



PRIMARY RESEARCH

An ordered probit model on quitting decision of secondary public school teachers in Bhutan

Kuenga Choden *

Geaduate School of Development Ecomomics, NIDA, Bangkok, Thailand

Keywords

Quit decision
Ordered probit model
Contract teachers

Received: 5 February 2019**Accepted:** 11 March 2019**Published:** 24 April 2019

Abstract

The main objective of this study is to empirically examine the factors that determine the quitting decision of public school teachers in Bhutan. This study will examine teachers' job satisfaction and quit decisions and determine how the quit decision differs among different gender and regions. Cross-sectional data were collected through a questionnaire distributed randomly among 596 teachers in secondary public schools in Bhutan because they comprise about 70.73% of total public school teachers. This study focuses on the factors that can lead to quitting decisions by the teachers within two years. Based on descriptive analysis of raw data, and index data, and the Ordered Probit model, the result revealed that decision actors such as gender, qualification, work satisfaction, monetary rewards and support from the administration affected the teachers' quitting decision within two years more than the experience, working environment and interpersonal relation. Also, the actual rate of the teachers who were planning to leave within two years was yielded and some of the suggestions from the participants to the Ministry of Education in order to retain the experienced ones in the system, which can be helpful even for the policymakers of public and private schools, are given.

© 2019 The Author(s). Published by TAF Publishing.

INTRODUCTION

Background of the Study

Teachers play an important role in conveying wholesome education the students. They must have tolerance and be able to create conducive learning environment; they have to be vigilant and active so that the students' learning takes place. Teachers play crucial role in the betterment of students' success (Choong, Ng, Na, & Tan, 2019; Karbownik, 2014; Yahya, Ismail, Salleh, & Abdullah, 2015). A teacher takes up various roles and responsibilities in the school besides teaching, but the most important role that they play in life of the student is that of a mentor who guides and educates the young minds with the help of various strategies and skills. They play the role of a parent, who cares by providing emotional and physical help. Their character influences the students and the impact of the role played by the teacher in the life of the student remains for longer period. Borman and Dowling (2008) mentioned that the nature of a

teacher has more effect on the change in the students' performance compared to other school facilities.

In Bhutan, modern formal education started very late. After the monarchical system of governance started in 1907, the first school was opened for students in 1914 by the First King. Till that time monastic education was the only form of education in Bhutan.

In 1962 the government introduced the western education system and also adopted English as a medium of instruction in all the schools. To meet the requirement of the teachers in the country, Paro College of Education was established in 1975 as a Pre-school Care Training Centre with eight female trainees. In 1968 Samtse College of Education as established as first the Teacher Training Institute. At present there are 1464 trainees in Paro College of Education and 966 teacher trainees in Samtse College of Education (Chen, 2016; Ministry of Education, 2017). From the very beginning of the teacher training centers there was a lack of in-

* corresponding author: Kuenga Choden

† email: chodenk5@gmail.com

terest shown by the young ones even when the requirement was with minimum qualification. Few were there who were interested in this noble profession but majority of the teacher candidates joined due to certain circumstances not due to their interest. The Ministry required more teacher than the applied numbers, so the teacher shortage was not a current issue in the education system in Bhutan ([Ministry of Education in Bhutan, 2009](#); [Suwanwong, 2017](#)). Currently, the country has 296 Primary schools, 71 Lower Secondary Schools, 70 Middle Secondary Schools and 42 Higher Secondary Schools, a total of 479 Government schools with 1,56,154 students and 8,644 teachers. Out of 156154 students, 117356 are enrolled in secondary schools in 2017. Out of 8644 teachers, 6118 are teaching in government secondary schools from which 3730 are in urban and 2888 are in rural ([Ministry of Education, 2017](#)).

Research Problem

Retaining trained and experienced teacher in the school to impart knowledge to the student has been and is still a global mission, almost every country in the world have to increase their education services to achieve 100% primary education by 2015. Most of the developing countries as well as in developed countries like USA, Spain and Sweden are facing the same problem ([Lindqvist & Nordänger, 2016](#)). Teacher attrition seems to be an unavoidable situation and at times it's good if unsatisfied and less interested teacher leaves, so that new energetic and interested ones can join ([Karsenti & Collin, 2013](#)). It's found out that every year teachers leaving their profession on voluntary basics have been increasing annually and this causes severe problem of teacher shortage especially when they leave the job in middle of the academic session. It's a loss to the Ministry and the country as a whole. As mentioned in a work by [Nutsuklo \(2015\)](#) that teachers leaving their profession not only hamper the education performance of the learners but also harm the educational status and increase the Government expenditure.

Annually on an average, around 3.6% of public school teachers leave this profession. 345 teachers left teaching between 2016 and 2017; out of it 260 left intentionally, 56 retired and rested switched to other jobs while some had uncertain misfortunes. Teachers' attrition rates increased from 3.5% in 2016 to 4.2% in 2017 ([Ministry of Education, 2017](#)). The attrition rate of secondary teachers is 4.08% while it is 3.63% of Primary teachers.

Due to increasing number in teacher leaving the profession as well as with the introduction of in-country masters' course for the teachers from mid of 2017, the Ministry has

faced severe teacher shortage compared to previous years and to address it the Ministry has recruited 316 fresh graduates as a contract teacher. This paper wants to find out the main reasons as to why teachers prefer to leave their profession and look for another job. Few studies have been already carried out on a related topic in Bhutan but what makes this paper different from the rest are the variables that are used and the sample size for the survey questionnaire. I want to cover teachers from various part of the country, as the working conditions and facilities are different in different schools and this will also play its part as reasons for teachers' intention of quitting their job.

The main objective of the paper is to examine empirically the factors that determine the quitting decision of the public school teachers in Bhutan. As well as will examine the job satisfaction and quit decision, and figure out how quit decision differs among different gender and regions.

LITERATURE REVIEW

Gender

In Bhutan the possibility of males quitting the job may be higher than the females due to their difference in job satisfaction and this statement is evidently supported by ([Heywood, 2006](#)) study conducted in USA using Ordered Probit Model found that females in general samples in USA and UK showed greater job satisfaction than male, similar findings in the study by [Clark \(1997\)](#) using Probit Model with data from British Household Panel Survey 1991, wherein general female workers are more satisfied with the work. Likewise according to the findings by [Ma and MacMillan \(1999\)](#) using 2,202 teacher samples from the New Brunswick Elementary School, with a help of multi-regression approach, found that there was a significant difference in job satisfaction between male and female, as female teachers were found to be more satisfied than male teachers.

However the difference in job satisfaction between male teachers and female teachers may be related to the intrinsic and extrinsic factors which according to study conducted by [Rosenblatt, Talmud, and Ruvio \(1999\)](#) for secondary school teachers in Israel found that male teachers felt more insecure with the job security as they were concerned about the monetary rewards while lady teachers were more concerned with the workload and working environment. Similarly in the study by [Liu and Ramsey \(2008\)](#) carried out for teachers in the USA using Multilevel Analysis found that when it comes to working condition and workload in teaching, female teachers seem to be less satisfied than the male teachers and also that they have higher stress related to

work-load.

