Economic Viewpoints of Labor's English Language Skill Improvement

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Abstract: In the fast-moving world economy, labor faces competitive pressure. In Thailand, one of the main concerns regarding its labor is English language proficiency improvement. To approach an answer, the probability of English language improvement is examined by focusing on a case of vocational students, who form a large part of skilled workers in the Thai labor market. Data used in this study was collected using a multi-stage random technique with a combination of cluster and purposive samplings. Instead of self-assessed questionnaires, the English proficiency test of grammar, vocabulary and listening skill was constructed for testing participated students. The stepwise regression as well as logit model and marginal effect are undertaken. The result conclusively illustrates the strength of students' overall education performance with a well understanding about AEC as an important key factor of improving their English skills.

Keywords: labor skill improvement; English language proficiency; Thailand

I. INTRODUCTION

With the deeper economic integration in Southeast Asia region, economic activities among member countries of the Association of Southeast Asian Nations (ASEAN), including Thailand, could rapidly expand. Foreign investment may flow into Thailand to use it as a production base for the Southeast Asian market. This expansion should provide more job opportunities for skilled-labor in the Thai labor market. Walmsley, Ahmed, and Parsons (2005) study the impact of liberalizing labor mobility in the Pacific region and find that Australia and New Zealand would gain considerably from the increasing mobility of skilled and unskilled labor. Ernst (2005) also studies this issue in the case of Argentina, Brazil, and Mexico. He, however, finds that at a first stage trade liberalization had a disappointing impact on employment. Yet, the followed export boom still has the potential contribution to quality employment creation. Even though, the previous literatures approaching the answer of the liberalizing impact on the labor market are quite rich, the findings are still inconclusive. This then leads to another aspect of academic study on the exploration of labor skills and their determining factors in order to have accurate policies of skill improvement as a part of human capital development.

Under the region's integration regime, enabling the free movement of labor among member countries, Thai workers could enjoy more employment opportunities. On the other hand, they could face with a competitive challenge from other ASEAN's workers. In order to either reap benefits from liberalization or survive the strong competition among themselves and from ASEAN workers, Thai skilled workers need to improve their necessary working skills, for example, English language, computer usage, and so on. Therefore, it is very crucial for Thai skilled workers to improve their working skills so that they can catch up with the globalizing trend and increase their job performance.

Among those necessary working skills, English language proficiency is one of the most important as language is a fundamental part of workers' human capital (Rooth and Saarela, 2007). Kapur and Chakraborty (2008) also find that English is increasingly valued in the labor market in this era of globalization. As knowing of Thai workers' English language skill, it is basically lower than that of other ASEAN countries. One of the reasons for this lies in Thailand's historical background. The country had never been under colonial rules so its education system is mainly monolingual. English language has always been one of the weakest features of Thai skilled labor and it can be a decisive factor for any employment opportunities of workers. Thus, the improvement in English language proficiency is a critical step in ensuring the benefits generated from the economic liberalization. To facilitate the improvement, it is important to know what the determinants of workers' English language proficiency are. Therefore, the objective of this study is to analyze factors determining prospective workers' English language ability in Thailand. This study focuses on the case of vocational students because this group can be considered as a major source of prospective skilled workers for Thai labor market. Moreover, in most vocational college curricula, English language has been included only at a minimum level, comparing with other college curricula. This makes English language proficiency a key shortcoming of these vocational students.

This study is categorized as follows. Section II provides a theoretical framework and previous findings. Section III explains the data, variables and methodology used for the statistical analysis. Section IV presents and discusses the study's findings. And the last section provides the conclusion and recommendation.

II. THEORETICAL FRAMEWORK AND /RELEVANT LITERATURES

The interest on the determinants of language ability has been developed since the late 1970s (Posel and Casale, 2010). Language proficiency can be analyzed using the human capital theory. According to this theoretical framework, language skills can be considered as human capital because they can satisfy the three requirements for human capital, that it is productive, costly to produce, and embodied in the person (Chiswick, 2008), which cannot be separated, unlike the physical capital investment.

