

The Influence of Differences in Sources of Teacher Efficacy Beliefs on Senior High School Economics Teachers' Efficacy Beliefs

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Abstract

The objective of this study was to investigate the influence of differences in sources of teacher efficacy beliefs on Senior High School (SHS) Economics teachers' efficacy beliefs. The study focused on differences in Economics teachers' characteristics such as gender, age, teaching experiences and option of schools. A random selection of 123 SHS Economics teachers from the Western Region of Ghana were involved in the study. The general result from multiple linear regression revealed unique findings that support/contradict the widely accepted logical argument put forward by Self-Efficacy theory. The study revealed that the influence of differences in sources of teacher efficacy on Economics teachers' efficacy beliefs is stronger for male, older, experienced and option A Economics teachers than other female, younger, less experienced and option B teachers. Based on the findings, conclusions and recommendations were offered for policy implications and practice within the current trend of educational development.

Keywords: Economics Teachers' Efficacy Beliefs, Sources of Teacher Efficacy Beliefs, Teacher Characteristics

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1.0 INTRODUCTION

The role of teacher efficacy in education has increasingly received much attention over the past decades as well as in the current trend of educational development. Teacher efficacy thus increasingly attracts investigations around the globe as it is regarded as a single most important variable within educational setting (Bal-Taştan, 2018; Kim, 2018; Iaochite and Souza Neto, 2014; Bandura, 2006). The variable is a powerful practical and theoretical approach for determining and improving teachers' participatory behaviour in educational outcomes (Iaochite and Souza Neto, 2014; Bandura, 2006; 1997; 1977; Roth, 2005). The influence of teacher efficacy beliefs on educational outcomes is widely established in literature such that high/low level of efficacy beliefs is directly linked to successful/unsuccessful educational outcomes (Bal-Taştan, 2018; Kim, 2018; Honicke and Broadbent, 2016; Chesnut and Burley, 2015; Roth, 2005). Empirical evidence shows that teacher efficacy beliefs differ among teachers (Shaukat and Iqbal, 2012; Klassen and Chiu, 2010; Fives and Buehl, 2010; Tschannen-Moran and Anita Woolfolk, 2007). For instance Tschannen-Moran and Anita Woolfolk revealed significant difference between novice and experienced teachers. Klassen and Chiu found that female teachers have lower level of teacher self-efficacy than male teachers do in the area of classroom management but not in instructional strategies and student engagement.

However, the level or degree to which teacher efficacy beliefs influence educational outcome is dependent on the sources with which the efficacy beliefs was formed (Schunk and Pajares, 2009; Pajares, 1996). Generally, literature shows that mastery experiences/personal accomplishment are the most powerful sources of efficacy beliefs (Usher and Pajares, 2009; Bandura, 2006; 1977; Lopez, et al., 1997). Thus, teacher efficacy beliefs formed from mastery experiences is justifiably reliable (compared to other sources of efficacy beliefs) to influence the success of any educational programme.

Several studies established that teachers build their efficacy beliefs from multiple sources (Usher et al., 2019; Ntarmah, 2016; Cheng, et al, 2015; Zelenak, 2011; Uzuntiryaki, 2008) with vicarious experiences and social persuasions sometimes being the primary sources for building efficacy beliefs (Iaochite and Souza Neto, 2014;

Chen and Usher, 2013; Kiran and Sungur, 2012). It is evident that sources of teacher efficacy differ among teachers largely due to their characteristics (Ntarmah, 2016; Cheng, et al., 2015; Zelenak, 2011; Uzuntiryaki, 2008). For instance, Cheng et al. revealed that experienced teachers had a significantly higher degree of mastery experiences than novice teachers did. Additionally, Ntarmah 2016 revealed that sources of teacher efficacy beliefs differ among SHS Economics teachers in the Western Region of Ghana. Such differences were largely due to teacher characteristics such as age, teaching experiences and option of school. In addition, the author noted that the differences could also be attributed to the nature of SHS Economics tasks, which require teachers with integrated approaches from mathematical, graphical and ordinary English Language to be able to execute. that the nature of Economics tasks at the SHS level in Ghana could be an equally important that might account for differences in sources of Economics teachers' efficacy beliefs. Such variations in the sources of teacher efficacy beliefs has the tendency to influence the level of efficacy beliefs they build.

Regardless of the growing evidences pointing out differences in sources of teacher efficacy beliefs among teachers, it appears little or no effort is made to understand how these differences influence teachers' efficacy beliefs. This has rendered the area of research within teacher efficacy studies underdeveloped. With this in mind, it is prudent for researchers to investigate the influence of differences in sources of teacher efficacy beliefs has on teacher efficacy beliefs.

This study seeks to examine the extent to which differences in sources of teacher efficacy beliefs on Economics teachers' efficacy beliefs. It differs from earlier studies as it tries to establish the differences in sources of teacher efficacy beliefs among Economics teachers and further examine the extent to which the differences influence their efficacy beliefs. In addition, this study examine how these differences influence Economics teachers' efficacy in students' engagement, instructional strategies and classroom management. This is intended to help fully address the topic under consideration as well as making informed decisions and recommendations for practice. This study has a number of intended contributions. It adds to the growing body of teacher efficacy literature as well as clarifying ongoing debate in this area of research. In addition, the study intends to provide empirical evidence to validate and widens the applicability

of the relevance of self-efficacy theory. Furthermore, the study provides Economics teachers, teacher educators and policymakers in education with empirical evidence to understand which of the extent to which differences in sources of efficacy beliefs influence Economics teachers' efficacy beliefs. This might influence policy decisions in the new trend of educational and teacher development.

The rest of the paper was organized as follows: section two dealt with materials and methods comprising variables, participants, instruments, procedure, econometric model, preliminary and diagnostics checks. Section three and four focused on results and discussions respectively while section five dealt with conclusions and recommendations.

2.0 MATERIALS AND METHODS

2.1 Variables and Data

The dependent variable was Economics teachers' efficacy beliefs [ETE] and the independent variable was sources of teachers' efficacy beliefs [STE]. ETE was measured on three main dimensions: efficacy in students' engagement [ESE]; efficacy in instructional strategies [EIS]; and efficacy in classroom management [ECM]. Both the full ETE and the dimensions were examined to provide in-depth understanding of the phenomenon. According to self-efficacy theory, there are four main sources of teacher efficacy beliefs: (a) performance accomplishments/mastery experience [ME], (b) vicarious observation/experience [VE], (c) verbal/social persuasion [SP], and (d) physiological states [PS] (Ferreira, 2013; Dibapile, 2012; Usher and Pajares, 2009). See Appendix for description of variables.

