96(21)	46.91(76)
12	156	48.08(75)	5.77(9)	53.85 (84)	32.69(51)	13.46(21)	46.15(72)

13	172	36.62(63)	4.07(7)	40.69 (70)	43.02(74)	16.28(28)	59.31(102
14	111	52.25(58)	8.11(9)	60.36 (67)	29.73(33)	9.91(11)	39.64(44)
15	175	44.57(78)	4.57(8)	49.14 (86)	33.14(58)	17.71(31)	50.86(89)
Totals	2158	(1,070)	(144)	(1,214)	(664)	(280)	(944)
%		49.58	6.67	56.25	30.77	12.98	43.75

Source:Computed by the author
Note:The figures in the parentheses are the actual number of students.
NA: Not available

Performance of Male and Female Students

Table 2 presents the data relating to this variable. Table 2 shows the performances of male and female students enrolled from both the regular and extension programs during the study. Table 2 shows that male students performed slightly better than the female students in seven semesters and the female students performed slightly better than the male students in the other seven semesters (Data for one of the fifteen semesters under study were not available). It is evident, however, that on an average, over the fourteen semesters, the male students performed slightly better than the female students as the overall average of male and female students was 62.35 and 62.18 respectively.

Similarly, in the extension program, male students outperformed female students in nine of the fifteen semesters, as well as over the whole period where the overall average is 60.2 and 59.84 for male and female students respectively. Nonetheless, in six semesters, the female students performed better than the male students.

The difference in the means of regular male and female students and extension male and female students is also very small. The mean score of male students from the regular program, across the fourteen semesters, is 62.35 while the female students scored a mean of 62.18. Similarly, the mean score of male students from the extension program is 60.28 across the fifteen semesters and the female students had a corresponding mean score of 59.84.

Table 2,Mean Scores For Regular & Extension, Male & Female Students

Semester	Regular			Extension			Grand Total
	Male	Female	Total	Male	Female	Total	
1	64.05	66.13	64.53	62.44	63.76	62.80	63.95
2	59.63	65.60	60.36	63.31	56.35	61.03	60.62
3	62.15	62.11	62.14	63.30	63.06	63.20	62.63
4	60.85	61.54	60.94	60.87	60.50	60.79	60.88
5	62.44	68.20	62.75	62.53	56.73	60.26	61.72
6	69.92	69.18	69.83	71.42	75.13	72.43	70.75
7	NA	NA	NA	61.93	62.26	62.06	62.06
8	73.68	70.15	73.12	73.96	71.69	73.30	73.18
9	59.51	59.55	59.51	60.40	63.14	60.83	60.01
10	63.24	63.62	63.26	65.86	62.57	65.16	63.98
11	50.43	50.45	50.43	51.29	49.95	50.91	50.65

12	67.72	60.89	66.98	61.27	69.14	63.60	65.42
13	60.88	60.71	60.86	53.41	51.96	53.01	56.20
14	59.31	54.22	58.62	49.60	47.90	48.72	54.69
15	57.11	51.12	56.55	53.93	55.03	54.11	55.30
Average	62.35	62.18	62.32	60.28	59.84	60.11	61.35

Source: Computed by the author; NA: Not available

Thus, in both programs, regular and extension, the male students have performed slightly better than the female students. Also from Table 2, it is clear that regular students performed slightly better than the extension students as their mean scores stand at 62.32 and 60.11 respectively.

In the overall average score (regular and extension together) over the period of fourteen semesters, the regular students' performance (i.e. 62.32) is slightly better than the combined mean score (i.e. 61.35). In contrast, for the extension program, the mean score (i.e. 60.11) is slightly less than the combined average (i.e. 61.35).

Standard Deviation and Co-efficient Variation

Data for this variable are provided in Table 3. From Table 3 it is clear that the coefficient of variation relating to the performance of the students over 15 semesters indicates that the performance of the female students is relatively more uniform compared to that of the male students.

Table 3,Standard Deviation And Coefficient of Variation of The Students' Scores

Semester	Regular				Extension			
	Male		Female		Male		Female	
	SD	CV	SD	CV	SD	CV	SD	CV
1	10.46	16.33	8.32	12.58	10.97	17.56	9.69	15.19
2	11.46	19.21	6.77	10.32	10.64	16.80	8.78	15.58
3	7.85	12.63	7.01	11.28	7.49	11.83	7.51	11.90
4	9.68	15.90	8.51	13.82	9.12	14.98	7.88	13.02
5	13.70	21.94	7.36	10.79	10.97	17.54	9.33	16.44
6	14.69	21.00	15.79	22.82	12.37	17.32	8.23	10.95
7	NA	NA	NA	NA	11.55	18.65	12.09	19.41
8	12.87	17.46	11.31	16.12	8.09	10.93	10.56	14.73
9	10.99	18.46	11.72	19.68	9.69	16.04	8.82	13.96
10	12.83	20.28	10.11	15.89	10.07	15.29	16.49	26.35
11	11.79	23.38	10.73	21.26	11.84	23.08	7.28	14.57
12	10.80	15.94	17.11	28.09	13.72	22.39	11.28	16.31
13	8.89	14.60	10.26	16.90	10.13	18.96	9.47	18.22
14	8.22	13.85	9.60	17.70	9.52	19.19	11.56	24.13
15	9.72	17.01	7.44	14.55	6.28	11.64	4.51	8.19

Source:Computed by the author.

