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Abstract

The widely acknowledged low salaries of teachers makes them deficit units who often seek loans from banks or engage in hire purchases in their bid to smoothing consumption within their households. Despite the financial stress that comes with such tendencies (as a corollary) and its effect on teacher attrition, previous studies have remained silent on this phenomenon. We sought to ascertain the effect of financial stress and moonlighting on teacher attrition using data collected from 1,360 Senior High Schools teachers in three administrative regions in Ghana. Our findings show that teachers who are financially stressed are 6 percent more likely to exit the classroom while those who moonlight are 10 percent more likely to leave the classroom. With teachers' high probability of repayments of credit, we ask that they should be given a special concession on loan interests or paid well so that they do not become financially stressed.

Key words: financial stress; moonlighting, hire purchase; attrition, loan, teacher

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Introduction

Teacher attrition² and teacher shortage has been a problem facing both the developing (Aslami, 2013; GNAT & TEWU, 2009; Mulkeen & Crowe-Taft, 2010; Wushishi, Foori, Basri, & Baki, 2013) and developed (Hunt & Carroll, 2002; Karsenti & Collin, 2013; Luekens, Lyter, & Fox, 2004) worlds and many policies have, however, been put in place to tackle it at the country and global levels. In 2000, the United Nations Educational, Scientific and Cultural Organization (UNESCO), at the World Education Forum came up with the Education for All (EFA) agenda with indications that 1.9 million additional primary teacher posts had to be created to achieve six core targets by 2015. Noticeable was their resolve that an approximately 1 million teachers had to be supplied as replacement each year to cater for attrition of teachers (Mulkeen & Crowe-Taft, 2010). Another UNESCO (2014) report stated that out of the 4 million teachers needed to be recruited between 2012 and 2015, 2.6 million were to serve as a replacement for teachers who retired, switched occupations and died or left due to illness. Most recent of these statistics from the UNESCO Institute for Statistics (UIS) stated that the world needs 69 million new teachers to reach the 2030 education goals (UIS, 2016) due to shortages. The region that was said to have faced the greatest primary teacher shortage is sub-Saharan Africa, accounting for 63 percent of the 4 million needed the world over.

Upon reaching the EFA's target date of 2015, there are still problems facing teacher supply and is explained largely by teacher attrition. The UNESCO (2015) report on EFA (2000-2015) remarkably hinted that teacher attrition facing countries and regions is not confined to developing countries but even in the United States, attrition largely accounts for schools' inability to staff classrooms with qualified teachers. Teacher attrition affects secondary schools as well and becomes more challenging when many countries have been characterised with an insufficient training of secondary teachers (UNESCO, 2015).

A few country-level statistics present similar but nuanced revelations regarding teacher attrition. Available report from a 2009 survey in Ghana, indicates that about 1,000 teachers leave the classroom each year for several reasons (GNAT & TEWU, 2009), with trained teachers not willing to stay beyond 3 years in deprived communities (Associates for Change, 2016). Longitudinal data from the United States, show that more than 42% of newly trained teachers leave the profession within five years of entry (Perda, 2013) while beginning teacher attrition has been steady over the past two decades (Ingersoll, Merrill, & Stuckey, 2014). Studies in Australia and in other parts of the Western world have also shown that about one-third of new entrants resign or "burn out"³ in their first three to five years of teaching (Carroll & Hunt, 2003; Ewing & Manuel, 2005; Ross & Hutchings, 2003; Skilbeck & Connell, 2003).

² Teachers leaving the classroom to take up other professional responsibilities, inside or outside of education, or to spend more time with their families (Miller & Chait, 2008).

³ This is a psychosocial phenomenon that occurs as a chronic response to interpersonal stressors in work-related situations. It can take place when there is an imbalance between the demands and requirements of a job and the resources made available by the organisation (Diehl & Carlotto, 2014).

Evidence of attrition rate from Nigeria shows 10%-15% for the Southern part of the country while figures for the Northern part indicate 15%-20% (Ekundayo, 2010; Popoola, 2009; Wushishi et al., 2013). Attrition in the UK has increased to 8% over a five-year period and even among leavers, the proportion who left for reasons other than retirement increased from 64% to 75% (House of Commons Education Committee, 2017). Apart from governments trying to address this problem by proving financial benefits and housing; centrally deploying teachers; accelerating promotions and engaging in local recruitment (Auguste, Kihn, & Miller, 2010; R. Ingersoll et al., 2014), researchers have also made efforts at understanding the determinants of teacher attrition so as to recommend policy-driven solutions.

