



**An Analysis of Factors Affecting the Academic Performance of Private and Public College Students: Implications for Effective Teaching Strategy**

by  
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**A paper presented at the Proceedings of the Second National Conference on Private Higher Education in Ethiopia**

**Organized and sponsored by St. Mary's College**

**July 26, 2004,  
Sheraton Addis,  
Addis Ababa**

## ***An Analysis of Factors Affecting the Academic Performance of Private and Public College Students: Implications for Effective Teaching Strategy***

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### **Abstract**

Ethiopia is among the world's poorest nations in terms of Human Development Index (HDI), which is 0.244 compared to 0.380 for Sub-Saharan Africa (UNDP, 1998). Education, being one of the most important components of HDI, is considered to be an important means of bringing about development of a country. Quality of education is one of the most important indicators for the success of any educational institution. Although students' academic performance is not the only indicator, it is one parameter for the quality of education. This study is, therefore, designed to identify the factors that affect the academic performance of College students and thereby suggest possible solutions.

The study was conducted at St. Mary's and Addis Ababa Commercial Colleges by considering the 2004 prospective graduating classes of Accounting Department students as samples. Since there was a possibility of getting students' CGPA from St. Mary's College, sample size was determined statistically and at 10% error term, 108 students were found to be representatives. But, no-response was received from five students. Only 103 of them were considered in the study. The size of sample taken from each stratum was decided on the basis of proportional sampling technique. Simple random sampling technique was employed and a structured interview prepared for the purpose was used to collect the data. From Addis Ababa Commercial College, 100 students were randomly selected so as to conduct the questionnaire survey. But due to low response rate, it was possible to get only 40 respondents. The data were analyzed through paired T-test and levels regression model. The preliminary findings revealed that there is no statistically significant difference in male and female students' academic performances at St. Mary's College. In addition, factors like studying program, starting time of study, study style, financial problems, use of reference materials, and the number of days of being absent from class are found to affect students' academic performances.

### **1. Introduction**

#### **1.1 Background**

Ethiopia, with a per capita income of \$115, is positioned at 170 out of 175 countries (World Bank, 1999). The country is among the world's poorest nations in terms of Human Development Index (HDI) which is 0.244 compared to 0.380 for Sub-Saharan Africa (UNDP, 1998). Education, being

one of the most important components of HDI, is considered to be an important means of bringing about development of a country. It helps to improve the quality of labor force that can enhance the social, economic and cultural development of a society. Therefore, Human Resources Development (HRD) has been taken as one of the most important objectives of the Government of Ethiopia though the capacity of the country keeps limiting what can be done. The government has been encouraging investment on various sectors including education by private investors. As a result, certain achievements were and are being recorded. There are now many private colleges that offer training in different fields of studies. Although this is an encouraging sign of improvement, this cannot itself be taken as the best measurement. The quality of manpower that private colleges produce should be studied and evaluated. Hence, the need for initiating research becomes an agenda for the day.

### ***1.2. Statement of the Problem***

Quality of manpower that comes from private colleges depends, among other things, on the academic competence of the students during their stay at colleges. The academic performance of students is affected by a multitude of factors. A study by Fantaw (1991) indicated that academic performance of students at tertiary level in Addis Ababa University is found to be influenced by factors like high school rank, degree of support, sex, type of school attended, English grade, length of study time, and their academic background. On the other hand, Habte (1988) found out ESLCE and freshman GPA of students as the most important factors that bring difference in academic performances of students at tertiary level. King and King (1970) also identified factors like ESLCE, GPA and English language result to be valid predictors of students' first year academic performance. Another study by Assefa B. and J, U. Cakiroglu (2002) on gender difference in science achievement indicated that there were gender differences in science achievements favoring male students. To this end, the study of Seleshi (2001) can also be taken as another example. There are also studies that associate differences in academic performance to environmental factors, which can be broadly categorized into social, economic, cultural and the teaching-learning system. All these evidences show the existence of different variables that affect the academic performance of students. These factors vary from place to place and from time to time. This study is particularly designed to closely examine the variables that determine the academic performance of private and public college students.

