

Economic returns to Thai language skills among unskilled Myanmar migrant workers

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Abstract:

Based on the large-scale survey on Myanmar migrant workers in Thailand, we examine the determinants of the migrants' Thai language proficiency and its effects on their earnings. Age at migration, duration of stay in Thailand, years of schooling in Myanmar, and education in Thailand have statistically significant effects on their language proficiency, which are consistent with findings in the existing literature. By stark contrast to the existing empirical studies, however, our earnings regressions which include work sector dummies indicate that effects of Thai language skills on the earnings of the unskilled workers are generally small or insignificant. Nonetheless, the employers in the services sector are found to have rewarded unskilled migrant workers' Thai language skills with higher remuneration.

Keywords: unskilled migrant workers, language, earnings regression, Myanmar, Thai language

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1. Introduction

Myanmar migrants turn out to be an indispensable source of unskilled laborers for the Thai economy. The Thai Ministry of Labor reported that there are approximately 1.43 million documented Myanmar migrant workers as of May 2016. In addition to them are undocumented migrants. Both documented and undocumented migrants are employed as unskilled laborers which are often described as dirty, dangerous, and demanding jobs.

We investigate the economic assimilation of Myanmar migrant workers into the Thai economy by asking two questions. First, what migrant characteristics or behaviors are associated with their acquisition of Thai language skills? Second, do Thai language proficiency raise their earnings? Through these two questions, we explore if unskilled migrant workers can improve the labor market outcomes by investing in the acquisition of the Thai language skills.

There is a growing body of literature about migration that analyzes the economic returns to proficiency in the host country language (Chiwick and Miller 2015). The bulk of existing studies examined migrants in English speaking developed countries such as the United Kingdom and the United States. The existing studies find that the language skills raise the migrants' earnings by 10 to 20 %. Several studies analyze the returns to English language proficiency in developing countries, including the empirical analyses on India (Azam et al. 2013) and Turkey (Di Paolo and Tansel 2015).

We contribute to the literature by examining the unique case of the Myanmar migrant workers in Thailand. According to the World Bank, Thailand is an upper middle-income country with the per capita income of USD 6,593, whereas Myanmar is a lower middle-income country with USD1,298.⁴

Thailand is a non-English speaking country, and Myanmar migrants are not usually exposed to the Thai language before their migration. Moreover, the bulk of the Myanmar migrants are unskilled and take low-paid jobs in Thailand. These circumstances make a stark contrast with the existing studies. We are interested in whether conventional findings in the literature that the language skills raise migrants' earnings also apply to unskilled Myanmar migrants in Thailand.

This paper is structured as follows. Section 2 briefly overviews the flow of Myanmar migrant workers to Thailand and the international migration policy of the Thai government. Section 3 describes the data. This study draws on the survey by the Mission in Thailand of the International Organization for Migration and the Asian Research Center for Migration at Chulalongkorn University (hereafter IOM-ARCM survey) conducted in 2013 which comprises 5,027 observations on the socio-economic conditions of Myanmar migrants in Thailand. Section 4 analyzes the determinants of migrants' Thai

⁴ These figures are in the current US dollar in 2017.

language proficiency. Section 5 analyzes the effects of language skills on migrants' earnings. Section 6 summarizes the analysis and offers concluding remarks.

2. Backgrounds of the flows of Myanmar unskilled migrants to Thailand

Thailand has been attracting large flows of unskilled migrant workers from neighboring countries, particularly Myanmar. Before 2003, the Thai Government did not allow unskilled migrants from the neighboring countries—Cambodia, Lao People's Democratic Republic, and Myanmar—to live and work in Thailand. However, the international migration policy of the Thai government had been ambiguous. While unskilled migrant workers stayed in irregular status in terms of the Thai immigration law, they were issued work permits when they registered at the government offices. In the registration campaign by the Thai Ministry of Labor, 829,573 migrants from these neighboring countries received work permits in 2004, of which 74 percent were from Myanmar (Pholphirul and Rukumnuaykit 2010). An estimate of the number of migrants from these three countries in 2013 was 2.67 million people, of which the majority comprised Myanmar migrants (Huguet 2014). Among them, 1.08 million migrants were with work permits, and 1.59 million were undocumented.

Two driving forces of migrant flows from Myanmar to Thailand have been (1) the vast disparities in unskilled workers' wages in the two countries and (2) the demand for unskilled laborers in Thailand. First, there has been a wide gap between the wage levels of the two countries. In Myanmar, the minimum wage law was legislated in March 2013, and the first daily minimum wage was set at MMK 3,600 (USD 3) in September 2015 which was applied for the entire country while small enterprises with 15 employees or below were exempted. The minimum wage was raised for the first time in May 2018 to MMK 4,800 (USD 3.6). By contrast, there have been sharp rises of unskilled labor wages in Thailand in recent years. In April 2012, the daily minimum wages in all provinces were raised by nearly 40 percent, with those in Bangkok and seven provinces reached THB 300 (USD 9.7). In January 2013, the uniform daily minimum wage was adopted for the entire country which raised the minimum wage in the provinces to THB 300. As of April 2018, the minimum wages ranged in THB 308–330 (USD9.9-10.6).

Second, due to the rapid economic growth in Thailand, shortage of labor has been a prevalent problem among Thai firms. Based on Thailand's firm-surveyed data in 2004 and 2007, Pholphirul (2013) illustrates that firms in labor-intensive industries, such as food processing and garment, faced a chronic shortage in labor and often employed migrant workers to fulfill job vacancies. The 2007 survey data shows that 12.1 percent of the total unskilled workforce in the food processing industry were migrant workers. Firms in labor-intensive and low technology industries, irrespective of small, medium or large sizes, tended to employ migrant workers.