On the contrary, some studies have found out that females encounter lower satisfaction than males and have higher attrition rate. In the study by [Kukla-Acevedo \(2009\)](#) using data from 1999-2000SASS and 2000-2001 TFS incorporating Binomial and Multinomial Logistic Model found that women have higher rates of turnover than men in order to devote their time to their children and family, similar findings were mentioned in the study by [Murnane and Olsen \(1989\)](#) on public school teachers in Michigan using the Generalized Least Square estimation.

Job Satisfaction

Job satisfaction in any profession can be one of the major causes which determine the attrition and retention of employees. It is likely to have a negative relationship with the quitting decision. The less satisfied individuals have a higher possibility of leaving the job. [Lévy-Garboua, Montmarquette, and Simonnet \(2007\)](#) carried out a study using German Socioeconomic Panel Data from 1985-2003 to find the relationship between job satisfaction and quits. In their study they have used Wealth maximization Theory and Probit Model and found that workers who are more satisfied with what they are doing, they are more likely to stay in the profession, similar was the findings from the study by [Clark, 1997; Selvina, 2016](#) using Hedonic measurement on British Household Panel Survey 1991. Although the findings are for the general profession, it can be applied to the teaching profession too.

The economist recently has been interested in the study of individual well-being factors and job satisfaction is one of them. According to [Clark and Oswald \(1996\)](#) stated that job satisfaction as a type of sub-utility function of the overall utility function, $v = v(u, \mu)$, where μ is the utility from other areas of life while u is the utility from work and usually the utility from work is considered as $u = u(y, h, i, j)$, where y is the income, h is the working hours, i is the individual and j is the set of job specific characters, and this utility function can be applicable to teacher job satisfaction because job satisfaction is related to various other components. Correspondingly, a study on Secondary school teachers conducted in Guangzhou province, China by [Weiqi \(2007\)](#) found that the secondary teachers were generally not satisfied with their job mainly due to dissatisfaction with the income, relation with leader, administration system, working conditions, and workload, overall they were dissatisfied with teaching profession, similar findings were mentioned in work of [Dinham and Scott \(1998\)](#) conducted in public school teachers of Western Sydney.

Incentives

Incentives include salary, allowances and fringe benefits. In economics, the incentive is a reward for the services provided. It is likely that teachers who are more efficient and effective, they expect the same compensation in the form of monetary reward and failure to do so might lead to increase in turnover rate. In a study by [Liu and Ramsey \(2008\)](#) a Multilevel Analysis of Teacher Follow-up Survey for 1994-95, US, found that the main reason for teachers leaving their job besides student behavior is the salary which shows the robust relationship between salary and quitting decision. Similarly in the study of teachers who already left teaching in Florida by [Kersaint, Lewis, Potter, and Meisels \(2007\)](#) found that teachers have less financial benefit as compared to any other profession and it may be the main cause of teacher turnover, as well as in the study by [Boyd, Lankford, Loeb, and Wyckoff \(2013\)](#) conducted in U.S. using a game-theoretic and two-sided matching model and found that teachers of both private and public schools identified pay as the core motive of leaving the job, as well as it's highly associated with the decision to remain in teaching and it was reported that teacher working in areas where salary is low have higher rate of quits.

Correspondently in a study by [Imazeki \(2005\)](#) on public school teachers of Wisconsin state in the US using Hazard model found that a slight rise in the teacher's pay will lead to higher rate of retention with low decision to quit. In the study by [Hendricks \(2014\)](#) using a panel data 1996-2012, from Texas. With the help of diff-in-diff estimator, the findings showed that increase in teachers' salary would not only reduce the attrition rate but it will also be helpful in improving students' performance, similar findings from a study by [Borman and Dowling \(2008\)](#) using Meta-analysis in U.S. and in a study by [Frijters, Shields, and Price \(2004\)](#) on teachers in England and Wales using Fit Single and Competing Risks Duration Models, found that increase in teacher's salary will not only reduce the teacher attrition rate, it will also encourage young graduates to join the profession thereby solving the problem of teacher shortage. [Hanushek, Kain, and Rivkin \(1999\)](#) using Texas Panel Data sets on students and teachers 1993-1996, found that 10% increase in teacher remunerations reduces the probability of teacher leaving the job by 2% in those with 0-2 years of teaching experience and 1% in those with 3-5 years of experience.

Although there are numerous studies carried on regarding the negative relation between salary and teacher job satisfaction, in the study by [Zembylas and Papanastasiou \(2004\)](#) found that majority of teachers in Cyprus choose

this career because of the salary, the working hours, and the holidays in this profession.

Working Condition

[Nutsuklo \(2015\)](#) studied job satisfaction of some high school teachers in Accra, Ghana stated that the working condition includes both the psychological situation and physical arrangement of the work, where failure to provide the facilities and meet the requirements of the worker makes it difficult for them to carry out their work properly leading to dissatisfaction and decision to quit. In the study by [Tamang \(2014\)](#) using the Logistic Model conducted for 496 teachers in Bhutan found that the teachers' leaving the job will fall by 7.8% if the working condition in the schools improves.

The working conditions of the schools are different in a different locality. It is different in terms of facilities, geographical character, student behavior, job competition and also how the local community respect teaching profession. Like wiser in the study by [Struyven and Vanthournout \(2014\)](#) conducted in Flanders using Multivariate general linear model found that facilities, infrastructures and other factors in the school also lead to dissatisfaction and decision to quit among the teachers. Similarly in a study on African-American teachers by [Louw, George, and Esterhuysen \(2011\)](#) found that the most important factor in order to reduce the number of teachers leaving the job is to improve the school infrastructure and facilities. A similar result was found in the analysis by [Darling-Hammond \(2003\)](#). In a research by [Steinke and Putnam \(2008\)](#) using a survey method with the sample of technology education teachers and administrators, the findings were the main factor influencing the technology education teachers to teach was the resources available for the classrooms as well as in the laboratories and also for professional development. Although the study was carried out for the technology education teachers, the findings can be applicable to the general teachers too as the working patterns are similar.

Inter-Personal Relationship

[Struyven and Vanthournout \(2014\)](#) carried out a research on "teachers' exit decision" using 154 teachers with teaching experience and 81 samples from those who never taught after the teacher-training program in Flanders, Belgium, they used multivariate general linear model to study the relation and stated that the outcome of the teachers depend upon the support by colleagues and the administrator. Similar results were found in the work of [Wahlstrom and Louis \(2008\)](#) conducted in suburban schools in Minnesota, found that Schools with high-trust among the teachers and princi-

pal resulted in more cooperative decision making, improved plans, and increased student learning, as well as teachers prefer to stay longer at a school where they have good relationships with their working mates was the findings from a study by [Boyd et al. \(2011\)](#) conducted on teachers in New York using Multinomial Logistic Regression Model. Correspondently, the study by [Zembylas and Papanastasiou \(2004\)](#) regarding teachers in Cyprus states that there is a high rate of teacher turn over from those schools where the colleagues and principals lack support, encouragement, and reward.