2.2 Participants

Through survey design, 123 participants out of 176 Economics teachers in the Western Region of Ghana were randomly selected for the study. Since the study focused on whether the influence of sources of teacher efficacy beliefs among Economics teachers based on their characteristics, specific teacher characteristics were considered (See Appendix for explanation). The main teacher characteristics considered in this study are gender, age, teaching experiences and option of schools teacher teach. The participants comprises 84.55% male and 15.45% female. Similarly, 34.14% are within the ages of 21-

30 years, 65.86% are over 30 years. The result shows that 41.46% have taught for five or less years while 58.54% have more than five years teaching experiences. Concerning option of schools, 62.73% of the teachers teach in option B school and 21.45% of the participants teach in option A school while the rest teach in option C schools. Since the data for the participants in option C schools is limited, this option of school were excluded in school option analysis.

2.3 Instruments

The study used questionnaire to collect data. Questionnaire allowed the researcher to collect objective data in a large sample of the study population in order to obtain results that are statistically significant especially when resources are limited (Abawi, 2013). The study adapted two sets scales commonly used in teacher efficacy studies: (1) Sources of Self-efficacy Scale (SSES developed by Usher and Pajares, 2009) for measuring STE; and (b) Teacher Sense of Efficacy Scale (TSES developed by Tschannen-Moran and Anita Woolfolk, 2001) for measuring ETE. Both scales had 24 items with six items for each of the four subscales of STE and eight items for each of the three subscales respectively. The instruments were measured on a 100-point scale with 10-point interval ranging from 0 (certainly cannot do at all) through 50 (moderately can do) to 100 (highly certain can do). We modified the original scales to suit our participants based on the recommendations of the scale developers (Usher and Pajares, 2009; Bandura, 2006; Pajares, et al., 2001).

The study adapted the instruments for three main reasons: (1) the development of the instruments followed the theoretical underpinning (Self-efficacy Theory – Bandura, 1977) of this study; (2) the scales followed the guidelines suggested by Bandura for measuring teachers' efficacy beliefs; and (3) the instruments address the multidimensional nature of the teacher efficacy construct by assessing teachers' efficacy beliefs (Usher and Pajares, 2009; Bandura, 2006; Tschannen-Moran and Anita Woolfolk, 2001). The pre-test results revealed a reliability of 0.91 for the full range of STE and the subscales were 0.85 for ME; 0.87 for VE; 0.93 for SP; and 0.87 for PS. Similarly, the reliabilities of the full ETE scale was 0.93 with 0.87 for ESE; 0.96 for EIS; and 0.96 for ECM respectively. Thus, the reliabilities of the scales used in the study are high and this is in line with the reliabilities reported in literature (Ferreira, 2013; Dibapile,

2012; Usher and Pajares, 2009; Tschannen-Moran and Anita Woolfolk, 2007).

2.4 Procedure

The researcher sort permission from the schools and Economics teachers involved two weeks before the actual data was collected. This enabled the researcher to deal with any ethical issues involving the study. The researcher employed other experienced researchers to assist in data collection. In all, we used three weeks to collect the data. The questionnaire were screened and the final 123 respondents who had completed questionnaires were used for the study. The researcher used Stata software version 15 to analyse the data.

2.5 Preliminary Check

The preliminary check of the data reveal that the data meets the key assumptions underlying multiple linear regression (See Appendix B for results of preliminary check). Therefore, multiple linear regression estimation was identified as the most appropriate for the study.

2.6 Econometric Model

The econometric modelling adopted for this study is multiple linear regression model. ETE is hypothesized to be a function of STE. Thus, the general model can be written as:

$$ETE = f(STE) \tag{1}$$

Based on the classical linear regression model, equation (1) can be rewritten to reflect the actual regression model estimation involving specific teacher characteristics as:

$$Y_c = a_0 + \beta_1 X'_c + \varepsilon_c \tag{2}$$

where Y is the dependent variable, a_0 is the intercept; β_1 represent the coefficients of the independent variables and control variables ($\beta \neq 0$) respectively; X' represents the vector of independent variables, c represent specific characteristic of Economics teachers and ε is the error. Specifying equation (2), equation (3) can be written as:

$$ETE_c = a_0 + \beta_1 STE_c + \varepsilon_c \tag{3}$$

where ETE is the dependent variable (can be ETE, ESE, EIS or ECM), STE represents the vector of independent variables, c denote characteristics such as gender, age, teaching experiences and +option

of school. By specifying equation (3), the actual model can be rewritten as:

$$ETE_c = a_0 + \beta_1 ME_c + \beta_2 VE_c + \beta_3 SP_c + \beta_4 PS_c + \varepsilon_c \tag{4}$$

where ETE is the dependent variable (can be either ETE, ESE, EIS or ECM), $\beta_1 - \beta_4$ represent the coefficient of the independent variables ME, VE, SP and PS respectively.

2.7 Diagnostic Checks

With the exception of homoscedasticity assumption, the data met all other assumptions underlying multiple linear regression. To address the assumption of homoscedasticity in the date, the study used robust standard errors approach to correct for error variance. In addition, F-test and R-squared were checked for joint significant of explanatory variables and explanatory power respectively. This was done to identify whether STE truly explain ETE.