According to the new growth theory, the investment in human capital as the persistent accumulation of knowledge, either with international efforts (Lucus, 1988) or with learning by doing (Azariadis and Drazen, 1990), promotes the productivity of labor and capital which are one of the most important engines of economic growth. Based on this notion, educational variables can be considered as a proxy for investment in human capital. This study then employs workers' English ability represented by English test levels, classified according to test scores, to capture human investment underlining the framework of new growth theory. Moreover, the determining variables, which explain the change in the possibility of English skill improvement, are also based on this theoretical framework.

Literatures on this area of interest include the model of language acquisition, originally introduced by Chiswick and continually developed by Chiswick and Miller (1995, 1998, 2000, 2002, and 2007), and Chiswick (2008), for example. It is usually utilized to examine the determinants of English language proficiency improvement. Base on the language acquisition model, there are four common conceptualized variables, namely exposure, efficiency, economic incentives, and wealth, which could influence the ability of workers in learning or improving their English language proficiency. Meanwhile the proxies representing formal educational system, educational access, and other related socio-economic variables are grouped to reflect the four conceptual variables in order to address the question of what factor can improve English skill for vocational students.

Chiswick and Miller (2000, and 2002) also show the significantly explanatory power of persons' exposure, i.e. education level, countries' historical background, to language capability of immigrant workers. The more exposure is the better English language proficiency of individuals. Thus, the possibility of broader awareness on new environment would lead non-native speakers to expose to foreign language. As a result, opportunities to hear, speak, read, and study language are important for language learning.

As efficiency brings about the ability to convert exposure into language learning (Chiswick, 2008), its effect would not work effectively without the efficiency of learning or capturing new knowledge. Additionally, Burdria and Swedberg (2010) provide the evidence of different ability of learning due to his/her efficiency to achieve language acquisition. Meanwhile, age is another variable used to proxy the efficiency factor as the younger people, the higher language learning ability, according to Isphording and Otten (2011). Chiswick (2008), at the same time, finds the strong explanatory power of the level of education as a proxy for the efficiency effect. Persons with higher education and longer schooling years are more proficient in learning language because they are more efficient learners. Since this study's sample is vocational students who are in the same range of age, it takes education and other related variables as the proxy of efficiency effect.

Another key item is an economic incentive factor. It can be identified as the potentially beneficial situation or status of persons that could act as a stimulus for them to improve their English language skills. Chiswick and Miller (2000) study the case of immigrants and find that economic incentive takes the form of the expected increment in wages from becoming language proficient and the expected future duration of employment. Hence, to approach the question of the determining level of economic incentive factor on English language proficiency, this study covers such variables as the students' higher education plan, working abroad plan or working in multinational company plan, increase in job search opportunity of individuals and expected wage.

Finally, the wealth effect is included in this study to explore the supply side of the acquisition of better English proficiency in the case of vocational students. Although English subject is mandatory in vocational curricula, it is provided for only a very basic level to students. This is far from fulfilling the requirement of the labor market under the intense liberalization in both trade and investment. With the growing concern on this, it is unsurprising to see the increased investment in human capital in terms of English skill improvement. Since greater wealth could facilitate investment in acquiring English skill, it thus enhances English proficiency. To measure the influence of wealth on English learning, parents' and respondents' income per month are taken into account as proxies for the wealth of students and treated as the determining factors to explain English improvement.

III. DATA DESCRIPTION

As above illustration, the change of economic regime towards global integration has brought about an increasing role of foreign communication. Hence, the labor's English proficiency is then become the more important focus of the Thai government in the preparation for higher competition. To assess the English language skill determinants and acquisition, stepwise regression and the logit model with marginal effects are employed, along with socio-economic and some other personal data, as the proxy variables of exposure, efficiency, economic incentives and wealth effect on English proficiency improvement. In order to avoid the bias problem from the measurement error of self-assessed questionnaires, the English proficiency test of grammar, vocabulary and listening skills was constructed for testing participated students. To accompany the English test, a survey instrument with questionnaires was also developed to gather relevant self-reported data from the same groups of vocational students who took the language test. The questions include demographic and economic characters of students which are associated with the four main groups of conceptual variables employed in the estimated model as presented in relevant literatures, such as Chiswick and Miller (1995, 1998, 2000, 2002, and 2007), Chiswick (2008), Dustmann (1999), and, more recently, Chiswick and Taengnoi (2007), and Burdría and Swedberg (2010). Details of these variables are shown in Table I which is drawn from Saraithong and Chancharoenchai (2012).