Among the determinants of teacher attrition, financial benefits (salaries)⁴ has been noted as one of the key drivers in almost all studies (Aslami, 2013; Bennell, 2004; Bennell & Akyeampong, 2007; GNAT & TEWU, 2009; Ondrich, Pas, & Yinger, 2008; Wushishi et al., 2013) although none of these studies has look at the effects of corollaries of low salaries and incomes (such as financial stress) on attrition. In this study, we link teachers' low salaries to financial stress as motivated by Bennel and Akyeampong (2007); Illing and Liu (2006); Worthington (2006) and hence to teacher attrition. Although some studies have looked at teachers' job-related stress and attrition (Buchanan et al., 2013; Fetherston & Lummis, 2012; Kyriacou, 1987), there is yet to be a study on teachers' financial stress and attrition.

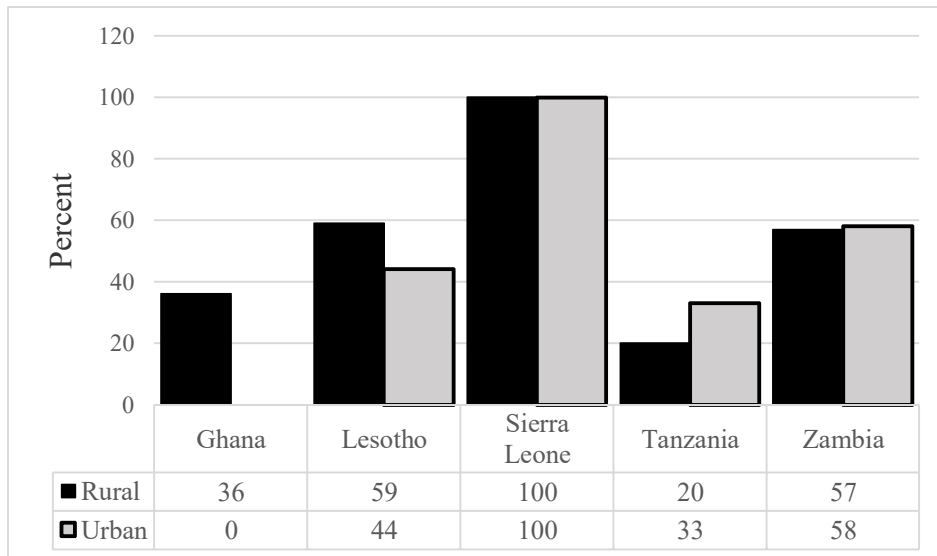


Figure 1: Average teacher pay as a percentage of average monthly household expenditure in 2004

Source: Bennel and Akyeampong (2007)

⁴ Financial benefits represent incomes, salaries or wages and these terms are used interchangeably in this paper

From data collected through a study across sub-Saharan Africa and South Asia (Figure 1), it is noticeable that apart from Sierra Leone, teachers from the other countries earn lesser than their monthly expenditure levels. This means that teachers in such countries are deficit units who would require funds (loans) from external sources — banks or other financial institutions (Davies, 2010; Koomson, Annim, & Peprah, 2016; Mwangi & Ouma, 2012) or buy on credit which sometimes come in the form of hire purchases (Okioga, 2012) in order to smoothing consumption. Smoothing consumption from these sources come with debt (Barba & Pivetti, 2008; Yusof, Rokis, & Jusoh, 2015) which has been documented extensively as a source of financial stress (Heckman, Lim, & Montalto, 2014; Illing & Liu, 2006; Worthington, 2006). Apart from loans and buying on hire purchase, teachers are also likely to moonlight⁵ (engage in secondary jobs) in order to diversify income sources for their households (Bennell, 2004; Molyneaux, 2011; Nunoo, Darfor, Koomson, & Arthur, 2016). It is from the hardship that comes from lower incomes that will push a teacher to add a second job (moonlight), work overtime or change job (Heflin, Corcoran, & Siefert, 2007). According to Ara and Akbar (2016), the teaching profession is one that has been characterised with the highest number of moonlighters. All these, in addition to other covariates, have the potential to influence teacher attrition but the extent to which it can is the purpose of our study. Besides income, financial stress and moonlighting, other factors also influence teacher attrition and some have been explained in the ensuing paragraph.

Male teachers are more likely to leave the classroom or teaching profession more than their female counterparts (Addi-Racchah, 2005) and is explained that financial rewards (salary) serve more as a push factor for male teachers to move to other occupations than females (Dolton, Tremayne, & Chung, 2003; Luekens et al., 2004). Contrary to these findings, Hirpassa (2006) found that male teachers are more likely to remain in teaching than females in the Oromia Government Secondary Schools in Ethiopia. Considering age, teachers below 30 years and those above 50 years are more likely to depart from the profession while those in their middle ages are less likely to leave (2001). This gives a U-shape relationship between age of teachers and attrition. A similar explanation can be given to years of teaching which is directly related to experience. Ingersoll (2001) found that the relationship between years of teaching and attrition is U-shaped, explaining that new entrants have high rates of exit and for those who remain, this phenomenon declines during the mid of their career and peaks again as they reach their retirement years. Stinebrickner (1998) found no evidence for teachers' educational level and attrition while Mulkeen (2009) found higher levels of education to be positively related to attrition since higher levels of education are likely to come up competing with non-teaching job opportunities. In another explanation, moonlighting has been shown as a sign of reduced commitment towards the primary job (2012) which can also affect teachers' performance (Mulokozi, 2015) and eventual attrition. Molyneaux (2011) has explained that moonlighting

