Socio-economic Determinants of Academic Performance of Mature Students in Ghana: A Case Study of University of Ghana Entrance Examinations

ERIC OSEI-ASSIBEY & CYNTHIA ADU

Abstract

The purpose of the study is to investigate different socio-economic factors influencing the academic performance of 'mature applicants' in examinations for access into universities. Using University of Ghana as a case study, we collected bio and socio-economic characteristics data of 731 applicants after eight weeks of intensive access course in all the eleven University of Ghana Learning Centres across the country. Applying multivariate linear regressions data analyses technique and using applicants' performance in English, Mathematics and Logic as dependent variables, the study reports interesting findings. The findings indicate that applicants' prior educational level and sex are significant determinants of academic performance in all three courses. Relative to their male counterparts, the female applicants are found to perform significantly low with similar magnitude for all four performance indicators. Marital status is only found to significantly influence students' performance in English, with married students' overall performing significantly lower than their unmarried counterparts. The results also revealed that the longer the applicant has stayed out of school, the lower his or her performance in all three subjects. Applicants' motivation was also found to significantly predict academic performance in the access examinations. Students whose motivation was aligned to their work, that is for the purpose of obtaining promotion, securing a job, and/or change job, perform less than their counterparts who aimed at achieving personal interest or acquiring new knowledge. The findings have an important practical implication for designing an appropriate mature applicant access programme that suits applicants with diverse socio-economic backgrounds and which ensures better academic performance.

Introduction

One educational phenomenon currently growing in Ghana's tertiary education admission process is the mature applicants' window of admissions into universities in Ghana. Given that adult applicants seeking admissions into degree and diploma programmes are growing in numbers

and importance, many tertiary institutions based on National Accreditation Board guidelines on entry requirements, are conducting entrance examinations for potential adult learners who are 25 years and above. In a bid to provide broad access to tertiary education and to also increase their student enrolment figures, universities are increasingly becoming concerned about their inability to admit many more mature applicants who are seeking admissions into degree and diploma programmes because they do not meet the formal published admission requirements. There has been the argument that such mature applicants could be offered admission based on their maturity as well as knowledge, experience and skills obtained over their lifetime from their workplaces and family businesses. This, according to such viewpoint, more than compensates for deficiencies in the formal requirements. In any case, most of the universities, in an attempt to select applicants with the greatest chance of success, organise entrance course for a couple of weeks for interested applicants before they are made to sit entrance examinations.

The key question, however, in these entrance examinations is: which of the applicants is more likely to pass and gain admission into the university? In other words, what socio-economic factors will determine the academic performance of these mature applicants? There is multiplicity of factors that account for the disparities in academic performance of students at various levels of education, especially at the higher levels. These include individual and household characteristics such as gender, age, ethnicity, religious affiliations, marital status, socio-economic conditions, parental background, and motivation for higher learning and career. This relationship between academic performance and its determining factors has been studied in education literature, and this nexus has been emphasised by social scientists since the mid-1960s (Rothman, 2003; Caldas & Bankston, 2004; Wößmann, 2004; Chiu, 2007). According to Cassady and Johnson (2002), the cognitive factor has been argued to be the most consistent factor linked to declines in academic performance. This brings to the fore the issue of differences in educational attainments and their determinants.

Although there is a growing wealth of literature on the determinants of academic performance of students in academic institutions generally and adult or mature learners specifically, not many studies have been conducted on the socio-economic factors that influence mature

applicants' performance or who have the greatest chance of success in passing entrance examinations after undergoing a short access course programme. This current paper focuses on the Ghanaian perspective of demographic differences in academic achievements of mature applicants in entrance examinations. More specifically, the purpose of this study is to investigate different socio-economic factors influencing the academic performance of mature applicants in access examinations into tertiary education in Ghana. The study is particularly relevant as these applicants, many of whom have been out of school for a long time, are well advanced in age and are either working with enormous family responsibilities or remained unemployed with or without family responsibilities. How these factors, in addition to their own personal motivation, will impact on their performance is something that will be relevant in shaping policy of mature students' entry requirement and how access courses should be designed going forward.

The rest of the paper is structured as follows: Section Two presents the literature review while Section Three discusses methodology, econometric model specification and analysis of the preliminary findings using summary statistics. Section Four presents the regression results and discussions. The concluding remarks which include, summary of findings and policy implications of the study are presented in Section Five.

Literature Review

This section reviews a body of literature on determinants of academic performance of students in general and adult learners in particular. It examines the effects of demographic profile and socio-economic factors on academic performance of learners.

One of the most considered socioeconomic factors in academic performance is students' age and gender. According to Murphy and Carr (2007), the secondary education of girls is an important factor to poverty alleviation and economic sustainability. Comprehensive studies in the area of gender differences in academic performance have focused on mathematics, science, and verbal abilities (Halpern, 2000; Linver *et al*., 2002). While few researches show a vast advantage for males over females in educational achievements at higher levels (Weis *et al*., 2013; Eshetu, 2015), significant amount of studies have indicated that

the performance of female students in all major subjects outweighs that of their male counterparts (Alton-Lee & Prat, 2001; Wong *et al*., 2002; Mullis *et al.,* 2003; Perkins *et al.*, 2004; Hartley & Sutton, 2014; Zainal *et al.,* 2014). Some studies also find this difference to be subject specific with the females putting up significantly better performance in reading subjects while their male counterparts have advantage in science and mathematics (Blosser, 1990; DeBaz, 1994).

