

Analysis of Factors Influencing Academic Achievement of Students in Some Selected Schools in Addis Ababa

Daniel Basazen* Bamlaku Alamirew (PhD)
School of Economics, Debre Markos University, Debre Markos, Ethiopia

Abstract

Education is considered as the backbone for children's future life. In doing so, it shapes the future development of a country. Therefore, it is imperative to adjust children's way of life in a more social and economic order through establishing better-targeted education systems. In this regard, focusing on improving the academic performance of children is one of the most crucial and important investments. In fact, there are bottlenecks that constrain students from performing well at school. The purpose of this study is to assess factors that influence the academic achievement of students in some selected schools in Addis Ababa. The necessary data for the study were generated from both primary and secondary sources. In-depth interviews and questionnaires were the principal means of generating data from primary sources. Secondary data were obtained from student profiles and mark lists. Four private and four public schools randomly selected from yeka sub city in Addis Ababa. A total of 255 grade eight students who enrolled in 2014/15 were randomly selected from the selected eight schools and used as sample for this study. The data obtained were analyzed using descriptive and inferential statistics. STATA was used to analyze the data. Finally, mothers' literacy, fathers' literacy, average class test score, parents' income, domestic working hours positive and participating in school clubs negative and statistically significant relationship were observed with primary school leaving examination score. It is recommended that the government should take some serious initiatives in uplifting the socio-economic status of parents, especially focusing on increasing their income through targeted income-generating activities and providing better opportunities to upgrade parental educational level to increase their children's academic performance.

Keywords: Parent literacy, determinants, academic achievement, Addis Ababa

1 Introduction

Education is a way by which human beings transmit their experiences, new findings, and values accumulated over years, in their struggle for survival and development, through generation (Tekeste, 1996). Furthermore, Mammo (2005) stated that education is a strong instrument that empowers human beings to foster sustainable development, to provide democracy, justice, and gender equality, social and economic development. These indicate that education enables individuals and societies to make all rounded and participants in the development process of knowledge, ability and skills. An important aspect of educational goal is promoting socially responsible behavior in the form of moral character, conformity to social rules and norms, cooperation and positive style of social interaction (Ballantine, 1993 and ETP, 1994). In doing so, it shapes the future development of a country. Therefore, it is imperative to adjust children's way of life in a more social and economic order through establishing better-targeted education system. In this regard, focusing on improving the academic performance of children is the most crucial and important investment. In fact, there are bottlenecks that constrain students from performing well at school while several studies have been conducted to unravel factors affecting the academic achievement of students. Derebssa (2006) revealed that the Ethiopian tradition of teaching and learning process which leads the students to have less preference to actively participate in learning. This is due to lack of prior experience of teaching method, poor relationship between teachers and students, teachers' lack of expertise, lack of teaching material or inappropriate curricular materials. Expanding access to quality education is another pressure of poor academic achievement (Ayalew, 2005). But still statistics shows that majority of students scored very poor result in eighth grade school leaving examinations, because of this, students' loss their motivation to continue learning, the reason could be due to some problems rather than quality of education and teaching and learning processes. Therefore, this study aimed to give brief empirical analyze on factors which related to schools, parents and students. In order to address the objectives the following research questions are raised.

Do gender and student activities significantly affect their academic performance?

What are the significant socio-economic factors of parent that influence the academic performance of students?

Does school types significantly affect the academic achievement of students?

2 Methodologies

2.1 Description of the study area

The study areas of this research are some selected schools in Addis Ababa, the capital city of Ethiopia. It lies on average at an altitude of 2350 meters above sea level and is located at 9⁰1'48"N and 38⁰44'24"E. Based on the 2007 census, the population of Addis Ababa is 3,384,569. Its area is 527km² with population density of

5165.1persons/km². The city is populated by multi ethnic people of different regions of Ethiopia. The country has as many as 80 nationalities speaking about 80 languages and belongs to a wide variety of religious communities.

2.2 Design of the study

The data for this study were collected from four private and four public schools. These eight schools were chosen using multi stage random sampling to get a wide representation of data across factors of academic achievements of students. In each chosen schools, a survey was conducted at randomly selected students from eighth grade. To determine the total number of participant, Yamane (1967) sample size calculation formula was used and a total of 255 students were surveyed from the study area. The number of surveys across schools varied depending on the total number of grade eighth students in the schools while probability proportional to population size (PPS) was applied. The information is collected from the students through questionnaire, interview and observations. The study used both qualitative and quantitative approaches to gather relevant data. Quantitative method was employed to collect data related to the academic achievement of respondents. Also qualitative methods have been used to the satisfaction of study objectives.