⁵ Moonlighting is defined as teachers holding two or more jobs at the same time or simply adding on a secondary job to teaching, which is the primary job (Molyneaux, 2011; Nunoo, Darfor, Koomson, & Arthur, 2016).

leads to shortage of teachers in rural areas because teachers resist postings to such areas due to limited secondary job opportunities. Contrary to this, Hite et al. (2006) have also indicated that moonlighting serves as an avenue for resource-sharing among schools because schools that lack teachers in specialized fields get them on part-time basis from schools who have such teachers.

If the low income of teachers can result in financial stress and also push families to add on secondary jobs, a likely question is to ask if financial stress faced by teachers could influence their intentions to quit the teaching profession or engage in other activities that take their services out of the classroom. In this study, our quest is to assess the influence of teachers' financial stress and their moonlighting behaviour on attrition. This study fills the void in the literature regarding financial stress and attrition in general and teacher attrition in specific terms. It also presents the moonlighting and teacher attrition version of the literature. The remaining sections of this paper are structured as follows. Section 2 provides definitions of teacher attrition and financial stress and how they have been conceptualised in this paper. Section 3 presents the data and estimation technique in addition to the empirical model. This is followed by the analysis and discussion and the last section concludes and provides recommendations

Defining and measuring teacher attrition

Karsenti and Collin (2013) define teacher attrition or drop-out as premature departure from the teaching profession, whether voluntary or not. In a study to understand tenure policies in American schools, attrition was defined as “teachers leaving the classroom to take up other professional responsibilities, inside or outside of education, or to spend more time with their families (Miller & Chait, 2008)”. This means that attrition is largely any activity undertaken by teachers that has the potential to reduce the numbers and the strength of the teaching force within any educational setting. Our measurement of attrition was determined by the Ghana Education Service's definition of attrition that incorporates four indicators that take teachers out of the classroom. These indicators included (i) leaving with permission for study leave with or without pay (ii) leaving the classroom on secondment (iii) going on retirement and (iv) leaving to take up a non-teaching job (GNAT & TEWU, 2009). Respondents were asked to pick only one of these indicators of attrition that they are likely to embark on within the next three years or choose the last option that indicates that none of these applies to them. We chose three years because studies in Australia and other countries have indicated three to five years to be the period within which new entrants resign or “burn out” (Carroll & Hunt, 2003; Ewing & Manuel, 2005; Ross & Hutchings, 2003; Skilbeck & Connell, 2003) and also because a report by Associates for Change (2016) showed that newly trained Ghanaian teachers were not willing to stay beyond three years in deprived communities. Teachers who chose any of these four items of attrition were assigned the value one and zero if none of the indicators applied to them. This gave us a dummy variable that is one for intention to leave the classroom (or simply, attrition) and zero for a teacher who has no intention of embarking on any of these four indicators of attrition.

Debt as an indicator of financial stress

According to Delafrooz, Paim, Sabri and Masud (2010) financial stress is the negative feelings about and reactions to one's own financial situation. In studying students, some researchers explained their levels of financial stress as coming from debt (Grable & Joo, 2006; Norvilitis et al., 2006; Perna, 2008). Knowing that debt is a source of financial stress, we generated our financial stress variable using loan and hire purchase settlement as indicators. Since the two variables were all binary (Table 3), a teacher who was currently not settling any loan nor settling any debt from hire purchase was allocated zero while we allocated one to any person who was settling either of them or settling both. This gave us another binary variable that was zero for not financially stressed and one for financially stressed.

Population, Sample and Data

Data for the study were obtained through a survey of government teachers in the Greater Accra, Central and the Western regions of Ghana. The targeted population for the study comprised of all the teachers in the 169 second-cycle institutions in the study area. Multiple sampling techniques were used to arrive at the sample of 1,360 second-cycle teachers who are on government pay-roll.