Contrary to the studies that found significant gender differences in educational achievements, some studies have found no significance, revealing more similarities than differences in academic performance of male and female colleagues at higher education (Hedges & Newell, 1995; Meece & Jones, 1996; Coley, 2001; Ambrose & Egbon, 2011). Similarly, Hannover and Kessels (2011) found these unclear differences in gender to be evident in mathematics achievements. Machin and Pekkarinen (2008) have attributed the mixed findings on academic performance between men and women to be attributive to the juxtaposition of the higher variance of boys' achievement to that of their female counterparts.

Findings on prior studies on age have shown mixed results (Jense, 1982; Cullen, 2002). Some studies found evidence of older or matured students faring better academically than their younger classmates (Crosser, 1991; La Paro & Pianta, 2000), while others found no significant difference in academic achievements between the young and old colleagues (Dur, 1992; McEvoy, 1989; Frisby, 1991; Bitrus *et al*., 2016). Individuals are argued to gain better understanding of what they learn as they age in education (Sturman, 2003; Ng & Feldman, 2008; Ogunkola, 2010). Watkins and Hattie (1985) in a US study found mature students to have effective learning approach and hence, produce better academic outcomes than their younger colleagues. Intuitively, an individuals' comprehension of knowledge as well as the stock of it increases over time. Through life long experience, older students are expected to have practical understanding of theoretical knowledge and excel better in education than their younger counterparts. On the contrary however, the absorption, articulative, and retention capacity of the younger ones is generally higher than their older colleagues.

Bitrus *et al.* (2016) examined the effect of age and marital status on academic performance of students of six Colleges of Education in North-Eastern Nigeria. The study employed a survey design to examine

the situation for a sample of 1,200 out of a total of 13,529 NCE students and found both variables to be insignificant in the academic performance of students. In a similar study in Nigeria, Ekundayo (2010) randomly sampled 367 education majors from two institutions and examined the influence of gender, marital status, and religious affiliation on academic achievements and revealed insignificant results for the three possible factors of academic performance. Other studies that found insignificant outcomes for marital status as a predictor of academic performance include Eyer (1993) and Wilson (2004).

Contrary to major findings on marital status and academic performance, Petrol (2010) found significant results for marital status and concluded that the academic performance of married students is significantly different from their unmarried counterparts. Park (2004) also found significant differences in the test scores between married and unmarried students at higher level education. In a study of the academic achievements of 240 Community College students in United States, Yess (2009) found marital status as a significant predictor in educational achievements. Proyrazi and Phillip (2006) also studied a sample of 149 international students of five universities in USA and found married students to record significantly higher performance relative to their unmarried colleagues. Female married medical students in Nigeria were found to put up poor performances with more re-sit examinations than their single female and male colleagues, and the differences in their performances were found to be statistically significant (Egwuala & Umeora, 2007).

On specific issues of factors affecting adult learner/mature student's academic performance, much of early work in this area have focused on the relationship between age and intelligence — investigating whether one's intelligence declines with age (Hassett 1983; Merriam *et al.*, 1993; Hallam (1996). According to Ndlovu and Moyo (2013) most of these studies were conducted in artificial settings, and timed educational tests were used to compare younger learners with older learners. Findings of these studies were that intelligence is not reduced through the aging process. For example, Hallam (1996) noted that the ability to comprehend new information and to think flexibly improves with age. Similar findings were made by Hassett (1983) who conducted an intelligence test using the Wechsler Adult Intelligence, by testing two very different sorts of abilities, the verbal and performance abilities of

the young and the old. The study reports that, where verbal portion measures competence with words and store of information, older people show little decline. The researchers concluded that overall decline in abilities is not great.

In an empirical study to determine the correlation of the factors affecting academic performance of adult learners in Zimbabwe, Ndlovu and Moyo (2013) found that attendance and academic self-concept have a strong positive correlation with performance. Learning styles and age were also found to affect performance while marital status and income did not significantly affect performance. Again, Vanslambrouck *et al.* (2017), using multivariate regression, studied adult learner characteristics as predictors of performance, satisfaction and intent-to-persist in online and blended environments and found that the motivation of learners influences all three outcomes. For both satisfaction and intent-to-persist, their results showed a positive relationship with controlled motivation and a negative relationship with autonomous motivation. The study also considered and included such background variables like age, gender, having children, prior diploma, employment status and current educational level in the regression, however only gender was found to significantly predict performance.

Methodology and Preliminary Data Analysis

The study employed various quantitative and statistical tools such as summary statistics, cross-tabulations and multiple regression techniques to analyse the effect of demographic characteristics and motivation of mature applicants on academic their performance in entrance examinations in English, Mathematics and Logic.

Multiple Regression Model Specification

Following studies by Hedges and Newell (1995) and Vanslambrouck *et al*. (2016), we specify a simple multiple regression analysis using OLS estimating techniques for the determinants of academic performance of mature students in three subjects namely, English. Mathematics and Logic. This is specified as:

$$Y_i = \beta_o + \beta_i X_i + \varepsilon_i$$

where y is the dependent variable measuring the average score obtained in English, Mathematics and Logic. The subscript *i* represents a specification for each score obtained in each of the three subjects (i.e., i = English, Mathematics and Logic scores). In this respect, four models were estimated. The variable *X* represents a vector of explanatory variables that have been identified in the extant literature. These variables include, age, sex, marital status, number of children, educational background, employment status, and the applicant's motivation for applying to get a degree.

Data Source and Characteristics of Surveyed Mature Students

The biographical data of surveyed students of the School of Continuing and Distance Education (SCDE) of College of Education, University of Ghana, together with the basic descriptive statistics (frequencies and percentages) as well as summary statistics (mean, standard deviation, minimum and maximum values) are presented where appropriate in Table TS.1, Table BS.1 and Table BC.2. Out of a total number of 856 mature applicants for the 2017 University of Ghana (UG) Access Course who sat for the entrance examinations, 757 completed the survey questionnaire. Out of the 757, a total of 731 questionnaires were found complete and deemed valid for analysis. Table TS.1 shows the sample distribution of mature applicants who sat for the UG Access Course Entrance examinations while Table BC.1 and Table BC.2 report the summary and descriptive statistics of the biographical data of the surveyed respondents.