2.3 Methods of data analysis

Descriptive statistics were used for general comparison like percentages, standard deviation, minimum and maximum observations and means of the collected data. Independent t-test was performed to test the effect of independent groups of the explanatory variables. Graphs were included to show the relationship between dependent and independent variables. Pearson product moment was used to compute correlation coefficient. The Breusch-Pagan test for heteroskedasticity, variance inflation factors (VIF) for multicollinearity test and omitted variable test were employed for diagnostic tests. Because of the non-negative and limited value of the dependent variable (PSLE score), the data is subjected to Tobit model to explore the magnitude and direction of relationship between independent and dependent variables. These were performed by feeding row data into STATA version 13.0.

3 Results and Discussion

In the first part, the analysis of student related factors such as gender of student, participation in school clubs, class test score and studying hours have been involved. At the second part, the school related factors which are school type and tutorial class have been tested. Lastly, parent related factors like literacy status, income, family size, parent divorce and parents' occupation have been displayed.

3.1 Student related factors

3.1.1 Gender of student and academic performance

The data is subjected to t- test to check whether or not gender of the students is significantly related to academic performance. Table 2 shows the distribution of students according to their sex and the test result. Male students (M=60.9, SD=14.36) were better in their academic performance than female students (M = 55.2, SD = 12.8). The t-test (t = -3.3594 at 0.05 level) indicated that there is significant mean difference in academic achievements between male and female students. Ebebuwa (2010) observed different result that gender did not cause significant difference in the academic performance of students.

Table 2 show academic performance between male and female students

Group	Obs.	Mean	Std. Dev.	t-value
Female	147	55.2	12.8	
Male	108	60.9	14.4	-3.3594

Source: survey analysis, 2016

3.1.2 Students' Participation in school clubs and their academic performance

The Table 3 below shows that the mean achievements of school club participant students are 57.36, whereas that of the non-participant students is 57.97. This difference is not statistically significant (t = 0.3495, α = 0.05).

Table 3 difference between club participant and non-participant

Group	Obs.	Mean	Std. Dev.	t-value
Participant in school clubs	104	57.36	13.7	
Non-participant in school clubs	151	57.97	13.8	0.3495

Source: survey analysis, 2016

3.1.3 Domestic working hour and students' academic performance

The graph in Figure 1 displays an important association between PSLE score of students and number of hours they spend while being engaged in domestic work. These two variables are directly associated. As domestic working hours of students' increases, PSLE score also increases. This relation implies that student who feels responsible in supporting their parents at home tend to focus on their education as well. However, if the number

of hours that they spend working at home increases beyond a certain limit, then their academic performance decreases. This suggests that students should not avoid domestic work at all. Instead they can combine domestic work and schooling productively.

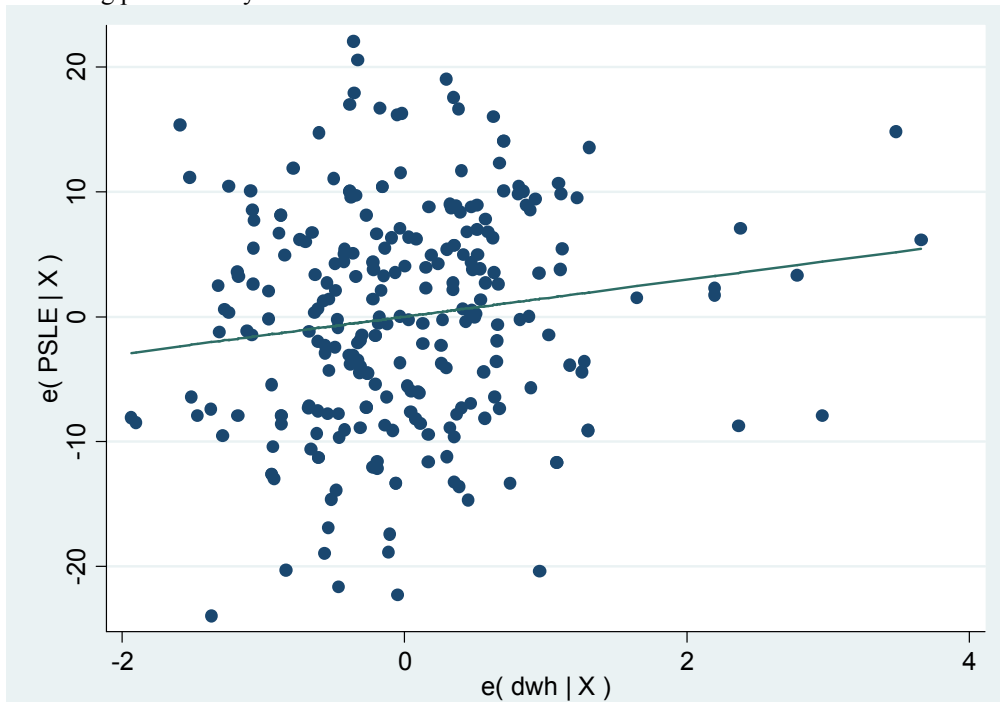


Figure 2, the relationship between PSLE score and working hour
Source: survey analysis, 2016

3.1.4 Studying hours of student and his/her academic performance

Figure 3 shows the graphical expression of the association between PSLE score of students' and the time that the student spent to study. These two variables are directly associated. As the studying time of student increases, their PSLE score also increases.