### **1.3. Objectives of the Study**

The major objective of this paper is to identify the factors that affect the academic performance of private and public College students and thereby suggest possible solutions. Hence, it will have the following specific objectives to:

1. see whether there is gender difference in students' performance;
2. identify most important factors that affect the performance of students of private and government Colleges;
3. suggest possible solutions for the improvement of quality of education at the Colleges.

## **2. Research Methodology**

### **2.1 Sampling Techniques and Method of Data Collection**

The study was conducted at St. Mary's and Addis Ababa Commercial Colleges by considering the 2004 prospective graduating classes of Accounting Department students. Since departments vary in the nature of subjects, the Accounting Department with large number of students was selected for analysis. Since there was a possibility of getting students' CGPA from St. Mary's College, sample size for the College was determined statistically. Accordingly, at 10% error term, 108 students were found to be representatives. But, due to no response from five students, only 103 respondents were considered. The size of sample to be taken from each stratum was decided on the basis of proportional sampling technique. Simple random sampling technique was employed and a structured interview prepared for the purpose was used. From Addis Ababa Commercial College, 100 students were randomly selected so as to conduct the questionnaire survey. But, due to low response rate, it was possible to get only 40 respondents and a similar questionnaire survey was used.

### **2.2 Data Analysis Techniques**

The data was analyzed through employing different statistical techniques ranging from simple descriptive statistics to regression techniques. From the descriptive techniques, percentages, chi-square analysis and mean values were used. To identify the gender difference and the factors that affect students' performances, paired t-test and levels regression technique were used respectively. Because of the small number of sample size, it was not possible to run levels regression with regard to students from Addis Ababa Commercial College.

### **3. Results and Discussions**

#### **3.1 Factors Affecting Students' Performance in Private Colleges: With regard to St. Mary's College**

The greater number of students in the department studied are found to be female accounting for 51.5%. From the sample distribution, 53 female and 50 male students were interviewed (see Annex 2). To see whether there is significant variation in CGPA of students due to variation in the sex of students, paired sample t-test was computed. The result of the analysis revealed that performances of female students are not significantly different from that of the male students when considered in terms of their Cumulative Grade Point Averages (CG.P.A) (Table 1). But the same computation was not done for Addis Ababa Commercial College students for reason of lack of data on students' CGPA.

**Table 1: Results of the Paired Samples T-Test for Comparing CGPA of Male and Female Students**

<i>Comparisons</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Std. Error Mean</i>	<i>t-value</i>	<i>Sig. Level (2-tailed)</i>
Cumulative GPA of Female Accounting Students	2.533	0.511	6.838		
Cumulative GPA of Male Accounting Students	2.641	0.524	7.014		
Cumulative GPA of Female Accounting Students versus Cumulative GPA of Male Accounting Students	-0.107	0.725	9.698	-1.10*	0.27

\*Not significant

Source: Survey data

In addition to the paired t-test analysis, efforts were made to identify the most important factors that would determine students' performance, which the following discussion dwells on.

#### **Variable Definition and Research Hypothesis**

**CGPA:** Dependent variable for the study. It represents the cumulative grade point average of students for three semesters.

**AGE:** Represent age of students. The expectation is those students who are older could have lower performance than those who are younger.

**EDUCBAC:** Dummy for educational background for students; 1 if students come from related background field like vocational and 0, if otherwise. The expectation is those students who come from related fields have better opportunity to earn good grades.

**REFMAT:** Dummy for students' utilization of reference materials; 1 if students use reference materials and 0, if otherwise. Those students who substantiate their classroom learning with additional reference materials would have higher chance of getting better grades.