Administrative Support

[Boyd et al. \(2011\)](#) did a research on the influence of school administrators on teacher retention decisions in New York City and have found that the teachers' view of the school administration has greater influence on their retention decisions, when the supervisor encourages and supports the teachers, they get motivated and dedicated which results in improvement of overall performance of the school. Similarly in the research by [Price \(2012\)](#) with data from Schools and Staffing Survey, 2003-04, employing Structural Equation Modeling (SEM) techniques and Fixed Effects Regression Models found that a positive relationship between supervisors and teachers can promote an effective working environment and such spill over can benefit the organization as a whole. In the study by [Ladd \(2011\)](#) on teachers from North Carolina, attained that the characteristics of school supervisor are the most prominent factor which affects the teachers' decision to leave the profession. Similar findings were from the study on teachers in Cyprus by [Zembylas and Papanastasiou \(2004\)](#). Likewise, [Certo and Fox \(2002\)](#), in their study on teachers in Virginia, found that the teachers' decision to quit not only depends upon the lack of facilities and teaching materials in the school but also due to the lack of support from the school administrators.

RESEARCH METHODOLOGY

Econometric Model

Since the dependent variable (quitting decision) is an ordered outcome (1= less likely, 2= moderately likely and 3= more likely), which is different from numerical because for the ordinal responses there is no natural unit of measurement especially when survey questions are framed based on the attitude of the respondents. Use of Linear Regression techniques is likely to be unsuitable because the dependent variable is usually coded as 0,1,2,3 and so on which is nothing but just a rank or order where the difference between the first and second outcome may not be the same between

the second and third outcome and so on. Ordinal response data are usually analyzed using a statistical technique called as "Ordered Probit" (Daykin & Moffatt, 2002). Unlike the probit and logit models, the ordered probit model contains a qualitative dependent variable that has natural order or ranking of the categories (Becker & Kennedy, 1992).

The method used in this study is the Ordered Probit Model since the dependent variable is an ordinal variable with three outcomes.

Let i be the respondent teacher i , $i = 1, \dots, n$, where n is the number of respondents. Let Q_i be individual teacher i 's response to the survey question which can take one of the index value $1, 2, \dots, J$. Let Q_i^* ($-\infty < Q_i^* < +\infty$) be the unobserved single latent variable which denotes teacher i 's quitting decision within two years. Let $X_i\beta$ and $Z_i\beta$ be the explanatory variables and u_i is the error term.

X_i is the satisfaction category (socio-economic factors), i.e., work satisfaction, income satisfaction, satisfaction from the relation with colleagues, location satisfaction, and satisfaction from the support system. While Z_i is the other controlled variables (demographic factors) such as gender, age, education, region etc. that can affect the quitting decision of teacher i . β is a vector of parameters not containing an intercept, but these parameters will be explainable in the similar manner as slope parameters in linear regression. The Ordered Probit Model is based on the assumption that Q_i^* depends linearly on $X_i Z_i$ according to:

$$Q_i^* = Z_i\beta + u_i. \quad (1)$$

$$Q_i^* = X_i\beta + u_i. \quad (2)$$

$$Q_i^* = X_i\beta + Z_i\beta + u_i, i = 1, \dots, n \quad (3)$$

$$u_i \sim N(0, 1)$$

Since Q_i^* is unobserved, the relation between unobserved latent variable Q_i^* and observed random variable Q_i is:

$$Q_i = 1 \text{ if } -\infty < Q_i^* < k_1 \text{ (Less likely)}$$

$$Q_i = 2 \text{ if } k_1 < Q_i^* < k_2 \text{ (Moderately likely)}$$

$$Q_i = 3 \text{ if } k_2 < Q_i^* < k_3 \text{ (More likely)}$$

$$Q_i = J \text{ if } k_{j-1} < Q_i^* < \infty \quad (4)$$

The parameters k_j , $j = 1, J - 1$, are the threshold parameters or cutoffs which define the limits of the various categories. K_0 is taken as $-\infty$, and k_j is taken as ∞ .

The model cannot be estimated using Ordinary Least Square, its estimated using Maximum likelihood. The log-likelihood function will be constructed based on the probability function. Let $P_i(Q_i = J)$ be the probability that the

respondent i 's response is J . As we observe Q_i as an ordinal variable measured on a scale of $1, 2, \dots, J$, the probabilities associated with the observed outcomes are:

$$P_i(\text{outcome } Q_i = J) = \Pr(k_{j-1} < Q_i^* \leq k_j) = \frac{F(k_j - X_i\beta) - F(k_{j-1} - X_i\beta)}{1} \quad (5)$$

where F is the standard normal cumulative distribution function. J is the number of possible outcomes and k_s are the cutoffs or threshold. The model defines the probabilities of outcomes; it does not directly explain the relationship between observed random variable (Q_i) and the regressors (X_i, Z_i).

The likelihood function for the estimation of the model parameters is based on the probability function. Based on the sample ($Q_i, X_i, i = 1, \dots, n$), the log-likelihood function is:

$$\text{Log}L = \sum_{i=1}^n \ln[P_i(Q_i)] = \sum_{i=1}^n \ln[F(k_j - X_i\beta) - F(k_{j-1} - X_i\beta)] \quad (6)$$

The log-likelihood is maximized with respect to the element of β along with the thresholds to give MLEs (maximum likelihood estimations) of sets of parameters.

The Ordered Probit Model with J alternatives has one set of coefficients with $(j-1)$ intercepts. In this paper since the dependent variable has three alternatives, the model has two intercepts (3-1) and one set of coefficients. The sign of the coefficients of each regressor shows whether the dependent variable increases/decreases with the independent variable. While explaining the coefficients we do not interpret the values of the coefficients as they differ by scale factor like the binary probit and logit models, rather we explain by saying either more likely or less likely. Since this model has more than two outcomes, we can interpret by saying more likely to be in one category and less likely to be in other categories.

The marginal effect of an increase in a regressor on the probability of selecting alternative J is:

$$\partial p_{ij} / \partial x_i = F'(k_j - X_i\beta) - F'(k_{j-1} - X_i\beta)\beta_r \quad (7)$$

The marginal effects of each variable on the different alternatives sum up to zero because each unit increase in the independent variable increase or decreases the probability of selecting the alternative J , if one is more likely to be in one category than its less likely to be in other categories. For this paper, there are three alternatives: less likely, moderately likely and more likely, so there will be three sets of marginal effects, one for each alternative.