First, a proportional sampling technique was used to select 34 (20%) out of the population of 169 second-cycle institutions. With an average population of 40 teachers in a school, the simple random sampling technique was then applied to sample 1,360 teachers for the study. The aim of using these sampling techniques was to give a fair representation of the schools in each region as well as giving every teacher the equal chance of being included in the study. The distribution of the sampled teachers from each region is presented in Table 1. For one reason or the other, 187 sampled teachers refused to participate in the survey while 73 failed to return the questionnaire. In all, 1,174 questionnaires were administered and 1,101 response were retrieved, leading to a response rate of 93.78 percent. This response rate is considered as satisfactory compared to the 25 percent benchmark (Soyibo, 1996). Out of the 1,101 received questionnaires, 59 were disqualified due massive errors and unfilled important questions. This paper, however, may use of 1,042 teachers in the three sample regions

Table 1: Population and sample size decomposition

Region	Population of schools	Number of schools sampled	Total respondents	Non-retrieved questionnaires	Decline to participate	Returned questionnaires
Greater Accra	66	13	520	35	74	411
Central	59	12	480	11	62	407
Western	44	9	360	27	50	283
Total	169	34	1,360	73	187	1,101

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

Estimation technique

The estimation technique used for regression analyses is the binary Logit model that uses the maximum likelihood approach. The logit model was employed for this study because the attrition variable is a binary variable. Since we generated the financial stress variable from loan and hire purchase, Equation (1) represents the loan and hire purchase model while both variables are and their interaction are replaced with financial stress in Equation (2).

Empirical Model 1: loan, hire purchase and teacher attrition

$$\Pr (Attn_i = 1 | X_i) = \beta_0 + \beta_1 Loan_i + \beta_2 Hpurch_i + \beta_3 LoanHpurch_i + \beta_4 \ln Exp_i + \beta_5 \ln Exp_i^2 + \beta_6 Secjob_i + \beta_7 Female_i + \beta_8 Age_i + \beta_9 Yrsteach_i + \beta_{10} Mstat_i + \varepsilon_i \quad (1)$$

Empirical Model 1: financial stress and teacher attrition

$$\Pr (Attn_i = 1 | X_i) = \alpha_0 + \alpha_1 Finstress_i + \alpha_2 \ln Exp_i + \alpha_3 \ln Exp_i^2 + \alpha_4 Secjob_i + \alpha_5 Female_i + \alpha_6 Age_i + \alpha_7 Yrsteach_i + \alpha_8 Mstat_i + v_i \quad (2)$$

where *Attn* is a dummy variable for attrition, which is one if the teacher intends to leave the classroom and zero if otherwise. *Loan* is a dummy variable for whether a teacher is currently settling a bank loan; *Hpurch* is also a dummy variable for whether a teacher is currently settling debt from hire purchase; *Finstress* is a dummy variable for financial stress which is zero for not stressed and one for stressed; *LoanHpurch* is an interaction for loan and hire purchase; $\ln Exp$ and $\ln Exp^2$ represents the natural log of a teacher's monthly expenditure and its square respectively; *Secjob* is a dummy variable for whether a teacher is engaged in a moonlighting or not; *female* is a dummy variable for the sex of the teacher — it is zero if the teacher is male and one if the teacher is female. *Age* is the age of a teacher; *Yrsteach* represents a teacher's number of years of teaching and *Mstat* is a categorical variable for a teacher's marital status

Results and Discussion

Descriptive Statistics

Table 2 shows that out of the 1,042 sampled teachers, 476 (46%) of them had no intentions of leaving or vacating the classroom for secondment, study leave or any of the indicators of attrition while 566 (54%) had intentions of leaving the classroom for one of the attrition indicators. For those with intentions to leave, the majority (67%) were male teachers while the remaining 33 percent were female teachers. Picking the gender dimension and doing a within-group analysis showed that male teachers who had intentions of leaving also had more (36%) of them servicing loans than their female counterparts (28%) who had intentions of leaving and were servicing loans. With loan servicing being an indicator of financial stress, coupled with the knowledge that teachers relatively have poor conditions of service contributes to such intentions which eventually become a reality. It is also not surprising to see the intended

ones being mainly male-dominated because society has bestowed bigger economic responsibilities on men than women even in a duo-parent household (especially in SSA). Males dominating females in intentions to leave the classroom is in line with Addi-Racah's (2005) finding that males leave the profession more than female teachers.

Table 2: Attrition by financial stress, loan, and gender

Attrition (intention to leave)	Male		Female		Total
	Not servicing a loan (%)	Servicing a loan (%)	Not servicing a loan (%)	Servicing a loan (%)	
No intention	191 (61)	121 (39)	137 (84)	27 (16)	476
Intention	242 (64)	137 (36)	134 (72)	53 (28)	566
Total	433	258	271	80	1,042

	Male		Female		Total
	Not financially stressed (%)	Financially stressed (%)	Not financial stressed (%)	Financially stressed (%)	
No intention	204 (56)	162 (44)	147 (27)	41 (7)	554
Intention	271 (66)	141 (21)	179 (27)	78 (12)	669
Total	475	303	326	119	1,223

NB: sample sizes match with those in Table 5— the loan and hire purchase models and financial stress models

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

Figure 2 is explained with reference to Table 2. It can be gleaned that out of the 379 male teachers who had intentions of leaving, 35 percent of them moonlight (have secondary jobs) and for the female teachers who also had intentions of leaving, 36 percent moonlight. This places the females negligibly above their male counterparts when it comes to engagement in secondary jobs and intentions to leave the classroom. It also means that the effect of moonlighting on teacher attrition has no gender dimensionality and a teacher's moonlighting behaviour will have a direct effect on teacher attrition without being moderated by or interacted with gender. The moonlighting phenomenon is largely explained by low salaries of teachers (Bennell, 2004).