An estimated equation contains explanatory variables data of the four main representing variables of exposure, efficiency, economic incentives, and wealth effect as well as other demographic variables. The sample data was collected using a multi-stage random technique with a combination of cluster and purposive samplings. The groups of sample include four vocational schools with different sizes and locations in Bangkok area, covering sample of 3,760 students from their total number of around 10,500 students. Sampling size accounts for about 30-40% of total student population. The selected four vocational schools offer the same curriculum, determined by the Office of Vocational Education Commission.

Table I
Definition of relevant variables in the estimation

Items	*Variables*	*Definition*
Dependent Variables	There are three skills: - Vocabulary (LV) - Grammar (LG) - Listening (LL)	<u>Stepwise Regression:</u> The test scores of three skills are employed to be estimated by relevant variables as shown below. <u>Logit Model:</u> The skill level is divided into two different levels, introduction and intermediate level, which is based on a set of test scores measuring achievement in English proficiency in three dimensions of skill with 650 points of full marks for each test. The scores lined between 0-280 points are marked out as the introduction level, otherwise they are scaled in the intermediate level. It takes as the dichotomous language variable; 1=Intermediate level, 0=Introduction level.
Exposure (EXPOS)	Experience Abroad (EXPER)	Students had gone to other countries whose population can conduct a good conversation in English. Consequently, they may develop strong interest in acquiring English skill. It takes as the dichotomous variable; 1=Having experience, 0=No experience.

contd. table 1

Items	Variables	Definition
	Understanding in AEC (UAEC)	Understanding in ASEAN Economic Community or AEC is measured by scores that individuals correctly answer the questionnaires on the AEC topic. Respondents were asked to answer 12questions about the definition and framework of AEC and their scores are reformulated into percentage form. Higher scores mean good understanding about AEC, indicating students' interest in international economic affairs, then should be more inclined to improve their English.
	Graduated Secondary School (GSS)	GSS is the type of secondary school where individuals graduated from. This variable is identified by public school, private school, and non-formal and informal education. The secondary school curriculum is determined by the Ministry of Education in order to assure the standard and quality of qualification, however, school facilities, for example, may be different between public and private schools. This different exposure to English may result in differences in the fundamental background of students' English skills. It takes as the dichotomous variable; 1=Public school, 0=Others.
	Parents' Occupation (POCG)	This variable is defined by categorizing occupations of students' parents into three groups: government service, private company, and business owner and the others. Different organizational culture would provide different experience about opportunity at work which might lead to the different perception about the importance of English proficiency. And this perception can then be absorbed by their children. It takes as the dichotomous variable; 1=Government service, 0=Others
Efficiency (EFF)	Level of Vocational Study (LVS)	This variable records the type of vocational level in which full-time students are currently taking. In Thailand, vocational study, determined by Office of Vocational Commission, is categorized as the certificate level and diploma level. The former is the lower level, accepting students who graduated from secondary schools. Diploma level is higher vocational study, accepting students who already graduated from the certificate vocational level. The certificate level is a three-year program while the diploma level is a two-year program. The level of study could also reveal the exposure of students to English. The longer schooling year is likely for students to be more open and attached to English. It takes as the dichotomous variable; 1=Diploma level, 0=Certificate level
	Extra Curriculum (EXC)	Extra curriculum is outside school English classes that students currently take or had taken in the past. This variable captures the human investment, particularly, in language skill which could help students achieve better English learning efficiency compared to the others who had not taken extra courses. It takes as the dichotomous variable; 1=Having experience, 0=Others.