RESULTS

Descriptive Analysis of Raw Data

The Survey questionnaires were distributed to 596 teachers teaching in public secondary schools in Bhutan who were randomly selected. The name of the schools and participants are not revealed to protect their identity. The sample consists 57.89% of males and 42.11% of females with a standard deviation of 0.49 and means 0.58. The participants are from various age groups with minimum age 22 years old and maximum age of 57 years old and standard deviation of 5.77. The average age of male is 32.04 and female is 32.76. 80.03% are married while 17.95% are single. Since the samples are randomly collected, there are teachers with various professional qualifications and years of teaching experiences. Minimum with PTC (Primary Teaching Certificate) and maximum Masters. About 3.69% of teachers have PTC, 54.19% have completed B.Ed. (Bachelors in Education), 28.69% of teachers have completed PgDE/PgCe (Postgraduate Diploma/Certificate in Education) and 13.42% have completed Masters Level.

In this sample, the maximum years of teaching experience are 36 years while minimum years of experience in teaching are 1 year. The average year of experiences is 7.98 with a standard deviation of 5.75.

The survey data reflects that the minimum basic salary that a teacher receives is between the range of US\$ 281.05-327.87 (Nu.18,001-21,000) and maximum is US\$562.06 and above. Around 202(33.89%) teachers out of 596 respondents are in with a basic salary of US\$ 281.05-327.87 while 4 teachers (0.67%) are in maximum range. (1US\$ = Nu.64.05 as on 7th March 2018, Bank of Bhutan).

32.38% samples are collected from teachers in West with 29.70% from the south with 24.33% from East and 13.59% teachers teaching in secondary schools in the northern and

central region of the country with mean 2.487, the standard deviation of 1.154 and variance of 1.33 respectively.

34.90% teaching in semi-urban secondary schools, 28.36% in semi-rural schools, 18.79% in urban areas and 17.95% samples from teachers teaching in secondary schools in rural areas with a variance of 0.984, mean 2.545 and standard deviation of 0.992 respectively.

18.79% from 596 respondents do not have any decision to leave the profession within two years while 46.48% are undecided and 34.73% are sure to leave the teaching job within two years from which 63.77% are male teachers.

From 207 participants who have the decision to leave, 31.58% want to work in other countries, 31.10% wants to take up the business, 27.75% want to switch to another profession and 9.57% wants to join in private sectors.

Index Analyses

Since the collected primary data are categorical where variables have various categories measured on a 5 point Likert scale (scale 1 represents strongly dissatisfied and scale 5 represents strongly satisfied), an index is created to measure satisfaction level. The scale that the participants choose for each component is being multiplied by the weight of that component, with the lowest digit indicating great dissatisfaction and the highest digit indicating great satisfaction. The scores are used to measure the satisfaction of each teacher in the sample. Refer Table 1, 2, and 3.

TABLE 1. Teacher satisfaction index

| Components | Rank (high to low) | Weightage |
|------------|--------------------|-------------|
| 1 | 6 | 0.29 (6/21) |
| 2 | 5 | 0.24 (5/21) |
| 3 | 4 | 0.19 (4/21) |
| 4 | 3 | 0.14 (3/21) |
| 5 | 2 | 0.09 (2/21) |
| 6 | 1 | 0.05 (1/21) |
| total | 21 | 1 |

TABLE 2. Components of each independent variable

| Components | Work Satisfaction | Incentives/Income | Working Condition | Administrative Support |
|------------|--------------------------|--------------------------|-----------------------------|------------------------|
| 1 | Workload | Sufficient pay | Workplace | Recognition |
| 2 | Working hours | Allowances | Facilities | Support |
| 3 | Opportunities | Incentives | Housing | Transparency |
| 4 | Family time | Pay as per qualification | Community | Fair and just |
| 5 | Professional development | Pay as per work | Use of technology | Relation |
| 6 | Students' result | Happy with income | Teaching/learning materials | Feedback |

TABLE 3. Teacher satisfaction index for interpersonal relation

| Components | Ranking | Weightage |
|---------------------|---------|-----------|
| 1. Cooperation | 4 | 0.4 |
| 2. Support | 3 | 0.3 |
| 3. Friendly/helpful | 2 | 0.2 |
| 4. Share knowledge | 1 | 0.1 |
| Total | 10 | 1 |

Econometric Results

TABLE 4. Ordered Probit Model estimation of quitting decision within two years Number of obs = 596 LR chi2 (9) = 24.71 Prob > chi2 = 0.0033 Log likelihood = -606.0328 Pseudo R² = 0.0200

| Demographic Factors | Coefficients | Std. Err. |
|------------------------------------|--------------|-----------|
| Gender (Male=1, female=0) | .3681187 *** | .1002401 |
| Age | -.0059905 | .0088789 |
| Marital status(Married=1, rest=0) | .0090586 | .1214396 |
| PgDE/PgCE (if Pgde/Pgce=1, rest=0) | .1072235 | .105779 |
| Masters (if masters=1, rest =0) | .2675889* | .1464771 |
| East (if east=1, rest =0) | -.3193834** | .159485 |
| West (if west=1, rest =0) | -.2946046* | .1535215 |
| South (if South=1, rest =0) | -.3419354 ** | .1526331 |
| Location (Urban=1, Rural=0) | .2686388 ** | .1302541 |

Source: Author's Survey. Note: The symbols ***, **, * denotes the significance level at 1, 5 and 10 percent.

TABLE 5. Marginal effects of the ordered probit model

| Variables | Less Likely | Moderate | More Likely |
|---------------------------------------|-------------|----------|-------------|
| Gender (Male = 1, female = 0) | -.0996 | -.0336 | .1332 |
| Age | .0016 | .0006 | -.0022 |
| Marital status(Married = 1, rest = 0) | -.0024 | -.0009 | .0033 |
| PgDE/PgCE (Pgde/Pgce = 1, rest = 0) | -.0277 | -.0121 | .0398 |
| Masters (if masters = 1, rest = 0) | -.0642 | -.0374 | .1017 |
| East (if east = 1, rest = 0) | .0905 | .0223 | -.1128 |
| West (if west=1, rest =0) | .0812 | .0245 | -.1058 |
| South (if South = 1, rest = 0) | .0957 | .0258 | -.1216 |
| Location (Urban = 1, Rural = 0) | -.0655 | -.0360 | .1016 |

From the above Table 5, one can conclude that as compared to the female teacher, male teachers are more likely to make a decision to quit within two years by 13.32%. Higher the age of the teacher, it's more likely to fall in the category of not having any decision to quit within two years, whereas compared to single teachers, one-unit increase in married teachers will lead to 0.03% increase in the making the decision to quit within two years. Higher the professional qualification is more likely to fall into the category of having a decision to quit within two years. Teachers with postgraduate diploma in education are more likely to quit within two years as compared to reference group who have bachelors in education, and teachers with masters are more likely to quit within two years as compared to the reference group.

The likelihood ratio chi-square of 24.71 with *p*-value of 0.0033 shows that the model as a whole is statistically significant. In Table 4 all factors are statically significant except for age, marital status, and PgDE/PgCE. The sign of coefficients for age is negative, estimating that as the age of the teacher increases; they are less likely to leave the profession. From the above table, it reflects that age, marital status is not so important factor to determine the quitting decision of a teacher within two years in Bhutan. On an average male teacher have, *ceteris paribus*, higher propensity to quit teaching within two years as compared to female and its relation with quitting decision is positive and highly significant. One can estimate that teachers teaching in urban schools are seen to have, *ceteris paribus*, higher probability to leaving teaching within two years as compared to teachers in rural schools. On average teachers teaching in East are less likely to quit within two years as compared to its reference group. Similar is the result with regard to teachers from West and South. They are less likely to have a decision to quit within two years as compared to their baseline the teachers from North/Central, *ceteris paribus*.