Note:SD is standard deviation and CV is co-efficient of variation i.e. SD/mean X 100.

Classification of Students' Performance

In order to throw more light on students' performance, an attempt is made to show the concentration of students' grades at both ends of the scale (excellent and unsatisfactory). This is done so because such grades are assumed to be representative of the over all performance. The relevant data are presented in Table 4. This helps us to see if there exists any discernible pattern of variation in the performance of the students.

As Table 4 indicates, over the past ten year period, the performance (in terms of percentages) of male students of both regular and extension program was much better than that of the female students in terms of excellent grades. Similarly, in terms of unsatisfactory grades for the same period, the male students of regular and extension programs were found to be more than female students in terms of percentage.

The overall impression gained from this is that the female students' performance was not as much high as that the male students.

Table 4,The Classification of Performance of Male And Female Students (Regular And Extension) For Last Ten Semesters In Percentages

Year	Regular				Extension			
	Male		Female		Male		Female	
	Excellent	**Unsatisfactory**	**Excellent**	**Unsatisfactory**	**Excellent**	**Unsatisfactory**	**Excellent**	**Unsatisfactory**
1	5.50	4.17	NIL	4.55	2.94	8.82	NIL	15.38
2	5.63	8.45	NIL	20.00	5.71	2.85	NIL	NIL
3	5.81	3.49	NIL	NIL	6.00	4.00	NIL	9.37
4	8.43	7.23	NIL	NIL	4.55	4.55	NIL	8.33
5	4.49	2.24	20.00	NIL	5.00	NIL	NIL	NIL
6	11.11	5.55	18.18	9.09	2.50	2.50	6.66	NIL
7	NA	NA	NA	NA	3.44	6.89	5.26	NIL
8	4.34	1.44	NIL	NIL	NIL	NIL	NIL	NIL
9	4.76	NIL	NIL	11.11	NIL	NIL	NIL	NIL
10	3.06	13.26	NIL	12.50	NIL	11.53	NIL	14.28

Source:Computed by the author

Note:Excellent implies the percentage of students getting the highest grade and unsatisfactory implies the percentage of students getting the lowest percentage grade.

Regression Results

Tables 5 and 6 provide the information relevant to this variable.

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Table 5,Regression Results: Regular Male Versus Female

Variable	Coefficient	Std.Error	T-Stat	2-Tail Sig
C	-4.45	1.55	-2.86	0.014
T	0.66	0.18	3.63	0.003

R-squared = 0.52; and Adjusted R-squared = 0.48
C = Constant; T = Time period.

The performance of the female students in the regular program as per Table 5 was found to be less than that of male students as the differential coefficient is 0.66. The coefficient relating to this variable is positive and statistically significant at 1% level. The R-squared value is also reasonable since the model explains 52% of variation in the dependent variable.

Table 6,Regression Results: Extension Male Versus Female

Variable	Coefficient	Std.Error	T-Stat	2-Tail Sig
C	0.57	1.97	0.29	0.775
T	-0.10	0.21	-0.47	0.644

R-squared = 0.02; and Adjusted R-squared = 0.06

From Table 6, it can be found that there is hardly any difference between the performances of male and female students in the extension program. The differential coefficient is negative (-0.10) and is statistically not significant, which bases this conclusion.

When we compare the performances of the female students in both regular and extension programs, from Tables 5 and 6, it may be stated that the performance of female students is not better than the male students in general, and is definitely poorer in regular program, in particular.

Regression Results for Males and Females

Data relating to the performance of male students and female students are presented in Tables 7 and 8.

Table 7,Regression Results: Regular Male Versus Extension Male

Variable	Coefficient	Std.Error	T-Stat	2-Tail Sig
C	-2.51	2.16	-1.15	0.27
T	0.44	0.25	1.72	0.10

R-squared = 0.19; and Adjusted R-squared = 0.13

Comparing the performance of students of male students only, as shown in Table 7, the students of the regular program are found to perform better than the students from the extension program. The coefficient of the difference of the performance variable is positive (0.44) and significant at 10% level.

