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ENGLISH ABILITY ASSESSMENT FOR ECONOMIC ANALYSIS OF EMPLOYMENT AND INCOME IN CAMBODIAN FRONTLINE STAFF

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ABSTRACT

Tourism in Cambodia has grown remarkably since the early 2000's; the influx of international travelers meant that tourist industry (TI) frontline employees have needed top-level English communication ability. Since background data in Cambodia has been lacking, the author wanted to verify the role of English communication ability (ECA) in TI employees in Siem Reap city to fill this gap. During four surveys over five years, the author collected background as well as ECA data. To more accurately measure ECA numerically as a means for other researchers to conduct further studies, the author designed an assessment test loosely based on the CEFR. In statistical analysis of income with English variables, high positive correlations were found in English communication ability, years and hours of English education, and monthly expenditure for English learning. Therefore, it can be said that there is a significant relationship between ECA, better employment, and higher incomes in TI employees there. This scale could be profitably used via the Internet to conduct similar research in similar situations.

Keywords: English communication ability, Economic analysis, Employment, Income, English assessment, Tourism, Cambodian frontline staff.

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Contribution/ Originality

This study contributes in the existing literature by providing a new way of examining the importance of English ability toward tourism employment and income. It is also one of the very few studies which have collected socioeconomic and English background data much of which has never been collected before.

1. INTRODUCTION

For some years, tourism in Siem Reap, Cambodia has been growing tremendously. As such, frontline employees have needed excellent English communication skills to communicate with the massive number of international tourists there. In Cambodian frontline tourism very little research has directly examined the assessment of English ability for employment and income. However, for decades, economists (Becker, 1964; Mincer, 1974) have examined human capital and background general education and its influence on employment and income. Little literature in English ability and tourism income has been found, although some studies have examined English ability and income in a developing country. English became important as a world language, and also for employment and income from colonization efforts by the British, as well as independence efforts and global activities by the U.S. from the 16th to the 19th centuries. The English language since has become a lingua franca in modern societies in politics, business, and air traffic control, and science; English is also the primary language of academic publications.

English use has been categorized into three concentric circles by Kachru (1985). *Inner circle*, where English is the national language, include the United States, England, Canada, Australia, New Zealand, South Africa, and Caribbean nations; 2) *outer circle* in which English is used as the language, politics, and science or business. Examples of outer circle countries include: India, Pakistan, Philippines, Singapore, Bangladesh, and Tanzania, and 3) *expanding circle*, in which English is a language of business or as a lingua franca in countries such as China, Japan, and much of Europe.

Casale and Posel (2010) studied the role of English in South African in general where the language of business is English and uses self-reported census English proficiency data to perform regressions. This study focused on the ability to read and write English very well as the benchmark for proficiency. The role of English proficiency on earnings among African men between ages 25 and 65 was tested in the study. Statistical results showed that those English language speakers of high ability earned almost 55% higher incomes than non-proficient English users. Obviously, a high level of English language proficiency can lead to more effective communication among co-workers and management and also lead to higher job productivity. African men who were educated to the post-secondary level earned approximately 97% income more if they were also proficient in the English language. Sandford (2002) examined English proficiency and wage rates of Mexican immigrants into the U.S. Although not a tourism-based study, Sandford found that those with college degrees but spoke no English earned 72% less than those English-speaking college graduates. Sandford also recommended a better English proficiency measurement system for further research. Yadisaputra (2015) studied the role of emotional intelligence and emotional labor among front employees in a casino hotel in Macao, China. Emotional intelligence is basically the quality of customer relations, while emotional labor is the quality of creating a public persona and facial and body display. Many managers feel that "the friendliness and good cheer of employees are strongly related to customer satisfaction and increase customer commitment and loyalty and therefore, affect bottom lines" (Yadisaputra, 2015). In this way both emotional intelligence and labor can be compared to English proficiency in that it is a quality of human capital that allows one to come face to face with customers and assist in creating a bond which can affect bottom lines and therefore wages. Ono and Zavodny (2007) examined the role of English ability, IT (Information Technology) and English ability by immigrants into the U.S. Estimated English ability showed a positive association with IT use over time. While this study does not examine tourism or English ability with income, it does show the significance of English and its economic impact in IT. Accessing digital information, especially in the United States, can influence economic and social stability. IT skills are an essential element in the household as well as in the workplace. It has been found that those with IT ability among privileged groups can factor into the U.S. labor market (Ono and Zavodny, 2007). The study focuses on the causes of digital inequality between natives and immigrants into the U.S. as per English language skills and show that there are indeed gaps in IT usage between the natives and immigrants. Assessing the differences is important because of IT skill emphasis on employment and education, in addition to the fact that many immigrants are unskilled, have lower English skills, and are in lower socioeconomic groups. Data from the 2000 census show that the gap between immigrants' and natives' earnings has increased since around 1970 (Ono and Savodny), and immigrant segregation in housing has also increased recently. Residential segregation distances immigrant groups from mainstream society, and reduces interaction with the native population. Lack of IT skills may negatively affect economic growth and U.S. assimilation of immigrants. The study examines data from the Current Population Survey during the period 1997 to 2003 to examine English ability and IT use. The results found a gap in Internet usage between natives and immigrants, and shows that IT usage rates are lower by those who have lower English ability.