Teaching in any of the regions in the country is less likely to make a decision to quit within two years. Compared to teachers from north/central region of the country, teachers from East will decrease the probability of falling into the category of more likely to quit within two years by 11.28%. The teachers teaching in southern region are more likely to fall in the category of less likely to quit within two years as compared to its reference group of teachers from North/Central region. Teachers teaching in secondary school in Western regions of the country are less likely to have a decision to quit within two years as compared with the reference group. Teachers teaching in urban schools are more likely to make a decision to quit within two years compared to the rural schoolteachers and the probability of making a quitting decision will increase by 10.16%.

TABLE 6. Ordered Probit Model estimation of quitting decision within two years Number of obs = 596
LR chi2 (5) = 81.84 Prob > chi2 = 0.0000 Log likelihood = -577.46657 Pseudo R² = 0.0662

| Socio-economic Factors | Coefficients | Std. Err. |
|----------------------------|--------------|-----------|
| Work satisfaction | -.1649447 | .1075973 |
| Incentives/income | -.4349501*** | .0704289 |
| Working condition | .0260339 | .0688366 |
| Interpersonal relationship | .0184398 | .0733344 |
| Administrative support | -.1327816** | .0629429 |

Source: Author's Survey. Note: The symbols ***, **, * denotes the significance level at 1, 5 and 10 percent.

The likelihood ratio chi-square of 81.84 with p -value of 0.0000 shows that the model as a whole is statistically significant. Table 4.3 shows a negative coefficient between the variables and the quitting decision within two years except for working condition and interpersonal relationship.

Incentives/income and administrative support are negatively and significantly associated with the quitting decision. With higher incentives/income for teachers, *ceteris paribus*, the propensity to quit will be low. Whereas for the work satisfaction, although it's not significant, the coeffi-

cient sign shows that teachers with better work satisfaction are less likely to make a decision to quit within two years. For working condition and interpersonal relationships, the influence on quitting decision is positive but the effect is very small and insignificant too, which indicates that these two factors are less likely to affect the decision to quit within two years. From above table, we can conclude that the incentives are significantly affecting the rate of teacher attrition.

TABLE 7. Marginal Effects of the Ordered Probit Model

| | Less Likely | Moderate | More Likely |
|---------------------------------------|-------------|----------|-------------|
| Gender (Male = 1, female = 0) | -.0996 | -.0336 | .1332 |
| Age | .0016 | .0006 | -.0022 |
| Marital status(Married = 1, rest = 0) | -.0024 | -.0009 | .0033 |
| PgDE/PgCE (Pgde/Pgce = 1, rest = 0) | -.0277 | -.0121 | .0398 |
| Masters (if masters = 1, rest = 0) | -.0642 | -.0374 | .1017 |
| East (if east = 1, rest = 0) | .0905 | .0223 | -.1128 |
| West (if west = 1, rest = 0) | .0812 | .0245 | -.1058 |
| South (if South = 1, rest = 0) | .0957 | .0258 | -.1216 |
| Location (Urban = 1, Rural = 0) | -.0655 | -.0360 | .1016 |

The marginal effect from the Table 7 shows that one-unit increase in the work satisfaction will decrease the probability of making a decision to quit by 5.99%. A one-unit increase in the incentive/income of a teacher will lead to decrease in the probability of having a decision to quit within two years by 15.79% and one-unit increase in the support system from the administrative, the probability to quit within two years will fall by 4.82%.

From Table 8 the likelihood ratio chi-square of 101.78 with p -value of 0.0000 shows that the model as a whole is statistically significant. There is a positive relationship between male teacher and the decision to quit within two years. Controlled for other variables, the effect of being a male teacher on the quitting decision is highly significant at 5% and they are seen to have higher rate of decision to quit as compared to female teachers. For respondents with masters'

level of qualification has a positive relationship with the decision to quit within two years and is significant at 10% reflecting that the decisions to leave the teaching job are higher in those teachers with higher qualification as compared to its reference group, while for the respondents with PgDE/PgCE although its insignificant the sign of coefficient shows the positive relationship with the decision to leave as compared to its reference group. Respondents from urban secondary school have a higher rate of a decision to leave within two years as compared to those from rural school although the result is not significant. Incentives/income and administrative support are associated with negative relationship with quitting decision within two years and are significant at 1% and 5%. Controlled for other variables, higher incentive is associated with lower probability to leave the teaching job. Teachers working in schools with

better support from the school administration have, *ceteris paribus*, a lower probability to leave the teaching profession within two years. Whereas for work satisfaction, though the relation is negative, it seems to it has smaller effect on the decision of teachers to quit the teaching job in Bhutan, as

like a result is insignificant. The effect of working conditions and interpersonal relationship is also not significant; this shows that these two factors have minimal effect on the decisions to quit the teaching profession within two years in Bhutan.

TABLE 8. Ordered Probit Model estimation of quitting decision within two years Number of obs = 596 LR chi2 (14) = 101. Prob > chi2 = 0.0000 Log likelihood = -567.49515 Pseudo R^2 = 0.0823

| Variables | Coefficients | Std.Error |
|------------------------------------|--------------|-----------|
| Gender (Male=1, female=0) | .3040501** | .102886 |
| Age | .0005974 | .0091255 |
| Marital status(Married=1, rest=0) | -.0240339 | .1237007 |
| PgDE/PgCE (if Pgde/Pgce=1, rest=0) | .1564788 | .1091896 |
| Masters (if masters=1, rest =0) | .2474815* | .1494506 |
| East (if east=1, rest =0) | -.3293056** | .163643 |
| West (if west=1, rest =0) | -.2278849 | .1583794 |
| South (if South=1, rest =0) | -.3460606** | .155966 |
| Location (Urban=1, Rural=0) | .2125382 | .1341456 |
| Work satisfaction | -.1772018 | .1091301 |
| Incentives/income | -.4091426*** | .0715362 |
| Working condition | .0156319 | .0710629 |
| Interpersonal relationship | .0139472 | .07415 |
| Administrative support | -.1386331** | .0637294 |

Source: Author's Survey. Note: The symbols ***, **, * denotes the significance level at 1, 5 and 10 percent.