Two milestones in the Thai migration policy relating to unskilled migrants from Myanmar are the Memorandum of Understanding (MOU) on Cooperation in the Employment of Workers signed

between the Governments of Thailand and Myanmar in 2003, and the nationality verification (NV) process which started in 2009. These paved the way for Myanmar unskilled migrants to legally stay and work in Thailand for up to four years.

The Thai international migration policy has been employer-driven (Natali et al. 2014). Both the MOU and the NV process were schemes to tag migrant workers to specific employers. The MOU was concerned with sending workers from Myanmar to pre-determined Thai employers. For this scheme, migrants were to enter and work in Thailand in regular status, with a Myanmar passport, a Thai visa, and a Thai work permit. However, it usually took a long time for Myanmar applicants of the scheme to obtain the necessary documents and get a job. The NV process was to regularize the irregular migrants who were already in Thailand, providing a temporary passport from the competent authorities of their home countries, and a Thai visa and a work permit. A drawback of the NV process was that the application had to be made by Thai employers, not by migrants themselves. As both the MOU and NV processes were inflexible and costly, the bulk of new migrants preferred entering Thailand without documents on the one hand, and a large number of existing migrants eventually remained in irregular status on the other hand.

Some Thai employers have utilized Myanmar migrants as a source of cheap laborers. Several cases documented in the literature include the garment industry in a Thai–Myanmar border province (Arnold and Hewison 2005) and the fishery industry (Chantavanich et al. 2016). While the total estimated three million of migrant workers constituted approximately 7% of the total working population of Thailand, some industries with low-paid jobs, such as fisheries and construction, were more dependent on Myanmar migrant workers (IOM and ARCM 2013).

3. Data

We utilize the survey data of IOM and ARCM (2013) which collected data of 5,027 Myanmar migrants in Thailand during 2013. The primary research question of the survey is the prospect of migrants' return to Myanmar, and its key finding is that the majority of the sample migrants were willing to return to Myanmar, though often without a specific time frame. The survey data contains rich information on migrants' economic conditions and human capital formation, in particular, their Thai language skills, which allows us to investigate further the effects of the language skills on their wages.

3.1 IOM–ARCM survey

For a survey to cover the wide geographical distribution of Myanmar migrant workers, a challenge is that there is no data on the population of the migrants in Thailand since many of them are undocumented. In this regard, the IOM-ARCM survey assumes that undocumented migrants are distributed in proportion to the documented ones. Based on the geographical distribution of the

documented migrants in the 2004 registration campaign by the Thai Ministry of Interior, the survey identified seven target provinces for data collection. These seven provinces accounted for 56 percent of the total registered migrants in 2004. The survey then applied the stratified sampling by province, gender, and work sector to replicate the distribution of registered Myanmar migrants in these areas.

Another constraint of the survey is to access migrant workers, especially undocumented ones, given their irregular status in Thailand. To overcome the challenge in data collection, the IOM-ARCM survey team collaborated with twelve non-governmental organizations (NGOs) which had been supporting migrants' human rights and maintained a trustful relationship with them. Due to the snowball sampling, however, the sample does not necessarily represent the entire population of Myanmar migrant workers in Thailand.

3.2 Migrants in border and non-border provinces

The survey covers three non-border provinces and four border provinces. The names of the provinces and their shares in the total sample are as follows; non-border provinces are Bangkok (33%), Samut Sakhon (24%), and Surat Thani (7%), while border provinces are Chiang Mai (14%), Kanchanaburi (4%), Ranong (7%), and Tak (12%).

Major employment sectors of migrant workers differ substantially among these provinces. Bangkok is the metropolitan area where migrant workers are often employed in factories, services, and domestic work (e.g., housemaids). Samut Sakhon is in the vicinity of Bangkok and has the large fishery and seafood processing industries in Maha Chai town, in addition to various factories. Surat Thani is an agricultural province where principal crops at the time of the survey included rubber and oil palm. Regarding the four border provinces, except for Chiang Mai, migrants were mostly employed in the primary industry including agriculture, animal husbandry, and fisheries.

Differences in the profiles are notable between migrants residing in Bangkok and its vicinity (Samut Sakhon) and those in the other provinces. Table 1 below contrasts the profiles of the migrants in two groups. First, the sample migrants residing in Bangkok and Samut Sakhon tended to be younger and have been staying in Thailand for a shorter period than those in the other provinces. The average age of the sample migrants in Bangkok and Samut Sakhon is 28.7 years old, and the average duration of stay in Thailand is 5.6 years, whereas the corresponding figures for those in the other provinces are 33.8 years old and 8.1 years, respectively.

Table 1 Comparison of sample migrant workers in Bangkok/Samut Sakhon and other provinces

	Bangkok and Samut Sakhon		Other provinces	
	No. of observations	Average	No. of observations	Average
Age: average (years)	2,650	28.7	1,987	33.8
Age: average when migrating to Thailand (years)	2,650	23.0	1,987	25.8
Duration of stay in Thailand (years)	2,650	5.6	1,987	8.1
Earnings: average monthly income (THB)	2,504	8,993	1,836	7,053
Dummy: marital status: married	2,650	0.49	1,987	0.71
Dummy: married, and living together with spouse	1,298	0.86	1,412	0.94
Dummy: having children below age 15, and living together with them	876	0.36	987	0.68
Dummy: no formal education	2,650	0.11	1,987	0.32
Dummy: Thai language listening, fluent	2,650	0.16	1,987	0.13