Items	Variables	Definition
	Field of Study (FOS)	This variable records the field of study offered by vocational schools under this study. To simplify the model and minimize the number of variables, the fields of study is regrouped into two main groups: commerce/business (e.g. accounting, marketing, business computer, logistics management, general management/secretarial science, retail business, hotel management, business administration, tourism management and information technology), and the others (e.g. home economics, fine and applied arts, tourism industry, and information technology and communication). It take as the dichotomous variable; 1=Commerce, 0=Others.
	Grade Record (GRA)	Grade record is students' average grade of the last semester. It is commonly agreed that students with higher grade are more likely to have the greater level of efficiency to learn English.
Economic Incentive (ECON)	Plan of Higher Education: Studying Abroad (PHEA)	This variable is defined by the study plan of students who decide to continue for higher degree after achieving vocational certificate or diploma. In general, higher education requires a higher level of English skills. Therefore, students with plan of higher education would have more incentive to improve their English proficiency. In order to combine the English proficiency into higher education plan under economic incentive encouragement, this variable is also divided into two choices of study plan: Thailand and abroad. It takes as the dichotomous variable;1=Abroad, 0=Thailand..
	Plan of Working Abroad/ Multinational Company (PAMC)	Plan of working abroad or in multinational company not only expects for better job and wage, but also encourages the English proficiency enhancement to have higher opportunity in job search. To capture the impact of this incentive, this variable take the value; 1=Having plan, 0=No plan.
	Increment Job Opportunity (IJO)	This is defined as the belief of students that English skill could enhance opportunity in job search. Students who have that positive attitude would intently focus on improving their English skill. It takes as the dichotomous variable; 1=Increment, 0=No effect.
	Expected Wage (EXW)	According to theory of labor marginalization with maximizing framework, it provides undoubted solution that employers will pay at marginal productivity of labor. The good English skill is generally treated as an extra qualification for recruitment of which brings to considering of recompense. As a result, students who expect high wage payment (thousand baht per month) would steadily put more effort on upgrading their English skill.
Wealth (WEA)	Parents' Income (PRI)	Parents' income is available in monthly (thousand baht per month). This variable refers to economic background of students' family in order to give more financial support on human capital investment. As a consequence, students with better economic background are expected to have greater English background than the others.
	Students' Income (STI)	Student's income is available in monthly, included allowance and part time job (thousand baht per month). The reason of including STI is similar to PRI.

IV. METHLOGY

(A) Stepwise Regression

Stepwise regression model with OLS analysis is employed to assess the explanatory power of potential factors drawn from the four conceptual groups of determinants as discussed earlier. The estimated regression of English proficiency can be written as:

$$SCORE_n^E = \phi + \sum_i^4 \sum_n^N \alpha_i EXPOS_{i,n} + \sum_j^4 \sum_n^N \beta_j EFF_{j,n} + \sum_k^3 \sum_n^N \gamma_k ECON_{k,n} + \sum_l^2 \sum_n^N \lambda_l WEA_n + \sum_h^5 \sum_n^N \omega_h Other_{h,n} + \varepsilon_n \qquad (1)$$

where $SCORE_n^E$ is the English test score of each of three skills namely vocabulary (LV), grammar (LG), and listening (LL), E =1,2,3, of that individual respondents n receives. Meanwhile Φ, a_i, b_j, g_k, λ_l, and ω_h are the interested parameters to be estimated and ε_n is the disturbance term of individual n to capture the unobserved characteristics that have impact on English proficiency. Letting EXPOS, EFF, ECON, WEA and Other are independent variables and, respectively denote the exposure, efficiency, economic incentives, wealth factors, and other main demographic variables of individual n, and consist of 14 independent variables (see Table I).

The test for explanatory power of each variable in the above equation is under the null hypothesis of individual estimated parameter i, j, k and l indifferent from zero; $H_0 = \alpha_i = 0$, for instance. The test statistics for such a hypothesis are t-test statistic at a conventional level of 5% significant level ($\pm=0.05$) or at a 95% confidence level.