In the above studies it is evident that English ability is essential in work and life situations, especially the hospitality industry. Many studies use self-reported ECA data from censuses or surveys, where respondents rate

their own ability using a four-point Likert scale containing measurements of: 1) very well, 2) well, 3) not well, and 4) not at all. However, in economic studies, self-reporting of respondents' own English ability may not be accurate as self-reported abilities can be overrated or underrated. For this reason, the method of measuring English proficiency for economic analysis should be reconsidered. It has been suggested that a better method of determining English proficiency could be a proxy using test scores, such as TOEFL or TOEIC. However, these tests are prohibitive in many developing countries due to the high cost, inconvenient logistics, and the time constraints of overland mail. The best way may be a language proficiency test given in face-to-face interviews over the Internet. While this method may be time consuming, in the long run it is more accurate. It is important for respondents to be able to gauge their own ECA and to know and understand their own levels of language ability; however, a better method of assessment must be created to determine English communication ability numerically. This would allow its incorporation into statistical analysis and solidify the importance of English in employment and income. Because of the problems associated with self-reporting, the author decided to create a new method of measuring ECA in the field for economic analysis. One difficulty with measuring this kind skill is the definition of English communication ability. This is because many different ideas exist about what language *ability* refers to. However, in the case of measuring ECA for statistical analysis, an uncomplicated concept must be found for consistency and standardization. The author's goal therefore was to create a simple, numeric English assessment, which could be used in statistical analysis and to test its use in the field.

The author along with the research team conducted four surveys in Siem Reap (SR) during 2010, 2012, and 2013 in order to obtain social, economic, and educational background data among tourist industry (TI) employees. Another goal was to measure employee English communication ability (ECA) to verify the role of ECA in receiving more stable employment and better income. The author used a self-designed scale of ECA ability for economic analysis for the purpose of obtaining accurate and efficient ability measurements. The importance of ECA was crucial for employment and income, but the question as to how to measure ECA was difficult. As the goal was to verify ECA interaction with socioeconomic factors numerically, the author set out to find an appropriate ECA assessment tool to be used for this purpose. To achieve this outcome, this study's objective was to interview TI employees regarding background social, educational, English ability background to link with employment, and income in a developing country. Four surveys were conducted; however, this paper will only focus on the most recent survey of 2013. It is difficult to prove causation in statistical analysis, but the author's assumption was that higher English communication ability led to better employment and higher incomes in 2013, especially in higher income businesses such as travel agencies and hotels. This assumption can only be proved with accurate ECA data, and so the author's goal therefore was to create a method to gather accurate ECA data and then to verify that a higher ECA level and more years and hours of English education could help TI employees obtain more stable jobs and higher incomes.

The author and research team created a questionnaire and spent time conducting face-to-face interviews with many respondents, requiring patience and commitment. In the end much useful data was collected. Another way accurate ECA data could be compiled in the future is by offering English language proficiency assessments on-line through e-mail or a website. Such methods could be completed more profitably at both the respondents' and interviewers' convenience.