Centre Distribution of Respondents

Majority of the respondents (that is those that took part in the 2017 UG Access Course for mature applicants) are centered in Accra and Tema, whilst relatively few are centered in Cape Coast and Ho. There is more or less even concentration of students in Bolgatanga and Koforidua as well as Kumasi and Tamale as presented in Table TS1. The table shows frequency and percent (%) distribution of total number of mature applicants who sat for the UG Access Course Entrance Examinations.

Table TS.1: Total Sample of Mature Applicants by Regional Centres

Centre	*Students who took the Exams*	
	Number	*Percent (%)*
Accra	359	49.11
Bolgatanga	31	4.24
Cape Coast	6	0.82
Koforidua	35	4.79
Kumasi	44	6.02
Sunyani	38	5.2
Takoradi	64	8.76
Tamale	47	6.43
Tema	79	10.81
Ho	7	0.96
Wa	21	2.87
Total	731	100

Source: 2017 UG mature applicants survey data.

Demographic Characteristics of Respondents

In the discussion, descriptive statistics and summaries are provided in relation to the total number of responses to a particular question on the biographical characteristics of the applicants. From the Table BC.2, it is evident that there are more males than females who registered for the 2017 Access Course with SCDE; 59.26% against 40.74% based on the total responses provided by the applicants. The average age of a student is 32.14 which confirms the purpose of the programme and the fact that applicants are mature and advanced in age. They are also shown to age 25 to 56 years. Table BC.1 shows summary statistics (Observations, mean, standard deviation, minimum, and maximum values) of student's age, number of children, and year of completion of highest education.

Table BC.1: Summary Statistics of Mature Applicants

Characteristics	*Summary Statistics*				
	Obs.	*Mean*	*Std. Dev.*	*Minimum*	*Maximum*
Age 709	32.14	6.29	25	56	
Number of children	518	1.54	1.36	0	6
Year of completion of highest education	681	2006	7.14	1977	2017

Source: 2017 UG mature applicants survey data.

Shown by the cumulative percentages, approximately 88.69% are employed while the remaining 11.31% are unemployed. The employed constituted 32.55% government salaried workers, 69.10% private salaried worker, and 19.59% self-employed. Out of the total number who responded to the question on their occupation, 10.21% are not employed but looking for job while the remaining 1.1% are not looking for job though they are unemployed. Majority of the respondents (54.12%) are single and never married. This is followed by 40.66%, 2.61%, 1.92%, and 0.69% who are married, separated, divorced, and widowed respectively. One hundred and fifty-one (29.15%) out of the total 518 indicated that they have no children. Majority of the mature applicants have fewer children, showing 23.94% with one child, 21.43% with two children, and a few of them (0.58) having as many as six children. On average, each of the 367 respondents has approximately two children. The maximum and minimum numbers of children reported were six and one respectively and showing an average of two children per respondent.

Majority of the respondents are Christians dominated by the Charismatic/Protestants denomination. A few are Muslims and the least are traditionalists. All the 726 (100%) mature applicants responded "yes" to the question whether they have had any formal education. Implicitly, the mature applicants show some considerable level of formal education. The highest level of education of the 726 respondents ranges from SSS/SHS, Diploma/HND, Technical/Vocational, other, 'O'/'A' level to JHS/JSS/Middle school. Evidently, majority of the mature applicants had senior secondary school education as their highest level of education. Also 718 out of the total 731 indicated their computer literacy skills. Majority of them are shown to have some ICT skills.

Also, responding to years of when they last left school, a vast majority left school in and around 2006 with a few leaving schools as far back as 1977, and the latest leaving in 2017. Impliedly, most of the mature students, on average, have been out of school for nearly eleven (11) years.

Table BC.2: Background Characteristics of Mature Applicants

Characteristic	*Number*	*Percent (%)*
Sex		
Male	432	59.26
Female	297	40.74
Total	729	100
Employment Status		
Salaried worker-Gov't	236	32.55
Salaried worker-Private	265	36.55
Self-employed	142	19.59
Not employed, looking for work	74	10.21
Not employed, Not looking for work	8	1.1
Total	725	100
Marital Status		
Single, never married	394	54.12
Married	296	40.66
Divorced	14	1.92
Separated	19	2.61
Widowed	5	0.69
Total	728	100
Religion		
Catholic	99	13.73
Protestant/Orthodox	102	14.15
Charismatic/Pentecostal	366	50.76
Islam	97	13.45
Traditional	3	0.42
Other	54	7.49
Total	721	100

Table BC.2 (*cont'd*)

Characteristic	*Number*	*Percent (%)*
Have formal education		
Yes	726	100
No	0	0
Total	726	100
Highest Level of Formal Education		
JHS/ JSS/ Middle school	21	2.89
SSS/SHS	393	54.13
'O' level/'A' level	38	5.23
Technical/Vocational/Training school	46	6.34
Diploma/HND	189	26.03
Other	39	5.37
Total	726	100
Computer Literacy		
Yes	593	82.59
No	125	17.41
Total	718	100

Source: 2017 UG mature applicants survey data.