(B) Logit Model

To capture the causes of the improvement of English proficiency, a dependent variable in this analysis is dichotomous language variables. It will take a value of 1 if students receive a test score in the range of an intermediate level, and take a value of 0, if an introduction level. The binomial logit model is applied to explore the sources of English capacity improvement. The marginal effects of each independent variable are also computed to assess its impact on the probability of shifting vocational students' English proficiency from the introduction to intermediate level. Mathematically, the model of English skill level (LE) can be briefly presented as the exponential term of each skill;

$$LE_E = \frac{\exp(LE_g)}{1 + \exp(LE_E)} \qquad (2)$$

The regression model is expressed in the form of natural logarithmic linear as

$$LE_E = \emptyset + \Sigma_i^4 \Sigma_n^N \alpha_i EXPOS_{i,n} + \Sigma_j^3 \Sigma_n^N \beta_j EFF_{j,n} +$$
$$\Sigma_q^4 \Sigma_n^N \gamma_q ECON_{qn} + \Sigma_1^2 \Sigma_n^N \pi_1 WEA_{1,+\varepsilon_n n} \qquad (3)$$

the latent variable, LE_E is a dummy variable defined by

$$LE_E = \begin{cases} 1 \ \textit{if the test score marks on intermediate level} \\ 0 \ \textit{if the test score marks on introduction level} \end{cases}$$

where the subscript E denotes the three different English skills. Therefore, three models are estimated as the linear probability model, the logit model underlining with the three different skills of whole sample group. The explanatory variables, stated in Table I, consist of 14 variables of four conceptual items, included in English proficiency improvement model. The marginal effect after logit estimation is taken instead of odd ratio to measure the possible impact of a unit change of each relevant variable (x_k) on English proficiency improvement from introduction to intermediate level. The marginal effect generally provides the approximation to a unit change in an interested variable (English proficiency), caused by a unit change in a specific explanatory variable. However, the direct estimation of slope coefficients from non-linear discrete choice model, such as logit model, does not express the fidelity effect of variable on $PR(LE_E = 1 | x_k)$ or probability of English proficiency at intermediate level. As a consequence of disadvantage effect measurement of non-linear relationship, the estimators are thus needed to be transformed to the marginal effects. In other words, it is the change in predicted probability with respect to the changes in each explanatory variable while others are held constant at mean in this particular study, so called the marginal effect at the mean. The marginal effect is basically formulated as

$$Marginal\ effect = \frac{\partial \Pr(LE_E = 1 | x_k)}{\partial x_k} \tag{4}$$

Additionally, test statistics for significant effect of each variable in above equation is under the null hypothesis of individual estimated marginal effect, k, indifferent from zero. The test statistics for such a hypothesis are asymptotic to t statistic at a conventional level of 10% significant level ($\alpha = 0.1$) or 90% confidence level.

(C) Descriptive Statistics

The demographic structure of sample is demonstrated before further to the estimation of the change of English improvement possibility. The frequency distribution of specific variables from self-reported questionnaires is shown in Table II. The majority of sample is drawn from female students, accounting for 70.40% of all respondents. Unsurprisingly, most of students have relatively poor English skills, especially listening skill, only 5.69% of which marked in intermediate level. On the other hand, the overall skill reveals a sign of better English proficiency as 81.60% of totals get good average test scores, placed in the intermediate level.

To understand respondents' English proficiency more clearly, the focus is placed more on their various backgrounds. Considering the type of their graduated secondary school, 82.82% of all respondents graduated from public school. As for the family background, 79.25% of their parents own businesses or do some unspecified jobs, whereas 11.89% work in the private sector and another 8.86% work in the public sector. With reference to respondents' past visit to countries communicating in English, only 4.73% of them has experience abroad. Additionally, almost all of respondents or 94.12% said that they plan for higher education after they graduated from their current studies. However, only 3.96% of students who have plan for higher education express the desire for study abroad, showing higher English proficiency than who have not plan. Not surprisingly, most of them perceive the important of English skill on their job opportunity under the change in market labor environment caused by the economic liberalization. Unfortunately, the English test result shows quite a poor outcome, especially listening skill. This could be an interesting evidence of

coronial connection, and English curriculum concentrated on grammar and vocabulary. This preliminary finding reveals the need of refurbish curriculum along with native instructors, and well facilitation.