In the author's research, the respondents' ECA is applied to speaking and listening only. For this reason, it is not a complete language proficiency assessment; however, existing economic studies focus mainly on speaking in English assessment for employment and income. The *target language use* (TLU) domain posits that the goal language of study should be central to specific situations or domains and assessments should utilize sets of precise communication tasks in order to measure ability within the TLU domain (Bachman and Palmer, 1996). It should

also focus on a particular construct, or the underlying meaning of the ability and the method used to interpret outcomes. In job situations, speaking is the most common communication medium during working situations; as such the *real-life* case is a fitting domain (Bachman and Palmer, 1996). This being the case, the author based this study's research on the real-life TLU domain. After the construct, the framework, and the assessment tools have been created, the questions to gauge assessment can be chosen and included in the questionnaire to be used in during research work. Section two offers survey methodology including sample, location, instruments and data collection method. Section three offers demographic information from the survey. Section four presents the results, and section five contains a discussion. Section six more specifically clarifies the integration of ECA into economic analysis. Section seven concludes.

2. METHODOLOGY

2.1. Sample

A two stage sampling style was used in this study. First, the total locations were found, and then samples within that were calculated and randomly chosen based on the total number of locations. The sample size was calculated using a margin of error of 11 and a 95% confidence level.

Next, the employees were also chosen randomly within each location. The locations and sample sizes used in 2013 are offered in Table 1. All of the required employees agreed to take part in the face-to-face interviews for this study. The study was to focus only on employees, so owners, managers, and others were excluded.

Table-1. Sample, 2013

Location	Total Locations (2013)	Required Sample Size 2013
Souvenir shops	320	60
Restaurants	150	57
Guest houses	252	34
Hotels	125	49
Travel Agencies	150	23
Tuk-tuks	500	69
		n=292

Source: Department of Tourism, Siem Reap and author, 2013.

2.2. Survey Location

The main tourist area of SR is located around Old Market, Central Market, and New Night Market in downtown SR. The survey was conducted *in situ* here. The author's goal was to examine businesses with a wide appeal and an international customer base, so business locations outside of the main tourist areas were excluded from the survey. Fig. 1 displays the 2013 survey areas of downtown SR.

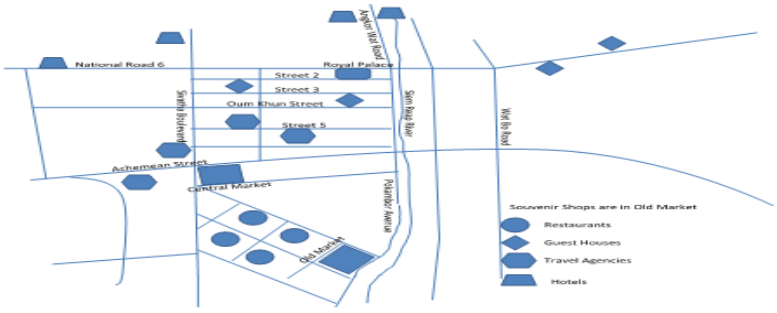

Fig-1. Survey Areas of Siem Reap City, 2013.

Source: Created using survey data, 2010, 2012, and 2013.
*Tuk-tuk were located throughout SR City in 2013.

2.3. Instruments

The survey contained two parts and 25 questions. The first part included questions designed to gather background socio-demographic information, and the second part was to measure ECA. The questionnaire was tested by the author and research team in 2008, and revised for the second survey in 2010. After testing in 2010, the questionnaire was once again revised 2012. The ECA data collection was completed by recording self-introductions of the respondents. The assistants were provided with IC, hand-held recorders with 4GB of memory and capable of downloading directly to the hard-drive on a computer. Language function could be readily changed on the IC recorders, and the data was easy to locate and not easily erased. Once downloaded onto the computer, the sound quality was excellent and speaking could be heard very well with no problems. To analyze the speaking, the author used the recording software Audacity, which allows for one to examine the recorded portions minutely.