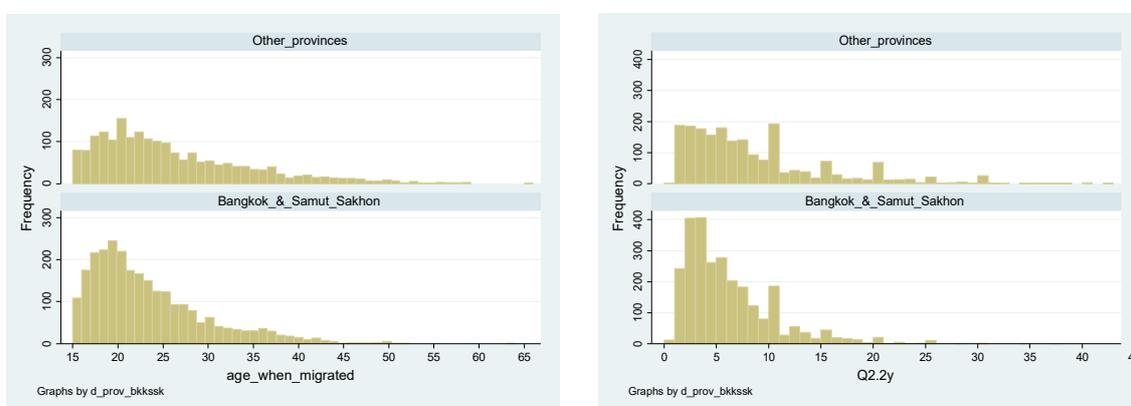
Source: IOM-ARCM survey

The transition between the two groups—migrants moving to Bangkok after having worked in border provinces—might not be so prevalent. Figure 1 shows the distribution of the migrants' age at their arrival in Thailand as well as their duration of stay in Thailand. For the Bangkok and Samut Sakhon group, the distribution of the age at migration is skewed to the left, whereas that for the other provinces group is rather flat. Likewise, for the Bangkok and Samut Sakhon group, the distribution of duration of stay in Thailand is skewed to the left, whereas that of the other group is rather flat for the duration up to five years.

Figure 1 Comparison of age at migration and duration of stay

(A) Age at migration to Thailand

(B) Duration of stay in Thailand

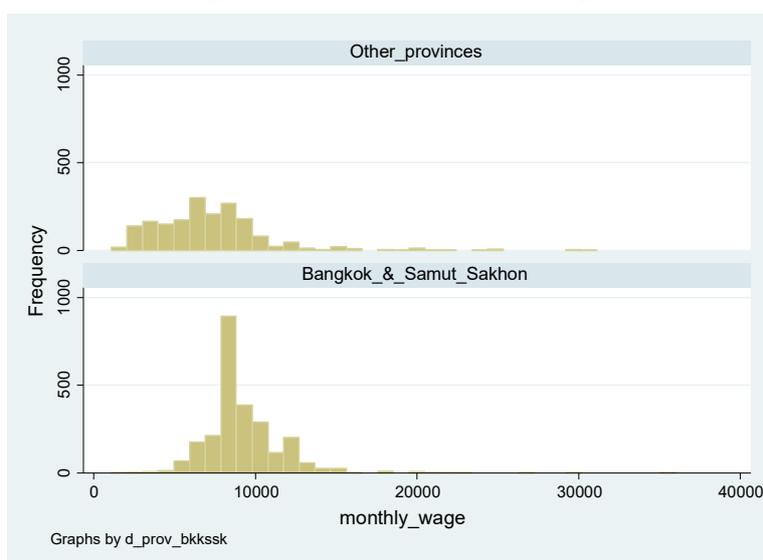


Source: IOM-ARCM survey

Furthermore, the proportion of the migrants living with their family is higher in the other provinces group than that of the Bangkok and Samut Sakhon group. Table 1 shows that, in the other provinces group, 71% are married, of which 94% lived together with their spouse. When they had children ages below 15 years, 68% of them lived together in Thailand. By contrast, in the Bangkok and Samut Sakhon group, the proportion of married migrants was 49%, of which 86% lived together with their spouse in Thailand. When they had children ages below 15 years, only 36% of them lived together in Thailand, while the rest left their children in Myanmar.

Finally, the migrants in the other provinces, in general, earned a less income than did those in Bangkok and Samut Sakhon. An average monthly income of the sample migrants in the other provinces group was THB 7,053, whereas it was THB 8,993 for the Bangkok and Samut Sakhon group. Figure 2 contrasts the distribution of monthly incomes of the two groups. Regardless of the uniform daily minimum wage of THB 300 for the entire nation effective from April 2013, a clear wage gap between the two groups is observable. The peak of the monthly incomes distribution for the Bangkok and Samut Sakhon group—THB 8,000 to 8,999—corresponds to this minimum wage. In the other provinces group, the majority of them earned below the minimum wage level. Regarding educational attainment, the sample migrants in the other provinces were lower than those in Bangkok and its vicinity. Furthermore, the proportion of the sample migrants who reported fluent in listening skills of the Thai language was lower in the other provinces group (13%) than in Bangkok and Samut Sakhon group (16%).

Figure 2 Distribution of earnings



Source: IOM-ARCM survey

Overall, the comparison of the migrant profiles implies that the two groups of migrants are heterogeneous. For the subsequent analyses of language proficiency and earnings, if control variables

do not adequately capture different characteristics of these two groups, omitted variables would produce biased results. Therefore, in the rest of this paper, unless mentioned otherwise, we focus on the sample migrant workers in Bangkok and Samut Sakhon and leave the examination of those in the other provinces in another paper.