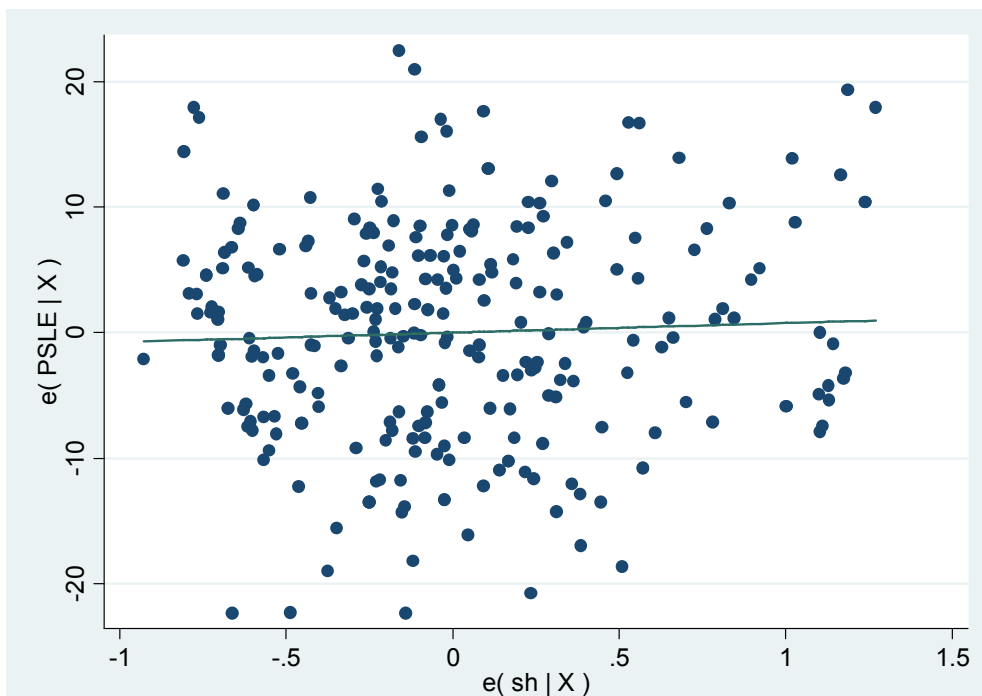


Figure 3 the relationship between PSLE score and studying hour
Source: survey analysis, 2016

3.1.5 Class test score and the PSLE score of students

The graph in figure 4 displayed an important association between PSLE score of students and achievement in

class test. These two variables are highly and directly associated. As school test achievement increases, PSLE score also increases as well. This relation implies that the student who achieve better in class test, He/she would score better in primary school leaving examination.

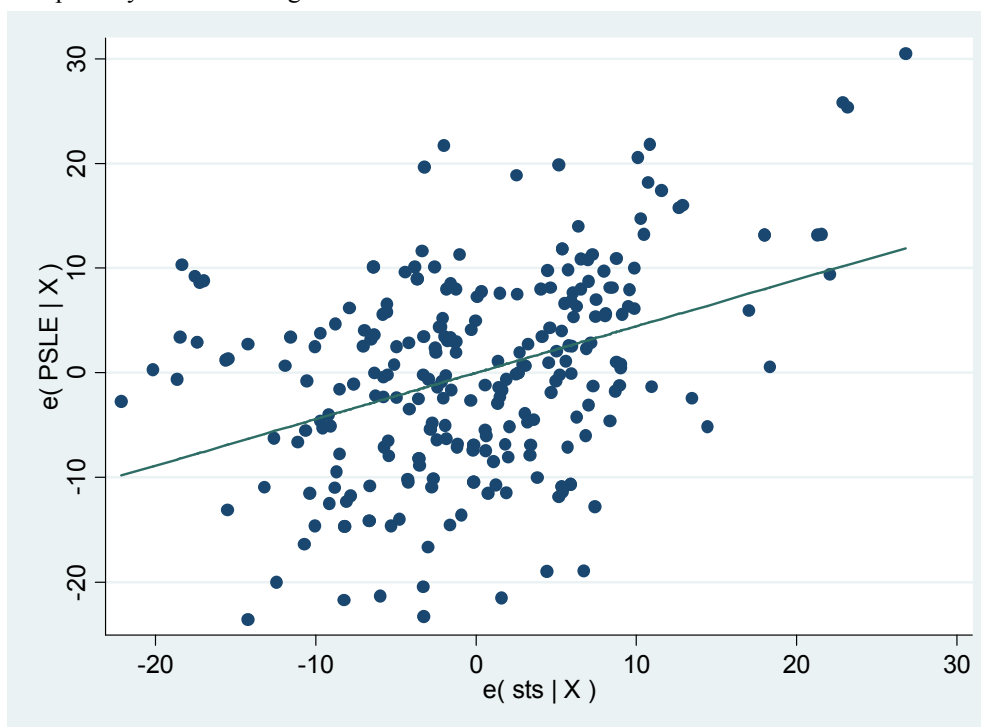


Figure 4 the association between PSLE score and class test score
 Source: survey analysis, 2016