2.4. Data Collection Method

The research team consisted of indigenous students with advanced ECA, and was chosen under the auspices of Angkor University Research Center for Economic Development (AURCED). All surveys were important; however, this paper will only examine the survey of 2013 in order to save space. The author's goal was to conduct simple random surveys in face-to-face interviews only in TI businesses that have contact with English-speaking tourists regularly. Therefore, in 2013 six obvious TI related businesses that stand out as being so were chosen to be businesses under study: 1) souvenir shops, 2) restaurants, 3) guesthouses, 4) hotels, 5) travel agencies, and 6) tuk-tuks, or motorized rickshaws. To avoid interviewer bias, in pre-survey training, the assistants were instructed to allow the employees to self-answer the questions with little or no interference. They were also trained to record self-introductions given by TI employees in English at the end of the interviews with as little interference as possible. The assistants first introduced themselves and explained the survey project. Then they proceeded to conduct the interview in English. In cases where problems arose, the assistants were allowed to translate items into Khmer, the indigenous language of Cambodia. After the interview process was over, the assistants used the level assessment rubrics to judge the English ability of the respondents individually by noting each ECA level on the questionnaire. The self-introductions were then double-checked by professionals after the recordings following the author's ECA assessment for accuracy. For this process rubrics, or indicators of how respondents are supposed to be proceeding with various tasks, were used as a guide for individual assessment because straight assessment is difficult to accomplish during field interviews. The questionnaires therefore need to be as clear and concise as possible for accuracy. The perfect language ability assessment does not exist due to complicated nature of what constitutes language proficiency. However, one widely accepted and used language assessment test of the past decade is the Council of Europe (2001) which is the method of choice for determining language ability of EU citizens. Definitive levels of language assessment are used in the CEFR and are outlined in Table 2. In addition, the CEFR includes *can-do* lists into the language assessment; can-do lists are for respondents to rate their own skill in rising to the next level of ability by gauging if they can or cannot accomplish a particular task. The CEFR is broken down into 6 stages from beginner to advanced with levels and an explanation for each level, and is used for spoken ability:

Table-2. CEFR Reference Levels

A1 Breakthrough or beginner - can understand familiar everyday expressions, can introduce self
A2 Way stage or elementary - can understand and use expressions within immediate relevance
B1 Threshold or pre-intermediate - can understand main points and deal with traveling
B2 Vantage or intermediate - can understand and produce ideas on concrete and abstract topics
C1 Effective operational proficiency - can get implicit meaning, can use language flexibly
C2 Mastery or advanced - can understand everything, can express spontaneously and fluently

Source: Adapted from CEFR, Council of Europe for Language Education, 2001.

The CEFR reference levels measure language ability on an ascending scale of ability, which ranges from the ability to produce everyday words and expressions, both concrete and abstract topics, and understanding underlying meanings. In the EU where the CEFR was originated and where many people speak two or more languages these kinds of references levels are perhaps common. However, in some developing countries, many people have little or no English speaking ability. The CEFR assessment works for assessing spoken English for day-to-day or business purposes for assessing needs and abilities, but does not lend itself readily to quantification for statistical or economic analysis because it cannot be quantified. In addition, the CEFR is probably most applicable to English speakers who already possess a slight command of a given language, such as in the *breakthrough or beginner* stage. Here respondents should at least have the ability to introduce themselves in everyday language, but in some developing countries many people cannot even do this. The author realized that a new type of English assessment be created for data collection and analysis at least in Cambodia. To make a more streamlined assessment, the author created a numeric method for measuring ECA in 2013 loosely based on the CEFR. The CEFR contains levels on a very clear, concrete scale. The author emulated this feature, but adapted the scale to be more numeric, and included levels from (0) for those with no ability, to (5) for those with fluent ability. The scale could then be quantified and calculated to justify its importance with income and job seeking. The author's assessment is outlined in Table 3.

Table-3. The Author's Variation of English Ability Assessment

0 No or little ability - can't communicate at all
1 Beginner - can only understand and use familiar everyday expressions with no confidence
2 High Beginner - can understand and use expressions within everyday relevance, little confidence
3 Intermediate - can understand many things, can produce but with many mistakes, less confidence
4 High Intermediate - can understand and produce ideas but with lower confidence
5 Advanced - can understand everything and produce fluently and confidently

Source: Author, 2010.

3. DEMOGRAPHICS

Table 4 illustrates that the majority of TI employees were in the 20's. This is common because TI is a very faced-paced industry and provides flexible work situations, but as a result, has much turnover. Although turnover is evident, TI can provide stable employment for those just beginning their careers. Of the total, 24% (78) were age 30 and over and just five percent were over 40. Males comprised 45% of the TI participants, and females 55% (152). In 2013, 202 participants (69%) were from Siem Reap and 6% were from Phnom Penh. A few (25%) were from neighboring provinces such as Battambang. Of the total, 143 (58%) were single, while 41% were married. Of the married employees, 37% had children. As for living situation, 44% lived with family, that is, mother, father, husband, wife, and children, while 36% lived alone, and 18% lived in some kind of dormitory or group housing. The demographics are important and could indicate that employees want to obtain more stable employment and higher wages as some of them are married and have children.