3.3 Thai language proficiency

The IOM-ARCM survey collected data on migrants' self-reported four skills of the Thai language—listening, speaking, reading and writing. The respondent migrants reported their proficiency in each skill in a ranking system of (1) none, (2) basic, (3) fair, and (4) fluent. Table 2 summarizes the migrants' Thai language skills. The table shows that the majority of the sample migrants have acquired some listening and speaking skills, but their skills in reading and writing were mostly limited.

Table 2 Migrants' self-reported Thai language skills

	Listening	Speaking	Reading	Writing
None	13.6%	17.0%	75.8%	79.1%
Basic	30.5%	30.4%	12.9%	11.6%
Fair	38.4%	37.4%	7.5%	6.4%
Fluent	17.1%	14.5%	2.8%	1.8%
No answer	0.4%	0.7%	1.0%	1.0%
No. of observations	5,027	5,027	5,027	5,027

Source: IOM-ARCM survey

We examine correlation coefficients among these four skills, and between these skills and additional four variables; migrants' education in Thailand, duration of stay in Thailand, their age at migration, and their years of schooling in Myanmar. Education in Thailand refers to various training courses which migrant welfare-supporting NGOs offered to them, including courses of the Thai language, computers, and vocational skills. Observations of both the Bangkok and Samut Sakhon group and the other provinces group are included for this analysis. After dropping the observations with missing values, we use 4,550 observations.⁵

Table 3 summarizes the correlation coefficients and their significance levels. First, among four language skills, listening and speaking skills are highly correlated, and its correlation coefficient is

⁵ The survey's sampling criteria were (1) 15 years and above, (2) born in Myanmar, and (3) staying in Thailand for at least one year. There were 372 observations of the migrants who were 15 years or above at the time of the interview, but whose ages were below 15 years at the time when they migrated to Thailand. These observations include the migrants who were accompanied to Thailand by their family in their childhood and started working later. Since their behavior might be different from those who migrated at the age of 15 years and above, the observations of these minor children at their entry to Thailand were dropped from the analysis in this paper. On the other hand, there are a small number of observations which were staying in Thailand for less than one year. They are included in the subsequent analysis.

0.9031. Likewise, the correlation coefficient between reading and writing skills is 0.8923. Compared with these two pairs, the correlation coefficients for other pairs of language skills are moderate, though significantly different from zero at 1% significance level.

Table 3 Correlation coefficients of Thai language skills

	Listening skill	Speaking skill	Reading skill	Writing skill	Education in Thailand	Duration in Thailand	Age at migration
Speaking skill	0.9032						
	0.000						
Reading skill	0.3779	0.4001					
	0.000	0.000					
Writing skill	0.3227	0.3446	0.8924				
	0.000	0.000	0.000				
Education in Thailand	0.2186	0.2308	0.5474	0.5511			
	0.000	0.000	0.000	0.000			
Duration in Thailand	0.2322	0.2347	0.0343	0.004	-0.0704		
	0.000	0.000	0.023	0.799	0.000		
Age at migration	-0.1969	-0.2162	-0.2028	-0.1926	-0.2245	-0.0539	
	0.000	0.000	0.000	0.000	0.000	0.000	
Years of schooling in Myanmar	0.0401	0.0533	0.1824	0.191	0.2145	-0.1893	-0.1534
	0.007	0.000	0.000	0.000	0.000	0.000	0.000

Note: Dropping observations with missing data, we use 4,550 observations.

Source: IOM-ARCM survey

Second, the migrants' education in Thailand and their duration of stay in Thailand appear to exert impacts on four skills differently. The sample migrants' listening and speaking skills are positively correlated with their duration of stay in Thailand, whereas their reading or writing skills are not statistically significantly correlated with it. By contrast, the dummy variable for having education in Thailand is more highly correlated with reading and writing skills than listening and speaking skills. These suggest that the sample migrants could acquire listening and speaking skills more efficiently through their life in Thailand, but the acquisition of reading and writing skills require some training. At the same time, causality might be reverse in the way that migrants with higher proficiency in reading and writing in the Thai language attended more the training courses in Thailand than did less proficient migrants.

Third, the sample migrants' age at the time of migration in Thailand is negatively correlated with all four language skills. This implies that younger migrants tended to acquire the skills more efficiently than did older ones. Finally, the migrants' years of schooling in Myanmar were positively correlated

with the Thai language skills, particularly reading and writing skills. This implies that the migrants' educational attainment in Myanmar helps them to acquire Thai reading and writing skills efficiently while listening and speaking skills might not require cognitive skills nurtured in the formal education.

3.4 Earnings

Regarding migrant workers residing in Bangkok and Samut Sakhon, we further look into their job choice and monthly wage. We divide the work sectors into six: (1) Fisheries, (2) Factories, (3) Services, (4) Construction (5) Domestic work, and (6) Others. Factories include food processing, garment, and manufacturing. The fisheries sector is known as a low wage sector (Chantavanich et al. 2016).

Table 4 summarizes the number of sample migrant workers in each work sector and their average monthly wage. Among 2,645 migrant workers residing in Bangkok and Samut Sakhon, factories accounted for 56%, followed by the services sector (16%), domestic work (10%), construction (7%), and fisheries (7%). The average monthly wage was the highest in the services (THB 9,196), followed by factories and construction.

Table 4 Work sector and educational attainment of migrant workers in Bangkok and Samut Sakhon

	Total (People)	Work sector					
		Fisheries	Factories	Services	Construct- ion	Domestic work	Others
Average monthly wage (THB)		8,370	9,142	9,196	9,133	8,714	7,973
Frequency (People)	2,433	161	1,351	387	169	251	114
Education category		% of education category					
No formal	265	12%	49%	15%	8%	8%	8%
Primary school	834	9%	56%	14%	11%	6%	5%
Middle school	858	5%	56%	16%	6%	13%	4%
High school	396	2%	60%	19%	3%	12%	4%
University	80	0%	55%	38%	0%	28%	5%
Total	2,433	7%	56%	16%	7%	10%	5%

Note: Samples with missing data are dropped.