3.2 School related factors

3.2.1 School type and students' academic performance

As shown in Table 5, t-test has been used to see whether there was a statistically significant difference in academic achievement between private and public school students. The mean PSLE score of private school is 67.61 and the mean PSLE score of public school is 53.82. Further the t-test indicates that (with $t = 7.9812$, $\alpha = 0.05$), there is a statistically significant mean difference between private and public school student's academic performance. Private schools are known by better school structure and smaller class size than public school. The smaller class size is important to guide students better, to discuss freely with their teachers and it creates strong student-teacher bonding which all have a positive effect on students' academic success (Crosnoe et al., 2004).

Table 5 the effect of school type on academic performance

Group	Obs.	Mean	Std. Dev.	t-value
Private school	70	67.61	11.69	7.9812
Public school	185	53.82	12.54	

Source: survey analysis, 2016

3.2.2 Tutorial class attendant and non-attendant students' academic performance

Independent sample t-test indicates that the mean PSLE score of tutorial learner is 59.34 and the mean PSLE score of non-learner is 55.08. And the computed value of $t = 2.45$ is observed and it is statistically significant at the alpha level of 0.050. This implies that there is statistically significant mean difference on PSLE achievement between tutorial class attendant students and not attendant.

Table 6 academic difference between tutorial class attendant and non-attendant student

Group	Obs.	Mean	Std. Dev.	t-value
Tutorial class attendant	151	59.34	12.59	2.45
Tutorial class non-attendant	104	55.08	14.28	

Source: survey analysis, 2016

3.3 parent related factors to the academic achievement of students

3.3.1 Home tutorial teacher and students' academic achievement

As evident in Table 8, the mean PSLE score of home tutor learner is 60.56 and the mean PSLE score of non-learner is 57.38. And the computed value of $t = -0.94$ is found to be statistically insignificant at the alpha level of

0.050. Therefore, the finding indicated that there is no a statistically significant mean difference in academic performance between students who have home tutor and those who do not have (Table 8).

Table 8 Relationship between home tutorial learners and not learners

Group	Obs.	Mean	Std. Dev.	t-value
Home tutorial learner	18	60.56	12.64	
Non-home tutorial learner	237	57.38	13.83	-0.94

Source: survey analysis, 2016

3.3.2 Relationship between whether parents are divorced and academic performance of students

To test whether or not there is a significant difference in academic performance of students with regard to living with divorced parent or non-divorced parents. The mean score of non-divorced parents was about 57.98 and divorced parents' student mean score was 54.72. The computed t-test ($t = -1.20$ at $\alpha = 0.05$ level of significance) revealed that there is no statistically significant difference between the two parent groups in academic performance of their children.

Table 9 t-test for parents' divorce and academic performance

Group	Obs.	Mean	Std. Dev.	t-value
Divorced parent	29	54.72	12.15	
Non-divorced parent	226	57.98	13.92	-1.20

Source: survey analysis, 2016

3.3.3 Father literacy and academic achievements of students

Figure 6 shows the relationship between school leaving examination result of the surveyed students and their father literacy rate. As shown in Figure 6 below, father literacy and students' results are highly and positively associated. As father literacy increases, primary school leaving examination result of students also increase and vis-a-vis. Similarly, Eggen (1999) suggested that in order to succeed in schools, low parental educational level students' need more structure and motivational support than their high parental educational level students.