4. RESULTS[1]

Six variables related to English communication ability were calculated with four statistical measures. The variables used with abbreviations were as follows: 1) ECA level (ENL), 2) income (INC), 3) total years of schooling (TYS), 4) total years of English education (YEE), 5) hours of English education in school (HEE), and 6) monthly English expenditure (MEE). The four statistical measures of the locations under study follow: 1) Mean, 2) median, 3) standard deviation (SD), and 4) coefficient of variation CV. Spearman's rank correlation, a test correlating variables in a ranked order, was also performed. The findings will be offered and interpreted following each table. The six businesses under study are now offered: 1) tuk-tuk drivers (TT), 2) souvenir shops (SS), 3) restaurants (RT), 4) guesthouses (GH), 5) travel agencies (TA), and 6) hotels (HL).

Table-4. General Demographics of Tourism Labor Force, Siem Reap, 2013 (number)

		SS*	Rest	GH	H	TA	TT
Age	10-19	5	2	4	1	2	1
	20-29	46	48	41	23	39	23
	30-39	9	7	8	9	12	33
	40 +	0	0	2	1	1	12
Total		**60**	**57**	**34**	**49**	**23**	**69**
Sex	Male	7	17	15	16	13	62
	Female	53	40	19	33	10	7
Total		**60**	**57**	**34**	**49**	**23**	**69**
Province	Siem Reap	44	37	25	32	18	46
	Phnom Penh	2	3	1	8	0	3
	Other	14	17	8	9	5	20
Total		**60**	**57**	**34**	**49**	**23**	**69**
Marital	Married	25	12	14	20	6	43
	Single	35	45	20	29	17	26
Total		**60**	**57**	**34**	**49**	**23**	**69**
Children	Yes	22	10	13	19	5	39
	No	38	47	21	30	18	30
Total		**60**	**57**	**34**	**49**	**23**	**69**
Living	Alone	13	16	6	12	8	51
	W/Family	37	33	17	18	9	14
	Dormitory	10	8	11	17	6	0
	Other	0	0	0	0	0	4
Total		**60**	**57**	**34**	**47**	**23**	**69**

Source: Derived from survey data, 2013
Source: Compiled from survey data 2013. *Legend: SS- souvenir shops; Rest – restaurants; GH – guesthouses; H – hotels; TA – travel agencies; TT – tuk-tuks.

Table-5. Mean Values

Business	Variable					
	ENL	INC	TYS	YEE	HEE	MEE
TT	2.4	193	9.58	2.0	9.17	6.78
SS	2.7	144	12.03	2.2	7.50	11.71
RT	2.8	131	11.80	2.4	9.63	13.78
GH	2.9	170	12.85	3.4	10.15	11.55
TA	3.4	205	13.74	4.0	6.75	11.39
HL	3.6	192	13.14	5.1	14.14	13.78

Source: Calculated using survey data, 2013.

The analysis will first explain mean values. TT drivers had a mean ENL value at 2.4, or high beginner. This of course means they could understand and use words or phrases of everyday relevance with only *slightly* high confidence. The YEE, HEE, and MEE values of TT show that one's ENL is made up of background study including

[1] Similar data tables were used in Morrow, 2015.

speaking experience. The ENL of SS was a slightly higher measurement of 2.7 meaning they had yet slightly more confidence and yet slightly higher ability. TA staff ENL was 3.4 meaning intermediate level. Employees can understand quite a few things and can produce ideas but with broken English containing noticeable mistakes. ENL value of HL staff is 3.6, or *almost* high intermediate level. ENL and INC values examined together show an ascending corresponding order, although there are exceptions. ENL values rise along with INC values; however, two exceptions exist. Those are: 1) TT's and 2) RT's. TT's can be explained by the fact that TT drivers must be enterprising in order to purchase their own TT's, which can cost up to USD1000. They also must generate business ample enough to make an adequate living because they are entrepreneurs. The situation of RT's can be explained by the fact that restaurant employees are probably content in their present restaurant jobs and perhaps see no need to receive higher incomes. Restaurant employees could be in transition jobs as well. Resulting variables of YEE, HEE, and MEE also generally correspond to income according to business type. Interestingly, in this survey situation there were no participants with a mean level of 0 (no ability) for ENL; similarly, no respondents had a mean level of 5 (advanced), meaning that employees had at least *some* degree of understanding. Generally, higher ENL, more YEE, more HEE in school, and a higher MEE helped employees get higher incomes and one could assume more stable positions in TI. This could also be seen in resulting median values (Table 6).