Source: IOM-ARCM survey

We describe how the migrants' work sector differ by their educational background. First, we classify the migrants' educational attainment in Myanmar into five categories: (1) no formal education, (2) primary school, (3) middle school, (4) high school, and (5) university. Then, we illustrate the distribution of sample migrants' work sectors by educational background. For example, 265 sample migrants did not have formal education in Myanmar; 12% of them worked in the fisheries sector, 49% in factories, 15% in services.

We can note several observations. When we compare the migrants in lower educational categories with those in higher ones, the share of the fisheries sector was relatively high. Likewise, migrants in higher educational categories tended to keep away from the construction sector despite its relatively high average wage. Domestic work, though lower wages, was more populated by the migrants of higher educational background. As a whole, the distribution of the work sector was considerably different between migrants of different educational background.

Table 5 summarizes the correlation coefficients between dummy variables of migrants' work sector and the variables that describe migrants' characteristics including Thai language skill categorical variables (listening and reading), duration of stay in Thailand, years of schooling in Myanmar, and a categorical variable representing migrants' frequency of job changes in Thailand. For example, the dummy variable for the fisheries takes the value of one if the migrant was working in the fisheries sector, and zero otherwise.

Table 5 Correlation coefficients of work sector choice dummy variables for migrant workers in Bangkok and Samut Sakhon

	Thai language: Listening	Thai language: Reading	Years of schooling in Myanmar	Gender: Female	Duration of stay in Thailand	Frequency of job changes
Duration of stay in Thailand	0.3040	0.1435	-0.1478	-0.0087		
	0.000	0.000	0.000	0.668		
Frequency of job changes	0.2181	0.1703	0.0458	-0.0551	0.2431	
	0.000	0.000	0.024	0.007	0.000	
Work sector dummy: Fisheries	-0.0847	-0.1013	-0.1433	-0.2139	-0.0211	-0.0613
	0.000	0.000	0.000	0.000	0.298	0.003
Work sector dummy: Factories	-0.1497	-0.1132	0.0166	0.0010	-0.0804	-0.1146
	0.000	0.000	0.413	0.959	0.000	0.000
Work sector dummy: Services	0.1781	0.1107	0.0800	-0.0553	0.0939	0.1277
	0.000	0.000	0.000	0.006	0.000	0.000
Work sector dummy: Construction	-0.0225	-0.0588	-0.1098	-0.1273	0.0274	0.0013
	0.268	0.004	0.000	0.000	0.178	0.947
Work sector dummy: Domestic work	0.1253	0.2152	0.1185	0.3148	0.0015	0.0929
	0.000	0.000	0.000	0.000	0.940	0.000
Work sector dummy: Others	-0.0098	-0.0452	-0.0474	0.0449	0.0161	-0.0148
	0.628	0.026	0.019	0.027	0.426	0.465

Note: Dropping observations with missing data, 2,432 observations are used.

Source: IOM-ARCM survey

First, the frequency of job changes is positively and significantly correlated with the language skill categorical variables and the duration of stay in Thailand. However, it might be the case that the duration of stay in Thailand is correlated with both Thai language skills and the frequency of job

change in Thailand, which yields the spurious correlation between the frequency of job changes and Thai language skills.

Second, drawing on the correlation coefficients, we describe the typical profiles of sample migrant workers by work sector. In the fisheries sector, there were more males than females. They were less fluent in the Thai language and had lower educational attainment in Myanmar compared to the migrants in other sectors. They had changed their employers fewer times. These as a whole imply that the fisheries sector was entry-level jobs for unskilled migrants.

Migrant workers in factories comprised both males and females evenly. They were less fluent in the Thai language than those in other sectors. The combination of their shorter duration of stay in Thailand and fewer job changes implies that factories were also entry-level jobs for unskilled migrants.

By contrast, the services sector was more populated by migrants with a longer duration of stay in Thailand who also experienced more job changes. There were more males than females, and they had better skills in the Thai language and higher educational attainment in Myanmar than those in other sectors. We can infer that the services sector absorbed experienced migrant workers from other sectors.

The domestic work sector comprised more female migrants than male. Their duration of stay in Thailand varied among them. They experienced more job changes. They had higher Thai language skills and higher educational attainment in Myanmar than those in other sectors.

All in all, the services sector appears to be a preferred work sector to others for experienced migrants with better Thai language skills and educational background. The domestic work sector was also relatively popular despite lower wages.⁶

4. Determinants of Thai language proficiency

We examine determinants of migrants' Thai language proficiency using logistic regressions. The sample is restricted to the Bangkok and Samut Sakhon group, and the observations with missing values are dropped, which yield the sample size of 2,432 observations. The dependent variables are the migrants' Thai language proficiency in four skills—listening, speaking, reading, and writing. For each skill, we have a categorical variable self-reported by migrants in four ranks: none, basic, fair, and fluent. Instead of the ordinal logistic regression that requires restrictive restrictions on coefficient estimates, we choose the binary logistic regression as our vehicle of analysis. We convert the categorical variables into the following binary variables. One is a dummy variable "Fluent" which takes the value of one only if the language skill categorical variable is fluent and zero otherwise. The other is a dummy variable "Fair or fluent" which takes the value of one when the language skill categorical variable is fluent or fair and zero otherwise.

⁶ In the earnings regressions, we take into account non-pecuniary benefits such as the provision of foods and accommodation by employers. We use a dummy variable representing such benefits as a control variable.