Table 2: Descriptive Statistics

Variable	Gender		t test (1)	Age (years)		T test (2)	Teaching Experiences (years)			Option of School		F test (4)
	Male	Female		30+	21-30		1-5	5+	T test (3)	Option A	Option B	
ME	84.920 (8.953)	80.834 (13.540)	0.204	85.207 (5.697)	81.579 (14.147)	7.506***	82.110 (12.008)	85.291 (9.354)	602	81.550 (11.964)	90.370 (6.513)	.295
VE	72.997 (18.421)	72.130 (21.470)	-0.463	83.642 (14.155)	63.263 (18.886)	1.843	79.985 (18.339)	59.470 (14.491)	2.562***	73.633 (20.849)	75.000 (15.533)	9.110***
SP	74.630 (18.639)	77.709 (18.329)	-0.759	84.898 (7.199)	68.209 (21.565)	6.285***	76.962 (20.676)	73.967 (13.794)	5.221***	73.151 (20.191)	84.816 (11.166)	3.077**
PS	10.946 (16.460)	3.242 (6.266)	1.282	7.901 (16.333)	7.703 (11.241)	12.504***	8.171 (14.469)	7.118 (12.526)	15.320***	9.102 (15.400)	5.186 (7.905)	1.289
ESE	76.947 (12.809)	75.573 (11.439)		77.901 (11.099)	75.092 (13.075)		76.283 (13.227)	76.567 (10.375)		76.994 (9.409)	76.250 (20.476)	
EIS	81.887 (13.384)	78.906 (9.417)		82.238 (10.656)	79.329 (12.912)		79.900 (12.550)	82.044 (10.849)		81.113 (9.645)	81.806 (18.852)	
ETE	78.914 (13.894)	78.320 (8.784)		80.611 (9.780)	77.017 (13.511)		77.894 (13.036)	80.065 (9.962)		79.045 (9.034)	78.703 (20.558)	
ECM	77.909 (16.233)	80.486 (6.676)		81.698 (9.169)	76.632 (15.576)		77.500 (14.693)	81.587 (9.673)		79.121 (9.849)	78.056 (22.859)	
OBS	104	19		81	42		51	72		26	77	

(1), (2), (3) and (4) show the test statistics of mean differences in sources of teacher efficacy beliefs. *** and ** shows significance at 1% and 5% levels. Mean score between 0 – 30 means low, 40-60 means moderate and 70-100 means high level (source of) efficacy beliefs.

According to Table 2, Male Economics teachers relatively high mean score for the sources of efficacy beliefs except for social persuasions. However, these differences are not statistically significant. The result is not different from the differences between male and female teachers for the full teacher efficacy beliefs and the dimensions except for efficacy in classroom management where female has higher mean score. In terms of age, teachers who are above 30 years (older teachers) high level efficacy beliefs for both the sources of teacher efficacy beliefs and Economics teachers efficacy beliefs than teachers who are 30 or below years (younger teachers). The t test for testing

differences in mean sources there are significant differences in mean score for the sources of teacher efficacy beliefs in favour of older teachers except vicarious experiences (see Table 2). Comparatively, teachers with 5 or less years of teaching experiences have higher mean score of sources of teacher efficacy beliefs than teachers with more than five years of teaching experiences except for mastery experiences where the difference is not significant. On the contrary, teachers with more than 5 years of teaching experiences have higher mean score of teacher efficacy beliefs for both the full range and the dimensions than teachers with 5 or less years of teaching experiences (see Table 2). Finally, Table 2 shows that option B teachers relatively have higher mean sources of teacher efficacy beliefs than option A teachers except for physiological states. However, such differences are significant only for vicarious experiences and social persuasions. In addition, Option A teachers relatively have high teacher efficacy beliefs than option B teachers.

RESULTS

The main objective of the study was to examine the influence of differences in sources of teacher efficacy beliefs on Economics teachers' efficacy beliefs. In addition, the study examined how these differences influence each of the dimensions of Economics teachers' efficacy beliefs – efficacy in students' engagement, instructional strategies and classroom management. Even though differences in sources of teacher efficacy among male and female Economics teachers were not found to be statistically significant, the study included gender in examining the influence of differences in sources of teacher efficacy on Economics teachers' efficacy beliefs to identify the variation of the influences among the participants. The empirical results of the study are presented in Tables 3 – 6. Table 3 presents the findings of the influence of differences in sources of teacher efficacy beliefs on Economics teachers' efficacy beliefs.

The results from Table 3 show that mastery experiences, social persuasions and physiological states significantly influence Economics teachers' efficacy beliefs of males, holding other factors constant. However, with exception of mastery experiences ($\beta=0.595$, $p<0.01$) that positively influences the efficacy beliefs of male, both social persuasions ($\beta=-0.163$, $p<0.05$) and physiological states ($\beta=-$

0.236, $p < 0.01$) negatively influence their efficacy beliefs. For female Economics teachers, only vicarious experiences ($\beta = 0.197$, $p < 0.01$) significantly and positively influence their efficacy beliefs, holding other factors constant. Similarly, the influence of sources of teacher efficacy beliefs on Economics teachers' efficacy beliefs differ among teachers with different age group. While teachers who are over 30 years form their efficacy beliefs from mastery experiences ($\beta = 0.408$, $p < 0.01$), social persuasions ($\beta = -0.275$, $p < 0.01$) and physiological states ($\beta = -0.463$, $p < 0.01$), teachers with 30 years and below formed their efficacy beliefs from only vicarious experiences ($\beta = 0.363$, $p < 0.01$) and physiological states ($\beta = -0.118$, $p < 0.10$), holding other factors constant.

Table 3: The influence of differences in sources of teacher efficacy beliefs on Economics teachers' efficacy beliefs.

ETE	Gender		Age (years)		Teaching Experience (years)		Option of School	
	Male	Female	21-30	30+	1-5	5+	Option B	Option A
ME	0.595*** (0.082)	-0.187 (0.196)	0.199 (0.184)	0.408*** (0.113)	-0.305*** (0.088)	0.248* (0.138)	0.065 (0.086)	3.315*** (0.580)
VE	0.057 (0.074)	0.197*** (0.060)	0.363*** (0.053)	-0.168 (0.107)	0.324*** (0.071)	0.351*** (0.060)	0.152*** (0.035)	-1.534*** (0.369)
SP	-0.163** (0.069)	-0.039 (0.167)	0.149 (0.125)	-0.275*** (0.069)	-0.150** (0.060)	-0.078 (0.074)	-0.090** (0.041)	0.343*** (0.107)
PS	-0.236*** (0.052)	0.265 (0.173)	-0.118* (0.065)	-0.463*** (0.060)	0.016 (0.040)	-0.443*** (0.060)	-0.193*** (0.045)	1.906*** (0.566)
Cons	38.998*** (7.756)	81.367*** (5.430)	21.591 (14.063)	76.660*** (4.593)	88.451*** (4.913)	46.901*** (8.761)	70.926*** (6.780)	. (32.442)
OBS	104	72	81	95	113	63	128	36
F test	21.27***	6.86***	22.04***	51.19***	7.66***	66.54***	7.37***	14.96***
R ²	0.1854	0.1491	0.3923	0.278	0.0762	0.7791	0.1773	0.4932