Motivation for Applying to UG Access Course

People are motivated differently in their educational decision making. While some are job-related including motivation to attain pay upgrade, relatively decent jobs, promotion and competence, others are enthused by the need for personal growth and development in knowledge acquisition and enhanced confidence. A total of 717 of the surveyed students responded to the question on motivation for pursuing higher education as presented in Table MV.1, out of which acquisition of new knowledge formed the basis for 54.11% (majority) of them. Another 27.2% needed to achieve a personal interest or goal, 8.51% for promotion, 5.58% to get a job, 2.79% to change jobs, while the remaining 1.81% chose other reasons not stated. This suggests that the main reason for seeking a higher education is not job-related, but rather the need for personal development through knowledge acquisition.

Table MV.1: Motivation for Seeking further Education

Motivation	*Number*	*Percent (%)*
For promotion	61	8.51
Acquire new knowledge	388	54.11
To change job	20	2.79
To get a job	40	5.58
To achieve a personal interest/goal	195	27.2
Other	13	1.81
Total	717	100

Source: 2017 UG mature applicants survey data.

Students' Performance of the UG Access Course Entrance Exams

Table SP.1 shows the summary statistics on the performance of students on the UG Access Course and it presents the total number of students who took the entrance examinations for the three courses, the mean marks obtained, the standard deviation, as well as the lowest and highest marks obtained. The average mark obtained in English test was 42.6%, with the lowest and highest marks being 11% and 79% respectively. The highest mark (90%) from all three courses was obtained in Logic. This is followed by quantitative methods which recorded a maximum mark of 80%. The lowest mark was recorded in English (11%), followed by logic (13%). The mean marks obtained in the assessment for the three courses show 42.66%, 47.98%, and 45.95% for English, Mathematics, and Logic respectively. Impliedly, students obtained higher marks in Mathematics relative to Logic and English. The pass mark for the entrance exams was pegged at 40%. Marks below 40% are categorised as 'fail', while a mark of 40% and above is categorised as 'pass.'

SP.1: Marks Obtained in 2017 UG Access Course Exams

Variable	*Obs (#)*	*Mean (%)*	*Std. Dev. (%)*	*Minimum (%)*	*Maximum (%)*
English	726	42.6625	10.812	11	79
Quantitative method	728	47.9753	10.2065	18	80
Logic	727	45.9532	13.4184	13	90
Average Mark	731	45.2836	9.19942	21	78

Source: Authors' estimation.

Students Performance by Centre

Individual characteristics are categorised into Centres to remove outlying categories in order to produce a true reflection of the effect of individual characteristics on academic performance. The variables that were re-categorised included marital status (married and unmarried), religion (Christian and Muslim), educational level (basic, secondary, and tertiary), and motivation (job-related and personal interest and knowledge acquisition).

Appendix Table SP.2 presents students' performance in the UG Access Course Examinations by their Centre of registration based on the fail and pass criteria. It shows results for all three examinable courses (English, Mathematics and Logic) including the average marks obtained by each student. A mark less than 40% was recorded as fail and above 40% was recorded as pass. The students who sat for the English, Mathematics and the Logic examinations totaled 726, 728, and 727 respectively. There were more pass marks recorded than fail with a higher proportion of students (81%) passing in Mathematics compared to 69% and 62% respectively for Logic and English. In all, 731 students took the UG Access Course examinations as indicated by the total number of students under the average performance. Out of this number, approximately 73% obtained pass marks for all the three courses on average.

At the Centre level, as indicated in Appendix Table SP.2, a greater majority (68.8%) of students in Accra recorded a pass in English which is higher than the number of students passing in each of the other Centres. This is followed by Cape Coast (67%) and Tema (62%). The Centres with the highest failure in English were recorded in Bolgatanga (68%), Ho (75%), and Wa (57%).

Regarding Mathematics, the results show that all Centres reported higher pass marks than fail. Cape Coast reported the highest with 100% pass followed by Accra and Ho with 86% passes each, while Koforidua had 83%, Kumasi 82%, and Wa 81%, among other centres.

Results for Logic show that apart from Bolgatanga and Wa which recorded higher proportions of fail, all other Centres had majority of their students obtaining pass marks. Relative to other Centres, Accra and Koforidua had the highest proportion (74%) of their students obtaining pass marks. Sunyani and Tema followed with 69% apiece.

Results for the average marks obtained for the three courses indicate that Cape Coast, Accra, and Koforidua dominated with 100%, 88% and 80% respectively of their students obtaining pass marks, whilst a higher proportion (52%, 51% and 52%) of students from the Bolgatanga, Tamale and Wa Centres were unable to secure pass marks compared to those who passed.

Student Performance by Demographic Characteristics

The performance of the mature students by their individual characteristics show that the males dominated in the proportion of passes obtained across the various courses as compared to their female counterparts (see Appendix Table SP.3). The proportion of male who passed the English, Mathematics, and Logic courses were approximately 64%, 83%, and 74% respectively relative to the corresponding 57%, 78%, and 62% for the female counterparts. While a higher proportion of females failed English and Mathematics, they reported a lower proportion of fail for Logic, relative to their male counterparts. On average however, the male dominated, with 76% of them obtaining the pass mark, while their female counterparts reported a higher proportion of fail.

Also students in the lower age bracket reported a higher proportion of passes relative to those in the higher age bracket. This is reflective in the average performance where the youth reported more passes (76%) than their older counterparts (65%). For highest educational level, mature students who have tertiary as highest level of education obtained higher pass and lower fail marks than their secondary and basic school certificate holders. For the various courses also, holders of tertiary education certificates had the highest proportion of passes for English and Logic, followed by the secondary certificate holders. However, those with secondary school certificate performed better in Mathematics than their counterparts with tertiary certificate.