Chiswick and Miller (2015) list three categories of determinants of migrants' proficiency in the host country language. First is exposure to that language, including migrants' family and social environment. Second is efficiency in acquiring that language proficiency, including education, age at migration, and linguistic distance between the home and host country languages. Third is economic incentives. Based on these, we evaluate the impacts of the following variables on the language proficiency; duration of stay in Thailand (mean=5.58 years), age at migration (mean=22.95 years old), years of formal schooling in Myanmar (mean=6.07 years), gender dummy (female=1, n=1,141), dummy for a married migrant living together with the spouse (living together with spouse=1, n=996), dummy for having education in Thailand (having education=1, n=539), and dummy for Shan ethnicity (Shan=1, n=205). Shan is a minority ethnicity in Myanmar, and their language is linguistically close to the Thai.

We summarize the results of logistic regressions in Table 6. Panel (A) of Table 6 summarizes the regression results where the dependent variable is the "Fluent" dummy, while panel (B) does for the "Fair or fluent" dummy. Both panels list the marginal effects at means of explanatory variables except for the dummy variables for which it shows the impacts on the probability by their discrete change from zero to one.

For the regressions with "Fluent" dummy, duration of stay in Thailand, age at migration, and years of schooling in Myanmar have all the expected signs. The duration of stay in Thailand has relatively large impacts on listening and speaking proficiency, whereas it has smaller or insignificant effects on reading and writing skills. One year of extended stay in Thailand increases the probability that a migrant of average characteristics becomes fluent in listening by 1.9% point. Likewise, the age at migration has negative effects on migrants listening and speaking proficiency, implying that the younger migrants could acquire these skills more efficiently than the older ones. By contrast, years of schooling are only associated with reading and writing skills. Higher educational attainment in Myanmar would facilitate migrants to acquire Thai reading and writing skills but only by a small degree.

Regarding the marginal effects of dummy variables, there is no distinct difference between female and male migrants, nor between the migrants living together with their spouse and the others. The education in Thailand has positive impacts on all skills, particularly listening and speaking. The attendants of classes in Thailand are by approximately 10% points more likely to be fluent in listening and speaking compared to non-attendants. Interestingly, being Shan ethnic raises the probability of being fluent in listening and speaking in the Thai language by more than 20% points. However, their writing skill is not statistically significantly different from the other ethnic groups.

While it may be difficult for the migrants to become "fluent" in reading and writing, more migrants have acquired the "fair" level of skills. The logistic regressions with the "Fair or fluent" language skill dummies yield some distinct results. In general, the size of the coefficient is larger in the regression with the "Fair or fluent" dummy dependent variable as the probability that a migrant is either fluent or fair in one skill is higher than the probability of being fluent in that skill.

We contrast how the regression results with the "fair or fluent" dependent variables differ from those

of the "fluent" dependent variables. First, the duration of stay in Thailand has positive and statistically significant effects on reading and writing skills in addition to listening and reading skills. Second, years of schooling is also associated positively with all skills. Third, education in Thailand also helps migrants to improve all four skills in the Thai language. Fourth, Shan ethnic migrants are shown to be more proficient not only in listening and speaking but also in reading and writing than are the other ethnic groups. Finally, the results indicate that the migrants living with their spouse are 2 to 3% points less likely to be fluent or fair in reading and writing the Thai language. Couples of migrants might be less exposed to the Thai society, or they might have less time to study the language themselves at home.

Table 6 Results of Thai language proficiency regression

(A) Marginal effects in regressions with the "Fluent" dummy dependent variables

Dependent variable	Logistic regression marginal effect											
	Listening		Speaking		Reading		Writing					
	1=fluent		1=fluent		1=fluent		1=fluent					
Explanatory variable	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.				
Duration of stay in Thailand	0.0193	***	0.002	0.0174	***	0.002	0.0008	***	0.000	0.0004	*	0.000
Age at migration	-0.0042	***	0.001	-0.0039	***	0.001	-0.0003		0.000	-0.0003	*	0.000
Schooling years in Myanmar	0.0034	*	0.002	0.0029		0.002	0.0006	**	0.000	0.0004	**	0.000
Dummy: female	0.0150		0.014	0.0090		0.013	-0.0047	**	0.002	-0.0018		0.001
Dummy: living with the spouse	0.0267		0.017	0.0291	*	0.015	0.0005		0.003	-0.0012		0.002
Dummy: education in Thailand	0.0983	***	0.022	0.1022	***	0.021	0.0348	***	0.010	0.0118	*	0.006
Dummy: Shan ethnicity	0.2457	***	0.039	0.2274	***	0.038	0.0230	**	0.010	0.0062		0.005
No. of observations	2,432		2,432		2,432		2,432		2,432			
Log likelihood	-915.83		-853.10		-190.95		-116.23					
Wald chi-squared (7)	279.05		285.46		99.92		46.46					
Pseud R-squared	0.1588		0.1690		0.2628		0.2166					

(B) Marginal effects in regressions with the "Fair or fluent" dummy dependent variables