Table-6. Median Values

Business	Variable					
	ENL	INC	TYS	YEE	HEE	MEE
TT	2	200	9	2	6	1.5
SS	3	120	12	2	5	5
RT	3	100	12	3	6	8
GH	3	150	12	3	8.5	12
TA	4	185	12	3	4	8
HL	4	170	12	4	7	9

Source: Calculated using survey data, 2013.

The ascending order of values from lower echelon business to higher echelon business, with the two exceptions mentioned above, was verified in median values (Table 6). The ENL and YEE of RT employees ascend from low to high. HEE and MEE values generally follow the same trend, although some differences within RT and GH participants stand out. This could be due to the fact that RT and GH staff members are content in their jobs and feel no need to find new employment. The author chose to use median values because they are not sensitive to outliers. This solidifies the prediction that ENL values correspond to rises in INC, TYS, and YEE resulting values.

Table-7. SD Values

Business	Variable					
	ENL	INC	TYS	YEE	HEE	MEE
TT	1.01	80.52	2.55	1.21	2.55	10.10
SS	0.92	64.14	3.15	1.59	6.72	20.12
RT	0.88	64.09	3.53	1.13	8.23	15.35
GH	0.90	80.70	2.83	2.31	8.09	11.70
TA	0.70	99.07	2.03	2.26	9.79	14.31
HL	0.76	147.85	2.75	3.68	15.13	15.89

Source: Calculated using survey data, 2013.

Standard deviation (SD) helps researchers determine how far the resulting values are located from the mean (Table 7). ENL values for SD are low and quite close to the mean, indicating that these values are less spread out; however, it is evident that INC values are quite widely spread out. This is mainly due to outliers in the data, which

implies that incomes are quite varied in our sample and many employees earned differing incomes. MEE values are also widely spread. This indicates that employees had differing expenditures for studying English. Slightly high values in TYS, YEE, and HEE, are closer to the mean which helps predict true values.

Table-8. CV Values

Business	Variable					
	ENL	INC	TYS	YEE	HEE	MEE
TT	0.51	0.42	0.27	0.62	0.26	1.49
SS	0.33	0.45	0.26	0.70	0.89	1.72
RT	0.31	0.49	0.30	0.47	0.86	1.11
GH	0.26	0.48	0.22	0.68	0.80	1.01
TA	0.20	0.48	0.15	0.57	1.45	1.26
HL	0.31	0.77	0.20	0.72	1.07	1.15

Source: Calculated using survey data, 2013.

The fit of the model could be explained by using residuals (Table 8) from coefficient of variation (CV), the ratio of the SD to the mean. CV values indicate that the residuals are small, and this in turn indicates a good fit for the model. This also implies that the values are accurate predictions. The results in Table 8 illustrate that the CV values are low which indicates accurate predictions in most of our data. There are exceptions in values for HEE for TA and HL participants. Another exception is found in MEE, where all values are slightly high. This indicates that predictions are inaccurate, a discrepancy that could be accounted for by differentials in HEE and MEE variables. Outliers are also present, a further indication of inaccurate predications. Values of ENL and INC are interesting because the assumption of the author were that there is a relationship between ENL and INC. True impact is evident in the CV values where both ENL and INC are *less than* +1 indicating true predicted values.

Spearman's rank correlation, showing validity of two quantitative variables in a ranked fashion (Table 9), was also calculated. Spearman's was used because it is not sensitive to outliers and therefore it is ideal for this analysis situation. Six variables were examined in correlation tests with INC as the dependent variable and other variables as independent variables. Those were: 1) ENL, 2) TYS, 3) YEE, 4) HEE, and 5) MEE. To determine strength of the resulting values, an incremented system was devised. Values between 1.00~0.90 show a very high positive correlation; those between 0.89~0.70, high positive correlation; 0.69~0.50, moderate positive correlation; 0.49~0.30, slight positive correlation; 0.29~0.10, weak positive correlation; 0.09~0.01, very weak positive correlation.