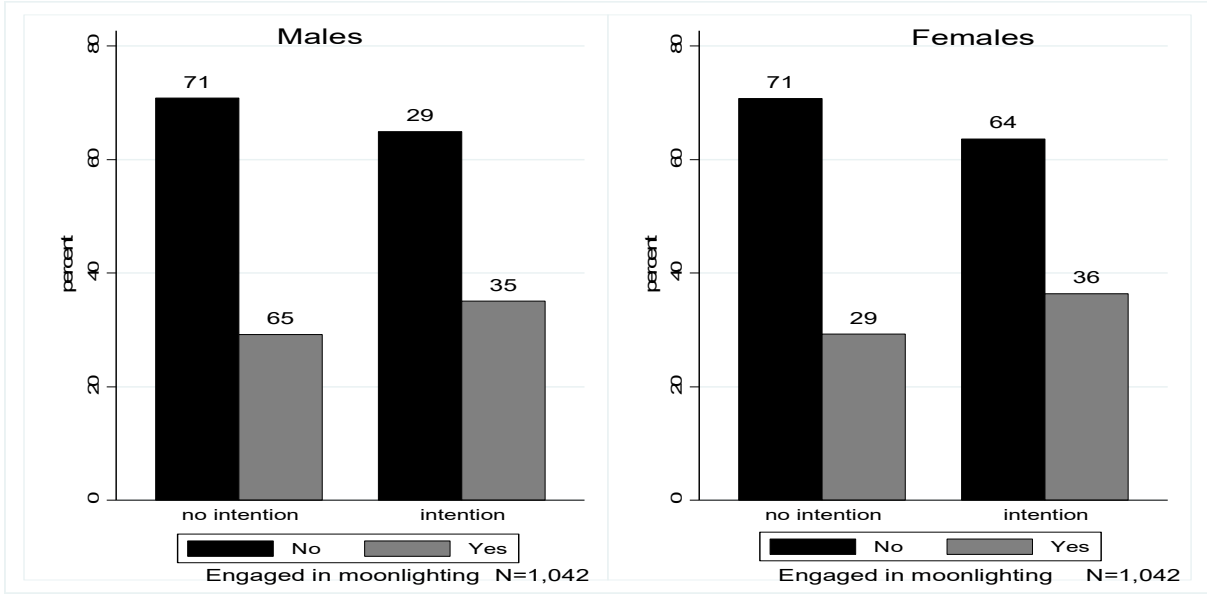


Figure 2: Attrition by gender of teachers and their moonlighting behaviour

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

Figure 3 shows that teachers who were settling hire purchase debt at the time of the survey had 47 percent of them intending to leave currently while the remaining (53%) did not have such intentions. It can be partly inferred that it is the strain that hire purchase debts puts on their finances that prompt them to leave so that they can find jobs that can help them to cater for their expenses.