Compared to the unmarried students, lesser proportion of the married students obtained pass marks while a higher proportion obtained fail in all three course areas. Students with more than two children were also found to have put up lower performance relative to their counterparts who have at most two children, with those having no or at most 2 children showing even much greater performance. However,

the pass-fail statistics for English and Logic are marginal showing at most one percentage point difference.

Similarly, the students who obtained the highest level of education and completed education about a decade ago dominated with high proportions of passes for all three courses and also for average performance relative to their counterparts who completed more than a decade ago, and who also reported high proportion of passes across the course categories. Again, the difference in the proportion of fails and passes between those who completed a decade ago and their counterparts is very marginal for English and Logic, showing a difference of 0.2% at most.

Estimation Results and Discussions of Applicant's Demographic Characteristics and Performance

Table BD.1 shows the regression output for the determining factors of mature applicants' performance, with the applicants' performance regressed on their demographic characteristics and motivation for further studies. The model fitting information results all show the equations are well-specified and appropriate whereas the estimated results are generally consistent with the academic performance determinant literature.

There are four different regression results for English, Mathematics, Logic and average performance. All four models are shown to be statistically significant at 1% with Probability of F-Statistics of 0.0008 at most. The adjusted R-Squared is an indication that approximately 9%, 4%, 5%, and 9% variances in marks obtained for English, Quantitative Methods, Logic, and average marks respectively are explained by the student characteristics under consideration. This is more accounted for by the students' specific socio-economic characteristics than in other subjects. In general, less than 10% of the variations in student performance (marks obtained) is accounted for by sex, age, marital status, religion, year of completion of recent education, number of children, motivation for further study, and IT knowledge. The implication is that there are other omitted demographic or socio-economic factors (Tomul & Polat, 2013) like the occupation of students and that of parents, education of parents, and cognitive factors, among others, that could also account for their performance. Tomul and Polat

(2013) found other socio-economic characteristics like type of higher education, various educational support, family location, parents' education, fathers' occupation, and number of siblings to significantly influence students' academic achievement.

Gender is shown to be a significant determinant of student performance in all three courses as well as the general average performance of mature students. Relative to their male counterparts, the female students are found to perform significantly low with similar magnitude for all four performance indicators. This finding is consistent with studies such as Weis *et al*. (2013) and Eshetu (2015) which also found that male students tend to perform better than their female counterparts in educational achievements at higher levels. Marital status is only found to significantly influence students' performance in English and more so at a less significant level of 10%. Intuitively, married students performed significantly lower than their unmarried counterparts. Although this finding is consistent with a vast majority of studies on marital status and academic performance which found no or weak relationship between the two, it is in contrast with studies such as Proyrazi and Phillip (2006) and Bitrus *et al.* (2016) which found married students to record significantly higher performance relative to their unmarried colleagues.

The results for the education variable indicate that students' performance increases with their level of education. Students with tertiary level of education are found to do better on all subject areas relative to their counterparts with basic level education. The year of completion of most recent formal education which is an indication of how long an applicant has stayed out of formal education was found to be significant for English and Logic as well as for average or overall performance. Unsurprisingly, we found that the longer the applicant has been out of school, the worse is his or her average performance in all the three subjects, especially in English and Logic.

Although this finding is inconsistent with the extant literature which concludes that intelligence does not decline with age (Merriam *et al.*, 1993; Hallam 1996; Ndlovu & Moyo, 2013), it appears it matters when you have been out of school for too long.

Students whose motivation was aligned to their work, that is for the purpose of obtaining promotion, securing a job, and/or change jobs are found to put up less performance in all subject areas relative to

their counterparts who aimed at achieving personal interest or acquiring new knowledge. Similarly, students with no IT skills did not perform as better as their colleagues with adequate IT knowledge or skills. Students with IT skills performed significantly higher in English, Mathematics, on the average, than their counterparts who lack computer skills.

Table BD.1: Background Determinants of Student Performance

Characteristics	*Performance Indicators*			
	(1) English	*(2) Quantitative Methods*	*(3) Logic*	*(4) Average Performance*
Sex:				
Female	-2.5251**	-2.0228**	-2.1275*	-2.2310***
Age	-0.0877	-0.1026	-0.0109	-0.0884
Marital status:				
Married	-2.4042*	-1.0453	-1.2726	-1.2429
Religion:				
Christian	1.2181	2.3898**	1.0993	2.0185**
Educational level:				
Secondary	6.6169**	6.7324***	4.2891	5.4942**
Tertiary	10.2970***	6.4014**	8.2311**	7.9798***
Year of completion	-3.8732***	0.3817	-4.2954***	-2.8106***
Number of children	0.5275	-0.1631	-0.1447	0.0185
Motivation:				
Job related	-3.7901***	-2.2071**	-3.8094***	-2.9157***
ICT knowledge:				
No IT skill	-3.4987***	-2.2514*	-2.4965	-3.1901***
Constant	41.5503***	45.0639***	44.2253***	44.0913***
Number of Observations	460	460	461	463
Prob. (F-Statistic)	**0.0000**	**0.0004**	**0.0008**	**0.0000**
R-Squared	0.1085	0.0688	0.0646	0.1124
Adjusted R-Squared	0.0886	0.0480	0.0438	0.0927

Source: Authors' estimation.

NB: **, **, & *** represents 10, 5, & 1 percent significance respectively*

Concluding Remarks

The study has sought to investigate different factors influencing the academic performance of mature applicants in access examinations into tertiary education in Ghana, using University of Ghana's mature applicants programme as a case study. After eight weeks of intensive access course in all the eleven University of Ghana Learning Centres across the country, biographic and socio-economic characteristics data of 731 applicants were collected.