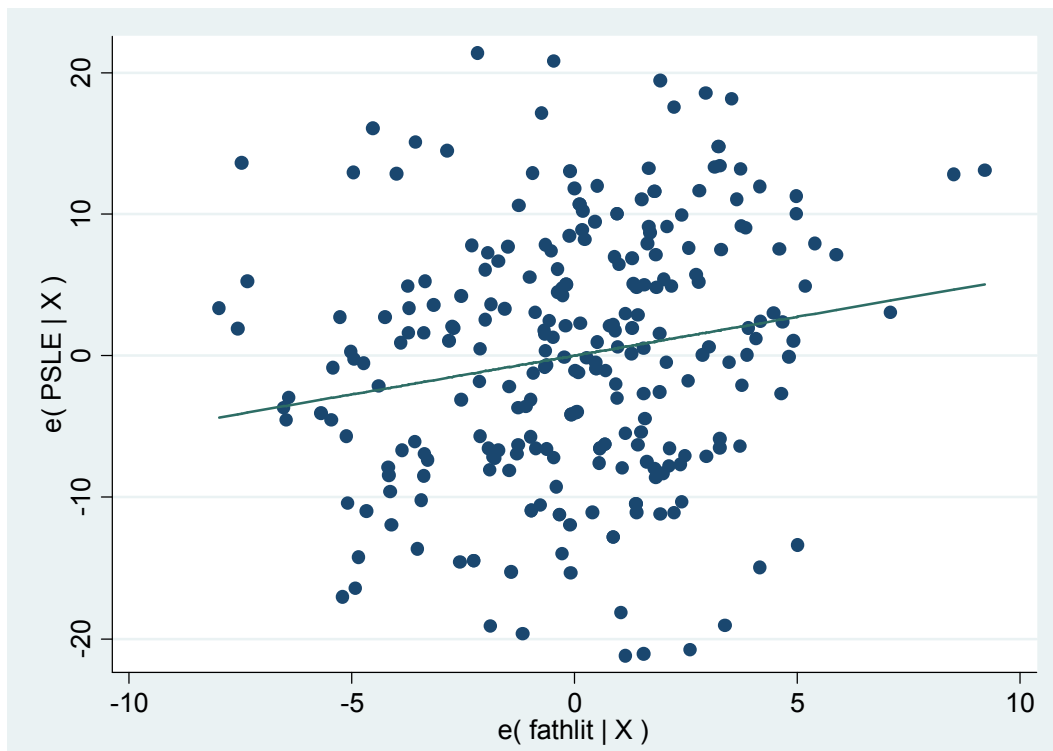


Figure 6 the association between PSLE score and father literacy status

Source: survey analysis, 2016

3.3.4 The relationship between mother's literacy and students' academic achievement

T-test indicates that as mother's literacy increases, primary school leaving examination result of students also increases. This indicates that as mothers educational level increases, their understanding towards education also increases that initiate them to help their children in academic activities.

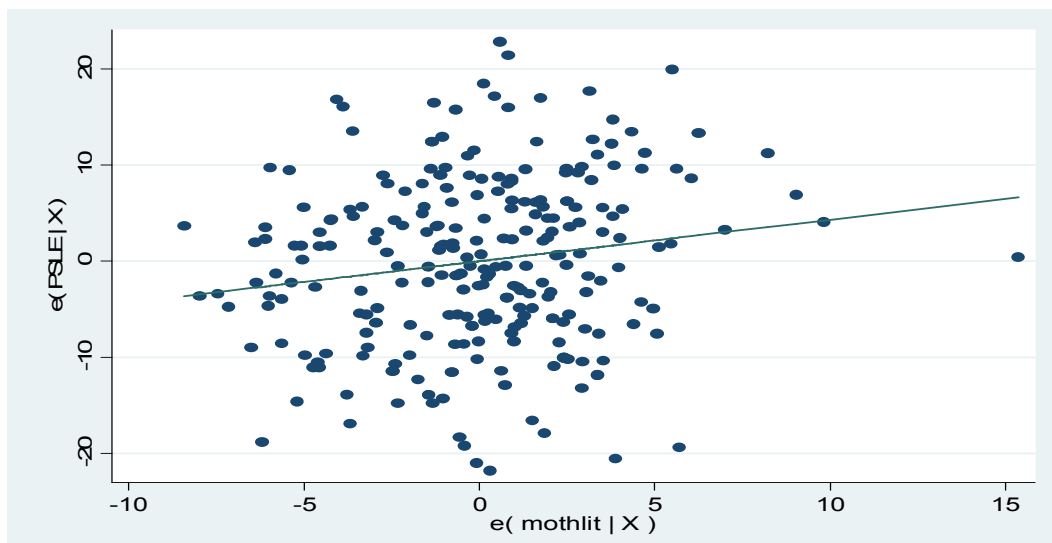


Figure 6 the association between PSLE score and mother literacy score
 Source: survey analysis, 2016

Here is an interview that supports the observed result regarding parents' literacy. A student at Addis Birhan School and he said that:

“My families are not educated and they have no idea about the different subjects I am taking since grade 8. No one helps me in home-studying and to do my homework. Most of the time, I do not get correct answer for the questions I needed help at home. Because of this my result is not good.”

3.3.5 The relationship between parent's income and their children academic performance

Figure 7, below shows the graphical expression of the association between parents' monthly income with their children primary school leaving examination score. As we see from the graph, most values of parents' income are concentrated below 6000 and PSLE score is below 70. When parents' income decreases, the PSLE score also decreases. Therefore, they are highly and directly associated with each other. Thus creating better monthly income is advisable not only improving the living standard of the household, it also positively affect their children's academic performance.