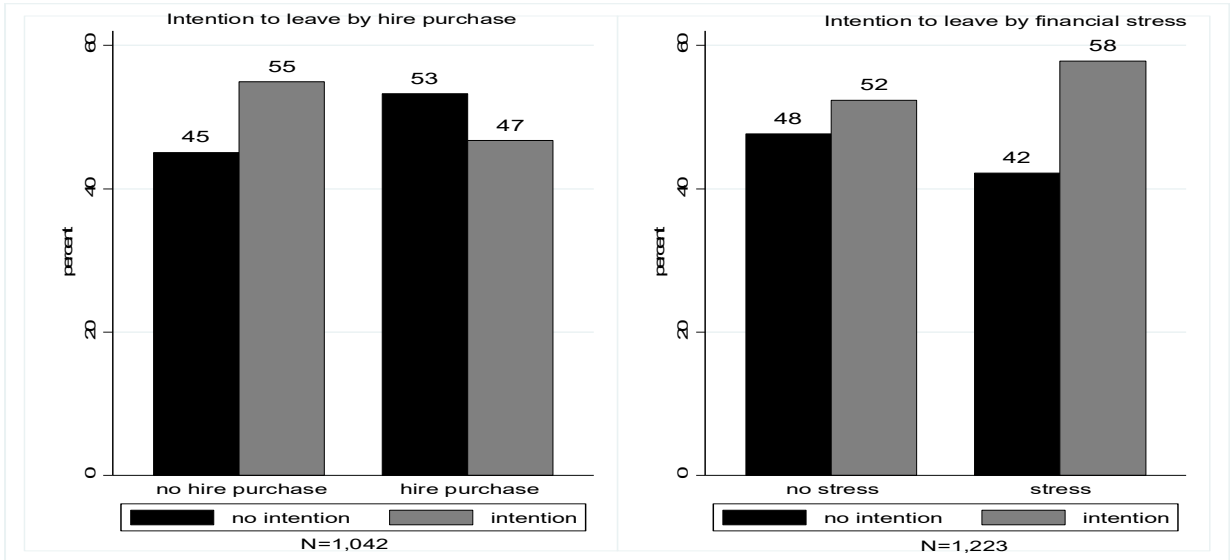


Figure 3: Attrition by hire purchase and financial stress

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

Again, for teachers where financial stressed (based on the sample for financial stress model in Table 5), 58 percent of them have intentions of leaving the classroom while the remaining (42%) do not have intentions of leaving the classroom.

Table 3: Summary Statistics for variables used in the analysis

Variable	N	Mean	SD
Attrition (0=no attrition; 1=attrition)	1,042	0.543	0.498
Currently settling a Loan (0=no; 1=yes)	1,042	0.324	0.468
Currently settling debt from High purchase (0=no; 1=yes)	1,042	0.113	0.317
Loan X high purchase	1,042	0.074	0.262
Log (expenditure)	1,042	6.882	0.701
Log (expenditure squared)	1,042	47.846	9.129
Engaged in moonlighting (0=no; 1=yes)	1,042	0.326	0.469
Female (0=male; 1=female)	1,042	0.337	0.473
Age of teacher	1,042	36.586	7.641
Number years of teaching	1,042	10.159	6.867
Marital Status (base=Separated)			
Single	1,042	0.251	0.434
Married	1,042	0.679	0.467
Divorced	1,042	0.038	0.192
Widowed	1,042	0.016	0.127
Financial stress (0=no stress; 1=stress)	1,223	0.364	0.481

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

With a very low response rate for each item under reasons for teachers' attrition (see Table 4), it is very clear that salary ranks above the many reasons and is followed by opportunities in other fields and then by lack of professional prestige. Like the many studies that have focused on attrition, this study also lends support to those that have found teachers' salary as being their main reason for leaving the classroom. This also gives credence to why teachers, in this paper, are largely referred to as deficit units in need of loans or hire purchase as a means of smoothing consumption. Even the second ranked reason is one that can probably push teachers into holding secondary jobs because job opportunities are rare in the developing world and for any teacher who does not get hold of a substantive job, would likely add on another casual to diversify household income. This is what can reduce the commitment of teachers to the teaching profession and hence, attrition.

Table 4: Reasons for teacher’s intention to leave the teaching profession

Reasons	Frequencies
Low salaries and benefits	875
Family or child rearing	103
Opportunities in other fields	480
Bad health conditions	83
Student discipline problems	86
Lack of professional prestige	202
Ineffective staff actions (strikes)	54
Inadequate preparation time	15
Lack of colleague competence	29
Lack of teacher mentoring	37
Lack of professional development	164
Lack of administrative support at the school-level or the central-level	180

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

Econometric results: Effects of financial stress and Moonlighting on teacher attrition

Table 4 shows how economic indicators of teachers affect teacher attrition, with emphasis on settlement of loans, debts from hire purchase and engagement in another or second job. For the basis of controlling for heteroscedasticity in a typical cross-sectional model, we use *White’s heteroskedasticity-consistent* standard errors that are robust enough to aid in unbiased inferences. Besides this, we determined the goodness-of-fit of the model by using the Hosmer-Lemeshow test. The insignificant p-value for the test (at 5% level) means we fail to reject the null hypothesis that the model is of good fit. Further robustness check was done using the model specification test (Linktest) that is significant for the $\hat{\mu}$ and insignificant for the $\hat{\mu}^2$ which implies that the model is correctly specified (Wooldridge, 2015).

Teachers who have loans to settle (without any hire purchase debts) have probabilities of leaving the classroom (for various reasons) that were eight percent more than their counterparts that have no loans to settle. Similarly, teachers who have debts from hire purchase to settle (without any loan to settle) also have probabilities of wanting to leave the classroom that are 15 percent more than their counterparts who are not settling any hire purchase debts. Regarding teachers who have both hire purchase and debt from loans to settle, their desire to want to leave the classroom is reduced by the extra stress presented by the joint effect. The net marginal probability of a combination of these financial stress indicators is 0.65 percent more than their colleague teachers who have none of these financial stressors to grapple with. Once teachers’ salaries are not able to meet their expenses (Bennell & Akyeampong, 2007; GNAT & TEWU, 2009) and they fall on hire purchase and bank loans, which gives them stress, they begin to have

negative feelings about their job because the debt in itself is a negative feeling about their plight (Delafruez et al., 2010). This is what pushes them to either switch jobs or add on a second job to be able to cater for their needs without going for loans or buying on hire purchase

Financial stress has also shown to be a significant driver of attrition because teachers who are financially stressed are 6 percent more likely to leave the classroom than their colleagues who are not financially stressed. Feeling financially stressed is a product of debt which is, in turn, a corollary of teachers' low incomes/salaries so in their quest to be free from such stress teachers will likely exit the profession so as to find jobs in sectors that will grant them incomes that commensurate with their educational status and this is consistent with previous studies that have found teachers' incomes as one of the key determinants of attrition (Aslami, 2013; Bennell & Akyeampong, 2007; GNAT & TEWU, 2009; Ondrich et al., 2008) because they have consumption to smoothing.