Dependent variable	Logistic regression marginal effect											
	Listening		Speaking		Reading		Writing					
	1=fair or fluent		1=fair or fluent		1=fair or fluent		1=fair or fluent					
Explanatory variable	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.	Coeff.	S.E.				
Duration of stay in Thailand	0.0317	***	0.003	0.0330	***	0.003	0.0077	***	0.001	0.0042	***	0.001
Age at migration	-0.0038	**	0.002	-0.0048	***	0.002	-0.0017	*	0.001	-0.0015	*	0.001
Schooling years in Myanmar	0.0113	***	0.003	0.0101	***	0.003	0.0054	***	0.001	0.0037	***	0.001
Dummy: female	-0.0278		0.021	-0.0105		0.022	-0.0023		0.009	-0.0044		0.008
Dummy: living with the spouse	-0.0039		0.024	-0.0064		0.025	-0.0329	***	0.011	-0.0268	***	0.010
Dummy: education in Thailand	0.1845	***	0.025	0.1874	***	0.026	0.1939	***	0.024	0.1655	***	0.023
Dummy: Shan ethnicity	0.2597	***	0.032	0.3183	***	0.030	0.0941	***	0.026	0.0741	***	0.022
No. of observations	2,432		2,432		2,432		2,432		2,432			
Log likelihood	-1516.1		-1513.3		-687.67		-591.80					
Wald chi-squared (7)	219.37		241.78		321.12		298.73					
Pseud R-squared	0.0871		0.0977		0.2119		0.2155					

Source: IOM-ARCM survey

5. Effects of Thai language proficiency on earnings

We analyze the effect of the migrants' Thai language skills on their earnings. We utilize four sets of dummy variables which describe four language skills—listening, speaking, reading, and writing. In our ordinary least square regression models, the dependent variable is the monthly wage in logarithm. Considering the correlation between four language skills, we put each set of language skill dummies separately in four regressions.

Apart from language skill variables, we put in regressions various control variables relating to the migrants' demographic characteristics, their family structure, duration of stay in Thailand, educational attainment in Myanmar, education in Thailand, their monthly working hours, non-pecuniary benefits in the workplace, and work sector dummies. Regarding the family structure, we differentiate four types of migrants; males not living with dependent children, males living with dependent children, females not living with dependent children, and females living with dependent children. We set males not living with dependent children as the base case and differentiate the other three types by dummy variables. Duration of stay in Thailand in terms of years represents human capital acquired in the host country, whereas years of schooling signify human capital formation in the home country. The education in Thailand is a dummy variable which takes the value of one if the migrant took part in learning courses in Thailand. The monthly working hours represent the intensity of work, which is considered to be an important determinant of the wage levels for unskilled laborers. The provision of foods and accommodation is a dummy variable to control the provision of non-pecuniary benefits.

Table 7 summarizes the results of regressions using the full sample of the migrants residing in Bangkok and Samut Sakhon. Model (1) includes listening skill dummies, and the base case is no listening skills. It indicates that the migrants with basic listening skill earned wages 1.1% higher than those with no listening skill, while the difference is not statistically different from zero. Likewise, the wages of migrants with fair skills and those with fluent skills were higher than the wages of no listening skill migrants by 2.5% and 4.4%, respectively. Their statistical significance levels are 10% and 5%.

Regarding the control variables, we interpret the result of Model (1) as follows. First, a negative and statistically significant coefficient on the age variable suggests that their wages decline as they get older. Second, the gender and family structure did matter significantly on the migrant wages. Female migrants earned 2.9% less than the male counterparts. Moreover, when female migrants lived together with dependent children, their wage was 12.2% lower than the male not living together with children. By contrast, living together with children did not exert a significant effect on males' wages. These suggest that female migrants with dependent children took lower-paid irregular jobs. Third, both duration of stay in Thailand and years of schooling in Myanmar had positive and statistically significant effects on the earnings, but the former had the higher effect than the latter. Besides, the dummy variable for education in Thailand is not statistically significant. Fourth, monthly working hours are positively correlated with the wage level, whereas the dummy variable for the provision of foods and accommodation is negatively correlated with it. This implies that the provision of foods and

accommodation was the substitute for a certain portion of wage. The estimated coefficients on these control variables are consistent in all four models.

Regarding the effects of language skills other than listening, they are mostly statistically insignificant. Overall, the results suggest that the language skills except for listening skills have only modest effects on unskilled labor wages.

Table 7 Results of earnings regressions

Dependent variable: log(Monthly_wage)	(1)		(2)		(3)		(4)	
Explanatory variable	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
Listening: Basic	0.011	0.71						
Listening: Fair	0.025 *	1.65						
Listening: Fluent	0.044 **	2.20						
Speaking: Basic			-0.002	-0.14				
Speaking: Fair			0.004	0.30				
Speaking: Fluent			0.026	1.28				
Reading: Basic					0.018	1.21		
Reading: Fair					0.019	1.04		
Reading: Fluent					0.055 *	1.69		
Writing: Basic							0.022	1.42
Writing: Fair							-0.001	-0.07
Writing: Fluent							0.079	1.55
Age	-0.002 **	-1.97	-0.002 **	-2.06	-0.002 **	-2.11	-0.002 **	-2.12
Male, living with children	0.011	0.46	0.012	0.51	0.014	0.59	0.014	0.6
Female, not living with children	-0.029 ***	-2.75	-0.030 ***	-2.79	-0.028 ***	-2.65	-0.028 ***	-2.65
Female, living with children	-0.122 ***	-4.72	-0.123 ***	-4.73	-0.121 ***	-4.68	-0.123 ***	-4.73
Duration in Thailand	0.008 ***	4.88	0.008 ***	5.10	0.008 ***	5.44	0.008 ***	5.59
Years of Schooling in Myanmar	0.005 ***	3.27	0.005 ***	3.32	0.005 ***	3.18	0.005 ***	3.24
Education in Thailand	0.001	0.07	0.003	0.22	-0.006	-0.36	-0.002	-0.1
Monthly working hours	0.004 ***	6.83	0.004 ***	6.76	0.004 ***	6.79	0.004 ***	6.77
Provision of foods and accommodation	-0.093 ***	-5.37	-0.093 ***	-5.37	-0.093 ***	-5.38	-0.093 ***	-5.38
Working sector dummies	YES		YES		YES		YES	
Constant	8.714 ***	167.21	8.730 ***	166.69	8.729 ***	168.69	8.731 ***	169.23
No. of observations	2,418		2,418		2,418		2,418	
R-squared	0.101		0.100		0.100		0.101	

Source: IOM-ARCM survey

As the effects of language skills on earnings might be different among diverse industries, we estimate the earnings regressions for sub-samples of industries. For this analysis, we pick up the services and factories sectors. For this additional analysis, again, we put four sets of language skill dummies in four regressions separately, and we repeat the same procedure for two sub-sample sets. Table 8 summarizes the regression results. For brevity, we only report the estimated coefficients on language skill dummies.