- FINPROB: Dummy for financial problem of students; 1 if students frequently face financial problems to settle their tuition fees and to purchase educational materials and 0, if otherwise. The expectation is those students who have financial problems would have lower chance of earning good grades.
- STUDPROG: Dummy for students' studying program; 1 if students have study program and 0, if otherwise. Those students that have a study program would have better chance of earning good grades.
- TIMSTUDY: Dummy for time of starting studying; 1 if students start studying before exams approach and 0, if otherwise. Those students that start studying as early as classes begin would have higher chance of earning good grades.
- STDYWITH: Dummy for with whom students study; 1 if students study with friends and 0, if otherwise. Those students that study with friends would have higher chance of earning good grades.
- STUDSTY: Dummy for study style of students; 1 if students support their study by doing different exercises/worksheets and 0, if otherwise. The expectation is that those students who support their studies by doing several exercises would have better chance of earning good grades.
- FUTPLAN: Dummy for students' future plan; 1 if students have the plan to further their education and 0, if otherwise. The expectation is those students that have future plans to continue their first degree studies do stronger than those who don't have the plan to continue and earn better grades.
- ABSENTEE: Represent number of days that students are absent from class. The expectation is those students who have many number of absentees would have higher chance of earning lower grades.

To make the list of variables as exhaustive as possible, other variables like transportation problem of students, living place of students and students' preference of teaching styles were also included in the data collection list. But, they were not included in the levels regression model, either because of less variability among the sample students and hence less explaining power or because of multi-collinearity effect with other variables included in the model.

**Table 2: Results of the Levels Regression Model for Identifying the Determinants of Students' Academic Performances at St. Mary's College (Dependent Variable: Cumulative GPA of Students)**

<i>Ser. No.</i>	<i>Predictor Variables</i>	<i>B</i>	<i>Std. Error</i>	<i>t</i>	<i>Sig.</i>
1	(Constant)	2.202	0.149	14.753*	0.000
2	AGE	-0.004863	0.006	-0.867	0.388
3	EDUCBAC	0.001653	0.036	0.458	0.648
4	REFMAT	0.705	0.105	6.741*	0.000
5	FINPROB	-0.150	0.082	-1.834**	0.070
6	STUDPROG	0.351	0.077	4.580*	0.000
7	TIMSTUDY	0.007805	0.064	1.215**	0.1
8	STDYWITH	0.009747	0.069	1.406	0.163
9	FUTPLAN	-0.0043	0.058	-0.738	0.462
10	STUDSTY	0.002467	0.018	1.395**	0.1
11	ABSENTEE	-0.005	0.018	-2.777*	0.007
* and ** are significant at 1% and 10% respectively					
<b>Overall Model fit Summary (F value 39.33 with significance level of 1% and adjusted R<sup>2</sup> value of 0.8)</b>					

*Source: Survey data*

Results of the levels regression model revealed that variables like utilization of additional reference materials, financial problems, study program of students, studying style of students, and the number of days that students are absent from class are found to determine students' performance in a significant manner.

From the result, those students who used additional reference materials are found to earn better grade point averages, which is statistically significant at 1% level. This means that as the value for the variable shifts from zero to one, the CGPA of students increases by a factor of 0.7. This is so because using additional reference materials gives students the possibility of getting better understanding about the subject matter.

Again as can be seen from the levels regression result, the CGPA of students who are constrained by financial problems are found to be negatively affected in a statistically significant manner (at 10% level) by a factor of 0.15. This could be justified in various ways. In the first place, those students that have frequent financial problems could be mentally unstable, and daydreaming about their problems that deter their efficiency in the teaching learning process. Although the College's policy is to provide students with free photocopied materials, there are still some instructors who order their students to get a copy of the instructor's materials from their own pocket. Hence, those students with severe financial constraint would have lower opportunity to get additional photocopied materials that actually have a direct impact on the students' understanding of the subject matter. The result of the model also indicates that those students that study their subject matters by developing study programs are found to get additional grade point averages of 0.351,

which is statistically significant at 1% level. Studying by following their study schedule serves students to keep daily track of what has been taught in class and understood, and helps them to see their gaps for any possible clarity and assistance for matters that are not clear. In addition, it gives them adequate time to internalize the subject matter very well.