The marks obtained by the mature applicants in the 2017 UG Access Course entrance examinations indicate that mature students are more comfortable with and performs well in calculation and logical tests than in English. This implies that they are more experiential in knowledge, good with calculations and numbers than in reading subjects. With a mean mark of 45.29% for the three courses altogether, the mature students show good performance on average and for all three courses.

The male applicants, the youth, the highly educated, the unmarried, those with two or less children, and those who finished school less than a decade ago put up a better performance than their other counterparts. All these follow the normal expectation in any formal academic endeavour. The youth, who often have less responsibilities than adults often have the neurons and the ability to absorb and also articulate more than the adults or aged as expected in a normal learning life, although the literature suggests performance does not reduce with the ageing process. Evidently, the higher the academic status of individuals, the higher their performance as compared to their counterparts with a lower academic status, all things being equal. Married applicants and those with greater number of children are deemed to have other responsibilities and commitments outside the normal classroom activities that tend to overburden them, hence, reducing their performance propensity relative to the unmarried and those with fewer or no children.

The average performance of mature applicants showed the significance of sex, religion, education, year of stay out of formal education, motivation for learning, and computer knowledge or skill in academic performance. There is the need to further promote female education through access programmes and ensure that women are academically empowered enough to compete favourably with their male counterparts in all academic and related endeavours.

Universities designing mature access course programmes need to take into account the different socio-economic characteristics of the applicants, especially designing programmes that suit workers, working parents and those who have been out of school for a long time. The Universities should also ensure that basic computer knowledge and/or skills are incorporated in their access course programmes. This will ensure that students have some basic computer knowledge which is very instrumental in the academic and corporate environment.

REFERENCES

Alton-Lee, A., & Praat, A. (2001). *Explaining and addressing gender differences in the New Zealand compulsory school sector*. Wellington: Ministry of education. Available: http://www.educationcounts.govt.nz/data/assets/pdf_file/0009/12141/explaining_and_addressing_ gender_differences.pdf.

Ambrose C. O., & Egbon, O. (2011). Academic performance of male versus female accounting undergraduate students: Evidence from Nigeria undergraduate students, *Higher Education Studies*, 1(1).

Bitrus, G. A., Apagu, K. B., & Hamsatu, P. J. (2016). Marital Status and Age as Predictors of Academic Performance of Students of Colleges of Education in the North-Eastern Nigeria.*American Journal of Educational Research*, 4(12), 896–902.

Blosser, P. (1990). *Procedures to increase the entry of women in science-related careers*. Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education. (ERIC Document ED32 1977).

Butlin, G. (1999). Determinants of post-secondary participation.*Education Quarterly Review*, 5(3): 9–35.

Caldas, S.J. & Bankston, C. (2004). Effect of school population socioeconomic status on individual academic achievement.*The Journal of Educational Research*, 90(5): 269–277.

Cassady, J. C., & Johnson, R. E. (2002). Cognitive test anxiety and academic performance. *Contemporary Educational Psychology* 27, 270–295.

Chiu, M. M. (2007). Families, economies, cultures, and science achievement in 41 countries: country, school, and student level analyses.*Journal of Family Psychology*, 21(3): 510–519.

Coley, R. (2001). *Differences in the gender gap: Comparisons across racial/ethnic groups in education and work*. Princeton: Educational Testing Service.

Crosser, S. L. (1991). Summer birth date children: Kindergarten entrance age and academic achievement. *Journal of Educational Research*, 84(3), 140–146.

Cullen, M. (2002). The effect of gender, age and prior achievement in determining

success in an environmental sciences coursein Southern Cross University. *Journal of Psychology,* 97(2): 268–274.

DeBaz, T. (1994). *Meta-analysis of the relationship between students' characteristics and achievement and attitudes toward science*. Columbus, OH: ERIC Clearinghouse for Science, Mathematics, and Environmental Education.

Dur, R. E. (1992). An examination of readiness for self- directed learning and personnel variable at a large Midwestern electronics development and manufacturing corporation. *(Doctoral dissertation, Florida Abstracts online*. *Dialog file number 35 Accession number 167625.*

Egwualu, V. E., & Umeora, O. U. (2007). Examine the effect of marriage, pregnancy and child bearing on academic performance of the Nigerian female medical students. *Journal of Educational Psychology,* 55(2): 52–62.

Ekundayo, O. S. (2010). Gender, marital status and religious affiliation as factors of assertiveness among Nigeria Education Majors. *The Social Science,* 5(6): 467–470.

Eshetu, A. A. (2015). Gender disparity analysis in academic achievement at higher education preparatory schools: Case if South Wollo, Ethiopia. *Educational Research and Reviews,* 10(1): 50–58.

Ewenýyý, G. (2005). The impact of family structure on university students' academic performance.
Available: http://64.233.183.104/search?q=cache:D7sSsLcw26wJ:www.ijeunilorin.net/Accessed August, 18, 2017.

Eyer, J. (1993). Self-directed continuing learning characteristics and perceptions of professional autonomy in senior baccalaureate nursing students (Doctoral dissertation, Northern Illinois University, Abstract from: DIALOG File: *Dissertation Abstracts Online, Dialog File Number 35 Accession Number 1675625*.

Farooq, M. S., Chaudhry, A. H., Shafiq, M., & Berhanu, G. (2011). Factors affecting students' quality of academic performance: A case of secondary level. *Journal of Quality Technology Management,* 7(2), 1–14.

Finnie, R., Lascelles, E., & Sweetman, A. (2005). Who goes? The direct and indirect effects of family background on access to post-secondary education. *Statistics Canada Analytical Studies — Research Paper Series,* 11F0019, No: 237.

Hallam, S. (1996). *Improving school attendance*. Oxford: Heinemann Publishers.