Table II
Frequency distribution of students classified by determining variables

Items	Frequency (No. of Students)	Percent (%)
Vocational Schools		
School I	1,272	33.83
School II	1,086	28.88
School III	709	18.86
School IV	693	18.43
English Skills*		
– Vocabulary Skill	371 (3,389)	9.87 (90.13)
– Grammar Skill	361 (3,399)	9.60 (90.40)
– Listening Skill	214 (3,546)	5.69 (94.31)
– Average Skill	3,068 (692)	81.60 (18.40)
Gender		
Male	1,113	29.60
Female	2,647	70.40
Levels of Study		
Certificate	2,805	74.60
Diploma	955	25.40
Fields of Study		
Commerce	3,219	85.60
Others	541	14.40
Graduated Secondary School		
Public School	3,114	82.82
Private School	646	17.18
Parents' Occupation		
Government Service	333	8.86
Private Company	447	11.89
Business Owner and Others	2,980	79.25
Experience Abroad		
Having Experience	178	4.73
No Experience	3,582	95.27
Plan of Higher Education		
Having Plan	3,539	94.12
– Thailand	3,390	90.16
– Abroad	149	3.96
No Plan	221	5.88
Plan of Working		
Abroad/Multinational Company	1,819	48.38
No Plan	1,941	51.62
Increment Job Opportunity		
Increment	3,579	95.19
No Effect	181	4.81
Extra Curriculum English Class		
Having/Had	1,211	32.21
No	2,549	67.79
Total Students	3,760	100.00

V. RESULTS AND DISCUSSIONS

The results of stepwise and logit estimations present various patterns of the explanation of English proficiency (Table III and IV). In this study, stepwise regression shows the determinants of English language improvement in vocabulary, grammar, listening skills which are indicated by test scores. On the other hand, the logit model and marginal effects illustrate the predicted probabilities of successive improvement of English skills of the whole group of student from an introduction level to an intermediate level, , as the dichotomous dependent variables change from 0 to 1. With the advantage measurement, the marginal effect after logit regression is used to approximate the changes of explanatory variables, x's, on the change inrather than slope coefficients from logit estimation.

Looking closely to the stepwise regression, all four main items of variables, namely exposure, efficiency, economic incentive, and wealth, are a good assessment on English test scores, with the exception of grammar test score. Exposure seems to have no effect on vocational students' grammar skill. This could be because, in Thailand, grammar course has been mandatory in regular English language curriculum since primary school. As a result, students' grammar skill is largely better than other skills. This can also be reflected by the highest mean of grammar scores. As for logit estimations, exposure, economic incentive, and wealth variable groups perform not well in improving English proficiency in all three skills. Yet, variables belonging to efficiency group offer much better results.

Table III
Stepwise regression results

	Vocabulary Score (VS)		Grammar Score (GS)		Listening Score (LS)	
	Estimated Coefficient	t-test Sig. Level (α)	Estimated Coefficient	t-test Sig. Level (α)	Estimated Coefficient	t-test Sig. Level (α)
Constant	69.46 (8.98)	0.000	104.74 (8.30)	0.000	147.04 (5.29)	0.000
EXPER	-	-	-	-	-	-
UAEC	0.33 (0.10)	0.001	-	-	0.20 (0.06)	0.001
GSS	-14.12 (3.78)	0.000	-	-	-6.25 (2.39)	0.009
POCG	-	-	-	-	-	-
LVS	6.84 (3.29)	0.038	-	-	5.05 (2.09)	0.016
FOS	-	-	-	-	-	-
EXC	7.10 (3.07)	0.021	6.59 (2.72)	0.015	4.52 (1.95)	0.020
GRA	22.53 (2.43)	0.000	5.34 (2.00)	0.007	16.17 (1.49)	0.000
PHEA	-	-	-	-	-	-
PAMC	13.18 (2.87)	0.000	10.94 (2.53)	0.000	4.67 (1.82)	0.010
IJO	-	-	17.61 (6.36)	0.000	-	-
EXW	-	-	-	-	-	-
PRI	-	-	2.77E-4 (7.79E-5)	0.000	-	-
STI	-	-	-	-	-	-
Adj. R^2	0.08		0.02		0.09	
F-statistic	30.49 (α=0.000)		12.19 (α=0.000)		42.64 (α=0.000)	
#obs.	3,293		3,293		3,293	