***, **, * Significant at 1%, 5% and 10%. Robust standard errors are in parenthesis.

According to Table 3, mastery experiences ($\beta = -0.305$, $p < 0.01$), vicarious experiences ($\beta = 0.324$, $p < 0.01$) and social persuasions ($\beta = -0.150$, $p < 0.05$) significantly influence teacher efficacy beliefs of Economics teachers with up to five years teaching experiences, holding other factors constant. Similarly, mastery experiences ($\beta = 0.248$, $p < 0.10$), vicarious experiences ($\beta = 0.351$, $p < 0.01$) and physiological states ($\beta = -0.443$, $p < 0.01$) significantly influence teacher efficacy beliefs of Economics teachers with over five years teaching experiences, holding other factors constant. Concerning the option of school Economics teachers teach, the study revealed that the influence of sources of teachers' efficacy beliefs differ among school option. While mastery experiences ($\beta = 3.315$, $p < 0.01$), vicarious experiences ($\beta = -1.534$, $p < 0.01$), social persuasions ($\beta = 0.343$, $p < 0.01$) and physiological states ($\beta = 1.906$, $p < 0.01$) significantly influence the

efficacy beliefs of Economics teachers in option A, only vicarious experiences ($\beta=0.152$, $p<0.01$), social persuasions ($\beta=-0.090$, $p<0.05$) and physiological states ($\beta=-0.193$, $p<0.01$) significantly influence the efficacy beliefs of Economics teachers teaching in option B schools, holding other factors constant. This finding also revealed that the direction of influences is in opposite direction of Economics teachers teaching in both schools.

The Influence of Differences in Sources of Teacher Efficacy Beliefs on Economics Teachers' Efficacy in Students' Engagement, Instructional Strategies and Classroom Management.

The second objective of this study examined the influence of differences in sources of teacher efficacy beliefs on economics teachers' efficacy in students' engagement, instructional strategies and classroom management. The results are presented in Tables 4 - 6. Table 4 presents the findings of the influence of differences in sources of teacher efficacy beliefs on economics teachers' efficacy in students' engagement.

Table 4: The influence of differences in sources of teacher efficacy beliefs on Economics teachers' efficacy in students' engagement.

ESE	Gender		Age (years)		Teaching (years)	Experience	Option of School	
	Male	Female	21-30	30+	1-5	5+	Option B	Option A
ME	0.436*** (0.090)	-0.377 (0.236)	-0.680*** (0.197)	0.283** (0.114)	-0.555*** (0.092)	0.204 (0.148)	-0.141* (0.076)	3.352*** (0.584)
VE	0.104 (0.066)	0.312*** (0.068)	0.400*** (0.058)	-0.048 (0.105)	0.428*** (0.067)	0.385*** (0.080)	0.216*** (0.031)	-1.429*** (0.372)
SP	-0.142** (0.061)	-0.079 (0.200)	0.448*** (0.130)	-0.289*** (0.069)	-0.165*** (0.053)	0.008 (0.068)	-0.086** (0.038)	0.405*** (0.110)
PS	-0.204*** (0.050)	0.279 (0.188)	0.037 (0.063)	-0.423*** (0.054)	0.088** (0.039)	-0.364*** (0.076)	-0.139*** (0.049)	1.816*** (0.568)
CONS	45.200*** (8.102)	88.780*** (5.747)	64.157*** (13.837)	78.009*** (5.479)	99.657*** (4.250)	38.269*** (9.895)	80.075*** (5.554)	-163.252*** (32.727)
OBS	104	72	81	95	113	63	128	36
F test	21.2***	28.83***	27.16***	53.8***	16.84***	50.23***	15.96***	18.93***
R ²	0.1526	0.206	0.3743	0.2116	0.1537	0.7306	0.1646	0.4836

***, **, * Significant at 1%, 5% and 10%. Robust standard errors are in parenthesis.

Table 4 shows that mastery experiences ($\beta=0.436$, $p<0.01$) significantly and positively influences male Economics teachers' efficacy for students engagement while social persuasions ($\beta=-0.142$, $p<0.05$) and physiological states ($\beta=-0.204$, $p<0.01$) significantly and negatively influence their efficacy in students engagement, other factors held constant. However, vicarious experiences ($\beta=0.312$, $p<0.01$) was the only source of teachers' efficacy beliefs that significantly

and positively influences female Economics teachers' efficacy in students engagement, holding other factors constant. Furthermore, while mastery experiences ($\beta=0.283$, $p<0.05$) significantly and positively influences Economics teachers' efficacy in students engagement of teachers who are over 30 years, both social persuasions ($\beta=-0.289$, $p<0.01$) and physiological states ($\beta=-0.423$, $p<0.01$) significantly and negatively influence their efficacy in students engagement, holding other factors constant. On the contrary, mastery experiences ($\beta=-0.680$, $p<0.01$) significantly and negatively influences Economics teachers' efficacy in students engagement of teachers who are 30 years and below, while both social persuasions ($\beta=0.400$, $p<0.01$) and physiological states ($\beta=0.448$, $p<0.01$) significantly and positively influence their efficacy in students engagement, holding other factors constant.

Table 4 shows that vicarious experiences ($\beta=0.428$, $p<0.01$) and physiological states ($\beta=0.088$, $p<0.05$) significantly and positively influence Economics teachers' efficacy in students engagement for teachers with up to five years teaching experiences, holding other factors constant. On the contrary, mastery experiences ($\beta=-0.555$, $p<0.01$) and social persuasions ($\beta=-0.165$, $p<0.01$) significantly but negatively in influence Economics teachers' efficacy in students' engagement for teachers with up to five years teaching experiences, holding other factors constant. Furthermore, only vicarious experiences ($\beta= 0.385$, $p<0.01$) and physiological states ($\beta=-0.364$, $p<0.01$) significantly in influence Economics teachers' efficacy in students engagement for teachers who have more than five years teaching experiences, holding other factors constant. However, the direction of the influence is positive for vicarious experiences and negative for physiological states. Additionally, the results show that Economics teachers in both option A and B schools derived their efficacy beliefs from the four main sources. However, the sources with which Economics teachers from both schools build their efficacy beliefs is opposite to each other (see Table 4).

Table 5 presents the findings of the influence of differences in sources of teacher efficacy beliefs on economics teachers' efficacy in instructional strategies.