This reflects that extension students have difficulties in comparison with regular students. Extension students as stated earlier, work during the day and take classes after office hours. This means that they get less amount of time to study when compared to the regular students. In addition, they have family responsibilities and stress from work that might add to their lower performance levels.

Table 8,Regression Results: Regular Female Versus Extension Female

Variable	Coefficient	Std.Error	T-Stat	2-Tail Sig
C	3.28	3.41	0.96	0.355
T	0.28	0.40	-0.69	0.498

R-squared = 0.04; and Adjusted R-squared = -0.04

From the Table 8, it can be seen that the difference in the performance of the female students from regular and extension programs is not statistically meaningful as the differential coefficient is quite insignificant (t = -0.69). Thus, it may be inferred that the performance of the female students is more or less the same irrespective of the nature of the program i.e. regular or extension. This is indicative of the general fact that female students, whether in Regular or Extension programs are burdened with household work and domestic responsibilities and hence the similarity of their performance.

Regression Results (Program-wise)

Table 9 presents the data relating to this variable.

Table 9,Regression Results: Regular Versus Extension

Variable	Coefficient	Std.Error	T-Stat	2-Tail Sig
C	-2.12	1.79	-1.18	0.26
T	0.47	0.21	2.23	0.05

R-squared = 0.29; and Adjusted R-squared = 0.23

From Table 9, it can be seen that the performance of regular students (both male and female) is better when it is compared to the extension students as differential coefficient (0.47), is statistically significant at 5% level.

It may be noted that in all the regression tables (Tables 5 - 9) the R-squared value is not high for most of the equations. This indicates the importance of the excluded independent variables, which might influence the difference in the actual performance of the students.

Thus, as we have seen above most of the female students scored around the mean, even though their average performance was relatively good in some semesters. As Table 4 indicates, over the past ten years, the performance (in terms of percentages) of male students from both regular and extension programs was much better than that of the female students (in terms of scale of excellence).

Summary and Conclusions

A number of studies have attempted to weigh the performance of female students against that of male students in accounting courses offered at the undergraduate level. These studies have provided several conflicting and complementary theories in their conclusions.

This study has investigated the impact of gender on academic performance of students enrolled in one of senior accounting courses offered by the Department of Accounting, Addis Ababa University, Ethiopia. The results of this study help us to determine whether the findings reported in the other studies conducted by Mutchler *et al.* (1987), and Rifaat Ahmed *et al*. (1992), are comparable of the conclusions arrived at.The study has used a simple regression model to compute the average scores obtained by male and female students from both regular and extension programs. The results are used to survey the existence of any statistically meaningful difference in the average scores. For this purpose, the difference in the performance is regressed with time and the statistical significance of this difference is tested using the popular t - test.

The Following May be Inferred From the Study of The Average Scores Obtained By Male and Female Students:

1. In the regular program, male students outperformed female students, during the study period, and the difference in the performance is statistically significant,
2. The male students of extension program did not significantly outperform the female students, and

3. The female students did not significantly outperform male students irrespective of the nature of the program (regular or extension). In addition, the performance of the female students is similar in both the programs - regular and extension.

It may be noted that, this study concentrates on the performance of male versus female students in one of the senior accounting courses in Addis Ababa University, over a period of fifteen semesters. The study could not be extended to other courses due to data limitations on numerical scores. In order to have a more general consensus there is a need to extend the study to different courses within the department based on letter grades and cumulative grade point average (CGPA), and perhaps to other departments and faculties/institutions. Hence, there is a need for further research in this direction and a need also exists for looking into the various factors, which influence the differences in the performance of male and female students.

Notes

1. Traditionally the terms sex and gender were used interchangeably to refer to the biological and social differences between women and men. More recently, it has become increasingly common to use the term sex to refer to the biological differences between males and females, and gender to encompass the distinctions society has erected on this biological base*. Thus, gender connotes a cultural construct, including distinctions in performance, roles and behaviours as well as mental and emotional characteristics**.

* Francine D. Blau, "Gender", in the New Palgrave: A Dictionary of Economics Theory and Doctrine, Vol. 2, John Eatwell, Murry Milgate, and Peter Newsman, (London: The Mac Millan Press, 1987), P. 492.

** Helen Tierney, Ed, Women's Studies Encyclopaedia (New York: Greenwood Press, 1989), P.153.

2. Academic achievement in the undergraduate program is graded on the letter system. The following letter grades are given:

Grade	Description	Grade point
A	Excellent	4
B	Good	3
C	Satisfactory	2
D	Unsatisfactory	1
F	Failing	0

3. The extension program offers evening classes. It is offered with same standard and rigor as the regular program. It takes a minimum of seven years with a normal semester load of 8 to 10 credits.

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