Table-9. Spearman's Rank Correlation Results, 2013

	Variable				
	INC/ENL	INC/TYS	INC/YEE	INC/HEE	INC/MEE
TT	0.62	0.68	0.64	0.73	0.49
SS	0.80	0.78	0.67	0.78	0.62
RT	0.84	0.83	0.84	0.75	0.58
GH	0.45	0.63	0.82	0.70	0.62
TA	0.65	0.69	0.54	0.64	0.45
HL,	0.80	0.79	0.79	0.56	0.58

Source: Calculated using survey data, 2013.

Correlation values in Table 9 for INC/ENL within SS, RT, and HL participants were all *high positive*, as were values for INC/TYS within SS, RT, and HL. *High positive correlation* values were also found for INC/YEE within RT, GH, and HL. Other values within TT, SS, RT, and GH participants all correlated positively for INC/HEE. Of

the resulting values no high positive correlations were found in INC/MEE. The values ranged from *slight positive* correlation in TA and TT to *moderate positive* correlations within SS, RT, GH and HL participants.

In Fig. 2, the ECA ability of SR TI employees from the 2013 survey is offered. Of the total sample strata of 292 participants, 103 (35%) could communicate in *short sentences* only, and with *broken English* and *low confidence*. Of the total, 84 (29%) could explain things in *more detail* with *some confidence*; 71 respondents (24%) could explain *a lot* in English and had confidence but made *many mistakes*. Of the total, 31 respondents (11%) could only communicate *using simple words*. On the upper spectrum, only 3 respondents (1%) could understand and communicate *everything fully and confidently* at a 100% level. The implications for the outcomes of this study are that the outcomes could help researchers know more deeply the English communication problems of the TI as a whole, and therefore could help English program administrators create effective large-scale English learning situations for TI employment.

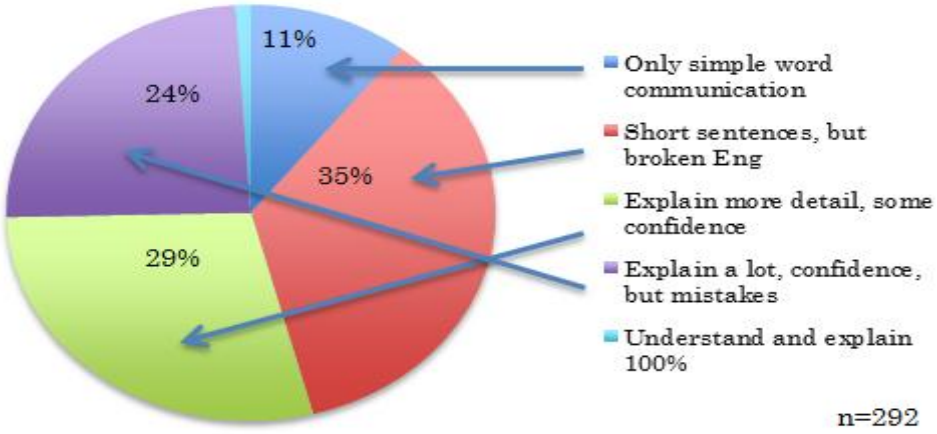

Fig-2. ECA Ability of SR TI Employees, 2013
Source: Calculated from survey data, 2013.

5. DISCUSSION

The author assumed that higher ENL generally corresponded to higher INC within all participants. This assumption was verified with two exceptions, as seen earlier. One exception was the result of the ENL and INC differential of TT driver participants. Here, the ENL is the *lowest*. However, the INC is 2nd from highest, different from the author's estimation, and therefore not completely substantiated. The resulting values could be explained by the fact that TT's are owner-operated and do not have typical working situations. TT drivers mainly work their own hours and probably learn most English through use on the job. TT participants' ECA is low and limited to utterances of memorized words and phrases only. The author found through survey work that many TT drivers could not carry on informative conversations; however, they *have* become adept at attracting customers to make their livings, hence receiving high salaries. Another exception was that RT participants have the lowest INC, but 2nd from lowest ENL, differing from the author's previous surveys in which an ascending order of both ENL and INC was found. However, this did not hold true in the 2013 survey, but this could be due to the fact that restaurant employees are in high turnover positions and are temporarily satisfied. Therefore, they do not seek income raises or new jobs. Another discrepancy was found in GH participants who had the *most hours of English education per week* and *spent the most money per month studying English* according to median values, a fact which the author did not predict. This value indicates that GH participants were generally happy in their employment. Therefore, they were probably not interested in seeking higher incomes or new employment.