Table 5: The influence of differences in sources of teacher efficacy beliefs on Economics teachers' efficacy in instructional strategies.

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	Gender		Age (years)		Teaching Experience (years)		Option of School	
	Male	Female	21-30	30+	1-5	5+	Option B	Option A
EIS	0.579*** (0.073)	0.028 (0.203)	-0.639*** (0.208)	0.457*** (0.102)	-0.155*** (0.084)	0.621*** (0.167)	0.186*** (0.081)	2.877*** (0.548)
VE	0.084 (0.070)	0.178** (0.067)	0.311*** (0.059)	-0.132 (0.093)	0.277*** (0.074)	0.294*** (0.068)	0.128*** (0.039)	-1.263*** (0.341)
SP	-0.189*** (0.066)	-0.151 (0.174)	0.032 (0.137)	-0.317*** (0.065)	-0.161*** (0.056)	-0.367*** (0.097)	-0.137*** (0.040)	0.182*** (0.087)
PS	-0.283*** (0.047)	0.221 (0.233)	-0.197** (0.076)	-0.490*** (0.049)	-0.022** (0.040)	-0.437*** (0.070)	-0.214*** (0.041)	1.427*** (0.545)
CONS	43.833*** (7.010)	74.885*** (6.209)	0.595 (16.437)	75.752*** (4.048)	83.034*** (4.960)	41.789*** (10.330)	68.510*** (6.330)	- 106.324*** (29.708)
OBS	104	72	81	95	113	63	128	36
F test	29.04***	2.55**	17.43***	56.99***	4.73***	48.1***	10.02***	12.88***
R ²	0.2226	0.0914	0.3511	0.3379	0.0633	0.7258	0.1821	0.4519

***, **, * Significant at 1%, 5% and 10%. Robust standard errors are in parenthesis.

The result from Table 5 shows that mastery experiences ($\beta=0.579$, $p<0.01$) significantly and positively influence the efficacy in instructional strategies for male Economics teachers while social persuasions ($\beta=-0.189$, $p<0.01$) and physiological states ($\beta=-0.283$, $p<0.01$) significantly and negatively influence their efficacy in instructional strategies, holding other factors constant. On the contrary, only vicarious experiences ($\beta=0.178$, $p<0.05$) significantly and positively influences the efficacy in instructional strategies for female Economics teachers, holding other factors constant. Besides, mastery experiences ($\beta=-0.639$, $p<0.01$) and physiological states ($\beta=-0.197$, $p<0.05$) significantly and but negatively influences Economics teachers' efficacy in instructional strategies of teachers who are 30 years and below, while vicarious experiences ($\beta=0.311$, $p<0.01$) significantly and positively influence their efficacy in instructional strategies, holding other factors constant. On the contrary, mastery experiences ($\beta=0.457$, $p<0.01$) significantly and positively influences Economics teachers' efficacy in instructional strategies of teachers who are over 30 years, both social persuasions ($\beta=-0.317$, $p<0.01$) and physiological states ($\beta=-0.490$, $p<0.01$) significantly and negatively influence their efficacy in instructional strategies, holding other factors constant.

According to Table 5, both teachers with teaching experiences more than five years and those with five years or less significantly derived their efficacy beliefs in instructional strategies from the four main sources of teacher efficacy beliefs. However, the degree with which sources of teacher efficacy influences them is stronger for teachers with more than five years teaching experiences than teachers with five or less years of teaching experiences (see Table 5). Similarly, Economics teachers teaching in both option A and B schools significantly derived their efficacy beliefs in instructional strategies

from the four main sources of teacher efficacy beliefs with option A teachers having stronger marginal influence than option B teachers. However, with the exception of mastery experiences, all the other sources differ in terms of the direction of their influence on Economics teachers from the both schools (see Table 5).

Table 6 presents the findings of the influence of differences in sources of teacher efficacy beliefs on economics teachers' efficacy in classroom management.

Table 6: The influence of differences in sources of teacher efficacy beliefs on Economics teachers' efficacy in classroom management.

	Gender		Age (years)		Teaching Experience (years)		Option of School	
	Male	Female	21-30	30+	1-5	5+	Option B	Option A
ECM								
ME	0.771*** (0.092)	-0.212 (0.151)	0.638*** (0.161)	0.484*** (0.127)	-0.205** (0.101)	-0.082 (0.112)	0.149 (0.108)	3.717*** (0.614)
VE	-0.019 (0.088)	0.102* (0.054)	0.378*** (0.045)	-0.323** (0.125)	0.267*** (0.076)	0.375*** (0.036)	0.112*** (0.041)	-1.910*** (0.395)
SP	-0.157* (0.085)	0.115 (0.129)	-0.033 (0.116)	-0.220*** (0.078)	-0.124 (0.077)	0.126* (0.063)	-0.047 (0.056)	0.442** (0.129)
PS	-0.220*** (0.061)	0.296*** (0.106)	-0.195*** (0.063)	-0.476*** (0.084)	-0.019 (0.050)	-0.528*** (0.039)	-0.226*** (0.047)	2.475** (0.590)
CONS	27.955*** (8.632)	80.453*** (4.598)	-0.001 (13.053)	76.239*** (4.702)	82.682*** (6.378)	60.649*** (6.808)	64.190*** (8.629)	- 164.924*** (35.275)
OBS	104	72	81	95	113	63	128	36
F test	25.24***	6.66***	37.02***	28.12***	4.06***	205.61***	6.59***	14.05***
R ²	0.1741	0.2043	0.5654	0.2928	0.0387	0.8778	0.2011	0.545

***, **, * Significant at 1%, 5% and 10%. Robust standard errors are in parenthesis.

According to Table 6, mastery experiences ($\beta=0.771$, $p<0.01$) significantly and positively influence male Economics teachers' efficacy in classroom management while social persuasions ($\beta=-0.157$, $p<0.10$) and physiological states ($\beta=-0.220$, $p<0.01$) significantly and negatively influence their efficacy in classroom management, holding other factors constant. For female Economics teachers, only vicarious experiences ($\beta=0.102$, $p<0.10$) and physiological states ($\beta=-0.197$, $p<0.01$) significantly and positively influences their efficacy in classroom management while, holding other factors constant. Furthermore, mastery experiences ($\beta=0.638$, $p<0.01$) and vicarious experiences ($\beta=0.378$, $p<0.01$) significantly and positively influence Economics teachers' efficacy in classroom management of teachers who are 30 years and below, while physiological states ($\beta=-0.195$, $p<0.01$) significantly but negatively influence their efficacy in classroom management, holding other factors constant. On the contrary, only mastery experiences ($\beta=0.484$, $p<0.01$) significantly and positively influences Economics teachers' efficacy in classroom management of teachers who are over 30 years, while vicarious experiences ($\beta=-0.323$ **, $p<0.05$) social persuasions ($\beta=-0.220$, $p<0.01$)

and physiological states ($\beta=-0.476$, $p<0.01$) significantly but negatively influence their efficacy in classroom management, holding other factors constant.