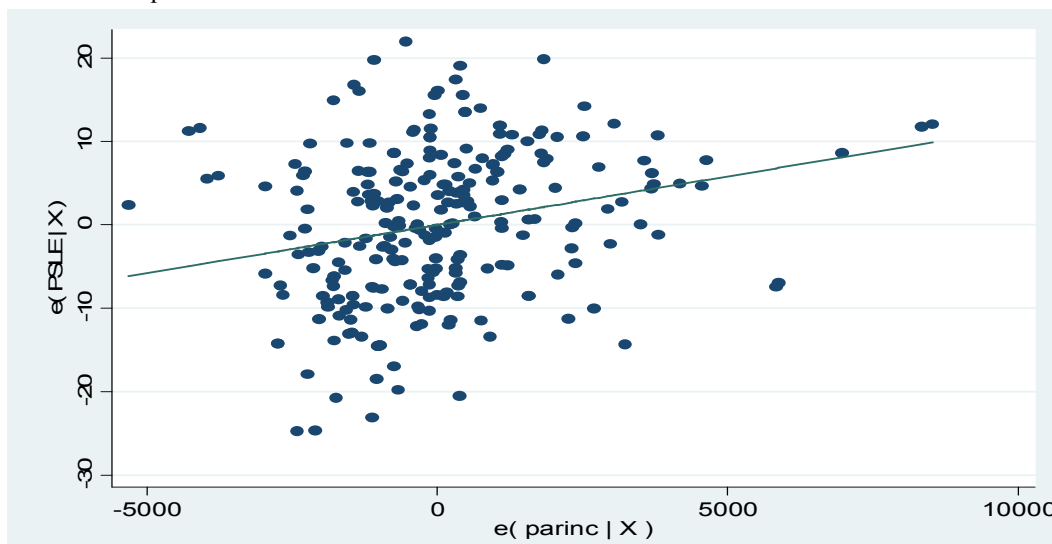


Figure 7 the association between PSLE score and parents' income
 Source: survey analysis, 2016

The interview result that match with the above result.

“My families do not have enough income and they did not fulfill my educational materials. Because of this, most of the time I did not have extra exercise book, reference books and other related materials for studying. That hinders me from writing personal note and to do home and class work properly and it affects my study in general. They also cannot cover the cost for my uniform. Because of these, my teachers sometimes get

angry on me and punish me. Due to this I lack the interest to go to school and study which directly affects my performance. If my parents fulfill all my educational materials, I will perform very well by studying and doing my homework, classwork and tests very well." This is Shalom's interview from Biruh Tesfa school grade eight students.

3.3.6 The relationship between family size and academic achievements of students

When we look Figure 8 below, the graph shows the relationship between family size and PSLE score of students. The trend shows decreasing. That is, as family size increases, PSLE score also decreases. Therefore, being large family is a disadvantage for academic performance of students while small size families are well achievers.

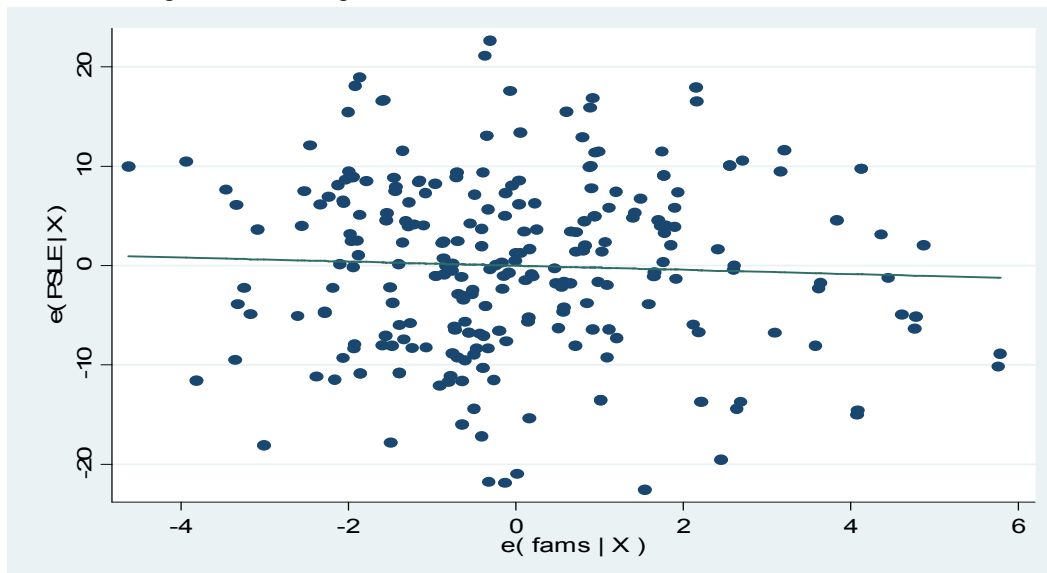


Figure 8 the association between family size and PSLE score

Source: survey analysis, 2016

3.7 Tobit Regression results and interpretations

The regression analysis of the hypothesized independent variables which were expected to affect academic performance of students' in the study area is provided in (Table 12). The results of the regression shows that from the expected twenty two explanatory variables that were included in the model, six of them were found to be statistically significant factors (at $\alpha = 0.05$) that explained the variations in the status of students' academic achievement in the study area.