The results of the simple statistical tests confirm that there is a positive impact from having a higher ENL, more years and hours of English education, and studying English on one's own monthly, even though causation cannot be proved. The two variables ENL and INC, which constituted the underpinnings of the author's research,

had values that were close to the author's predictions. In addition, the Spearman's rank correlation test results verified that many correlations were high positive correlations or at least moderate positive correlations, giving further strength to the author's hypothesis. It must be said the author intended to undergo this study in order to focus on the whole population, not just a small sample of the population. As such, larger participant and sample determination techniques were used as a means for other researchers to further explore and analyze ENL among TI employees in other developing countries' TI situations. This can help English program administrators create more effective study situations for those in TI on a widespread basis. In turn, this will help the young labor force in SR obtain better employment and higher incomes globally.

6. ENGLISH EDUCATION AND ECONOMIC ANALYSIS

A major goal of this study was to incorporate ECA into economic analysis for the purpose of examining ENL in TI communication as a means for reducing poverty. Although the fields are quite different, there are many studies on education and economic development, as well as on income and English ability that use less than accurate ENL assessments. As such, there is a link between education and economic development; however, there are still very few studies on *English education* and development economics in TI, especially those regarding English *ability*. A few studies do try to connect English ability with economic development using census data rather than surveys as bases for their work. In this study however, the author tried to verify the role of ECA in income through an examination of years and hours of English education, money spent on English study per month, and respondents' use of English per month. There have been no studies on ECA that have successfully tried to integrate English ability into economic development and income. Previous thinking is that the two are linked where English is used only as a descriptive tool. However, through this study there is evidence that English communication can be used as a true variable in statistics much like education. This can illustrate much about the nature of human capital, development economics, and income.

7. CONCLUSION

A positive relationship between ENL, YEE, HEE, MEE and INC in SR TI was verified through this statistical analysis. High positive and moderate positive correlations of income and English level, years of English education, and hours of English education were shown in the Spearman's rank correlation results. This study attempted to approach the question of English assessment in economic analysis quantitatively rather than qualitatively to be able to test the ECA assessment levels numerically with statistical measures. By doing this, it was hoped their outcomes could be easily realized. Interpretation of numeric data is often difficult; however, this study attempted to obtain a stronger authentication of English as a numeric variable. This study, although a pioneer one, has offered a new method for numerically assessing languages in a large population. Numerical outcomes of variables can help researchers know the exact situation among a large population more thoroughly, and therefore, be able to study the population more concretely. It can also assist in understanding socioeconomic and educational situations in large populations to create better solutions in the long run. The method created here helped to procure accurate ECA assessments in the field rather than to simply rely on self-reporting in census data. Other possible problems could be subjective assessments by the evaluator and numerical values that are used as proxies for English ability such as test scores.

Gathering ECA and other data, self-reported or otherwise is not an easy endeavor. However, the author attempted to use an existing assessment tool to create a new kind of numeric assessment for use in SR TI survey work. This survey was able to obtain more accurate assessments and was much more reliable than data found in self-reporting. However, several limitations were evident. One limitation is that the author's assessment presented

here could be too simple to gather accurate data. Another limitation is subjectivity among the evaluators. In this data, fortunately the evaluators were able to come to a consensus regarding each subjects' ability, although the assessment process was laborious. Perhaps a better method of assessment could be to make a larger scale with more minute, precise, and quantifiable variations of language ability, or to include more information on the rubrics for judgment. Yet another better method is to use the assessment for various elements of English assessment: fluency, grammar, and pronunciation, for example. Evidence of the influence of ECA as a variable in economic analysis has been lacking until this study. Although limitations existed, it can be said a large step has been taken to integrating English communication ability and development economics. One purpose of this study was to offer the impetus for other researchers to use this system or modify it for further create improved tools of language assessment. Researchers could use such tool to study large populations to tackle the problem of economic development through language. Such endeavors will enable both linguists and economists to link English communication ability and development economics with more accuracy.

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