According to Table 6, while mastery experiences ($\beta=-0.205$, $p<0.05$) significantly and negatively influences Economics teachers' efficacy in classroom management, vicarious experiences ($\beta=0.267$, $p<0.01$) significantly and positively influence efficacy in classroom management of Economics teachers with five or less years teaching experiences, holding other factors constant. On the contrary, vicarious experiences ($\beta=0.375$, $p<0.01$), social persuasions ($\beta=0.126$, $p<0.10$) and physiological states ($\beta=-0.528$, $p<0.01$) are the main sources of teacher efficacy beliefs that significantly influence the efficacy in classroom management for Economics teachers with more than five years teaching experiences, holding other factors constant. While all the four sources of teacher efficacy beliefs significantly influence the efficacy in classroom management of Economics teachers teaching in option A schools, only social persuasions and physiological states significantly influence the efficacy in classroom management of Economics teachers in option A schools (see Table 6).

DISCUSSION

The results of this study provide useful insights into the influence of differences in sources of teacher efficacy on SHS Economics teachers' efficacy beliefs as it partly support/contradict the logical arguments by the theoretical underpinnings of this study. The result shows that while male Economics teachers building their efficacy beliefs from mastery experiences, social persuasions and physiological states, female counterpart build their efficacy beliefs from only vicarious experiences. This implies that male and female Economics teachers differ in terms of their sources of information for building their efficacy beliefs. It is surprising that female teachers should rely on vicarious experiences that mostly is not a good way of building efficacy beliefs. This finding is contrary to that of Sarfo, et al. (2015) who reported no significant gender differences among the teachers' self-efficacy. Considering the nature of Economics tasks at the SHS level in Ghana, building efficacy beliefs from only vicarious experiences may mean that female teachers are less likely to build a stronger efficacy beliefs towards the implementation of the SHS

Economics curriculum. In terms of age groups, the results show that teachers (older Economics teachers) who are over 30 years form their efficacy beliefs from mastery experiences, social persuasions and physiological states while teachers (younger Economics teachers) who are 30 or less years build their efficacy beliefs from only two sources – vicarious experiences and social persuasions. Thus, mastery experiences which has proving to be the key source of building efficacy beliefs in not applicable among younger Economics teachers. Logically, younger teachers are the newly graduates who have just come out of university and have joined the teaching profession. Hence, they come with enthusiasm and high efficacy that is derived from vicarious experiences other than their own accomplishment of Economics tasks. Thus, it is not surprising to find younger Economics teachers not building their efficacy beliefs from mastery experiences. These findings contradict the findings of Shaukat and Iqbal (2012) where no differences in efficacy beliefs were found among participants in relation to their age.

In addition, Economics teachers with different teaching experiences seem to derive efficacy beliefs from similar sources. For instance, teachers with different teaching experiences build their efficacy beliefs from mastery experiences and vicarious experiences with social persuasions and physiological states as additional sources for teachers with five or less years and more than five years of teaching experiences respectively. Economics teachers in option A schools positively build their efficacy beliefs from all the four sources of teacher efficacy beliefs. Concerning the option of school Economics teachers teach, the study revealed that the influence of sources of teachers' efficacy beliefs differ among school option. Compared with Economics teachers in option B schools, only three sources (vicarious experiences, social persuasions and physiological states) influence their efficacy beliefs with only vicarious experiences being a positive predictor. Even though a prior differences were expected among teachers teaching in different options of schools since option A schools are mostly high class SHS with good facilities and other supporting resources than option B schools, such differences seem quite surprising. For instance, mastery experiences do not influence the efficacy beliefs of option B Economics teachers. Implying that option B teachers are less likely to build their efficacy beliefs from unreliable sources making it difficult to translate such level of efficacy beliefs

into successful educational outcome. Generally, the results depict that the influence of sources of teacher efficacy beliefs on teacher efficacy beliefs differ among Economics teachers based on the characteristics such as gender, age, teaching experiences and option of school. These findings contradict earlier findings by Shaukat and Iqbal (2012) where teacher efficacy beliefs did not differ among teacher characteristics variables. However, the findings also validate the findings of Ntarmah (2012).

The next line of discussion focused on whether sources of teacher efficacy beliefs influence efficacy in students' engagement among Economics teachers in the Western Region of Ghana. Male Economics teachers build their efficacy in students' engagement from mastery experiences, social persuasions and physiological states while female Economics teachers build their efficacy in students' engagement from only vicarious experiences. This finding is consistent with the differences that exist between male and female Economics teachers regarding their sources of information for building their general efficacy beliefs. Thus, the efficacy beliefs in engaging students by female Economics teachers is solely derived from observing other teachers who have been successful in executing Economic tasks at the SHS. This finding is inconsistent with other studies (Sarfo, et al., 2015; Shaukat and Iqbal (2012). Likewise, their strength of their efficacy beliefs in the teaching and learning of Economics may not be stronger for female teachers compared with male teachers. Both younger and older Economics teachers derive their efficacy in students' engagement information from three sources – mastery experiences, social persuasions and physiological states. Surprisingly, while older teachers positively build their efficacy in students' engagement from mastery experiences, the reverse is true for younger teachers. Deductively, the conviction with which younger and older teachers bring to the teaching and learning of Economics differ between the two groups with younger teachers likely to have unreliable conviction only to be exposed by practical situations. Interestingly, younger teachers rely on social persuasions and physiological states to positively build their efficacy in students' engagement. This way of building efficacy may be quite unreliable for successful teaching and learning especially when the actual classroom situation is quite different from anticipated. These findings contradict the findings of Shaukat and Iqbal (2012) where no difference were

found in efficacy in students' engagement among several teacher characteristics variables. Thus, the degree with which efficacy information formed from social persuasions and physiological states influence successful teaching is dependent on the reliability of the sources of efficacy beliefs.