There is a statistical significant ($t = 6.79, \alpha = 0.01$) relationship was found between average class test score and PSLE score. Having better average class test score, will helps the students to have better primary school leaving examination result. An average mark increase in class test score of student would increase PSLE score of the student by a factor of 0.47, keeping other factors constant.

Similarly, this study also revealed significant relationship between parents' income and students' academic performance. Keeping other factors constant, as a unit increase in parents' income would result a 0.0011 increase in their children's academic performance. This difference is statistically significant ($t = 3.69, p < 0.01$)

Literacy level of mother (mothlit) of the respondent student was positively and statistical significantly ($t = 2.54, p < 0.05$) related to the academic performance of their children in the study area. As the literacy level of mother increases in a unit, the probability of students performing high score in primary school leaving exam was increases by a factor of 0.43, keeping other factors constant.

Furthermore, the significance of the predictor variables in influencing students' academic performance indicates that father's education (fathlit) happen to be significant ($t = 3.13, p < 0.01$), this means that father's education directly influences students' performance in school, keeping other factors constant, as a unit increase in father's educational level would have a corresponding effect on their children academic outcome and attainment to increase by 0.61 mean marks.

Similar result was reported by Chen (2009) that parental education is a key determinant of student achievement. Chen observed that father's education to have a significant positive effect on academic achievements for both boy and girl students. Educated parents would identify the need of their children's education and they may support their children in academic activities in a better way than those who are not educated (Kangan, 1978). Educated parents might also facilitate the learning materials at home, encourage, continuous follow up and motivate them to score better academically. As we see the regression analysis here in this study (Table 12) further confirmed this as seen in the table above. The lion share of respondents indicated

that the level of parental education significantly ($\alpha = 0.05$) affect the academic performance of students. Ager (2002) suggested that females' education is more strongly and adversely affected by parents who are illiterates than literates.

Student domestic working hour (dwh) responsibility makes them to be more programed and effective in all aspect. Keeping other factors constant, an hour increase in spending on domestic work, the probability of the students' achieving high performance increases by a factor of 1.31. But this relation is statistically significant at $\alpha = 0.05$ ($t = 2.21$, $p < 0.05$). Students who help their parents by different domestic works will help them to be programmed and they would have activity schedule to study, to play, to do their homework and to support his/her parent. This activity play crucial role in their future life adjustment and their success in their academic achievements.

There is a significant relationship between participating in school clubs such as mini media club, know your country club and anti HIV/ADIS club and academic performance of students. An inverse relationship between students' involvement in extracurricular activities and academic performance has been observed in regression outcome. Participating in school clubs (pc) happen to be statistically significant ($t = -2.66$, $p < 0.05$) effect on PSLE score. Holding all other factors constant, being participant in school clubs would have a corresponding effect on the academic attainment to decrease by 3.37 units on the academic performance of the student.

Table 12 Tobit Regression Results

PSLE score	Coef.	Std. Err.	t	P > t
School class test	0.4666176	0.687542	6.79	0.000***
gender	1.205126	1.294326	0.93	0.353
father literacy	0.6097118	0.194849	3.13	0.002***
mother literacy	0.4324545	0.1699532	2.54	0.012**
Parent income	0.0011043	0.0002992	3.69	0.000***
family size	-0.2557175	0.3108757	-0.82	0.412
mother's age	0.3691582	0.2064988	1.79	0.075*
father's age	-0.0553985	0.2056959	-0.27	0.788
study hour	0.7426558	1.146081	0.65	0.518
domestic working hour	1.31076	0.6919469	2.21	0.059**
parent divorce	0.3412205	2.182753	0.16	0.876
tutorial class	-0.2976603	1.418905	-0.21	0.834
school type	-1.495132	1.915673	-0.78	0.436
participating in school Clubs	-3.373118	1.915673	-2.66	0.008***
home tutorial teacher	-0.5151619	2.420663	-0.21	0.832
employed father	-1.538618	1.823209	-0.84	0.400
self-employed father	-2.616915	1.77409	-1.48	0.142
Employed mother	1.52038	1.575927	0.96	0.336
Self-employed mother	2.571005	1.640455	1.57	0.118
Constant	-0.9978527	7.721356	0.13	0.897

Source: survey analysis, 2016 NB: *, **, *** represents statistically significance at 10%, 5% and 1% respectively

Based on tobt regression result above, the primary school leaving examination (PSLE) score model fit using only statistically significant coefficients is given by:

$$PSLEscore = -0.9978527 + 0.4666176 sts + 0.6097118 fathlit + 0.4324545 mothlit + 0.0011043 parinc - 3.373118 pc$$

5. Conclusions and recommendations

5.1 Conclusions

In general, the student who achieves high mean class test score and being private school learner. The students' parent literacy, spending time by doing domestic work to support parents after school, better parents' income and spent more time to study are advantages to achieve high primary school leaving examination score. On the other side participating in school clubs have negative influence in students' academic performance. All the rest variables have no statistically significant influence.