Halpern, D. F. (2000). *Sex differences and cognitive abilities.* Mahwah, NJ: Erlbaum.

Hassett, J. (1983). *Understanding psychology*. New York: Random House Division.

Hartley, B. L., & Sutton, R. M. (2013). A stereotype threat account of boys' academic under-achievement. *Child Development*. Advance onlinepublication. doi:10.1111/cdev.12079

Hedges, L., & Newell, A. (1999). Changes in the Black-White gap in achievement scores. *Sociology of Education,* 72(2), 149–182.

Jense, R. (1982). Academic disparity in age.*Educational Review,* 34(1), 98–102.

La Paro, K. M., & Pianta, R. C. (2000). Predicting children's competence in the early school years: A meta-analytic review. *Review of Educational Research*, 70(4), 443–484.

Linver, M. R., Davis-Kean, P., & Eccles, J. S. (2002). *Influences of gender on academic achievement.* Presented at the biennial meetings of the Society for Research on Adolescence, New Orleans, LA.

Liu, J-T., Chou, S-Y., Liu, J-L. (2006). Asymmetries in progression in higher education in Taiwan: parental education and income effects. *Economics of Education Review*, 25(6), 647–658.

Machin, S., & Pekkarinen, T. (2008). Global sex differences in test score variability. *Science* 322, 1331–1332.doi:10.1126/science.1162573

McEvoy, G. M. (1989). Cumulative evidence of the relationship between employee age and job performance. *Journal of Applied Psychology*, 74(4), 11–17.

Meece, J., & Jones, G. (1996). Gender differences in motivation and strategy used in science: Are girl's rote learners? *Journal of Research on Science Teaching*, 33, 407–431.

Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. (1993). *Learning in adulthood*. San Francisco: John Wiley & Sons.

Mullis, I. V. S., Martin, M. O., Gonzalez, E. J., & Kennedy, A. M. (2003). *PIRLS 2001 international report: IEA's study of reading literacy achievement in primary schools.* Chestnut Hill, MA: Boston College.

Murphy, E., & Carr, D. (2007). *Powerful partners: Adolescent girls' education and delayed childbearing.* Washington DC: Population and Reference Bureau.

Ndlovu, P. and Moyo, W. (2013). Factors Affecting Performance of Adults in Adult and Continuing Education in Nkulumane-Emganwini Area, *International Journal of Asian Social Science*, 2013, 3(12), 2490–2504.

Ng, T. W. H., & Feldman, D. C. (2008). The relationship of age to ten dimensions of job performance. *Journal of Applied Psychology*, 93(2), 392–423.

Ogunkola, B. J. (2010). Students' inherent characteristics, parents' educational attainment and family size as predictor of academic achievement in integrated science. *Research Journal of International Studies Issues*, 16(2): 11–19.

Park, E. (2004). Learner autonomy in selected populations of East Asian graduate students who study at institutions in the United States. *Doctoral Dissertation, the George Washington University, Dissertation Abstracts International*, (63)12, 6116A.

Perkins, R., Kleiner, B., Roey, S., & Brown, J. (2004). *The high school transcript study: A decade of change in curricula and achievement, 1990–2000* (Report No. NCES 2004455). Washington, DC: U.S. Department of Education, National Centre for Education.

Petrol, M. B. (2010). Characteristics of married female NCE students in Kashim Ibrahim College of Education. *Outreach Journal of Research Issues and Ideas*, 9, 93–105.

Praat, A. (1999). Gender differences in student achievement and in rates of

participation in the school sector, 1986–1997: a summary report. *The Research Bulletin*, 10, 1–11.

Rothman, S. (2003). The changing influence of socioeconomic status on student achievement: recent evidence from Australia. Paper presented at the American Educational Research Association Conference, 21–25 April, Chicago.

Tomul, E., & Polat, G. (2013). The effects of socioeconomic characteristics of students on their academic achievement in higher education. *American Journal of Educational Research*, 1(10): 449–455.

Vanslambrouck, S., Zhu, C., Lombaerts, K., Pynoo, B., & Tondeur, J. (2017). Adult learner characteristics as predictors of performance, satisfaction and intent-to persist in online and blended environments. *ICEL 2017 — Proceedings of the 12th International Conference on e-Learning* (pp. 221–229). Presented at the International Conference on e-Learning.

Weis, M., Heikamp, T., & Trommsdorff, G. (2013). Gender differences in school achievement: The role of self-regulation. *Frontier in Psychology*, 4(44): 1–10.

Wilson, I. H. (2004). *Essential statistics.* New Jersey: Pearson Education Inc.

Wößmann, L. (2007). *How equal are educational opportunities? Family background and student achievement in Europe and in US.* Available: www.CESifo.de.

Yess, J. P. (2009). Influence of marriage on the scholastic achievement of community College students. Humanities, social sciences and law. *Research in Higher Education*, 14(2), 103–118.

Zainal, R., Yahya, R., & Rahman, K. A. (2014). Influences of gender on academic achievement of fiber optic communication system: An experience of Politeknik Merlinmau Melaka. *IOSR Journal of Humanities and Social Sciences*, 19(8): 108–111.