In additionally, while teachers with five or less years of experiences build the efficacy for students' engagement from all the four sources, teachers with more than five years teaching experiences build their efficacy beliefs from only vicarious experiences and physiological states. This is quite surprising that efficacy for students' engagement is not formed from the personal accomplishment by experienced teachers. The findings of this study is consistent with Fives and Buehl (2010) and Klassen and Chiu (2010) that experienced teachers are more efficacious than less experienced teachers. However, lack of efficacy information from mastery experiences from the experienced teachers implies that these teachers may rely on lecture discussion methods of teaching which mostly do not actively involve all the learners. Furthermore, both Economics teachers teaching options A and B schools build their efficacy beliefs from the four main sources. However, the manner in which they build their efficacy beliefs differs from each school option. Additionally, the results show that Economics teachers in both option A and B schools derived their efficacy beliefs from the four main sources. For instance, while teachers in option A schools positively build their efficacy beliefs from mastery experiences, option B teachers negatively build their efficacy beliefs from the same source. This is worrying since a prior it is anticipated that both teachers will positively build the efficacy beliefs from mastery experiences. The result implies that teachers in option B schools have certain contextual factors leading to their negative formation of efficacy beliefs from mastery experiences. This study disagrees with the study of Kucukyılmaz and Duban (2006) where no difference were found in teacher efficacy beliefs among different types of school.

Similarly, male Economics teachers build their efficacy in instructional strategies from mastery experiences, social persuasions and physiological states while female teachers build their efficacy in instructional strategies from only vicarious experiences. Thus, similar to earlier findings of this study where female Economics teachers build their efficacy beliefs on only vicarious experiences. However,

this seem to be quite worrying since building efficacy for instructional strategies is highly expected to be derived from direct experiences of the teacher rather than solely observing other teachers instructional strategies. Comparing the efficacy information for both younger and older teachers' efficacy in instructional strategy building, the two groups differ greatly. For instance, while younger teachers negatively build their efficacy in instructional strategies from mastery experiences, older teachers positively build their efficacy from the same source. Similarly, while older teachers positively build the same efficacy from vicarious experiences, younger teachers negatively build their efficacy from social persuasions. Such variations between the two groups of teachers implies that age is a significantly variable that can influence teachers' sources of efficacy beliefs. As in the case of this study, the result implies that older teachers are building their efficacy beliefs in the right direction as supported by self-efficacy theory while younger teachers are in contrast to the same phenomenon. Even though both teachers with teaching experiences of five or less years and more than five years derive their efficacy instructional strategies from the four main sources of efficacy beliefs but their strengths of the influence is stronger for teachers with more than five years experiences than teachers with less years of experiences. This finding implies that teaching experiences is a critical and important factor in building teachers efficacy in instructional strategies. Thus, the more years of Economics teachers have, the stronger it becomes for them to build their efficacy beliefs in instructional strategies. Similarly, both option A and B teachers build their efficacy in instructional strategies from the four sources of efficacy beliefs. However, the manner in which they build their efficacy in instructional strategies differ. As indicated earlier, both schools differ in terms of resources and other contextual factors that are mostly in favor of option A schools than option B schools. These findings are consistent with that of Taimalu and Oim (2005) who revealed that teacher efficacy beliefs depend on teacher's age along with other teacher characteristics.

With regards to building efficacy in classroom management, male teachers derived their efficacy information from mastery experiences, social persuasions and physiological states while female Economics teachers derived their efficacy information from vicarious experiences and physiological states. Again, the result implies female teacher do not build their efficacy information from their own direct

accomplishment. Thus, raising doubt about the strengths and reliable of building such efficacy beliefs following the theoretical arguments put forward by Banduara (2006; 1977). Furthermore, this study revealed that younger teachers build their efficacy in classroom management similar to older teachers who build their efficacy information from all the four sources with the exception of social persuasions that is not influential in the case of younger teachers. However, while younger teachers positively build their efficacy in classroom management from vicarious experiences, it turns out to be negative in the case of older teachers. Thus, implying that younger teachers are likely to build stronger efficacy in classroom management from vicarious experiences while older teachers' efficacy in classroom management is likely to be weakened through vicarious experience. Thus, the finding of this study contradicts that of Shaukat and Iqbal (2012) where younger teachers were likely to engage students and manage their classrooms better than older teachers. While Economics teachers with five or less years of teaching experiences build their efficacy in classroom management from mastery experiences and vicarious experiences, Economics teachers with more than five years teaching experiences form their efficacy from vicarious experiences, social persuasions and physiological states. It is strange that teachers with have taught for more years are not building their efficacy in classroom management from their past accomplishments in classroom management while actual classroom management experiences weakens the efficacy in classroom management of teachers with relatively few years of teaching experiences. Deductively, Economics teachers in the region are finding it difficult to management their classrooms. Finally, the result shows that building efficacy beliefs in classroom management differ between teachers teaching in option A and B schools with option A teachers building their efficacy beliefs from all the four sources while option B teachers only rely on social persuasions and physiological states which are often unreliable.

CONCLUSION AND RECOMMENDATIONS

This study aimed at establishing the influence of sources of teacher efficacy beliefs on teacher efficacy beliefs among Economics teachers in the Western Region of Ghana. It tried to identify whether the

influence differ among teacher characteristics such as gender, age, teaching experiences and option of school. The study revealed very useful findings and based on that the following conclusions are drawn. Firstly, the influence of differences in sources of teacher efficacy beliefs on teacher efficacy beliefs differ between male and female teachers, older and younger teachers, experienced and less experienced teachers, and teachers of option A and B schools. Secondly, the influence of sources of teacher efficacy beliefs on teacher efficacy in students' engagement is not the same for male and female teachers, older and younger teachers, experienced and less experienced teachers, and teachers of option A and B schools. Thirdly, male and female teachers, older and younger teachers, experienced and less experienced teachers, and teachers of option A and B schools differ regarding their sources of efficacy beliefs for efficacy in instructional strategies. Finally, the influence of sources of teacher efficacy beliefs on Economics teachers' efficacy in classroom management differ between male and female teachers, older and younger teachers, experiences and less experienced teachers, and teachers of option A and B schools. Generally, it can be concluded that male, older, experienced, and option A school teachers way of building efficacy beliefs from the sources of efficacy beliefs follow the theoretical argument put forward by self-efficacy beliefs. Thus, female, younger, less experienced and option B teachers' way of building their efficacy beliefs contradicts the logical arguments of self-efficacy theory.