TABLE 9. Marginal effects of the ordered probit model

| Variables | Less Likely | Moderate | More Likely |
|-----------------------------------|-------------|----------|-------------|
| Gender (Male=1, female=0) | -.0764 | -.0321 | .1086 |
| Age | -.0001 | -.0001 | .00026 |
| Marital status(Married=1, rest=0) | .0059 | .0029 | -.0088 |
| PgDE/PgCE (Pgde/Pgce=1, rest=0) | -.0372 | -.0202 | .0574 |
| Masters (if masters=1, rest =0) | -.0554 | -.0373 | .0927 |
| East (if east=1, rest =0) | .0877 | .0262 | -.1139 |
| West (if west=1, rest =0) | .0581 | .0228 | -.0809 |
| South (if South=1, rest =0) | .0908 | .0299 | -.1207 |
| Location (Urban=1, Rural=0) | -.0488 | -.0301 | .0789 |
| Work satisfaction | .0435 | .0206 | -.0641 |
| Incentives/income | .1005 | .0476 | -.1481 |
| Working condition | -.0038 | -.0018 | .0057 |
| Interpersonal relationship | -.0034 | -.0016 | .0050 |
| Administrative support | .0341 | .0161 | -.0502 |

The result from Table 9 shows as compared to female teachers, male teachers are more likely to quit the job within two years; the probability of quitting will increase by 10.86%. A one-unit increase in the age of the teacher will increase the probability of making a decision to quit by 0.03%. Married teachers are less likely to make a decision to quit as compared to single teachers. The probability of quitting will fall by 0.88%. Teachers with postgraduate diplomas in ed-

ucation are more likely to make a decision to quit as compared to the reference group of teachers with bachelors in education. As compared to teachers with B.Ed., teachers with masters are more likely to quit teaching within two years; it leads to increase in probability to quit by 9.3%. Teachers teaching in the Eastern region are less likely to quit within two years as compared to the reference group the teachers teaching in secondary schools in North/Cen-

tral region of the country as the probability to quit decreases by 11%. Teachers teaching in Western region are less likely to quit within next two years as compared to teachers from North/Central region. As compared to teachers from North/Central region, teachers teaching in Southern region are less likely to quit as the probability of falls by

12.1%. One-unit increase in the work satisfaction is associated with 6.4% decrease in the rate of quitting within two years, whereas one-unit increase in the incentive/income is associated with 14.8% decrease in the quitting rate within two years, and one-unit increase in administrative support can lead to decrease in the quitting decision by 5%.

TABLE 10. Predicted probabilities

| Variable | Observation | Mean | Std.Dev. |
|-------------|-------------|-------|----------|
| Less likely | 596 | .1887 | .1224 |
| Moderate | 596 | .4646 | .0628 |
| More likely | 596 | .3467 | .1602 |

Pr ($Q_i = 1$) is 18.87%, the probability that the respondents are less likely to make a decision to quit within two years. 112 respondents are less likely to quit the teaching job in the next two years.

Pr ($Q_i = 2$) is 46.46%, the probability that the respondents have not decided whether they will leave the profession or not within two years. 277 respondents are not sure whether they will quit the teaching job or not within next two years.

Pr ($Q_i = 3$) is 34.67%, the probability that the respondents are more likely to decide to quit within two years. 207 respondents are more likely to quit teaching within next two years from 596 respondents. The result of the predicted probability of quitting decision of secondary public school teachers within two years is similar to the result generated in the descriptive analysis.

DISCUSSION

In this paper, I intended to contribute to the literature that models the effects of gender, work satisfaction, incentives/income, working condition, interpersonal relationship and administrative support on the secondary school teachers' quitting decision within two years. The empirical results for the gender, incentives and administrative support in this paper are consistent with the former researchers. The analyses in this study showed that male teachers are more likely to quit as compared to female teachers which are in contrast to the findings by Murnane and Olsen (1989) conducted on 7800 Michigan public school teachers and by (Kukla-Acevedo, 2009) using survey data from 1999-2000 SASS and the 2000-2001 TFS. Female teachers are usually satisfied with teaching job than male teachers because female teachers look for the satisfaction with intrinsic factors such as working hours and work load so that they can spend more time with the family and more over teaching job is to deal with the children which

becomes easier for the female to adjust, while male teachers are more interested with the extrinsic factors which are usually the financial reward (Rosenblatt et al., 1999). The findings from this paper related to males have higher decision to quit teaching job than female is similar to the findings by Ma and MacMillan (1999) using 2,202 teacher samples from the New Brunswick Elementary School. Teachers with masters' qualification are more likely to quit the teaching profession within two years since they have high qualification that becomes easier to get employed in new job as compared to those with Bachelor's in Education, who are professionally trained to be a teacher. In a study by Dolton and Klaauw (1995) using a data from UK survey of 1987 and with help of econometric analysis they found that teachers with B.Ed. are less likely to quit compared with teachers with higher degrees which are in higher demand in the job market. Similar findings in a study on high school teachers in Accra, Ghana by Nutsuklo (2015) where the result showed that the reason for higher attrition rate among teachers with high qualification is that they have more opportunity for another job which may be attractive than teaching, so they will be dissatisfied with teaching and are more likely to leave this profession. Significant result of teachers teaching in urban schools having high probability of making a decision to quit as compared to teachers teaching in rural secondary school are similar to the findings in the study by (Hanushek, Kain, & Rivkin, 2004), in which they have stated that the schools are urban are usually overcrowded with students from various background and it becomes difficult for the teachers with deal with as well as urban areas have more opportunity than the rural areas. Similar was a findings in a paper by Louw et al. (2011) where they conducted a research regarding exhaustions level among the urban secondary teachers in Namibia and found that the level of stress and exhaustions are high

among the urban teachers which leads to lower satisfaction. Among all the independent variables that were used in this study, incentive/income has a very important effect on the teachers' decision to quit. It is highly significant and has a negative relationship with the quitting decision. It is found that one-unit increase in the incentive/income of a teacher will decrease the probability to quit by 15%. The result is consistent with the findings by [Liu and Ramsey \(2008\)](#) Teacher Follow-up Survey for 1994-95, US., and by [Frijters et al. \(2004\)](#) on teachers in England and Wales. Whereas the findings from this study are in contrast to the study by [Zembylas and Papanastasiou \(2004\)](#) using a survey data of 461 teachers in Cyprus. Results for administrative support and quitting decision within two years were significant and it has a negative relationship with the quitting decision. When the support systems from the school administrators are strong and encouraging than the working environment becomes conducive and teachers and staffs feel secured and safe to work. This is similar to the findings from [Certo and Fox \(2002\)](#), in their study on teachers in Virginia. The new finding from this result is that factors such as age, status, and experience are insignificant and their effects on the quitting decision within two years are very small. One interesting finding from this study is that the result of the work satisfaction, interpersonal relationship and working conditions are not significant and the relationship with the quitting decision for working condition and interpersonal relationship is positive although the effect is weak. These findings for working condition are not consistent with the findings by [Tamang \(2014\)](#) a study conducted on 496 teachers in Bhutan and by [Struyven and Vanthournout \(2014\)](#) conducted in Flanders.

CONCLUSION

The aim of this paper was to find the main factor that determines the quitting decision of the teachers within two years. Based the descriptive analyses and econometric results of the Ordered Probit Model, besides gender, the main factor is the monetary reward in form of their salary, incentives, and allowances. Professional qualification and the location of the school also influence the resigning decision along with work satisfaction and administrative support.