5.2 Recommendations

In this paper attempts have been made to dig out the major factors that affect the academic performance of students. Based on the findings, the following basic recommendations are suggested in order to minimize the problems and help to improve students' educational performance.

Most children come from families living in poverty, due to the lack of early identification and appropriate

educational material support; they are disposed to repeat grades. Well-designed programs support can have significant positive long-term impacts on primary school academic performance. Therefore, all stakeholder and school policy makers should act on the problem.

In order to give students the necessary assistance, it is advisable for both mothers and fathers to increase their literacy status. The school policy makers should make opportunity to spread parents' education in a strengthen manner.

School administrators should give much attention to participation of students in school clubs.

Active participation of students in school clubs make them busy and it prevents them from studying and doing homework. As a result it would be a cause for poor academic performance.

Therefore, the school administrates should make club participation schedule in reduced form.

At last, it can be recommended that school policy makers should think about an alternative admission criterion of students into general secondary school (grade 9th) learning. As discussed above a large portion of the variation (47%) in primary school leaving examination score is explained by average class test score. Based on this ground the inclusion of overall average class test score as a second thought in the selection of students for admission into grade 9th may make the admission criterion completer. However, further research will be required before putting these recommendations into practice.

References

- Adamu Gnaro, (2004) Gender differences in mathematics achievement at the second cycle primary schools of South West Shoa Zone, Oromiya Regional State (Unpublished) M.A. Thesis. AAU
- Ager Eshetu (2002) Factors Affecting Participation of Females in Secondary Schools in Gambella (Unpublished) M.A Thesis: AAU
- Ayalew Shibeshi, (2005) Education for Rural People in Ethiopia. Pp 1-3, 8-14. Addis Ababa, Ethiopia, Addis Ababa University.
- Ballatine, J. H. (1993) the sociology of education: A systematic analysis. Englwood Cliffs: Prentice Hall.
- Brent, S.T., (1998) Schools and Societies. USA, Pine foreign press.
- Chen, Q., (2009) Family Background, Ability and Student Achievement in Rural China - Identifying the Effects of Unobservable Ability Using Famine-Generated Instruments. http://repository.upenn.edu/gansu_papers/26 retrieved on 14-March-2016
- Croft A., (2002) Pedagogy in school Context: An intercultural study of the quality of learning, teaching, and teacher Education in the lower primary classes in southern Malawi. (Unpublished) PhD Thesis, Brighton, University of Sussex,
- Crosnoe, R., Johnson, M. K., & Elder, G. H., (2004) School size and the interpersonal side of education: An examination of race/ethnicity and organizational context. *Social Science Quarterly*, 85(5), 1259-1274.
- Derebssa Dufera, (2006) Tension between Traditional and Modern Teaching-Learning approaches in Ethiopian Primary Schools. CICE Hiroshima University, *Journal of International Cooperation in Education*, 9(1), 123 – 140
- Eamon M. K., (2005) Socio-demographic, school, neighborhood, and parenting influence on academic achievement of Latino young adolescent. *Journal of youth and adolescents*. 34(20), 163-175.
- Ebenuwa-Okoh E.E., (2010) Influence of Age, Financial Status, and Gender on Academic Performance among Undergraduates. *J Psychology*, 1 (2): 99-103
- Eggen, (1999) Educational Psychology. London: Prentice-Hall, Inc...
- Ministry of education (2015) The Education and Training Policy and Its Implementation.
- Kangan G.T., (1978) World Education Encyclopedia. New York: Facts on file Publication 1.
- Mammo Kebede Shenkut, (2005) Ethiopia: where and who are the world's illiterates? education for all global monitoring report 2006. Literacy for Life.
- Miller, P. and Win, R., (2005) The effects of individual and school factors on university students' academic performance, *Australian Economic Review*, 38 (1), 1-18.
- Montgomery, D.C. and Peck, E.A., (1992) Introduction to linear regression analysis, second edition, Wiley, New York.
- Park, K. H., & Kerr, P. M., (1990) Determinants of academic performance: A multinomial logit approach. *Journal of Economic Education*, 21(2), 101–111.
- Tekeste Negash, (1996) Rethinking Education in Ethiopia. (Unpublished) MA thesis. Uppsala, Sweden.
- Mlambo V., (2011) an analysis of some factors affecting student academic performance in an introductory biochemistry course at the University of the West Indies. *Caribbean teaching scholar*. 1(2), 79–92
- Yamane, T., (1967) Statistics: An Introductory Analysis, 2nd Edition, New York: Harper and Row.