Based on the conclusions, the following recommendations are made. Firstly, school authorities should collaborate with Economics teachers to run in-service training aiming at building teacher efficacy beliefs regardless of teacher characteristics. Secondly, Economics teachers should adopt the strategies of other colleagues in dealing with instructional strategies as well as modifying their past and present strategies in students' engagement. Similarly, teachers should continually abreast themselves with the current trend of instructional strategies needed to be able to execute Economic tasks at the SHS level. Finally, male and female teachers, older and younger teachers, experienced and less experienced teachers, and teachers of option A and B teachers should share their experiences with each other as well as imitating the good aspect of each other to build their efficacy in classroom management especially where they have shortfalls.

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APPENDICES

Table 1: Description of Variables

Variable	Description
Dependent Variable	
Economics Teachers' Efficacy Beliefs (ETE)B	ETE refers to Economics teachers' belief in their capabilities to organize and execute courses of action required to successfully implement the SHS economics curriculum.
Efficacy in Students' Engagement (ESE)	ESE refers to teachers' belief in their ability to encourage a student to value learning and motivate an atmosphere of learning
Efficacy in Instructional Strategies (EIS)	EIS refers to teachers' belief in their ability to use techniques that support independent thinking, creativity in teaching, and strategic methods for assessment
Efficacy in Classroom Management (ECM)	ECM refers to teachers' belief in their ability to develop strategies that emphasize encouragement for desirable behaviours in students through positive reinforcement, inspiration, and devotion, despite disruptive behaviours
Independent Variable (SETEB)	
Mastery Experiences (ME)	ME are those instances in which teachers actually perform the act under question. Efficacy beliefs are formed based on the degree of success or failure one feels in each of these direct experiences. In social cognitive theory, direct experiences, both positive and negative are considered to be the most powerful sources of efficacy beliefs
Vicarious Experiences (VE)	VE is where teachers build their efficacy beliefs by observing others. In many academic endeavours, there are no absolute measures of proficiency (Usher and Pajares, 2009).
Social Persuasions (SP)	SP are the encouragement from parents, teachers, and peers whom teachers trust can boost teachers' confidence in curriculum implementation. Supportive messages can serve to bolster a teacher's effort and self-confidence, particularly when accompanied by conditions and enabling environment that help bring about success. Social persuasions may be limited in their ability to create enduring increases in self-efficacy.
Physiological States (PS)	PS are the instances where the human body inform its owner of emotions that may not be evident on the surface. Thus, excitement and anxieties serve to inform individuals of how they are doing in a mastery experience. If a teacher feels nervous each time he/she must teach a particular topic that seems difficult, then he/she may quickly come to believe that this is something that cannot be done regardless of the actual performance.

Teacher Characteristics

Teacher Characteristic	Description
Gender	GEN refers to participant being male or female
Age	Age refers to the length of time (in years) participants have lived
Teaching Experiences	TE refers to the number of years participants have taught Economics at SHS
Option of School	The new categorization put SHSs in Ghana into five options based on GES criteria that include facilities, geographical location, sex and cut-off-mark (performance) Option 3 schools are the most endowed public SHSs and option 1 schools are the

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least endowed public schools while options 4 and 5 are public technical/vocational institutes and private SHSs respectively.

Test of Multicollinearity

	Gen	Age	TE	ME	CP	VE	SP	PS	SE	IS	TEL	CM
Gen	1	-.407**	-.180*	-.180*	-.240**	-.022	.082	-.276**	-.055	-.123	-.024	.096
Age	-.407**	1	.692**	-.034	-.245**	-.539**	-.373**	-.009	-.133	-.128	-.160*	-.199**
TE	-.180*	.692**	1	.282**	-.194**	-.427**	.049	-.098	.016	.100	.092	.146
ME	-.180*	-.034	.282**	1	.366**	.564**	.629**	.020	.064	.203**	.153*	.174*
CP	-.240**	-.245**	-.194**	.366**	1	.754**	.382**	-.050	.271**	.244**	.221**	.131
VE	-.022	-.539**	-.427**	.564**	.754**	1	.579**	.104	.156*	.138	.132	.090
SP	.082	-.373**	.049	.629**	.382**	.579**	1	-.118	-.002	.011	.032	.079
PS	-.276**	-.009	-.098	.020	-.050	.104	-.118	1	-.111	-.181*	-.165*	-.184*
SE	-.055	-.133	.016	.064	.271**	.156*	-.002	-.111	1	.910**	.956**	.859**
IS	-.123	-.128	.100	.203**	.244**	.138	.011	-.181*	.910**	1	.976**	.916**
TEL	-.024	-.160*	.092	.153*	.221**	.132	.032	-.165*	.956**	.976**	1	.962**
CM	.096	-.199**	.146	.174*	.131	.090	.079	-.184*	.859**	.916**	.962**	1

Normality Check Figures 1-4 shows normality plot of residuals of teacher efficacy beliefs including the dimensions and sources of each efficacy beliefs.

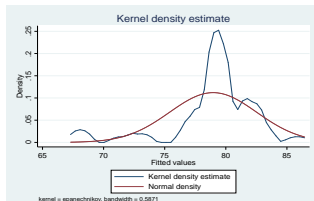


Fig. 1. ECM and STE

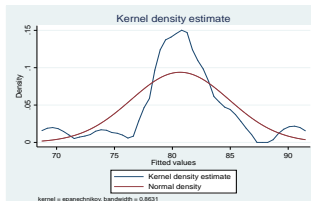


Fig. 2. EIS and STE

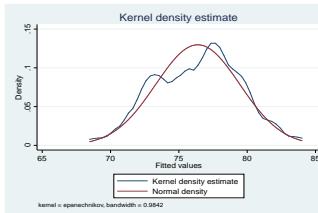


Fig. 3. ESE and STE

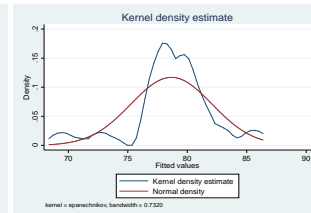


Fig. 4. ETE and STE