The effect of expenditure shows an inverted-U relationship for the loan and hire purchase models as well as the financial stress model. This means that increasing levels of expenditure brings about higher attrition rates until very high levels of expenditure that tends to be accompanied with lower intentions to leave the classroom. This means that as teachers' financial obligations become high they are highly willing to leave the profession to embrace other professions that will grant them financial rewards commensurate with their expenditure levels. This ties up with the findings of GNAT & TEWU (2009) where some teachers went saying "*the take home salary cannot take me home*" and others saying "*the salary cannot afford me three square meals, descent accommodation and transport cost in a month. I am heavily indebted*". It is also in tune with the assertion of Heflin et al. (2007) who posited that hardships that come with lower salaries push families to change jobs. Unlike previous studies, we tested for the non-linear relationship and found that at extremely high levels expenditure, intentions to leave reduce because teachers may have found several means of meeting such financial obligations while remaining in the teaching profession.

For teachers who are engaged in moonlighting, the probability of wanting to leave the classroom (for various reasons) is about 10 percent more than their counterparts who are not engaged in moonlighting. For teachers who are engaged in other jobs and find it rewarding than the teaching job, they would have higher intentions to leave the classroom and this is typically so in many SSA countries, where teachers are among the least paid professionals (Bennell, 2004; Bennell & Akyeampong, 2007; Lambert, 2004). By taking on secondary jobs, teachers become less committed to the teaching job (2012) and what will follow is to leave the profession.

Female teachers are 3.3 percent less likely to want to leave the classroom than their male colleagues. This is quite expected because societal financial demands on male teachers are relatively more than female teachers. Even for a couple who are both teaching, the man has more financial obligations than the woman and is constantly looking outside his current domain to embrace job opportunities that come with financial rewards that can adequately cater for him and his family. Our findings corroborate that of Addi-Racah (2005) and Luekens et al. (2004) who

found that male teachers are more likely to leave the teaching profession than their female counterparts. Ours rather conflict with the findings of Hirpassa (2006) who found in Ethiopia (Oromia Government Secondary Schools) that females had greater likelihoods of departing the teaching profession.

Age of teachers plays a role in informing teachers' intention to leave the classroom. Although the marginal effect is quite small, the inference is that younger teachers have higher likelihoods of leaving the classroom than older teachers. This outcome could be attributed to the exuberance of younger teachers — below 30 years (2001) who are more likely to leave to other professions to settle on one that meets their economic requirements. This is then concluded on three grounds: (i) the youth are more likely to move to test the realities of living on salaries from other employment opportunities so are more likely to move (ii) the older generation may have already moved from other opportunities to settle on teaching so are less likely to move (iii) The older generation may have tried moving, could not find better job opportunities and lost interest in facing the harsh conditions of looking for newer jobs. The last point is likely the case because Bennell and Akyeamong (2007) indicated in their study that resignation among teachers is lowest in SSA not because of job satisfaction but rather due to acute scarcity of alternative opportunities.

Table 5: Logit regression for the effects loans, hire purchase and financial stress and teacher attrition

Attrition	Loan and Hire Purchase Model		Financial Stress Model	
	Odds Ratio	Marginal Effect	Odds Ratio	Marginal Effect
Currently settling a Loan (0=no; 1=yes)	1.4124** (0.2194)	0.0807** (0.0360)	—	—
Currently settling debt from High purchase (0=no; 1=yes)	1.9107* (0.7035)	0.1514* (0.0855)	—	—
Loan X high purchase	0.3194** (0.1459)	-0.2668** (0.1055)	—	—
Financial stress (0=no stress; 1=stress)	—	—	1.2925** (0.1628)	0.0602** (0.0293)
Log (expenditure)	3.4742* (2.5918)	0.2911* (0.1733)	4.1896** (2.9995)	0.3359** (0.1667)
Log (expenditure squared)	0.9051* (0.0520)	-0.0233* (0.0133)	0.8913** (0.0493)	-0.0270** (0.0129)
Engaged in moonlighting	1.5264*** (0.2194)	0.0989*** (0.0330)	1.4863*** (0.1910)	0.0929*** (0.0297)
Female (0=male; 1=female)	0.8600 (0.1210)	-0.0352 (0.0328)	0.8042* (0.1034)	-0.0511* (0.0300)
Age of teacher	0.9719* (0.1210)	-0.0067* (0.0328)	0.9814 (0.1034)	-0.0044 (0.0300)