Note: Number in the bracket is standard error. Adj.R^2 is adjusted R^2. ± is significant level at 5%. #obs. is the number of observation (students).

According to the t-statistic test for significance at a conventional level of both stepwise and logit estimations, they show unsurprising findings with the inconclusive key factors to explain English skills of Thai vocational students. There are various factors that show statistically explanatory power on test scores, but only some of those significances present as main factors to improve chance of lifting up English proficiency. However, EXPER, POCG, PHEA, and EXW present mildly predictive power on English skills. Meanwhile, the UAEC and GRA fortunately reveal somewhat strong support to, at least, vocabulary and grammar skills. Moreover, FOS is found significant only in the logit model, but not in the stepwise.

Intuitively, GRA can be considered as the variable with the strongest impact on English proficiency as, according to the stepwise model, it is statistically significant in explaining all three English skills whereas, in the case of the logit model, it significantly affects vocabulary and grammar skills. This is unsurprising as having good grade record strongly emphasize students' solid educational background, leading to efficiency in English learning. PAMC is also quite strong in explaining English skills. Plan of working abroad or at multinational company could work as an incentive for students to put more effort on improving their English proficiency, so that they could improve their job opportunities. This finding is similar to Burdria and Swedberg (2010) which present that immigrants' plan to stay in Spain has a significant and positive influence on their Spanish language improvement.

Table IV
Logit regression and marginal effect results

	Vocabulary Skill (LV)		Grammar Skill (LG)		Listening Skill (LL)	
	Est. Coeff.	Mar. Eff.	Est. Coeff.	Mar. Eff.	Est. Coeff.	Mar. Eff.
Constant	-3.904[a] (0.46)	-	-3.237[a] (0.44)	-	-2.878[a] (0.56)	-
EXPER	0.095 (0.26)	0.008 (0.02)	0.218 (0.25)	0.0197 (0.02)	-0.081 (0.33)	0.004 (0.02)
UAEC	1.132[a] (0.38)	0.096[a] (0.03)	0.720[b] (0.38)	0.061[b] (0.03)	0.003 (0.48)	0.00 (0.03)
GSS	-0.157 (0.14)	-0.014 (0.01)	0.066 (0.15)	0.005 (0.01)	0.335[c] (0.21)	0.016[c] (0.01)
POCG	0.269 (0.18)	0.025 (0.02)	-0.089 (0.21)	-0.007 (0.02)	-0.019 (0.25)	-0.001 (0.25)
LVS	0.094 (0.13)	0.008 (0.01)	-0.022 (0.13)	-0.002 (0.01)	-0.403[b] (0.18)	-0.019[b] (0.01)
FOS	0.363[b] (0.18)	0.028[b] (0.01)	-0.157 (0.16)	-0.014 (0.01)	-0.020 (0.20)	-0.001 (0.01)
EXC	0.188 (0.12)	0.016 (0.01)	0.075 (0.12)	0.006 (0.01)	0.002 (0.15)	0.000 (0.01)
GRA	0.219[b] (0.09)	0.019[b] (0.01)	0.320[a] (0.09)	0.027[a] (0.01)	-0.155 (0.12)	-0.008 (0.01)
PHEA	0.017 (0.28)	0.002 (0.02)	0.260 (0.26)	0.024 (0.03)	0.297 (0.32)	0.018 (0.02)
PAMC	0.286[a] (0.12)	0.025[b] (0.01)	0.135 (0.12)	0.011 (0.01)	0.148 (0.15)	0.008 (0.01)
IJO	0.043 (0.28)	0.004 (0.02)	-0.090 (0.27)	-0.008 (0.02)	0.248 (0.35)	0.012 (0.02)
EXW	-0.003 (0.00)	-0.000 (0.00)	-0.003 (0.01)	-0.000 (0.00)	-0.001 (0.00)	-0.000 (0.00)
PRI	0.000 (0.00)	0.000 (0.00)	-0.001 (0.00)	-0.000 (0.00)	0.006 (0.00)	0.000 (0.00)
STI	-0.022 (0.03)	-0.002 (0.00)	-0.058[c] (0.32)	-0.005[c] (0.00)	-0.027 (0.04)	-0.001 (0.00)
LR (14)	44.44[a]		30.12[a]		15.03	
R²	0.018		0.013		0.001	
Log.	-1,189.069		-1,173.957		-813.585	