The surprising and new finding from this study is that age, years of experience, marital status, working condition and interpersonal relation has a very minimal consequence on the decision to quit. The test results were not significant for these factors as well as the correlation with the quitting decision were very weak.

The end part of the questionnaire is helpful to the policy-

makers not only in the education sector but also in other public as well as private sectors as it contains suggestions from the participants which can be helpful in retaining and minimizing the teacher attrition rate.

IMPLICATIONS

Education is the main foundation for any socioeconomic progress at an individual level, country level and at the worldwide. To impart the quality education to the learners, the most important factor is to have a good teacher. Good teacher here means the one who is interested in his/her work, satisfied with what they are doing and happy with the system they are working with, so it is crucial for the policymakers while framing the policy regarding the education system in the country to look into the pros and cons of the system and be prudent in making any policy.

From this paper, the policy makers can roughly estimate the average attrition rate for the teachers within two years. From 596 secondary school teachers, 207 teachers fall in a category of having a decision to quit within two years, while 211 are not sure. If the policymakers can make some changes in teaching profession as per the result generated in this paper, then it is possible to reduce the teachers' attrition rate in the country.

From all the six explanatory variables used in this study, the most important factor that determines the teacher's decision to quit within two years are gender, incentives, and administrative support, from which the most significant one was the incentives/income, this reflects that majority of teachers are not happy with the salary structure in the country. Findings show that one-unit increase in the incentive/income of a teacher is associated with 14.69% fall in the decision to quit within two years. The predicted turnover rate for the next two years for sample of 596 teachers teaching in secondary schools is 207(34.67%) of the respondents are more likely to quit within next two years. So based on this the turnover rate for the population of 6118 secondary school teachers is 2125. This shows that on an average 2125 secondary school teachers in Bhutan are more likely to leave the teaching profession within next two years if the incentive/income and administrative support does not improve.

The average expenditure that the Government spends on one teacher candidate during their training period is Nu (69,710+15,000) in a year. The average expenditure to complete the entire training period is Nu 338,840 for one teacher. If the government does not do anything than the social cost will be high. Besides facing the loss of the total amount already spent on the training, they will have to incur

the same amount of money as expenditure for training new candidates to replace the teachers who already left teaching, so on average the total social cost incurred due to resignation of one teacher will be the amount already spent on him plus the amount the government has to spend on the new trainee (Nu 677,680). Instead of recruiting new trainees to replace the vacant post left by the experienced teacher, it would be more profitable and beneficial if the government can revisit and revise the salary/incentive structure for the teachers. The findings from the study showed that one-unit increase in the incentive/income of a teacher would decrease the probability of quitting the job by 15%.

To help the policymakers at both public and private sectors, there is an open-ended question at the end of the survey, asking the participants to suggest one important measure that needs to be in place to retain the trained and experienced teachers. Majority of the respondents have mentioned about the revised incentives and allowances, better housing facilities, salaries, training opportunities, and revisiting the teacher workload while some have mentioned about the infrastructures, Professional Development programs, teacher support system, basic amenities, encouragement and support from the Ministry and stakeholders. The availability of reliable data was very limited and insufficient. The duration of the data collection was short, as I had

to collect all the data within a short period.

1. Based on the results, the incentives/income is highly significant and negatively related to the decision to quit. This shows that on an average the teachers are not happy with the present incentive/income policy in the country, so the policy makers can revisit and revise the structure.

2. Create more, better, and equal training opportunities for the teachers.

3. Create a Board for teacher protection.

4. Government can look for various ways to improve the housing facilities especially in and around the school area. On the basis of these findings, following suggestions for future research are given.

1. This research is focus on the quitting decision of the secondary public school teachers; similar study on the primary school teachers can be conducted and compare the results with the secondary teachers.

2. They can collect data from those teachers who have already left the teaching profession as well as from the current teachers so they can have result that is reliable at the end.

3. A study on the decision to quit for the private school teachers and compare with the public school teachers can have an interesting finding.

REFERENCES

- Becker, W. E., & Kennedy, P. E. (1992). A graphical exposition of the ordered probit. *Econometric Theory*, 8(1), 127-131.
- Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research*, 78(3), 367-409. doi:<https://doi.org/10.3102/0034654308321455>
- Boyd, D., Grossman, P., Ing, M., Lankford, H., Loeb, S., & Wyckoff, J. (2011). The influence of school administrators on teacher retention decisions. *American Educational Research Journal*, 48(2), 303-333. doi:<https://doi.org/10.3102/0002831210380788>
- Boyd, D., Lankford, H., Loeb, S., & Wyckoff, J. (2013). Analyzing the determinants of the matching of public school teachers to jobs: Disentangling the preferences of teachers and employers. *Journal of Labor Economics*, 31(1), 83-117. doi:<https://doi.org/10.3386/w9878>
- Certo, J. L., & Fox, J. E. (2002). Retaining quality teachers. *The High School Journal*, 86(1), 57-75. doi:<https://doi.org/10.1353/hsj.2002.0015>
- Chen, T. S. (2016). Researching college students' conceptions of mathematics in calculus. *Journal of Advances in Humanities and Social Sciences*, 2(6), 297-302. doi:<https://doi.org/10.20474/jahss-2.6.1>
- Choong, Y. O., Ng, L. P., Na, S. A., & Tan, C. E. (2019). The role of teachers' self-efficacy between trust and organisational citizenship behaviour among secondary school teachers. *Personnel Review*, 49, 864-866. doi:<https://doi.org/10.1108/PR-10-2018-0434>
- Clark, A. E. (1997). Job satisfaction and gender: Why are women so happy at work? *Labour Economics*, 4(4), 341-372. doi:[https://doi.org/10.1016/s0927-5371\(97\)00010-9](https://doi.org/10.1016/s0927-5371(97)00010-9)
- Clark, A. E., & Oswald, A. J. (1996). Satisfaction and comparison income. *Journal of Public Economics*, 61(3), 359-381. doi:[https://doi.org/10.1016/0047-2727\(95\)01564-7](https://doi.org/10.1016/0047-2727(95)01564-7)
- Darling-Hammond, L. (2003). Keeping good teachers: Why it matters, what leaders can do. *Educational Leadership*, 60(8), 6-13.