In addition, the time of starting study is also found to determine students' academic performances at 10% significant level. Those students who start studying their subject matters well before examinations approach are found to get additional grade points of 0.0078. This is because studying by starting as early as possible gives students to have adequate preparation and full coverage of the subject matter that has a direct impact on their performances in answering exam questions. On the other hand, students' studying style is also found to determine their performances during exam periods. Studying by doing different exercises is found to influence students' CGPA by a factor of 0.0024, which is significant at 10% level. Since the subjects for the study are Accounting Department students, doing different worksheets and examples gives students the opportunity for better understanding of the subject matter.

The other important variable which was found significant by the levels regression model is the number of days that students are absent from classes. Absenteeism from class was found to decrease students' cumulative grade point average by a factor of 0.005, which is statistically significant at 1% level. When students are absent from class, the opportunity for understanding of the subject matter decreases, which has a direct influence on their performances during exam times. However, variables like students' age, educational background, future plan, and studying with friends are not found to determine their performances in a statistically significant way.

### **3.2 Factors Affecting Students' Academic Performances in Government Colleges: The Case of Addis Ababa Commercial College**

**Table 3 Chi-Square Analysis of Trend of Students' Result with Number of Days They Have Become Absent**

<i>Trend of results of the students</i>	<i>Frequency and Percentage Values</i>	<i>No. of Days Students are Absent from Class</i>			<i>Total</i>
		<i>0-5 days</i>	<i>6-10 days</i>	<i>Over 10 days</i>	
Increase	Frequency	4		2	6
	%	66.7%		33.3%	100%
Decrease	Frequency	21	8		29
	%	72.4%	27.6%		100%
No Change	Frequency	5			5
	%	100.0%			100%
Total	Frequency	30	8	2	40
	%	75.0%	20.0%	5.0%	100%
<i>Test of Significance</i>	<i>Pearson <math>\chi^2</math> Test</i>		<i>Likelihood Ratio Test</i>		
	<i>Value</i>	<i>Sig. Level</i>	<i>Value</i>	<i>Sig. Level</i>	
	<b>14.866</b>	<b>.005</b>	<b>13.195</b>	<b>.010</b>	

**Source: Survey Data**



The most important factors that were assumed to affect students' performance were considered using Chi-Square. One of these factors was the number of days during which students become absent from classes. From the analysis, it was found out that students who have registered many absentee days were found to show a decreasing trend in their overall results. This situation was statistically significant at 1% significance level (Table 3).

**Table 4 Chi-Square Analysis of Trend of Students' Result with Students' Study Program**

<i>Trend of results of the students</i>	<i>Frequency and Percentage Value</i>	<i>Do You Have Studying Program?</i>		<i>Total</i>
		<i>Yes</i>	<i>No</i>	
Increase	Frequency	3	3	6
	%	50.0%	50.0%	100%
Decrease	Frequency	10	19	29
	%	34.5%	65.5%	100%
No Change	Frequency	5	0	5
	%	100%	0.0	100%
Total	Frequency	18	22	40
	%	45.0%	55.0%	100%
<i>Test of Significance</i>	<i>Pearson <math>\chi^2</math> Test</i>		<i>Likelihood Ratio Test</i>	
	<i>Value</i>	<i>Sig. Level</i>	<i>Value</i>	<i>Sig. Level</i>
	7.468	0.024	9.371	0.009

Source: Survey Data

For most of the students, developing a study program was found to be important to score better results. Those students who did not have study programs have shown a decreasing trend in their overall academic performance. Table 4 clearly illustrates this.

**Table5 Chi-Square Analysis of Trend of Students' Result with Time of Starting One's Study**

<i>Trend of Results of the Students</i>	<i>Frequency and Percentage Value</i>	<i>When Do You Start Studying?</i>			<i>Total</i>
		<i>Right after Class Begins</i>	<i>When Examination Approaches</i>	<i>In the Middle of the Semester</i>	
Increase	Frequency	3	1	2	6
	%	50.0%	16.7%	33.3%	100%
Decrease	Frequency	8	14	7	29
	%	27.6%	48.3%	24.1%	100%
No Change	Frequency	4		1	5
	%	80.0%		20.0%	100.0%
Total	Frequency	15	15	10	40
	%	37.5%	37.5%	25.0%	100%
<i>Test of Significance</i>	<i>Pearson <math>\chi^2</math> Test</i>		<i>Likelihood Ratio Test</i>		
	<i>Value</i>	<i>Sig. Level</i>	<i>Value</i>	<i>Sig. Level</i>	
	7.111	0.130	8.539	0.074	