Appendices

Table SP.2: Students' Performance by Centre

Exams Outcome	Centre																					
	Accra		Bolgatanga		Cape Coast		Koforidua		Kumasi		Sunyani		Takoradi		Tamale		Tema		Ho		Wa		Total	
	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %	N	Rel. %
Performance obtained for English																								
Pass	247	68.8	10	32.3	4	66.7	23	65.7	24	55.8	21	56.8	31	50.0	24	51.1	48	61.5	3	42.9	9	42.9	444	61.2
Fail	112	31.2	21	67.7	2	33.3	12	34.3	19	44.2	16	43.2	31	50.0	23	48.9	30	38.5	4	57.1	12	57.1	282	38.8
Total	359	100	31	100	6	100	35	100	43	100	37	100	62	100	47	100	78	100	7	100	21	100	726	100
Performance obtained for Mathematics																								
Pass	308	85.8	24	77.4	6	100.0	29	82.9	36	81.8	28	75.7	48	75.0	31	67.4	57	73.1	6	85.7	17	81.0	590	81.0
Fail	51	14.2	7	22.6	0	0.0	6	17.1	8	18.2	9	24.3	16	25.0	15	32.6	21	26.9	1	14.3	4	19.0	138	19.0
Total	359	100	31	100	6	100	35	100	44	100	37	100	64	100	46	100	78	100	7	100	21	100	728	100
Performance obtained for Logic																								
Pass	263	73.5	14	45.2	4	66.7	25	73.5	32	72.7	26	68.4	39	60.9	29	64.4	54	68.4	4	57.1	10	47.6	500	68.8
Fail	95	26.5	17	54.8	2	33.3	9	26.5	12	27.3	12	31.6	25	39.1	16	35.6	25	31.6	3	42.9	11	52.4	227	31.2
Total	358	100	31	100	6	100	34	100	44	100	38	100	64	100	45	100	79	100	7	100	21	100	727	100.0
Average Performance																								
Pass	288	80.2	15	48.4	6	100.0	28	80.0	35	79.5	22	57.9	41	64.1	23	48.9	58	73.4	5	71.4	10	47.6	531	72.6
Fail	71	19.8	16	51.6	0	0.0	7	20.0	9	20.5	16	42.1	23	35.9	24	51.1	21	26.6	2	28.6	11	52.4	200	27.4
Total	359	100	31	100	6	100	35	100	44	100	38	100	64	100	47	100	79	100	7	100	21	100	731	100

Table SP.3: Students' Performance by Background Characteristics

Characteristics	English						Quantitative Methods						Logic						Average Marks					
	Fail		Pass		Total		Fail		Pass		Total		Fail		Pass		Total		Fail		Pass		Total	
	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %	N	Row %
Sex of respondents																								
Male	155	36.1	274	63.9	429	100	73	16.9	358	83.1	431	100	112	26.1	317	73.9	429	100	105	24.3	327	75.7	432	100
Female	126	42.7	169	57.3	295	100	65	22.0	230	78.0	295	100	114	38.5	182	61.5	296	100	94	31.6	203	68.4	297	100
Total	281	38.8	443	61.2	724	100	138	19.0	588	81.0	726	100	226	31.2	499	68.8	725	100	199	27.3	530	72.7	729	100
Age of Respondents																								
Youth	192	37.2	324	62.8	516	100	89	17.2	428	82.8	517	100	159	30.8	357	69.2	516	100	125	24.1	394	75.9	519	100
Adult	79	42.0	109	58.0	188	100	42	22.2	147	77.8	189	100	62	32.8	127	67.2	189	100	67	35.3	123	64.7	190	100
Total	271	38.5	433	61.5	704	100	131	18.6	575	81.4	706	100	221	31.3	484	68.7	705	100	192	27.1	517	72.9	709	100
Educational level of respondents																								
Basic	13	61.9	8	38.1	21	100	9	42.9	12	57.1	21	100	11	52.4	10	47.6	21	100	10	47.6	11	52.4	21	100
Secondary	189	40.0	284	60.0	473	100	85	17.9	391	82.1	476	100	148	31.2	327	68.8	475	100	129	27.0	348	73.0	477	100
Tertiary	78	34.4	149	65.6	227	100	43	19.0	183	81.0	226	100	66	29.2	160	70.8	226	100	59	25.9	169	74.1	228	100
Total	280	38.8	441	61.2	721	100	137	18.9	586	81.1	723	100	225	31.2	497	68.8	722	100	198	27.3	528	72.7	726	100
Marital status of respondents																								
Not married	153	35.6	277	64.4	430	100	75	17.5	354	82.5	429	100	132	30.8	297	69.2	429	100	110	25.5	322	74.5	432	100
Married	127	43.3	166	56.7	293	100	62	20.9	234	79.1	296	100	93	31.5	202	68.5	295	100	88	29.7	208	70.3	296	100
Total	280	38.7	443	61.3	723	100	137	18.9	588	81.1	725	100	225	31.1	499	68.9	724	100	198	27.2	530	72.8	728	100
Number of children of respondents																								
Maximum of 2 children	158	41.1	226	58.9	384	100	75	19.6	308	80.4	383	100	131	34.0	254	66.0	385	100	113	29.3	273	70.7	386	100
More than 2 children	54	41.5	76	58.5	130	100	31	23.5	101	76.5	132	100	46	35.1	85	64.9	131	100	44	33.3	88	66.7	132	100
Total	212	41.2	302	58.8	514	100	106	20.6	409	79.4	515	100	177	34.3	339	65.7	516	100	157	30.3	361	69.7	518	100
Year respondent completed highest level of education acquired																								
More than a decade ago	118	38.8	186	61.2	304	100	64	20.9	242	79.1	306	100	94	30.8	211	69.2	305	100	90	29.4	216	70.6	306	100
A decade ago	144	38.6	229	61.4	373	100	61	16.4	311	83.6	372	100	114	30.6	258	69.4	372	100	92	24.5	283	75.5	375	100
Total	262	38.7	415	61.3	677	100	125	18.4	553	81.6	678	100	208	30.7	469	69.3	677	100	182	26.7	499	73.3	681	100