Note: The Est. Coeff and Mar. Eff. are the estimated coefficients from logit estimation and marginal effect, respectively. The numbers in the bracket are the standard deviation.

R² is the Pseudo R-square, and Log stands for value of log likelihood. They indicate the fitness of the model. LR is the likelihood ratio statistic associated with the null hypothesis of no predictive power of all 14 variables on English skill improvement.

[a], [b], [c] represent the percentage of confidence level (or significant level, α) of 99% (α=0.01), 95% (α=0.05), and 90% (α=0.1), respectively.

Also, the statistical significance of understanding about AEC in both models implies its positive explanation on English proficiency in vocabulary. English vocabulary is required less intensively in schools' regular English class so these skills could be improved more readily by self-study. Searching for knowledge on AEC through various sources could inevitably expose students to English vocabulary. Furthermore, understanding about AEC and its importance to the Thai economy could help stimulate students to improve their English ability so that they can secure better career and job opportunities in the future. This is consistent with Tubergen and Kalmijn (2009) whose findings reveal that, for immigrants in the United States, the degree of globalization of their country of origin has a positive effect on pre-migration exposure to English.

Because of the limited interpretation of logit's estimated coefficients, marginal effects are introduced to provide further analysis on the changes in the possibility of advancing English language skills from an introductory to an intermediate level. By analyzing the marginal effects, the UAEC is found to play the most important key in raising English skill, compared to other determining variables. If students know about AEC for 1% more, they would have a better chance of a change in their vocabulary skill improvement around 9.6%. This could be because they would perceive the higher opportunity to find job in other countries, importance of English communication in working place, and higher competitiveness in labor market. At the same time, students who is studying in commerce field, and planning to work in multinational company based in Thailand or foreign countries after graduating, would have higher possibility of improving their vocabulary skill than others.

Noticeably, GSS shows the positively and statistically significant support to increase the listening proficiency level, but negatively explanatory power on listening test scores. It could somehow indicate the procedural problem during English listening learning in public secondary school.

VI. CONCLUSIONS

This study aims to approach the answer of how to improve the English proficiency. It is undertaken based on the human capital theory and applies the conceptual framework of the determinants of language acquisition to develop 14 independent variables. They are categorized into four main items, including exposure, efficiency, economic incentives, and wealth effect factors. The stepwise regression and the logit model with marginal effect analysis are employed and provide the statistical evidence of the significant explanatory power of some variables.

Each of estimation is regressed in three equations according to individual English skills. The marginal value gives the evidence of statistically significant change in the probability of improving students' English skills from the introduction to intermediate levels. Comparatively, the stepwise performs generally better than the logit model, with more independent variables with explanatory power. The variables that perform quite well in both stepwise and logit estimations are students' grade record and plan of working abroad or at multinational company.

The findings provide insightful knowledge on the influence factors that could facilitate the improvement of workers' English proficiency. This could be useful for both government agencies and private school businesses to design appropriate English training program to serve the needs of vocational students who would make up a large part of skilled-labor force in Thailand. Moreover, the continuing investment in

human capital together with understanding how globalization enhances job opportunity could stimulate vocational students to prepare themselves for the intense competition in the liberalization era. The human capital development needs a long process and huge support from not only the government, but also good collaboration from all walks of life.

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