Source: Survey Data

As any one may naturally inquire, the purpose of studying is fundamental to register better results and to acquire knowledge. Whether or not this worked in the study was analyzed. The result of the

analysis indicated that those students who started their study earlier were found to show increasing trends in their overall academic performance (Table 5).

**Table 6 Chi-Square Analysis of Trend of Students' Result Versus With Whom They Study**

<i>Trend of results of the students</i>	<i>Frequency and Percentage Value</i>	<i>With whom do you study?</i>			<i>Total</i>
		<i>Alone</i>	<i>With a friend</i>	<i>As the situation allows me</i>	
Increase	Frequency		5	1	6
	%		83.3%	16.7%	100%
Decrease	Frequency	14	7	8	29
	%	48.3%	24.1%	27.6%	100%
No Change	Frequency	3	1	1	5
	%	60.0%	20.0%	20.0%	100%
Total	Frequency	17	13	10	40
	%	42.5%	32.5%	25.0%	100%
<i>Test of Significance</i>	<i>Pearson <math>\chi^2</math> Test</i>			<i>Likelihood Ratio Test</i>	
	<i>Value</i>	<i>Sig. Level</i>		<i>Value</i>	<i>Sig. Level</i>
	9.067	0.059		10.236	0.037

Source: Survey Data

Study style of students is found to be associated with the trend of students' CGPA at 5% and 10% level respectively based on Pearson Chi-Square criteria and Likelihood Ratio Test. This result is consistent with the case of St. Mary's College for the same obvious reasons (see Table 7).

**Table 7 Chi-Square Analysis of Trend of Students' Result versus Study Style of Students**

<i>Trend of results of the students</i>	<i>Frequency and Percentage Value</i>	<i>Study Style of Students</i>				<i>Total</i>
		<i>By Taking Short Notes</i>	<i>By Making Bold on the Exercise Book</i>	<i>By Doing Exercises while Studying</i>	<i>By Doing Exercises after Finishing Study</i>	
Increase	Frequency		3	2	1	6
	%		50.0%	33.3%	16.7%	100.0%
Decrease	Frequency	8	14		7	29
	%	27.6%	48.3%		24.1%	100.0%
No Change	Frequency	1	3		1	5
	%	20.0%	60.0%		20.0%	100.0%
Total	Frequency	9	20	2	9	40
	%	22.5%	50.0%	5.0%	22.5%	100.0%
<i>Test of Significance</i>	<i>Pearson <math>\chi^2</math> Test</i>			<i>Likelihood Ratio Test</i>		
	<i>Value</i>	<i>Sig. Level</i>		<i>Value</i>	<i>Sig. Level</i>	
	13.287	0.039		10.873	0.092	

Source: Survey Data

The use of additional reference materials was also considered for analysis. The result indicated that although all of those who have reported increment in their result have used reference materials, the difference in their academic performance was not found to be statistically

significant. This indicates that the use of reference materials has nothing to do with students' academic performance. Several reasons could be forwarded to back up this argument. The most important, among which, is the fact that instructors might have provided their students with adequate notes and the exams might have been note-based. This situation does not require students to look for other reference materials if they opt for higher performances as far as their GPA is concerned (see Table 8).