Table 5. (Continued)

	(0.0149)	(0.0036)	(0.0137)	(0.0033)
Number of years of teaching	0.9750	-0.0059	0.9682**	-0.0076**
	(0.0160)	(0.0038)	(0.0144)	(0.0035)
Marital Status (base=Separated)				
Single	0.2618*	-0.2686**	0.3997	-0.1917*
	(0.1890)	(0.1108)	(0.2585)	(0.1149)
Married	0.2624*	-0.2682**	0.3468*	-0.2252**
	(0.1858)	(0.1067)	(0.2203)	(0.1117)
Divorced	0.3586	-0.1958	0.4663	-0.1560
	(0.2781)	(0.1288)	(0.3286)	(0.1319)
Widowed	0.1069**	-0.4751***	0.1576**	-0.4097***
	(0.0948)	(0.1563)	(0.1262)	(0.1553)
Constant	0.3051		0.1021	
	(0.7957)		(0.2516)	
N	1,042		1,223	
Pseudo R ²	0.0434		0.0402	
Hosmer–Lemeshaw	P>chi2 = 0.3166		P>chi2 =	
			0.3363	
Linktest	_hat:P> z = 0.000	_hatsq:P> z =	_hat:P> z =	_hatsq:P> z =
		0.104	0.000	0.327

Robust Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Field survey (2016) in Senior High Schools in three regions of Ghana

Conclusion and recommendation

This paper intended to ascertain the effect of teachers' financial stress and moonlighting behaviour on teacher attrition since it is seemingly absent in the attrition literature in general and in the teacher attrition literature to be specific. We generated a binary variable for financial stress using teachers' settlement of loan and hire purchase debts as indicators while the moonlighting (secondary job holding) was directly elicited from the sampled teachers. We employed a binary logit model since our attrition variable was a dummy by conceptualisation and controlled for other demographic characteristics of teachers. Data were collected from 34 Senior High Schools in three administrative regions in Ghana, giving us a sample of 1,360 teachers, using a multi-stage sampling technique.

We found that teachers who were settling loan debts (without any hire purchase debts) were eight percent more likely to leave the classroom than their counterparts who were not settling bank loans. Also, teachers who were settling debts from hire purchase (without any loan to settle) were characterised with likelihoods of leaving the classroom that were 15 percent more than their colleagues who not settling any debt from hire purchase. These can be attributed to lower salaries of teachers that do not suffice to meet their expenditure levels and compel them to

seek external funds to smoothing their consumption. The stress that comes with such funds and their quest to better their lot is what compels them to leave the teaching profession or leave the classroom on secondment to upgrade their income levels to reduce their financial stress.

Specifically focusing on financial stress revealed a similar outcome, where teachers who were financially stressed had 6% greater intentions of leaving the classroom than their counterparts who were not financially stressed. Because financial stress is a corollary of debt, which also emanates from lower salaries/incomes, teachers are likely to leave the classroom to embrace job opportunities that will enable them to meet their consumption and general expenditure needs.

Teachers who moonlight are 10 percent more likely to depart the classroom than their colleagues who only held to teaching. The reason is that their moonlighting behaviour reduces their commitment and what likely follows is to leave. This becomes typical of countries that pay their teachers very low salaries and once the teachers begin to gain better financial rewards from other opportunities, they realise the need to concentrate on such opportunities by leaving the teaching profession.

Other factors such as teachers' household expenditure were also found to have a significant influence on attrition but unlike studies that explained this phenomenon in passive terms, we found an inverted-U relationship between expenditure and teacher attrition. This could be explained by some teachers' complaints that their take home salary cannot take them home while others said that their salary cannot afford them three square meals, a descent accommodation and transport cost in a month (GNAT & TEWU, 2009).

By way of recommendation, we ask that governments, through the central banks, institute strict measures to regulate the financial system and control interest rates so that teachers do not pay usurious interest rates on loans acquired from commercial and rural banks and microfinance institutions. We say this because, if loans come with low-interest rates, the financial stress on the recipients will be reduced and teachers can also use such funds to set up personal businesses rather seeking to work for other people. In fact, there could be special concession for teachers since their probabilities of repayments are high and because they remain strategic partners in building up human capital for their countries (including the banks) but are paid less

Just like the loan situation, a teacher holding a secondary job is not bad but knowing its consequences must inform stakeholders to ensure that teachers are adequately compensated for the services they render. Once they are adequately rewarded, their inclinations to add secondary will reduce. This will stabilise their commitment towards teaching and hence, lower levels of attrition.

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