Table 8 Effects of language skills on earnings by work sector

Work sector	Language skill	Language skill level			No. of obs.	R-sqd	
		Basic	Fair	Fluent			
Services	Listening	Coef.	-0.004	0.060	0.142 **	383	0.1157
		t-value	-0.05	1.01	2.25		
	Speaking	Coef.	-0.012	0.070	0.140 **	383	0.1183
		t-value	-0.18	1.27	2.34		
	Reading	Coef.	0.082 **	0.099 **	0.195 **	383	0.1086
		t-value	2.07	2.39	2.49		
	Writing	Coef.	0.104 ***	0.061	0.202 **	383	0.1092
		t-value	2.62	1.41	2.17		
Factories	Listening	Coef.	-0.012	-0.007	-0.034	1347	0.1415
		t-value	-0.67	-0.38	-1.31		
	Speaking	Coef.	-0.022	-0.017	-0.046 *	1347	0.1425
		t-value	-1.31	-1.02	-1.71		
	Reading	Coef.	-0.014	0.013	0.034	1347	0.1411
		t-value	-0.77	0.6	0.95		
	Writing	Coef.	-0.004	0.021	-0.011	1347	0.1404
		t-value	-0.22	0.85	-0.22		

Source: IOM-ARCM survey

The estimated effects of language skills on earnings differ notably between the sub-samples of the services and factories sectors. Regarding the services sector, in stark contrast with the results of regressions using whole observations, the "fluent" dummies for all four skills exert statistically significant impacts on migrants' earnings. Furthermore, the size of the coefficients on reading and writing are higher than those on listening and speaking, implying that acquisition of reading and writing proficiency is more rewarding in the services industry. Those migrants who reported fluent in reading or writing earned approximately 20% higher wages compared to those who reported having no skills. As far as listening and speaking skills are concerned, the effects of the "basic" and "fair" level

skills are not statistically significantly differentiated from zero. On the contrary, for reading, all levels from "basic" to "fluent" have statistically differentiated impacts with each other on earnings.

There are two possible interpretations of the effects of reading and writing skills on earnings in the services sector. One is that the migrants used reading and writing skills in their jobs so that their employers rewarded them with higher wages. The other interpretation is that the self-reported listening and speaking skills were overstated and that the self-reported reading and writing skills—more sophisticated skills—reflected more precisely the migrants' actual listening and speaking skills.

For the sub-sample of the factories sectors, estimated coefficients on language skill dummies are mostly insignificant. This suggests that employers in this sector did not reward the migrants' language skills.

6. Conclusion

Based on the large-scale survey on the socio-economic conditions of Myanmar migrant workers in Thailand by IOM-ARCM (2013), we examine the determinants of the migrants' Thai language proficiency and its effect on their earnings. This research is unique in two regards. While the most of existing literature examine migrants to English-speaking developed countries such as the United Kingdom and the United States, we examine the case of migrants from one sending country (Myanmar) to a non-English speaking developing country (Thailand). Furthermore, while the existing literature examines migrants with diverse qualification including white-collar workers, Myanmar migrants in Thailand are concentrated in unskilled jobs. Our research contributes to the literature on international migration and the economics of language.

Regarding the acquisition of Thai language skills, the results are consistent with the existing literature in that the efficiency in learning affects the language proficiency. Migrants' age at migration, years of schooling in Myanmar, and being Shan ethnicity whose language is linguistically close to the Thai, have statistically significant effects on language skills. Duration of staying in Thailand has a positive effect on language proficiency. This can be interpreted in two ways. First, more exposure to the Thai language helps the migrants acquire language proficiency. Second, migrants who stay longer in Thailand for a more extended period make a costly investment in learning English as the cumulative returns from the investment get higher. On the other hand, fewer migrants invested in reading and writing proficiency; as employers perhaps do not give recognition on reading and writing skills in unskilled jobs, migrants do not have the incentive to make a costly investment in the acquisition of these skills.

Regarding the effects of Thai language proficiency on earnings, in sharp contrast to the existing empirical studies that the migrants proficient in the host country language have 10 to 20% higher earnings than non-proficient migrants, effects of Thai language skills on the earnings of Myanmar unskilled workers are generally small or insignificant.

However, migrants' language proficiency might influence on their earnings through their choices of work sector. Unskilled jobs are diverse, ranging from fisheries, factories, construction, domestic work, and services. Thai language proficiency is positively correlated with their employment in the services sector which offer higher wages relative to the other sectors. Furthermore, the earnings regression with the sub-sample of migrants in the services sector shows significantly positive effects of language skills on the migrant earnings. The effects of language skills on the earnings are significant even after controlling the effects of other human capital variables.

The results indicate that the economic assimilation of Myanmar migrant workers through their acquisition of language skills are present at least among those in the services sector. However, the costly human capital investment in the acquisition of Thai language skills is not always rewarding in other unskilled jobs. It may be inefficient to require migrants to have pre-departure training in the Thai language in the official recruitment channel of Myanmar migrant workers under MOU.

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