**Table 8 Chi-Square Analysis of Trend of Students' Result with Students' Use of Reference Materials**

<b>Trend of Results of the Students</b>	<b>Frequency and Percentage Values</b>	<b>Have You used Reference Materials?</b>		<b>Total</b>
		<b>Yes</b>	<b>No</b>	
Increase	Frequency	6	0	0%
	%	100.0%		6
Decrease	Frequency	24	5	100.0%
	%	82.8%	17.2%	29
No Change	Frequency	5		100.0%
	%	100.0%		5
Total	Frequency	35	5	100.0%
	%	87.5%	12.5%	40
<b>Test of Significance</b>	<b>Pearson <math>\chi^2</math> Test</b>		<b>Likelihood Ratio Test</b>	
	<b>Value</b>	<b>Sig. Level</b>	<b>Value</b>	<b>Sig. Level</b>
	2.167	0.338	3.479	0.176

*Source: Survey Data*

#### **4. Conclusions and Recommendations**

The study indicated that except for some specialties, the determinants of students' academic performance are similar for Private and Government owned colleges. Financial constraint is found to influence students' academic performances in private Colleges but not in the case of Government Colleges like Addis Ababa Commercial College. This may be because of the fact that Addis Ababa Commercial College gives allowance/ pocket money for the students that could help them to solve their financial constraints. On the other hand, the use of reference materials was found to be a significant factor only in the case of St. Mary's College. This may indicate that the nature of examinations is perhaps based on classroom lecture notes in the case of Addis Ababa Commercial College.

From the results of the study, it is possible to draw the following specific recommendations.

1. Instructors should devise a mechanism of supporting their classroom teaching with some tutorial sessions so as to support students with different exercises and/or worksheets. This could help the students to have better understanding of the subject matter they are learning.

2. There should be a way of supporting students for free access to photocopied teaching materials, and advise them to substantiate their reading/study on classroom lecture notes with additional reference materials and handouts.
3. There is a need to advise students not to be absent from classes, to have study programs and to start their study as early as possible, probably through the Students' Affairs Offices of the Colleges.

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### **Annex 1: Different Option for Sample Size Determination**

$Z_{\alpha/2}$	Population Variance ( $\sigma$ )	$(Z_{\alpha/2}) * (Z_{\alpha/2}) * (\sigma)^*$	Error term (E)	$(Error Term)^2$	Estimated Sample Size (n)
1.96	0.53	1.07910544	5%	0.0025	431.642176
1.96	0.53	1.07910544	10%	0.01	107.910544
1.96	0.53	1.07910544	8%	0.0064	168.610225
1.96	0.53	1.07910544	6%	0.0036	299.7515111
1.96	0.53	1.07910544	7%	0.0049	220.2256
1.96	0.53	1.07910544	9%	0.0081	133.2228938

Sample size is determined from the following statistical formula:

$$SampleSize (n) = \frac{\left( Z_{\alpha/2} \right) * \left( Z_{\alpha/2} \right) * (\sigma)^* (\sigma)}{\left( ErrorTerm \right)^2}$$

**Annex 2: Frequency Distribution of Variables**

<i>Description of Variables</i>		<i>Frequency</i>	<i>Percent</i>
Sex of students	Female	53	51.5
	Male	50	48.5
<i>Total</i>		<i>103</i>	<i>100.0</i>
Educational Background of Students	Natural Science	68	66.0
	Social Science	22	21.4
	Vocational	12	11.7
	Others	1	1.0
<i>Total</i>		<i>103</i>	<i>100.0</i>
Have you used reference material?	Yes	94	91.3
	No	9	8.7
<i>Total</i>		<i>103</i>	<i>100.0</i>
Have you ever Purchased Reference Material?	Yes	47	45.6
	No	56	54.4
<i>Total</i>		<i>103</i>	<i>100.0</i>
Do You Have Studying Program?	Yes	77	74.8
	No	26	25.2
<i>Total</i>		<i>103</i>	<i>100.0</i>
Future Plan of the Students	Further Education and to get Employed	36	35.0
	To Further My Education	37	35.9
	Have no Plan	1	1.0
	To get Employed	29	28.2
<i>Total</i>		<i>103</i>	<i>100.0</i>
What is Your Study Style?	By Taking Notes	39	37.9
	By making Bold on the Exercise Book	10	9.7
	By Doing Exercises while I study	3	2.9
	By Doing Exercises after I finished Studying	46	44.6
	Any Combinations of the above	5	4.9