- Daykin, A. R., & Moffatt, P. G. (2002). Analyzing ordered responses: A review of the ordered probit model. *Understanding Statistics: Statistical Issues in Psychology, Education, and the Social Sciences*, 1(3), 157-166. doi:https://doi.org/10.1207/s15328031us0103_02
- Dinham, S., & Scott, C. (1998). A three domain model of teacher and school executive career satisfaction. *Journal of Educational Administration*, 36(4), 362-378. doi:<https://doi.org/10.1108/09578239810211545>
- Dolton, P., & Klaauw, W. v. d. (1995). Leaving teaching in the UK: A duration analysis. *The Economic Journal*, 105(429), 431-444. doi:<https://doi.org/10.2307/2235502>
- Frijters, P., Shields, M. A., & Price, S. W. (2004). *To teach or not to teach? Panel data evidence on the quitting decision* (Technical report). Institute of Labor Economics, California, CA.
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (1999). *Do higher salaries buy better teachers?* (Tech. Rep.). National Bureau of Economic Research, Cambridge, MA.
- Hanushek, E. A., Kain, J. F., & Rivkin, S. G. (2004). Why public schools lose teachers. *Journal of Human Resources*, 39(2), 326-354. doi:<https://doi.org/10.3368/jhr.xxxix.2.326>
- Hendricks, M. D. (2014). Does it pay to pay teachers more? Evidence from Texas. *Journal of Public Economics*, 109, 50-63. doi:<https://doi.org/10.1016/j.jpubeco.2013.11.001>
- Heywood, K. A. B. (2006). Job switching and highly role of gender. *Scottish Journal of Political Economy*, 53(10), 45-60.
- Imazeki, J. (2005). Teacher salaries and teacher attrition. *Economics of Education Review*, 24(4), 431-449. doi:<https://doi.org/10.1016/j.econedurev.2004.07.014>
- Karbownik, K. (2014). *Job mobility among high-skilled and low-skilled teachers* (Working Paper). IFAU-Institute for Evaluation of Labour Market and Education, New York, NY.
- Karsenti, T., & Collin, S. (2013). Why are new teachers leaving the profession? Results of a Canada-wide survey. *Education*, 3(3), 141-149.
- Kersaint, G., Lewis, J., Potter, R., & Meisels, G. (2007). Why teachers leave: Factors that influence retention and resignation. *Teaching and Teacher Education*, 23(6), 775-794.
- Kukla-Acevedo, S. (2009). Leavers, movers, and stayers: The role of workplace conditions in teacher mobility decisions. *The Journal of Educational Research*, 102(6), 443-452. doi:<https://doi.org/10.3200/joer.102.6.443-452>
- Ladd, H. F. (2011). Teachers' perceptions of their working conditions: How predictive of planned and actual teacher movement? *Educational Evaluation and Policy Analysis*, 33(2), 235-261. doi:<https://doi.org/10.3102/0162373711398128>
- Lévy-Garboua, L., Montmarquette, C., & Simonnet, V. (2007). Job satisfaction and quits. *Labour Economics*, 14(2), 251-268. doi:<https://doi.org/10.1016/j.labeco.2005.08.003>
- Lindqvist, P., & Nordänger, U. K. (2016). Already elsewhere: A study of (skilled) teachers' choice to leave teaching. *Teaching and Teacher Education*, 54, 88-97. doi:<https://doi.org/10.1016/j.tate.2015.11.010>
- Liu, X. S., & Ramsey, J. (2008). Teachers' job satisfaction: Analyses of the teacher follow-up survey in the united states for 2000-2001. *Teaching and Teacher Education*, 24(5), 1173-1184. doi:<https://doi.org/10.1016/j.tate.2006.11.010>
- Louw, D., George, E., & Esterhuysen, K. (2011). Burnout amongst urban secondary school teachers in namibia. *SA Journal of Industrial Psychology*, 37(1), 01-07.
- Ma, X., & MacMillan, R. B. (1999). Influences of workplace conditions on teachers' job satisfaction. *The Journal of Educational Research*, 93(1), 39-47. doi:<https://doi.org/10.1080/00220679909597627>
- Ministry of Education. (2017). *Annual education statistics: Policy and planning division, ministry of education, Bhutan*. Retrieved from <https://bit.ly/361y46i> (Accessed on 16 July, 2018)
- Ministry of Education in Bhutan. (2009). *Quality of education in Bhutan*. Retrieved from <https://bit.ly/32zT3uF> (Accessed on 12 July, 2011)
- Murnane, R. J., & Olsen, R. J. (1989). The effect of salaries and opportunity costs on duration in teaching: Evidence from Michigan. *The Review of Economics and Statistics*, 5(6), 347-352. doi:<https://doi.org/10.2307/1926983>
- Nutsuklo, P. (2015). *Factors affecting job satisfaction among teachers of some selected senior high schools in Accra* (Unpublished doctoral dissertation). University of Ghana, Accra, Ghana.
- Price, H. E. (2012). Principal teacher interactions: How affective relationships shape principal and teacher attitudes. *Educational Administration Quarterly*, 48(1), 39-85. doi:<https://doi.org/10.1177/0013161x11417126>

- Rosenblatt, Z., Talmud, I., & Ruvio, A. (1999). A gender-based framework of the experience of job insecurity and its effects on work attitudes. *European Journal of Work and Organizational Psychology, 8*(2), 197-217. doi:<https://doi.org/10.1080/135943299398320>
- Selvina, M. (2016). Indonesian accountant vs foreign accountant in Indonesian job competition as an effect of Asean economic community 2015. *International Journal of Business and Administrative Studies, 2*(1), 16-19. doi:<https://dx.doi.org/10.20469/ijbas.2.10004-1>
- Steinke, L. J., & Putnam, A. R. (2008). Influencing technology education teachers to accept teaching positions. *Journal of Industrial Teacher Education, 45*(2), 71-90.
- Struyven, K., & Vanthournout, G. (2014). Teachers' exit decisions: An investigation into the reasons why newly qualified teachers fail to enter the teaching profession or why those who do enter do not continue teaching. *Teaching and Teacher Education, 43*(7), 37-45. doi:<https://doi.org/10.1016/j.tate.2014.06.002>
- Suwanwong, A. (2017). Proactive professional networking strategies for enhancing teacher engagement in private school: Case study of Kraiumnuayvittaya army sponsor school. *Journal of Advanced Research in Social Sciences and Humanities, 2*(2), 96-102. doi:<https://dx.doi.org/10.26500/JARSSH-02-2017-0203>
- Tamang, K. T. (2014). *An economic approach to teacher retention in the Bhutanese educational system* (Tech. Rep.). Faculty of Economics, Thammasat University, Bangkok, Thailand.
- Wahlstrom, K. L., & Louis, K. S. (2008). How teachers experience principal leadership: The roles of professional community, trust, efficacy, and shared responsibility. *Educational Administration Quarterly, 44*(4), 458-495. doi:<https://doi.org/10.1177/0013161X08321502>
- Weiqi, C. (2007). The structure of secondary school teacher job satisfaction and its relationship with attrition and work enthusiasm. *Chinese Education and Society, 40*(5), 17-31. doi:<https://doi.org/10.2753/ced1061-1932400503>
- Yahya, M. S., Ismail, M. H., Salleh, M. F. M., & Abdullah, H. (2015). Science teachers' continuous professional development: Nature of in-service training and its implementation. *International Journal of Humanities, Arts and Social Sciences, 1*(1), 6-12. doi:<https://doi.org/10.20469/ijhss.20002>
- Zembylas, M., & Papanastasiou, E. (2004). Job satisfaction among school teachers in Cyprus. *Journal of Educational Administration, 42*(3), 357-374. doi:<https://doi.org/10.1108/09578230410534676>